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272 Innisfil Street

TRAFFIC IMPACT STUDY

Typhon Group Limited

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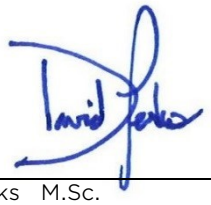	 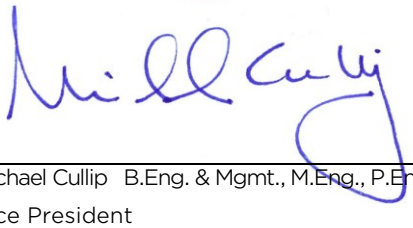
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Issue	Date	Description
1	April 27, 2022	Final Report

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1 Introduction

Tatham Engineering Limited was retained by Typhon Group Limited to address the traffic impacts associated with the proposed residential development to be located at 272 Innisfil Street within the City of Barrie. The location of the development site is illustrated in Figure 1.

1.1 STUDY PURPOSE

The purpose of this study is to address the requirements of the City of Barrie with respect to the potential transportation impacts of the development on the local road network. In particular, the following will be discussed:

- the operations of the road system through the study area prior to the proposed development;
- the growth in the traffic volumes not otherwise attributed to the development (i.e. from overall growth in the area and/or other developments);
- the number of new trips the proposed development is likely to generate;
- the operations of the study area road system upon completion of the development; and
- the resulting impacts and need for mitigating measures (if required) to ensure acceptable overall road operations.

1.2 STUDY STRUCTURE

The report is structured as follows:

- Chapter 1: introduction and study purpose;
- Chapter 2: existing conditions, detailing the road system and corresponding traffic operations;
- Chapter 3: future conditions, prior to the completion of the proposed development (referred to as future background conditions), and the expected growth in traffic levels and the resulting operating conditions;
- Chapter 4: proposed development and associated details including land use, access, traffic volumes and parking;
- Chapter 5: future conditions, with completion of the proposed development (referred to as future total conditions); and
- Chapter 6: summary of the report and key findings.

2 Existing Conditions

This chapter will describe the road network, traffic volumes, and operations for the existing conditions.

2.1 ROAD NETWORK

The road network to be addressed by this study consists of Tiffin Street, Anne Street South, Innisfil Street, Jacobs Terrace, Essa Road, and the following intersections:

- Anne Street South & Tiffin Street;
- Anne Street South & Jacobs Terrace;
- Anne Street South & Essa Road;
- Innisfil Street & Tiffin Street;
- Innisfil Street & Jacobs Terrace; and
- Innisfil Street & Essa Road.

Aerial imagery of the study area and photographs of the road system are provided in Figure 2.

2.1.1 Roads

A brief summary of the roads within the study area road network is provided in Table 1. The functional classification is based on *Schedule D – Roads Plan* of the current *City of Barrie Official Plan*[1]*;* whereas the planning capacity is based on information contained within the *City of Barrie Transportation Master Plan*[2] (TMP). It is noted that the functional road classifications identified in the current *Official Plan* are consistent with those proposed in the draft new *City of Barrie Official Plan 2051*[3] (*Map 4b: Mobility Network)* for the study area road network. The draft new *Official Plan* has been adopted by City Council and has been sent to the Ministry of Municipal Affairs and Housing for approval.

[1] *City of Barrie Official Plan.* City of Barrie, April 2010 (Office consolidated January 2018).
[2] *City of Barrie Transportation Master Plan.* WSP, June 2019.
[3] *The City of Barrie Official Plan 2051.* City of Barrie, January 2022.

Table 1: Road Sections

ROAD	CLASS	CROSS-SECTION	SPEED (KM/H)	CAPACITY (vphpl)	ORIENTATION
Tiffin Street	Arterial	2-lane	50	750	E-W
Anne Street South	Arterial	2-lane/ 5-lane[1]	50	750/ 850	N-S
Innisfil Street	Major Collector	2-lane	50	650	N-S
Jacobs Terrace	Local	2-lane	50	400	E-W
Essa Road	Arterial	4-lane	50	750	E-W[2]

[1] Anne St has a 2-lane cross-section south of the BCRY tracks and a 5-lane cross-section north of the tracks
[2] Essa Road is oriented NE-SW through the area but is considered oriented E-W for this report

2.1.2 Intersections

The configurations and control type for each key intersection within the study area are summarized in Table 2.

Table 2: Key Intersections - Configuration & Control

INTERSECTION	INTERSECTION APPROACH CONFIGURATION				CONTROL
	North	South	East	West	
Anne St. S. & Tiffin St.	left lane thru lane shared TR	left lane thru lane shared TR	left lane shared TR	left lane shared TR	traffic signals
Anne St. S. & Jacobs Terrace	shared LTR	shared LTR	shared LTR	shared LTR	stop control on Jacobs Terrace
Anne St. S. & Essa Rd	shared LT right turn lane	shared LTR	shared LT shared TR	shared LT shared TR	traffic signals
Innisfil St. & Tiffin St.	shared LTR	shared LTR	left lane shared TR	left lane shared TR	traffic signals
Innisfil St. & Jacobs Terrace	shared TR	shared LT		shared LR	stop control on Jacobs Terrace
Innisfil St. & Essa Rd.	shared LT right turn lane	shared LT right turn lane	shared LT shared TR	shared LT shared TR	traffic signals

L: Left T: Thru R: Right

2.2 TRAFFIC VOLUMES

2.2.1 Traffic Counts

To determine existing traffic volumes, traffic counts were conducted at the key intersections along Tiffin Street and Essa Road on Thursday March 10, 2022, from 07:00 to 10:00 and 15:00 to 18:00. The observed volumes are illustrated in Figure 3 with detailed count sheets provided in Appendix A.

For the intersections of Innisfil Street and Anne Street South with Jacobs Terrace, turning movements to/from Jacobs Terrace were obtained from traffic counts conducted in June 2019. While the count data is dated, the resulting volumes are considered reflective of existing conditions on Jacobs Terrace recognizing that it is a local road that is not subject to considerable year over year growth. The 2022 traffic volumes observed on the south legs of Anne Street and Innisfil Street at Tiffin Street were carried south through their respective intersections with Jacobs Terrace.

2.2.2 Adjustments

Upon analyzing the observed PM peak hour traffic volumes, a significant discrepancy was identified in the northbound volumes along Anne Street South between Essa Road and Tiffin Street. During the PM peak hour approximately 330 vehicles entering Anne Street at Essa Road drop from the network prior to Tiffin Street. While volume variations between intersections are not uncommon depending on the level of mid-block development and/or street connections, the magnitude of the observed variation along Anne Street South is not justified by existing mid-block development levels.

In comparing the 2022 observed volumes at Anne Street South and Essa Road with historical counts from 2019, adjusted to reflect 2022 conditions (assuming 2% annual growth as per the City's traffic model), the eastbound left turn volume from Essa Road to Anne Street South is approximately 67% greater than the projected volume. In addition, the eastbound through volume on Essa Road is approximately 60% higher than the projected 2022 volumes. The volumes for the remaining movements at the intersection were comparable with the adjusted data, with increases in line with expected growth. For ease of reference, the 2019 and resulting 2022 projected volumes are illustrated in Figure 4.

Given the increase in through volumes on Essa Road, the volumes at the intersection of Innisfil Street with Essa Road were also reviewed in context of the historical data. The eastbound left turn and eastbound through movements exhibited similar patterns, with the 2022 observed volumes approximately 90% and 50% greater (respectively) than the projected 2022 volumes,

whereas the observed 2022 volumes at the remaining movements were comparable with the projected volumes.

In light of the noted discrepancies, a supplementary count was conducted at the intersection of Anne Street South with Essa Road on Tuesday March 29, 2022, during the PM peak hour to confirm the eastbound left turn movement from Essa Road to Anne Street South. The supplementary count identified a PM peak hour volume in the order of 300 vehicles which is relatively comparable to the 2019 volumes and significantly lower than the volumes observed on March 10, 2022. The anomaly in the eastbound volumes on Essa Road was likely caused by an incident on Highway 400 northbound, resulting in increased traffic diverting to Essa Road to bypass the congested area.

In consideration of the above, the observed eastbound left turn and through volumes on Essa Road at Anne Street South and Innisfil Street have been adjusted. The adjustments, which are based on a comparative review of the projected 2022 volumes (i.e. the 2019 volumes adjusted to 2022 conditions) and the observed 2022 volumes, are as follows:

- Anne Street South & Essa Road;
  - eastbound left - 40% reduction
  - eastbound through - 35% reduction
- Innisfil Street & Essa Road;
  - eastbound left - 35% reduction
  - eastbound through - 30% reduction.

The resulting adjusted volumes are illustrated in Figure 5.

2.3 TRAFFIC OPERATIONS

The assessment of existing conditions provides the baseline from which the future traffic operations (both with and without the subject development) can be assessed from. The capacity, and hence operations, of a road system is effectively governed by its intersections. The analysis is based on the 2022 traffic volumes, the existing intersection configuration and control, and procedures outlined in the *2000 Highway Capacity Manual*[4] (using Synchro v.11 software). For signalized intersections, the analysis considers:

- the average delay (measured in seconds);
- level of service (LOS); and

[4] *Highway Capacity Manual.* Transportation Research Board, Washington DC, 2000.

- volume to capacity (v/c) for each signalized movement

For unsignalized intersections, the analysis considers the same metrics but focuses on critical movements only, namely stop controlled movements on the minor road.

With respect to the noted metrics:

- level of service 'A' corresponds to the best operating condition with minimal delays whereas level of service 'F' corresponds to poor operations resulting from high intersection delays (additional details regarding Level of Service definitions are provided in Appendix B); and
- a v/c ratio of less than 1.0 indicates the intersection movement/approach is operating at less than capacity while v/c of 1.0 indicates capacity has been reached.

A summary of the analysis is provided in Table 3 with detailed worksheets provided in Appendix C.

Table 3: Intersection Operations - 2022 Conditions

INTERSECTION, MOVEMENTS & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	v/c	Delay	LOS	v/c
Anne Street S & Tiffin Street	EB L	signal	22	C	0.23	23	C	0.39
	EB TR	signal	30	C	0.60	33	C	0.69
	WB L	signal	27	C	0.03	27	C	0.05
	WB TR	signal	34	C	0.61	40	D	0.74
	NB L	signal	11	B	0.09	16	B	0.25
	NB TR	signal	16	B	0.12	21	C	0.21
	SB L	signal	14	B	0.10	16	B	0.27
	SB TR	signal	17	B	0.12	22	C	0.33
	overall	signal	24	C	0.30	27	C	0.47
Anne Street S & Jacobs Terrace	EB LTR	stop	12	B	0.02	18	C	0.04
	WB LTR	stop	11	B	0.03	13	B	0.05
	NB L	stop	0	A	0.00	1	A	0.01
	SB L	stop	1	A	0.01	1	A	0.02
	EB LTR	signal	5	A	0.29	7	A	0.63

INTERSECTION, MOVEMENTS & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	v/c	Delay	LOS	v/c
Anne Street S & Essa Road	WB LTR	signal	4	A	0.14	4	A	0.21
	NB LTR	signal	31	C	0.22	36	D	0.35
	SB LT	signal	31	C	0.18	38	D	0.46
	SB R	signal	30	C	0.10	34	C	0.18
	overall	signal	9	A	0.30	13	B	0.64
Innisfil Street & Tiffin Street	EB L	signal	4	A	0.03	6	A	0.03
	EB TR	signal	5	A	0.24	9	A	0.43
	WB L	signal	4	A	0.01	6	A	0.02
	WB TR	signal	5	A	0.19	8	A	0.29
	NB LTR	signal	24	C	0.40	25	C	0.66
	SB LTR	signal	24	C	0.46	22	C	0.53
	overall	signal	11	B	0.28	15	B	0.50
Innisfil Street & Jacobs Terrace	EB LR	stop	9	A	0.02	9	A	0.04
	NB L	stop	1	A	0.01	1	A	0.01
Innisfil Street & Essa Road	EB LTR	signal	9	A	0.21	12	B	0.43
	WB LTR	signal	9	A	0.18	9	A	0.29
	NB LT	signal	21	C	0.17	22	C	0.23
	NB R	signal	19	B	0.01	19	B	0.01
	SB LT	signal	22	C	0.26	23	C	0.38
	SB R	signal	19	B	0.02	19	B	0.04
	overall	signal	13	B	0.26	14	B	0.46

As indicated, the key intersections currently provide good overall operations (LOS C or better) with the individual movements operating at LOS D or better. Therefore, no improvements to the network are required to accommodate the existing traffic volumes.

3 Future Background Conditions

This chapter will describe the road network and background traffic volumes expected for the years 2026, 2031, and 2036. The 2026 horizon has been adopted to reflect full build-out of the subject development, whereas the 2031 and 2036 horizons will address longer-tern impacts of the (5 and 10 years beyond build-out).

3.1 ROAD NETWORK

3.1.1 Roads

The City's TMP identifies several road network improvements within the study area to accommodate projected growth within the city, as summarized in Table 4. For the purpose of this study, the proposed improvements to Essa Road, Innisfil Street and Tiffin Street have been considered as complete by the 2026 horizon; whereas the improvements to Anne Street have been considered as complete by the 2031 horizon.

Table 4: Proposed Road Improvements

ROAD	LOCATION		ROAD PLATFORM		TIMING
	From	To	Existing	Proposed	
Anne Street	Tiffin St.	Centre St.	2 lanes	2 lanes + TWLTL	2026-2031
Anne Street	Centre St.	Essa Rd.	2 lanes	4 lanes + TWLTL	2026-2031
Essa Road	west of Anne St.	Tiffin St.	4 lanes	4 lanes + TWLTL	before 2026
Innisfil Street	Tiffin St.	Essa Rd.	2 lanes	2 lanes + TWLTL	as adjacent development occurs
Tiffin Street	Ferndale Dr.	Essa Rd.	2 lanes	4 lanes + TWLTL	before 2026

TWLTL – two-way left turn lane

3.1.2 Intersections

The proposed road section improvements will result in new lane configurations at the key intersections. A summary of the new intersection configurations is provided in Table 5 with changes provided in bold text.

Table 5: Intersection Improvements

INTERSECTION	INTERSECTION APPROACH CONFIGURATION				TIMING
	North	South	East	West	
Anne St. S. & Tiffin St.	left turn lane thru lane shared TR	left turn lane thru lane shared TR	left turn lane **thru lane** shared TR	left turn lane **thru lane** shared TR	2026
Anne St. S. & Jacobs Terrace	**left turn lane** shared TR	**left turn lane** shared TR	shared LTR	shared LTR	2026
Anne St. S. & Essa Rd	**left lane** **thru lane** right turn lane	**left lane** **shared TR**	**left turn lane** **thru lane** shared TR	**left turn lane** **thru lane** shared TR	2031
Innisfil St. & Tiffin St.	**left turn lane** shared TR	**left turn lane** shared TR	left turn lane **thru lane** shared TR	left turn lane **thru lane** shared TR	2026
Innisfil St. & Jacobs Terrace	**left turn lane** shared TR	**left turn lane** **shared TR**	**shared LTR**	**shared LTR**	2026
Innisfil St. & Essa Rd.	**left turn lane** **thru lane** right turn lane	**left turn lane** **thru lane** right turn lane	**left turn lane** **thru lane** shared TR	**left turn lane** **thru lane** shared TR	2026

3.2 TRAFFIC VOLUMES

Background traffic volumes expected for the 2026, 2031 and 2036 horizon years have been determined based on the existing traffic volumes, historical and projected growth, and consideration for other development specific traffic volumes.

3.2.1 Background Growth

The growth rates provided in Table 6 (as derived from the City's current EMME traffic model) have been considered in establishing future background traffic volumes on the study area road network. It is noted that the City's traffic model indicates zero or negative growth on Anne Street South and Essa Road beyond 2031. As such, a minimum growth rate of 0.5% has been applied to these road sections beyond 2031.

Table 6: Annual Growth Rates

ROAD	2022 TO 2031	2031 TO 2041
Anne Street South	2.0%	0.5%
Essa Road	2.0%	0.5%
Innisfil Street	2.0%	1.0%
Jacobs Terrace	1.0%	1.0%
Tiffin Street	4.0%	1.0%

3.2.2 Background Developments

There are several other developments proposed within the study area that will contribute traffic volumes to the road network. The location of each development in relation to the subject site is illustrated in Figure 6; whereas additional development details are provided below.

175 - 199 Essa Road & 50 Wood Street

The site of the former Barrie Fairgrounds (175 - 199 Essa Road) and an adjacent former industrial site (50 Wood Street) are currently undergoing a zoning by-law amendment to facilitate redevelopment of the sites. The proposed development is to consist of approximately 900 residential units, 8,400 m^2 of office space and 3,072 m^2 of ground-floor commercial space. The site will be developed in two phases, with the first phase assumed to be complete by the 2026 horizon, and full build-out of the site expected by the 2031 horizon. The trip generation and trip distribution for the site reflects that provided in the *175-199 Essa Road & 50 Wood Street Urban Transportation Considerations*[5] report conducted in support of the proposed development. Upon full build-out, the site is expected to generate 565 new trips during the weekday AM peak hour and 590 new trips during the weekday PM peak hour. Trip distribution through the study area is illustrated in Figure 7 (Phase 1) and Figure 8 (Phases 1 & 2).

41-43 Essa Road

A large mixed-use development is proposed for 41-43 Essa Road consisting of 1,276 residential apartment units contained in 4 high-rise towers with ground-floor commercial space. The trip generation and trip distribution for the site has been taken from the *41-43 Essa Road Traffic Impact Study*[6] conducted in support of the proposed development. The site is assumed to be

[5] *175-199 Essa Road and 50 Wood Street Urban Transportation Considerations.* BA Group. September 2019.
[6] *41-43 Essa Road Traffic Impact Study*. GHD. September 20, 2021.

50% built-out by the 2026 horizon and fully built-out by the 2031 horizon, upon which it is expected to generate 352 new trips during the weekday AM peak hour and 470 new trips during the weekday PM peak hour. Trip distribution through the study area is illustrated in Figure 9.

17 Jacobs Terrace

A residential development consisting of 565 units contained in two multi-storey towers is proposed for 17 Jacobs Terrace. The trip generation and trip distribution for the site has been taken from the *17 Jacobs Terrace Traffic Impact Study*[7] conducted in support of the proposed development. The site is assumed to be fully built-out by the 2026 horizon. Upon full build-out, the site is expected to generate 159 new trips during the weekday AM peak hour and 187 new trips during the weekday PM peak hour. Trip distribution through the study area is illustrated in Figure 10.

Additional Developments

There are several smaller developments proposed near the study area (164 Innisfil Street and 79 Gowan Street). The trip generation of each development is not expected to be significant (fewer than 10 trips per development during each peak hour) and thus the volumes are assumed to be accounted for in the background growth rates applied to the network.

3.2.3 Background Traffic Volumes

Future background traffic volumes for the 2026, 2031, and 2036 horizon years have been determined based on the existing traffic volumes, noted background growth rates, and additional volumes generated by the identified background developments. The volumes at each horizon are illustrated in Figure 11 through Figure 13.

3.3 TRAFFIC OPERATIONS

The key intersections were again analyzed for each horizon year given the projected background volumes. The intersection configurations reflect the improvements identified in Table 5. The signal timings have been optimized where appropriate to ensure optimal intersection operations are maintained. Results of the operational analyses are summarized in Table 7 through Table 9 with detailed worksheets provided in Appendix D.

[7] *17 Jacobs Terrace Traffic Impact Study*. GHD. August 25, 2021.

Table 7: Intersection Operations – 2026 Background Conditions

INTERSECTION, MOVEMENTS & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	v/c	Delay	LOS	v/c
Anne Street S & Tiffin Street	EB L	signal	25	C	0.30	24	C	0.44
	EB TR	signal	30	C	0.47	31	C	0.57
	WB L	signal	29	C	0.07	29	C	0.08
	WB TR	signal	33	C	0.46	36	D	0.62
	NB L	signal	9	A	0.13	12	B	0.28
	NB TR	signal	13	B	0.13	17	B	0.22
	SB L	signal	11	B	0.11	15	B	0.33
	SB TR	signal	14	B	0.12	21	C	0.36
	overall	signal	23	C	0.24	25	C	0.43
Anne Street S & Jacobs Terrace	EB LTR	stop	14	B	0.03	23	C	0.05
	WB LTR	stop	14	B	0.22	23	C	0.30
	NB L	stop	0	A	0.00	1	A	0.01
	SB L	stop	1	A	0.02	2	A	0.05
Anne Street S & Essa Road	EB L	signal	4	A	0.28	9	A	0.72
	EB TR	signal	6	A	0.20	8	A	0.38
	WB L	signal	7	A	0.00	11	B	0.01
	WB TR	signal	9	A	0.24	15	B	0.38
	NB LTR	signal	34	C	0.25	34	C	0.36
	SB LT	signal	34	C	0.24	36	D	0.47
	SB R	signal	33	C	0.15	33	C	0.22
	overall	signal	13	B	0.29	15	B	0.70
Innisfil Street & Tiffin Street	EB L	signal	4	A	0.03	6	A	0.04
	EB TR	signal	4	A	0.15	7	A	0.27

INTERSECTION, MOVEMENTS & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	v/c	Delay	LOS	v/c
	WB L	signal	4	A	0.02	6	A	0.05
	WB TR	signal	4	A	0.12	7	A	0.17
	NB L	signal	26	C	0.34	22	C	0.34
	NB TR	signal	27	C	0.46	26	C	0.62
	SB L	signal	24	C	0.06	21	C	0.20
	SB TR	signal	27	C	0.51	24	C	0.55
	overall	signal	12	B	0.21	13	B	0.36
Innisfil Street & Jacobs Terrace	EB LTR	stop	11	B	0.08	12	B	0.09
	WB LTR	stop	9	A	0.07	12	B	0.07
	NB L	stop	8	A	0.03	2	A	0.06
	SB L	stop	1	A	0.01	2	A	0.03
Innisfil Street & Essa Road	EB L	signal	12	B	0.13	14	B	0.46
	EB TR	signal	16	B	0.23	18	B	0.38
	WB L	signal	15	B	0.02	17	B	0.06
	WB TR	signal	18	B	0.25	23	C	0.40
	NB L	signal	31	C	0.06	31	C	0.05
	NB T	signal	34	C	0.16	34	C	0.27
	NB R	signal	32	C	0.01	33	C	0.01
	SB L	signal	26	C	0.12	27	C	0.20
	SB T	signal	31	C	0.17	32	C	0.21
	SB R	signal	30	C	0.06	30	C	0.07
	overall	signal	20	B	0.22	22	C	0.40

Table 8: Intersection Operations – 2031 Background Conditions

INTERSECTION, MOVEMENTS & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	v/c	Delay	LOS	v/c
Anne Street S & Tiffin Street	EB L	signal	25	C	0.40	28	C	0.63
	EB TR	signal	30	C	0.54	32	C	0.68
	WB L	signal	29	C	0.08	27	C	0.11
	WB TR	signal	34	C	0.57	36	D	0.68
	NB L	signal	9	A	0.14	13	B	0.34
	NB TR	signal	14	B	0.15	18	B	0.25
	SB L	signal	12	B	0.13	16	B	0.41
	SB TR	signal	15	B	0.14	22	C	0.41
	overall	signal	24	C	0.29	26	C	0.51
Anne Street S & Jacobs Terrace	EB LTR	stop	12	B	0.02	14	B	0.03
	WB LTR	stop	12	B	0.18	15	C	0.19
	NB L	stop	8	A	0.00	9	A	0.01
	SB L	stop	8	A	0.02	9	A	0.05
Anne Street S & Essa Road	EB L	signal	5	A	0.34	15	B	0.80
	EB TR	signal	6	A	0.23	8	A	0.43
	WB L	signal	7	A	0.00	12	B	0.01
	WB TR	signal	9	A	0.30	17	B	0.46
	NB L	signal	33	C	0.16	34	C	0.16
	NB TR	signal	33	C	0.10	36	C	0.25
	SB L	signal	33	C	0.13	36	C	0.33
	SB T	signal	33	C	0.11	34	C	0.23
	SB R	signal	33	C	0.17	36	C	0.24
	overall	signal	13	B	0.33	17	B	0.75

INTERSECTION, MOVEMENTS & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	v/c	Delay	LOS	v/c
Innisfil Street & Tiffin Street	EB L	signal	4	A	0.04	6	A	0.05
	EB TR	signal	5	A	0.19	8	A	0.34
	WB L	signal	4	A	0.02	7	A	0.06
	WB TR	signal	4	A	0.14	7	A	0.21
	NB L	signal	28	C	0.51	24	C	0.52
	NB TR	signal	29	C	0.56	28	C	0.68
	SB L	signal	24	C	0.07	22	C	0.25
	SB TR	signal	29	C	0.57	26	C	0.62
	overall	signal	13	B	0.25	14	B	0.44
Innisfil Street & Jacobs Terrace	EB LTR	stop	11	B	0.08	13	B	0.11
	WB LTR	stop	11	B	0.15	14	B	0.16
	NB L	stop	8	A	0.03	9	A	0.06
	SB L	stop	1	A	0.02	3	A	0.06
Innisfil Street & Essa Road	EB L	signal	11	B	0.17	16	B	0.61
	EB TR	signal	15	B	0.25	19	B	0.44
	WB L	signal	14	B	0.02	17	B	0.07
	WB TR	signal	17	B	0.28	24	C	0.46
	NB L	signal	31	C	0.07	32	C	0.05
	NB T	signal	34	C	0.19	35	C	0.30
	NB R	signal	33	C	0.01	33	C	0.01
	SB L	signal	28	C	0.15	28	C	0.23
	SB T	signal	33	C	0.20	32	C	0.24
	SB R	signal	32	C	0.09	31	C	0.09
	overall	signal	19	B	0.25	23	C	0.52

Table 9: Intersection Operations – 2036 Background Conditions

INTERSECTION, MOVEMENTS & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	v/c	Delay	LOS	v/c
Anne Street S & Tiffin Street	EB L	signal	25	C	0.43	31	C	0.68
	EB TR	signal	31	C	0.56	33	C	0.70
	WB L	signal	28	C	0.08	27	C	0.12
	WB TR	signal	34	C	0.59	36	D	0.70
	NB L	signal	9	A	0.14	13	B	0.36
	NB TR	signal	14	B	0.15	19	B	0.26
	SB L	signal	12	B	0.13	16	B	0.42
	SB TR	signal	15	B	0.14	22	C	0.42
	overall	signal	25	C	0.30	27	C	0.55
Anne Street S & Jacobs Terrace	EB LTR	stop	12	B	0.02	16	C	0.04
	WB LTR	stop	12	B	0.19	16	C	0.20
	NB L	stop	0	A	0.00	9	A	0.01
	SB L	stop	1	A	0.02	9	A	0.05
Anne Street S & Essa Road	EB L	signal	5	A	0.35	18	B	0.81
	EB TR	signal	6	A	0.24	8	A	0.44
	WB L	signal	8	A	0.00	13	B	0.01
	WB TR	signal	9	A	0.30	18	B	0.48
	NB L	signal	33	C	0.17	34	C	0.16
	NB TR	signal	33	C	0.10	36	D	0.26
	SB L	signal	33	C	0.13	37	D	0.34
	SB T	signal	33	C	0.12	36	D	0.24
	SB R	signal	33	C	0.17	36	D	0.25
	overall	signal	13	B	0.34	18	B	0.76

INTERSECTION, MOVEMENTS & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	v/c	Delay	LOS	v/c
Innisfil Street & Tiffin Street	EB L	signal	5	A	0.05	7	A	0.05
	EB TR	signal	6	A	0.20	8	A	0.36
	WB L	signal	5	A	0.03	7	A	0.07
	WB TR	signal	5	A	0.16	7	A	0.22
	NB L	signal	25	C	0.42	25	C	0.54
	NB TR	signal	25	C	0.47	28	C	0.70
	SB L	signal	23	C	0.05	22	C	0.27
	SB TR	signal	26	C	0.48	26	C	0.64
	overall	signal	12	B	0.27	15	B	0.46
Innisfil Street & Jacobs Terrace	EB LTR	stop	11	B	0.09	13	B	0.11
	WB LTR	stop	11	B	0.15	14	B	0.17
	NB L	stop	8	A	0.03	9	A	0.06
	SB L	stop	1	A	0.02	3	A	0.07
Innisfil Street & Essa Road	EB L	signal	11	B	0.17	16	B	0.62
	EB TR	signal	15	B	0.26	19	B	0.45
	WB L	signal	14	B	0.02	17	B	0.08
	WB TR	signal	17	B	0.29	25	C	0.47
	NB L	signal	31	C	0.08	32	C	0.06
	NB T	signal	34	C	0.20	36	D	0.31
	NB R	signal	33	C	0.01	33	C	0.01
	SB L	signal	28	C	0.15	28	C	0.25
	SB T	signal	33	C	0.21	32	C	0.25
	SB R	signal	32	C	0.09	31	C	0.09
	overall	signal	21	C	0.26	23	C	0.53

As indicated, the key intersections continue to provide good overall operations (LOS C or better), with individual movements providing acceptable operations (LOS D or better) through the 2036 horizon. Based on the results of the operational analyses, no additional improvements are required to accommodate the future background conditions.

4 Proposed Development

This chapter will provide additional details with respect to the proposed development, including its location, land-use, site access, trips generated by the development, and assignment of said trips to the adjacent road network.

4.1 SITE LOCATION

The subject site is located at 272 Innisfil Street in the City of Barrie (per Figure 1). The site is approximately 0.7 ha in size and is bounded by Jacobs Terrace to the north, Innisfil Street to the east, 280 Innisfil Street to the south, and 27 Jacobs Terrace to the west.

4.2 LAND-USE & PHASING

The proposed development will consist of a 17-storey residential building containing a total of 333 residential units (15 street-level townhomes and 318 apartment units) and an integrated 4-storey parking podium. The development will be constructed in a single phase with completion anticipated by 2026.

A site plan is provided in Figure 14.

4.3 SITE PARKING

The *City of Barrie Comprehensive Zoning By-law 2009-141*[8] requires that any residential building containing more than 3 dwelling units within the City's Urban Growth Center provide a minimum of 1.0 parking space per dwelling unit. The subject development must therefore provide a minimum of 333 parking spaces (1.0 space/unit x 333 units = 333 spaces). As per the site plan, the development will provide 383 parking spaces (1.15 spaces/unit), thus satisfying the City's parking requirement.

The City's *Zoning By-law* further states that any development requiring more than 4 parking spaces must also provide barrier-free parking spaces. A development requiring a parking provision of more than 100 spaces must provide 1 parking space plus 3% of the required parking spaces as barrier-free parking. In this respect, the site must provide 11 barrier-free parking spaces (1 space + 333 x 3% = 11 spaces). Per the site plan, 13 barrier-free spaces will be provided, satisfying the City's requirements.

[8] *City of Barrie Comprehensive Zoning By-law 2009-141*. City of Barrie. August 2009.

4.4 SITE ACCESS & ON-SITE CIRCULATION

Access to the site will be provided by two accesses – one located along Jacobs Terrace (the north access) and the other located on Innisfil Street (the east access). Each access will be configured to allow full traffic movement into and out of the site. The access to Jacobs Terrace is intended for use by residents and visitors and will provide vehicular access to the parking structure. The access to Innisfil Street will be restricted to use by waste disposal vehicles and delivery/moving trucks only and will not provide vehicular access to the parking structure.

The City's *Zoning By-law* requires driveways and internal aisles to be a minimum of 6.4 metres in width when serving parking spaces oriented 90° to the aisle and/or to be used for two-way traffic operations. As per the site plan, all internal aisles and driveways will maintain the minimum 6.4-metre width required by the City.

A vehicle turning assessment has been completed to illustrate that the parking area and loading area can accommodate the appropriate design vehicles. The turning assessment is illustrated in Appendix E.

4.5 SITE TRAFFIC

4.5.1 Trip Generation

The number of vehicle trips to be generated by the proposed development for the weekday AM and weekday PM peak hours has been determined based on type of use, development size, and trip generation rates per the *ITE Trip Generation Manual*[9]. Based on the proposed development, trip rates for the *multifamily housing – low rise* (ITE land-use code 220) and *multifamily housing – high rise* (ITE land-use code 222) land-uses have been applied (the former rates apply to the street townhouses whereas the latter apply to the apartments). The trip rates and trip generation for the site are summarized in Table 10 and Table 11, respectively.

Table 10: Trip Rates

LAND USE	VARIABLE	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
		In	Out	Total	In	Out	Total
multifamily low-rise (ITE 220)	units	0.11	0.35	0.46	0.35	0.21	0.56
multifamily high-rise (ITE 221)	units	0.07	0.24	0.31	0.22	0.14	0.36

[9] *Trip Generation Manual, 10th Edition.* Institute of Transportation Engineers. September 2017.

Table 11: Trip Generation

LAND USE	UNITS/ SIZE	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
		In	Out	Total	In	Out	Total
street towns	15 units	2	5	7	5	3	8
apartment units	318 units	24	75	99	70	45	115
Total		**26**	**80**	**106**	**75**	**48**	**123**

As indicated, the proposed development is expected to generate 106 trips during the weekday AM peak hour and 123 trips during the weekday PM peak hour.

It is noted that the subject site is currently well serviced by the existing public transit network. Several local bus routes operated by Barrie Transit (Routes 1, 3, 4, 7, and 8) have stops within a 200-metre radius of the site. The site is also situated approximately 500 metres from the Allandale Waterfront station, a transit hub providing regional bus and train service (operated by GO Transit) and interconnections with local transit routes.

The City's *TMP* identifies a city-wide modal split target of 7% public transit and 12% active transportation (walking, cycling, etc.) by 2041. The 2016 *Transportation Tomorrow Survey* (TTS) indicated a modal split of 2% public transit and 9% active transportation. As previously noted, the site is well serviced by existing local and interregional (GO Transit) transit services and thus is positioned to support the City's modal split targets, with the potential to surpass those targets on from a site specific perspective (i.e. modal splits for the site could conceivably be greater than the City wide targets). Should the City's modal split targets be achieved, the gross vehicle trips generated by the site would theoretically be reduced by approximately 19% or greater given the proximity of the site to existing transit services. For the purpose of this study, and to ensure a conservative approach, no modal split reductions have been applied to the trip generation. Therefore, it is assumed that all site-generated trips will be vehicle trips.

4.5.2 Trip Distribution & Assignment

The distribution of new trips generated by the site has been developed based on distribution data provided in the *2016 Transportation Tomorrow Survey* (TTS), which is a comprehensive travel survey conducted in the Greater Golden Horseshoe Area once every five years. As per the *TTS 2016 Data Guide*[10], the 272 Innisfil Street development resides in 2006 GTA Traffic Zone 8502.

[10] *TTS 2016 Data Guide.* Bess Ashby, Research Director. February 2018.

As such, the trip data was filtered to show all trips to and from the respective traffic zone, from which the following distribution was established:

- to/from the north - 64% (56% internal to Barrie, 8% external to Barrie);
- to/from the south - 25% (11% internal to Barrie, 14% external to Barrie);
- to/from the east - 0%; and
- to/from the west - 11% (10% internal to Barrie, 1% external to Barrie).

As indicated, a total of 77% of the trips remain wholly within Barrie, whereas 23% originate from or are destined to areas outside of the City.

Based on the above, and in consideration of anticipated travel routes, the following assignment was applied:

- to/from the north via Anne Street South – 35%;
- to/from the north via Tiffin Street to Bradford Street/Lakeshore Drive – 25%;
- to/from the south via Essa Road/Highway 400 – 25%;
- to/from the east via Tiffin Street – 5%; and
- to/from the west via Tiffin Street – 10%.

The resulting site-generated volumes assigned to the adjacent road network are illustrated in Figure 15.

5 Future Total Conditions

This chapter will address the resulting impacts of the proposed development on the adjacent road network. The following areas are to be addressed:

- operations of the key intersections, including the site access;
- available sight lines at the proposed access points; and
- potential improvements to the study area road network, if necessary.

5.1 TRAFFIC VOLUMES

To assess the impacts of the increased traffic volumes resulting from the proposed development, the site-generated traffic volumes were added to the 2026, 2031, and 2036 background traffic volumes. The resulting total traffic volumes are illustrated in Figure 16 through Figure 18.

5.2 TRAFFIC OPERATIONS

The operations of the key intersections were again investigated considering the total traffic volumes for each horizon year. Additionally, the operations of site access on Jacobs Terrace were analyzed under the noted future conditions. The site access on Innisfil Street was not included in the analysis as it is only intended for use by waste disposal trucks and moving vehicles (i.e. very low and infrequent volumes) and thus will not experience any operational concerns. The results of the operational assessment are summarized in Table 12 through Table 14 with detailed worksheets provided in Appendix F.

Table 12: Intersection Operations – 2026 Total Conditions

INTERSECTION, MOVEMENTS & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	v/c	Delay	LOS	v/c
Anne Street S & Tiffin Street	EB L	signal	25	C	0.30	24	C	0.44
	EB TR	signal	30	C	0.47	31	C	0.57
	WB L	signal	29	C	0.07	29	C	0.08
	WB TR	signal	33	C	0.46	36	D	0.62
	NB L	signal	9	A	0.14	12	B	0.30
	NB TR	signal	13	B	0.15	18	B	0.23

INTERSECTION, MOVEMENTS & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	v/c	Delay	LOS	v/c
	SB L	signal	11	B	0.11	15	B	0.33
	SB TR	signal	15	B	0.13	21	C	0.38
	overall	signal	23	C	0.26	25	C	0.44
Anne Street S & Jacobs Terrace	EB LTR	stop	15	C	0.03	27	D	0.07
	WB LTR	stop	14	B	0.28	24	C	0.38
	NB L	stop	8	A	0.00	9	A	0.01
	SB L	stop	8	A	0.03	9	A	0.08
Anne Street S & Essa Road	EB L	signal	4	A	0.28	9	A	0.72
	EB TR	signal	6	A	0.21	8	A	0.38
	WB L	signal	7	A	0.00	11	B	0.01
	WB TR	signal	9	A	0.25	15	B	0.38
	NB LTR	signal	34	C	0.25	34	C	0.36
	SB LT	signal	34	C	0.24	36	D	0.47
	SB R	signal	33	C	0.15	33	C	0.22
	overall	signal	13	B	0.29	15	B	0.71
Innisfil Street & Tiffin Street	EB L	signal	4	A	0.03	6	A	0.04
	EB TR	signal	4	A	0.15	7	A	0.27
	WB L	signal	4	A	0.03	7	A	0.10
	WB TR	signal	4	A	0.12	7	A	0.17
	NB L	signal	26	C	0.34	22	C	0.34
	NB TR	signal	27	C	0.51	27	C	0.64
	SB L	signal	24	C	0.06	21	C	0.21
	SB TR	signal	27	C	0.50	24	C	0.54
	overall	signal	12	B	0.21	14	B	0.37

INTERSECTION, MOVEMENTS & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	v/c	Delay	LOS	v/c
Innisfil Street & Jacobs Terrace	EB LTR	stop	11	B	0.14	13	B	0.15
	WB LTR	stop	10	B	0.07	12	B	0.08
	NB L	stop	8	A	0.08	9	A	0.08
	SB L	stop	1	A	0.01	2	A	0.03
Innisfil Street & Essa Road	EB L	signal	12	B	0.14	14	B	0.50
	EB TR	signal	16	B	0.23	18	B	0.38
	WB L	signal	15	B	0.02	18	B	0.06
	WB TR	signal	18	B	0.25	23	C	0.40
	NB L	signal	30	C	0.06	31	C	0.05
	NB T	signal	33	C	0.16	35	D	0.27
	NB R	signal	32	C	0.01	33	C	0.01
	SB L	signal	26	C	0.12	27	C	0.20
	SB T	signal	31	C	0.17	32	C	0.21
	SB R	signal	30	C	0.07	31	C	0.07
	overall	signal	21	C	0.22	22	C	0.43
Jacobs Terrace & North Access	WB L	stop	2	A	0.01	3	A	0.03
	NB LR	stop	9	A	0.10	9	A	0.06

Table 13: Intersection Operations – 2031 Total Conditions

INTERSECTION, MOVEMENTS & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	v/c	Delay	LOS	v/c
Anne Street S & Tiffin Street	EB L	signal	25	C	0.40	28	C	0.63
	EB TR	signal	30	C	0.55	33	C	0.68
	WB L	signal	29	C	0.08	27	C	0.12

INTERSECTION, MOVEMENTS & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	v/c	Delay	LOS	v/c
	WB TR	signal	34	C	0.57	36	D	0.68
	NB L	signal	9	A	0.16	13	B	0.37
	NB TR	signal	14	B	0.17	18	B	0.26
	SB L	signal	12	B	0.13	16	B	0.41
	SB TR	signal	15	B	0.14	22	C	0.44
	overall	signal	24	C	0.31	26	C	0.54
Anne Street S & Jacobs Terrace	EB LTR	stop	13	B	0.02	17	C	0.04
	WB LTR	stop	13	B	0.24	16	C	0.25
	NB L	stop	8	A	0.00	9	A	0.01
	SB L	stop	8	A	0.08	9	A	0.09
Anne Street S & Essa Road	EB L	signal	5	A	0.35	16	B	0.80
	EB TR	signal	6	A	0.24	8	A	0.44
	WB L	signal	7	A	0.00	13	B	0.01
	WB TR	signal	9	A	0.31	18	B	0.47
	NB L	signal	33	C	0.16	34	C	0.16
	NB TR	signal	33	C	0.10	36	D	0.25
	SB L	signal	33	C	0.13	37	D	0.33
	SB T	signal	33	C	0.11	36	D	0.23
	SB R	signal	33	C	0.17	36	D	0.24
	overall	signal	13	B	0.33	18	B	0.75
Innisfil Street & Tiffin Street	EB L	signal	5	A	0.04	7	A	0.05
	EB TR	signal	6	A	0.19	8	A	0.34
	WB L	signal	5	A	0.04	7	A	0.12
	WB TR	signal	5	A	0.15	7	A	0.21

INTERSECTION, MOVEMENTS & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	v/c	Delay	LOS	v/c
	NB L	signal	25	C	0.40	24	C	0.51
	NB TR	signal	25	C	0.50	29	C	0.71
	SB L	signal	22	C	0.05	22	C	0.26
	SB TR	signal	25	C	0.45	25	C	0.61
	overall	signal	12	B	0.26	15	B	0.45
Innisfil Street & Jacobs Terrace	EB LTR	stop	12	B	0.16	14	B	0.18
	WB LTR	stop	11	B	0.16	14	B	0.17
	NB L	stop	8	A	0.03	9	A	0.08
	SB L	stop	1	A	0.02	2	A	0.06
Innisfil Street & Essa Road	EB L	signal	11	B	0.18	17	B	0.65
	EB TR	signal	15	B	0.25	19	B	0.44
	WB L	signal	14	B	0.02	17	B	0.07
	WB TR	signal	17	B	0.28	25	C	0.46
	NB L	signal	31	C	0.07	32	C	0.05
	NB T	signal	34	C	0.19	36	D	0.30
	NB R	signal	33	C	0.01	33	C	0.01
	SB L	signal	28	C	0.15	28	C	0.23
	SB T	signal	33	C	0.20	32	C	0.24
	SB R	signal	32	C	0.10	31	C	0.10
	overall	signal	21	C	0.25	23	C	0.54
Jacobs Terrace & North Access	WB L	stop	2	A	0.01	3	A	0.06
	NB LR	stop	9	A	0.10	9	A	0.03

Table 14: Intersection Operations – 2036 Total Conditions

INTERSECTION, MOVEMENTS & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	v/c	Delay	LOS	v/c
Anne Street S & Tiffin Street	EB L	signal	25	C	0.43	31	C	0.68
	EB TR	signal	31	C	0.57	33	C	0.71
	WB L	signal	28	C	0.08	27	C	0.12
	WB TR	signal	34	C	0.59	36	D	0.70
	NB L	signal	9	A	0.16	13	B	0.38
	NB TR	signal	14	B	0.17	19	B	0.27
	SB L	signal	12	B	0.14	16	B	0.43
	SB TR	signal	16	B	0.15	23	C	0.45
	overall	signal	24	C	0.32	27	C	0.56
Anne Street S & Jacobs Terrace	EB LTR	stop	13	B	0.02	17	C	0.04
	WB LTR	stop	13	B	0.24	17	C	0.26
	NB L	stop	8	A	0.00	9	A	0.01
	SB L	stop	8	A	0.03	9	A	0.09
Anne Street S & Essa Road	EB L	signal	5	A	0.36	18	B	0.81
	EB TR	signal	6	A	0.24	8	A	0.44
	WB L	signal	7	A	0.00	13	B	0.01
	WB TR	signal	9	A	0.31	19	B	0.49
	NB L	signal	33	C	0.17	36	D	0.16
	NB TR	signal	33	C	0.10	36	D	0.26
	SB L	signal	33	C	0.13	37	D	0.34
	SB T	signal	33	C	0.12	36	D	0.24
	SB R	signal	33	C	0.17	36	D	0.25
	overall	signal	13	B	0.34	18	B	0.77

INTERSECTION, MOVEMENTS & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	v/c	Delay	LOS	v/c
Innisfil Street & Tiffin Street	EB L	signal	5	A	0.05	7	A	0.05
	EB TR	signal	6	A	0.21	8	A	0.36
	WB L	signal	5	A	0.04	8	A	0.13
	WB TR	signal	6	A	0.16	7	A	0.22
	NB L	signal	25	C	0.41	25	C	0.53
	NB TR	signal	25	C	0.51	29	C	0.72
	SB L	signal	22	C	0.05	22	C	0.28
	SB TR	signal	25	C	0.47	26	C	0.63
	overall	signal	12	B	0.27	15	B	0.47
Innisfil Street & Jacobs Terrace	EB LTR	stop	12	B	0.16	14	B	0.19
	WB LTR	stop	11	B	0.16	14	B	0.18
	NB L	stop	8	A	0.03	9	A	0.08
	SB L	stop	1	A	0.02	2	A	0.07
Innisfil Street & Essa Road	EB L	signal	11	B	0.19	18	B	0.66
	EB TR	signal	15	B	0.26	19	B	0.45
	WB L	signal	14	B	0.02	17	B	0.08
	WB TR	signal	17	B	0.29	25	C	0.47
	NB L	signal	31	C	0.08	32	C	0.06
	NB T	signal	34	C	0.20	36	C	0.32
	NB R	signal	33	C	0.01	33	C	0.01
	SB L	signal	28	C	0.16	28	C	0.25
	SB T	signal	33	C	0.21	33	C	0.25
	SB R	signal	32	C	0.10	31	C	0.10
	overall	signal	21	C	0.26	24	C	0.56

INTERSECTION, MOVEMENTS & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	v/c	Delay	LOS	v/c
Jacobs Terrace & North Access	WB L	stop	2	A	0.01	3	A	0.06
	NB LR	stop	9	A	0.09	9	A	0.03

As indicated, the intersections continue to provide good overall operations (LOS C or better) with each individual movement providing acceptable operations (LOS D or better) through the 2036 horizon under total conditions. It is noted that the operations are comparable to those experience under background conditions, indicating that the site will not have a significant impact on the operations of the road network.

It is further noted that the site access on Jacobs Terrace will provide excellent operations (LOS A).

Based on the results of the analyses, no additional improvements to the road network are required to accommodate the proposed development.

5.3 TURN LANE REQUIREMENTS

Despite the otherwise good operations anticipated at the intersections of Jacobs Terrace with Anne Street South, Innisfil Street and the site access, the need for exclusive left and right lanes at each intersection has been reviewed based on MTO warrants. The review is based on the following:

- MTO guidelines[11] for auxiliary turn lanes at unsignalized intersections;
- a design speed of 60km/h (reflective of the 50km/h posted speed on each road); and
- the projected 2036 total volumes (i.e. the worst-case scenario for the road network).

5.3.1 Left Turn Lanes

For unsignalized intersections on two-lane undivided highways, MTO warrants are based on design speed, advancing volume (i.e. traffic travelling in the same direction as the left-turning traffic), opposing volume (i.e. traffic travelling in the opposite direction as the left-turning traffic), and the percentage of left turning traffic in the advancing volume. This review will not consider left-turning requirements at Anne Street or Innisfil Street as both roads are intended to be

[11] *Geometric Design Standards for Ontario Highways.* Ontario Ministry of Transportation, undated.

reconstructed with a continuous two-way left turn lane by the 2031 horizon (as detailed in Section 3.1).

Based on the MTO warrant criteria for 25% left turns in the advancing volume (at a design speed of 60km/h), a westbound left turn lane on Jacobs Terrace at the north site access is not warranted under 2036 conditions (MTO nomograph is provided in Appendix G).

5.3.2 Right Turn Lanes

MTO guidelines suggest that an exclusive right turn lane be considered where right turning volumes exceed 60 vehicles per hour (vph) and/or impede the operations of through traffic. The right turning volumes at the noted intersections are as follows:

- Anne Street South to Jacobs Terrace – 10 to 13 vph;
- Jacobs Terrace to site access – 12 to 34 vph; and
- Innisfil Street to Jacobs Terrace – 27 to 63 vph.

As noted, the southbound right turn volumes from Anne Street South to Jacobs Terrace and from Jacobs Terrace to the site access are well below the 60 vph threshold. Thus, right turn lanes are not warranted on Anne Street South or Jacobs Terrace.

While the right turn movement from Innisfil Street to Jacobs Terrace marginally exceeds the 60 vph threshold during the PM peak hour, an exclusive right turn lane is not considered necessary recognizing that Innisfil Street, with an assumed planning capacity of 650 vphpl (as noted in Table 1) will be operating at less than 65% of capacity in 2036. Thus, the right turning volumes are not expected to impede through volumes.

5.4 SIGHT LINE ASSESSMENT

The sight line assessment has considered both minimum stopping sight distance and intersection sight distance requirements as per the Transportation Association of Canada's (TAC) *Geometric Design Guide for Canadian Roads*[12]. The minimum stopping sight distance provides sufficient distance for an approaching motorist to observe a stationary hazard in the road and bring their vehicle to a complete stop prior to the hazard; the intersection sight distance allows a vehicle to enter a main road from a side street (or site access) and attain the appropriate operating speed without significantly impacting the operating speed of an approaching vehicle.

The minimum stopping sight and intersection sight distance requirements are provided in Table 15 for a design speed of 60 km/h (reflective of the 50 km/h posted speed limit).

[12] *Geometric Design Guide for Canadian Roads, Chapter 8.* Transportation Association of Canada. June 2017

Table 15: Sight Distance Requirements

POSTED SPEED	DESIGN SPEED	STOPPING SIGHT DISTANCE	INTERSECTION SIGHT DISTANCE	
			Left Turn	Right Turn
50km/h	60 km/h	85 m	130 m	110 m

The available sight distances along Jacobs Terrace and Innisfil Street at the site access locations is illustrated in Figure 19 and summarized in Table 16.

Table 16: Available Sight Distances

LOCATION	AVAILABLE SIGHT DISTANCE			
	North	South	East	West
Jacobs Terrace Access	-	-	65 m	180 m
Innisfil Street Access	160 m	180 m	-	-

With the exception of the sight lines to/from the east along Jacobs Terrace, the available sight lines satisfy the noted TAC requirements. While the sight lines to/from the east at the access on Jacobs Terrace do not satisfy the TAC recommended sight distances, such is not considered problematic recognizing that the sight lines are limited by the termination of Jacobs Terrace at Innisfil Street. Motorists approaching the site access from the east along Jacobs Terrace will be travelling at a reduced speed having just completed a turning manoeuvre from Innisfil Street. Once on Jacobs Terrace, the site access is readily visible to approaching motorists. Similarly, the intersection of Jacobs Terrace with Innisfil Street is readily visible to motorists exiting the site access. The available sight lines provide adequate time for motorists to identify and safely react to the operations of other vehicles.

Based on the above assessment, the available sight lines along Jacobs Terrace and Innisfil Street at the site access points are considered sufficient.

5.5 RAILWAY CROSSING

As per Transport Canada's *Grade Crossing Standards*[13] document, a public grade railway crossing with a design speed of more than 25 km/h should have a minimum spacing of 30 metres between the nearest rail of crossing and the edge of the travelled way of an adjacent road or entrance. With respect to the proposed site access on Innisfil Street, the distance between the edge of the access and the nearest rail of the crossing is approximately 100 metres. Thus, the proposed access location is appropriate. It is further noted that any southbound traffic entering the access from Innisfil Street will do so via a right turn movement. In this respect, access to the site will not cause queuing on Innisfil Street that would otherwise encroach on or impact the existing railway crossing. Regardless, the crossing does include a warning system with flashing lights and gates which mitigates the impact of adjacent intersections or access points on the rail crossing.

5.6 CONSTRUCTION STAGING

5.6.1 Construction Staging

A preliminary construction staging plan has been prepared to illustrate how the construction of the proposed development will temporarily impact the area road network. The staging plan considers trades parking, deliveries, impacts to pedestrian facilities, etc. It is noted that the construction staging plan is considered preliminary and for discussion purposes only. It is recognized that the contractor selected to construct the development may require revisions based on actual construction operations.

The following alterations to the study area transportation network (which includes travel lanes and sidewalks) are recommended to accommodate the construction staging for the proposed development:

1. erect protective covering over the sidewalk on the west side of Innisfil Street from the north limit of the site to the south limit of the site; and
2. erect construction hoarding/fencing across the frontage of the site along Innisfil Street and Jacobs Terrace.

The preliminary construction staging plan is illustrated in Figure 20.

5.6.2 Trades Parking

All reasonable effort will be made to accommodate trades parking on-site; however, recognizing that the construction footprint of the proposed building will limit the space available for parking

[13] *Grade Crossing Standards.* Transport Canada. July 2019

(particularly during the early phases of construction), additional off-site parking will be required. On-street parking along the north side of Jacobs Terrace may be provided through agreement with the City. Alternatively, the developer may seek to enter an agreement with an adjacent landowner to secure additional parking supply.

5.6.3 Construction Access

The site frontage along Innisfil Street will serve as the primary construction access and staging area during construction. This access will accommodate larger construction vehicles and deliveries (i.e. concrete trucks, large scale construction material delivery, etc.) for the duration of construction.

Jacobs Terrace will provide a secondary access and staging area for use by smaller-scale deliveries and trades vehicles.

5.6.4 Impact to Adjacent Properties

The construction staging requirements are not expected to inhibit or prevent access to the adjacent properties and businesses. It is acknowledged that construction hoarding will be required around the site perimeter however, all efforts will be made to ensure access is maintained throughout the construction period.

5.6.5 Pedestrian Movements

Pedestrian movements along Innisfil Street (there is no sidewalk currently along Jacobs Terrace) will be largely unaffected by the construction of the proposed development. The sidewalk along Innisfil Street does not require relocation to accommodate construction activities but will require temporary protective covering be installed for the duration of construction. It is noted that should relocation of the sidewalk be required, there is sufficient space to do so without impacting the existing travel lanes on Innisfil Street.

6 Summary

Proposed Development

This study has addressed the transportation impacts associated with the proposed residential development to be located at 272 Innisfil Street in the City of Barrie. The proposed development consists of a 17-storey, 333-unit building containing 15 street-level townhomes, 318 apartment units and an integrated 4-storey parking podium. Upon completion, the site is expected to generate 106 trips during the weekday AM peak hour and 123 trips during the weekday PM peak hour.

Transportation Impacts

To assess the impacts of the proposed development, the operations of the key intersections within the study area were analyzed under existing conditions (2022) and future (2026, 2031, and 2036) horizon periods. Improvements to the study area road network as proposed in the City of Barrie's *Transportation Master Plan* have been considered in the assessment based on the horizons identified therein.

The results of the operational analyses indicate that the key intersections provide good overall operations (LOS C or better) under existing, background and total conditions, with all individual movements providing acceptable operations (LOS D or better) through the 2036 horizon.

Operations of the site access on Jacobs Terrace were also assessed for each future horizon under total conditions. The access is expected to provide excellent operations (LOS A) through the 2036 horizon.

Overall, the proposed development is not expected to have a significant impact on the study area road network.

Turn Lane Requirements

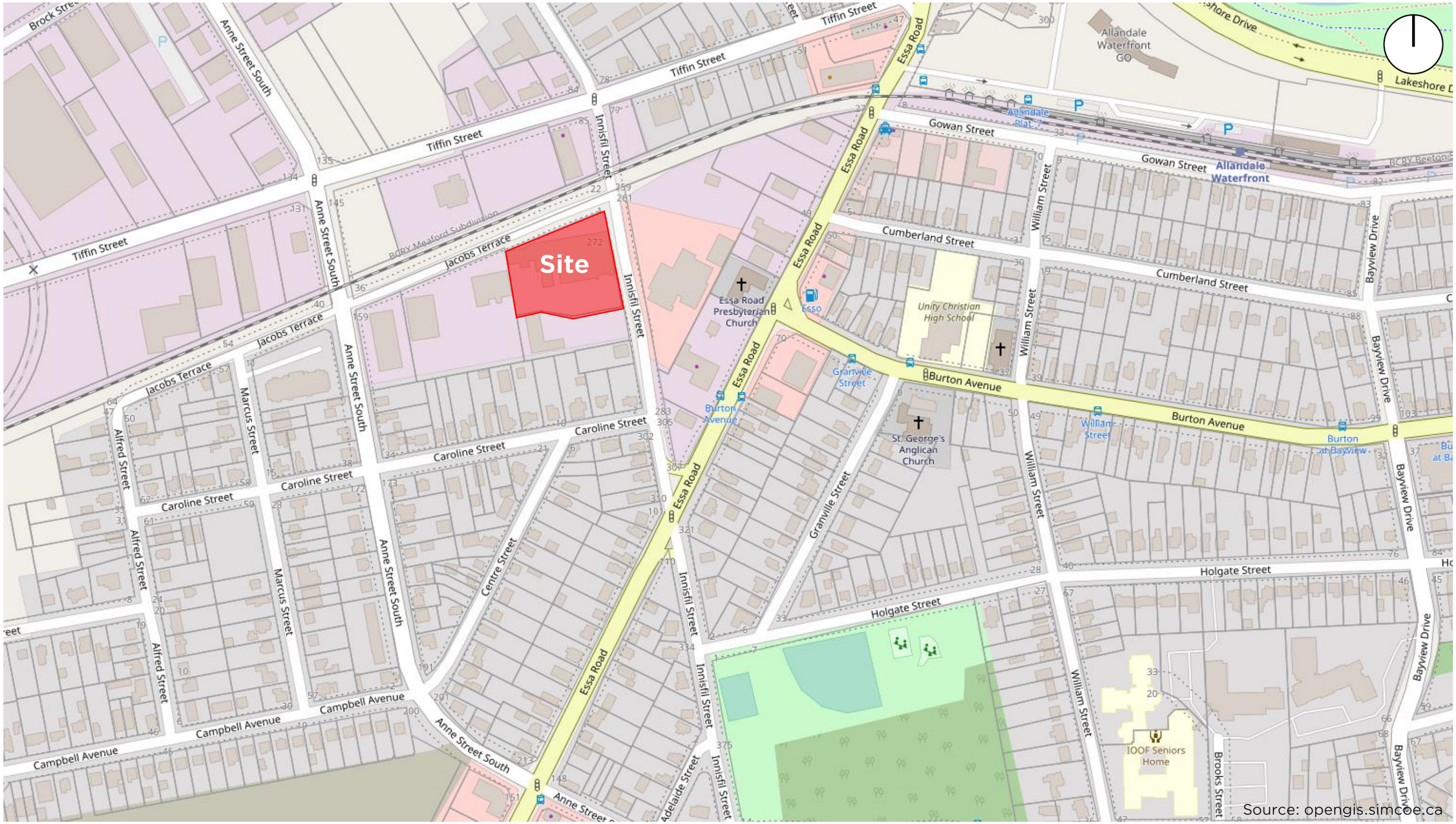
The need for exclusive left and right turn lanes at the three unsignalized intersections along Jacobs Terrace were reviewed in context of MTO warrant criteria. Based on this review, exclusive turn lanes are not considered necessary to accommodate future total traffic.

Sight Line Assessment

Sight lines at each of the proposed site access points were reviewed in context of TAC requirements for minimum stopping and intersection sight distances. Based on the review, the sight lines were found to be acceptable.

Construction Staging Plan

The preparation of a preliminary construction staging plan was undertaken to illustrate how construction of the development will temporarily impact the area road network. The staging plan considers trades parking, construction access, impacts to adjacent properties, nearby roads and pedestrian facilities, and mitigating measures to ensure minimal impacts to the adjacent roadways.



272 Innisfil Street

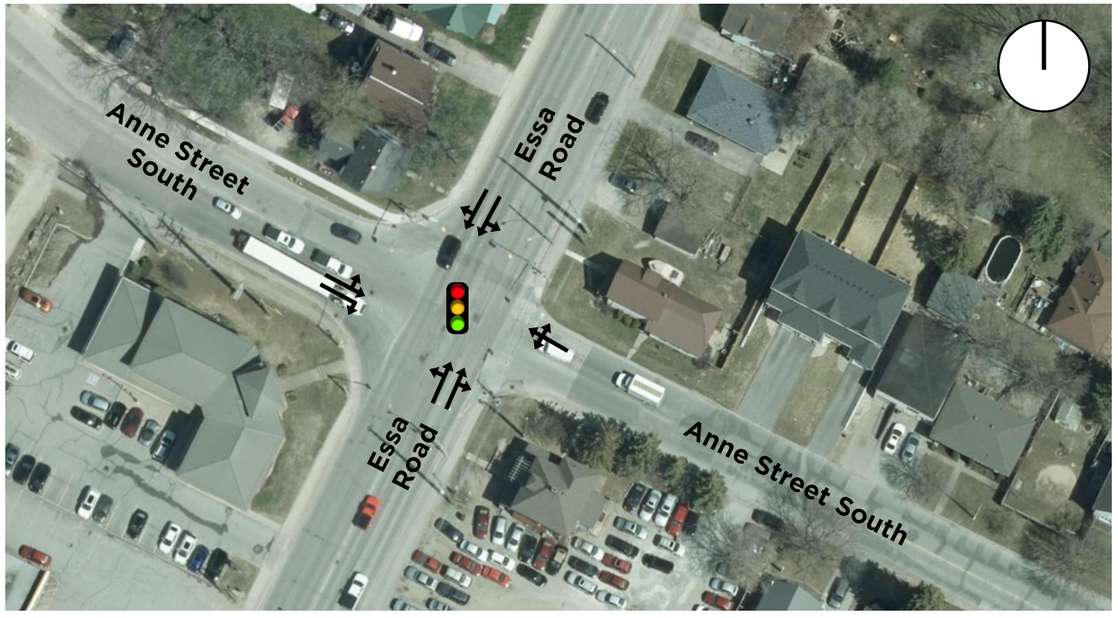
Figure 1: Site Location

272 Innisfil Street

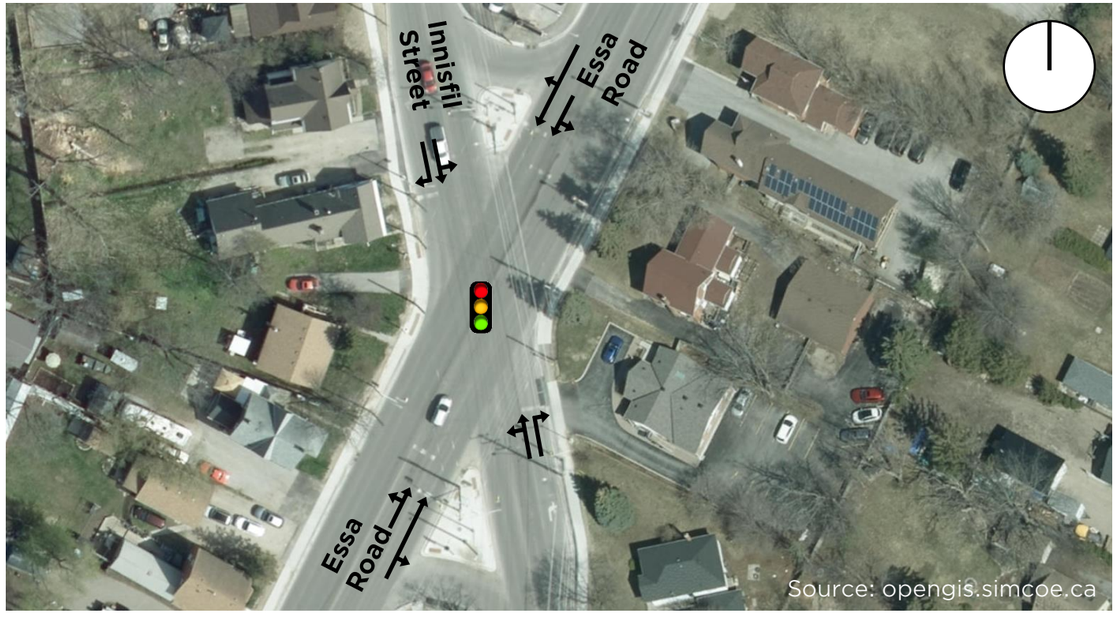
Figure 2A: Road Network

Intersections of Anne Street South with Tiffin Street and Jacobs Terrace

Intersections of Innisfil Street with Tiffin Street and Jacobs Terrace



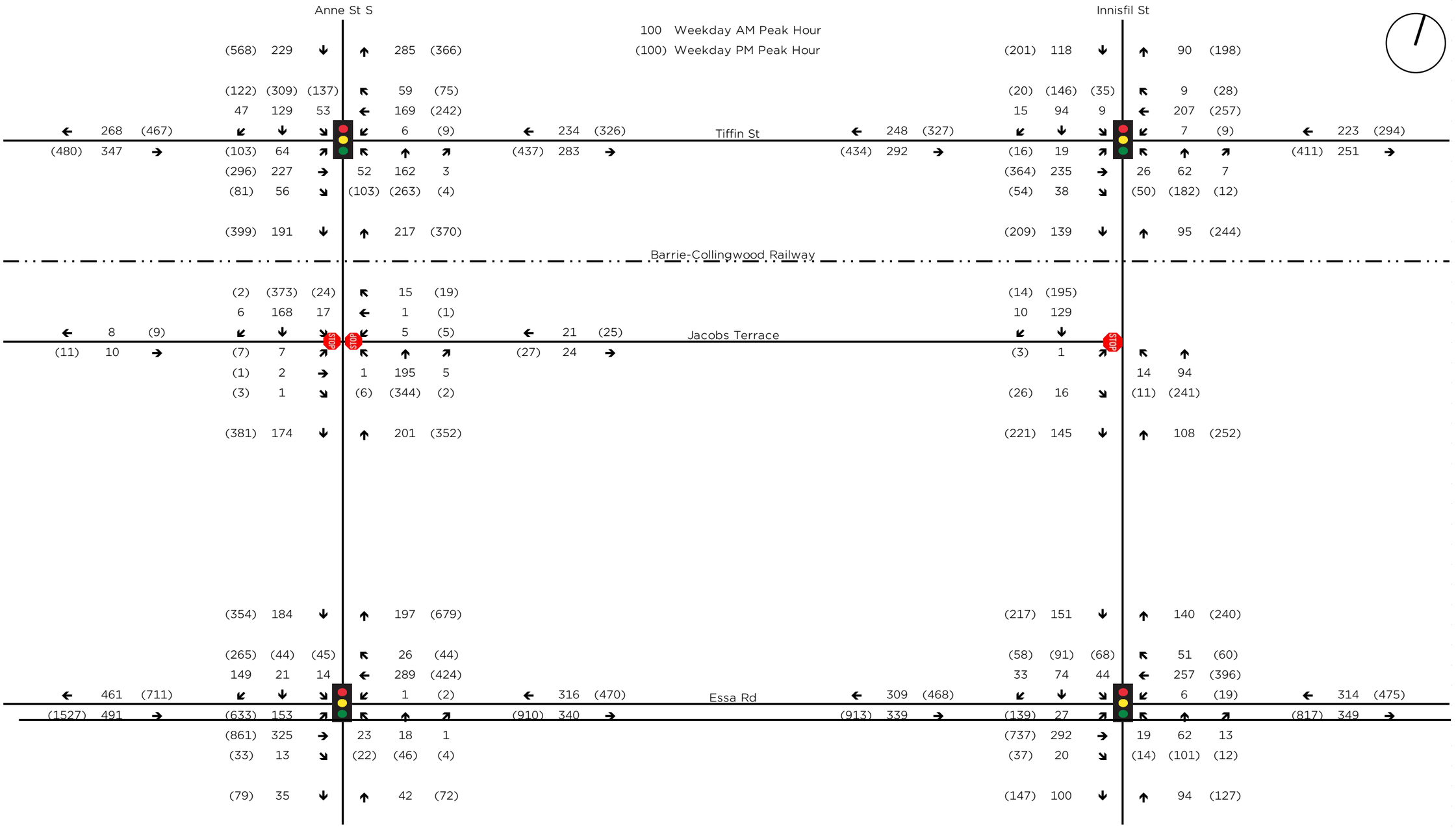
Intersection of Anne Street South & Essa Road



Intersection of Innisfil Street & Essa Road

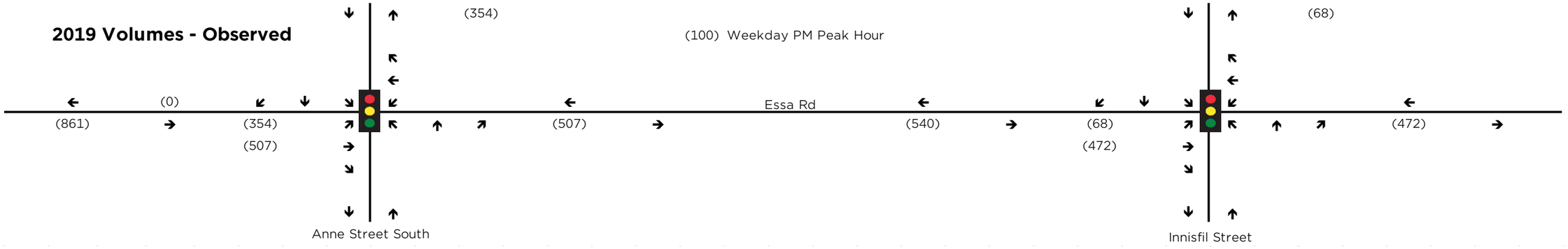
272 Innisfil Street

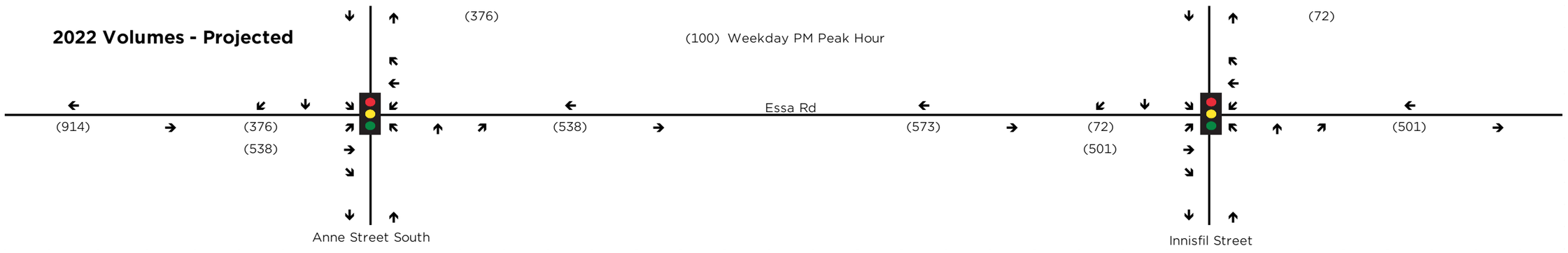
Figure 2B: Road Network



272 Innisfil Street

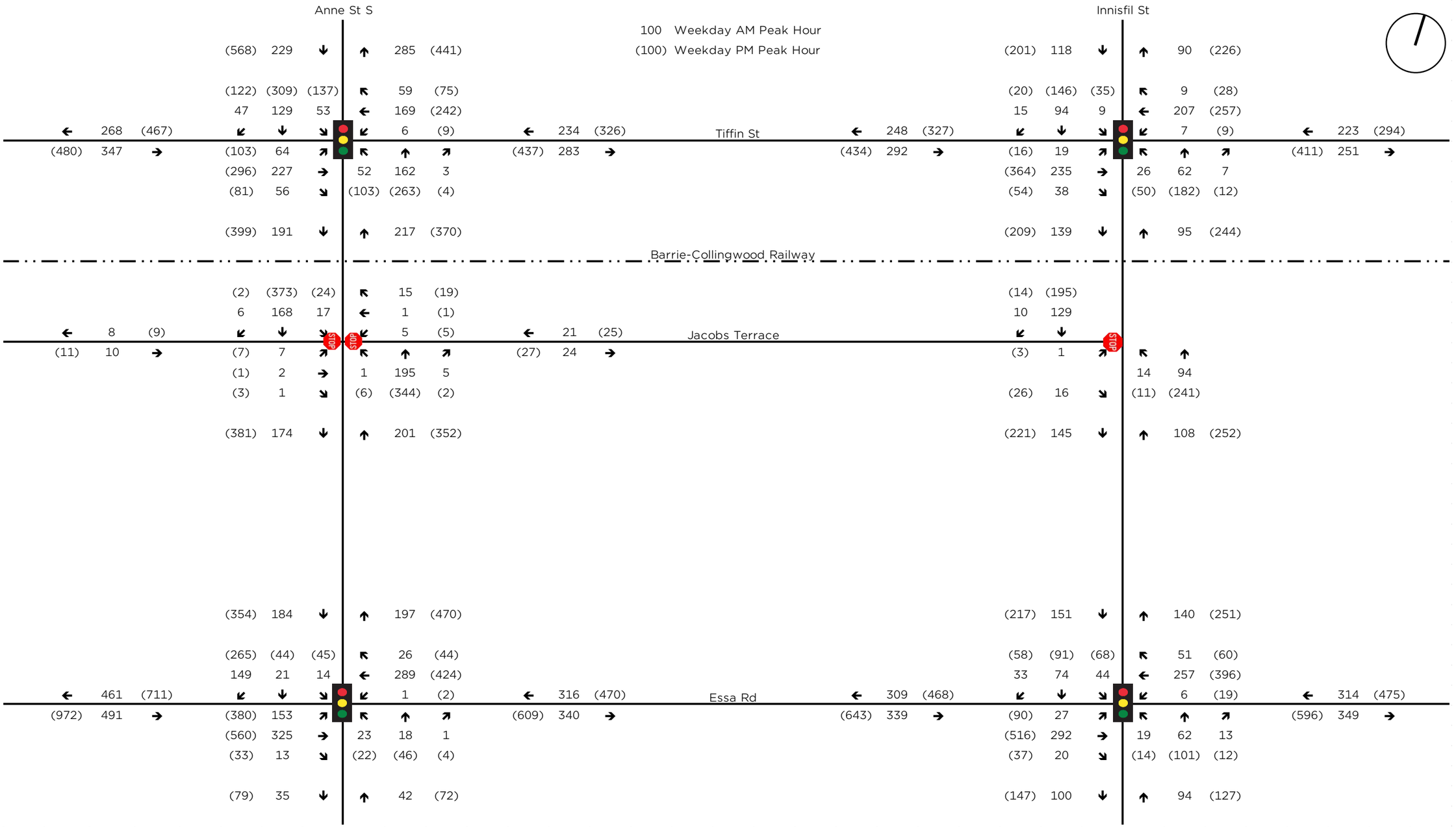
Figure 3: 2022 Traffic Volumes (Observed)





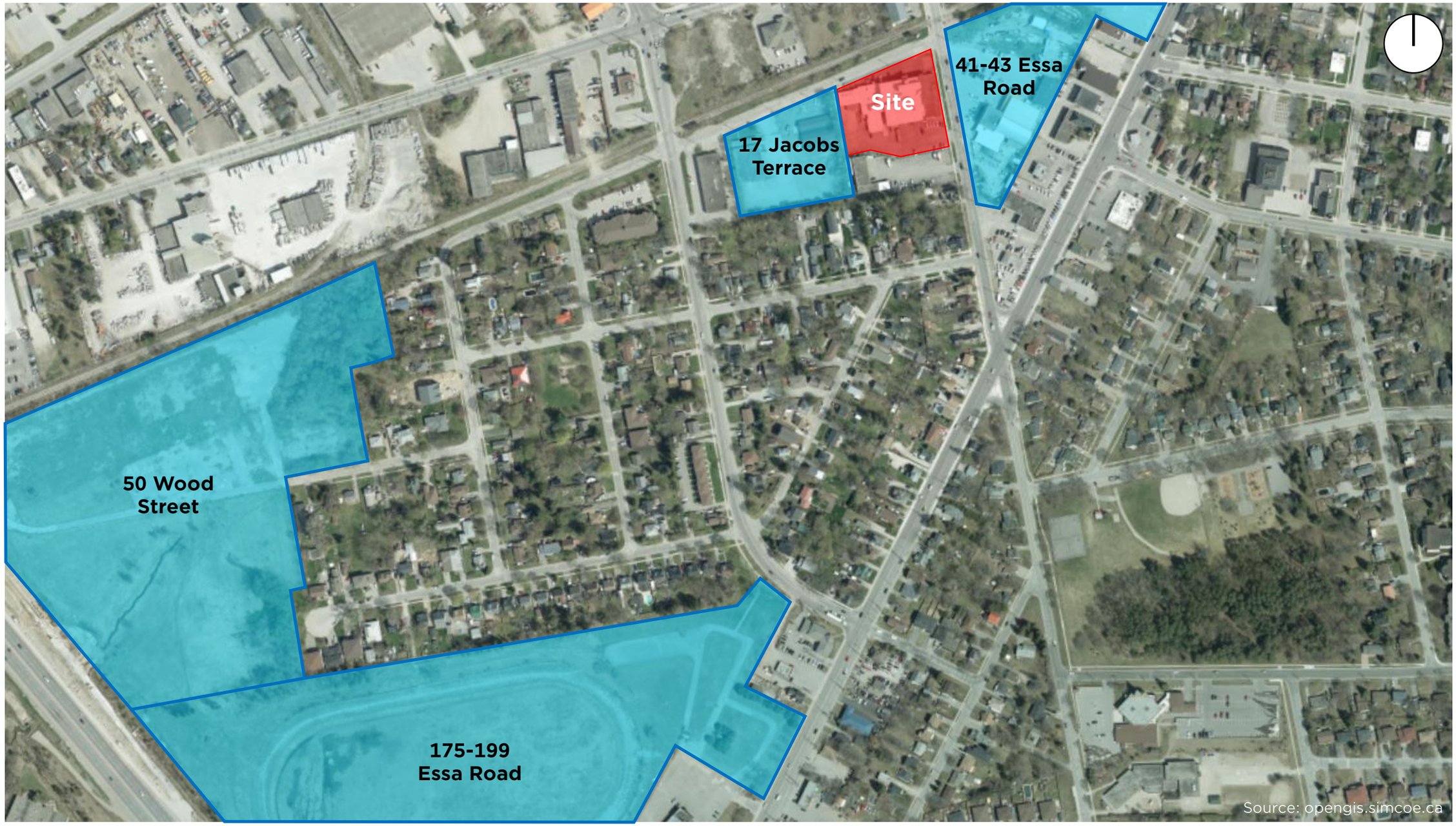
272 Innisfil Street

Figure 4: 2019 (Observed) & 2022 (Projected) Traffic Volumes



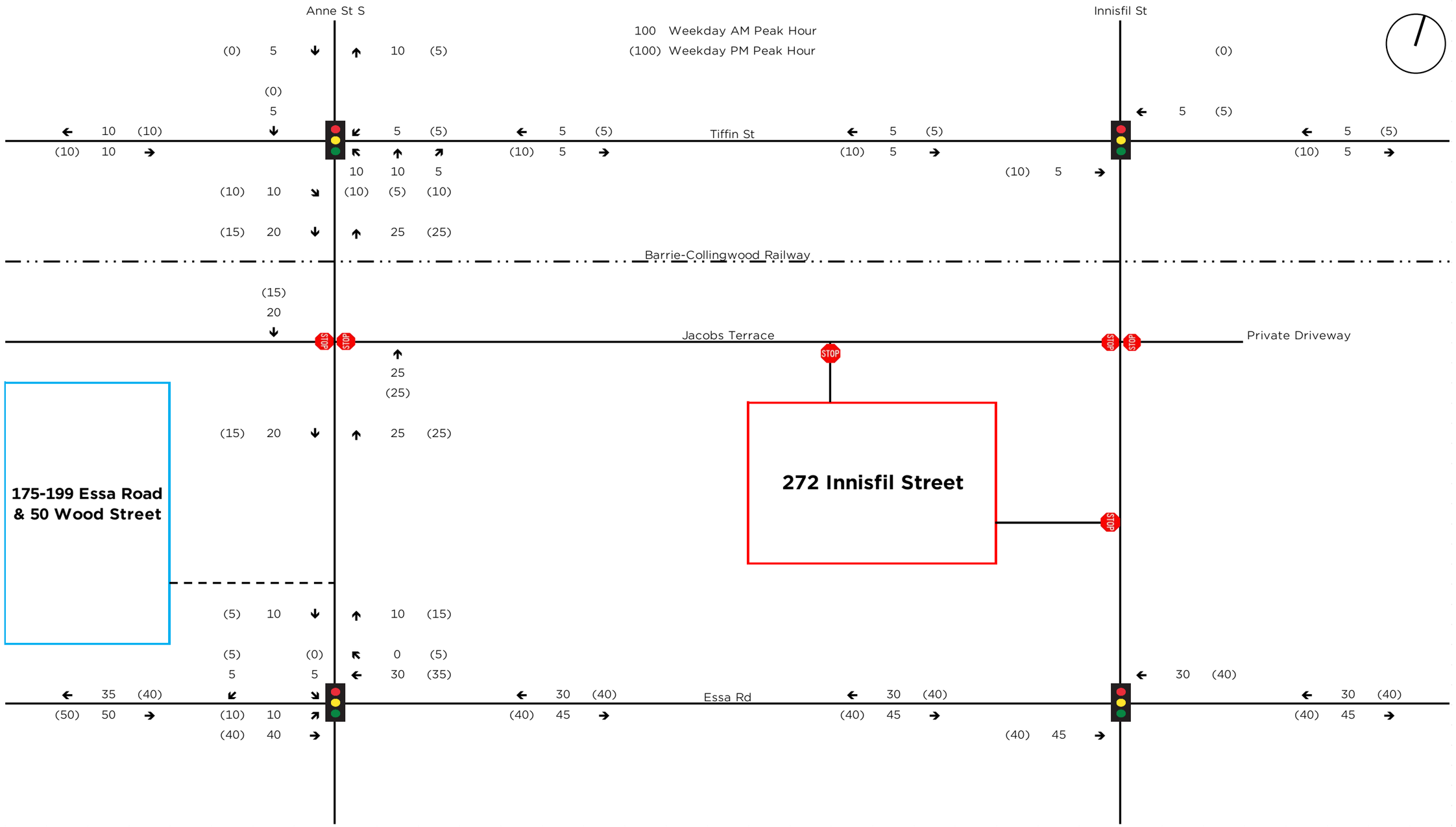
272 Innisfil Street

Figure 5: 2022 Traffic Volumes (Adjusted)



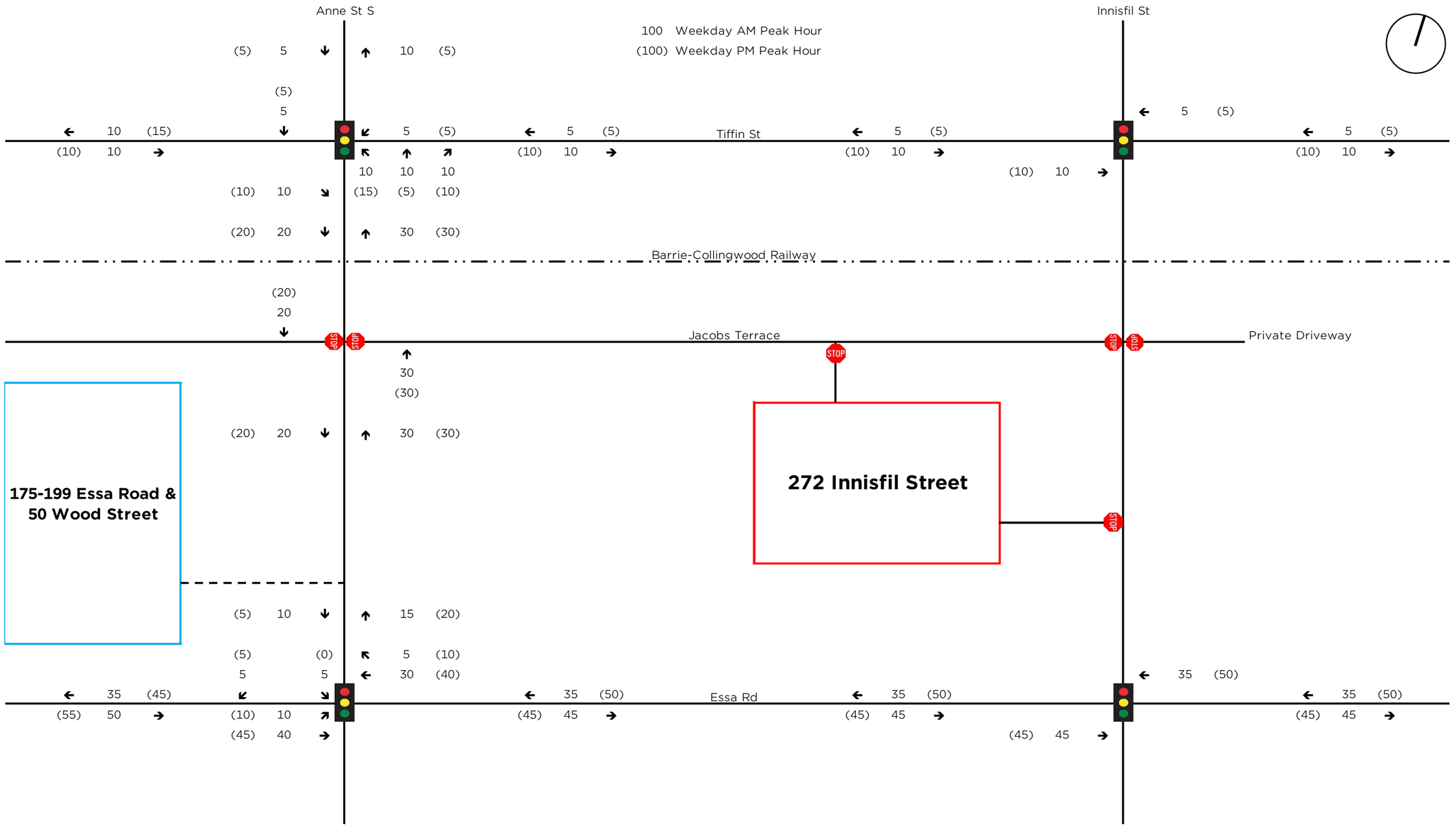
272 Innisfil Street

Figure 6: Background Development Map



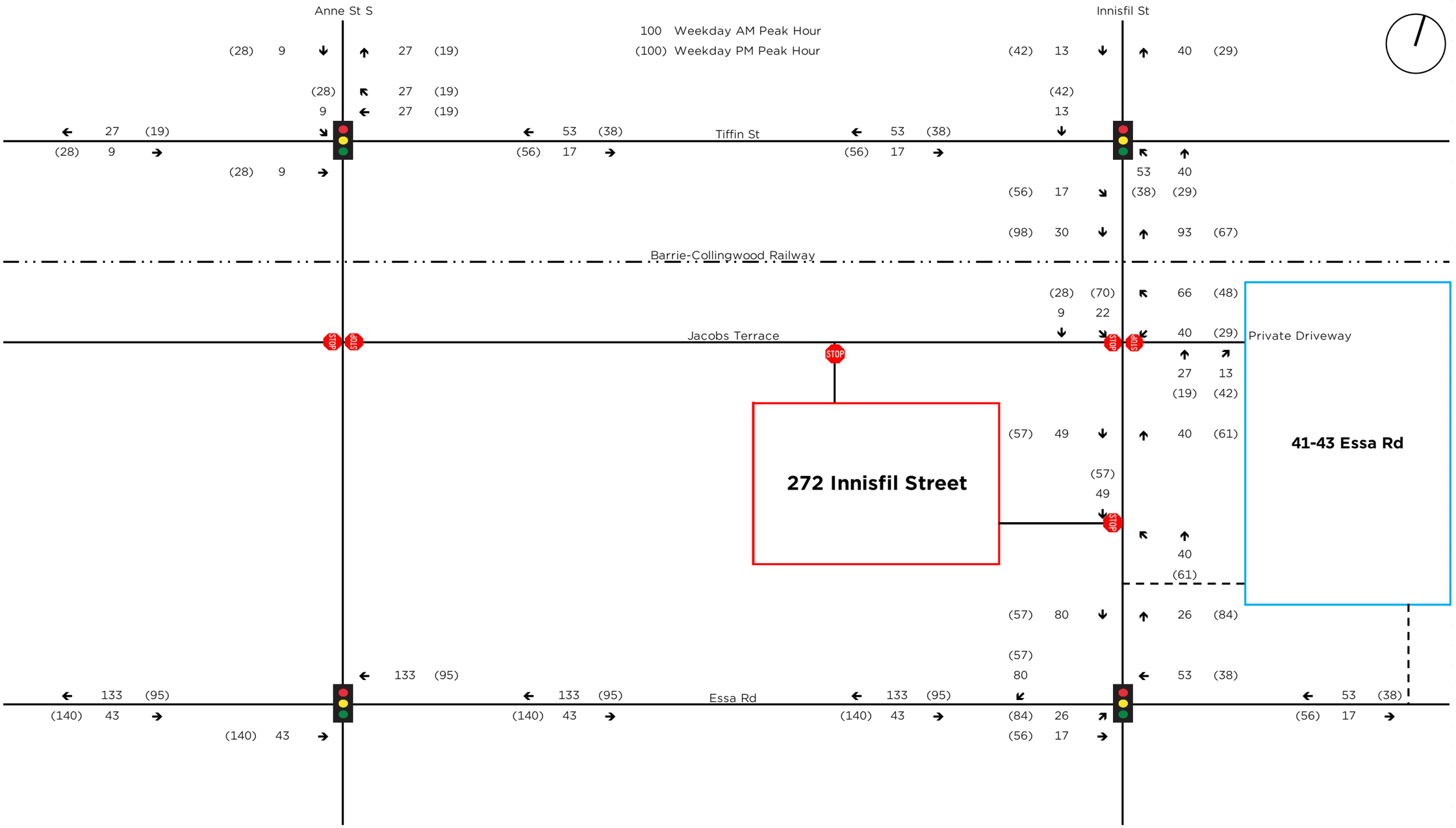
272 Innisfil Street

Figure 7: Background Development Traffic – 175-199 Essa Rd. & 50 Wood St. (Phase 1)



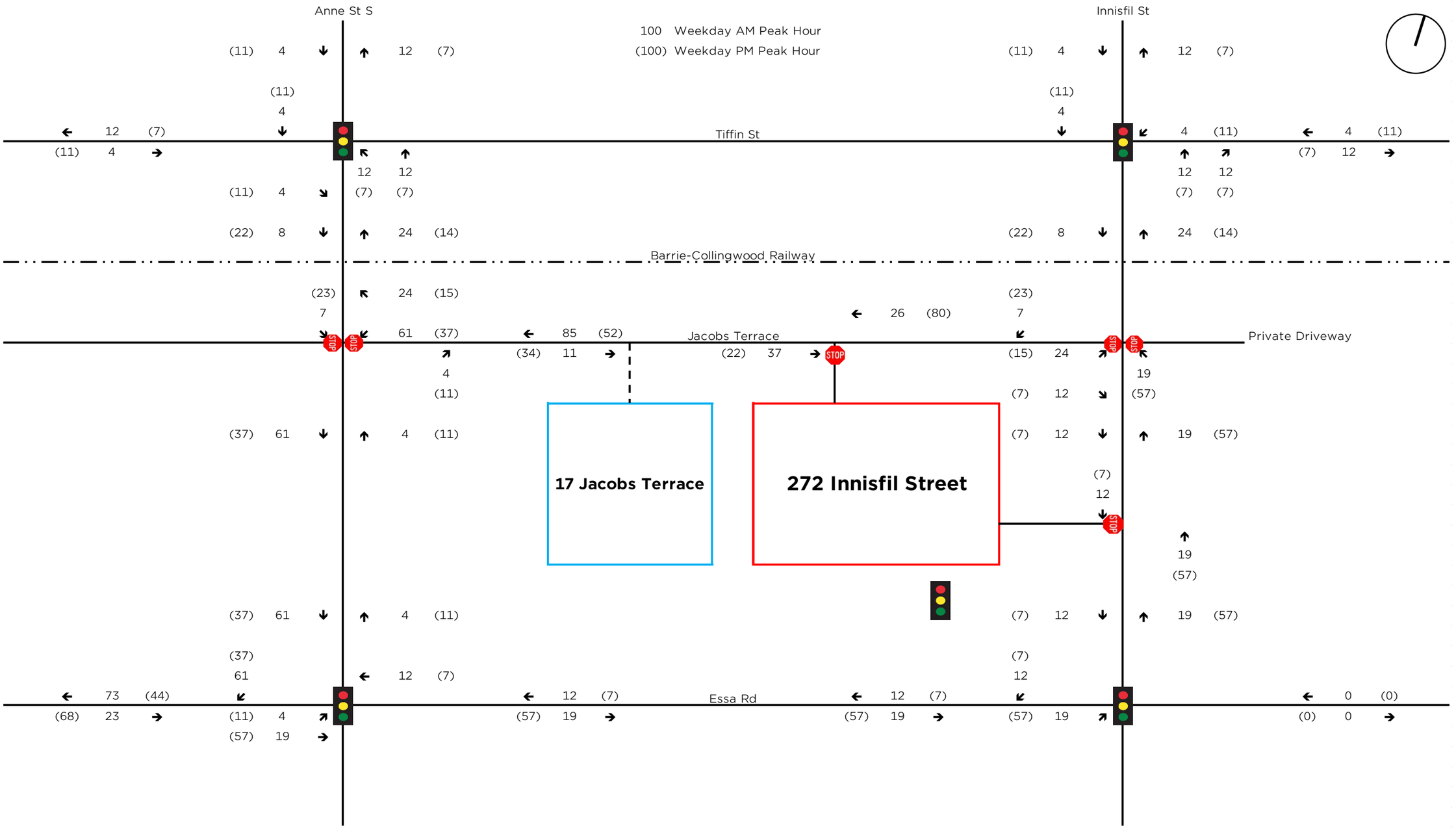
272 Innisfil Street

Figure 8: Background Development Traffic – 175-199 Essa Rd. & 50 Wood St. (Phase 1 & 2)



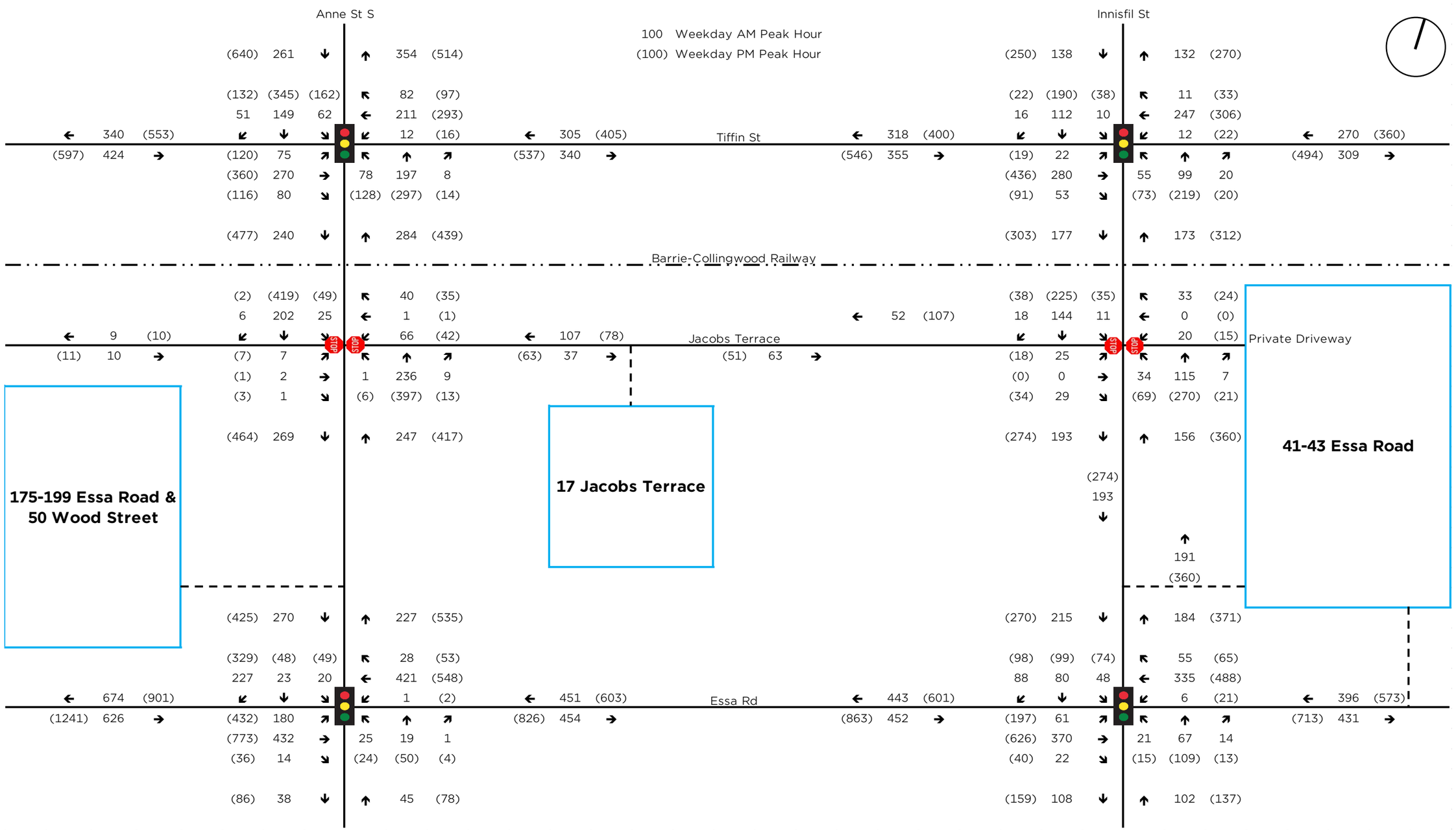
272 Innisfil Street

Figure 9: Background Development Traffic – 41-43 Essa Road



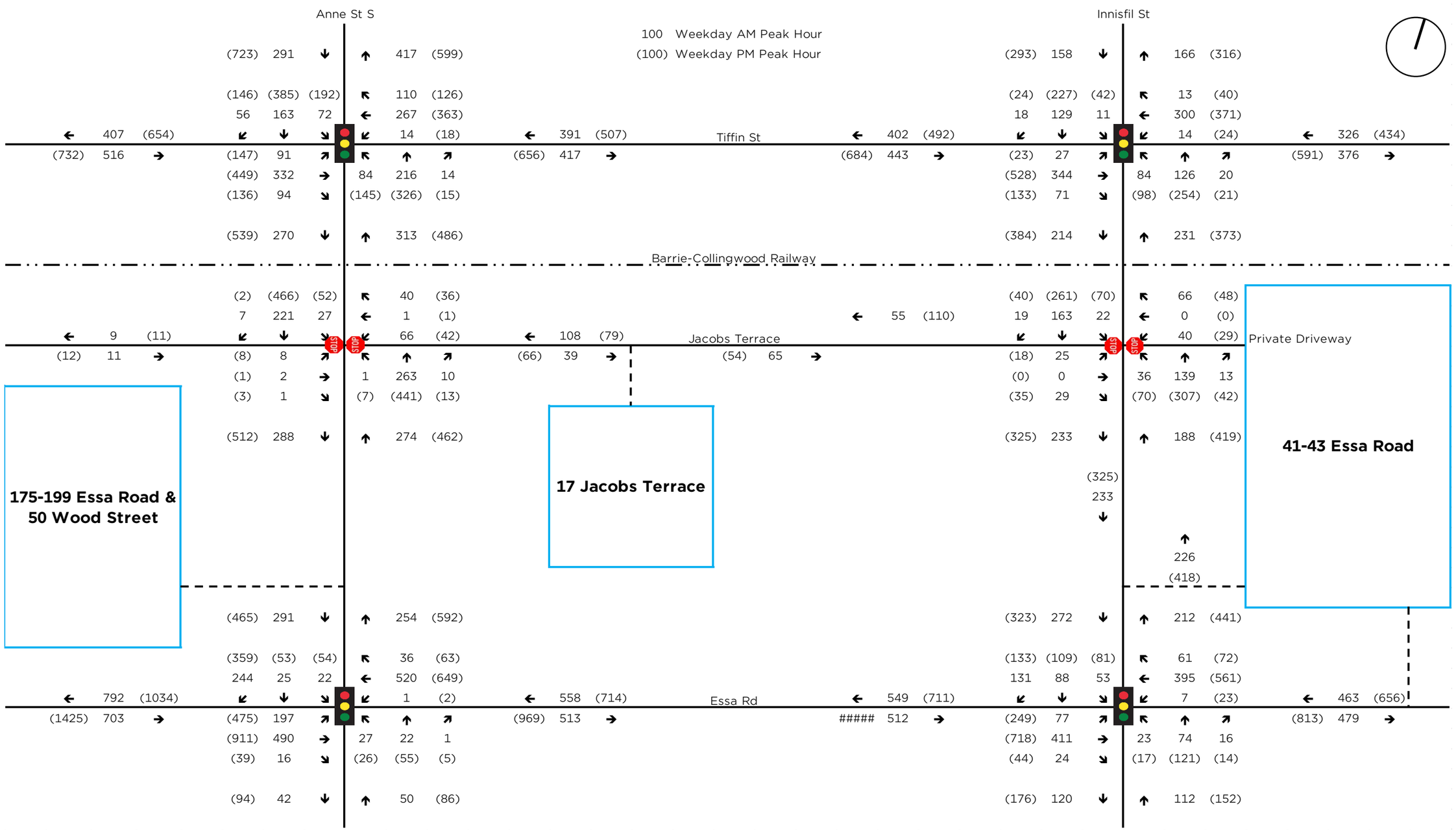
272 Innisfil Street

Figure 10: Background Development Traffic – 17 Jacobs Terrace



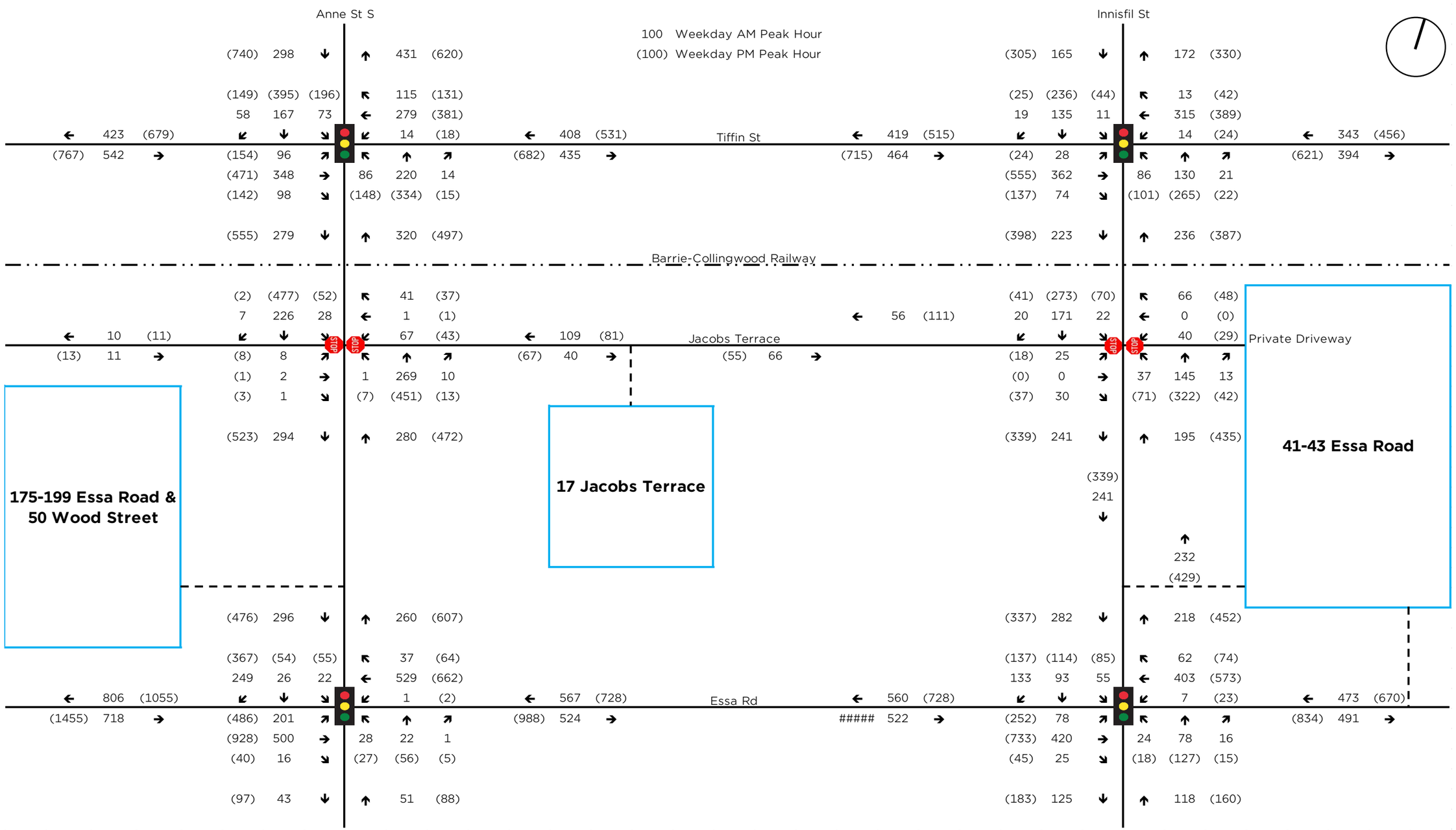
272 Innisfil Street

Figure 11: 2026 Background Traffic



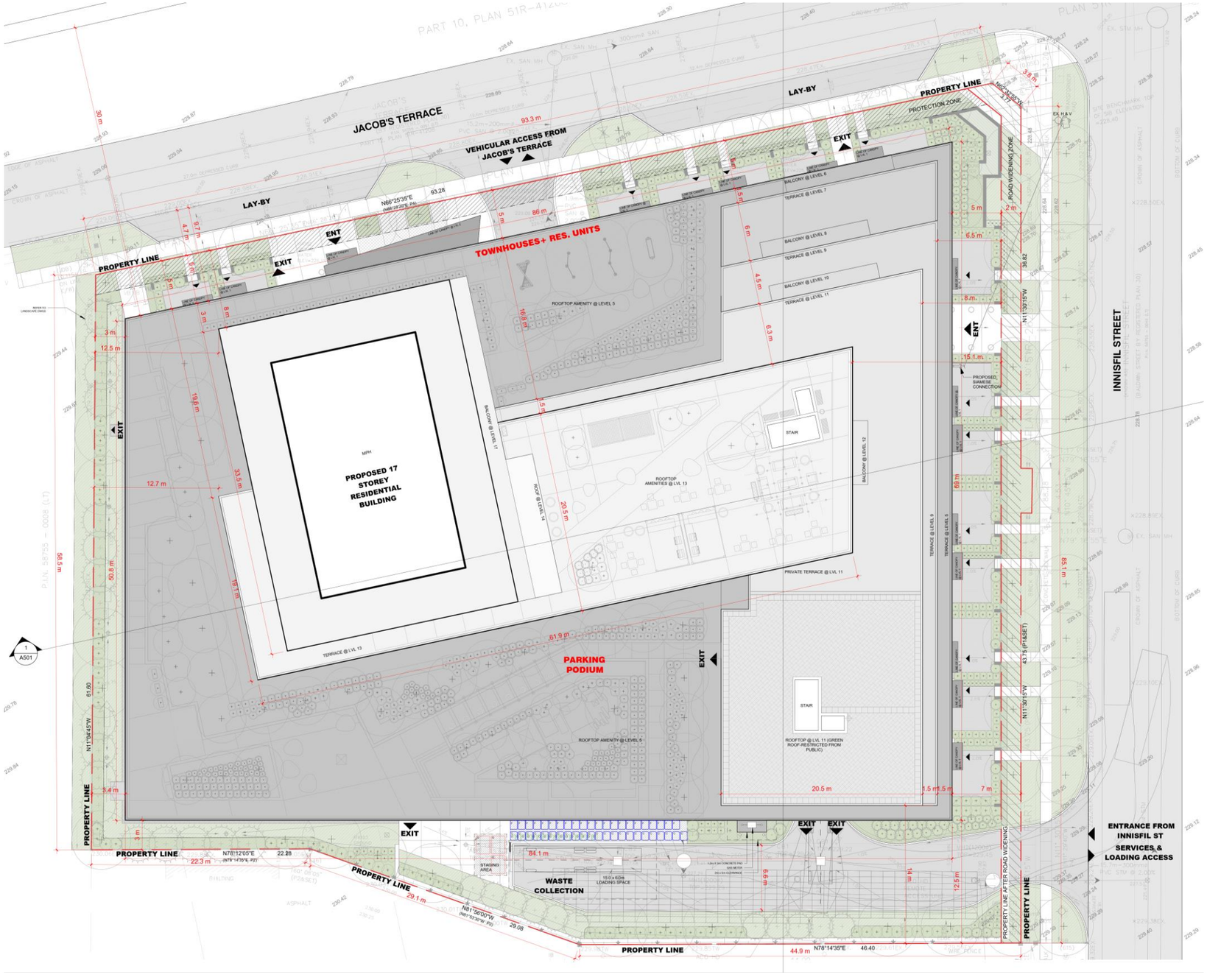
272 Innisfil Street

Figure 12: 2031 Background Traffic



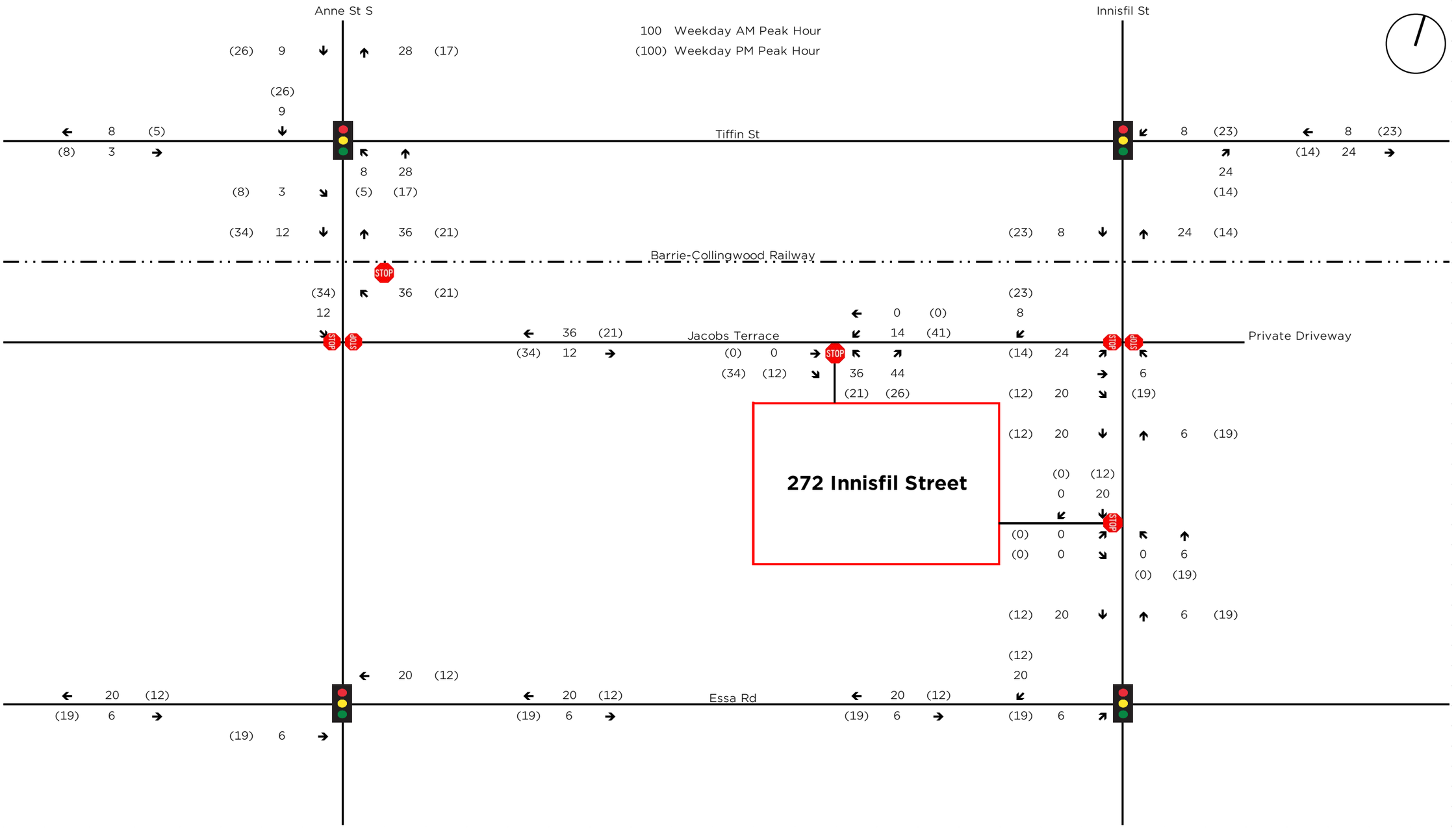
272 Innisfil Street

Figure 13: 2036 Background Traffic



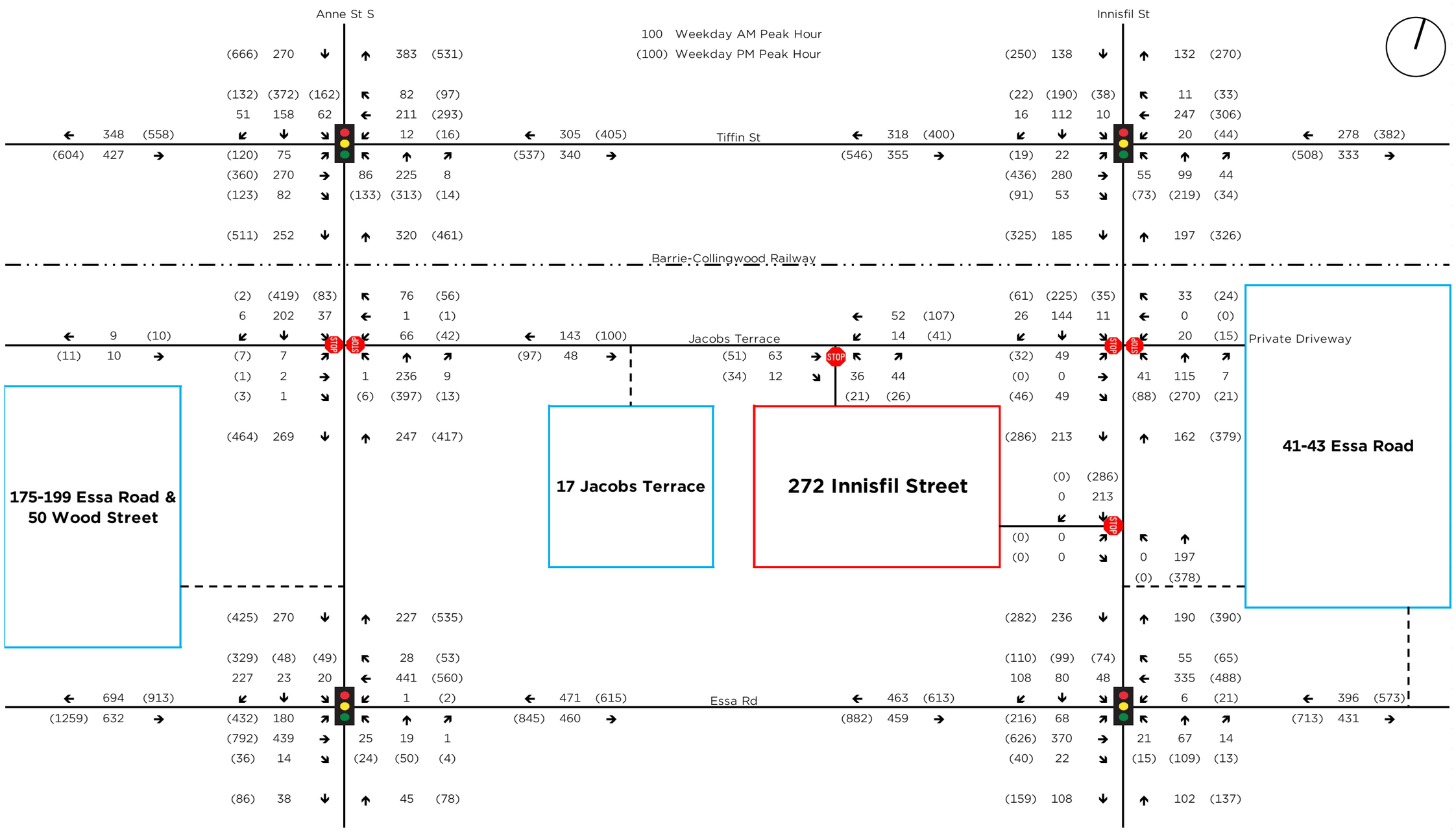
272 Innisfil Street

Figure 14: Site Plan



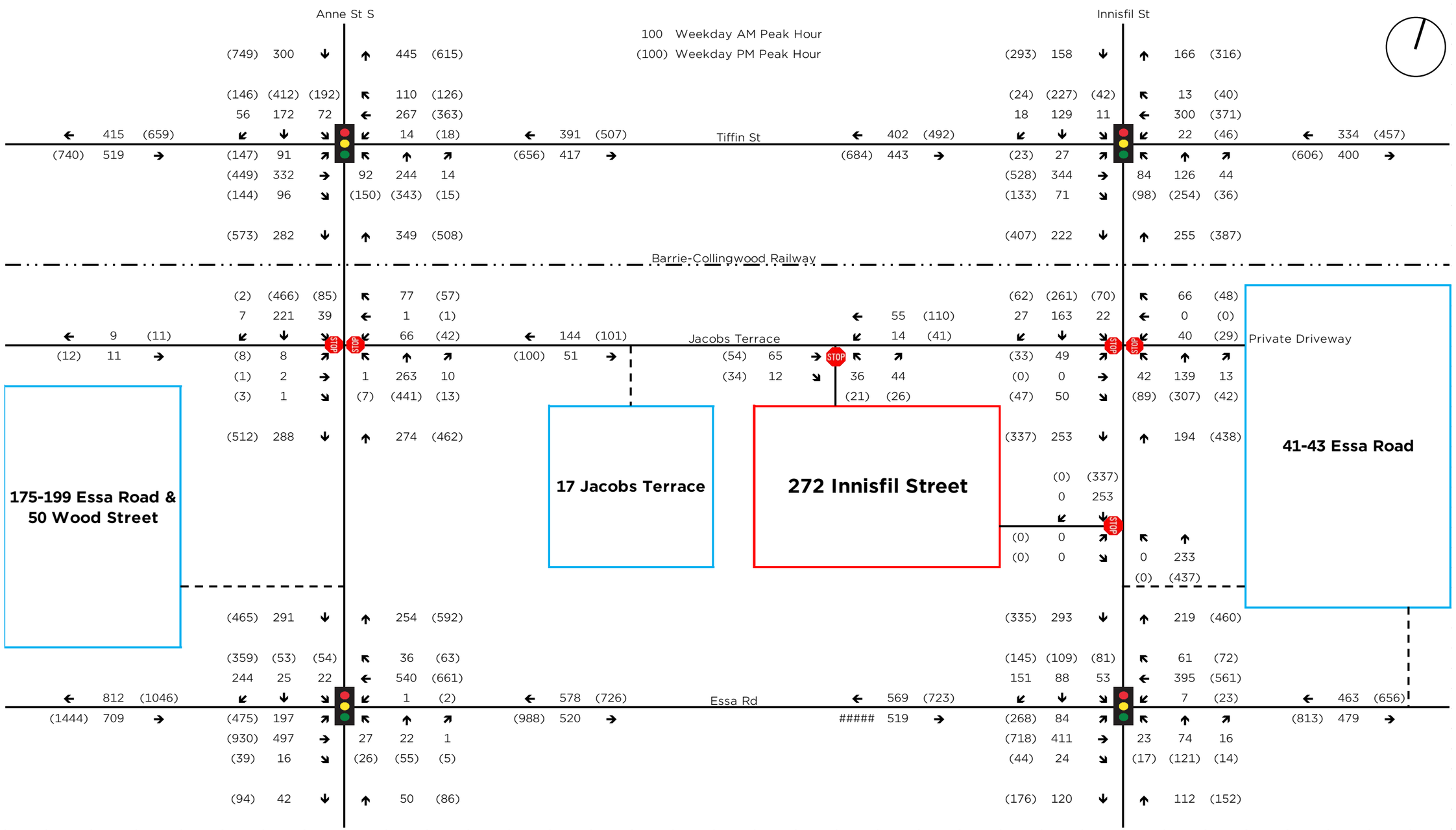
272 Innisfil Street

Figure 15: Site-Generated Traffic



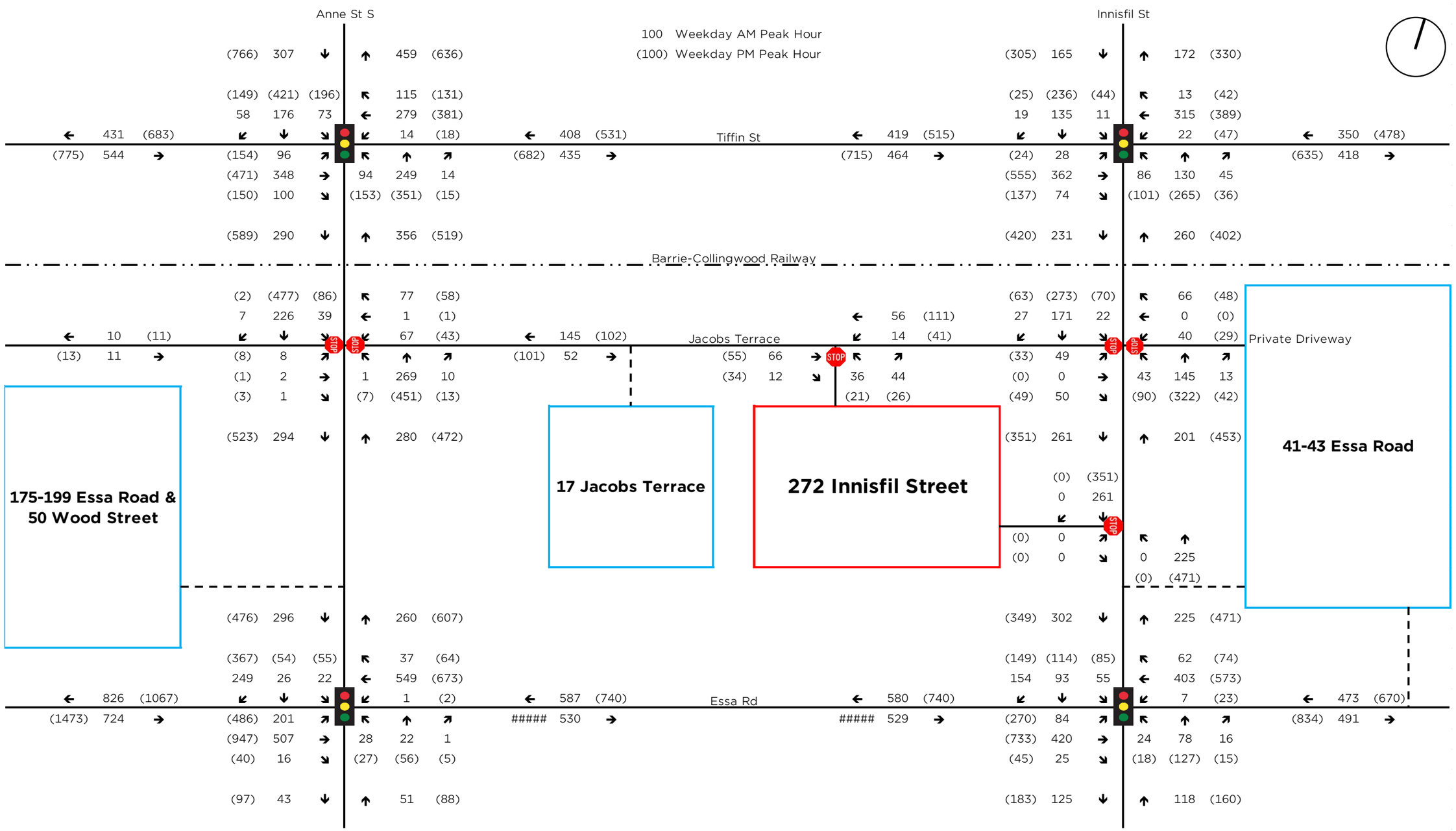
272 Innisfil Street

Figure 16: 2026 Total Traffic



272 Innisfil Street

Figure 17: 2031 Total Traffic



272 Innisfil Street

Figure 18: 2036 Total Traffic

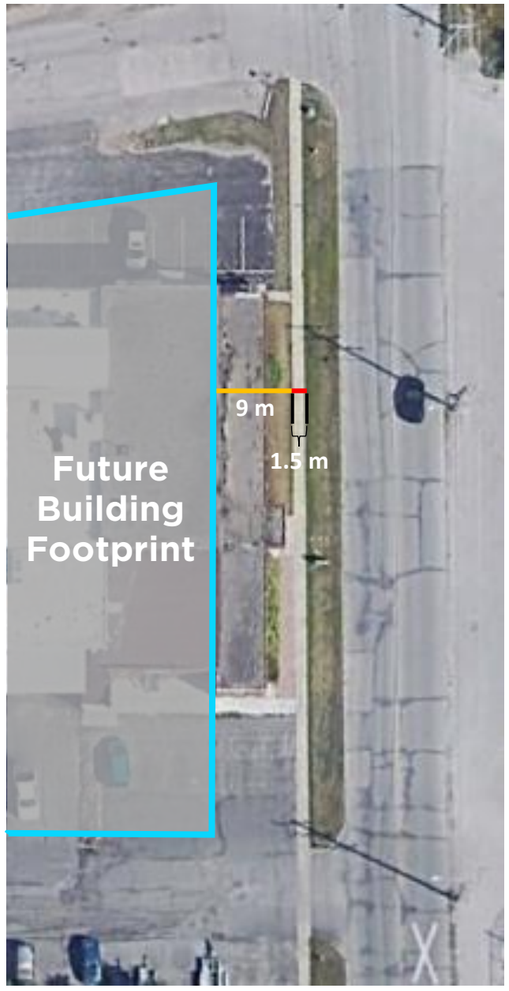
272 Innisfil Street

Figure 19: Sight Lines

Legend

Staging Area

Proposed Covered Sidewalk



272 Innisfil Street

Figure 20: Construction Staging Plan

Appendix A:
Traffic Counts

Ontario Traffic Inc.
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Project #22-076 - Tatham Engineering Ltd

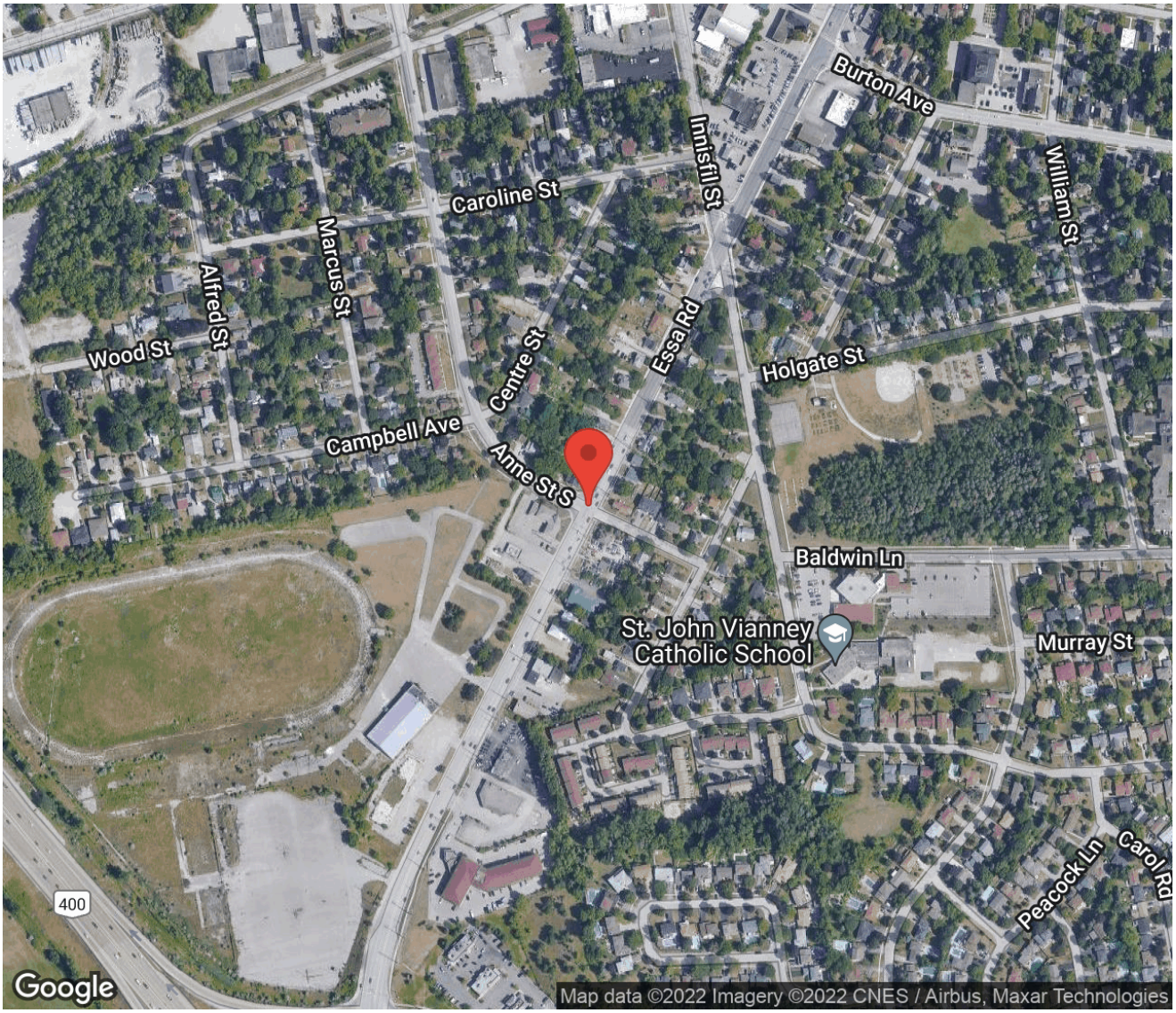
Intersection Count Report

Intersection:	Essa Rd & Anne St S
Municipality:	Barrie
Count Date:	Mar 10, 2022
Site Code:	2207600001
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-10:00, 15:00-18:00
Weather:	Clear

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Map

Intersection:	Essa Rd & Anne St S
Site Code:	2207600001
Municipality:	Barrie
Count Date:	Mar 10, 2022



Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	Essa Rd & Anne St S
Site Code:	2207600001
Municipality:	Barrie
Count Date:	Mar 10, 2022

Essa Rd - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	13	18	137	0	168	0	28	10	2	0	40	1	208
08:00 - 09:00	9	19	148	0	176	1	26	23	0	0	49	3	225
09:00 - 10:00	26	28	152	0	206	0	18	16	1	0	35	0	241
BREAK													
15:00 - 16:00	42	46	253	0	341	5	23	26	1	0	50	3	391
16:00 - 17:00	39	49	260	0	348	1	34	33	2	0	69	2	417
17:00 - 18:00	45	44	265	0	354	1	22	46	4	0	72	3	426
GRAND TOTAL	**174**	**204**	**1215**	**0**	**1593**	**8**	**151**	**154**	**10**	**0**	**315**	**12**	**1908**

Ontario Traffic Inc.
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Traffic Count Summary

Intersection:	Essa Rd & Anne St S
Site Code:	2207600001
Municipality:	Barrie
Count Date:	Mar 10, 2022

Anne St S - Traffic Summary

	East Approach Totals						West Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	0	218	18	0	236	0	131	205	10	0	346	0	582
08:00 - 09:00	1	239	37	0	277	0	156	316	13	0	485	0	762
09:00 - 10:00	1	277	32	0	310	0	147	282	12	0	441	1	751
BREAK													
15:00 - 16:00	2	386	57	0	445	1	262	383	22	0	667	2	1112
16:00 - 17:00	0	380	51	0	431	0	320	414	41	0	775	1	1206
17:00 - 18:00	2	424	44	0	470	0	633	861	33	0	1527	4	1997
GRAND TOTAL	**6**	**1924**	**239**	**0**	**2169**	**1**	**1649**	**2461**	**131**	**0**	**4241**	**8**	**6410**

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Essa Rd & Anne St S
Site Code: 2207600001
Municipality: Barrie
Count Date: Mar 10, 2022

North Approach - Essa Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	1	1	27	0	29	0	0	4	0	4	0	0	0	0	0	0
07:15	3	6	24	0	33	0	0	3	0	3	0	0	0	0	0	0
07:30	3	4	39	0	46	0	1	2	0	3	0	0	0	0	0	0
07:45	5	6	34	0	45	1	0	4	0	5	0	0	0	0	0	0
08:00	3	4	31	0	38	1	1	6	0	8	0	0	0	0	0	0
08:15	2	6	34	0	42	0	0	2	0	2	0	0	0	0	0	0
08:30	1	2	29	0	32	0	0	1	0	1	0	0	1	0	1	0
08:45	1	6	42	0	49	1	0	2	0	3	0	0	0	0	0	1
09:00	8	7	33	0	48	1	0	2	0	3	0	0	0	0	0	0
09:15	2	6	35	0	43	0	0	4	0	4	0	0	0	0	0	0
09:30	4	7	36	0	47	1	0	3	0	4	0	0	0	0	0	0
09:45	10	7	37	0	54	0	1	2	0	3	0	0	0	0	0	0
SUBTOTAL	43	62	401	0	506	5	3	35	0	43	0	0	1	0	1	1

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Essa Rd & Anne St S
Site Code: 2207600001
Municipality: Barrie
Count Date: Mar 10, 2022

North Approach - Essa Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
15:00	9	12	66	0	87	0	0	6	0	6	0	0	0	0	0	1
15:15	7	7	55	0	69	0	0	2	0	2	0	0	0	0	0	2
15:30	10	13	50	0	73	1	0	5	0	6	0	0	1	0	1	0
15:45	15	14	61	0	90	0	0	7	0	7	0	0	0	0	0	2
16:00	10	20	72	0	102	0	0	4	0	4	0	0	0	0	0	0
16:15	7	5	51	0	63	0	0	2	0	2	0	0	0	0	0	0
16:30	12	13	69	0	94	0	0	4	0	4	0	0	0	0	0	0
16:45	9	10	57	0	76	1	1	1	0	3	0	0	0	0	0	1
17:00	10	10	79	0	99	0	0	0	0	0	0	0	0	0	0	0
17:15	8	9	67	0	84	1	0	3	0	4	0	0	0	0	0	0
17:30	15	12	61	0	88	0	0	0	0	0	0	0	0	0	0	1
17:45	11	13	55	0	79	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	123	138	743	0	1004	3	1	34	0	38	0	0	1	0	1	7
GRAND TOTAL	166	200	1144	0	1510	8	4	69	0	81	0	0	2	0	2	8

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Essa Rd & Anne St S
Site Code: 2207600001
Municipality: Barrie
Count Date: Mar 10, 2022

South Approach - Essa Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	4	5	1	0	10	0	0	0	0	0	0	0	0	0	0	0
07:15	7	0	0	0	7	0	1	0	0	1	0	1	0	0	1	0
07:30	6	1	1	0	8	0	0	0	0	0	0	0	0	0	0	1
07:45	11	2	0	0	13	0	0	0	0	0	0	0	0	0	0	0
08:00	6	8	0	0	14	0	0	0	0	0	0	0	0	0	0	2
08:15	5	5	0	0	10	0	0	0	0	0	0	0	0	0	0	0
08:30	7	4	0	0	11	0	0	0	0	0	0	0	0	0	0	0
08:45	8	6	0	0	14	0	0	0	0	0	0	0	0	0	0	1
09:00	3	4	0	0	7	0	0	0	0	0	0	0	0	0	0	0
09:15	5	4	1	0	10	0	0	0	0	0	0	0	0	0	0	0
09:30	3	3	0	0	6	0	0	0	0	0	0	0	0	0	0	0
09:45	7	4	0	0	11	0	1	0	0	1	0	0	0	0	0	0
SUBTOTAL	72	46	3	0	121	0	2	0	0	2	0	1	0	0	1	4

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Essa Rd & Anne St S
Site Code: 2207600001
Municipality: Barrie
Count Date: Mar 10, 2022

South Approach - Essa Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
15:00	2	3	0	0	5	0	0	0	0	0	0	0	0	0	0	3
15:15	7	9	0	0	16	0	0	0	0	0	0	0	0	0	0	0
15:30	8	7	1	0	16	0	0	0	0	0	0	0	0	0	0	0
15:45	6	7	0	0	13	0	0	0	0	0	0	0	0	0	0	0
16:00	6	8	0	0	14	0	0	0	0	0	0	0	0	0	0	2
16:15	8	2	0	0	10	0	1	0	0	1	0	0	0	0	0	0
16:30	11	14	1	0	26	0	0	0	0	0	0	0	0	0	0	0
16:45	9	8	1	0	18	0	0	0	0	0	0	0	0	0	0	0
17:00	8	7	1	0	16	0	1	0	0	1	0	0	0	0	0	1
17:15	4	10	0	0	14	0	0	0	0	0	0	0	0	0	0	0
17:30	5	15	1	0	21	0	0	0	0	0	0	0	0	0	0	0
17:45	5	13	2	0	20	0	0	0	0	0	0	0	0	0	0	2
SUBTOTAL	79	103	7	0	189	0	2	0	0	2	0	0	0	0	0	8
GRAND TOTAL	151	149	10	0	310	0	4	0	0	4	0	1	0	0	1	12

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Essa Rd & Anne St S
Site Code: 2207600001
Municipality: Barrie
Count Date: Mar 10, 2022

East Approach - Anne St S

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	0	43	3	0	46	0	4	0	0	4	0	0	0	0	0	0
07:15	0	48	2	0	50	0	2	0	0	2	0	0	0	0	0	0
07:30	0	49	2	0	51	0	3	0	0	3	0	0	0	0	0	0
07:45	0	66	10	0	76	0	3	1	0	4	0	0	0	0	0	0
08:00	0	42	8	0	50	0	4	1	0	5	0	0	0	0	0	0
08:15	0	51	10	0	61	0	2	0	0	2	0	0	0	0	0	0
08:30	0	63	11	0	74	0	4	0	0	4	0	0	0	0	0	0
08:45	1	69	6	0	76	0	4	1	0	5	0	0	0	0	0	0
09:00	0	73	3	0	76	0	2	0	0	2	0	0	0	0	0	0
09:15	0	72	3	0	75	0	2	2	0	4	0	0	0	0	0	0
09:30	0	53	8	0	61	0	6	0	0	6	0	0	0	0	0	0
09:45	1	65	13	0	79	0	4	3	0	7	0	0	0	0	0	0
SUBTOTAL	2	694	79	0	775	0	40	8	0	48	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Essa Rd & Anne St S
Site Code: 2207600001
Municipality: Barrie
Count Date: Mar 10, 2022

East Approach - Anne St S

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
15:00	0	100	7	0	107	0	2	0	0	2	0	0	0	0	0	1
15:15	1	89	16	0	106	0	3	0	0	3	0	0	0	0	0	0
15:30	0	115	15	0	130	0	4	2	0	6	0	0	0	0	0	0
15:45	1	72	17	0	90	0	1	0	0	1	0	0	0	0	0	0
16:00	0	91	12	0	103	0	3	0	0	3	0	0	0	0	0	0
16:15	0	105	17	0	122	0	2	0	0	2	0	0	0	0	0	0
16:30	0	98	11	0	109	0	3	0	0	3	0	0	0	0	0	0
16:45	0	77	11	0	88	0	1	0	0	1	0	0	0	0	0	0
17:00	1	118	8	0	127	0	1	1	0	2	0	0	0	0	0	0
17:15	0	129	15	0	144	0	1	0	0	1	0	0	0	0	0	0
17:30	1	92	9	0	102	0	1	0	0	1	0	0	0	0	0	0
17:45	0	81	11	0	92	0	1	0	0	1	0	0	0	0	0	0
SUBTOTAL	4	1167	149	0	1320	0	23	3	0	26	0	0	0	0	0	1
GRAND TOTAL	6	1861	228	0	2095	0	63	11	0	74	0	0	0	0	0	1

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Essa Rd & Anne St S
Site Code: 2207600001
Municipality: Barrie
Count Date: Mar 10, 2022

West Approach - Anne St S

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	19	26	2	0	47	3	5	0	0	8	0	0	0	0	0	0
07:15	28	44	4	0	76	3	4	0	0	7	0	0	0	0	0	0
07:30	31	46	2	0	79	4	7	0	0	11	0	0	0	0	0	0
07:45	38	70	2	0	110	5	3	0	0	8	0	0	0	0	0	0
08:00	32	52	3	0	87	4	6	1	0	11	0	0	0	0	0	0
08:15	34	62	1	0	97	4	3	0	0	7	0	0	0	0	0	0
08:30	38	88	6	0	132	2	3	0	0	5	0	0	0	0	0	0
08:45	39	97	2	0	138	3	5	0	0	8	0	0	0	0	0	0
09:00	24	73	2	0	99	4	3	0	0	7	0	0	0	0	0	0
09:15	36	54	3	0	93	7	2	0	0	9	0	0	0	0	0	0
09:30	38	59	3	0	100	5	6	0	0	11	0	1	0	0	1	0
09:45	29	81	3	0	113	4	2	1	0	7	0	1	0	0	1	1
SUBTOTAL	386	752	33	0	1171	48	49	2	0	99	0	2	0	0	2	1

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Essa Rd & Anne St S
Site Code: 2207600001
Municipality: Barrie
Count Date: Mar 10, 2022

West Approach - Anne St S

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
15:00	61	92	0	0	153	1	4	0	0	5	0	0	0	0	0	2
15:15	58	94	4	0	156	4	0	0	0	4	0	0	0	0	0	0
15:30	64	92	10	0	166	8	4	0	0	12	0	0	0	0	0	0
15:45	63	95	8	0	166	3	2	0	0	5	0	0	0	0	0	0
16:00	64	88	7	0	159	2	3	0	0	5	0	0	0	0	0	1
16:15	78	97	9	0	184	5	1	0	0	6	0	0	0	0	0	0
16:30	72	110	12	0	194	3	3	0	0	6	0	0	0	0	0	0
16:45	93	112	13	0	218	3	0	0	0	3	0	0	0	0	0	0
17:00	145	206	6	0	357	7	3	1	0	11	0	0	0	0	0	2
17:15	161	223	17	0	401	4	2	0	0	6	0	0	0	0	0	0
17:30	172	239	5	0	416	0	4	0	0	4	0	0	0	0	0	1
17:45	142	181	4	0	327	2	3	0	0	5	0	0	0	0	0	1
SUBTOTAL	1173	1629	95	0	2897	42	29	1	0	72	0	0	0	0	0	7
GRAND TOTAL	**1559**	**2381**	**128**	**0**	**4068**	**90**	**78**	**3**	**0**	**171**	**0**	**2**	**0**	**0**	**2**	**8**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period		One Hour Peak	
From:	07:00:00	From:	08:30:00
To:	10:00:00	To:	09:30:00

Intersection: Essa Rd & Anne St S
Site Code: 2207600001
Count Date: Mar 10, 2022

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Anne St S runs E/W

North Approach

	Out	In	Total
Cars	172	178	350
Trucks	11	19	30
Bicycles	1	0	1
	184	**197**	**381**

Essa Rd

Bicycles	1	0	0	0
Trucks	9	0	2	0
Cars	139	21	12	0
Totals	**149**	**21**	**14**	**0**

East Approach

	Out	In	Total
Cars	301	325	626
Trucks	15	15	30
Bicycles	0	0	0
	316	**340**	**656**

Anne St S

Bicycles	Trucks	Cars	Totals	
0	0	0	**0**	
0	16	137	**153**	
0	13	312	**325**	
0	0	13	**13**	

Peds: 1

Peds: 0

Peds: 0

Peds: 1

Anne St S

	Totals	Cars	Trucks	Bicycles
	0	0	0	0
	26	23	3	0
	289	277	12	0
	1	1	0	0

West Approach

	Out	In	Total
Cars	462	439	901
Trucks	29	21	50
Bicycles	0	1	1
	491	**461**	**952**

Essa Rd

Totals	**23**	**18**	**1**	**0**
Cars	23	18	1	0
Trucks	0	0	0	0
Bicycles	0	0	0	0

South Approach

	Out	In	Total
Cars	42	35	77
Trucks	0	0	0
Bicycles	0	0	0
	42	**35**	**77**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Essa Rd & Anne St S
Site Code: 2207600001
Count Date: Mar 10, 2022
Period: 07:00 - 10:00

Peak Hour Data (08:30 - 09:30)

Start Time	North Approach Essa Rd						South Approach Essa Rd						East Approach Anne St S						West Approach Anne St S						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
08:30	1	2	31	0	0	34	7	4	0	0	0	11	0	67	11	0	0	78	40	91	6	0	0	137	260
08:45	2	6	44	0	1	52	8	6	0	0	1	14	1	73	7	0	0	81	42	102	2	0	0	146	293
09:00	9	7	35	0	0	51	3	4	0	0	0	7	0	75	3	0	0	78	28	76	2	0	0	106	242
09:15	2	6	39	0	0	47	5	4	1	0	0	10	0	74	5	0	0	79	43	56	3	0	0	102	238
Grand Total	**14**	**21**	**149**	**0**	**1**	**184**	**23**	**18**	**1**	**0**	**1**	**42**	**1**	**289**	**26**	**0**	**0**	**316**	**153**	**325**	**13**	**0**	**0**	**491**	**1033**
Approach %	7.6	11.4	81	0		-	54.8	42.9	2.4	0		-	0.3	91.5	8.2	0		-	31.2	66.2	2.6	0		-	
Totals %	1.4	2	14.4	0		17.8	2.2	1.7	0.1	0		4.1	0.1	28	2.5	0		30.6	14.8	31.5	1.3	0		47.5	
PHF	**0.39**	**0.75**	**0.85**	**0**		**0.88**	**0.72**	**0.75**	**0.25**	**0**		**0.75**	**0.25**	**0.96**	**0.59**	**0**		**0.98**	**0.89**	**0.8**	**0.54**	**0**		**0.84**	**0.88**
Cars	12	21	139	0		172	23	18	1	0		42	1	277	23	0		301	137	312	13	0		462	977
% Cars	85.7	100	93.3	0		93.5	100	100	100	0		100	100	95.8	88.5	0		95.3	89.5	96	100	0		94.1	94.6
Trucks	2	0	9	0		11	0	0	0	0		0	0	12	3	0		15	16	13	0	0		29	55
% Trucks	14.3	0	6	0		6	0	0	0	0		0	0	4.2	11.5	0		4.7	10.5	4	0	0		5.9	5.3
Bicycles	0	0	1	0		1	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	1
% Bicycles	0	0	0.7	0		0.5	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0.1
Peds					1	-					1	-					0	-					0	-	2
% Peds					50	-					50	-					0	-					0	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period		One Hour Peak	
From:	15:00:00	From:	17:00:00
To:	18:00:00	To:	18:00:00

Intersection: Essa Rd & Anne St S
Site Code: 2207600001
Count Date: Mar 10, 2022

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Anne St S runs E/W

North Approach

	Out	In	Total
Cars	350	708	1058
Trucks	4	15	19
Bicycles	0	0	0
	354	**723**	**1077**

Essa Rd

Bicycles	0	0	0	0
Trucks	3	0	1	0
Cars	262	44	44	0
Totals	**265**	**44**	**45**	**0**

East Approach

	Out	In	Total
Cars	465	897	1362
Trucks	5	13	18
Bicycles	0	0	0
	470	**910**	**1380**

Anne St S

Bicycles	Trucks	Cars	Totals	
0	0	0	**0**	
0	13	620	**633**	
0	12	849	**861**	
0	1	32	**33**	

Peds: 1

Peds: 4

Peds: 0

Peds: 3

Anne St S

	Totals	Cars	Trucks	Bicycles
	0	0	0	0
	44	43	1	0
	424	420	4	0
	2	2	0	0

West Approach

	Out	In	Total
Cars	1501	704	2205
Trucks	26	7	33
Bicycles	0	0	0
	1527	**711**	**2238**

Essa Rd

Totals	**22**	**46**	**4**	**0**
Cars	22	45	4	0
Trucks	0	1	0	0
Bicycles	0	0	0	0

South Approach

	Out	In	Total
Cars	71	78	149
Trucks	1	1	2
Bicycles	0	0	0
	72	**79**	**151**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Essa Rd & Anne St S
Site Code: 2207600001
Count Date: Mar 10, 2022
Period: 15:00 - 18:00

Peak Hour Data (17:00 - 18:00)

Start Time	North Approach Essa Rd						South Approach Essa Rd						East Approach Anne St S						West Approach Anne St S						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
17:00	10	10	79	0	0	99	8	8	1	0	1	17	1	119	9	0	0	129	152	209	7	0	2	368	613
17:15	9	9	70	0	0	88	4	10	0	0	0	14	0	130	15	0	0	145	165	225	17	0	0	407	654
17:30	15	12	61	0	1	88	5	15	1	0	0	21	1	93	9	0	0	103	172	243	5	0	1	420	632
17:45	11	13	55	0	0	79	5	13	2	0	2	20	0	82	11	0	0	93	144	184	4	0	1	332	524
Grand Total	**45**	**44**	**265**	**0**	**1**	**354**	**22**	**46**	**4**	**0**	**3**	**72**	**2**	**424**	**44**	**0**	**0**	**470**	**633**	**861**	**33**	**0**	**4**	**1527**	**2423**
Approach %	12.7	12.4	74.9	0		-	30.6	63.9	5.6	0		-	0.4	90.2	9.4	0		-	41.5	56.4	2.2	0		-	
Totals %	1.9	1.8	10.9	0		14.6	0.9	1.9	0.2	0		3	0.1	17.5	1.8	0		19.4	26.1	35.5	1.4	0		63	
PHF	**0.75**	**0.85**	**0.84**	**0**		**0.89**	**0.69**	**0.77**	**0.5**	**0**		**0.86**	**0.5**	**0.82**	**0.73**	**0**		**0.81**	**0.92**	**0.89**	**0.49**	**0**		**0.91**	**0.93**
Cars	44	44	262	0		350	22	45	4	0		71	2	420	43	0		465	620	849	32	0		1501	2387
% Cars	97.8	100	98.9	0		98.9	100	97.8	100	0		98.6	100	99.1	97.7	0		98.9	97.9	98.6	97	0		98.3	98.5
Trucks	1	0	3	0		4	0	1	0	0		1	0	4	1	0		5	13	12	1	0		26	36
% Trucks	2.2	0	1.1	0		1.1	0	2.2	0	0		1.4	0	0.9	2.3	0		1.1	2.1	1.4	3	0		1.7	1.5
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					1	-					3	-					0	-					4	-	8
% Peds					12.5	-					37.5	-					0	-					50	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Project #22-076 - Tatham Engineering Ltd

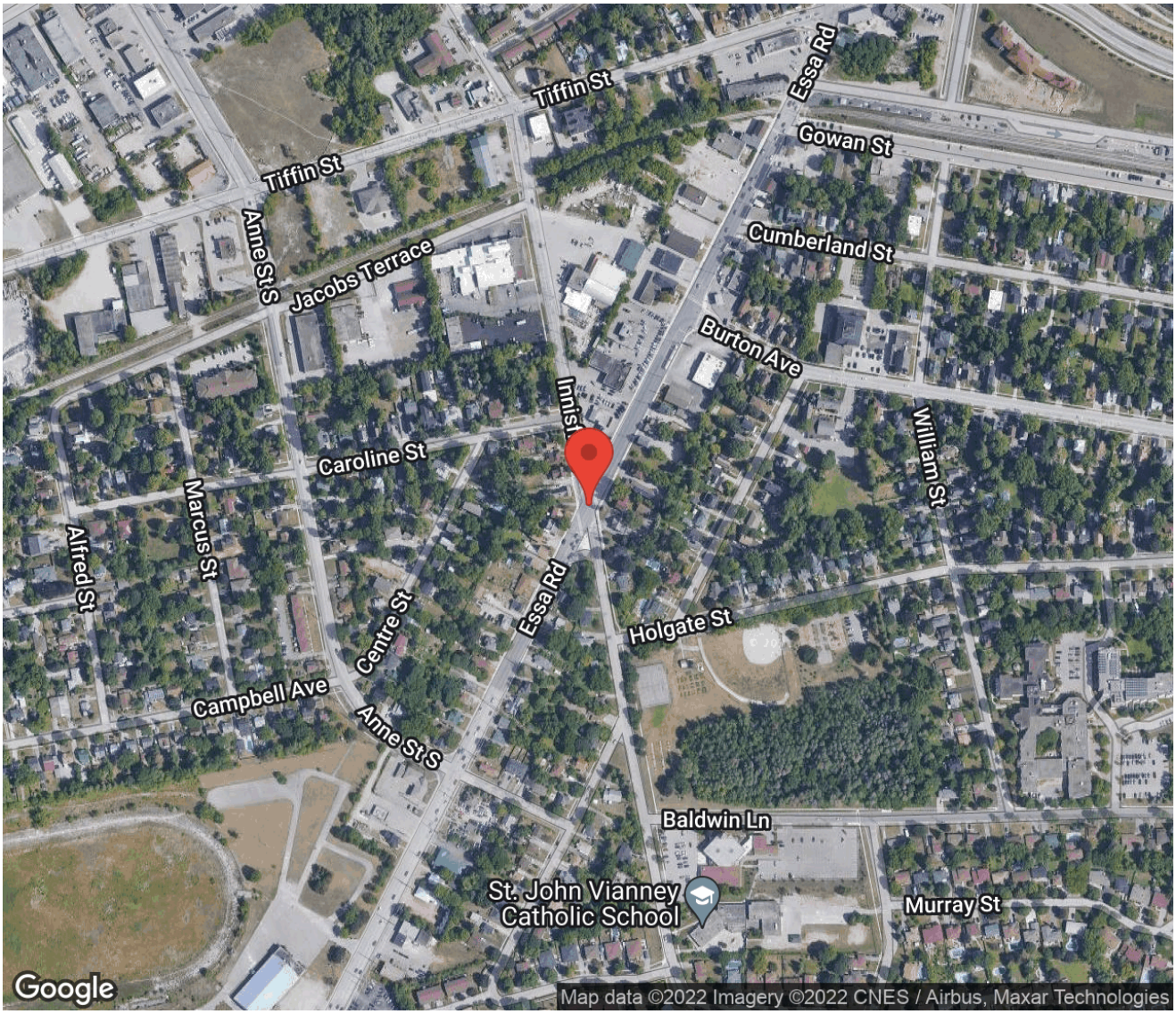
Intersection Count Report

Intersection:	Essa Rd & Innisfil St
Municipality:	Barrie
Count Date:	Mar 10, 2022
Site Code:	2207600002
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-10:00, 15:00-18:00
Weather:	Clear

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Map

Intersection:	Essa Rd & Innisfil St
Site Code:	2207600002
Municipality:	Barrie
Count Date:	Mar 10, 2022



Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	Essa Rd & Innisfil St
Site Code:	2207600002
Municipality:	Barrie
Count Date:	Mar 10, 2022

Essa Rd - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	30	72	31	0	133	0	10	52	12	0	74	1	207
08:00 - 09:00	37	86	26	0	149	3	20	57	12	0	89	4	238
09:00 - 10:00	53	64	37	0	154	0	15	61	15	0	91	0	245
BREAK													
15:00 - 16:00	57	116	44	0	217	3	16	87	11	0	114	1	331
16:00 - 17:00	93	107	43	0	243	2	34	121	11	0	166	2	409
17:00 - 18:00	68	91	58	0	217	1	14	101	12	0	127	2	344
GRAND TOTAL	**338**	**536**	**239**	**0**	**1113**	**9**	**109**	**479**	**73**	**0**	**661**	**10**	**1774**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	Essa Rd & Innisfil St
Site Code:	2207600002
Municipality:	Barrie
Count Date:	Mar 10, 2022

Innisfil St - Traffic Summary

	East Approach Totals						West Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	8	199	49	0	256	0	19	188	12	0	219	0	475
08:00 - 09:00	7	229	40	0	276	0	28	273	25	0	326	1	602
09:00 - 10:00	6	259	53	0	318	0	29	266	14	0	309	0	627
BREAK													
15:00 - 16:00	26	385	81	0	492	3	39	362	24	0	425	1	917
16:00 - 17:00	16	358	73	0	447	2	57	367	35	0	459	1	906
17:00 - 18:00	19	396	60	0	475	1	139	737	37	0	913	0	1388
GRAND TOTAL	**82**	**1826**	**356**	**0**	**2264**	**6**	**311**	**2193**	**147**	**0**	**2651**	**3**	**4915**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Essa Rd & Innisfil St
Site Code: 2207600002
Municipality: Barrie
Count Date: Mar 10, 2022

North Approach - Essa Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	4	8	5	0	17	0	0	1	0	1	0	0	0	0	0	0
07:15	9	18	6	0	33	2	1	0	0	3	0	0	0	0	0	0
07:30	10	20	5	0	35	0	0	0	0	0	0	0	0	0	0	0
07:45	5	24	14	0	43	0	1	0	0	1	0	0	0	0	0	0
08:00	9	19	5	0	33	0	0	0	0	0	0	0	0	0	0	0
08:15	9	23	4	0	36	0	0	1	0	1	0	0	0	0	0	0
08:30	8	25	9	0	42	0	0	0	0	0	0	0	0	0	0	1
08:45	11	18	7	0	36	0	1	0	0	1	0	0	0	0	0	2
09:00	13	13	8	0	34	1	1	0	0	2	0	0	0	0	0	0
09:15	10	14	9	0	33	1	2	0	0	3	0	0	0	0	0	0
09:30	13	21	7	0	41	1	0	1	0	2	0	0	0	0	0	0
09:45	14	13	11	0	38	0	0	1	0	1	0	0	0	0	0	0
SUBTOTAL	115	216	90	0	421	5	6	4	0	15	0	0	0	0	0	3

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Essa Rd & Innisfil St
Site Code: 2207600002
Municipality: Barrie
Count Date: Mar 10, 2022

North Approach - Essa Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
15:00	15	38	8	0	61	0	1	0	0	1	0	0	0	0	0	0
15:15	18	21	14	0	53	0	1	0	0	1	0	0	0	0	0	0
15:30	10	22	15	0	47	0	1	0	0	1	0	0	0	0	0	1
15:45	14	31	7	0	52	0	1	0	0	1	0	0	0	0	0	2
16:00	37	24	8	0	69	0	2	1	0	3	0	0	0	0	0	0
16:15	16	28	17	0	61	0	0	0	0	0	0	0	0	0	0	0
16:30	27	30	8	0	65	0	1	0	0	1	0	0	0	0	0	2
16:45	13	21	9	0	43	0	1	0	0	1	0	0	0	0	0	0
17:00	23	23	17	0	63	0	0	0	0	0	0	0	0	0	0	0
17:15	15	24	18	0	57	0	3	0	0	3	0	0	0	0	0	0
17:30	15	18	11	0	44	0	1	0	0	1	0	0	0	0	0	1
17:45	14	21	12	0	47	0	1	0	0	1	1	0	0	0	1	0
SUBTOTAL	217	301	144	0	662	0	13	1	0	14	1	0	0	0	1	6
GRAND TOTAL	**332**	**517**	**234**	**0**	**1083**	**5**	**19**	**5**	**0**	**29**	**1**	**0**	**0**	**0**	**1**	**9**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Essa Rd & Innisfil St
Site Code: 2207600002
Municipality: Barrie
Count Date: Mar 10, 2022

South Approach - Essa Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
07:00	3	20	3	0	26	0	0	0	0	0	0	0	0	0	0	0
07:15	3	9	2	0	14	0	0	0	0	0	0	0	0	0	0	0
07:30	2	4	4	0	10	0	1	0	0	1	0	0	0	0	0	1
07:45	2	18	2	0	22	0	0	1	0	1	0	0	0	0	0	0
08:00	4	7	3	0	14	0	1	0	0	1	0	0	0	0	0	2
08:15	5	16	2	0	23	0	0	0	0	0	0	0	0	0	0	0
08:30	4	14	5	0	23	0	1	0	0	1	0	0	0	0	0	1
08:45	7	18	2	0	27	0	0	0	0	0	0	0	0	0	0	1
09:00	4	18	2	0	24	0	1	0	0	1	0	0	0	0	0	0
09:15	4	10	4	0	18	0	0	0	0	0	0	0	0	0	0	0
09:30	4	14	4	0	22	0	0	0	0	0	0	0	0	0	0	0
09:45	3	16	5	0	24	0	2	0	0	2	0	0	0	0	0	0
SUBTOTAL	45	164	38	0	247	0	6	1	0	7	0	0	0	0	0	5

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Essa Rd & Innisfil St
Site Code: 2207600002
Municipality: Barrie
Count Date: Mar 10, 2022

South Approach - Essa Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
15:00	5	25	3	0	33	0	2	0	0	2	0	0	0	0	0	0
15:15	5	18	2	0	25	0	0	1	0	1	0	1	0	0	1	0
15:30	4	23	2	0	29	1	1	0	0	2	0	0	0	0	0	1
15:45	1	17	3	0	21	0	0	0	0	0	0	0	0	0	0	0
16:00	14	29	3	0	46	0	1	0	0	1	0	0	0	0	0	0
16:15	5	32	4	0	41	0	0	0	0	0	0	0	0	0	0	1
16:30	4	34	2	0	40	0	1	0	0	1	0	0	0	0	0	1
16:45	11	24	2	0	37	0	0	0	0	0	0	0	0	0	0	0
17:00	6	26	2	0	34	0	0	0	0	0	0	0	0	0	0	1
17:15	1	29	2	0	32	0	0	0	0	0	0	0	0	0	0	0
17:30	2	20	4	0	26	0	0	0	0	0	0	0	0	0	0	1
17:45	5	26	4	0	35	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	63	303	33	0	399	1	5	1	0	7	0	1	0	0	1	5
GRAND TOTAL	108	467	71	0	646	1	11	2	0	14	0	1	0	0	1	10

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Essa Rd & Innisfil St
Site Code: 2207600002
Municipality: Barrie
Count Date: Mar 10, 2022

East Approach - Innisfil St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	1	40	9	0	50	0	3	0	0	3	0	0	0	0	0	0
07:15	3	41	11	0	55	0	2	0	0	2	0	0	0	0	0	0
07:30	3	47	18	0	68	0	3	0	0	3	0	0	0	0	0	0
07:45	1	59	11	0	71	0	4	0	0	4	0	0	0	0	0	0
08:00	0	40	11	0	51	0	4	1	0	5	0	0	0	0	0	0
08:15	3	50	10	0	63	0	2	0	0	2	0	0	0	0	0	0
08:30	2	60	8	0	70	0	4	0	0	4	0	0	1	0	1	0
08:45	2	64	8	0	74	0	5	1	0	6	0	0	0	0	0	0
09:00	1	64	14	0	79	0	3	0	0	3	0	0	1	0	1	0
09:15	1	54	18	0	73	0	3	0	0	3	0	0	0	0	0	0
09:30	2	56	9	0	67	0	5	0	0	5	0	0	0	0	0	0
09:45	2	68	10	0	80	0	6	1	0	7	0	0	0	0	0	0
SUBTOTAL	21	643	137	0	801	0	44	3	0	47	0	0	2	0	2	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Essa Rd & Innisfil St
Site Code: 2207600002
Municipality: Barrie
Count Date: Mar 10, 2022

East Approach - Innisfil St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
15:00	7	93	19	0	119	0	2	0	0	2	0	0	0	0	0	0
15:15	6	87	15	0	108	2	3	2	0	7	0	0	0	0	0	0
15:30	5	105	24	0	134	0	5	0	0	5	0	0	0	0	0	1
15:45	6	89	21	0	116	0	1	0	0	1	0	0	0	0	0	2
16:00	6	83	16	0	105	0	2	0	0	2	0	0	0	0	0	0
16:15	4	99	20	0	123	0	2	0	0	2	0	0	0	0	0	0
16:30	5	95	24	0	124	0	3	0	0	3	0	0	0	0	0	2
16:45	1	72	13	0	86	0	2	0	0	2	0	0	0	0	0	0
17:00	4	102	14	0	120	0	1	0	0	1	0	0	0	0	0	0
17:15	6	128	12	0	146	0	1	0	0	1	0	0	0	0	0	1
17:30	3	89	20	0	112	0	1	1	0	2	0	0	0	0	0	0
17:45	6	73	12	0	91	0	1	1	0	2	0	0	0	0	0	0
SUBTOTAL	59	1115	210	0	1384	2	24	4	0	30	0	0	0	0	0	6
GRAND TOTAL	**80**	**1758**	**347**	**0**	**2185**	**2**	**68**	**7**	**0**	**77**	**0**	**0**	**2**	**0**	**2**	**6**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Essa Rd & Innisfil St
Site Code: 2207600002
Municipality: Barrie
Count Date: Mar 10, 2022

West Approach - Innisfil St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	1	27	1	0	29	1	4	0	0	5	0	0	0	0	0	0
07:15	6	37	1	0	44	0	4	0	0	4	0	0	0	0	0	0
07:30	4	44	4	0	52	0	7	0	0	7	0	0	0	0	0	0
07:45	7	61	6	0	74	0	4	0	0	4	0	0	0	0	0	0
08:00	4	48	5	0	57	0	9	0	0	9	0	0	0	0	0	0
08:15	7	52	5	0	64	0	1	0	0	1	0	0	0	0	0	0
08:30	12	65	9	0	86	0	3	0	0	3	0	0	0	0	0	1
08:45	5	89	6	0	100	0	6	0	0	6	0	0	0	0	0	0
09:00	3	72	3	0	78	0	4	0	0	4	0	0	0	0	0	0
09:15	7	51	2	0	60	0	2	0	0	2	0	0	0	0	0	0
09:30	6	54	5	0	65	0	7	0	0	7	0	1	0	0	1	0
09:45	13	73	4	0	90	0	1	0	0	1	0	1	0	0	1	0
SUBTOTAL	75	673	51	0	799	1	52	0	0	53	0	2	0	0	2	1

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Essa Rd & Innisfil St
Site Code: 2207600002
Municipality: Barrie
Count Date: Mar 10, 2022

West Approach - Innisfil St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
15:00	3	92	6	0	101	0	4	0	0	4	0	0	0	0	0	1
15:15	12	84	6	0	102	0	0	0	0	0	0	0	0	0	0	0
15:30	15	75	7	0	97	0	5	0	0	5	0	0	0	0	0	0
15:45	9	100	5	0	114	0	2	0	0	2	0	0	0	0	0	0
16:00	6	81	6	0	93	0	3	0	0	3	0	0	0	0	0	0
16:15	10	88	9	0	107	0	1	0	0	1	0	0	0	0	0	0
16:30	15	101	11	0	127	0	3	0	0	3	0	0	0	0	0	1
16:45	25	90	8	0	123	1	0	1	0	2	0	0	0	0	0	0
17:00	36	170	10	0	216	0	2	0	0	2	0	0	0	0	0	0
17:15	49	177	8	0	234	1	1	1	0	3	0	0	0	0	0	0
17:30	33	216	7	0	256	1	4	0	0	5	0	0	0	0	0	0
17:45	19	165	11	0	195	0	2	0	0	2	0	0	0	0	0	0
SUBTOTAL	232	1439	94	0	1765	3	27	2	0	32	0	0	0	0	0	2
GRAND TOTAL	**307**	**2112**	**145**	**0**	**2564**	**4**	**79**	**2**	**0**	**85**	**0**	**2**	**0**	**0**	**2**	**3**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period		One Hour Peak	
From:	07:00:00	From:	08:30:00
To:	10:00:00	To:	09:30:00

Intersection: Essa Rd & Innisfil St
Site Code: 2207600002
Count Date: Mar 10, 2022

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Innisfil St runs E/W

North Approach

	Out	In	Total
Cars	145	135	280
Trucks	6	3	9
Bicycles	0	2	2
	151	**140**	**291**

Essa Rd

Bicycles	0	0	0	0
Trucks	0	4	2	0
Cars	33	70	42	0
Totals	**33**	**74**	**44**	**0**

East Approach

	Out	In	Total
Cars	296	332	628
Trucks	16	17	33
Bicycles	2	0	2
	314	**349**	**663**

Innisfil St

Bicycles	Trucks	Cars	Totals	
0	0	0	**0**	
0	0	27	**27**	
0	15	277	**292**	
0	0	20	**20**	

Peds: 1

Peds: 3

Peds: 0

Peds: 2

Innisfil St

	Totals	Cars	Trucks	Bicycles
	0	0	0	0
	51	48	1	2
	257	242	15	0
	6	6	0	0

West Approach

	Out	In	Total
Cars	324	294	618
Trucks	15	15	30
Bicycles	0	0	0
	339	**309**	**648**

Essa Rd

Totals	**19**	**62**	**13**	**0**
Cars	19	60	13	0
Trucks	0	2	0	0
Bicycles	0	0	0	0

South Approach

	Out	In	Total
Cars	92	96	188
Trucks	2	4	6
Bicycles	0	0	0
	94	**100**	**194**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Essa Rd & Innisfil St
Site Code: 2207600002
Count Date: Mar 10, 2022
Period: 07:00 - 10:00

Peak Hour Data (08:30 - 09:30)

Start Time	North Approach Essa Rd						South Approach Essa Rd						East Approach Innisfil St						West Approach Innisfil St						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
08:30	8	25	9	0	1	42	4	15	5	0	1	24	2	64	9	0	0	75	12	68	9	0	1	89	230
08:45	11	19	7	0	2	37	7	18	2	0	1	27	2	69	9	0	0	80	5	95	6	0	0	106	250
09:00	14	14	8	0	0	36	4	19	2	0	0	25	1	67	15	0	0	83	3	76	3	0	0	82	226
09:15	11	16	9	0	0	36	4	10	4	0	0	18	1	57	18	0	0	76	7	53	2	0	0	62	192
Grand Total	**44**	**74**	**33**	**0**	**3**	**151**	**19**	**62**	**13**	**0**	**2**	**94**	**6**	**257**	**51**	**0**	**0**	**314**	**27**	**292**	**20**	**0**	**1**	**339**	**898**
Approach %	29.1	49	21.9	0		-	20.2	66	13.8	0		-	1.9	81.8	16.2	0		-	8	86.1	5.9	0		-	
Totals %	4.9	8.2	3.7	0		16.8	2.1	6.9	1.4	0		10.5	0.7	28.6	5.7	0		35	3	32.5	2.2	0		37.8	
PHF	**0.79**	**0.74**	**0.92**	**0**		**0.9**	**0.68**	**0.82**	**0.65**	**0**		**0.87**	**0.75**	**0.93**	**0.71**	**0**		**0.95**	**0.56**	**0.77**	**0.56**	**0**		**0.8**	**0.9**
Cars	42	70	33	0		145	19	60	13	0		92	6	242	48	0		296	27	277	20	0		324	857
% Cars	95.5	94.6	100	0		96	100	96.8	100	0		97.9	100	94.2	94.1	0		94.3	100	94.9	100	0		95.6	95.4
Trucks	2	4	0	0		6	0	2	0	0		2	0	15	1	0		16	0	15	0	0		15	39
% Trucks	4.5	5.4	0	0		4	0	3.2	0	0		2.1	0	5.8	2	0		5.1	0	5.1	0	0		4.4	4.3
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	2	0		2	0	0	0	0		0	2
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	3.9	0		0.6	0	0	0	0		0	0.2
Peds					3	-					2	-					0	-					1	-	6
% Peds					50	-					33.3	-					0	-					16.7	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period		One Hour Peak	
From:	15:00:00	From:	17:00:00
To:	18:00:00	To:	18:00:00

Intersection: Essa Rd & Innisfil St
Site Code: 2207600002
Count Date: Mar 10, 2022

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Innisfil St runs E/W

North Approach

	Out	In	Total
Cars	211	296	507
Trucks	5	4	9
Bicycles	1	0	1
	217	**300**	**517**

Essa Rd

Bicycles	0	0	1	0
Trucks	0	5	0	0
Cars	58	86	67	0
Totals	**58**	**91**	**68**	**0**

Peds: 1

East Approach

	Out	In	Total
Cars	469	807	1276
Trucks	6	9	15
Bicycles	0	1	1
	475	**817**	**1292**

Innisfil St

Bicycles	Trucks	Cars	Totals	
0	0	0	**0**	
0	2	137	**139**	
0	9	728	**737**	
0	1	36	**37**	

Peds: 0

Peds: 1

Innisfil St

	Totals	Cars	Trucks	Bicycles
	0	0	0	0
	60	58	2	0
	396	392	4	0
	19	19	0	0

Peds: 2

West Approach

	Out	In	Total
Cars	901	464	1365
Trucks	12	4	16
Bicycles	0	0	0
	913	**468**	**1381**

Essa Rd

Totals	**14**	**101**	**12**	**0**
Cars	14	101	12	0
Trucks	0	0	0	0
Bicycles	0	0	0	0

South Approach

	Out	In	Total
Cars	127	141	268
Trucks	0	6	6
Bicycles	0	0	0
	127	**147**	**274**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection:	Essa Rd & Innisfil St
Site Code:	2207600002
Count Date:	Mar 10, 2022
Period:	15:00 - 18:00

Peak Hour Data (17:00 - 18:00)

Start Time	North Approach Essa Rd						South Approach Essa Rd						East Approach Innisfil St						West Approach Innisfil St						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
17:00	23	23	17	0	0	63	6	26	2	0	1	34	4	103	14	0	0	121	36	172	10	0	0	218	436
17:15	15	27	18	0	0	60	1	29	2	0	0	32	6	129	12	0	1	147	50	178	9	0	0	237	476
17:30	15	19	11	0	1	45	2	20	4	0	1	26	3	90	21	0	0	114	34	220	7	0	0	261	446
17:45	15	22	12	0	0	49	5	26	4	0	0	35	6	74	13	0	0	93	19	167	11	0	0	197	374
Grand Total	**68**	**91**	**58**	**0**	**1**	**217**	**14**	**101**	**12**	**0**	**2**	**127**	**19**	**396**	**60**	**0**	**1**	**475**	**139**	**737**	**37**	**0**	**0**	**913**	**1732**
Approach %	31.3	41.9	26.7	0		-	11	79.5	9.4	0		-	4	83.4	12.6	0		-	15.2	80.7	4.1	0		-	
Totals %	3.9	5.3	3.3	0		12.5	0.8	5.8	0.7	0		7.3	1.1	22.9	3.5	0		27.4	8	42.6	2.1	0		52.7	
PHF	**0.74**	**0.84**	**0.81**	**0**		**0.86**	**0.58**	**0.87**	**0.75**	**0**		**0.91**	**0.79**	**0.77**	**0.71**	**0**		**0.81**	**0.7**	**0.84**	**0.84**	**0**		**0.87**	**0.91**
Cars	67	86	58	0		211	14	101	12	0		127	19	392	58	0		469	137	728	36	0		901	1708
% Cars	98.5	94.5	100	0		97.2	100	100	100	0		100	100	99	96.7	0		98.7	98.6	98.8	97.3	0		98.7	98.6
Trucks	0	5	0	0		5	0	0	0	0		0	0	4	2	0		6	2	9	1	0		12	23
% Trucks	0	5.5	0	0		2.3	0	0	0	0		0	0	1	3.3	0		1.3	1.4	1.2	2.7	0		1.3	1.3
Bicycles	1	0	0	0		1	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	1
% Bicycles	1.5	0	0	0		0.5	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0.1
Peds					1	-					2	-					1	-					0	-	4
% Peds					25	-					50	-					25	-					0	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Project #22-076 - Tatham Engineering Ltd

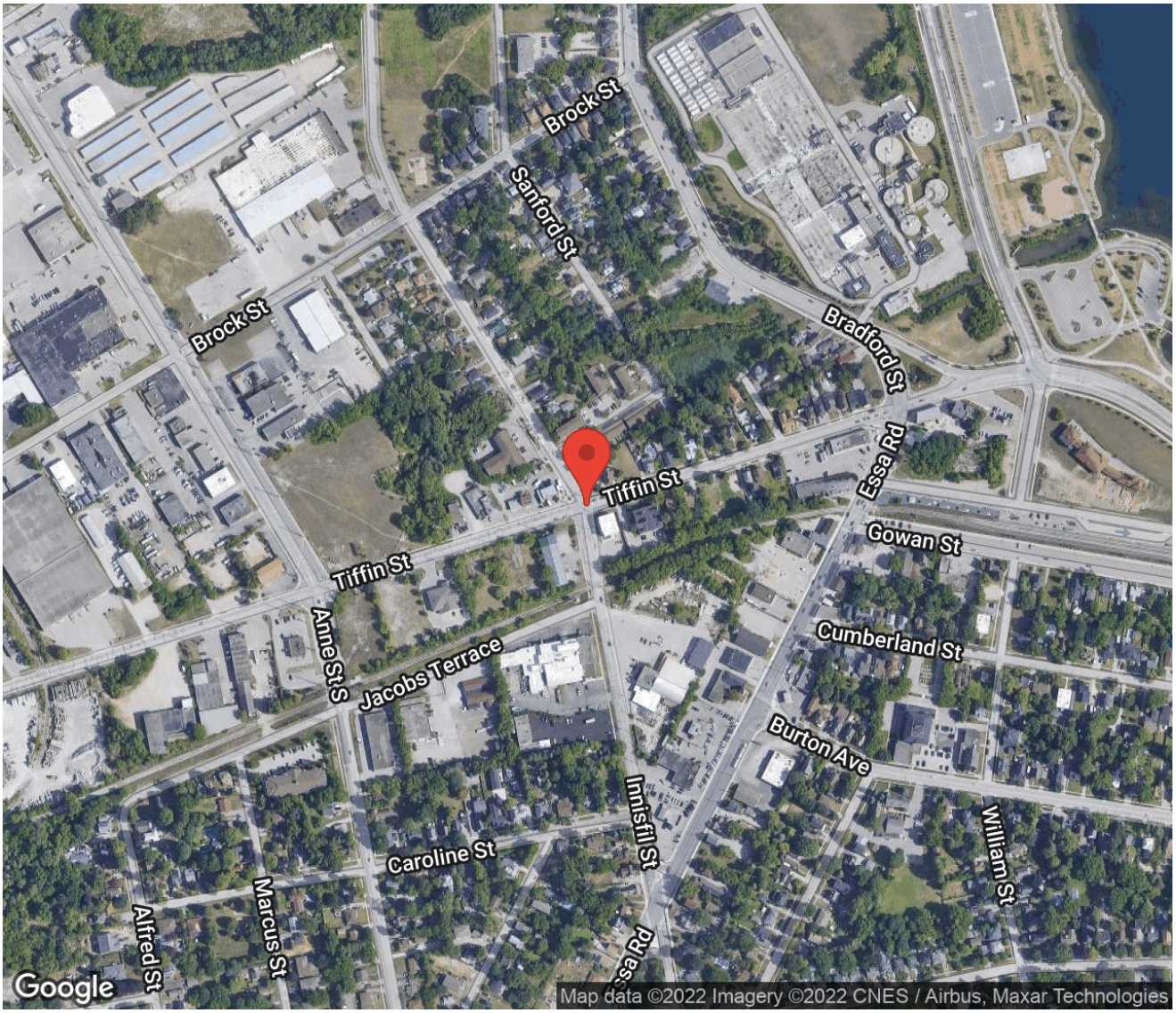
Intersection Count Report

Intersection:	Tiffin St & Innisfil St
Municipality:	Barrie
Count Date:	Mar 10, 2022
Site Code:	2207600003
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-10:00, 15:00-18:00
Weather:	Clear

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Map

Intersection:	Tiffin St & Innisfil St
Site Code:	2207600003
Municipality:	Barrie
Count Date:	Mar 10, 2022



Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	Tiffin St & Innisfil St
Site Code:	2207600003
Municipality:	Barrie
Count Date:	Mar 10, 2022

Innisfil St - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	11	96	14	0	121	1	32	65	0	0	97	2	218
08:00 - 09:00	9	94	15	0	118	2	26	64	7	0	97	1	215
09:00 - 10:00	16	75	15	0	106	3	48	86	3	0	137	3	243
BREAK													
15:00 - 16:00	34	143	27	0	204	4	51	176	8	0	235	63	439
16:00 - 17:00	33	141	17	0	191	0	49	175	12	0	236	2	427
17:00 - 18:00	19	128	24	0	171	4	40	145	5	0	190	2	361
GRAND TOTAL	**122**	**677**	**112**	**0**	**911**	**14**	**246**	**711**	**35**	**0**	**992**	**73**	**1903**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	Tiffin St & Innisfil St
Site Code:	2207600003
Municipality:	Barrie
Count Date:	Mar 10, 2022

Tiffin St - Traffic Summary

	East Approach Totals						West Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	4	189	7	0	200	1	18	146	28	0	192	3	392
08:00 - 09:00	7	207	9	0	223	1	19	235	38	0	292	2	515
09:00 - 10:00	2	136	22	0	160	1	16	194	34	0	244	1	404
BREAK													
15:00 - 16:00	7	244	30	0	281	1	21	320	53	0	394	2	675
16:00 - 17:00	8	250	20	0	278	1	23	370	51	0	444	3	722
17:00 - 18:00	6	219	20	0	245	1	21	348	33	0	402	4	647
GRAND TOTAL	**34**	**1245**	**108**	**0**	**1387**	**6**	**118**	**1613**	**237**	**0**	**1968**	**15**	**3355**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Tiffin St & Innisfil St
Site Code: 2207600003
Municipality: Barrie
Count Date: Mar 10, 2022

North Approach - Innisfil St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	0	12	3	0	15	0	0	0	0	0	0	0	0	0	0	1
07:15	2	19	4	0	25	0	2	0	0	2	0	0	0	0	0	0
07:30	6	32	4	0	42	0	1	0	0	1	0	0	0	0	0	0
07:45	3	28	3	0	34	0	2	0	0	2	0	0	0	0	0	0
08:00	1	20	5	0	26	0	2	0	0	2	0	0	0	0	0	0
08:15	2	24	5	0	31	0	2	0	0	2	0	0	0	0	0	1
08:30	3	21	2	0	26	0	1	0	0	1	0	0	0	0	0	0
08:45	3	22	3	0	28	0	2	0	0	2	0	0	0	0	0	1
09:00	5	14	2	0	21	0	0	0	0	0	0	0	0	0	0	1
09:15	4	20	3	0	27	0	1	0	0	1	0	0	0	0	0	0
09:30	3	17	7	0	27	0	1	0	0	1	0	0	0	0	0	0
09:45	4	22	3	0	29	0	0	0	0	0	0	0	0	0	0	2
SUBTOTAL	36	251	44	0	331	0	14	0	0	14	0	0	0	0	0	6

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Tiffin St & Innisfil St
Site Code: 2207600003
Municipality: Barrie
Count Date: Mar 10, 2022

North Approach - Innisfil St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
15:00	11	38	4	0	53	0	0	0	0	0	0	0	0	0	0	0
15:15	8	25	9	0	42	0	1	0	0	1	0	0	0	0	0	3
15:30	8	39	6	0	53	0	1	1	0	2	0	0	0	0	0	0
15:45	6	39	7	0	52	1	0	0	0	1	0	0	0	0	0	1
16:00	11	42	4	0	57	0	1	0	0	1	0	0	0	0	0	0
16:15	10	28	6	0	44	0	1	0	0	1	0	0	0	0	0	0
16:30	7	35	3	0	45	0	0	0	0	0	0	0	0	0	0	0
16:45	5	33	3	0	41	0	1	1	0	2	0	0	0	0	0	0
17:00	4	41	9	0	54	0	2	0	0	2	0	0	0	0	0	2
17:15	7	25	5	0	37	0	1	1	0	2	0	0	0	0	0	1
17:30	4	28	6	0	38	0	0	0	0	0	0	0	0	0	0	0
17:45	4	29	3	0	36	0	1	0	0	1	0	1	0	0	1	1
SUBTOTAL	85	402	65	0	552	1	9	3	0	13	0	1	0	0	1	8
GRAND TOTAL	121	653	109	0	883	1	23	3	0	27	0	1	0	0	1	14

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Tiffin St & Innisfil St
Site Code: 2207600003
Municipality: Barrie
Count Date: Mar 10, 2022

South Approach - Innisfil St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	5	13	0	0	18	0	1	0	0	1	0	0	0	0	0	0
07:15	9	15	0	0	24	1	1	0	0	2	0	0	0	0	0	0
07:30	9	16	0	0	25	0	1	0	0	1	0	0	0	0	0	0
07:45	8	17	0	0	25	0	1	0	0	1	0	0	0	0	0	2
08:00	5	11	0	0	16	0	0	0	0	0	0	0	0	0	0	1
08:15	10	18	0	0	28	0	0	0	0	0	0	0	0	0	0	0
08:30	5	18	4	0	27	0	1	0	0	1	0	0	0	0	0	0
08:45	6	15	3	0	24	0	1	0	0	1	0	0	0	0	0	0
09:00	11	27	1	0	39	1	5	0	0	6	0	0	0	0	0	0
09:15	6	21	0	0	27	1	2	0	0	3	0	0	0	0	0	2
09:30	16	16	1	0	33	1	1	0	0	2	0	0	0	0	0	0
09:45	12	13	1	0	26	0	1	0	0	1	0	0	0	0	0	1
SUBTOTAL	102	200	10	0	312	4	15	0	0	19	0	0	0	0	0	6

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Tiffin St & Innisfil St
Site Code: 2207600003
Municipality: Barrie
Count Date: Mar 10, 2022

South Approach - Innisfil St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
15:00	17	40	0	0	57	0	3	0	0	3	0	0	0	0	0	1
15:15	11	45	2	0	58	0	1	0	0	1	0	1	0	0	1	0
15:30	9	40	2	0	51	0	0	0	0	0	0	0	0	0	0	60
15:45	14	45	4	0	63	0	1	0	0	1	0	0	0	0	0	2
16:00	9	43	4	0	56	0	2	0	0	2	0	0	0	0	0	1
16:15	16	48	2	0	66	0	0	0	0	0	0	0	0	0	0	1
16:30	11	43	2	0	56	0	0	0	0	0	0	0	0	0	0	0
16:45	13	39	4	0	56	0	0	0	0	0	0	0	0	0	0	0
17:00	7	40	1	0	48	1	0	0	0	1	0	0	0	0	0	0
17:15	13	41	1	0	55	0	0	0	0	0	0	0	0	0	0	1
17:30	7	24	3	0	34	0	1	0	0	1	0	1	0	0	1	0
17:45	12	36	0	0	48	0	2	0	0	2	0	0	0	0	0	1
SUBTOTAL	139	484	25	0	648	1	10	0	0	11	0	2	0	0	2	67
GRAND TOTAL	241	684	35	0	960	5	25	0	0	30	0	2	0	0	2	73

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Tiffin St & Innisfil St
Site Code: 2207600003
Municipality: Barrie
Count Date: Mar 10, 2022

East Approach - Tiffin St

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
07:00	1	47	1	0	49	1	0	0	0	1	0	0	0	0	0	0
07:15	0	41	0	0	41	0	3	0	0	3	0	0	0	0	0	0
07:30	1	45	3	0	49	0	2	0	0	2	0	0	0	0	0	0
07:45	1	49	3	0	53	0	2	0	0	2	0	0	0	0	0	1
08:00	1	52	3	0	56	0	2	0	0	2	0	0	0	0	0	1
08:15	1	52	3	0	56	0	2	0	0	2	0	0	0	0	0	0
08:30	1	51	3	0	55	0	1	0	0	1	0	0	0	0	0	0
08:45	4	46	0	0	50	0	1	0	0	1	0	0	0	0	0	0
09:00	0	28	5	0	33	0	2	0	0	2	0	1	0	0	1	0
09:15	1	32	4	0	37	0	1	0	0	1	0	1	0	0	1	0
09:30	1	36	7	0	44	0	3	0	0	3	0	0	0	0	0	1
09:45	0	29	4	0	33	0	3	2	0	5	0	0	0	0	0	0
SUBTOTAL	12	508	36	0	556	1	22	2	0	25	0	2	0	0	2	3

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Tiffin St & Innisfil St
Site Code: 2207600003
Municipality: Barrie
Count Date: Mar 10, 2022

East Approach - Tiffin St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
15:00	1	60	5	0	66	0	3	0	0	3	0	0	0	0	0	0
15:15	0	66	7	0	73	0	1	0	0	1	0	0	0	0	0	1
15:30	3	50	5	0	58	0	5	1	0	6	0	1	0	0	1	0
15:45	3	53	12	0	68	0	5	0	0	5	0	0	0	0	0	0
16:00	2	74	6	0	82	1	1	0	0	2	0	0	0	0	0	0
16:15	2	55	3	0	60	0	2	0	0	2	0	2	0	0	2	0
16:30	1	63	7	0	71	0	2	0	0	2	0	0	0	0	0	1
16:45	2	50	4	0	56	0	1	0	0	1	0	0	0	0	0	0
17:00	2	54	3	0	59	0	3	0	0	3	1	0	0	0	1	0
17:15	2	66	8	0	76	0	1	0	0	1	0	0	0	0	0	0
17:30	1	52	6	0	59	0	1	0	0	1	0	0	0	0	0	0
17:45	0	41	3	0	44	0	1	0	0	1	0	0	0	0	0	1
SUBTOTAL	19	684	69	0	772	1	26	1	0	28	1	3	0	0	4	3
GRAND TOTAL	31	1192	105	0	1328	2	48	3	0	53	1	5	0	0	6	6

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Tiffin St & Innisfil St
Site Code: 2207600003
Municipality: Barrie
Count Date: Mar 10, 2022

West Approach - Tiffin St

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
07:00	2	21	9	0	32	0	3	1	0	4	0	0	0	0	0	0
07:15	2	38	2	0	42	0	2	0	0	2	0	0	0	0	0	0
07:30	8	37	5	0	50	0	4	0	0	4	0	0	0	0	0	0
07:45	6	39	11	0	56	0	2	0	0	2	0	0	0	0	0	3
08:00	2	45	12	0	59	0	3	0	0	3	0	0	0	0	0	0
08:15	4	52	8	0	64	1	5	0	0	6	0	0	0	0	0	1
08:30	5	60	10	0	75	0	3	0	0	3	0	0	0	0	0	1
08:45	7	67	8	0	82	0	0	0	0	0	0	0	0	0	0	0
09:00	1	41	6	0	48	0	1	0	0	1	0	0	0	0	0	0
09:15	5	53	6	0	64	0	3	2	0	5	0	0	0	0	0	1
09:30	4	48	11	0	63	0	1	1	0	2	0	0	0	0	0	0
09:45	6	45	6	0	57	0	2	2	0	4	0	0	0	0	0	0
SUBTOTAL	52	546	94	0	692	1	29	6	0	36	0	0	0	0	0	6

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Tiffin St & Innisfil St
Site Code: 2207600003
Municipality: Barrie
Count Date: Mar 10, 2022

West Approach - Tiffin St

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
15:00	6	65	16	0	87	1	4	0	0	5	0	0	0	0	0	2
15:15	8	71	6	0	85	0	3	0	0	3	1	0	0	0	1	0
15:30	5	85	20	0	110	0	0	2	0	2	0	0	0	0	0	0
15:45	0	91	8	0	99	0	1	1	0	2	0	0	0	0	0	0
16:00	6	83	15	0	104	1	4	2	0	7	0	0	0	0	0	0
16:15	3	86	13	0	102	0	2	0	0	2	0	1	0	0	1	1
16:30	6	95	15	0	116	0	1	0	0	1	0	0	0	0	0	1
16:45	7	97	6	0	110	0	0	0	0	0	0	1	0	0	1	1
17:00	5	83	11	0	99	0	2	1	0	3	0	0	0	0	0	0
17:15	8	99	11	0	118	0	1	0	0	1	0	2	0	0	2	1
17:30	6	77	6	0	89	0	0	0	0	0	0	1	0	0	1	2
17:45	2	82	4	0	88	0	1	0	0	1	0	0	0	0	0	1
SUBTOTAL	62	1014	131	0	1207	2	19	6	0	27	1	5	0	0	6	9
GRAND TOTAL	114	1560	225	0	1899	3	48	12	0	63	1	5	0	0	6	15

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period		One Hour Peak	
From:	07:00:00	From:	08:00:00
To:	10:00:00	To:	09:00:00

Intersection: Tiffin St & Innisfil St
Site Code: 2207600003
Count Date: Mar 10, 2022

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Tiffin St runs E/W

North Approach

	Out	In	Total
Cars	111	89	200
Trucks	7	3	10
Bicycles	0	0	0
	118	**92**	**210**

Innisfil St

Bicycles	0	0	0	0
Trucks	0	7	0	0
Cars	15	87	9	0
Totals	**15**	**94**	**9**	**0**

East Approach

	Out	In	Total
Cars	217	240	457
Trucks	6	11	17
Bicycles	0	0	0
	223	**251**	**474**

Tiffin St

Bicycles	Trucks	Cars	Totals	
0	0	0	**0**	
0	1	18	**19**	
0	11	224	**235**	
0	0	38	**38**	

Peds: 2

Peds: 2

N
W E
S

Peds: 1

Peds: 1

Tiffin St

	Totals	Cars	Trucks	Bicycles
	0	0	0	0
	9	9	0	0
	207	201	6	0
	7	7	0	0

West Approach

	Out	In	Total
Cars	280	242	522
Trucks	12	6	18
Bicycles	0	0	0
	292	**248**	**540**

Innisfil St

Totals	**26**	**64**	**7**	**0**
Cars	26	62	7	0
Trucks	0	2	0	0
Bicycles	0	0	0	0

South Approach

	Out	In	Total
Cars	95	132	227
Trucks	2	7	9
Bicycles	0	0	0
	97	**139**	**236**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection:	Tiffin St & Innisfil St
Site Code:	2207600003
Count Date:	Mar 10, 2022
Period:	07:00 - 10:00

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

Start Time	North Approach Innisfil St						South Approach Innisfil St						East Approach Tiffin St						West Approach Tiffin St						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
08:00	1	22	5	0	0	28	5	11	0	0	1	16	1	54	3	0	1	58	2	48	12	0	0	62	164
08:15	2	26	5	0	1	33	10	18	0	0	0	28	1	54	3	0	0	58	5	57	8	0	1	70	189
08:30	3	22	2	0	0	27	5	19	4	0	0	28	1	52	3	0	0	56	5	63	10	0	1	78	189
08:45	3	24	3	0	1	30	6	16	3	0	0	25	4	47	0	0	0	51	7	67	8	0	0	82	188
Grand Total	**9**	**94**	**15**	**0**	**2**	**118**	**26**	**64**	**7**	**0**	**1**	**97**	**7**	**207**	**9**	**0**	**1**	**223**	**19**	**235**	**38**	**0**	**2**	**292**	**730**
Approach %	7.6	79.7	12.7	0		-	26.8	66	7.2	0		-	3.1	92.8	4	0		-	6.5	80.5	13	0		-	
Totals %	1.2	12.9	2.1	0		16.2	3.6	8.8	1	0		13.3	1	28.4	1.2	0		30.5	2.6	32.2	5.2	0		40	
PHF	**0.75**	**0.9**	**0.75**	**0**		**0.89**	**0.65**	**0.84**	**0.44**	**0**		**0.87**	**0.44**	**0.96**	**0.75**	**0**		**0.96**	**0.68**	**0.88**	**0.79**	**0**		**0.89**	**0.97**
Cars	9	87	15	0		111	26	62	7	0		95	7	201	9	0		217	18	224	38	0		280	703
% Cars	100	92.6	100	0		94.1	100	96.9	100	0		97.9	100	97.1	100	0		97.3	94.7	95.3	100	0		95.9	96.3
Trucks	0	7	0	0		7	0	2	0	0		2	0	6	0	0		6	1	11	0	0		12	27
% Trucks	0	7.4	0	0		5.9	0	3.1	0	0		2.1	0	2.9	0	0		2.7	5.3	4.7	0	0		4.1	3.7
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					2	-					1	-					1	-					2	-	6
% Peds					33.3	-					16.7	-					16.7	-					33.3	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period		One Hour Peak	
From:	15:00:00	From:	15:45:00
To:	18:00:00	To:	16:45:00

Intersection: Tiffin St & Innisfil St
Site Code: 2207600003
Count Date: Mar 10, 2022

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Tiffin St runs E/W

North Approach

	Out	In	Total
Cars	198	222	420
Trucks	3	4	7
Bicycles	0	0	0
	201	**226**	**427**

Innisfil St

Bicycles	0	0	0	0
Trucks	0	2	1	0
Cars	20	144	34	0
Totals	**20**	**146**	**35**	**0**

East Approach

	Out	In	Total
Cars	281	401	682
Trucks	11	9	20
Bicycles	2	1	3
	294	**411**	**705**

Tiffin St

Bicycles	Trucks	Cars	Totals	
0	0	0	**0**	
0	1	15	**16**	
1	8	355	**364**	
0	3	51	**54**	

Peds: 1

Peds: 2

N
W
E
S

Peds: 1

Peds: 4

Tiffin St

	Totals	Cars	Trucks	Bicycles
	0	0	0	0
	28	28	0	0
	257	245	10	2
	9	8	1	0

West Approach

	Out	In	Total
Cars	421	315	736
Trucks	12	10	22
Bicycles	1	2	3
	434	**327**	**761**

Totals	**50**	**182**	**12**	**0**
Cars	50	179	12	0
Trucks	0	3	0	0
Bicycles	0	0	0	0

Innisfil St

South Approach

	Out	In	Total
Cars	241	203	444
Trucks	3	6	9
Bicycles	0	0	0
	244	**209**	**453**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Tiffin St & Innisfil St
Site Code: 2207600003
Count Date: Mar 10, 2022
Period: 15:00 - 18:00

Peak Hour Data (15:45 - 16:45)

Start Time	North Approach Innisfil St						South Approach Innisfil St						East Approach Tiffin St						West Approach Tiffin St						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
15:45	7	39	7	0	1	53	14	46	4	0	2	64	3	58	12	0	0	73	0	92	9	0	0	101	291
16:00	11	43	4	0	0	58	9	45	4	0	1	58	3	75	6	0	0	84	7	87	17	0	0	111	311
16:15	10	29	6	0	0	45	16	48	2	0	1	66	2	59	3	0	0	64	3	89	13	0	1	105	280
16:30	7	35	3	0	0	45	11	43	2	0	0	56	1	65	7	0	1	73	6	96	15	0	1	117	291
Grand Total	**35**	**146**	**20**	**0**	**1**	**201**	**50**	**182**	**12**	**0**	**4**	**244**	**9**	**257**	**28**	**0**	**1**	**294**	**16**	**364**	**54**	**0**	**2**	**434**	**1173**
Approach %	17.4	72.6	10	0		-	20.5	74.6	4.9	0		-	3.1	87.4	9.5	0		-	3.7	83.9	12.4	0		-	
Totals %	3	12.4	1.7	0		17.1	4.3	15.5	1	0		20.8	0.8	21.9	2.4	0		25.1	1.4	31	4.6	0		37	
PHF	**0.8**	**0.85**	**0.71**	**0**		**0.87**	**0.78**	**0.95**	**0.75**	**0**		**0.92**	**0.75**	**0.86**	**0.58**	**0**		**0.88**	**0.57**	**0.95**	**0.79**	**0**		**0.93**	**0.94**
Cars	34	144	20	0		198	50	179	12	0		241	8	245	28	0		281	15	355	51	0		421	1141
% Cars	97.1	98.6	100	0		98.5	100	98.4	100	0		98.8	88.9	95.3	100	0		95.6	93.8	97.5	94.4	0		97	97.3
Trucks	1	2	0	0		3	0	3	0	0		3	1	10	0	0		11	1	8	3	0		12	29
% Trucks	2.9	1.4	0	0		1.5	0	1.6	0	0		1.2	11.1	3.9	0	0		3.7	6.3	2.2	5.6	0		2.8	2.5
Bicycles	0	0	0	0		0	0	0	0	0		0	0	2	0	0		2	0	1	0	0		1	3
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0.8	0	0		0.7	0	0.3	0	0		0.2	0.3
Peds					1	-					4	-					1	-					2	-	8
% Peds					12.5	-					50	-					12.5	-					25	-	

Ontario Traffic Inc.
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Project #22-076 - Tatham Engineering Ltd

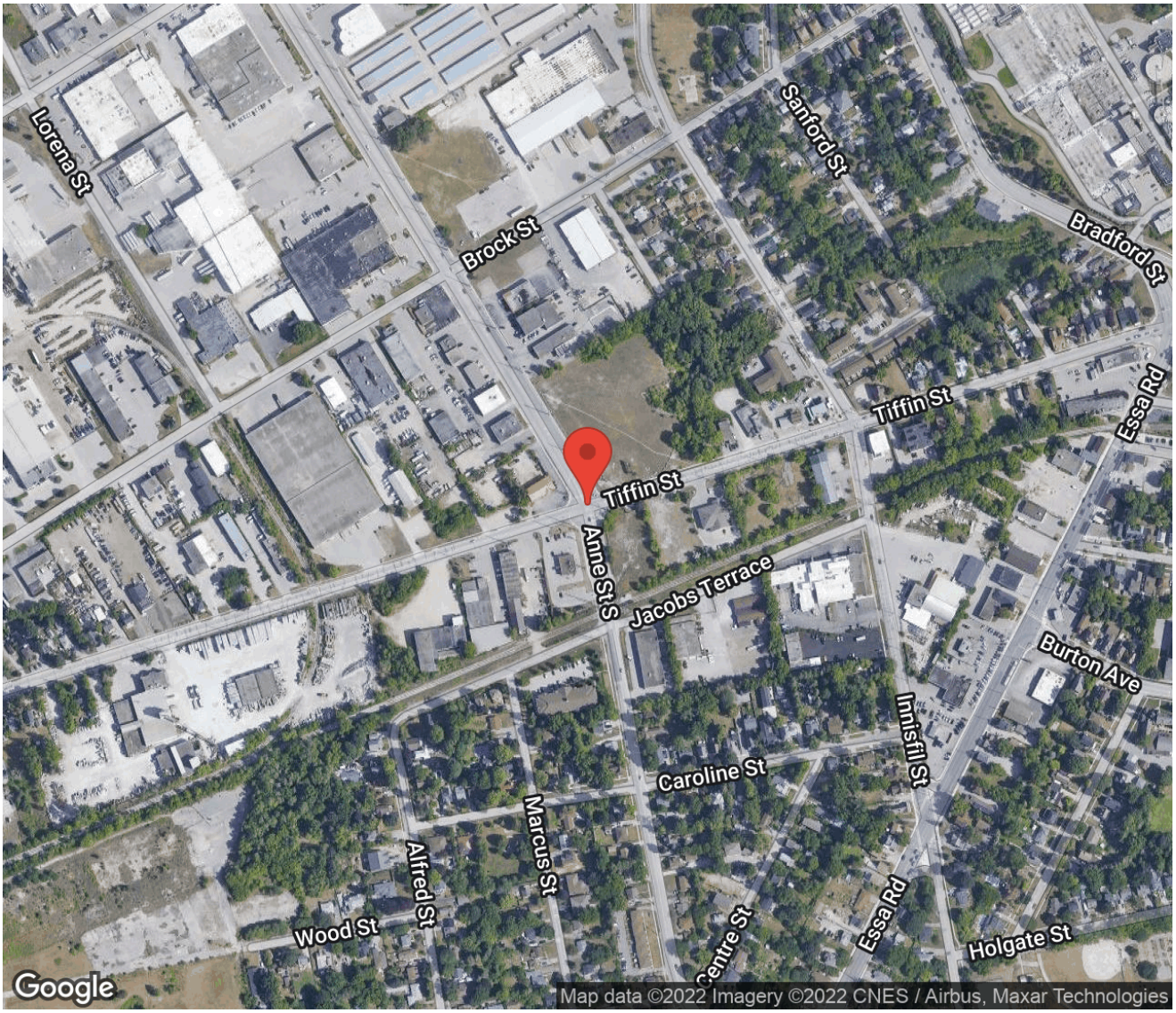
Intersection Count Report

Intersection:	Tiffin St & Anne St S
Municipality:	Barrie
Count Date:	Mar 10, 2022
Site Code:	2207600004
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-10:00, 15:00-18:00
Weather:	Clear

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Map

Intersection:	Tiffin St & Anne St S
Site Code:	2207600004
Municipality:	Barrie
Count Date:	Mar 10, 2022



Ontario Traffic Inc.
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Traffic Count Summary

Intersection:	Tiffin St & Anne St S
Site Code:	2207600004
Municipality:	Barrie
Count Date:	Mar 10, 2022

Anne St S - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	41	86	56	0	183	2	41	108	4	0	153	1	336
08:00 - 09:00	60	116	53	0	229	2	43	151	4	0	198	1	427
09:00 - 10:00	63	137	51	0	251	1	56	143	2	0	201	0	452
BREAK													
15:00 - 16:00	130	257	97	0	484	5	94	297	7	0	398	1	882
16:00 - 17:00	126	316	129	0	571	3	95	240	3	0	338	0	909
17:00 - 18:00	112	284	85	0	481	3	71	208	6	0	285	0	766
GRAND TOTAL	**532**	**1196**	**471**	**0**	**2199**	**16**	**400**	**1147**	**26**	**0**	**1573**	**3**	**3772**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	Tiffin St & Anne St S
Site Code:	2207600004
Municipality:	Barrie
Count Date:	Mar 10, 2022

Tiffin St - Traffic Summary

	East Approach Totals						West Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	2	185	48	0	235	0	64	151	50	0	265	1	500
08:00 - 09:00	5	193	48	0	246	2	69	225	51	0	345	2	591
09:00 - 10:00	4	140	57	0	201	0	65	179	51	0	295	3	496
BREAK													
15:00 - 16:00	7	225	77	0	309	1	86	259	69	0	414	9	723
16:00 - 17:00	7	249	72	0	328	1	103	312	83	0	498	2	826
17:00 - 18:00	3	224	52	0	279	0	88	292	83	0	463	3	742
GRAND TOTAL	**28**	**1216**	**354**	**0**	**1598**	**4**	**475**	**1418**	**387**	**0**	**2280**	**20**	**3878**

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Tiffin St & Anne St S
Site Code: 2207600004
Municipality: Barrie
Count Date: Mar 10, 2022

North Approach - Anne St S

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	6	14	7	0	27	0	4	0	0	4	0	0	0	0	0	0
07:15	14	15	14	0	43	0	2	0	0	2	0	0	0	0	0	0
07:30	5	22	19	0	46	0	1	1	0	2	0	0	0	0	0	1
07:45	16	25	15	0	56	0	3	0	0	3	0	0	0	0	0	1
08:00	15	23	12	0	50	1	2	2	0	5	0	0	0	0	0	2
08:15	10	23	16	0	49	0	5	2	0	7	0	0	0	0	0	0
08:30	17	27	9	0	53	0	3	0	0	3	1	0	0	0	1	0
08:45	15	30	11	0	56	1	3	1	0	5	0	0	0	0	0	0
09:00	9	35	8	0	52	0	3	0	0	3	0	0	0	0	0	0
09:15	20	31	12	0	63	0	4	1	0	5	0	0	0	0	0	0
09:30	15	35	9	0	59	0	0	1	0	1	0	0	0	0	0	0
09:45	17	28	20	0	65	2	1	0	0	3	0	0	0	0	0	1
SUBTOTAL	159	308	152	0	619	4	31	8	0	43	1	0	0	0	1	5

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Tiffin St & Anne St S
Site Code: 2207600004
Municipality: Barrie
Count Date: Mar 10, 2022

North Approach - Anne St S

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
15:00	27	50	21	0	98	2	7	1	0	10	0	0	0	0	0	2
15:15	25	63	24	0	112	0	0	2	0	2	0	0	0	0	0	1
15:30	38	72	26	0	136	0	1	2	0	3	0	0	0	0	0	0
15:45	38	58	21	0	117	0	6	0	0	6	0	0	0	0	0	2
16:00	33	78	33	0	144	2	2	0	0	4	0	0	0	0	0	0
16:15	27	75	28	0	130	1	3	2	0	6	0	0	0	0	0	0
16:30	36	81	37	0	154	0	6	1	0	7	0	0	0	0	0	2
16:45	27	68	28	0	123	0	2	0	0	2	0	1	0	0	1	1
17:00	28	88	28	0	144	1	2	1	0	4	0	0	0	0	0	1
17:15	38	75	24	0	137	0	5	1	0	6	1	0	0	0	1	0
17:30	24	56	16	0	96	0	0	0	0	0	0	1	0	0	1	0
17:45	19	54	14	0	87	1	2	1	0	4	0	1	0	0	1	2
SUBTOTAL	360	818	300	0	1478	7	36	11	0	54	1	3	0	0	4	11
GRAND TOTAL	519	1126	452	0	2097	11	67	19	0	97	2	3	0	0	5	16

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Tiffin St & Anne St S
Site Code: 2207600004
Municipality: Barrie
Count Date: Mar 10, 2022

South Approach - Anne St S

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	8	16	0	0	24	1	1	0	0	2	0	0	0	0	0	0
07:15	12	22	2	0	36	1	3	0	0	4	0	0	0	0	0	0
07:30	8	26	0	0	34	0	2	1	0	3	1	0	0	0	1	0
07:45	10	37	1	0	48	0	1	0	0	1	0	0	0	0	0	1
08:00	11	24	1	0	36	0	0	0	0	0	0	0	0	0	0	0
08:15	7	33	0	0	40	0	2	0	0	2	0	0	0	0	0	0
08:30	9	45	0	0	54	2	2	0	0	4	0	0	0	0	0	1
08:45	11	41	3	0	55	3	3	0	0	6	0	1	0	0	1	0
09:00	18	35	0	0	53	2	0	0	0	2	0	0	0	0	0	0
09:15	9	32	2	0	43	1	3	0	0	4	0	0	0	0	0	0
09:30	16	35	0	0	51	0	2	0	0	2	0	0	0	0	0	0
09:45	10	34	0	0	44	0	2	0	0	2	0	0	0	0	0	0
SUBTOTAL	129	380	9	0	518	10	21	1	0	32	1	1	0	0	2	2

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Tiffin St & Anne St S
Site Code: 2207600004
Municipality: Barrie
Count Date: Mar 10, 2022

South Approach - Anne St S

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
15:00	15	48	3	0	66	0	2	0	0	2	0	0	0	0	0	0
15:15	15	81	1	0	97	3	0	0	0	3	0	0	0	0	0	0
15:30	28	83	2	0	113	1	2	0	0	3	0	0	0	0	0	0
15:45	32	78	1	0	111	0	3	0	0	3	0	0	0	0	0	1
16:00	26	49	0	0	75	1	1	0	0	2	0	0	0	0	0	0
16:15	18	58	2	0	78	1	3	0	0	4	1	0	0	0	1	0
16:30	24	71	1	0	96	0	0	0	0	0	0	0	0	0	0	0
16:45	23	53	0	0	76	1	5	0	0	6	0	0	0	0	0	0
17:00	22	42	2	0	66	1	4	0	0	5	0	0	0	0	0	0
17:15	19	61	3	0	83	1	0	0	0	1	0	1	0	0	1	0
17:30	12	45	0	0	57	0	2	0	0	2	0	0	0	0	0	0
17:45	16	52	1	0	69	0	1	0	0	1	0	0	0	0	0	0
SUBTOTAL	250	721	16	0	987	9	23	0	0	32	1	1	0	0	2	1
GRAND TOTAL	**379**	**1101**	**25**	**0**	**1505**	**19**	**44**	**1**	**0**	**64**	**2**	**2**	**0**	**0**	**4**	**3**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Tiffin St & Anne St S
Site Code: 2207600004
Municipality: Barrie
Count Date: Mar 10, 2022

East Approach - Tiffin St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	0	42	11	0	53	0	1	1	0	2	0	0	0	0	0	0
07:15	2	42	12	0	56	0	2	1	0	3	0	0	0	0	0	0
07:30	0	46	11	0	57	0	3	0	0	3	0	0	0	0	0	0
07:45	0	48	12	0	60	0	1	0	0	1	0	0	0	0	0	0
08:00	0	52	6	0	58	1	1	0	0	2	0	0	0	0	0	0
08:15	1	55	12	0	68	0	1	0	0	1	0	0	0	0	0	1
08:30	3	44	11	0	58	0	2	0	0	2	0	0	1	0	1	1
08:45	0	37	18	0	55	0	1	0	0	1	0	0	0	0	0	0
09:00	2	26	16	0	44	0	2	1	0	3	0	1	0	0	1	0
09:15	0	30	12	0	42	0	1	1	0	2	0	0	0	0	0	0
09:30	1	43	14	0	58	0	3	0	0	3	0	1	0	0	1	0
09:45	1	30	13	0	44	0	3	0	0	3	0	0	0	0	0	0
SUBTOTAL	10	495	148	0	653	1	21	4	0	26	0	2	1	0	3	2

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Tiffin St & Anne St S
Site Code: 2207600004
Municipality: Barrie
Count Date: Mar 10, 2022

East Approach - Tiffin St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
15:00	2	59	15	0	76	0	0	2	0	2	0	0	0	0	0	1
15:15	1	64	21	0	86	0	4	0	0	4	0	0	1	0	1	0
15:30	2	46	20	0	68	0	2	0	0	2	0	0	0	0	0	0
15:45	2	47	18	0	67	0	3	0	0	3	0	0	0	0	0	0
16:00	2	75	15	0	92	0	3	1	0	4	0	0	0	0	0	0
16:15	1	54	23	0	78	1	2	0	0	3	0	1	0	0	1	1
16:30	3	56	18	0	77	0	1	0	0	1	0	0	0	0	0	0
16:45	0	55	15	0	70	0	2	0	0	2	0	0	0	0	0	0
17:00	1	58	10	0	69	0	3	0	0	3	0	0	0	0	0	0
17:15	1	62	15	0	78	0	2	0	0	2	0	0	0	0	0	0
17:30	0	50	14	0	64	0	1	1	0	2	0	0	0	0	0	0
17:45	1	46	12	0	59	0	1	0	0	1	0	1	0	0	1	0
SUBTOTAL	16	672	196	0	884	1	24	4	0	29	0	2	1	0	3	2
GRAND TOTAL	**26**	**1167**	**344**	**0**	**1537**	**2**	**45**	**8**	**0**	**55**	**0**	**4**	**2**	**0**	**6**	**4**

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Tiffin St & Anne St S
Site Code: 2207600004
Municipality: Barrie
Count Date: Mar 10, 2022

West Approach - Tiffin St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	9	31	11	0	51	2	2	1	0	5	0	0	0	0	0	0
07:15	13	24	13	0	50	0	4	0	0	4	0	0	0	0	0	0
07:30	23	43	11	0	77	1	3	0	0	4	0	0	0	0	0	0
07:45	15	41	14	0	70	1	3	0	0	4	0	0	0	0	0	1
08:00	17	41	11	0	69	3	2	0	0	5	0	0	0	0	0	0
08:15	17	52	13	0	82	1	2	1	0	4	0	0	0	0	0	1
08:30	13	56	10	0	79	0	6	0	0	6	0	0	0	0	0	0
08:45	17	65	16	0	98	1	1	0	0	2	0	0	0	0	0	1
09:00	14	42	15	0	71	1	3	1	0	5	0	0	0	0	0	1
09:15	16	41	14	0	71	2	1	0	0	3	0	0	0	0	0	1
09:30	19	42	10	0	71	0	3	3	0	6	0	0	0	0	0	0
09:45	13	45	6	0	64	0	2	2	0	4	0	0	0	0	0	1
SUBTOTAL	186	523	144	0	853	12	32	8	0	52	0	0	0	0	0	6

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Tiffin St & Anne St S
Site Code: 2207600004
Municipality: Barrie
Count Date: Mar 10, 2022

West Approach - Tiffin St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
15:00	20	59	13	0	92	1	2	1	0	4	0	2	0	0	2	2
15:15	24	64	12	0	100	0	3	1	0	4	0	0	0	0	0	4
15:30	17	63	20	0	100	1	3	4	0	8	0	0	0	0	0	1
15:45	23	59	17	0	99	0	3	1	0	4	0	1	0	0	1	2
16:00	27	74	22	0	123	3	4	0	0	7	0	0	0	0	0	0
16:15	23	71	17	0	111	0	2	5	0	7	0	0	0	0	0	1
16:30	27	82	17	0	126	0	0	2	0	2	0	0	0	0	0	0
16:45	21	78	20	0	119	2	1	0	0	3	0	0	0	0	0	1
17:00	28	77	29	0	134	0	1	0	0	1	0	1	0	0	1	0
17:15	25	78	24	0	127	0	1	1	0	2	0	0	0	0	0	0
17:30	19	66	14	0	99	0	1	0	0	1	0	0	0	0	0	3
17:45	16	67	15	0	98	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	270	838	220	0	1328	7	21	15	0	43	0	4	0	0	4	14
GRAND TOTAL	456	1361	364	0	2181	19	53	23	0	95	0	4	0	0	4	20

Peak Hour Diagram

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Specified Period		One Hour Peak	
From:	07:00:00	From:	08:15:00
To:	10:00:00	To:	09:15:00

Intersection: Tiffin St & Anne St S
Site Code: 2207600004
Count Date: Mar 10, 2022

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Tiffin St runs E/W

North Approach

	Out	In	Total
Cars	210	272	482
Trucks	18	11	29
Bicycles	1	2	3
	229	**285**	**514**

Anne St S

Bicycles	0	0	1	0
Trucks	3	14	1	0
Cars	44	115	51	0
Totals	**47**	**129**	**53**	**0**

East Approach

	Out	In	Total
Cars	225	269	494
Trucks	7	13	20
Bicycles	2	1	3
	234	**283**	**517**

Tiffin St

Bicycles	Trucks	Cars	Totals	
0	0	0	**0**	
0	3	61	**64**	
0	12	215	**227**	
0	2	54	**56**	

Peds: 3

Peds: 0

Peds: 2

Peds: 1

Tiffin St

	Totals	Cars	Trucks	Bicycles
	0	0	0	0
	59	57	1	1
	169	162	6	1
	6	6	0	0

West Approach

	Out	In	Total
Cars	330	251	581
Trucks	17	16	33
Bicycles	0	1	1
	347	**268**	**615**

Totals	**52**	**162**	**3**	**0**
Cars	45	154	3	0
Trucks	7	7	0	0
Bicycles	0	1	0	0

Anne St S

South Approach

	Out	In	Total
Cars	202	175	377
Trucks	14	16	30
Bicycles	1	0	1
	217	**191**	**408**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection:	Tiffin St & Anne St S
Site Code:	2207600004
Count Date:	Mar 10, 2022
Period:	07:00 - 10:00

Peak Hour Data (08:15 - 09:15)

Start Time	North Approach Anne St S						South Approach Anne St S						East Approach Tiffin St						West Approach Tiffin St						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
08:15	10	28	18	0	0	56	7	35	0	0	0	42	1	56	12	0	1	69	18	54	14	0	1	86	253
08:30	18	30	9	0	0	57	11	47	0	0	1	58	3	46	12	0	1	61	13	62	10	0	0	85	261
08:45	16	33	12	0	0	61	14	45	3	0	0	62	0	38	18	0	0	56	18	66	16	0	1	100	279
09:00	9	38	8	0	0	55	20	35	0	0	0	55	2	29	17	0	0	48	15	45	16	0	1	76	234
Grand Total	**53**	**129**	**47**	**0**	**0**	**229**	**52**	**162**	**3**	**0**	**1**	**217**	**6**	**169**	**59**	**0**	**2**	**234**	**64**	**227**	**56**	**0**	**3**	**347**	**1027**
Approach %	23.1	56.3	20.5	0		-	24	74.7	1.4	0		-	2.6	72.2	25.2	0		-	18.4	65.4	16.1	0		-	
Totals %	5.2	12.6	4.6	0		22.3	5.1	15.8	0.3	0		21.1	0.6	16.5	5.7	0		22.8	6.2	22.1	5.5	0		33.8	
PHF	**0.74**	**0.85**	**0.65**	**0**		**0.94**	**0.65**	**0.86**	**0.25**	**0**		**0.88**	**0.5**	**0.75**	**0.82**	**0**		**0.85**	**0.89**	**0.86**	**0.88**	**0**		**0.87**	**0.92**
Cars	51	115	44	0		210	45	154	3	0		202	6	162	57	0		225	61	215	54	0		330	967
% Cars	96.2	89.1	93.6	0		91.7	86.5	95.1	100	0		93.1	100	95.9	96.6	0		96.2	95.3	94.7	96.4	0		95.1	94.2
Trucks	1	14	3	0		18	7	7	0	0		14	0	6	1	0		7	3	12	2	0		17	56
% Trucks	1.9	10.9	6.4	0		7.9	13.5	4.3	0	0		6.5	0	3.6	1.7	0		3	4.7	5.3	3.6	0		4.9	5.5
Bicycles	1	0	0	0		1	0	1	0	0		1	0	1	1	0		2	0	0	0	0		0	4
% Bicycles	1.9	0	0	0		0.4	0	0.6	0	0		0.5	0	0.6	1.7	0		0.9	0	0	0	0		0	0.4
Peds					0	-					1	-					2	-					3	-	6
% Peds					0	-					16.7	-					33.3	-					50	-	

Peak Hour Diagram

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Specified Period		One Hour Peak	
From:	15:00:00	From:	15:45:00
To:	18:00:00	To:	16:45:00

Intersection: Tiffin St & Anne St S
Site Code: 2207600004
Count Date: Mar 10, 2022

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Tiffin St runs E/W

North Approach

	Out	In	Total
Cars	545	430	975
Trucks	23	11	34
Bicycles	0	0	0
	568	**441**	**1009**

Anne St S

Bicycles	0	0	0	0
Trucks	3	17	3	0
Cars	119	292	134	0
Totals	**122**	**309**	**137**	**0**

East Approach

	Out	In	Total
Cars	314	424	738
Trucks	11	12	23
Bicycles	1	1	2
	326	**437**	**763**

Tiffin St

Bicycles	Trucks	Cars	Totals	
0	0	0	**0**	
0	3	100	**103**	
1	9	286	**296**	
0	8	73	**81**	

Peds: 4

Peds: 3

N
W
E
S

Peds: 1

Peds: 1

Tiffin St

	Totals	Cars	Trucks	Bicycles
	0	0	0	0
	75	74	1	0
	242	232	9	1
	9	8	1	0

West Approach

	Out	In	Total
Cars	459	451	910
Trucks	20	14	34
Bicycles	1	2	3
	480	**467**	**947**

Totals	**103**	**263**	**4**	**0**
Cars	100	256	4	0
Trucks	2	7	0	0
Bicycles	1	0	0	0

Anne St S

South Approach

	Out	In	Total
Cars	360	373	733
Trucks	9	26	35
Bicycles	1	0	1
	370	**399**	**769**

Cars - Trucks - Bicycles

Comments

Trans-Plan Transportation Inc.

Site ID Code:
Intersection Location: Essa Road & Anne Street
Municipality: Barrie, Ontario
Count Date: Tuesday April 9, 2019
Weather and Temperature: Cloudy, 7 Degrees
Surveyor: TP

AM	NORTH APPROACH											EAST APPROACH											SOUTH APPROACH											WEST APPROACH											Grand Total
	CAR			TRUCKS			CYCLISTS			Peds	Total	CAR			TRUCKS			CYCLISTS			Peds	Total	CAR			TRUCKS			CYCLISTS			Peds	Total	CAR			TRUCKS			CYCLISTS			Peds	Total	
	L	T	R	L	T	R	L	T	R			L	T	R	L	T	R	L	T	R			L	T	R	L	T	R	L	T	R			L	T	R	L	T	R	L	T	R			
7:00	5	10	39	0	0	2	0	0	0	0	56	0	76	6	0	2	0	0	0	0	0	84	9	8	0	0	0	0	0	0	0	0	17	31	45	3	2	1	0	0	0	1	1	84	241
7:15	2	13	42	0	1	10	0	0	0	0	68	0	57	6	0	7	0	0	0	0	1	71	9	10	0	0	0	0	0	0	0	2	21	32	48	4	2	1	0	0	0	0	1	88	248
7:30	4	17	64	0	0	3	0	0	0	0	88	0	74	8	0	5	0	0	0	0	0	87	22	6	0	0	0	0	0	0	0	0	28	41	63	11	4	4	0	0	0	0	0	123	326
7:45	7	21	53	0	0	1	0	0	0	0	82	1	100	10	0	2	1	0	0	0	0	114	17	12	1	0	2	0	0	0	0	1	33	42	91	22	9	5	0	0	0	0	1	170	399
8:00	7	12	45	0	0	3	0	0	0	3	70	0	75	8	0	4	0	0	0	0	3	90	14	12	0	0	0	0	0	0	0	0	26	47	90	15	5	3	0	0	0	0	0	160	346
8:15	8	18	45	0	1	6	0	0	0	0	78	0	90	10	0	3	1	0	0	0	0	104	14	6	0	1	0	0	0	0	0	0	21	50	78	16	3	3	0	0	0	0	0	150	353
8:30	7	13	56	1	2	5	0	0	0	0	84	0	74	11	0	5	0	0	0	0	3	93	15	15	0	2	0	0	0	0	0	0	32	54	89	10	6	3	0	0	0	0	1	163	372
8:45	4	21	48	1	1	6	0	0	0	0	81	0	82	11	0	2	0	0	0	0	0	95	13	12	0	0	1	0	0	0	0	0	26	56	117	11	3	2	1	0	0	0	6	196	398
MD																																													
11:00	12	9	61	0	0	7	0	0	0	0	89	0	108	9	0	6	0	0	0	0	0	123	12	14	0	0	0	0	0	0	0	2	28	55	86	6	7	4	2	0	0	0	0	160	400
11:15	7	10	51	0	1	4	0	0	0	0	73	0	80	11	0	2	1	0	0	0	0	94	5	4	0	0	0	0	0	0	0	0	9	55	92	8	5	3	0	0	0	0	0	163	339
11:30	23	17	56	1	1	3	0	0	0	0	101	3	92	14	0	3	0	0	0	0	0	112	11	12	0	0	0	0	0	0	0	0	23	57	88	7	5	6	1	0	0	0	0	164	400
11:45	6	20	71	0	1	9	0	0	0	0	107	0	94	7	0	4	0	0	0	0	0	105	7	10	0	0	0	0	0	0	0	0	17	60	107	6	3	4	0	0	0	0	0	180	409
12:00	11	15	63	0	0	5	0	0	0	0	94	1	113	16	0	4	1	0	0	0	0	135	13	10	0	0	0	0	0	0	0	1	24	71	88	11	5	2	0	0	0	0	0	177	430
12:15	22	13	66	1	0	2	0	0	0	0	104	0	90	10	0	1	0	0	0	0	0	101	9	8	0	0	0	0	0	0	0	1	18	62	75	12	1	9	0	0	0	0	0	159	382
12:30	12	14	84	0	0	5	0	0	0	0	115	0	90	16	0	3	2	0	0	0	0	111	10	12	1	0	0	0	0	0	0	4	27	61	104	8	2	5	0	0	0	0	0	180	433
12:45	12	19	64	1	2	1	0	0	0	0	99	0	83	16	0	4	1	0	0	0	0	104	15	8	0	0	0	0	0	0	0	0	23	55	98	6	9	4	0	0	0	0	0	172	398
13:00	10	22	61	0	0	4	0	0	0	0	97	0	108	14	0	2	1	0	0	0	0	125	5	8	0	0	0	0	0	0	0	0	13	62	83	9	5	6	0	0	0	0	0	165	400
13:15	7	13	67	0	0	3	0	0	0	1	91	0	111	17	0	2	0	0	0	0	0	130	4	9	0	0	0	0	0	0	0	0	13	57	90	8	2	0	0	0	0	0	0	157	391
13:30	7	15	57	0	1	12	0	0	0	0	92	0	79	14	0	3	0	0	0	0	0	96	8	14	1	1	0	0	0	0	0	0	24	80	89	15	1	3	0	0	0	0	2	190	402
13:45	18	18	64	0	0	4	0	0	0	0	104	1	109	12	0	3	1	0	0	0	0	126	11	13	0	0	0	0	0	0	0	0	24	72	97	8	4	1	0	0	0	0	1	183	437
PM																																													
15:00	23	23	70	0	0	4	0	0	0	0	120	0	100	14	0	3	1	0	0	0	2	120	9	15	1	0	0	0	0	0	0	4	29	73	104	12	6	3	1	0	0	0	3	202	471
15:15	11	23	76	0	0	3	0	0	0	1	114	1	132	25	0	6	0	0	0	0	0	164	6	9	0	0	1	0	0	0	0	1	17	74	130	13	3	0	0	0	0	0	0	220	515
15:30	14	20	82	0	0	4	0	0	0	1	121	1	105	17	0	1	0	0	0	0	3	127	8	14	1	0	1	0	0	0	0	1	25	81	119	12	4	3	1	0	0	0	0	220	493
15:45	13	18	57	0	2	3	0	0	0	0	93	0	97	21	0	2	1	0	0	0	0	121	10	11	0	1	0	0	0	0	0	3	25	81	131	19	5	2	0	0	0	0	2	240	479
16:00	21	27	74	0	0	4	0	0	0	0	126	0	137	16	0	2	1	0	0	0	0	156	13	20	0	0	0	0	0	0	0	1	34	103	117	19	3	5	0	0	0	0	0	247	563
16:15	9	25	81	0	0	4	0	0	0	0	119	0	116	15	0	3	0	0	0	0	0	134	13	16	0	0	0	0	0	0	0	3	32	80	112	24	5	0	0	0	0	0	0	221	506
16:30	12	14	82	0	0	3	0	0	0	0	111	0	108	13	0	6	0	0	0	0	0	127	7	20	1	0	0	0	0	0	0	0	28	98	117	13	2	3	0	0	0	0	0	233	499
16:45	16	16	67	0	0	3	0	0	0	0	102	0	92	18	0	3	0	0	0	0	0	113	6	19	0	0	1	0	0	0	0	3	29	97	117	16	2	1	0	0	0	0	1	234	478
17:00	20	24	117	0	0	5	0	0	0	0	166	0	119	12	0	2	0	0	0	0	2	135	8	17	0	0	1	0	0	0	0	1	27	87	115	15	3	3	0	0	0	0	1	224	552
17:15	18	16	72	0	0	1	0	0	0	0	107	0	117	9	0	3	0	0	0	0	0	129	4	13	1	0	0	0	0	0	0	1	19	84	123	16	4	1	0	0	0	0	0	228	483
17:30	6	18	43	0	0	3	0	0	0	1	71	0	100	17	0	0	0	0	0	0	0	117	8	11	0	0	0	0	0	0	0	0	19	55	107	14	3	1	0	0	0	0	0	180	387
17:45	12	12	50	0	0	0	0	0	0	0	74	0	74	10	0	1	0	0	0	0	0	85	6	9	0	0	0	0	0	0	0	0	15	60	91	11	0	2	0	0	0	0	0	164	338

TRANS-PLAN
transportation engineering

Turning Movement Count Diagram

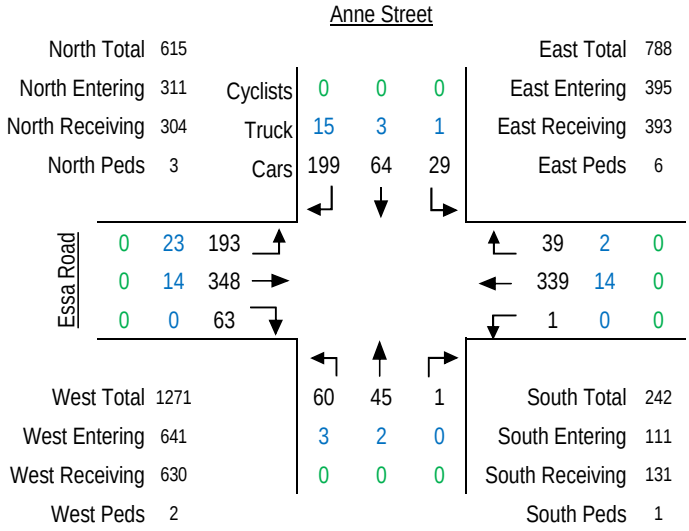
Intersection: Essa Road & Anne Street

Intersection ID:

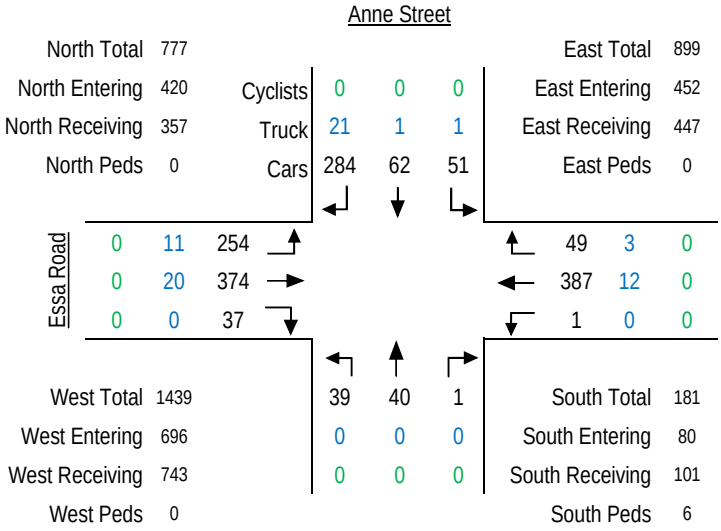
Municipality: Barrie, Ontario

Date: Tuesday April 9, 2019

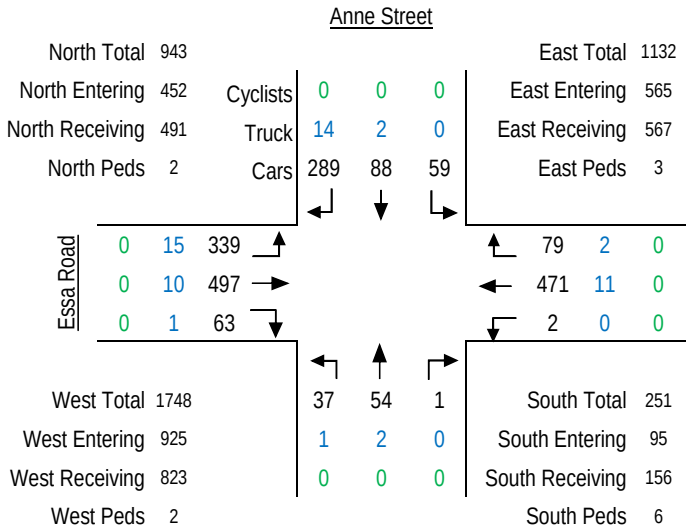
AM Peak Hour: 7:45 to 8:45



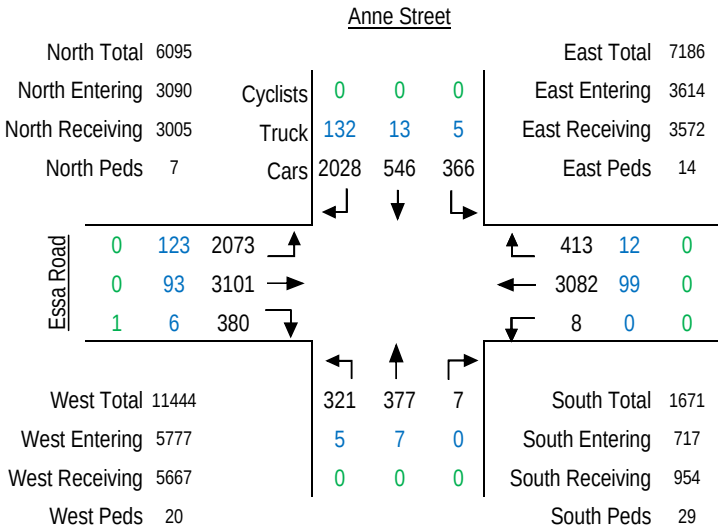
MD Peak Hour: 11:45 to 12:45



PM Peak Hour: 15:15 to 16:15



Total 8-Hour Count



Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection:	Tiffin St & Anne St S
Site Code:	2207600004
Count Date:	Mar 10, 2022
Period:	15:00 - 18:00

Peak Hour Data (15:45 - 16:45)

Start Time	North Approach Anne St S						South Approach Anne St S						East Approach Tiffin St						West Approach Tiffin St						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
15:45	38	64	21	0	2	123	32	81	1	0	1	114	2	50	18	0	0	70	23	63	18	0	2	104	411
16:00	35	80	33	0	0	148	27	50	0	0	0	77	2	78	16	0	0	96	30	78	22	0	0	130	451
16:15	28	78	30	0	0	136	20	61	2	0	0	83	2	57	23	0	1	82	23	73	22	0	1	118	419
16:30	36	87	38	0	2	161	24	71	1	0	0	96	3	57	18	0	0	78	27	82	19	0	0	128	463
Grand Total	**137**	**309**	**122**	**0**	**4**	**568**	**103**	**263**	**4**	**0**	**1**	**370**	**9**	**242**	**75**	**0**	**1**	**326**	**103**	**296**	**81**	**0**	**3**	**480**	**1744**
Approach %	24.1	54.4	21.5	0		-	27.8	71.1	1.1	0		-	2.8	74.2	23	0		-	21.5	61.7	16.9	0		-	
Totals %	7.9	17.7	7	0		32.6	5.9	15.1	0.2	0		21.2	0.5	13.9	4.3	0		18.7	5.9	17	4.6	0		27.5	
PHF	**0.9**	**0.89**	**0.8**	**0**		**0.88**	**0.8**	**0.81**	**0.5**	**0**		**0.81**	**0.75**	**0.78**	**0.82**	**0**		**0.85**	**0.86**	**0.9**	**0.92**	**0**		**0.92**	**0.94**
Cars	134	292	119	0		545	100	256	4	0		360	8	232	74	0		314	100	286	73	0		459	1678
% Cars	97.8	94.5	97.5	0		96	97.1	97.3	100	0		97.3	88.9	95.9	98.7	0		96.3	97.1	96.6	90.1	0		95.6	96.2
Trucks	3	17	3	0		23	2	7	0	0		9	1	9	1	0		11	3	9	8	0		20	63
% Trucks	2.2	5.5	2.5	0		4	1.9	2.7	0	0		2.4	11.1	3.7	1.3	0		3.4	2.9	3	9.9	0		4.2	3.6
Bicycles	0	0	0	0		0	1	0	0	0		1	0	1	0	0		1	0	1	0	0		1	3
% Bicycles	0	0	0	0		0	1	0	0	0		0.3	0	0.4	0	0		0.3	0	0.3	0	0		0.2	0.2
Peds					4	-					1	-					1	-					3	-	9
% Peds					44.4	-					11.1	-					11.1	-					33.3	-	

Trans-Plan Transportation Inc.

Site ID Code:
Intersection Location: Essa Road & Innisfil Street
Municipality: Barrie, Ontario
Count Date: Thursday February 14, 2019
Weather and Temperature: Partly Cloudy, -1 Degree
Surveyor: TP

AM	NORTH APPROACH										Total	EAST APPROACH										Total	SOUTH APPROACH										Total	WEST APPROACH										Total	Grand Total
	CAR			TRUCKS			CYCLISTS			Peds		CAR			TRUCKS			CYCLISTS			Peds		CAR			TRUCKS			CYCLISTS			Peds		CAR			TRUCKS			CYCLISTS			Peds		
	L	T	R	L	T	R	L	T	R			L	T	R	L	T	R	L	T	R			L	T	R	L	T	R	L	T	R			L	T	R	L	T	R	L	T	R			
7:00	4	14	10	1	0	0	0	0	0	1	30	5	38	9	0	1	0	0	0	0	1	54	3	16	2	0	2	0	0	0	0	0	23	2	26	2	0	3	0	0	0	0	1	34	141
7:15	3	30	4	0	1	2	0	0	0	0	40	1	61	21	0	3	1	0	0	0	0	87	1	15	2	1	0	0	0	0	0	0	19	2	44	5	0	1	0	0	0	0	0	52	198
7:30	7	24	15	0	3	0	0	0	0	1	50	2	56	17	0	5	1	0	0	0	0	81	6	18	3	0	1	0	0	0	0	0	28	2	48	4	0	3	0	0	0	0	0	57	216
7:45	10	33	13	0	1	0	0	0	0	0	57	5	93	15	0	3	1	0	0	0	0	117	5	23	2	0	0	0	0	0	0	0	30	9	60	10	0	5	0	0	0	0	0	84	288
8:00	15	33	8	0	1	0	0	0	0	0	57	3	73	19	0	2	0	0	0	0	0	97	4	26	4	0	0	0	0	0	0	0	34	6	57	10	1	5	0	0	0	0	0	79	267
8:15	7	20	9	0	1	0	0	0	0	0	37	3	75	14	0	6	0	0	0	0	0	98	3	19	9	1	2	1	0	0	0	0	35	6	102	7	1	3	1	0	0	0	0	120	290
8:30	13	23	5	1	1	0	0	0	0	1	44	2	66	16	1	6	0	0	0	0	0	91	4	16	3	0	0	0	0	0	0	0	23	5	69	4	0	2	0	0	0	0	0	80	238
8:45	8	33	5	0	2	0	0	0	0	0	48	5	61	12	0	2	1	0	0	0	1	82	7	25	6	0	3	0	0	0	0	0	41	7	118	8	0	5	0	0	0	0	0	138	309
MD																																													
11:00	12	17	14	0	1	0	0	0	0	0	44	5	87	16	1	5	0	0	0	0	0	114	5	23	4	0	1	0	0	0	0	0	33	10	75	5	0	2	0	0	0	0	0	92	283
11:15	9	20	11	0	0	0	0	0	0	0	40	3	73	17	1	3	0	0	0	0	0	97	3	19	7	0	0	1	0	0	0	0	30	7	80	8	0	3	1	0	0	0	1	100	267
11:30	22	24	13	0	0	1	0	0	0	0	60	2	73	24	0	2	0	0	0	0	0	101	2	22	6	0	2	0	0	0	0	0	32	11	74	8	0	3	0	0	0	0	0	96	289
11:45	14	23	16	0	1	0	0	0	0	1	55	4	75	19	0	4	0	0	0	0	0	102	4	21	6	0	2	0	0	0	0	0	33	12	82	2	0	1	0	0	0	0	0	97	287
12:00	14	20	14	0	2	0	0	0	0	1	51	2	102	20	0	3	2	0	0	0	0	129	4	24	4	0	1	1	0	0	1	0	35	12	85	8	0	3	0	0	0	0	0	108	323
12:15	13	28	18	1	2	1	0	0	0	1	64	3	95	17	0	3	0	0	0	0	0	118	7	33	3	0	1	0	0	0	0	2	46	9	73	2	0	2	0	0	0	0	1	87	315
12:30	9	23	9	0	0	0	0	0	0	1	42	3	109	16	0	1	0	0	0	0	0	129	2	18	7	0	1	0	0	0	0	0	28	19	87	4	2	4	0	0	0	0	0	116	315
12:45	18	28	15	1	0	1	0	0	0	0	63	3	88	29	0	7	1	0	0	0	0	128	5	29	6	0	0	0	0	0	0	0	40	5	101	9	0	5	0	0	0	0	0	120	351
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13:15	18	27	19	0	1	0	0	0	0	0	65	6	102	17	0	4	1	0	0	0	0	130	4	17	7	0	1	0	0	0	0	1	30	10	68	8	1	2	0	0	0	0	0	89	314
13:30	14	27	16	0	0	0	0	0	0	0	57	10	103	21	0	2	0	0	0	0	0	136	10	18	9	0	2	0	0	0	0	1	40	10	79	7	0	5	0	0	0	0	1	102	335
13:45	11	28	14	0	1	0	0	0	0	2	56	2	83	23	0	6	0	0	0	0	2	116	13	13	7	0	2	0	0	0	0	1	36	12	96	10	0	5	0	0	0	0	1	124	332
PM																																													
15:00	21	32	24	0	1	0	0	0	0	1	79	2	96	17	0	5	1	0	0	0	2	123	3	32	5	1	1	0	0	0	0	3	45	11	80	10	0	2	0	0	0	0	3	106	353
15:15	15	31	18	0	2	0	0	0	0	0	66	5	102	14	0	5	1	0	0	0	0	127	4	57	8	1	2	1	0	0	0	2	75	8	112	8	0	1	0	0	0	0	2	131	399
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15:45	15	29	18	0	1	0	0	0	0	0	63	6	107	12	0	4	0	0	0	0	3	132	4	36	6	1	2	0	0	0	0	0	49	11	103	6	0	1	0	0	0	0	0	121	365
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16:15	23	40	19	0	2	0	0	0	0	0	84	6	119	16	0	4	1	0	0	0	0	146	4	39	7	0	1	1	0	0	0	1	53	15	98	5	0	2	0	0	0	0	1	121	404
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17:45	9	14	12	0	3	0	0	0	0	0	38	5	123	22	0	1	1	0	0	0	0	152	2	22	8	0	1	0	0	0	0	1	34	13	85	8	0	0	0	0	0	0	0	106	330

TRANS-PLAN
transportation engineering

Turning Movement Count Diagram

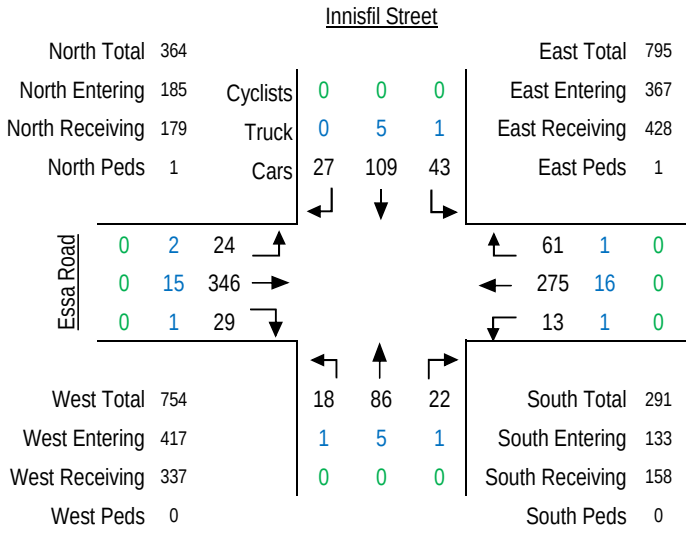
Intersection: Essa Road & Innisfil Street

Intersection ID:

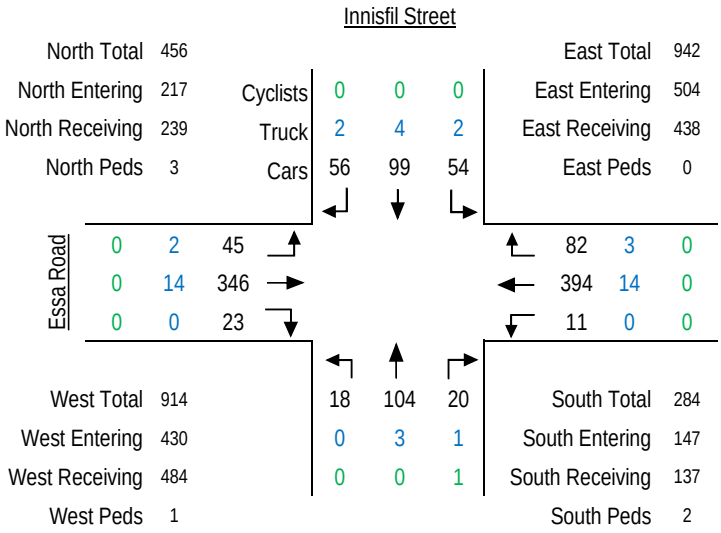
Municipality: Barrie, Ontario

Date: Thursday February 14, 2019

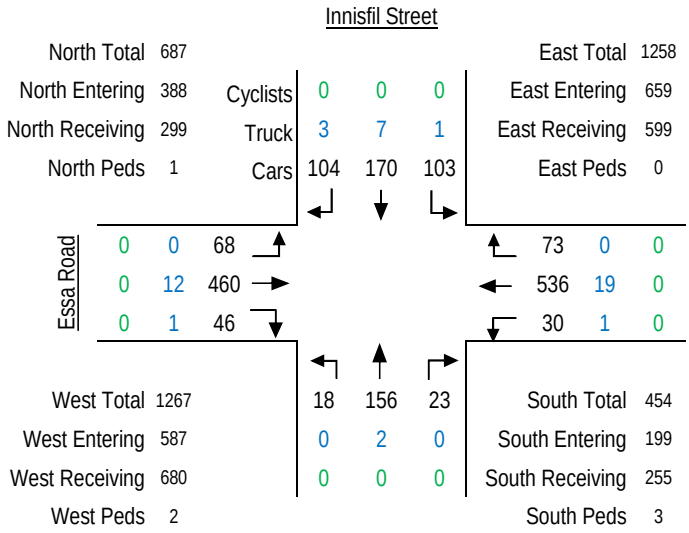
AM Peak Hour: 8:00 to 9:00



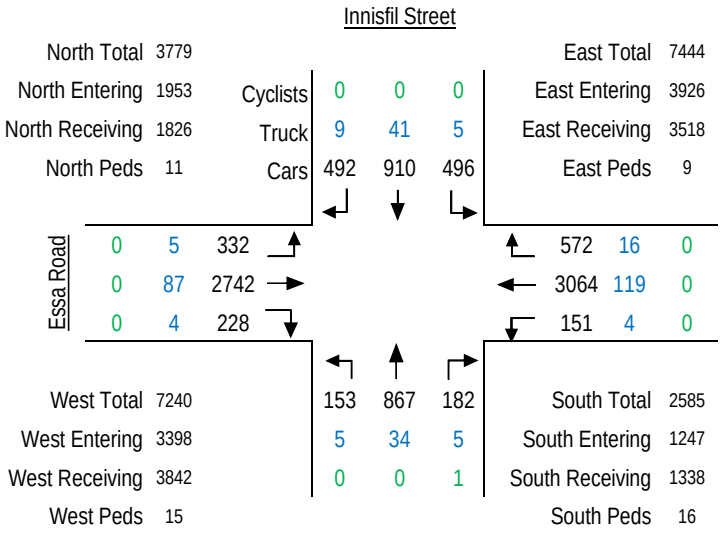
MD Peak Hour: 12:00 to 13:00



PM Peak Hour: 16:30 to 17:30



Total 8-Hour Count



Appendix B:
LOS Definitions

TATHAM ENGINEERING

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CAPACITY ANALYSIS AT SIGNALIZED INTERSECTIONS

Highway Capacity Manual Methodology

The capacity of signalized intersections has been determined in terms of delay taken from Chapter 9 of the Highway Capacity Manual, Special Report 209, by the Transportation Research Board, 2000.

To assist in clarifying the arithmetic analysis associated with traffic engineering, it is often useful to refer to "Level of Service". Level of Service (LOS) for signalized intersections is defined in terms of delay, which is made up of a number of factors that relate to control, geometrics, traffic, and incidents. Only the portion of total delay attributed to the control facility is quantified. This control delay includes initial deceleration, queue move-up time, stopped delay, and final acceleration delay. The following table describes in detail the characteristics of each level:

Level of Service	Expected Delay to Minor Street Traffic	Average Control Delay 'd' (sec/veh)
A	Describes operations with very low control delay, up to 10 seconds/vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all at this LOS. Short cycle lengths may also contribute to low delay.	$d \leq 10$
B	Describes operations with control delay greater than 10 seconds and up to 20 seconds/vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop at this level than at LOS A, causing longer average delays.	$10 \leq d \leq 20$
C	Describes operations with control delay greater than 20 seconds and up to 35 seconds/vehicle. These higher delays may result from fair progression, longer cycle length, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, though many still pass through the intersection without stopping.	$20 \leq d \leq 35$
D	Describes operations with control delay greater than 35 seconds and up to 55 seconds/vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavourable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures become noticeable.	$35 \leq d \leq 55$
E	Describes operations with control delay greater than 55 seconds and up to 80 seconds/vehicle. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.	$55 \leq d \leq 80$
F	**LOS F** describes operations with control delay in excess of 80 seconds/vehicle. This *oversaturation*, considered to be unacceptable to most drivers, occurs when arrival flow rates exceed the design capacity of the intersection. It may also occur at high v/c ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors to such high delay levels.	$d > 80$

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CAPACITY ANALYSIS AT UNSIGNALIZED INTERSECTIONS

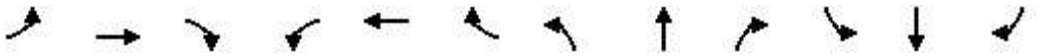
Highway Capacity Manual Methodology

The level of service at an unsignalized intersection is determined on the basis of control delay for each critical lane. This method of analysis is taken from the Highway Capacity Manual, Special Report 209, by the Transportation Research Board, 1997.

The average control delay for any particular critical movement (control delay includes initial deceleration, queue move-up time, stopped delay, and final acceleration delay) is a function of the service rate or capacity of the approach and degree of saturation. The level of service criteria for unsignalized intersections is outlined below and is related to ranges in vehicle delay.

Level of Service	Expected Delay to Minor Street Traffic	Average Control Delay 'd' (sec/veh)
A	Little or no delays	$0 < d \leq 10$
B	Short traffic delays	$10 \leq d \leq 15$
C	Average traffic delays	$15 \leq d \leq 25$
D	Long traffic delays	$25 \leq d \leq 35$
E	Very long traffic delays	$35 \leq d \leq 50$
F	Extreme delays with queuing which may cause congestion affecting other traffic movements in the intersection	$d > 50$

Appendix C:
Existing Operations



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	227	56	6	169	59	52	162	3	53	129	47
Future Volume (vph)	64	227	56	6	169	59	52	162	3	53	129	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.96		1.00	1.00		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	1827		1789	1811		1789	3570		1789	3435	
Flt Permitted	0.36	1.00		0.51	1.00		0.59	1.00		0.64	1.00	
Satd. Flow (perm)	686	1827		969	1811		1120	3570		1203	3435	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	70	247	61	7	184	64	57	176	3	58	140	51
RTOR Reduction (vph)	0	9	0	0	13	0	0	1	0	0	31	0
Lane Group Flow (vph)	70	299	0	7	235	0	57	178	0	58	160	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	29.3	24.1		20.0	18.8		45.0	37.6		40.6	35.4	
Effective Green, g (s)	29.3	24.1		20.0	18.8		45.0	37.6		40.6	35.4	
Actuated g/C Ratio	0.33	0.27		0.23	0.21		0.51	0.43		0.46	0.40	
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	309	499		231	386		628	1523		588	1380	
v/s Ratio Prot	c0.02	c0.16		0.00	0.13		c0.01	c0.05		0.01	0.05	
v/s Ratio Perm	0.06			0.01			0.04			0.04		
v/c Ratio	0.23	0.60		0.03	0.61		0.09	0.12		0.10	0.12	
Uniform Delay, d1	20.9	27.8		26.4	31.3		10.9	15.2		13.2	16.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	1.9		0.1	2.7		0.1	0.2		0.1	0.2	
Delay (s)	21.3	29.8		26.5	34.1		11.0	15.4		13.3	16.7	
Level of Service	C	C		C	C		B	B		B	B	
Approach Delay (s)		28.2			33.9			14.3			15.9	
Approach LOS		C			C			B			B	

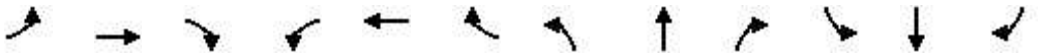
Intersection Summary			
HCM 2000 Control Delay	23.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	88.1	Sum of lost time (s)	20.0
Intersection Capacity Utilization	74.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	2	1	5	1	15	1	195	5	17	168	6
Future Volume (Veh/h)	7	2	1	5	1	15	1	195	5	17	168	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	2	1	5	1	16	1	212	5	18	183	7
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)											113	
pX, platoon unblocked	0.96	0.96	0.96	0.96	0.96		0.96					
vC, conflicting volume	456	442	186	441	442	214	190			217		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	414	400	135	399	401	214	138			217		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	100	99	100	98	100			99		
cM capacity (veh/h)	511	511	879	532	510	825	1390			1353		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	11	22	218	208
Volume Left	8	5	1	18
Volume Right	1	16	5	7
cSH	531	716	1390	1353
Volume to Capacity	0.02	0.03	0.00	0.01
Queue Length 95th (m)	0.5	0.7	0.0	0.3
Control Delay (s)	11.9	10.2	0.0	0.8
Lane LOS	B	B	A	A
Approach Delay (s)	11.9	10.2	0.0	0.8
Approach LOS	B	B		

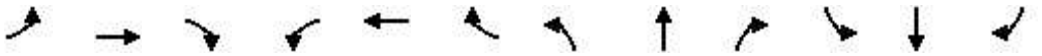
Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	31.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	153	325	13	1	289	26	23	18	1	14	21	149
Future Volume (vph)	153	325	13	1	289	26	23	18	1	14	21	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			6.0			6.0	6.0
Lane Util. Factor		0.95			0.95			1.00			1.00	1.00
Frt		1.00			0.99			1.00			1.00	0.85
Flt Protected		0.98			1.00			0.97			0.98	1.00
Satd. Flow (prot)		3510			3534			1828			1847	1601
Flt Permitted		0.73			0.95			0.81			0.86	1.00
Satd. Flow (perm)		2587			3373			1521			1621	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	166	353	14	1	314	28	25	20	1	15	23	162
RTOR Reduction (vph)	0	1	0	0	4	0	0	1	0	0	0	141
Lane Group Flow (vph)	0	532	0	0	339	0	0	45	0	0	38	21
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)		54.9			54.9			10.2			10.2	10.2
Effective Green, g (s)		54.9			54.9			10.2			10.2	10.2
Actuated g/C Ratio		0.71			0.71			0.13			0.13	0.13
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)		1842			2401			201			214	211
v/s Ratio Prot												
v/s Ratio Perm		c0.21			0.10			c0.03			0.02	0.01
v/c Ratio		0.29			0.14			0.22			0.18	0.10
Uniform Delay, d1		4.0			3.6			29.9			29.7	29.4
Progression Factor		1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2		0.1			0.1			0.6			0.4	0.2
Delay (s)		4.1			3.7			30.5			30.1	29.6
Level of Service		A			A			C			C	C
Approach Delay (s)		4.1			3.7			30.5			29.7	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	9.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	77.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	80.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	235	38	7	207	9	26	62	7	9	94	15
Future Volume (vph)	19	235	38	7	207	9	26	62	7	9	94	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	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	
Frt	1.00	0.98		1.00	0.99			0.99			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			1.00	
Satd. Flow (prot)	1789	1844		1789	1871			1839			1844	
Flt Permitted	0.61	1.00		0.58	1.00			0.90			0.96	
Satd. Flow (perm)	1153	1844		1091	1871			1679			1781	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	21	255	41	8	225	10	28	67	8	10	102	16
RTOR Reduction (vph)	0	5	0	0	1	0	0	6	0	0	9	0
Lane Group Flow (vph)	21	291	0	8	234	0	0	97	0	0	119	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	37.1	37.1		37.1	37.1			8.4			8.4	
Effective Green, g (s)	37.1	37.1		37.1	37.1			8.4			8.4	
Actuated g/C Ratio	0.65	0.65		0.65	0.65			0.15			0.15	
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)	743	1189		703	1207			245			260	
v/s Ratio Prot		c0.16			0.12							
v/s Ratio Perm	0.02			0.01				0.06			c0.07	
v/c Ratio	0.03	0.24		0.01	0.19			0.40			0.46	
Uniform Delay, d1	3.7	4.3		3.6	4.1			22.3			22.5	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.1	0.5		0.0	0.4			1.1			1.3	
Delay (s)	3.8	4.8		3.7	4.5			23.3			23.7	
Level of Service	A	A		A	A			C			C	
Approach Delay (s)		4.7			4.5			23.3			23.7	
Approach LOS		A			A			C			C	

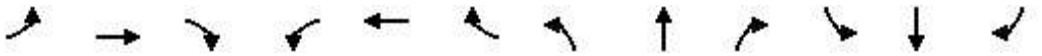
Intersection Summary			
HCM 2000 Control Delay	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	57.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	16	14	94	129	10
Future Volume (Veh/h)	1	16	14	94	129	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	17	15	102	140	11
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)					86	
pX, platoon unblocked	0.97	0.97	0.97			
vC, conflicting volume	278	146	151			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	244	108	114			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	98	99			
cM capacity (veh/h)	717	920	1436			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	18	117	151
Volume Left	1	15	0
Volume Right	17	0	11
cSH	906	1436	1700
Volume to Capacity	0.02	0.01	0.09
Queue Length 95th (m)	0.5	0.2	0.0
Control Delay (s)	9.1	1.0	0.0
Lane LOS	A	A	
Approach Delay (s)	9.1	1.0	0.0
Approach LOS	A		

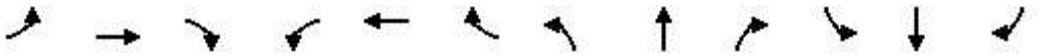
Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	26.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	292	20	6	257	51	19	62	13	44	74	33
Future Volume (vph)	27	292	20	6	257	51	19	62	13	44	74	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			6.0	6.0		6.0	6.0
Lane Util. Factor		0.95			0.95			1.00	1.00		1.00	1.00
Frt		0.99			0.98			1.00	0.85		1.00	0.85
Flt Protected		1.00			1.00			0.99	1.00		0.98	1.00
Satd. Flow (prot)		3533			3488			1861	1601		1849	1601
Flt Permitted		0.91			0.95			0.92	1.00		0.86	1.00
Satd. Flow (perm)		3223			3309			1733	1601		1629	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	29	317	22	7	279	55	21	67	14	48	80	36
RTOR Reduction (vph)	0	3	0	0	13	0	0	0	10	0	0	25
Lane Group Flow (vph)	0	365	0	0	328	0	0	88	4	0	128	11
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		2		1	6		3	8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)		44.0			44.0			24.0	24.0		24.0	24.0
Effective Green, g (s)		44.0			44.0			24.0	24.0		24.0	24.0
Actuated g/C Ratio		0.55			0.55			0.30	0.30		0.30	0.30
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)		1772			1819			519	480		488	480
v/s Ratio Prot												
v/s Ratio Perm		c0.11			0.10			0.05	0.00		c0.08	0.01
v/c Ratio		0.21			0.18			0.17	0.01		0.26	0.02
Uniform Delay, d1		9.1			9.0			20.7	19.7		21.3	19.7
Progression Factor		1.00			1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2		0.3			0.0			0.2	0.0		0.3	0.0
Delay (s)		9.4			9.0			20.8	19.7		21.6	19.8
Level of Service		A			A			C	B		C	B
Approach Delay (s)		9.4			9.0			20.6			21.2	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	91.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	103	296	81	9	242	75	103	263	4	137	309	122
Future Volume (vph)	103	296	81	9	242	75	103	263	4	137	309	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.96		1.00	1.00		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	1823		1789	1816		1789	3571		1789	3426	
Flt Permitted	0.26	1.00		0.38	1.00		0.43	1.00		0.57	1.00	
Satd. Flow (perm)	481	1823		712	1816		812	3571		1082	3426	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	112	322	88	10	263	82	112	286	4	149	336	133
RTOR Reduction (vph)	0	9	0	0	11	0	0	1	0	0	38	0
Lane Group Flow (vph)	112	401	0	10	334	0	112	289	0	149	431	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	36.5	31.2		25.7	24.4		45.4	37.8		44.4	37.3	
Effective Green, g (s)	36.5	31.2		25.7	24.4		45.4	37.8		44.4	37.3	
Actuated g/C Ratio	0.37	0.32		0.26	0.25		0.47	0.39		0.46	0.38	
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	289	583		202	454		454	1385		544	1312	
v/s Ratio Prot	c0.03	c0.22		0.00	0.18		0.02	0.08		c0.02	c0.13	
v/s Ratio Perm	0.11			0.01			0.10			0.10		
v/c Ratio	0.39	0.69		0.05	0.74		0.25	0.21		0.27	0.33	
Uniform Delay, d1	21.7	28.9		26.8	33.5		14.9	19.8		15.7	21.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.9	3.4		0.1	6.1		0.3	0.3		0.3	0.7	
Delay (s)	22.5	32.2		26.9	39.6		15.2	20.2		16.0	21.9	
Level of Service	C	C		C	D		B	C		B	C	
Approach Delay (s)		30.2			39.3			18.8			20.5	
Approach LOS		C			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	26.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	97.4	Sum of lost time (s)	20.0
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	1	3	5	1	19	6	344	2	24	373	2
Future Volume (Veh/h)	7	1	3	5	1	19	6	344	2	24	373	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	1	3	5	1	21	7	374	2	26	405	2
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)											113	
pX, platoon unblocked	0.89	0.89	0.89	0.89	0.89		0.89					
vC, conflicting volume	868	848	406	850	848	375	407			376		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	787	763	264	766	763	375	265			376		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	100	100	98	100	97	99			98		
cM capacity (veh/h)	259	287	686	275	287	671	1150			1182		

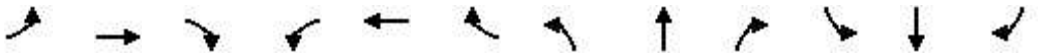
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	12	27	383	433
Volume Left	8	5	7	26
Volume Right	3	21	2	2
cSH	310	510	1150	1182
Volume to Capacity	0.04	0.05	0.01	0.02
Queue Length 95th (m)	0.9	1.3	0.1	0.5
Control Delay (s)	17.1	12.5	0.2	0.7
Lane LOS	C	B	A	A
Approach Delay (s)	17.1	12.5	0.2	0.7
Approach LOS	C	B		

Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	43.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	380	560	33	2	424	44	22	46	4	45	44	265
Future Volume (vph)	380	560	33	2	424	44	22	46	4	45	44	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			6.0			6.0	6.0
Lane Util. Factor		0.95			0.95			1.00			1.00	1.00
Frt		0.99			0.99			0.99			1.00	0.85
Flt Protected		0.98			1.00			0.98			0.98	1.00
Satd. Flow (prot)		3492			3527			1842			1837	1601
Flt Permitted		0.64			0.95			0.87			0.84	1.00
Satd. Flow (perm)		2289			3361			1618			1586	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	413	609	36	2	461	48	24	50	4	49	48	288
RTOR Reduction (vph)	0	2	0	0	5	0	0	3	0	0	0	250
Lane Group Flow (vph)	0	1056	0	0	506	0	0	75	0	0	97	38
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)		65.0			65.0			11.8			11.8	11.8
Effective Green, g (s)		65.0			65.0			11.8			11.8	11.8
Actuated g/C Ratio		0.73			0.73			0.13			0.13	0.13
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)		1675			2460			215			210	212
v/s Ratio Prot												
v/s Ratio Perm		c0.46			0.15			0.05			c0.06	0.02
v/c Ratio		0.63			0.21			0.35			0.46	0.18
Uniform Delay, d1		5.9			3.8			35.0			35.6	34.2
Progression Factor		1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2		0.8			0.2			1.0			1.6	0.4
Delay (s)		6.7			3.9			36.0			37.2	34.6
Level of Service		A			A			D			D	C
Approach Delay (s)		6.7			3.9			36.0			35.3	
Approach LOS		A			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	88.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	364	54	9	257	28	50	182	12	35	146	20
Future Volume (vph)	16	364	54	9	257	28	50	182	12	35	146	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	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	
Frt	1.00	0.98		1.00	0.99			0.99			0.99	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1789	1847		1789	1856			1852			1842	
Flt Permitted	0.57	1.00		0.46	1.00			0.88			0.89	
Satd. Flow (perm)	1078	1847		859	1856			1645			1658	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	396	59	10	279	30	54	198	13	38	159	22
RTOR Reduction (vph)	0	6	0	0	4	0	0	3	0	0	7	0
Lane Group Flow (vph)	17	449	0	10	305	0	0	262	0	0	212	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	34.1	34.1		34.1	34.1			14.7			14.7	
Effective Green, g (s)	34.1	34.1		34.1	34.1			14.7			14.7	
Actuated g/C Ratio	0.56	0.56		0.56	0.56			0.24			0.24	
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)	604	1035		481	1040			397			400	
v/s Ratio Prot		c0.24			0.16							
v/s Ratio Perm	0.02			0.01				c0.16			0.13	
v/c Ratio	0.03	0.43		0.02	0.29			0.66			0.53	
Uniform Delay, d1	6.0	7.7		5.9	7.0			20.8			20.0	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.1	1.3		0.1	0.7			3.9			1.4	
Delay (s)	6.0	9.1		6.0	7.7			24.7			21.4	
Level of Service	A	A		A	A			C			C	
Approach Delay (s)		9.0			7.7			24.7			21.4	
Approach LOS		A			A			C			C	

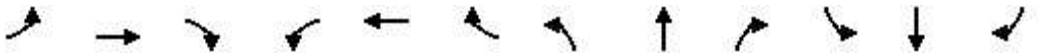
Intersection Summary			
HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	60.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	26	11	241	195	14
Future Volume (Veh/h)	3	26	11	241	195	14
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	28	12	262	212	15
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				294	86	
pX, platoon unblocked	0.94	0.94	0.94			
vC, conflicting volume	506	220	227			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	441	137	145			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	97	99			
cM capacity (veh/h)	534	856	1350			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	31	274	227
Volume Left	3	12	0
Volume Right	28	0	15
cSH	809	1350	1700
Volume to Capacity	0.04	0.01	0.13
Queue Length 95th (m)	0.9	0.2	0.0
Control Delay (s)	9.6	0.4	0.0
Lane LOS	A	A	
Approach Delay (s)	9.6	0.4	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	31.6%	ICU Level of Service	A
Analysis Period (min)	15		

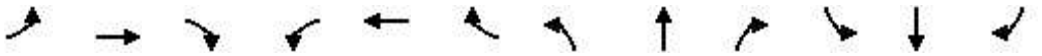


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	479	37	19	396	60	14	101	12	68	91	58
Future Volume (vph)	90	479	37	19	396	60	14	101	12	68	91	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			6.0	6.0		6.0	6.0
Lane Util. Factor		0.95			0.95			1.00	1.00		1.00	1.00
Frt		0.99			0.98			1.00	0.85		1.00	0.85
Flt Protected		0.99			1.00			0.99	1.00		0.98	1.00
Satd. Flow (prot)		3520			3504			1872	1601		1844	1601
Flt Permitted		0.79			0.92			0.96	1.00		0.82	1.00
Satd. Flow (perm)		2786			3217			1802	1601		1536	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	98	521	40	21	430	65	15	110	13	74	99	63
RTOR Reduction (vph)	0	3	0	0	9	0	0	0	9	0	0	44
Lane Group Flow (vph)	0	656	0	0	507	0	0	125	4	0	173	19
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		2		1	6		3	8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)		44.0			44.0			24.0	24.0		24.0	24.0
Effective Green, g (s)		44.0			44.0			24.0	24.0		24.0	24.0
Actuated g/C Ratio		0.55			0.55			0.30	0.30		0.30	0.30
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)		1532			1769			540	480		460	480
v/s Ratio Prot												
v/s Ratio Perm		c0.24			0.16			0.07	0.00		c0.11	0.01
v/c Ratio		0.43			0.29			0.23	0.01		0.38	0.04
Uniform Delay, d1		10.6			9.6			21.1	19.6		22.1	19.8
Progression Factor		1.00			1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2		0.9			0.1			0.2	0.0		0.5	0.0
Delay (s)		11.5			9.7			21.3	19.7		22.6	19.9
Level of Service		B			A			C	B		C	B
Approach Delay (s)		11.5			9.7			21.1			21.9	
Approach LOS		B			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	108.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Appendix D:
Background Operations



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	270	80	12	211	82	78	197	8	62	149	51
Future Volume (vph)	75	270	80	12	211	82	78	197	8	62	149	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.96		1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3456		1789	3428		1789	3557		1789	3442	
Flt Permitted	0.40	1.00		0.53	1.00		0.58	1.00		0.61	1.00	
Satd. Flow (perm)	753	3456		992	3428		1098	3557		1154	3442	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	293	87	13	229	89	85	214	9	67	162	55
RTOR Reduction (vph)	0	29	0	0	46	0	0	3	0	0	30	0
Lane Group Flow (vph)	82	351	0	13	272	0	85	220	0	67	187	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	24.0	18.7		16.0	14.7		48.3	40.8		43.9	38.6	
Effective Green, g (s)	24.0	18.7		16.0	14.7		48.3	40.8		43.9	38.6	
Actuated g/C Ratio	0.28	0.22		0.19	0.17		0.56	0.47		0.51	0.45	
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	273	750		196	585		676	1685		627	1543	
v/s Ratio Prot	c0.02	c0.10		0.00	0.08		c0.01	c0.06		0.01	0.05	
v/s Ratio Perm	0.07			0.01			0.06			0.05		
v/c Ratio	0.30	0.47		0.07	0.46		0.13	0.13		0.11	0.12	
Uniform Delay, d1	23.6	29.4		28.7	32.2		8.7	12.7		10.7	13.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.5		0.1	0.6		0.1	0.2		0.1	0.2	
Delay (s)	24.3	29.8		28.9	32.7		8.8	12.9		10.8	14.0	
Level of Service	C	C		C	C		A	B		B	B	
Approach Delay (s)		28.8			32.6			11.7			13.3	
Approach LOS		C			C			B			B	

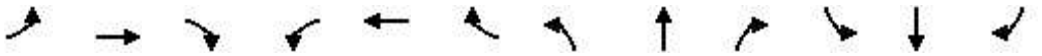
Intersection Summary			
HCM 2000 Control Delay	22.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	86.1	Sum of lost time (s)	20.0
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	2	1	66	1	40	1	236	9	25	202	6
Future Volume (Veh/h)	7	2	1	66	1	40	1	236	9	25	202	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	2	1	72	1	43	1	257	10	27	220	7
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)											113	
pX, platoon unblocked	0.96	0.96	0.96	0.96	0.96		0.96					
vC, conflicting volume	585	546	224	544	545	262	227			267		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	547	507	170	504	505	262	174			267		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	100	84	100	94	100			98		
cM capacity (veh/h)	399	440	839	450	441	777	1347			1297		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	11	116	268	254
Volume Left	8	72	1	27
Volume Right	1	43	10	7
cSH	426	533	1347	1297
Volume to Capacity	0.03	0.22	0.00	0.02
Queue Length 95th (m)	0.6	6.2	0.0	0.5
Control Delay (s)	13.7	13.6	0.0	1.0
Lane LOS	B	B	A	A
Approach Delay (s)	13.7	13.6	0.0	1.0
Approach LOS	B	B		

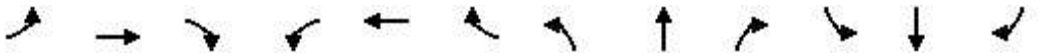
Intersection Summary				
Average Delay	3.1			
Intersection Capacity Utilization	42.2%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	432	14	1	421	28	25	19	1	20	23	227
Future Volume (vph)	180	432	14	1	421	28	25	19	1	20	23	227
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0			6.0			6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	1.00
Frt	1.00	1.00		1.00	0.99			1.00			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.98	1.00
Satd. Flow (prot)	1789	3562		1789	3546			1828			1840	1601
Flt Permitted	0.44	1.00		0.48	1.00			0.80			0.83	1.00
Satd. Flow (perm)	824	3562		896	3546			1508			1557	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	196	470	15	1	458	30	27	21	1	22	25	247
RTOR Reduction (vph)	0	2	0	0	3	0	0	1	0	0	0	216
Lane Group Flow (vph)	196	483	0	1	485	0	0	48	0	0	47	31
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)	60.8	55.5		49.4	48.1			10.6			10.6	10.6
Effective Green, g (s)	60.8	55.5		49.4	48.1			10.6			10.6	10.6
Actuated g/C Ratio	0.73	0.67		0.59	0.58			0.13			0.13	0.13
Clearance Time (s)	4.0	6.0		4.0	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)	701	2370		544	2045			191			197	203
v/s Ratio Prot	c0.03	0.14		0.00	0.14							
v/s Ratio Perm	c0.17			0.00				c0.03			0.03	0.02
v/c Ratio	0.28	0.20		0.00	0.24			0.25			0.24	0.15
Uniform Delay, d1	3.6	5.4		6.9	8.7			32.8			32.8	32.4
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	0.2	0.2		0.0	0.3			0.7			0.6	0.4
Delay (s)	3.8	5.6		6.9	8.9			33.5			33.4	32.8
Level of Service	A	A		A	A			C			C	C
Approach Delay (s)		5.1			8.9			33.5			32.9	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	83.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	65.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	280	53	12	247	11	55	99	20	10	112	16
Future Volume (vph)	22	280	53	12	247	11	55	99	20	10	112	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.99		1.00	0.97		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3493		1789	3556		1789	1836		1789	1849	
Flt Permitted	0.58	1.00		0.54	1.00		0.67	1.00		0.67	1.00	
Satd. Flow (perm)	1092	3493		1009	3556		1259	1836		1269	1849	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	304	58	13	268	12	60	108	22	11	122	17
RTOR Reduction (vph)	0	17	0	0	3	0	0	12	0	0	9	0
Lane Group Flow (vph)	24	345	0	13	277	0	60	118	0	11	130	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	42.1	42.1		42.1	42.1		8.8	8.8		8.8	8.8	
Effective Green, g (s)	42.1	42.1		42.1	42.1		8.8	8.8		8.8	8.8	
Actuated g/C Ratio	0.67	0.67		0.67	0.67		0.14	0.14		0.14	0.14	
Clearance Time (s)	6.0	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	3.0	
Lane Grp Cap (vph)	730	2337		675	2380		176	256		177	258	
v/s Ratio Prot		c0.10			0.08			0.06			c0.07	
v/s Ratio Perm	0.02			0.01			0.05			0.01		
v/c Ratio	0.03	0.15		0.02	0.12		0.34	0.46		0.06	0.51	
Uniform Delay, d1	3.5	3.8		3.5	3.7		24.4	24.9		23.5	25.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.1		0.1	0.1		1.2	1.3		0.1	1.6	
Delay (s)	3.6	3.9		3.5	3.8		25.6	26.2		23.6	26.6	
Level of Service	A	A		A	A		C	C		C	C	
Approach Delay (s)		3.9			3.8			26.0			26.4	
Approach LOS		A			A			C			C	

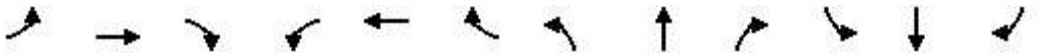
Intersection Summary			
HCM 2000 Control Delay	11.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.21		
Actuated Cycle Length (s)	62.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	0	29	20	0	33	34	115	7	11	144	18
Future Volume (Veh/h)	25	0	29	20	0	33	34	115	7	11	144	18
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	0	32	22	0	36	37	125	8	12	157	20
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)											86	
pX, platoon unblocked	0.95	0.95	0.95	0.95	0.95		0.95					
vC, conflicting volume	426	398	167	426	404	129	177			133		
vC1, stage 1 conf vol	191	191		203	203							
vC2, stage 2 conf vol	235	207		223	201							
vCu, unblocked vol	373	344	101	373	350	129	112			133		
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 %	96	100	96	97	100	96	97			99		
cM capacity (veh/h)	656	642	909	659	633	921	1409			1452		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	59	58	37	133	189
Volume Left	27	22	37	0	12
Volume Right	32	36	0	8	20
cSH	773	800	1409	1700	1452
Volume to Capacity	0.08	0.07	0.03	0.08	0.01
Queue Length 95th (m)	1.9	1.8	0.6	0.0	0.2
Control Delay (s)	10.0	9.8	7.6	0.0	0.5
Lane LOS	B	A	A		A
Approach Delay (s)	10.0	9.8	1.7		0.5
Approach LOS	B	A			

Intersection Summary				
Average Delay	3.3			
Intersection Capacity Utilization	29.0%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	370	22	6	335	55	21	67	14	48	80	88
Future Volume (vph)	61	370	22	6	335	55	21	67	14	48	80	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1789	3548		1789	3503		1789	1883	1601	1789	1883	1601
Flt Permitted	0.45	1.00		0.50	1.00		0.70	1.00	1.00	0.62	1.00	1.00
Satd. Flow (perm)	842	3548		948	3503		1319	1883	1601	1177	1883	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	66	402	24	7	364	60	23	73	15	52	87	96
RTOR Reduction (vph)	0	3	0	0	11	0	0	0	11	0	0	70
Lane Group Flow (vph)	66	423	0	7	413	0	23	73	4	52	87	26
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	61.2	55.9		52.3	51.0		28.5	25.8	25.8	35.5	29.3	29.3
Effective Green, g (s)	61.2	55.9		52.3	51.0		28.5	25.8	25.8	35.5	29.3	29.3
Actuated g/C Ratio	0.56	0.51		0.48	0.47		0.26	0.24	0.24	0.33	0.27	0.27
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	525	1816		464	1636		355	444	378	417	505	429
v/s Ratio Prot	c0.01	c0.12		0.00	c0.12		0.00	0.04		c0.01	c0.05	
v/s Ratio Perm	0.06			0.01			0.02		0.00	0.03		0.02
v/c Ratio	0.13	0.23		0.02	0.25		0.06	0.16	0.01	0.12	0.17	0.06
Uniform Delay, d1	11.1	14.8		14.9	17.6		30.2	33.1	31.9	25.7	30.6	29.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.3		0.0	0.4		0.1	0.2	0.0	0.1	0.2	0.1
Delay (s)	11.3	15.1		14.9	18.0		30.3	33.3	31.9	25.8	30.8	29.8
Level of Service	B	B		B	B		C	C	C	C	C	C
Approach Delay (s)		14.6			17.9			32.5			29.3	
Approach LOS		B			B			C			C	

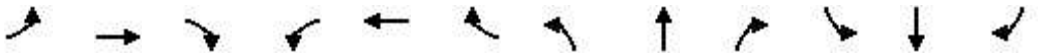
Intersection Summary			
HCM 2000 Control Delay	20.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	109.2	Sum of lost time (s)	20.0
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	63	0	0	52	0	0
Future Volume (Veh/h)	63	0	0	52	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	68	0	0	57	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			68		125	68
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			68		125	68
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1533		870	995

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	68	57	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1533	1700
Volume to Capacity	0.04	0.00	0.10
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	360	116	16	293	97	128	297	14	162	345	132
Future Volume (vph)	120	360	116	16	293	97	128	297	14	162	345	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.96		1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3448		1789	3445		1789	3555		1789	3430	
Flt Permitted	0.30	1.00		0.46	1.00		0.38	1.00		0.55	1.00	
Satd. Flow (perm)	562	3448		860	3445		711	3555		1033	3430	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	130	391	126	17	318	105	139	323	15	176	375	143
RTOR Reduction (vph)	0	32	0	0	35	0	0	3	0	0	44	0
Lane Group Flow (vph)	130	485	0	17	388	0	139	335	0	176	474	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	29.1	22.4		19.2	16.5		48.0	38.0		42.0	35.0	
Effective Green, g (s)	29.1	22.4		19.2	16.5		48.0	38.0		42.0	35.0	
Actuated g/C Ratio	0.32	0.25		0.21	0.18		0.53	0.42		0.47	0.39	
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	298	857		211	630		498	1499		540	1332	
v/s Ratio Prot	c0.04	c0.14		0.00	0.11		c0.03	0.09		0.03	c0.14	
v/s Ratio Perm	0.10			0.01			0.12			0.13		
v/c Ratio	0.44	0.57		0.08	0.62		0.28	0.22		0.33	0.36	
Uniform Delay, d1	22.7	29.6		28.2	33.9		11.0	16.6		14.2	19.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	0.9		0.2	1.8		0.3	0.3		0.4	0.7	
Delay (s)	23.7	30.5		28.3	35.7		11.3	17.0		14.6	20.3	
Level of Service	C	C		C	D		B	B		B	C	
Approach Delay (s)		29.1			35.4			15.3			18.8	
Approach LOS		C			D			B			B	

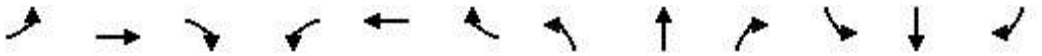
Intersection Summary			
HCM 2000 Control Delay	24.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	90.1	Sum of lost time (s)	20.0
Intersection Capacity Utilization	73.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	1	3	42	1	35	6	397	13	49	419	2
Future Volume (Veh/h)	7	1	3	42	1	35	6	397	13	49	419	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	1	3	46	1	38	7	432	14	53	455	2
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)											113	
pX, platoon unblocked	0.87	0.87	0.87	0.87	0.87		0.87					
vC, conflicting volume	1054	1022	456	1018	1016	439	457			446		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	988	952	302	948	945	439	304			446		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	100	100	77	100	94	99			95		
cM capacity (veh/h)	177	214	643	200	216	618	1096			1114		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	12	85	453	510
Volume Left	8	46	7	53
Volume Right	3	38	14	2
cSH	220	287	1096	1114
Volume to Capacity	0.05	0.30	0.01	0.05
Queue Length 95th (m)	1.3	9.2	0.1	1.1
Control Delay (s)	22.3	22.8	0.2	1.4
Lane LOS	C	C	A	A
Approach Delay (s)	22.3	22.8	0.2	1.4
Approach LOS	C	C		

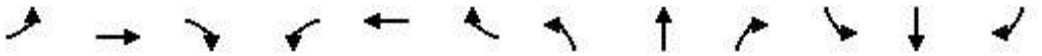
Intersection Summary				
Average Delay	2.8			
Intersection Capacity Utilization	62.0%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	432	773	36	2	548	53	24	50	4	49	48	329
Future Volume (vph)	432	773	36	2	548	53	24	50	4	49	48	329
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0			6.0			6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	1.00
Frt	1.00	0.99		1.00	0.99			0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.98	1.00
Satd. Flow (prot)	1789	3555		1789	3531			1843			1837	1601
Flt Permitted	0.33	1.00		0.32	1.00			0.86			0.84	1.00
Satd. Flow (perm)	622	3555		609	3531			1613			1581	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	470	840	39	2	596	58	26	54	4	53	52	358
RTOR Reduction (vph)	0	2	0	0	6	0	0	2	0	0	0	307
Lane Group Flow (vph)	470	877	0	2	648	0	0	82	0	0	105	51
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)	60.9	55.7		42.7	41.5			12.0			12.0	12.0
Effective Green, g (s)	60.9	55.7		42.7	41.5			12.0			12.0	12.0
Actuated g/C Ratio	0.72	0.66		0.50	0.49			0.14			0.14	0.14
Clearance Time (s)	4.0	6.0		4.0	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)	657	2332		322	1725			227			223	226
v/s Ratio Prot	c0.13	0.25		0.00	0.18							
v/s Ratio Perm	c0.38			0.00				0.05			c0.07	0.03
v/c Ratio	0.72	0.38		0.01	0.38			0.36			0.47	0.22
Uniform Delay, d1	5.7	6.7		10.5	13.6			33.0			33.5	32.3
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	3.7	0.5		0.0	0.6			1.0			1.6	0.5
Delay (s)	9.4	7.1		10.5	14.2			34.0			35.1	32.8
Level of Service	A	A		B	B			C			D	C
Approach Delay (s)		7.9			14.2			34.0			33.3	
Approach LOS		A			B			C			C	

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)	84.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		

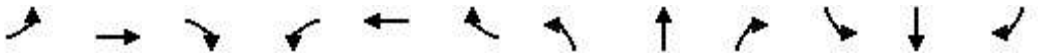
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	436	91	22	306	33	73	219	20	38	190	22
Future Volume (vph)	19	436	91	22	306	33	73	219	20	38	190	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.99		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3486		1789	3526		1789	1860		1789	1854	
Flt Permitted	0.53	1.00		0.44	1.00		0.56	1.00		0.49	1.00	
Satd. Flow (perm)	1002	3486		822	3526		1045	1860		932	1854	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	21	474	99	24	333	36	79	238	22	41	207	24
RTOR Reduction (vph)	0	22	0	0	11	0	0	5	0	0	6	0
Lane Group Flow (vph)	21	551	0	24	358	0	79	255	0	41	225	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	38.1	38.1		38.1	38.1		14.2	14.2		14.2	14.2	
Effective Green, g (s)	38.1	38.1		38.1	38.1		14.2	14.2		14.2	14.2	
Actuated g/C Ratio	0.59	0.59		0.59	0.59		0.22	0.22		0.22	0.22	
Clearance Time (s)	6.0	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	3.0	
Lane Grp Cap (vph)	593	2065		487	2089		230	410		205	409	
v/s Ratio Prot		c0.16			0.10			c0.14			0.12	
v/s Ratio Perm	0.02			0.03			0.08			0.04		
v/c Ratio	0.04	0.27		0.05	0.17		0.34	0.62		0.20	0.55	
Uniform Delay, d1	5.5	6.3		5.5	5.9		21.1	22.6		20.4	22.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.3		0.2	0.2		0.9	2.9		0.5	1.5	
Delay (s)	5.6	6.7		5.7	6.1		22.0	25.5		20.9	23.7	
Level of Service	A	A		A	A		C	C		C	C	
Approach Delay (s)		6.6			6.1			24.7			23.3	
Approach LOS		A			A			C			C	

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)	64.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		

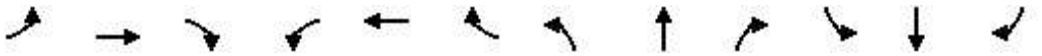
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	0	34	15	0	24	69	270	21	35	225	38
Future Volume (Veh/h)	18	0	34	15	0	24	69	270	21	35	225	38
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	0	37	16	0	26	75	293	23	38	245	41
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)								294			86	
pX, platoon unblocked	0.90	0.90	0.90	0.90	0.90		0.90					
vC, conflicting volume	810	808	266	833	816	304	286			316		
vC1, stage 1 conf vol	342	342		454	454							
vC2, stage 2 conf vol	469	466		378	362							
vCu, unblocked vol	737	734	134	762	743	304	156			316		
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 %	95	100	96	96	100	96	94			97		
cM capacity (veh/h)	442	444	827	442	443	735	1286			1244		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	57	42	75	316	324
Volume Left	20	16	75	0	38
Volume Right	37	26	0	23	41
cSH	634	587	1286	1700	1244
Volume to Capacity	0.09	0.07	0.06	0.19	0.03
Queue Length 95th (m)	2.2	1.8	1.4	0.0	0.7
Control Delay (s)	11.2	11.6	8.0	0.0	1.2
Lane LOS	B	B	A		A
Approach Delay (s)	11.2	11.6	1.5		1.2
Approach LOS	B	B			

Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	45.4%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	197	587	40	21	488	65	15	109	13	74	99	98
Future Volume (vph)	197	587	40	21	488	65	15	109	13	74	99	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1789	3545		1789	3515		1789	1883	1601	1789	1883	1601
Flt Permitted	0.33	1.00		0.39	1.00		0.69	1.00	1.00	0.59	1.00	1.00
Satd. Flow (perm)	618	3545		740	3515		1295	1883	1601	1109	1883	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	214	638	43	23	530	71	16	118	14	80	108	107
RTOR Reduction (vph)	0	4	0	0	9	0	0	0	11	0	0	78
Lane Group Flow (vph)	214	677	0	23	592	0	16	118	3	80	108	29
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	61.7	55.0		49.4	46.7		28.3	25.6	25.6	36.4	29.7	29.7
Effective Green, g (s)	61.7	55.0		49.4	46.7		28.3	25.6	25.6	36.4	29.7	29.7
Actuated g/C Ratio	0.56	0.50		0.45	0.42		0.26	0.23	0.23	0.33	0.27	0.27
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	463	1770		357	1490		344	437	372	408	507	431
v/s Ratio Prot	c0.05	0.19		0.00	0.17		0.00	c0.06		c0.01	0.06	
v/s Ratio Perm	c0.21			0.03			0.01		0.00	0.05		0.02
v/c Ratio	0.46	0.38		0.06	0.40		0.05	0.27	0.01	0.20	0.21	0.07
Uniform Delay, d1	12.9	17.0		17.0	22.0		30.7	34.6	32.5	25.9	31.1	29.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.6		0.1	0.8		0.1	0.3	0.0	0.2	0.2	0.1
Delay (s)	13.6	17.7		17.0	22.7		30.7	34.9	32.5	26.1	31.4	30.0
Level of Service	B	B		B	C		C	C	C	C	C	C
Approach Delay (s)		16.7			22.5			34.2			29.4	
Approach LOS		B			C			C			C	

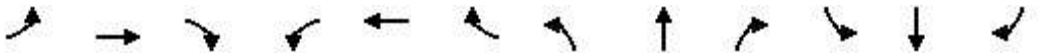
Intersection Summary			
HCM 2000 Control Delay	21.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	110.1	Sum of lost time (s)	20.0
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	51	0	0	107	0	0
Future Volume (Veh/h)	51	0	0	107	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	55	0	0	116	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			55		171	55
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			55		171	55
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1550		819	1012

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	55	116	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1550	1700
Volume to Capacity	0.03	0.00	0.10
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

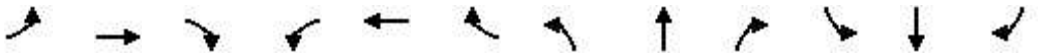
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	9.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	332	94	14	267	110	84	216	14	72	163	56
Future Volume (vph)	91	332	94	14	267	110	84	216	14	72	163	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.96		1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3460		1789	3421		1789	3546		1789	3441	
Flt Permitted	0.32	1.00		0.47	1.00		0.57	1.00		0.60	1.00	
Satd. Flow (perm)	599	3460		892	3421		1074	3546		1124	3441	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	99	361	102	15	290	120	91	235	15	78	177	61
RTOR Reduction (vph)	0	27	0	0	50	0	0	5	0	0	34	0
Lane Group Flow (vph)	99	436	0	15	360	0	91	245	0	78	204	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	25.4	20.1		17.4	16.1		47.4	39.9		43.0	37.7	
Effective Green, g (s)	25.4	20.1		17.4	16.1		47.4	39.9		43.0	37.7	
Actuated g/C Ratio	0.29	0.23		0.20	0.19		0.55	0.46		0.50	0.44	
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	248	803		192	636		649	1633		598	1497	
v/s Ratio Prot	c0.02	c0.13		0.00	0.11		c0.01	c0.07		0.01	0.06	
v/s Ratio Perm	0.09			0.01			0.06			0.06		
v/c Ratio	0.40	0.54		0.08	0.57		0.14	0.15		0.13	0.14	
Uniform Delay, d1	23.3	29.2		27.9	32.1		9.4	13.5		11.5	14.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.1	0.8		0.2	1.2		0.1	0.2		0.1	0.2	
Delay (s)	24.3	30.0		28.1	33.2		9.5	13.7		11.6	14.9	
Level of Service	C	C		C	C		A	B		B	B	
Approach Delay (s)		29.0			33.0			12.6			14.1	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	23.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	86.6	Sum of lost time (s)	20.0
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

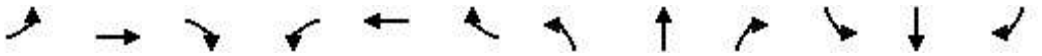
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	2	1	66	1	40	1	263	10	27	221	7
Future Volume (Veh/h)	8	2	1	66	1	40	1	263	10	27	221	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	2	1	72	1	43	1	286	11	29	240	8
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)											113	
pX, platoon unblocked	0.96	0.96	0.96	0.96	0.96		0.96					
vC, conflicting volume	634	601	244	594	600	292	248			297		
vC1, stage 1 conf vol	302	302		294	294							
vC2, stage 2 conf vol	332	299		300	306							
vCu, unblocked vol	599	565	194	557	563	292	198			297		
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	100	88	100	94	100			98		
cM capacity (veh/h)	542	553	815	596	562	748	1322			1264		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	12	116	1	297	29	248
Volume Left	9	72	1	0	29	0
Volume Right	1	43	0	11	0	8
cSH	559	644	1322	1700	1264	1700
Volume to Capacity	0.02	0.18	0.00	0.17	0.02	0.15
Queue Length 95th (m)	0.5	5.0	0.0	0.0	0.5	0.0
Control Delay (s)	11.6	11.8	7.7	0.0	7.9	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	11.6	11.8	0.0		0.8	
Approach LOS	B	B				

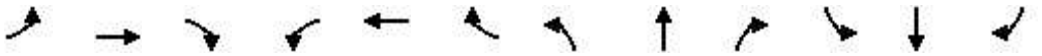
Intersection Summary				
Average Delay	2.5			
Intersection Capacity Utilization	34.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	197	490	16	1	520	36	27	22	1	22	25	244
Future Volume (vph)	197	490	16	1	520	36	27	22	1	22	25	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00		1.00	0.99		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1789	3562		1789	3544		1789	1872		1789	1883	1601
Flt Permitted	0.38	1.00		0.45	1.00		0.74	1.00		0.74	1.00	1.00
Satd. Flow (perm)	711	3562		841	3544		1393	1872		1396	1883	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	214	533	17	1	565	39	29	24	1	24	27	265
RTOR Reduction (vph)	0	2	0	0	4	0	0	1	0	0	0	231
Lane Group Flow (vph)	214	548	0	1	600	0	29	24	0	24	27	34
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)	60.3	55.0		48.8	47.5		10.6	10.6		10.6	10.6	10.6
Effective Green, g (s)	60.3	55.0		48.8	47.5		10.6	10.6		10.6	10.6	10.6
Actuated g/C Ratio	0.73	0.66		0.59	0.57		0.13	0.13		0.13	0.13	0.13
Clearance Time (s)	4.0	6.0		4.0	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	3.0	3.0
Lane Grp Cap (vph)	631	2363		509	2030		178	239		178	240	204
v/s Ratio Prot	c0.04	0.15		0.00	0.17			0.01			0.01	
v/s Ratio Perm	c0.21			0.00			0.02			0.02		c0.02
v/c Ratio	0.34	0.23		0.00	0.30		0.16	0.10		0.13	0.11	0.17
Uniform Delay, d1	3.8	5.5		7.0	9.1		32.2	31.9		32.1	32.0	32.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.3	0.2		0.0	0.4		0.4	0.2		0.3	0.2	0.4
Delay (s)	4.1	5.8		7.0	9.5		32.6	32.1		32.4	32.2	32.6
Level of Service	A	A		A	A		C	C		C	C	C
Approach Delay (s)		5.3			9.5			32.4			32.6	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	82.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	344	71	14	300	13	84	126	20	11	129	18
Future Volume (vph)	27	344	71	14	300	13	84	126	20	11	129	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.99		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3487		1789	3556		1789	1844		1789	1848	
Flt Permitted	0.55	1.00		0.49	1.00		0.66	1.00		0.66	1.00	
Satd. Flow (perm)	1031	3487		926	3556		1235	1844		1236	1848	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	29	374	77	15	326	14	91	137	22	12	140	20
RTOR Reduction (vph)	0	19	0	0	3	0	0	9	0	0	9	0
Lane Group Flow (vph)	29	432	0	15	337	0	91	150	0	12	151	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	43.1	43.1		43.1	43.1		9.3	9.3		9.3	9.3	
Effective Green, g (s)	43.1	43.1		43.1	43.1		9.3	9.3		9.3	9.3	
Actuated g/C Ratio	0.67	0.67		0.67	0.67		0.14	0.14		0.14	0.14	
Clearance Time (s)	6.0	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	3.0	
Lane Grp Cap (vph)	690	2333		619	2379		178	266		178	266	
v/s Ratio Prot		c0.12			0.09			0.08			c0.08	
v/s Ratio Perm	0.03			0.02			0.07			0.01		
v/c Ratio	0.04	0.19		0.02	0.14		0.51	0.56		0.07	0.57	
Uniform Delay, d1	3.6	4.0		3.6	3.9		25.5	25.7		23.8	25.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.2		0.1	0.1		2.5	2.7		0.2	2.8	
Delay (s)	3.7	4.2		3.7	4.0		27.9	28.4		24.0	28.5	
Level of Service	A	A		A	A		C	C		C	C	
Approach Delay (s)		4.2			4.0			28.2			28.2	
Approach LOS		A			A			C			C	

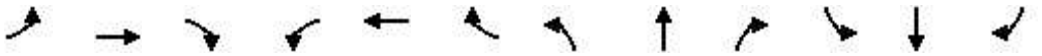
Intersection Summary			
HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	64.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	0	29	40	0	66	36	139	13	22	163	19
Future Volume (Veh/h)	25	0	29	40	0	66	36	139	13	22	163	19
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	0	32	43	0	72	39	151	14	24	177	21
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)								294			86	
pX, platoon unblocked	0.94	0.94	0.94	0.94	0.94		0.94					
vC, conflicting volume	536	478	188	504	482	158	198			165		
vC1, stage 1 conf vol	236	236		236	236							
vC2, stage 2 conf vol	301	243		268	246							
vCu, unblocked vol	477	415	106	442	419	158	118			165		
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 %	95	100	96	93	100	92	97			98		
cM capacity (veh/h)	565	598	893	612	593	887	1385			1413		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	59	115	39	165	222
Volume Left	27	43	39	0	24
Volume Right	32	72	0	14	21
cSH	706	760	1385	1700	1413
Volume to Capacity	0.08	0.15	0.03	0.10	0.02
Queue Length 95th (m)	2.1	4.0	0.7	0.0	0.4
Control Delay (s)	10.6	10.6	7.7	0.0	1.0
Lane LOS	B	B	A		A
Approach Delay (s)	10.6	10.6	1.5		1.0
Approach LOS	B	B			

Intersection Summary				
Average Delay	3.9			
Intersection Capacity Utilization	36.5%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	411	24	7	395	61	23	74	16	53	88	131
Future Volume (vph)	77	411	24	7	395	61	23	74	16	53	88	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1789	3549		1789	3507		1789	1883	1601	1789	1883	1601
Flt Permitted	0.41	1.00		0.48	1.00		0.69	1.00	1.00	0.64	1.00	1.00
Satd. Flow (perm)	773	3549		906	3507		1309	1883	1601	1207	1883	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	84	447	26	8	429	66	25	80	17	58	96	142
RTOR Reduction (vph)	0	3	0	0	11	0	0	0	13	0	0	106
Lane Group Flow (vph)	84	470	0	8	484	0	25	80	4	58	96	36
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	63.1	57.8		55.0	53.7		27.9	25.0	25.0	32.9	27.5	27.5
Effective Green, g (s)	63.1	57.8		55.0	53.7		27.9	25.0	25.0	32.9	27.5	27.5
Actuated g/C Ratio	0.58	0.53		0.50	0.49		0.25	0.23	0.23	0.30	0.25	0.25
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	495	1873		465	1719		346	429	365	391	472	402
v/s Ratio Prot	c0.01	0.13		0.00	c0.14		0.00	0.04		c0.01	c0.05	
v/s Ratio Perm	0.09			0.01			0.02		0.00	0.04		0.02
v/c Ratio	0.17	0.25		0.02	0.28		0.07	0.19	0.01	0.15	0.20	0.09
Uniform Delay, d1	10.6	14.1		13.6	16.5		30.8	34.1	32.7	27.7	32.4	31.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.3		0.0	0.4		0.1	0.2	0.0	0.2	0.2	0.1
Delay (s)	10.8	14.4		13.6	16.9		30.9	34.3	32.7	27.9	32.6	31.5
Level of Service	B	B		B	B		C	C	C	C	C	C
Approach Delay (s)		13.8			16.9			33.4			31.1	
Approach LOS		B			B			C			C	

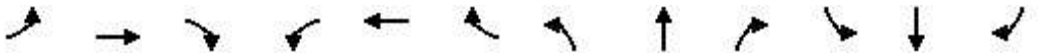
Intersection Summary			
HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	109.5	Sum of lost time (s)	20.0
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	65	0	0	55	0	0
Future Volume (Veh/h)	65	0	0	55	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	71	0	0	60	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			71		131	71
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			71		131	71
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1529		863	991

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	71	60	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1529	1700
Volume to Capacity	0.04	0.00	0.06
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	6.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	449	136	18	363	126	145	326	15	192	385	146
Future Volume (vph)	147	449	136	18	363	126	145	326	15	192	385	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.96		1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3454		1789	3440		1789	3555		1789	3431	
Flt Permitted	0.24	1.00		0.30	1.00		0.34	1.00		0.53	1.00	
Satd. Flow (perm)	445	3454		573	3440		633	3555		1001	3431	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	160	488	148	20	395	137	158	354	16	209	418	159
RTOR Reduction (vph)	0	30	0	0	39	0	0	4	0	0	44	0
Lane Group Flow (vph)	160	606	0	20	493	0	158	366	0	209	533	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	30.1	23.4		21.8	19.1		47.0	37.0		41.0	34.0	
Effective Green, g (s)	30.1	23.4		21.8	19.1		47.0	37.0		41.0	34.0	
Actuated g/C Ratio	0.33	0.26		0.24	0.21		0.52	0.41		0.46	0.38	
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	253	897		175	729		458	1459		516	1294	
v/s Ratio Prot	c0.05	c0.18		0.00	0.14		c0.04	0.10		0.03	c0.16	
v/s Ratio Perm	0.16			0.02			0.14			0.15		
v/c Ratio	0.63	0.68		0.11	0.68		0.34	0.25		0.41	0.41	
Uniform Delay, d1	22.8	29.9		26.3	32.7		11.8	17.4		15.1	20.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.1	2.0		0.3	2.5		0.5	0.4		0.5	1.0	
Delay (s)	27.9	32.0		26.6	35.2		12.2	17.9		15.7	21.7	
Level of Service	C	C		C	D		B	B		B	C	
Approach Delay (s)		31.2			34.9			16.2			20.1	
Approach LOS		C			C			B			C	

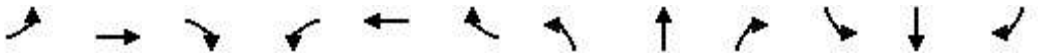
Intersection Summary			
HCM 2000 Control Delay	25.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	90.1	Sum of lost time (s)	20.0
Intersection Capacity Utilization	78.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	1	3	42	1	36	7	441	13	52	466	2
Future Volume (Veh/h)	8	1	3	42	1	36	7	441	13	52	466	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	1	3	46	1	39	8	479	14	57	507	2
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)											113	
pX, platoon unblocked	0.86	0.86	0.86	0.86	0.86		0.86					
vC, conflicting volume	1156	1131	508	1126	1125	486	509			493		
vC1, stage 1 conf vol	622	622		502	502							
vC2, stage 2 conf vol	534	509		624	623							
vCu, unblocked vol	1101	1072	349	1067	1065	486	350			493		
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 %	97	100	99	88	100	93	99			95		
cM capacity (veh/h)	337	360	598	371	372	581	1042			1071		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	13	86	8	493	57	509
Volume Left	9	46	8	0	57	0
Volume Right	3	39	0	14	0	2
cSH	377	444	1042	1700	1071	1700
Volume to Capacity	0.03	0.19	0.01	0.29	0.05	0.30
Queue Length 95th (m)	0.8	5.4	0.2	0.0	1.3	0.0
Control Delay (s)	14.9	15.1	8.5	0.0	8.6	0.0
Lane LOS	B	C	A		A	
Approach Delay (s)	14.9	15.1	0.1		0.9	
Approach LOS	B	C				

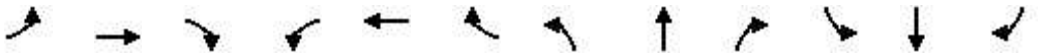
Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	43.0%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	475	911	39	2	649	63	26	55	5	54	53	359
Future Volume (vph)	475	911	39	2	649	63	26	55	5	54	53	359
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1789	3557		1789	3531		1789	1862		1789	1883	1601
Flt Permitted	0.27	1.00		0.28	1.00		0.72	1.00		0.71	1.00	1.00
Satd. Flow (perm)	501	3557		523	3531		1355	1862		1346	1883	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	516	990	42	2	705	68	28	60	5	59	58	390
RTOR Reduction (vph)	0	2	0	0	6	0	0	3	0	0	0	338
Lane Group Flow (vph)	516	1030	0	2	767	0	28	62	0	59	58	52
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)	64.9	59.7		42.7	41.5		11.7	11.7		11.7	11.7	11.7
Effective Green, g (s)	64.9	59.7		42.7	41.5		11.7	11.7		11.7	11.7	11.7
Actuated g/C Ratio	0.73	0.67		0.48	0.47		0.13	0.13		0.13	0.13	0.13
Clearance Time (s)	4.0	6.0		4.0	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	3.0	3.0
Lane Grp Cap (vph)	649	2396		269	1653		178	245		177	248	211
v/s Ratio Prot	c0.17	0.29		0.00	0.22			0.03			0.03	
v/s Ratio Perm	c0.41			0.00			0.02			c0.04		0.03
v/c Ratio	0.80	0.43		0.01	0.46		0.16	0.25		0.33	0.23	0.24
Uniform Delay, d1	8.2	6.6		11.9	16.0		34.1	34.5		34.9	34.4	34.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	6.7	0.6		0.0	0.9		0.4	0.5		1.1	0.5	0.6
Delay (s)	14.9	7.2		11.9	16.9		34.5	35.1		36.0	34.9	35.1
Level of Service	B	A		B	B		C	D		D	C	D
Approach Delay (s)		9.8			16.9			34.9			35.2	
Approach LOS		A			B			C			D	

Intersection Summary			
HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	88.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	528	133	24	371	40	98	254	21	42	227	24
Future Volume (vph)	23	528	133	24	371	40	98	254	21	42	227	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.99		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3470		1789	3527		1789	1862		1789	1857	
Flt Permitted	0.49	1.00		0.37	1.00		0.48	1.00		0.43	1.00	
Satd. Flow (perm)	930	3470		690	3527		896	1862		801	1857	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	574	145	26	403	43	107	276	23	46	247	26
RTOR Reduction (vph)	0	29	0	0	10	0	0	5	0	0	6	0
Lane Group Flow (vph)	25	690	0	26	436	0	107	294	0	46	267	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	38.1	38.1		38.1	38.1		15.1	15.1		15.1	15.1	
Effective Green, g (s)	38.1	38.1		38.1	38.1		15.1	15.1		15.1	15.1	
Actuated g/C Ratio	0.58	0.58		0.58	0.58		0.23	0.23		0.23	0.23	
Clearance Time (s)	6.0	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	3.0	
Lane Grp Cap (vph)	543	2027		403	2061		207	431		185	430	
v/s Ratio Prot		c0.20			0.12			c0.16			0.14	
v/s Ratio Perm	0.03			0.04			0.12			0.06		
v/c Ratio	0.05	0.34		0.06	0.21		0.52	0.68		0.25	0.62	
Uniform Delay, d1	5.8	7.0		5.9	6.4		21.9	22.9		20.4	22.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.5		0.3	0.2		2.2	4.4		0.7	2.8	
Delay (s)	5.9	7.5		6.2	6.7		24.0	27.3		21.1	25.3	
Level of Service	A	A		A	A		C	C		C	C	
Approach Delay (s)		7.4			6.6			26.4			24.7	
Approach LOS		A			A			C			C	

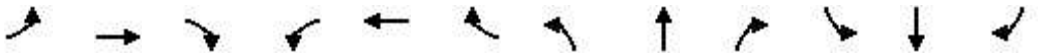
Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	65.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	0	35	29	0	48	70	307	42	70	261	40
Future Volume (Veh/h)	18	0	35	29	0	48	70	307	42	70	261	40
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	0	38	32	0	52	76	334	46	76	284	43
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)								294			86	
pX, platoon unblocked	0.88	0.88	0.88	0.88	0.88		0.88					
vC, conflicting volume	996	990	306	1004	988	357	327			380		
vC1, stage 1 conf vol	458	458		509	509							
vC2, stage 2 conf vol	538	532		496	479							
vCu, unblocked vol	927	921	144	938	919	357	168			380		
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 %	94	100	95	91	100	92	94			94		
cM capacity (veh/h)	344	368	796	367	377	687	1241			1178		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	58	84	76	380	403
Volume Left	20	32	76	0	76
Volume Right	38	52	0	46	43
cSH	548	516	1241	1700	1178
Volume to Capacity	0.11	0.16	0.06	0.22	0.06
Queue Length 95th (m)	2.7	4.4	1.5	0.0	1.6
Control Delay (s)	12.3	13.3	8.1	0.0	2.1
Lane LOS	B	B	A		A
Approach Delay (s)	12.3	13.3	1.3		2.1
Approach LOS	B	B			

Intersection Summary				
Average Delay	3.3			
Intersection Capacity Utilization	55.0%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	249	674	44	23	561	72	17	121	14	81	109	133
Future Volume (vph)	249	674	44	23	561	72	17	121	14	81	109	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1789	3546		1789	3518		1789	1883	1601	1789	1883	1601
Flt Permitted	0.28	1.00		0.34	1.00		0.68	1.00	1.00	0.58	1.00	1.00
Satd. Flow (perm)	528	3546		645	3518		1283	1883	1601	1086	1883	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	271	733	48	25	610	78	18	132	15	88	118	145
RTOR Reduction (vph)	0	4	0	0	9	0	0	0	11	0	0	106
Lane Group Flow (vph)	271	777	0	25	679	0	18	132	4	88	118	39
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	62.7	54.6		50.1	46.0		27.6	25.7	25.7	34.6	29.2	29.2
Effective Green, g (s)	62.7	54.6		50.1	46.0		27.6	25.7	25.7	34.6	29.2	29.2
Actuated g/C Ratio	0.57	0.50		0.46	0.42		0.25	0.23	0.23	0.32	0.27	0.27
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	447	1763		337	1473		331	440	374	376	500	425
v/s Ratio Prot	c0.07	0.22		0.00	0.19		0.00	c0.07		c0.01	0.06	
v/s Ratio Perm	c0.28			0.03			0.01		0.00	0.06		0.02
v/c Ratio	0.61	0.44		0.07	0.46		0.05	0.30	0.01	0.23	0.24	0.09
Uniform Delay, d1	13.3	17.8		16.5	23.0		31.1	34.6	32.3	27.2	31.6	30.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.3	0.8		0.1	1.0		0.1	0.4	0.0	0.3	0.2	0.1
Delay (s)	15.7	18.6		16.6	24.0		31.2	35.0	32.3	27.5	31.8	30.4
Level of Service	B	B		B	C		C	D	C	C	C	C
Approach Delay (s)		17.8			23.8			34.4			30.1	
Approach LOS		B			C			C			C	

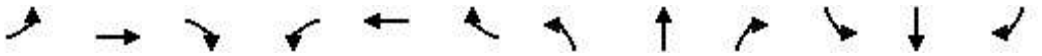
Intersection Summary			
HCM 2000 Control Delay	22.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	109.8	Sum of lost time (s)	20.0
Intersection Capacity Utilization	93.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	54	0	0	110	0	0
Future Volume (Veh/h)	54	0	0	110	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	59	0	0	120	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			59		179	59
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			59		179	59
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1545		811	1007

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	59	120	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1545	1700
Volume to Capacity	0.03	0.00	0.06
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

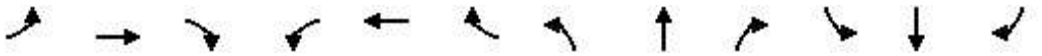
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	9.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	348	98	14	279	115	86	220	14	73	167	58
Future Volume (vph)	96	348	98	14	279	115	86	220	14	73	167	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.96		1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3460		1789	3422		1789	3547		1789	3441	
Flt Permitted	0.30	1.00		0.45	1.00		0.57	1.00		0.59	1.00	
Satd. Flow (perm)	571	3460		842	3422		1067	3547		1120	3441	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	104	378	107	15	303	125	93	239	15	79	182	63
RTOR Reduction (vph)	0	28	0	0	50	0	0	5	0	0	36	0
Lane Group Flow (vph)	104	457	0	15	378	0	93	249	0	79	209	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	25.7	20.4		17.7	16.4		47.4	39.9		43.0	37.7	
Effective Green, g (s)	25.7	20.4		17.7	16.4		47.4	39.9		43.0	37.7	
Actuated g/C Ratio	0.30	0.23		0.20	0.19		0.55	0.46		0.49	0.43	
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	243	812		185	645		644	1628		595	1492	
v/s Ratio Prot	c0.03	c0.13		0.00	0.11		c0.01	c0.07		0.01	0.06	
v/s Ratio Perm	0.10			0.02			0.07			0.06		
v/c Ratio	0.43	0.56		0.08	0.59		0.14	0.15		0.13	0.14	
Uniform Delay, d1	23.3	29.3		27.8	32.2		9.5	13.7		11.6	14.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	0.9		0.2	1.4		0.1	0.2		0.1	0.2	
Delay (s)	24.5	30.2		28.0	33.5		9.6	13.9		11.7	15.0	
Level of Service	C	C		C	C		A	B		B	B	
Approach Delay (s)		29.2			33.3			12.7			14.2	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	24.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	86.9	Sum of lost time (s)	20.0
Intersection Capacity Utilization	71.9%	ICU Level of Service	C
Analysis Period (min)	15		

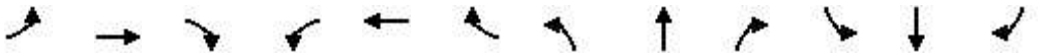
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	2	1	67	1	41	1	269	10	28	226	7
Future Volume (Veh/h)	8	2	1	67	1	41	1	269	10	28	226	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	2	1	73	1	45	1	292	11	30	246	8
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)											113	
pX, platoon unblocked	0.96	0.96	0.96	0.96	0.96		0.96					
vC, conflicting volume	650	615	250	608	614	298	254			303		
vC1, stage 1 conf vol	310	310		300	300							
vC2, stage 2 conf vol	340	305		308	314							
vCu, unblocked vol	614	578	198	570	577	298	202			303		
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	100	88	100	94	100			98		
cM capacity (veh/h)	533	547	809	589	556	742	1315			1258		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	12	119	1	303	30	254
Volume Left	9	73	1	0	30	0
Volume Right	1	45	0	11	0	8
cSH	551	638	1315	1700	1258	1700
Volume to Capacity	0.02	0.19	0.00	0.18	0.02	0.15
Queue Length 95th (m)	0.5	5.2	0.0	0.0	0.6	0.0
Control Delay (s)	11.7	11.9	7.7	0.0	7.9	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	11.7	11.9	0.0		0.8	
Approach LOS	B	B				

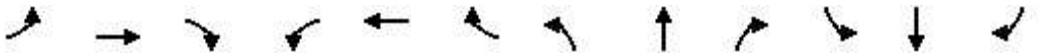
Intersection Summary				
Average Delay	2.5			
Intersection Capacity Utilization	34.8%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	201	500	16	1	529	37	28	22	1	22	26	249
Future Volume (vph)	201	500	16	1	529	37	28	22	1	22	26	249
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00		1.00	0.99		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1789	3562		1789	3544		1789	1872		1789	1883	1601
Flt Permitted	0.37	1.00		0.44	1.00		0.74	1.00		0.74	1.00	1.00
Satd. Flow (perm)	700	3562		833	3544		1392	1872		1396	1883	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	218	543	17	1	575	40	30	24	1	24	28	271
RTOR Reduction (vph)	0	2	0	0	4	0	0	1	0	0	0	236
Lane Group Flow (vph)	218	558	0	1	611	0	30	24	0	24	28	35
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)	60.3	55.0		48.7	47.4		10.7	10.7		10.7	10.7	10.7
Effective Green, g (s)	60.3	55.0		48.7	47.4		10.7	10.7		10.7	10.7	10.7
Actuated g/C Ratio	0.73	0.66		0.59	0.57		0.13	0.13		0.13	0.13	0.13
Clearance Time (s)	4.0	6.0		4.0	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	3.0	3.0
Lane Grp Cap (vph)	625	2360		503	2023		179	241		179	242	206
v/s Ratio Prot	c0.04	0.16		0.00	0.17			0.01			0.01	
v/s Ratio Perm	c0.22			0.00			0.02			0.02		c0.02
v/c Ratio	0.35	0.24		0.00	0.30		0.17	0.10		0.13	0.12	0.17
Uniform Delay, d1	3.8	5.6		7.1	9.2		32.2	31.9		32.0	32.0	32.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.3	0.2		0.0	0.4		0.4	0.2		0.3	0.2	0.4
Delay (s)	4.2	5.8		7.1	9.6		32.6	32.1		32.4	32.2	32.6
Level of Service	A	A		A	A		C	C		C	C	C
Approach Delay (s)		5.4			9.6			32.4			32.5	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	83.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	362	74	14	315	13	86	130	21	11	135	19
Future Volume (vph)	28	362	74	14	315	13	86	130	21	11	135	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.99		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3488		1789	3557		1789	1844		1789	1848	
Flt Permitted	0.54	1.00		0.48	1.00		0.65	1.00		0.65	1.00	
Satd. Flow (perm)	1015	3488		906	3557		1226	1844		1230	1848	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	393	80	15	342	14	93	141	23	12	147	21
RTOR Reduction (vph)	0	21	0	0	4	0	0	9	0	0	8	0
Lane Group Flow (vph)	30	452	0	15	352	0	93	155	0	12	160	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	41.3	41.3		41.3	41.3		11.6	11.6		11.6	11.6	
Effective Green, g (s)	41.3	41.3		41.3	41.3		11.6	11.6		11.6	11.6	
Actuated g/C Ratio	0.64	0.64		0.64	0.64		0.18	0.18		0.18	0.18	
Clearance Time (s)	6.0	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	3.0	
Lane Grp Cap (vph)	645	2219		576	2263		219	329		219	330	
v/s Ratio Prot		c0.13			0.10			0.08			c0.09	
v/s Ratio Perm	0.03			0.02			0.08			0.01		
v/c Ratio	0.05	0.20		0.03	0.16		0.42	0.47		0.05	0.48	
Uniform Delay, d1	4.4	4.9		4.4	4.8		23.7	23.9		22.1	24.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.2		0.1	0.1		1.3	1.1		0.1	1.1	
Delay (s)	4.6	5.1		4.4	4.9		25.0	25.0		22.2	25.1	
Level of Service	A	A		A	A		C	C		C	C	
Approach Delay (s)		5.1			4.9			25.0			24.9	
Approach LOS		A			A			C			C	

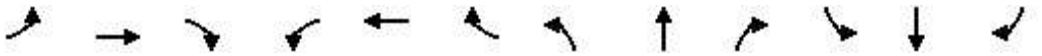
Intersection Summary			
HCM 2000 Control Delay	11.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	64.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	0	30	40	0	66	37	145	13	22	171	20
Future Volume (Veh/h)	25	0	30	40	0	66	37	145	13	22	171	20
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	0	33	43	0	72	40	158	14	24	186	22
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)								294			86	
pX, platoon unblocked	0.94	0.94	0.94	0.94	0.94		0.94					
vC, conflicting volume	555	497	197	523	501	165	208			172		
vC1, stage 1 conf vol	245	245		245	245							
vC2, stage 2 conf vol	310	252		278	256							
vCu, unblocked vol	495	433	114	461	437	165	126			172		
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 %	95	100	96	93	100	92	97			98		
cM capacity (veh/h)	556	590	882	601	585	879	1373			1405		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	60	115	40	172	232
Volume Left	27	43	40	0	24
Volume Right	33	72	0	14	22
cSH	698	749	1373	1700	1405
Volume to Capacity	0.09	0.15	0.03	0.10	0.02
Queue Length 95th (m)	2.1	4.1	0.7	0.0	0.4
Control Delay (s)	10.6	10.7	7.7	0.0	0.9
Lane LOS	B	B	A		A
Approach Delay (s)	10.6	10.7	1.5		0.9
Approach LOS	B	B			

Intersection Summary				
Average Delay	3.9			
Intersection Capacity Utilization	37.3%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	420	25	7	403	62	24	78	16	55	93	133
Future Volume (vph)	78	420	25	7	403	62	24	78	16	55	93	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1789	3549		1789	3507		1789	1883	1601	1789	1883	1601
Flt Permitted	0.40	1.00		0.48	1.00		0.69	1.00	1.00	0.64	1.00	1.00
Satd. Flow (perm)	762	3549		896	3507		1303	1883	1601	1202	1883	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	85	457	27	8	438	67	26	85	17	60	101	145
RTOR Reduction (vph)	0	3	0	0	11	0	0	0	13	0	0	109
Lane Group Flow (vph)	85	481	0	8	494	0	26	85	4	60	101	36
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	63.1	57.8		55.0	53.7		27.9	25.0	25.0	32.9	27.5	27.5
Effective Green, g (s)	63.1	57.8		55.0	53.7		27.9	25.0	25.0	32.9	27.5	27.5
Actuated g/C Ratio	0.58	0.53		0.50	0.49		0.25	0.23	0.23	0.30	0.25	0.25
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	489	1873		460	1719		344	429	365	390	472	402
v/s Ratio Prot	c0.01	0.14		0.00	c0.14		0.00	0.05		c0.01	c0.05	
v/s Ratio Perm	0.09			0.01			0.02		0.00	0.04		0.02
v/c Ratio	0.17	0.26		0.02	0.29		0.08	0.20	0.01	0.15	0.21	0.09
Uniform Delay, d1	10.6	14.1		13.6	16.6		30.9	34.1	32.7	27.8	32.4	31.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.3		0.0	0.4		0.1	0.2	0.0	0.2	0.2	0.1
Delay (s)	10.8	14.4		13.6	17.0		30.9	34.4	32.7	27.9	32.7	31.5
Level of Service	B	B		B	B		C	C	C	C	C	C
Approach Delay (s)		13.9			16.9			33.5			31.2	
Approach LOS		B			B			C			C	

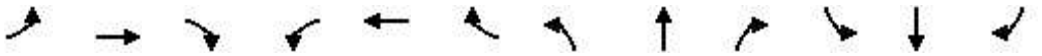
Intersection Summary			
HCM 2000 Control Delay	20.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	109.5	Sum of lost time (s)	20.0
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	66	0	0	56	0	0
Future Volume (Veh/h)	66	0	0	56	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	72	0	0	61	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			72		133	72
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			72		133	72
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1528		861	990

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	72	61	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1528	1700
Volume to Capacity	0.04	0.00	0.06
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	6.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	154	471	142	18	381	131	148	334	15	196	395	149
Future Volume (vph)	154	471	142	18	381	131	148	334	15	196	395	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.96		1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3454		1789	3441		1789	3556		1789	3431	
Flt Permitted	0.22	1.00		0.28	1.00		0.33	1.00		0.53	1.00	
Satd. Flow (perm)	417	3454		526	3441		616	3556		993	3431	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	167	512	154	20	414	142	161	363	16	213	429	162
RTOR Reduction (vph)	0	29	0	0	38	0	0	4	0	0	44	0
Lane Group Flow (vph)	167	637	0	20	518	0	161	375	0	213	547	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	30.5	23.8		22.2	19.5		47.0	37.0		41.0	34.0	
Effective Green, g (s)	30.5	23.8		22.2	19.5		47.0	37.0		41.0	34.0	
Actuated g/C Ratio	0.34	0.26		0.25	0.22		0.52	0.41		0.45	0.38	
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	246	908		166	741		449	1453		511	1288	
v/s Ratio Prot	c0.05	c0.18		0.00	0.15		c0.04	0.11		0.03	c0.16	
v/s Ratio Perm	0.18			0.03			0.15			0.16		
v/c Ratio	0.68	0.70		0.12	0.70		0.36	0.26		0.42	0.42	
Uniform Delay, d1	22.9	30.1		26.3	32.8		12.0	17.7		15.4	21.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.2	2.5		0.3	2.9		0.5	0.4		0.6	1.0	
Delay (s)	30.1	32.6		26.6	35.7		12.5	18.1		15.9	22.0	
Level of Service	C	C		C	D		B	B		B	C	
Approach Delay (s)		32.1			35.4			16.4			20.4	
Approach LOS		C			D			B			C	

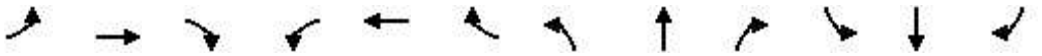
Intersection Summary			
HCM 2000 Control Delay	26.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	90.5	Sum of lost time (s)	20.0
Intersection Capacity Utilization	79.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	1	3	43	1	37	7	451	13	52	477	2
Future Volume (Veh/h)	8	1	3	43	1	37	7	451	13	52	477	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	1	3	47	1	40	8	490	14	57	518	2
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)											113	
pX, platoon unblocked	0.86	0.86	0.86	0.86	0.86		0.86					
vC, conflicting volume	1180	1153	519	1148	1147	497	520			504		
vC1, stage 1 conf vol	633	633		513	513							
vC2, stage 2 conf vol	546	520		636	634							
vCu, unblocked vol	1126	1096	357	1090	1089	497	358			504		
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 %	97	100	99	87	100	93	99			95		
cM capacity (veh/h)	330	354	590	364	366	573	1030			1061		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	13	88	8	504	57	520
Volume Left	9	47	8	0	57	0
Volume Right	3	40	0	14	0	2
cSH	370	436	1030	1700	1061	1700
Volume to Capacity	0.04	0.20	0.01	0.30	0.05	0.31
Queue Length 95th (m)	0.8	5.7	0.2	0.0	1.3	0.0
Control Delay (s)	15.1	15.3	8.5	0.0	8.6	0.0
Lane LOS	C	C	A		A	
Approach Delay (s)	15.1	15.3	0.1		0.8	
Approach LOS	C	C				

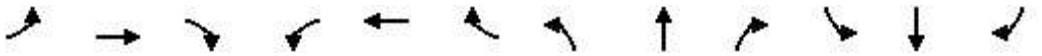
Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	43.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	486	928	40	2	662	64	27	56	5	55	54	367
Future Volume (vph)	486	928	40	2	662	64	27	56	5	55	54	367
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1789	3557		1789	3531		1789	1862		1789	1883	1601
Flt Permitted	0.25	1.00		0.27	1.00		0.72	1.00		0.71	1.00	1.00
Satd. Flow (perm)	479	3557		513	3531		1353	1862		1345	1883	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	528	1009	43	2	720	70	29	61	5	60	59	399
RTOR Reduction (vph)	0	2	0	0	6	0	0	3	0	0	0	346
Lane Group Flow (vph)	528	1050	0	2	784	0	29	63	0	60	59	53
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)	65.8	60.6		42.3	41.1		11.8	11.8		11.8	11.8	11.8
Effective Green, g (s)	65.8	60.6		42.3	41.1		11.8	11.8		11.8	11.8	11.8
Actuated g/C Ratio	0.73	0.68		0.47	0.46		0.13	0.13		0.13	0.13	0.13
Clearance Time (s)	4.0	6.0		4.0	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	3.0	3.0
Lane Grp Cap (vph)	654	2405		259	1619		178	245		177	247	210
v/s Ratio Prot	c0.19	0.30		0.00	0.22			0.03			0.03	
v/s Ratio Perm	c0.41			0.00			0.02			c0.04		0.03
v/c Ratio	0.81	0.44		0.01	0.48		0.16	0.26		0.34	0.24	0.25
Uniform Delay, d1	10.0	6.7		12.5	16.9		34.5	35.0		35.4	34.9	34.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.2	0.6		0.0	1.0		0.4	0.6		1.1	0.5	0.6
Delay (s)	17.2	7.2		12.5	17.9		35.0	35.5		36.5	35.4	35.6
Level of Service	B	A		B	B		C	D		D	D	D
Approach Delay (s)		10.6			17.9			35.3			35.6	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	89.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		

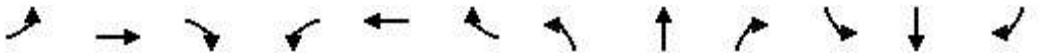
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	555	137	24	389	42	101	265	22	44	236	25
Future Volume (vph)	24	555	137	24	389	42	101	265	22	44	236	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.99		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3472		1789	3526		1789	1862		1789	1857	
Flt Permitted	0.48	1.00		0.35	1.00		0.46	1.00		0.40	1.00	
Satd. Flow (perm)	910	3472		659	3526		860	1862		760	1857	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	603	149	26	423	46	110	288	24	48	257	27
RTOR Reduction (vph)	0	28	0	0	11	0	0	5	0	0	6	0
Lane Group Flow (vph)	26	724	0	26	458	0	110	307	0	48	278	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	38.1	38.1		38.1	38.1		15.4	15.4		15.4	15.4	
Effective Green, g (s)	38.1	38.1		38.1	38.1		15.4	15.4		15.4	15.4	
Actuated g/C Ratio	0.58	0.58		0.58	0.58		0.24	0.24		0.24	0.24	
Clearance Time (s)	6.0	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	3.0	
Lane Grp Cap (vph)	529	2019		383	2051		202	437		178	436	
v/s Ratio Prot		c0.21			0.13			c0.17			0.15	
v/s Ratio Perm	0.03			0.04			0.13			0.06		
v/c Ratio	0.05	0.36		0.07	0.22		0.54	0.70		0.27	0.64	
Uniform Delay, d1	5.9	7.2		6.0	6.6		22.0	23.0		20.5	22.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.5		0.3	0.3		3.0	5.1		0.8	3.0	
Delay (s)	6.1	7.7		6.3	6.8		25.0	28.0		21.3	25.6	
Level of Service	A	A		A	A		C	C		C	C	
Approach Delay (s)		7.7			6.8			27.2			25.0	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	65.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		

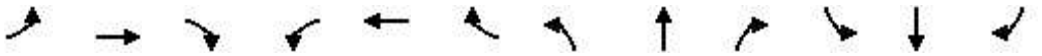
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	0	37	29	0	48	71	322	42	70	273	41
Future Volume (Veh/h)	18	0	37	29	0	48	71	322	42	70	273	41
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	0	40	32	0	52	77	350	46	76	297	45
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)								294			86	
pX, platoon unblocked	0.87	0.87	0.87	0.87	0.87		0.87					
vC, conflicting volume	1028	1022	320	1038	1021	373	342			396		
vC1, stage 1 conf vol	472	472		527	527							
vC2, stage 2 conf vol	556	550		512	494							
vCu, unblocked vol	960	953	150	972	952	373	176			396		
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 %	94	100	95	91	100	92	94			93		
cM capacity (veh/h)	333	358	784	355	367	673	1225			1163		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	60	84	77	396	418
Volume Left	20	32	77	0	76
Volume Right	40	52	0	46	45
cSH	540	502	1225	1700	1163
Volume to Capacity	0.11	0.17	0.06	0.23	0.07
Queue Length 95th (m)	2.8	4.5	1.5	0.0	1.6
Control Delay (s)	12.5	13.6	8.1	0.0	2.1
Lane LOS	B	B	A		A
Approach Delay (s)	12.5	13.6	1.3		2.1
Approach LOS	B	B			

Intersection Summary				
Average Delay	3.3			
Intersection Capacity Utilization	56.6%	ICU Level of Service		B
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	252	688	45	23	573	74	18	127	15	85	114	137
Future Volume (vph)	252	688	45	23	573	74	18	127	15	85	114	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1789	3546		1789	3517		1789	1883	1601	1789	1883	1601
Flt Permitted	0.27	1.00		0.33	1.00		0.68	1.00	1.00	0.57	1.00	1.00
Satd. Flow (perm)	513	3546		631	3517		1276	1883	1601	1066	1883	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	274	748	49	25	623	80	20	138	16	92	124	149
RTOR Reduction (vph)	0	4	0	0	9	0	0	0	12	0	0	109
Lane Group Flow (vph)	274	793	0	25	694	0	20	138	4	92	124	40
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	62.7	54.6		50.0	45.9		27.5	25.6	25.6	34.5	29.1	29.1
Effective Green, g (s)	62.7	54.6		50.0	45.9		27.5	25.6	25.6	34.5	29.1	29.1
Actuated g/C Ratio	0.57	0.50		0.46	0.42		0.25	0.23	0.23	0.31	0.27	0.27
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	442	1764		330	1471		328	439	373	370	499	424
v/s Ratio Prot	c0.07	0.22		0.00	0.20		0.00	c0.07		c0.01	0.07	
v/s Ratio Perm	c0.28			0.03			0.01		0.00	0.07		0.02
v/c Ratio	0.62	0.45		0.08	0.47		0.06	0.31	0.01	0.25	0.25	0.09
Uniform Delay, d1	13.4	17.8		16.5	23.1		31.1	34.8	32.3	27.3	31.7	30.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.6	0.8		0.1	1.1		0.1	0.4	0.0	0.4	0.3	0.1
Delay (s)	16.0	18.7		16.6	24.2		31.2	35.2	32.3	27.6	32.0	30.5
Level of Service	B	B		B	C		C	D	C	C	C	C
Approach Delay (s)		18.0			23.9			34.5			30.3	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	23.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	109.7	Sum of lost time (s)	20.0
Intersection Capacity Utilization	93.1%	ICU Level of Service	F
Analysis Period (min)	15		

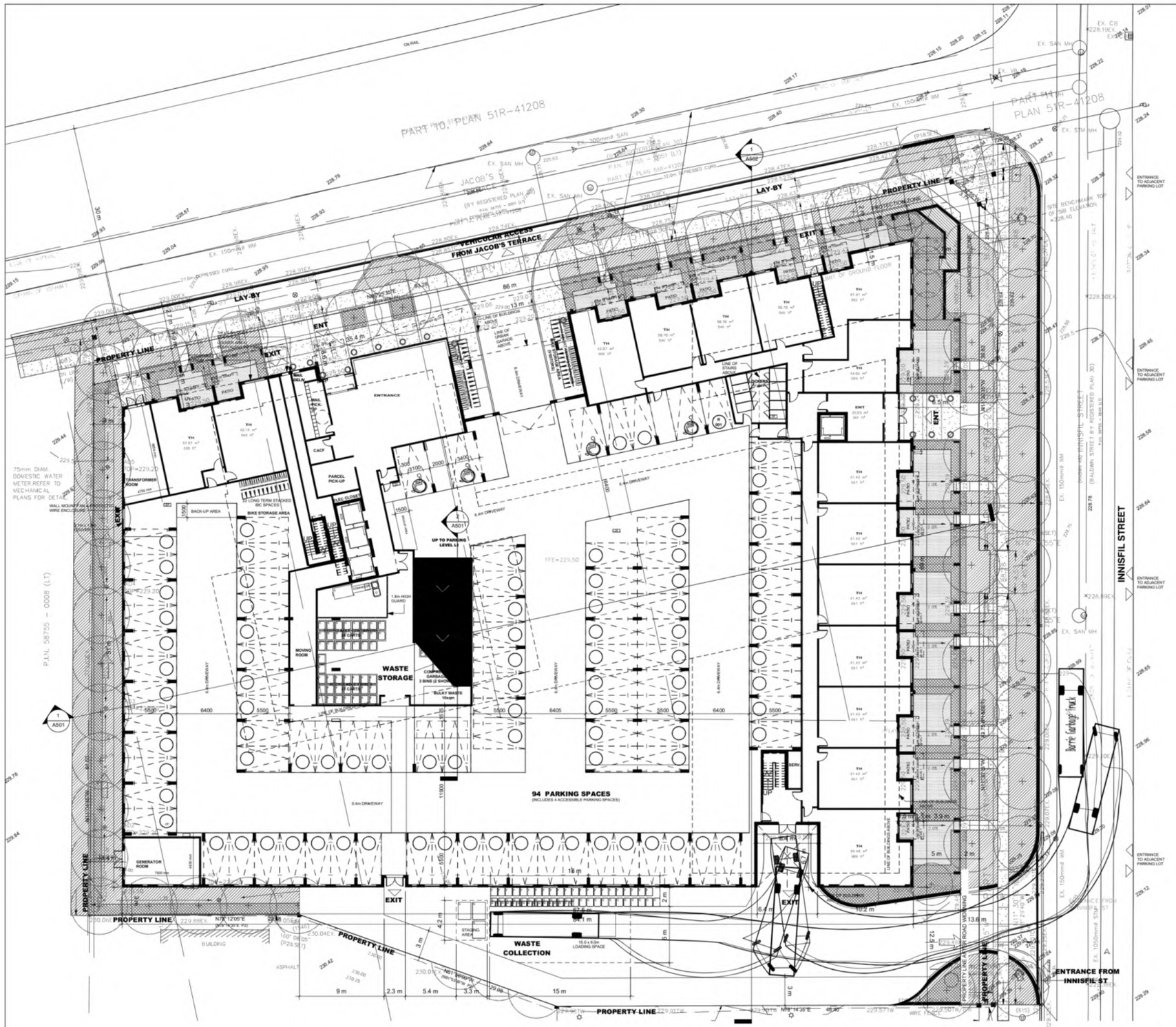
c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	55	0	0	111	0	0
Future Volume (Veh/h)	55	0	0	111	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	60	0	0	121	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			60		181	60
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			60		181	60
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1544		808	1005

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	60	121	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1544	1700
Volume to Capacity	0.04	0.00	0.06
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	9.2%	ICU Level of Service	A
Analysis Period (min)	15		

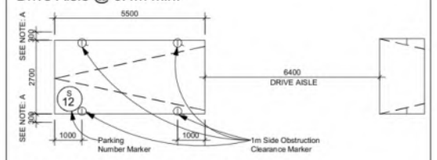
Appendix E:
Vehicle Turning Assessment



LEVEL 1 - FLOOR PLAN (1 / A300)
Scale: 1 : 200

TYPICAL PARKING SPACE:

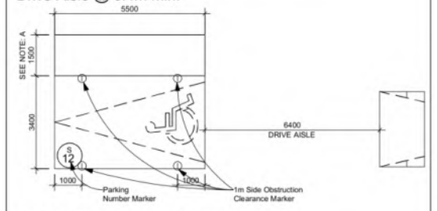
Drive Aisle @ 6.4m min.



NOTE: A- PROVIDE AN ADDITIONAL 300mm FOR PARKING SPACE WIDTH WHEN OBSTRUCTIONS OCCUR BETWEEN THE FRONT AND REAR 1000mm

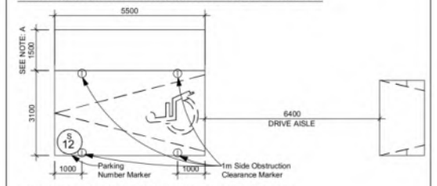
BARRIER-FREE PARKING SPACE TYPE A:

Drive Aisle @ 6.4m min.



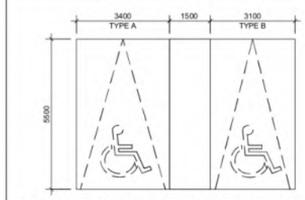
NOTE: A- PROVIDE AN ADDITIONAL 1500mm FOR PARKING SPACE WIDTH WHEN OBSTRUCTIONS OCCUR BETWEEN THE FRONT AND REAR 1000mm

BARRIER-FREE PARKING SPACE TYPE B:



NOTE: A- PROVIDE AN ADDITIONAL 1500mm FOR PARKING SPACE WIDTH WHEN OBSTRUCTIONS OCCUR BETWEEN THE FRONT AND REAR 1000mm

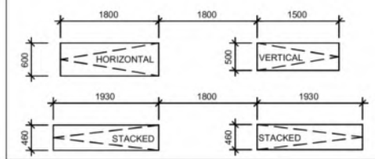
BARRIER-FREE PARKING SPACE TYPE A & B:

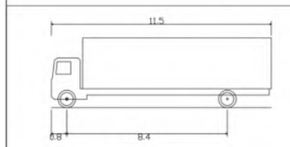


NOTE: WHERE THE REQUIRED 1500mm ACCESS AISLE IS PROVIDED BETWEEN TWO BARRIER-FREE PARKING SPACES, THE AISLE WIDTH CAN BE SHARED.

TYPICAL BICYCLE PARKING SPACE:

WALKWAY:	MINIMUM 1800mm
VERTICAL PARKING SPACE:	1500mm (L) x 500mm (W)
HORIZTONAL PARKING SPACE:	1800mm (L) x 600mm (W)
STACKED PARKING SPACE:	1930mm (L) x 460mm (W)





Barrie Garbage Truck

Overall Length	11.500m
Overall Width	2.600m
Overall Body Height	3.650m
Min Body Ground Clearance	0.445m
Track Width	2.600m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	12.800m

THESE DRAWINGS ARE NOT TO BE SCALED:
ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR PRIOR TO COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES MUST BE REPORTED DIRECTLY TO SRN ARCHITECTS INC.

ADDITIONAL NOTES:

CONDITIONS FOR ELECTRONIC INFORMATION TRANSFER:

ELECTRONIC INFORMATION IS SUPPLIED TO THE OTHER ASSOCIATED FIRMS TO ASSIST THEM IN THE ERECTION OF THEIR WORK/REVIEW. THE RECIPIENT FIRMS MUST DETERMINE THE COMPLETENESS/APPROPRIATENESS/ RELEVANCE OF THE INFORMATION IN RESPECT TO THEIR PARTICULAR RESPONSIBILITY.

- BUILDING LEVEL 1 FFE = 229.50 GEODETIC ELEVATION
- BUILDING LEVEL 1 TOF = 229.45 GEODETIC ELEVATION

NO:	DATE:	REVISION COMMENT:

8395 JANE ST, SUITE 202
VAUGHAN, ONTARIO. L4K 5Y2
PHONE: 905.417.5515 FAX: 905.417.5517

STAMP:

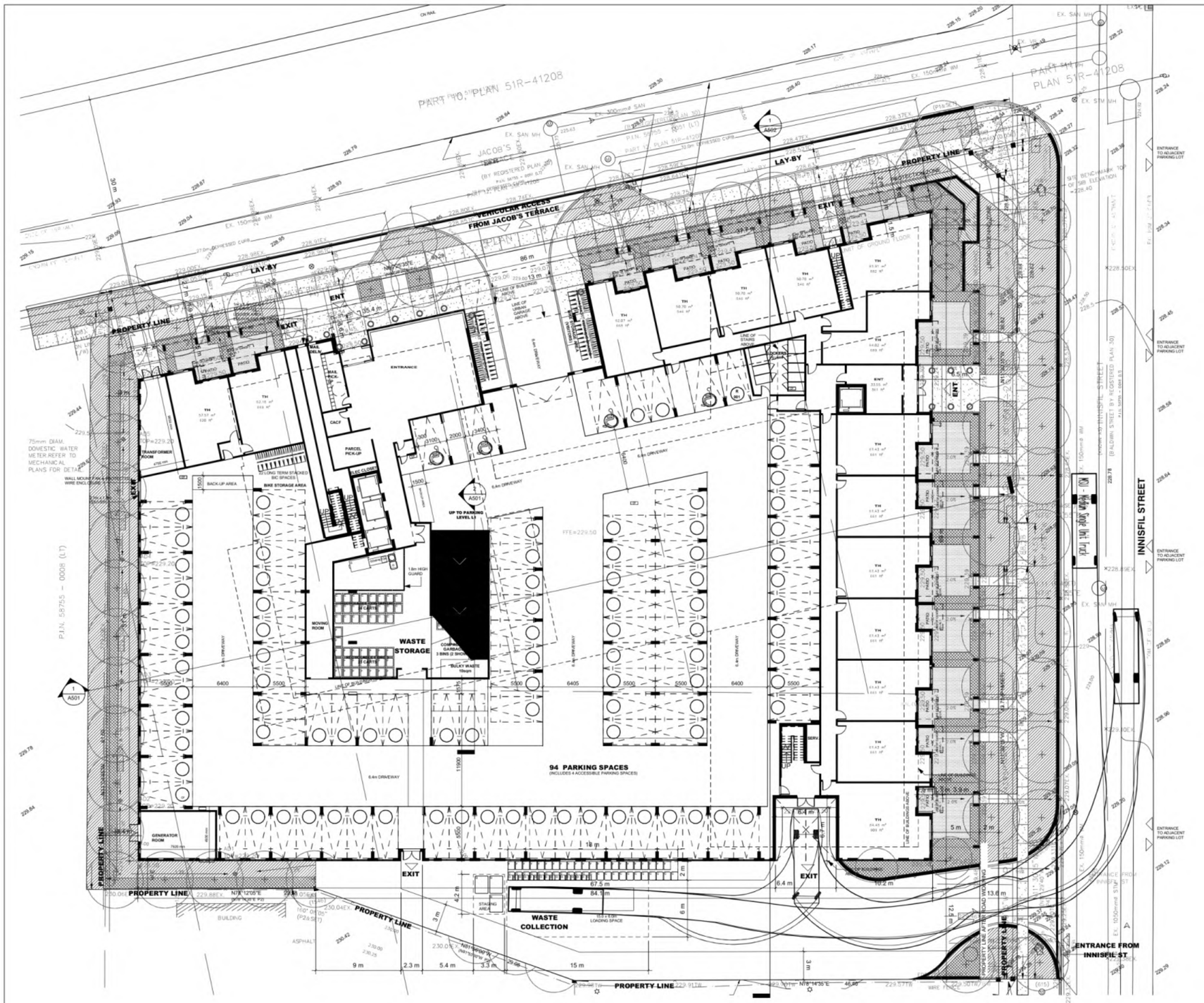
CLIENT:
TYPHON GROUP LTD.

PROJECT:
RESIDENTIAL DEVELOPMENT
272 INNISFIL STREET
BARRIE, ON, L4N 3G1

DRAWING TITLE:
LEVEL 1 FLOOR PLAN

DATE:	SCALE: As indicated
DRAWN BY: Author	CHECKED BY: Checker
PROJECT NUMBER: S21028	DRAWING NUMBER: A300

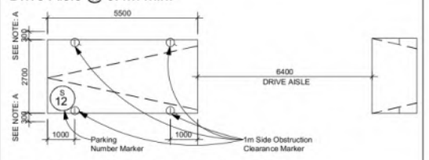
C:\Users\Aaron\Documents\S21028-272 Innisfil St - Barrie - RVT2022_aaronNYKZ7.rvt



LEVEL 1 - FLOOR PLAN (1 / A300)
Scale: 1 : 200

TYPICAL PARKING SPACE:

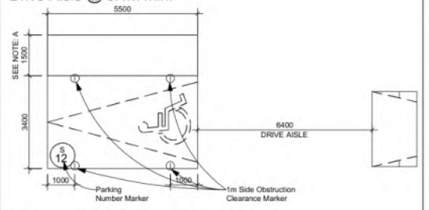
Drive Aisle @ 6.4m min.



NOTE: A- PROVIDE AN ADDITIONAL 300mm FOR PARKING SPACE WIDTH WHEN OBSTRUCTIONS OCCUR BETWEEN THE FRONT AND REAR 1000mm

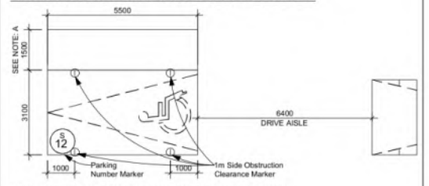
BARRIER-FREE PARKING SPACE TYPE A:

Drive Aisle @ 6.4m min.



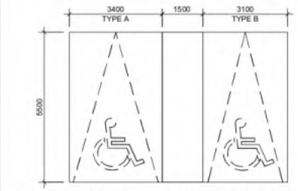
NOTE: A- PROVIDE AN ADDITIONAL 1500mm FOR PARKING SPACE WIDTH WHEN OBSTRUCTIONS OCCUR BETWEEN THE FRONT AND REAR 1000mm

BARRIER-FREE PARKING SPACE TYPE B:



NOTE: A- PROVIDE AN ADDITIONAL 1500mm FOR PARKING SPACE WIDTH WHEN OBSTRUCTIONS OCCUR BETWEEN THE FRONT AND REAR 1000mm

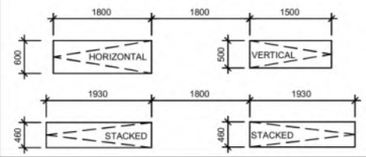
BARRIER-FREE PARKING SPACE TYPE A & B:

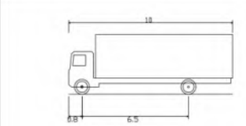


NOTE: WHERE THE REQUIRED 1500mm ACCESS AISLE IS PROVIDED BETWEEN TWO BARRIER-FREE PARKING SPACES, THE AISLE WIDTH CAN BE SHARED.

TYPICAL BICYCLE PARKING SPACE:

WALKWAY:	MINIMUM 1800mm
VERTICAL PARKING SPACE:	1500mm (L) x 500mm (W)
HORIZTONAL PARKING SPACE:	1800mm (L) x 600mm (W)
STACKED PARKING SPACE:	1930mm (L) x 460mm (W)





MSU - Medium Single Unit Truck

Overall Length	10.000m
Overall Width	2.600m
Overall Body Height	3.650m
Min Body Ground Clearance	0.445m
Track Width	2.600m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	11.100m

THESE DRAWINGS ARE NOT TO BE SCALED:
ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR PRIOR TO COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES MUST BE REPORTED DIRECTLY TO SRN ARCHITECTS INC.

ADDITIONAL NOTES:

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CONDITIONS FOR ELECTRONIC INFORMATION TRANSFER:

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- BUILDING LEVEL 1 FFE = 229.50 GEODETIC ELEVATION
- BUILDING LEVEL 1 TOF = 229.45 GEODETIC ELEVATION

NO:	DATE:	REVISION COMMENT:

SRN ARCHITECTS INC SHALL NOT BE RESPONSIBLE FOR:

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2. TRANSMISSIONS OF ANY VIRUS OR DAMAGE TO RECEIVING ELECTRONIC SYSTEM WHEN INFORMATION IS TRANSFERRED

8395 JANE ST, SUITE 202
VAUGHAN, ONTARIO. L4K 5Y2
PHONE: 905.417.5515 FAX: 905.417.5517

STAMP:

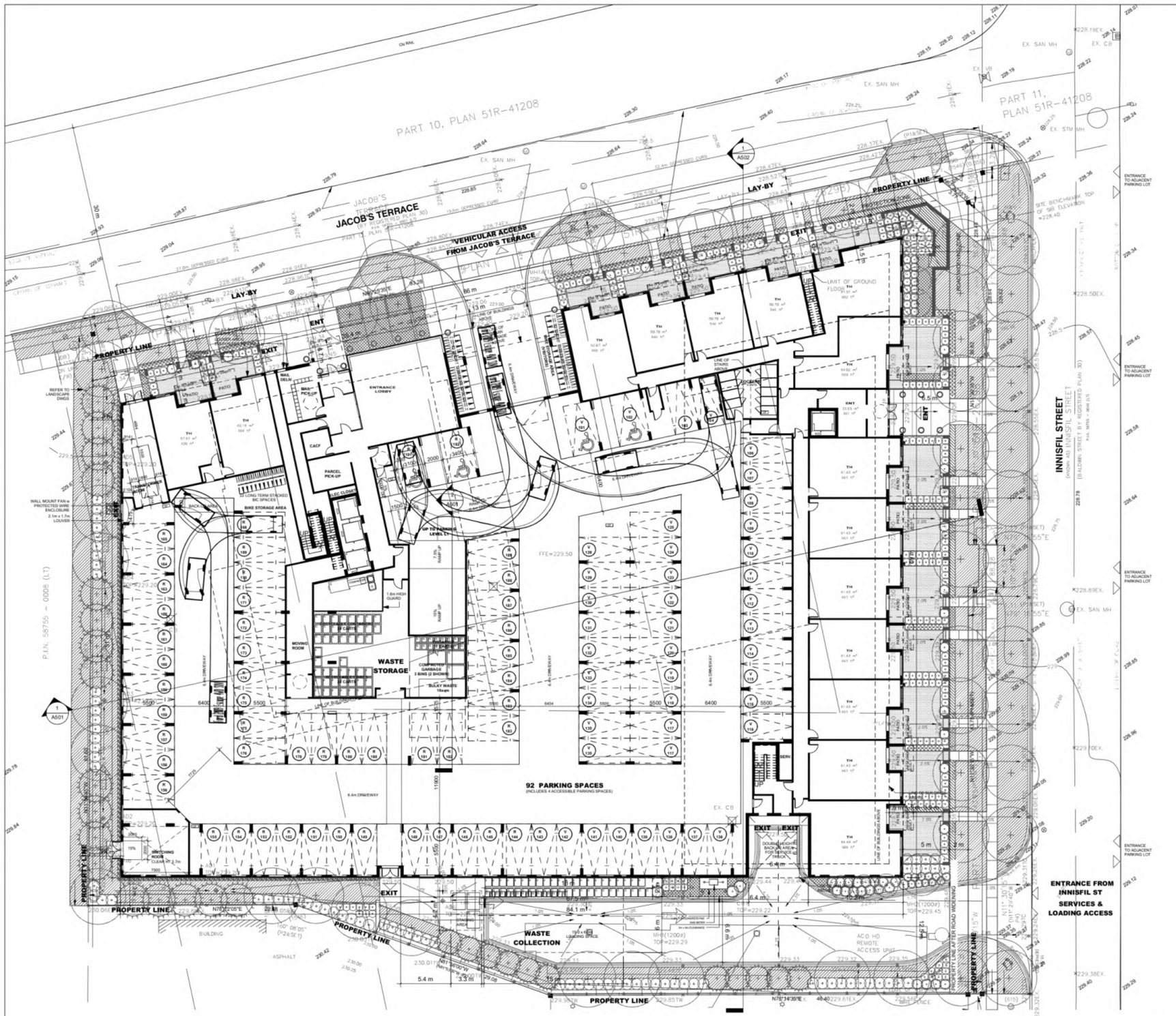
CLIENT:
TYPHON GROUP LTD.

PROJECT:
RESIDENTIAL DEVELOPMENT
272 INNISFIL STREET
BARRIE, ON, L4N 3G1

DRAWING TITLE:
LEVEL 1 FLOOR PLAN

DATE:	SCALE: As indicated
DRAWN BY: Author	CHECKED BY: Checker
PROJECT NUMBER: S21028	DRAWING NUMBER: A300

C:\Users\Aaron\Documents\S21028-272 Innisfil St - Barrie - RVT2022_aaronNYKZ7.rvt

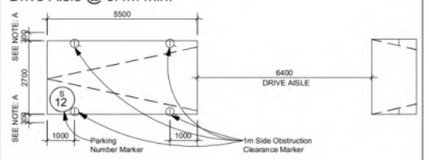


LEVEL 1 - FLOOR PLAN (1 / A300)

Scale: 1 : 200

TYPICAL PARKING SPACE:

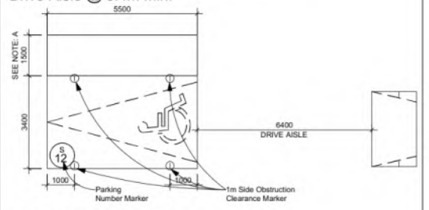
Drive Aisle @ 6.4m min.



NOTE: A- PROVIDE AN ADDITIONAL 300mm FOR PARKING SPACE WIDTH WHEN OBSTRUCTIONS OCCUR BETWEEN THE FRONT AND REAR 1000mm

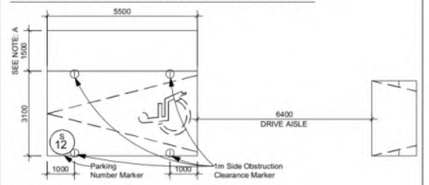
BARRIER-FREE PARKING SPACE TYPE A:

Drive Aisle @ 6.4m min.



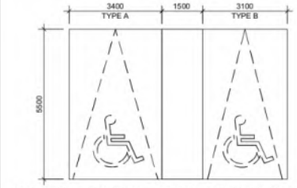
NOTE: A- PROVIDE AN ADDITIONAL 1500mm FOR PARKING SPACE WIDTH WHEN OBSTRUCTIONS OCCUR BETWEEN THE FRONT AND REAR 1000mm

BARRIER-FREE PARKING SPACE TYPE B:



NOTE: A- PROVIDE AN ADDITIONAL 1500mm FOR PARKING SPACE WIDTH WHEN OBSTRUCTIONS OCCUR BETWEEN THE FRONT AND REAR 1000mm

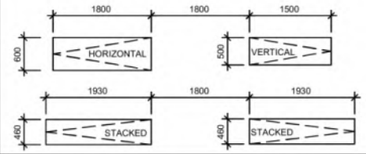
BARRIER-FREE PARKING SPACE TYPE A & B:



NOTE: WHERE THE REQUIRED 1500mm ACCESS AISLE IS PROVIDED BETWEEN TWO BARRIER-FREE PARKING SPACES, THE AISLE WIDTH CAN BE SHARED.

TYPICAL BICYCLE PARKING SPACE:

WALKWAY:	MINIMUM 1800mm
VERTICAL PARKING SPACE:	1500mm (L) x 500mm (W)
HORIZTONAL PARKING SPACE:	1800mm (L) x 600mm (W)
STACKED PARKING SPACE:	1930mm (L) x 460mm (W)



Ford 2009 Escape 4WD SUV

Overall Length	14.558ft
Overall Width	5.925ft
Overall Body Height	5.642ft
Min Body Ground Clearance	0.675ft
Track Width	4.925ft
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	18.350ft

THESE DRAWINGS ARE NOT TO BE SCALED:
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- BUILDING LEVEL 1 FFE = 229.50 GEODETIC ELEVATION
- BUILDING LEVEL 1 TOF = 229.45 GEODETIC ELEVATION

NO:	DATE:	REVISION COMMENT:
1.	Apr 29,2022	SPA SUBMISSION

SRN ARCHITECTS INC SHALL NOT BE RESPONSIBLE FOR:

1. ERRORS, OMISSIONS, INCOMPLETENESS DUE TO LOSS OF INFORMATION IN WHOLE OR PART WHEN INFORMATION IS TRANSFERRED.

2. TRANSMISSIONS OF ANY VIRUS OR DAMAGE TO RECEIVING ELECTRONIC SYSTEM WHEN INFORMATION IS TRANSFERRED

8395 JANE ST, SUITE 202
VAUGHAN, ONTARIO. L4K 5Y2
PHONE: 905.417.5515 FAX: 905.417.5517

STAMP:

CLIENT:

TYPHON GROUP LTD.

PROJECT:

RESIDENTIAL DEVELOPMENT

272 INNISFIL STREET
BARRIE, ON, L4N 3G1

DRAWING TITLE:

LEVEL 1 FLOOR PLAN

DATE:	April 29, 2022	SCALE:	As indicated
DRAWN BY:	AC/AL	CHECKED BY:	GR/EM
PROJECT NUMBER:	S21028	DRAWING NUMBER:	A300

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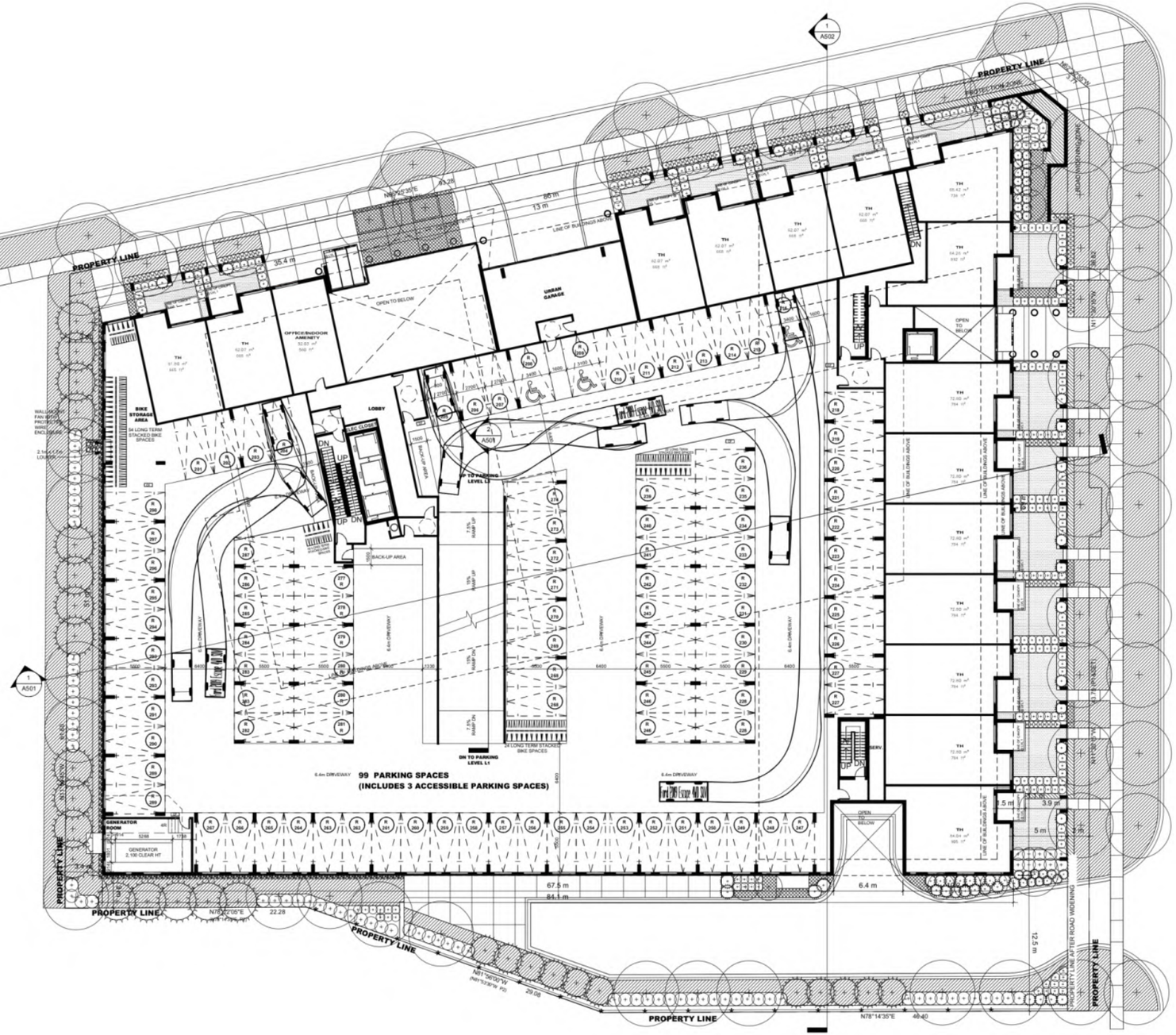
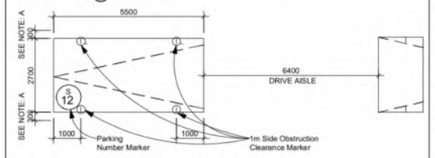


LEVEL 2 - FLOOR PLAN (1 / A301)
Scale: 1 : 200

TYPICAL PARKING SPACE:

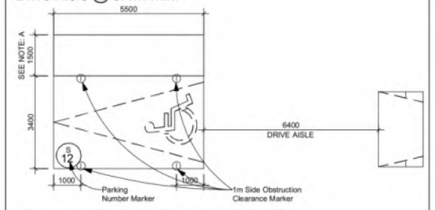
Drive Aisle @ 6.4m min.



NOTE: A- PROVIDE AN ADDITIONAL 300mm FOR PARKING SPACE WIDTH WHEN OBSTRUCTIONS OCCUR BETWEEN THE FRONT AND REAR 1000mm

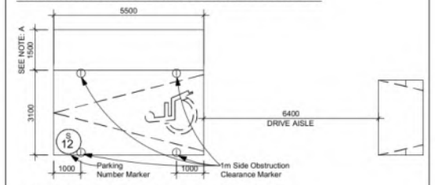
BARRIER-FREE PARKING SPACE TYPE A:

Drive Aisle @ 6.4m min.



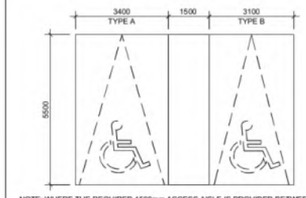
NOTE: A- PROVIDE AN ADDITIONAL 1500mm FOR PARKING SPACE WIDTH WHEN OBSTRUCTIONS OCCUR BETWEEN THE FRONT AND REAR 1000mm

BARRIER-FREE PARKING SPACE TYPE B:



NOTE: A- PROVIDE AN ADDITIONAL 1500mm FOR PARKING SPACE WIDTH WHEN OBSTRUCTIONS OCCUR BETWEEN THE FRONT AND REAR 1000mm

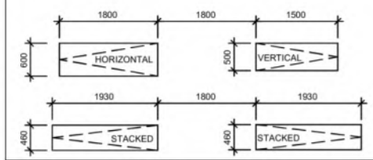
BARRIER-FREE PARKING SPACE TYPE A & B:



NOTE: WHERE THE REQUIRED 1500mm ACCESS AISLE IS PROVIDED BETWEEN TWO BARRIER-FREE PARKING SPACES, THE AISLE WIDTH CAN BE SHARED.

TYPICAL BICYCLE PARKING SPACE:

WALKWAY:	MINIMUM 1800mm
VERTICAL PARKING SPACE:	1500mm (L) x 500mm (W)
HORIZTONAL PARKING SPACE:	1800mm (L) x 600mm (W)
STACKED PARKING SPACE:	1930mm (L) x 460mm (W)



Ford 2009 Escape 4WD SUV

Overall Length	14.558ft
Overall Width	5.925ft
Overall Body Height	5.649ft
Min Body Ground Clearance	0.675ft
Track Width	5.925ft
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	18.350ft

THESE DRAWINGS ARE NOT TO BE SCALED:
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- BUILDING LEVEL 1 FFE = 229.50 GEODETIC ELEVATION
- BUILDING LEVEL 1 TOF = 229.45 GEODETIC ELEVATION

NO:	DATE:	REVISION COMMENT:
1	Apr 29,2022	SPA SUBMISSION

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8395 JANE ST, SUITE 202
VAUGHAN, ONTARIO. L4K 5Y2
PHONE: 905.417.5515 FAX: 905.417.5517

STAMP:

CLIENT:
TYPHON GROUP LTD.

PROJECT:
RESIDENTIAL DEVELOPMENT
272 INNISFIL STREET
BARRIE, ON, L4N 3G1

DRAWING TITLE:
LEVEL 2 FLOOR PLAN

DATE:	April 29, 2022	SCALE:	As indicated
DRAWN BY:	AC/AL	CHECKED BY:	GR/EM
PROJECT NUMBER:	S21028	DRAWING NUMBER:	A301

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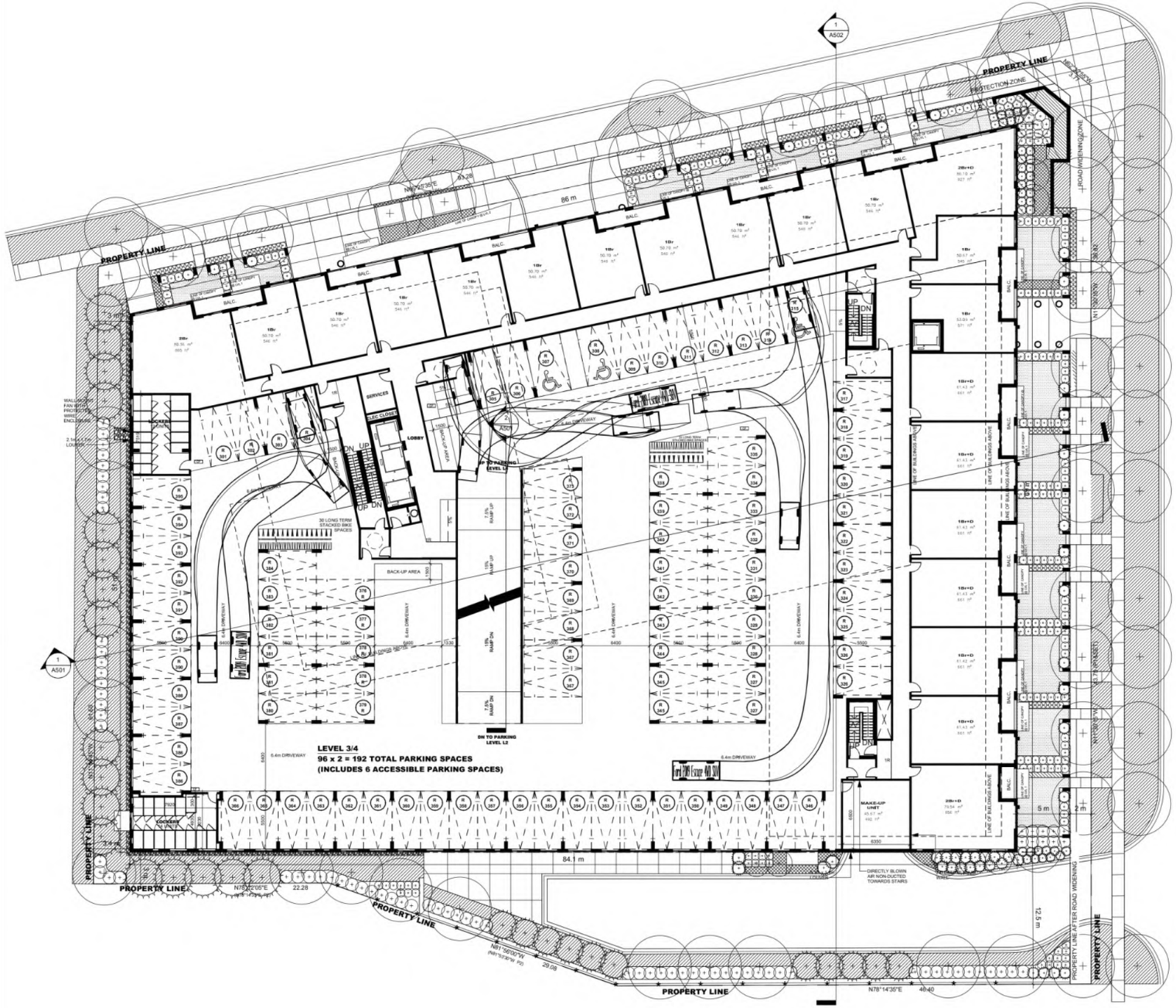
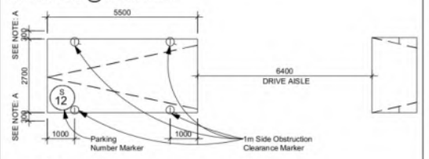


LEVEL 3 TO 4 - FLOOR PLAN (1 / A302)
Scale: 1 : 200

TYPICAL PARKING SPACE:

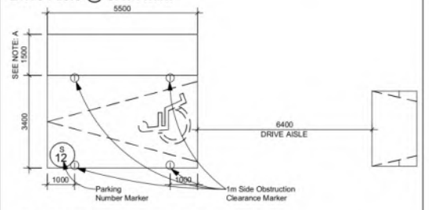
Drive Aisle @ 6.4m min.



NOTE: A- PROVIDE AN ADDITIONAL 300mm FOR PARKING SPACE WIDTH WHEN OBSTRUCTIONS OCCUR BETWEEN THE FRONT AND REAR 1000mm

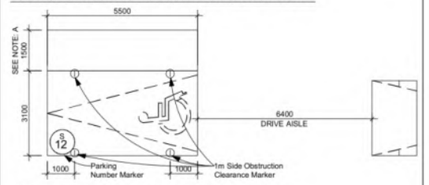
BARRIER-FREE PARKING SPACE TYPE A:

Drive Aisle @ 6.4m min.



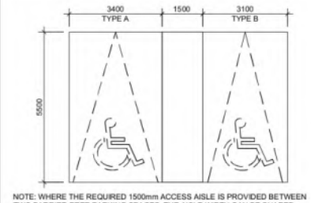
NOTE: A- PROVIDE AN ADDITIONAL 1500mm FOR PARKING SPACE WIDTH WHEN OBSTRUCTIONS OCCUR BETWEEN THE FRONT AND REAR 1000mm

BARRIER-FREE PARKING SPACE TYPE B:



NOTE: A- PROVIDE AN ADDITIONAL 1500mm FOR PARKING SPACE WIDTH WHEN OBSTRUCTIONS OCCUR BETWEEN THE FRONT AND REAR 1000mm

BARRIER-FREE PARKING SPACE TYPE A & B:



NOTE: WHERE THE REQUIRED 1500mm ACCESS AISLE IS PROVIDED BETWEEN TWO BARRIER-FREE PARKING SPACES, THE AISLE WIDTH CAN BE SHARED.

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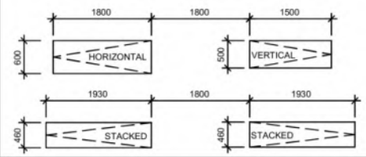
VERTICAL PARKING SPACE:	1500mm (L) x 500mm (W)
HORIZTONAL PARKING SPACE:	1800mm (L) x 600mm (W)
STACKED PARKING SPACE:	1930mm (L) x 460mm (W)



Ford 2009 Escape 4WD SUV

Overall Length	14.558ft
Overall Width	5.925ft
Overall Body Height	5.649ft
Min Body Ground Clearance	0.675ft
Track Width	5.925ft
Lock-to-lock time	4.0US
Curb to Curb Turning Radius	18.350ft

THESE DRAWINGS ARE NOT TO BE SCALED:
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- BUILDING LEVEL 1 FFE = 229.50 GEODETIC ELEVATION
- BUILDING LEVEL 1 TOF = 229.45 GEODETIC ELEVATION

NO:	DATE:	REVISION COMMENT:
1	Apr.29.2022	SPA SUBMISSION

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PHONE: 905.417.5515 FAX: 905.417.5517

STAMP:

CLIENT:
TYPHON GROUP LTD.

PROJECT:
RESIDENTIAL DEVELOPMENT
272 INNISFIL STREET
BARRIE, ON, L4N 3G1

DRAWING TITLE:
LEVEL 3 TO 4 FLOOR PLAN

DATE: April 29, 2022	SCALE: As indicated
DRAWN BY: AC/AL	CHECKED BY: GR/EM
PROJECT NUMBER: S21028	DRAWING NUMBER: A302

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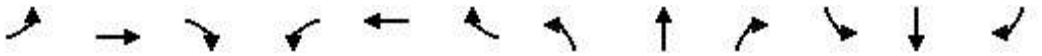
Appendix F:
Total Operations



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	270	82	12	211	82	86	225	8	62	158	51
Future Volume (vph)	75	270	82	12	211	82	86	225	8	62	158	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.96		1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3453		1789	3428		1789	3560		1789	3448	
Flt Permitted	0.40	1.00		0.53	1.00		0.58	1.00		0.59	1.00	
Satd. Flow (perm)	753	3453		990	3428		1087	3560		1120	3448	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	293	89	13	229	89	93	245	9	67	172	55
RTOR Reduction (vph)	0	31	0	0	46	0	0	3	0	0	30	0
Lane Group Flow (vph)	82	351	0	13	272	0	93	251	0	67	197	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	24.0	18.7		16.0	14.7		48.3	40.8		43.9	38.6	
Effective Green, g (s)	24.0	18.7		16.0	14.7		48.3	40.8		43.9	38.6	
Actuated g/C Ratio	0.28	0.22		0.19	0.17		0.56	0.47		0.51	0.45	
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	273	749		196	585		670	1686		612	1545	
v/s Ratio Prot	c0.02	c0.10		0.00	0.08		c0.01	c0.07		0.01	0.06	
v/s Ratio Perm	0.07			0.01			0.07			0.05		
v/c Ratio	0.30	0.47		0.07	0.46		0.14	0.15		0.11	0.13	
Uniform Delay, d1	23.6	29.4		28.7	32.2		8.8	12.8		10.7	13.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.5		0.1	0.6		0.1	0.2		0.1	0.2	
Delay (s)	24.3	29.8		28.9	32.7		8.9	13.0		10.8	14.1	
Level of Service	C	C		C	C		A	B		B	B	
Approach Delay (s)		28.9			32.6			11.9			13.3	
Approach LOS		C			C			B			B	

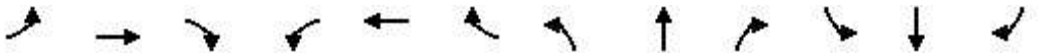
Intersection Summary			
HCM 2000 Control Delay	22.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	86.1	Sum of lost time (s)	20.0
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	2	1	66	1	76	1	236	9	37	202	6
Future Volume (Veh/h)	7	2	1	66	1	76	1	236	9	37	202	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	2	1	72	1	83	1	257	10	40	220	7
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)											113	
pX, platoon unblocked	0.96	0.96	0.96	0.96	0.96		0.96					
vC, conflicting volume	651	572	224	570	571	262	227			267		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	612	530	165	527	528	262	168			267		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	100	83	100	89	100			97		
cM capacity (veh/h)	337	421	841	429	422	777	1347			1297		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	11	156	268	267
Volume Left	8	72	1	40
Volume Right	1	83	10	7
cSH	371	563	1347	1297
Volume to Capacity	0.03	0.28	0.00	0.03
Queue Length 95th (m)	0.7	8.6	0.0	0.7
Control Delay (s)	15.0	13.8	0.0	1.4
Lane LOS	C	B	A	A
Approach Delay (s)	15.0	13.8	0.0	1.4
Approach LOS	C	B		

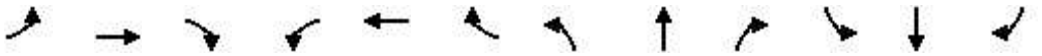
Intersection Summary				
Average Delay	3.9			
Intersection Capacity Utilization	44.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	439	14	1	441	28	25	19	1	20	23	227
Future Volume (vph)	180	439	14	1	441	28	25	19	1	20	23	227
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0			6.0			6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	1.00
Frt	1.00	1.00		1.00	0.99			1.00			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.98	1.00
Satd. Flow (prot)	1789	3562		1789	3547			1828			1840	1601
Flt Permitted	0.43	1.00		0.47	1.00			0.80			0.83	1.00
Satd. Flow (perm)	805	3562		890	3547			1508			1557	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	196	477	15	1	479	30	27	21	1	22	25	247
RTOR Reduction (vph)	0	2	0	0	3	0	0	1	0	0	0	216
Lane Group Flow (vph)	196	490	0	1	506	0	0	48	0	0	47	31
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)	60.8	55.5		49.4	48.1			10.6			10.6	10.6
Effective Green, g (s)	60.8	55.5		49.4	48.1			10.6			10.6	10.6
Actuated g/C Ratio	0.73	0.67		0.59	0.58			0.13			0.13	0.13
Clearance Time (s)	4.0	6.0		4.0	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)	689	2370		541	2045			191			197	203
v/s Ratio Prot	c0.03	0.14		0.00	0.14							
v/s Ratio Perm	c0.18			0.00				c0.03			0.03	0.02
v/c Ratio	0.28	0.21		0.00	0.25			0.25			0.24	0.15
Uniform Delay, d1	3.6	5.4		6.9	8.7			32.8			32.8	32.4
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	0.2	0.2		0.0	0.3			0.7			0.6	0.4
Delay (s)	3.8	5.6		6.9	9.0			33.5			33.4	32.8
Level of Service	A	A		A	A			C			C	C
Approach Delay (s)		5.1			9.0			33.5			32.9	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	83.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	65.7%	ICU Level of Service	C
Analysis Period (min)	15		

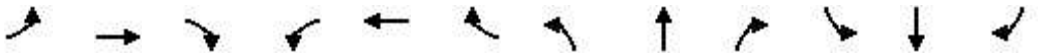
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	280	53	20	247	11	55	99	44	10	112	16
Future Volume (vph)	22	280	53	20	247	11	55	99	44	10	112	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.99		1.00	0.95		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3493		1789	3556		1789	1797		1789	1849	
Flt Permitted	0.58	1.00		0.54	1.00		0.67	1.00		0.66	1.00	
Satd. Flow (perm)	1092	3493		1009	3556		1259	1797		1239	1849	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	304	58	22	268	12	60	108	48	11	122	17
RTOR Reduction (vph)	0	17	0	0	3	0	0	27	0	0	9	0
Lane Group Flow (vph)	24	345	0	22	277	0	60	129	0	11	130	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	42.1	42.1		42.1	42.1		8.9	8.9		8.9	8.9	
Effective Green, g (s)	42.1	42.1		42.1	42.1		8.9	8.9		8.9	8.9	
Actuated g/C Ratio	0.67	0.67		0.67	0.67		0.14	0.14		0.14	0.14	
Clearance Time (s)	6.0	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	3.0	
Lane Grp Cap (vph)	729	2334		674	2376		177	253		175	261	
v/s Ratio Prot		c0.10			0.08			c0.07			0.07	
v/s Ratio Perm	0.02			0.02			0.05			0.01		
v/c Ratio	0.03	0.15		0.03	0.12		0.34	0.51		0.06	0.50	
Uniform Delay, d1	3.5	3.8		3.5	3.8		24.4	25.0		23.4	25.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.1		0.1	0.1		1.1	1.7		0.2	1.5	
Delay (s)	3.6	4.0		3.6	3.9		25.5	26.8		23.6	26.5	
Level of Service	A	A		A	A		C	C		C	C	
Approach Delay (s)		4.0			3.8			26.4			26.3	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	11.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.21		
Actuated Cycle Length (s)	63.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		

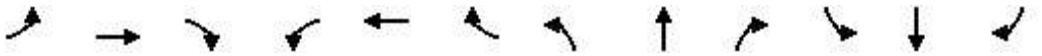
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	0	49	20	0	33	41	115	7	11	144	26
Future Volume (Veh/h)	49	0	49	20	0	33	41	115	7	11	144	26
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	53	0	53	22	0	36	45	125	8	12	157	28
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)								294			86	
pX, platoon unblocked	0.95	0.95	0.95	0.95	0.95		0.95					
vC, conflicting volume	446	418	171	467	428	129	185			133		
vC1, stage 1 conf vol	195	195		219	219							
vC2, stage 2 conf vol	251	223		248	209							
vCu, unblocked vol	395	365	106	417	376	129	121			133		
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 %	92	100	94	96	100	96	97			99		
cM capacity (veh/h)	640	629	904	617	617	921	1398			1452		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	106	58	45	133	197
Volume Left	53	22	45	0	12
Volume Right	53	36	0	8	28
cSH	750	776	1398	1700	1452
Volume to Capacity	0.14	0.07	0.03	0.08	0.01
Queue Length 95th (m)	3.7	1.8	0.8	0.0	0.2
Control Delay (s)	10.6	10.0	7.7	0.0	0.5
Lane LOS	B	B	A		A
Approach Delay (s)	10.6	10.0	1.9		0.5
Approach LOS	B	B			

Intersection Summary				
Average Delay	4.0			
Intersection Capacity Utilization	33.4%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	370	22	6	335	55	21	67	14	48	80	108
Future Volume (vph)	68	370	22	6	335	55	21	67	14	48	80	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1789	3548		1789	3503		1789	1883	1601	1789	1883	1601
Flt Permitted	0.45	1.00		0.50	1.00		0.70	1.00	1.00	0.62	1.00	1.00
Satd. Flow (perm)	841	3548		948	3503		1319	1883	1601	1172	1883	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	74	402	24	7	364	60	23	73	15	52	87	117
RTOR Reduction (vph)	0	3	0	0	11	0	0	0	11	0	0	85
Lane Group Flow (vph)	74	423	0	7	413	0	23	73	4	52	87	32
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	60.4	55.1		51.5	50.2		28.3	25.7	25.7	35.5	29.3	29.3
Effective Green, g (s)	60.4	55.1		51.5	50.2		28.3	25.7	25.7	35.5	29.3	29.3
Actuated g/C Ratio	0.56	0.51		0.48	0.46		0.26	0.24	0.24	0.33	0.27	0.27
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	523	1805		460	1623		355	446	379	419	509	433
v/s Ratio Prot	c0.01	0.12		0.00	c0.12		0.00	0.04		c0.01	c0.05	
v/s Ratio Perm	0.07			0.01			0.02		0.00	0.03		0.02
v/c Ratio	0.14	0.23		0.02	0.25		0.06	0.16	0.01	0.12	0.17	0.07
Uniform Delay, d1	11.2	14.8		15.0	17.7		29.9	32.8	31.6	25.3	30.2	29.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.3		0.0	0.4		0.1	0.2	0.0	0.1	0.2	0.1
Delay (s)	11.4	15.1		15.0	18.0		30.0	32.9	31.6	25.4	30.4	29.5
Level of Service	B	B		B	B		C	C	C	C	C	C
Approach Delay (s)		14.6			18.0			32.2			28.9	
Approach LOS		B			B			C			C	

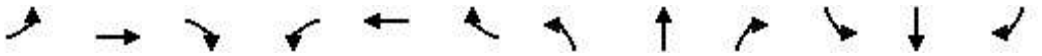
Intersection Summary			
HCM 2000 Control Delay	20.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	108.3	Sum of lost time (s)	20.0
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	63	12	14	52	36	44
Future Volume (Veh/h)	63	12	14	52	36	44
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	68	13	15	57	39	48
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			81		162	74
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			81		162	74
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		95	95
cM capacity (veh/h)			1517		821	987

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	81	72	87
Volume Left	0	15	39
Volume Right	13	0	48
cSH	1700	1517	905
Volume to Capacity	0.05	0.01	0.10
Queue Length 95th (m)	0.0	0.2	2.4
Control Delay (s)	0.0	1.6	9.4
Lane LOS		A	A
Approach Delay (s)	0.0	1.6	9.4
Approach LOS			A

Intersection Summary			
Average Delay		3.9	
Intersection Capacity Utilization		21.5%	ICU Level of Service
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	360	123	16	293	97	133	313	14	162	372	132
Future Volume (vph)	120	360	123	16	293	97	133	313	14	162	372	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.96		1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3442		1789	3445		1789	3556		1789	3438	
Flt Permitted	0.30	1.00		0.45	1.00		0.36	1.00		0.54	1.00	
Satd. Flow (perm)	562	3442		842	3445		677	3556		1016	3438	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	130	391	134	17	318	105	145	340	15	176	404	143
RTOR Reduction (vph)	0	35	0	0	35	0	0	3	0	0	40	0
Lane Group Flow (vph)	130	490	0	17	388	0	145	352	0	176	507	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	29.1	22.4		19.2	16.5		48.0	38.0		42.0	35.0	
Effective Green, g (s)	29.1	22.4		19.2	16.5		48.0	38.0		42.0	35.0	
Actuated g/C Ratio	0.32	0.25		0.21	0.18		0.53	0.42		0.47	0.39	
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	298	855		207	630		484	1499		533	1335	
v/s Ratio Prot	c0.04	c0.14		0.00	0.11		c0.03	0.10		0.03	c0.15	
v/s Ratio Perm	0.10			0.01			0.13			0.13		
v/c Ratio	0.44	0.57		0.08	0.62		0.30	0.23		0.33	0.38	
Uniform Delay, d1	22.7	29.7		28.2	33.9		11.1	16.7		14.2	19.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	0.9		0.2	1.8		0.3	0.4		0.4	0.8	
Delay (s)	23.7	30.6		28.3	35.7		11.4	17.1		14.6	20.6	
Level of Service	C	C		C	D		B	B		B	C	
Approach Delay (s)		29.2			35.4			15.4			19.1	
Approach LOS		C			D			B			B	

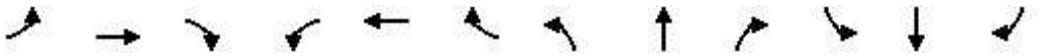
Intersection Summary			
HCM 2000 Control Delay	24.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	90.1	Sum of lost time (s)	20.0
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	1	3	42	1	56	6	397	13	83	419	2
Future Volume (Veh/h)	7	1	3	42	1	56	6	397	13	83	419	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	1	3	46	1	61	7	432	14	90	455	2
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)											113	
pX, platoon unblocked	0.86	0.86	0.86	0.86	0.86		0.86					
vC, conflicting volume	1150	1096	456	1092	1090	439	457			446		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1095	1031	289	1027	1025	439	290			446		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	94	99	100	73	99	90	99			92		
cM capacity (veh/h)	138	183	647	170	185	618	1096			1114		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	12	108	453	547
Volume Left	8	46	7	90
Volume Right	3	61	14	2
cSH	177	288	1096	1114
Volume to Capacity	0.07	0.38	0.01	0.08
Queue Length 95th (m)	1.6	12.7	0.1	2.0
Control Delay (s)	26.9	24.8	0.2	2.2
Lane LOS	D	C	A	A
Approach Delay (s)	26.9	24.8	0.2	2.2
Approach LOS	D	C		

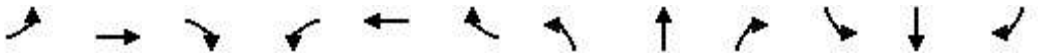
Intersection Summary				
Average Delay	3.8			
Intersection Capacity Utilization	65.0%	ICU Level of Service	C	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	432	792	36	2	560	53	24	50	4	49	48	329
Future Volume (vph)	432	792	36	2	560	53	24	50	4	49	48	329
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0			6.0			6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	1.00
Frt	1.00	0.99		1.00	0.99			0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.98	1.00
Satd. Flow (prot)	1789	3555		1789	3532			1843			1837	1601
Flt Permitted	0.32	1.00		0.32	1.00			0.86			0.84	1.00
Satd. Flow (perm)	608	3555		596	3532			1613			1581	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	470	861	39	2	609	58	26	54	4	53	52	358
RTOR Reduction (vph)	0	2	0	0	6	0	0	2	0	0	0	307
Lane Group Flow (vph)	470	898	0	2	661	0	0	82	0	0	105	51
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)	61.0	55.8		42.6	41.4			12.0			12.0	12.0
Effective Green, g (s)	61.0	55.8		42.6	41.4			12.0			12.0	12.0
Actuated g/C Ratio	0.72	0.66		0.50	0.49			0.14			0.14	0.14
Clearance Time (s)	4.0	6.0		4.0	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)	653	2333		315	1720			227			223	226
v/s Ratio Prot	c0.13	0.25		0.00	0.19							
v/s Ratio Perm	c0.38			0.00				0.05			c0.07	0.03
v/c Ratio	0.72	0.38		0.01	0.38			0.36			0.47	0.22
Uniform Delay, d1	5.8	6.7		10.6	13.8			33.0			33.6	32.4
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	3.8	0.5		0.0	0.7			1.0			1.6	0.5
Delay (s)	9.6	7.2		10.6	14.4			34.0			35.1	32.9
Level of Service	A	A		B	B			C			D	C
Approach Delay (s)		8.0			14.4			34.0			33.4	
Approach LOS		A			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	436	91	44	306	33	73	219	34	38	190	22
Future Volume (vph)	19	436	91	44	306	33	73	219	34	38	190	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.99		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3486		1789	3526		1789	1845		1789	1854	
Flt Permitted	0.53	1.00		0.44	1.00		0.56	1.00		0.47	1.00	
Satd. Flow (perm)	1002	3486		822	3526		1048	1845		879	1854	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	21	474	99	48	333	36	79	238	37	41	207	24
RTOR Reduction (vph)	0	23	0	0	11	0	0	9	0	0	6	0
Lane Group Flow (vph)	21	550	0	48	358	0	79	266	0	41	225	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	38.1	38.1		38.1	38.1		14.5	14.5		14.5	14.5	
Effective Green, g (s)	38.1	38.1		38.1	38.1		14.5	14.5		14.5	14.5	
Actuated g/C Ratio	0.59	0.59		0.59	0.59		0.22	0.22		0.22	0.22	
Clearance Time (s)	6.0	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	3.0	
Lane Grp Cap (vph)	590	2055		484	2079		235	414		197	416	
v/s Ratio Prot		c0.16			0.10			c0.14			0.12	
v/s Ratio Perm	0.02			0.06			0.08			0.05		
v/c Ratio	0.04	0.27		0.10	0.17		0.34	0.64		0.21	0.54	
Uniform Delay, d1	5.6	6.5		5.8	6.1		21.0	22.7		20.4	22.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.3		0.4	0.2		0.9	3.4		0.5	1.4	
Delay (s)	5.7	6.8		6.2	6.2		21.9	26.1		20.9	23.5	
Level of Service	A	A		A	A		C	C		C	C	
Approach Delay (s)		6.7			6.2			25.2			23.1	
Approach LOS		A			A			C			C	

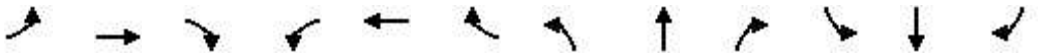
Intersection Summary			
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	64.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	0	46	15	0	24	88	270	21	35	225	61
Future Volume (Veh/h)	32	0	46	15	0	24	88	270	21	35	225	61
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	35	0	50	16	0	26	96	293	23	38	245	66
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)								294			86	
pX, platoon unblocked	0.90	0.90	0.90	0.90	0.90		0.90					
vC, conflicting volume	865	862	278	900	884	304	311			316		
vC1, stage 1 conf vol	354	354		496	496							
vC2, stage 2 conf vol	511	508		404	387							
vCu, unblocked vol	797	794	148	836	818	304	184			316		
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 %	91	100	94	96	100	96	92			97		
cM capacity (veh/h)	411	417	813	401	410	735	1257			1244		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	85	42	96	316	349
Volume Left	35	16	96	0	38
Volume Right	50	26	0	23	66
cSH	579	558	1257	1700	1244
Volume to Capacity	0.15	0.08	0.08	0.19	0.03
Queue Length 95th (m)	3.9	1.8	1.9	0.0	0.7
Control Delay (s)	12.3	12.0	8.1	0.0	1.1
Lane LOS	B	B	A		A
Approach Delay (s)	12.3	12.0	1.9		1.1
Approach LOS	B	B			

Intersection Summary				
Average Delay	3.1			
Intersection Capacity Utilization	49.1%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	216	587	40	21	488	65	15	109	13	74	99	110
Future Volume (vph)	216	587	40	21	488	65	15	109	13	74	99	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1789	3545		1789	3515		1789	1883	1601	1789	1883	1601
Flt Permitted	0.33	1.00		0.39	1.00		0.69	1.00	1.00	0.59	1.00	1.00
Satd. Flow (perm)	617	3545		740	3515		1295	1883	1601	1109	1883	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	235	638	43	23	530	71	16	118	14	80	108	120
RTOR Reduction (vph)	0	4	0	0	9	0	0	0	11	0	0	88
Lane Group Flow (vph)	235	677	0	23	592	0	16	118	3	80	108	32
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	61.9	55.2		49.3	46.6		28.3	25.6	25.6	36.4	29.7	29.7
Effective Green, g (s)	61.9	55.2		49.3	46.6		28.3	25.6	25.6	36.4	29.7	29.7
Actuated g/C Ratio	0.56	0.50		0.45	0.42		0.26	0.23	0.23	0.33	0.27	0.27
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	466	1774		356	1485		344	437	371	407	507	431
v/s Ratio Prot	c0.05	0.19		0.00	0.17		0.00	c0.06		c0.01	0.06	
v/s Ratio Perm	c0.23			0.03			0.01		0.00	0.05		0.02
v/c Ratio	0.50	0.38		0.06	0.40		0.05	0.27	0.01	0.20	0.21	0.07
Uniform Delay, d1	13.1	17.0		17.1	22.1		30.8	34.7	32.6	26.0	31.2	30.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	0.6		0.1	0.8		0.1	0.3	0.0	0.2	0.2	0.1
Delay (s)	13.9	17.6		17.2	22.9		30.8	35.0	32.6	26.2	31.5	30.1
Level of Service	B	B		B	C		C	D	C	C	C	C
Approach Delay (s)		16.7			22.7			34.3			29.6	
Approach LOS		B			C			C			C	

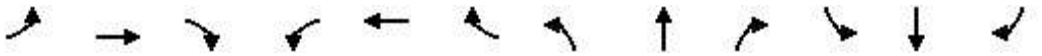
Intersection Summary			
HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	110.3	Sum of lost time (s)	20.0
Intersection Capacity Utilization	82.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	51	34	41	107	21	26
Future Volume (Veh/h)	51	34	41	107	21	26
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	55	37	45	116	23	28
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			92		280	74
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			92		280	74
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		97	97
cM capacity (veh/h)			1503		689	988

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	92	161	51
Volume Left	0	45	23
Volume Right	37	0	28
cSH	1700	1503	826
Volume to Capacity	0.05	0.03	0.06
Queue Length 95th (m)	0.0	0.7	1.5
Control Delay (s)	0.0	2.3	9.6
Lane LOS		A	A
Approach Delay (s)	0.0	2.3	9.6
Approach LOS			A

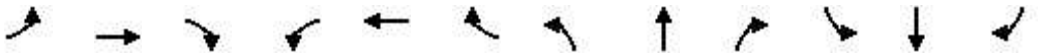
Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	24.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	332	96	14	267	110	92	244	14	72	172	56
Future Volume (vph)	91	332	96	14	267	110	92	244	14	72	172	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.96		1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3458		1789	3421		1789	3550		1789	3447	
Flt Permitted	0.32	1.00		0.47	1.00		0.56	1.00		0.58	1.00	
Satd. Flow (perm)	599	3458		887	3421		1064	3550		1092	3447	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	99	361	104	15	290	120	100	265	15	78	187	61
RTOR Reduction (vph)	0	28	0	0	50	0	0	4	0	0	33	0
Lane Group Flow (vph)	99	437	0	15	360	0	100	276	0	78	215	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	25.4	20.1		17.4	16.1		47.4	39.9		43.0	37.7	
Effective Green, g (s)	25.4	20.1		17.4	16.1		47.4	39.9		43.0	37.7	
Actuated g/C Ratio	0.29	0.23		0.20	0.19		0.55	0.46		0.50	0.44	
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	248	802		191	636		645	1635		584	1500	
v/s Ratio Prot	c0.02	c0.13		0.00	0.11		c0.01	c0.08		0.01	0.06	
v/s Ratio Perm	0.09			0.01			0.07			0.06		
v/c Ratio	0.40	0.55		0.08	0.57		0.16	0.17		0.13	0.14	
Uniform Delay, d1	23.3	29.2		27.9	32.1		9.4	13.7		11.5	14.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.1	0.8		0.2	1.2		0.1	0.2		0.1	0.2	
Delay (s)	24.3	30.0		28.1	33.2		9.5	13.9		11.6	14.9	
Level of Service	C	C		C	C		A	B		B	B	
Approach Delay (s)		29.0			33.0			12.7			14.1	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	23.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	86.6	Sum of lost time (s)	20.0
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		

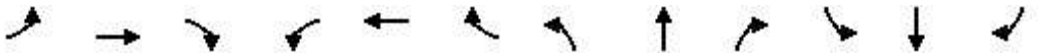
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	2	1	66	1	77	1	263	10	39	221	7
Future Volume (Veh/h)	8	2	1	66	1	77	1	263	10	39	221	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	2	1	72	1	84	1	286	11	42	240	8
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)											113	
pX, platoon unblocked	0.96	0.96	0.96	0.96	0.96		0.96					
vC, conflicting volume	700	627	244	620	626	292	248			297		
vC1, stage 1 conf vol	328	328		294	294							
vC2, stage 2 conf vol	372	299		326	332							
vCu, unblocked vol	668	591	192	583	590	292	196			297		
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	100	88	100	89	100			97		
cM capacity (veh/h)	478	535	816	578	547	748	1322			1264		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	12	157	1	297	42	248
Volume Left	9	72	1	0	42	0
Volume Right	1	84	0	11	0	8
cSH	505	658	1322	1700	1264	1700
Volume to Capacity	0.02	0.24	0.00	0.17	0.03	0.15
Queue Length 95th (m)	0.6	7.0	0.0	0.0	0.8	0.0
Control Delay (s)	12.3	12.2	7.7	0.0	7.9	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	12.3	12.2	0.0		1.2	
Approach LOS	B	B				

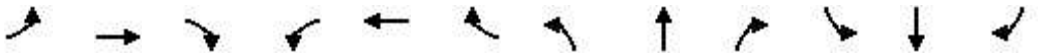
Intersection Summary				
Average Delay	3.2			
Intersection Capacity Utilization	36.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	197	497	16	1	540	36	27	22	1	22	25	244
Future Volume (vph)	197	497	16	1	540	36	27	22	1	22	25	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00		1.00	0.99		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1789	3562		1789	3545		1789	1872		1789	1883	1601
Flt Permitted	0.37	1.00		0.44	1.00		0.74	1.00		0.74	1.00	1.00
Satd. Flow (perm)	691	3562		835	3545		1393	1872		1396	1883	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	214	540	17	1	587	39	29	24	1	24	27	265
RTOR Reduction (vph)	0	2	0	0	3	0	0	1	0	0	0	231
Lane Group Flow (vph)	214	555	0	1	623	0	29	24	0	24	27	34
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)	60.3	55.0		48.8	47.5		10.6	10.6		10.6	10.6	10.6
Effective Green, g (s)	60.3	55.0		48.8	47.5		10.6	10.6		10.6	10.6	10.6
Actuated g/C Ratio	0.73	0.66		0.59	0.57		0.13	0.13		0.13	0.13	0.13
Clearance Time (s)	4.0	6.0		4.0	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	3.0	3.0
Lane Grp Cap (vph)	619	2363		506	2031		178	239		178	240	204
v/s Ratio Prot	c0.04	0.16		0.00	0.18			0.01			0.01	
v/s Ratio Perm	c0.21			0.00			0.02			0.02		c0.02
v/c Ratio	0.35	0.24		0.00	0.31		0.16	0.10		0.13	0.11	0.17
Uniform Delay, d1	3.8	5.6		7.0	9.2		32.2	31.9		32.1	32.0	32.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.3	0.2		0.0	0.4		0.4	0.2		0.3	0.2	0.4
Delay (s)	4.1	5.8		7.0	9.6		32.6	32.1		32.4	32.2	32.6
Level of Service	A	A		A	A		C	C		C	C	C
Approach Delay (s)		5.3			9.6			32.4			32.6	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	82.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		

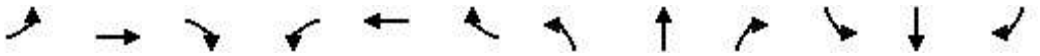
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	344	71	22	300	13	84	126	44	11	129	18
Future Volume (vph)	27	344	71	22	300	13	84	126	44	11	129	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.99		1.00	0.96		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3487		1789	3556		1789	1810		1789	1848	
Flt Permitted	0.55	1.00		0.49	1.00		0.66	1.00		0.64	1.00	
Satd. Flow (perm)	1031	3487		926	3556		1235	1810		1201	1848	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	29	374	77	24	326	14	91	137	48	12	140	20
RTOR Reduction (vph)	0	21	0	0	4	0	0	20	0	0	8	0
Lane Group Flow (vph)	29	430	0	24	336	0	91	165	0	12	152	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	40.9	40.9		40.9	40.9		11.8	11.8		11.8	11.8	
Effective Green, g (s)	40.9	40.9		40.9	40.9		11.8	11.8		11.8	11.8	
Actuated g/C Ratio	0.63	0.63		0.63	0.63		0.18	0.18		0.18	0.18	
Clearance Time (s)	6.0	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	3.0	
Lane Grp Cap (vph)	651	2204		585	2247		225	330		219	337	
v/s Ratio Prot		c0.12			0.09			c0.09			0.08	
v/s Ratio Perm	0.03			0.03			0.07			0.01		
v/c Ratio	0.04	0.19		0.04	0.15		0.40	0.50		0.05	0.45	
Uniform Delay, d1	4.5	5.0		4.5	4.8		23.3	23.8		21.8	23.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.2		0.1	0.1		1.2	1.2		0.1	1.0	
Delay (s)	4.6	5.2		4.6	5.0		24.5	25.0		21.9	24.5	
Level of Service	A	A		A	A		C	C		C	C	
Approach Delay (s)		5.2			5.0			24.8			24.3	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	11.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	64.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		

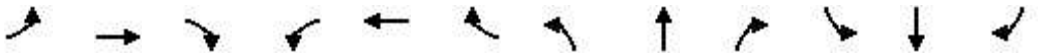
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	0	50	40	0	66	42	139	13	22	163	27
Future Volume (Veh/h)	49	0	50	40	0	66	42	139	13	22	163	27
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	53	0	54	43	0	72	46	151	14	24	177	29
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)								294			86	
pX, platoon unblocked	0.95	0.95	0.95	0.95	0.95		0.95					
vC, conflicting volume	554	496	192	544	504	158	206			165		
vC1, stage 1 conf vol	240	240		250	250							
vC2, stage 2 conf vol	315	257		294	254							
vCu, unblocked vol	501	439	117	489	447	158	132			165		
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 %	90	100	94	92	100	92	97			98		
cM capacity (veh/h)	552	587	885	572	579	887	1374			1413		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	107	115	46	165	230
Volume Left	53	43	46	0	24
Volume Right	54	72	0	14	29
cSH	681	736	1374	1700	1413
Volume to Capacity	0.16	0.16	0.03	0.10	0.02
Queue Length 95th (m)	4.2	4.2	0.8	0.0	0.4
Control Delay (s)	11.3	10.8	7.7	0.0	0.9
Lane LOS	B	B	A		A
Approach Delay (s)	11.3	10.8	1.7		0.9
Approach LOS	B	B			

Intersection Summary				
Average Delay	4.5			
Intersection Capacity Utilization	38.0%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	411	24	7	395	61	23	74	16	53	88	151
Future Volume (vph)	84	411	24	7	395	61	23	74	16	53	88	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1789	3549		1789	3507		1789	1883	1601	1789	1883	1601
Flt Permitted	0.41	1.00		0.48	1.00		0.69	1.00	1.00	0.64	1.00	1.00
Satd. Flow (perm)	773	3549		906	3507		1309	1883	1601	1207	1883	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	91	447	26	8	429	66	25	80	17	58	96	164
RTOR Reduction (vph)	0	3	0	0	11	0	0	0	13	0	0	123
Lane Group Flow (vph)	91	470	0	8	484	0	25	80	4	58	96	41
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	63.1	57.8		55.0	53.7		27.9	25.0	25.0	32.9	27.5	27.5
Effective Green, g (s)	63.1	57.8		55.0	53.7		27.9	25.0	25.0	32.9	27.5	27.5
Actuated g/C Ratio	0.58	0.53		0.50	0.49		0.25	0.23	0.23	0.30	0.25	0.25
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	495	1873		465	1719		346	429	365	391	472	402
v/s Ratio Prot	c0.01	0.13		0.00	c0.14		0.00	0.04		c0.01	c0.05	
v/s Ratio Perm	0.10			0.01			0.02		0.00	0.04		0.03
v/c Ratio	0.18	0.25		0.02	0.28		0.07	0.19	0.01	0.15	0.20	0.10
Uniform Delay, d1	10.6	14.1		13.6	16.5		30.8	34.1	32.7	27.7	32.4	31.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.3		0.0	0.4		0.1	0.2	0.0	0.2	0.2	0.1
Delay (s)	10.8	14.4		13.6	16.9		30.9	34.3	32.7	27.9	32.6	31.6
Level of Service	B	B		B	B		C	C	C	C	C	C
Approach Delay (s)		13.8			16.9			33.4			31.2	
Approach LOS		B			B			C			C	

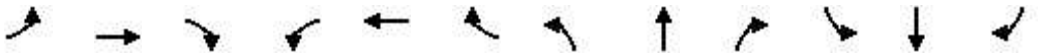
Intersection Summary			
HCM 2000 Control Delay	20.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	109.5	Sum of lost time (s)	20.0
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	65	12	14	55	36	44
Future Volume (Veh/h)	65	12	14	55	36	44
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	71	13	15	60	39	48
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			84		168	78
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			84		168	78
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		95	95
cM capacity (veh/h)			1513		815	983

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	84	75	87
Volume Left	0	15	39
Volume Right	13	0	48
cSH	1700	1513	900
Volume to Capacity	0.05	0.01	0.10
Queue Length 95th (m)	0.0	0.2	2.4
Control Delay (s)	0.0	1.5	9.4
Lane LOS		A	A
Approach Delay (s)	0.0	1.5	9.4
Approach LOS			A

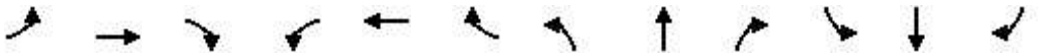
Intersection Summary			
Average Delay		3.8	
Intersection Capacity Utilization		21.7%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	449	144	18	363	126	150	343	15	192	412	146
Future Volume (vph)	147	449	144	18	363	126	150	343	15	192	412	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.96		1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3448		1789	3440		1789	3556		1789	3438	
Flt Permitted	0.24	1.00		0.30	1.00		0.32	1.00		0.52	1.00	
Satd. Flow (perm)	445	3448		557	3440		600	3556		983	3438	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	160	488	157	20	395	137	163	373	16	209	448	159
RTOR Reduction (vph)	0	33	0	0	39	0	0	4	0	0	40	0
Lane Group Flow (vph)	160	612	0	20	493	0	163	385	0	209	567	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	30.1	23.4		21.8	19.1		47.0	37.0		41.0	34.0	
Effective Green, g (s)	30.1	23.4		21.8	19.1		47.0	37.0		41.0	34.0	
Actuated g/C Ratio	0.33	0.26		0.24	0.21		0.52	0.41		0.46	0.38	
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	253	895		171	729		444	1460		509	1297	
v/s Ratio Prot	c0.05	c0.18		0.00	0.14		c0.04	0.11		0.03	c0.16	
v/s Ratio Perm	0.16			0.02			0.15			0.15		
v/c Ratio	0.63	0.68		0.12	0.68		0.37	0.26		0.41	0.44	
Uniform Delay, d1	22.8	30.0		26.3	32.7		11.9	17.5		15.1	20.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.1	2.2		0.3	2.5		0.5	0.4		0.5	1.1	
Delay (s)	27.9	32.2		26.6	35.2		12.4	18.0		15.7	22.0	
Level of Service	C	C		C	D		B	B		B	C	
Approach Delay (s)		31.3			34.9			16.4			20.4	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	25.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	90.1	Sum of lost time (s)	20.0
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		

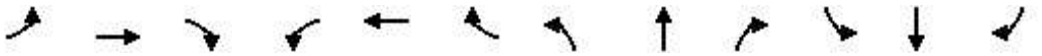
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	1	3	42	1	57	7	441	13	85	466	2
Future Volume (Veh/h)	8	1	3	42	1	57	7	441	13	85	466	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	1	3	46	1	62	8	479	14	92	507	2
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)											113	
pX, platoon unblocked	0.86	0.86	0.86	0.86	0.86		0.86					
vC, conflicting volume	1250	1201	508	1196	1195	486	509			493		
vC1, stage 1 conf vol	692	692		502	502							
vC2, stage 2 conf vol	558	509		694	693							
vCu, unblocked vol	1208	1151	342	1146	1144	486	344			493		
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 %	97	100	100	86	100	89	99			91		
cM capacity (veh/h)	285	323	600	335	339	581	1042			1071		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	13	109	8	493	92	509
Volume Left	9	46	8	0	92	0
Volume Right	3	62	0	14	0	2
cSH	328	441	1042	1700	1071	1700
Volume to Capacity	0.04	0.25	0.01	0.29	0.09	0.30
Queue Length 95th (m)	0.9	7.3	0.2	0.0	2.1	0.0
Control Delay (s)	16.4	15.8	8.5	0.0	8.7	0.0
Lane LOS	C	C	A		A	
Approach Delay (s)	16.4	15.8	0.1		1.3	
Approach LOS	C	C				

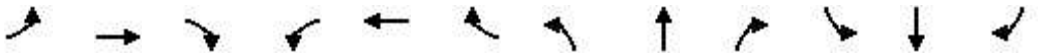
Intersection Summary				
Average Delay	2.3			
Intersection Capacity Utilization	44.8%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	475	930	39	2	661	63	26	55	5	54	53	359
Future Volume (vph)	475	930	39	2	661	63	26	55	5	54	53	359
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1789	3557		1789	3532		1789	1862		1789	1883	1601
Flt Permitted	0.26	1.00		0.27	1.00		0.72	1.00		0.71	1.00	1.00
Satd. Flow (perm)	488	3557		512	3532		1355	1862		1346	1883	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	516	1011	42	2	718	68	28	60	5	59	58	390
RTOR Reduction (vph)	0	2	0	0	6	0	0	3	0	0	0	339
Lane Group Flow (vph)	516	1051	0	2	780	0	28	62	0	59	58	51
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)	65.2	60.0		42.6	41.4		11.7	11.7		11.7	11.7	11.7
Effective Green, g (s)	65.2	60.0		42.6	41.4		11.7	11.7		11.7	11.7	11.7
Actuated g/C Ratio	0.73	0.67		0.48	0.47		0.13	0.13		0.13	0.13	0.13
Clearance Time (s)	4.0	6.0		4.0	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	3.0	3.0
Lane Grp Cap (vph)	647	2400		262	1644		178	245		177	247	210
v/s Ratio Prot	c0.18	0.30		0.00	0.22			0.03			0.03	
v/s Ratio Perm	c0.41			0.00			0.02			c0.04		0.03
v/c Ratio	0.80	0.44		0.01	0.47		0.16	0.25		0.33	0.23	0.24
Uniform Delay, d1	8.9	6.7		12.1	16.3		34.2	34.7		35.1	34.6	34.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	6.8	0.6		0.0	1.0		0.4	0.5		1.1	0.5	0.6
Delay (s)	15.7	7.3		12.1	17.3		34.6	35.2		36.2	35.1	35.2
Level of Service	B	A		B	B		C	D		D	D	D
Approach Delay (s)		10.0			17.3			35.0			35.3	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	88.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		

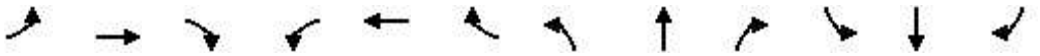
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	528	133	46	371	40	98	254	36	42	227	24
Future Volume (vph)	23	528	133	46	371	40	98	254	36	42	227	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.99		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3470		1789	3527		1789	1848		1789	1857	
Flt Permitted	0.49	1.00		0.37	1.00		0.48	1.00		0.40	1.00	
Satd. Flow (perm)	930	3470		688	3527		900	1848		750	1857	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	574	145	50	403	43	107	276	39	46	247	26
RTOR Reduction (vph)	0	29	0	0	10	0	0	8	0	0	6	0
Lane Group Flow (vph)	25	690	0	50	436	0	107	307	0	46	267	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	38.1	38.1		38.1	38.1		15.4	15.4		15.4	15.4	
Effective Green, g (s)	38.1	38.1		38.1	38.1		15.4	15.4		15.4	15.4	
Actuated g/C Ratio	0.58	0.58		0.58	0.58		0.24	0.24		0.24	0.24	
Clearance Time (s)	6.0	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	3.0	
Lane Grp Cap (vph)	540	2018		400	2051		211	434		176	436	
v/s Ratio Prot		c0.20			0.12			c0.17			0.14	
v/s Ratio Perm	0.03			0.07			0.12			0.06		
v/c Ratio	0.05	0.34		0.12	0.21		0.51	0.71		0.26	0.61	
Uniform Delay, d1	5.9	7.2		6.2	6.5		21.8	23.0		20.4	22.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.5		0.6	0.2		1.9	5.2		0.8	2.5	
Delay (s)	6.1	7.6		6.8	6.8		23.7	28.2		21.2	24.9	
Level of Service	A	A		A	A		C	C		C	C	
Approach Delay (s)		7.6			6.8			27.1			24.4	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	65.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		

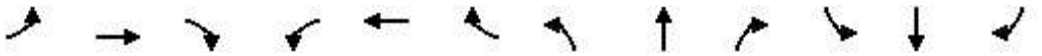
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	0	47	29	0	48	89	307	42	70	261	62
Future Volume (Veh/h)	33	0	47	29	0	48	89	307	42	70	261	62
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	36	0	51	32	0	52	97	334	46	76	284	67
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)								294			86	
pX, platoon unblocked	0.88	0.88	0.88	0.88	0.88		0.88					
vC, conflicting volume	1050	1044	318	1072	1054	357	351			380		
vC1, stage 1 conf vol	470	470		551	551							
vC2, stage 2 conf vol	580	574		520	503							
vCu, unblocked vol	989	982	158	1014	994	357	196			380		
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 %	89	100	93	90	100	92	92			94		
cM capacity (veh/h)	318	344	782	329	347	687	1213			1178		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	87	84	97	380	427
Volume Left	36	32	97	0	76
Volume Right	51	52	0	46	67
cSH	487	486	1213	1700	1178
Volume to Capacity	0.18	0.17	0.08	0.22	0.06
Queue Length 95th (m)	4.9	4.7	2.0	0.0	1.6
Control Delay (s)	14.0	13.9	8.2	0.0	2.0
Lane LOS	B	B	A		A
Approach Delay (s)	14.0	13.9	1.7		2.0
Approach LOS	B	B			

Intersection Summary				
Average Delay	3.8			
Intersection Capacity Utilization	56.4%	ICU Level of Service		B
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	268	674	44	23	561	72	17	121	14	81	109	145
Future Volume (vph)	268	674	44	23	561	72	17	121	14	81	109	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1789	3546		1789	3518		1789	1883	1601	1789	1883	1601
Flt Permitted	0.28	1.00		0.35	1.00		0.68	1.00	1.00	0.58	1.00	1.00
Satd. Flow (perm)	526	3546		651	3518		1283	1883	1601	1085	1883	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	291	733	48	25	610	78	18	132	15	88	118	158
RTOR Reduction (vph)	0	4	0	0	9	0	0	0	12	0	0	116
Lane Group Flow (vph)	291	777	0	25	679	0	18	132	3	88	118	42
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	62.9	54.8		49.9	45.8		27.5	25.6	25.6	34.5	29.1	29.1
Effective Green, g (s)	62.9	54.8		49.9	45.8		27.5	25.6	25.6	34.5	29.1	29.1
Actuated g/C Ratio	0.57	0.50		0.45	0.42		0.25	0.23	0.23	0.31	0.26	0.26
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	451	1768		338	1466		329	438	372	375	498	423
v/s Ratio Prot	c0.08	0.22		0.00	0.19		0.00	c0.07		c0.01	0.06	
v/s Ratio Perm	c0.29			0.03			0.01		0.00	0.06		0.03
v/c Ratio	0.65	0.44		0.07	0.46		0.05	0.30	0.01	0.23	0.24	0.10
Uniform Delay, d1	13.5	17.7		16.6	23.2		31.2	34.8	32.4	27.3	31.7	30.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.2	0.8		0.1	1.1		0.1	0.4	0.0	0.3	0.2	0.1
Delay (s)	16.7	18.5		16.7	24.2		31.3	35.2	32.4	27.6	31.9	30.6
Level of Service	B	B		B	C		C	D	C	C	C	C
Approach Delay (s)		18.0			24.0			34.5			30.3	
Approach LOS		B			C			C			C	

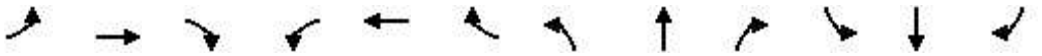
Intersection Summary			
HCM 2000 Control Delay	22.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	109.9	Sum of lost time (s)	20.0
Intersection Capacity Utilization	94.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	54	34	41	110	21	26
Future Volume (Veh/h)	54	34	41	110	21	26
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	59	37	45	120	23	28
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			96		288	78
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			96		288	78
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		97	97
cM capacity (veh/h)			1498		682	983

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	96	165	51
Volume Left	0	45	23
Volume Right	37	0	28
cSH	1700	1498	820
Volume to Capacity	0.06	0.03	0.06
Queue Length 95th (m)	0.0	0.7	1.5
Control Delay (s)	0.0	2.2	9.7
Lane LOS		A	A
Approach Delay (s)	0.0	2.2	9.7
Approach LOS			A

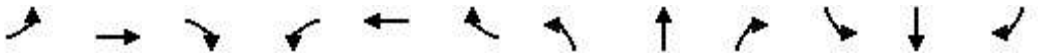
Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	24.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	348	100	14	279	115	94	249	14	73	176	58
Future Volume (vph)	96	348	100	14	279	115	94	249	14	73	176	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.96		1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3458		1789	3422		1789	3550		1789	3445	
Flt Permitted	0.30	1.00		0.44	1.00		0.56	1.00		0.58	1.00	
Satd. Flow (perm)	571	3458		837	3422		1058	3550		1086	3445	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	104	378	109	15	303	125	102	271	15	79	191	63
RTOR Reduction (vph)	0	28	0	0	50	0	0	4	0	0	33	0
Lane Group Flow (vph)	104	459	0	15	378	0	102	282	0	79	221	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	25.7	20.4		17.7	16.4		47.4	39.9		43.0	37.7	
Effective Green, g (s)	25.7	20.4		17.7	16.4		47.4	39.9		43.0	37.7	
Actuated g/C Ratio	0.30	0.23		0.20	0.19		0.55	0.46		0.49	0.43	
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	243	811		184	645		640	1629		580	1494	
v/s Ratio Prot	c0.03	c0.13		0.00	0.11		c0.01	c0.08		0.01	0.06	
v/s Ratio Perm	0.10			0.02			0.07			0.06		
v/c Ratio	0.43	0.57		0.08	0.59		0.16	0.17		0.14	0.15	
Uniform Delay, d1	23.3	29.3		27.8	32.2		9.6	13.8		11.6	14.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	0.9		0.2	1.4		0.1	0.2		0.1	0.2	
Delay (s)	24.5	30.2		28.0	33.5		9.7	14.0		11.7	15.1	
Level of Service	C	C		C	C		A	B		B	B	
Approach Delay (s)		29.2			33.3			12.9			14.3	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	23.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	86.9	Sum of lost time (s)	20.0
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		

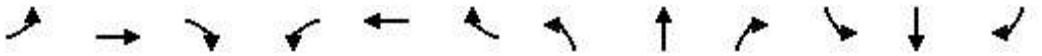
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	2	1	67	1	77	1	269	10	39	226	7
Future Volume (Veh/h)	8	2	1	67	1	77	1	269	10	39	226	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	2	1	73	1	84	1	292	11	42	246	8
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)											113	
pX, platoon unblocked	0.96	0.96	0.96	0.96	0.96		0.96					
vC, conflicting volume	712	639	250	632	638	298	254			303		
vC1, stage 1 conf vol	334	334		300	300							
vC2, stage 2 conf vol	378	305		332	338							
vCu, unblocked vol	679	602	197	595	601	298	201			303		
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	100	87	100	89	100			97		
cM capacity (veh/h)	473	530	810	573	543	742	1315			1258		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	12	158	1	303	42	254
Volume Left	9	73	1	0	42	0
Volume Right	1	84	0	11	0	8
cSH	500	652	1315	1700	1258	1700
Volume to Capacity	0.02	0.24	0.00	0.18	0.03	0.15
Queue Length 95th (m)	0.6	7.2	0.0	0.0	0.8	0.0
Control Delay (s)	12.4	12.3	7.7	0.0	8.0	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	12.4	12.3	0.0		1.1	
Approach LOS	B	B				

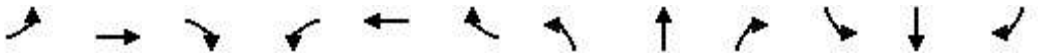
Intersection Summary				
Average Delay	3.2			
Intersection Capacity Utilization	36.7%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	201	507	16	1	549	37	28	22	1	22	26	249
Future Volume (vph)	201	507	16	1	549	37	28	22	1	22	26	249
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00		1.00	0.99		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1789	3562		1789	3545		1789	1872		1789	1883	1601
Flt Permitted	0.36	1.00		0.44	1.00		0.74	1.00		0.74	1.00	1.00
Satd. Flow (perm)	680	3562		826	3545		1392	1872		1396	1883	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	218	551	17	1	597	40	30	24	1	24	28	271
RTOR Reduction (vph)	0	2	0	0	4	0	0	1	0	0	0	236
Lane Group Flow (vph)	218	566	0	1	633	0	30	24	0	24	28	35
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)	60.3	55.0		48.7	47.4		10.7	10.7		10.7	10.7	10.7
Effective Green, g (s)	60.3	55.0		48.7	47.4		10.7	10.7		10.7	10.7	10.7
Actuated g/C Ratio	0.73	0.66		0.59	0.57		0.13	0.13		0.13	0.13	0.13
Clearance Time (s)	4.0	6.0		4.0	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	3.0	3.0
Lane Grp Cap (vph)	612	2360		499	2024		179	241		179	242	206
v/s Ratio Prot	c0.04	0.16		0.00	0.18			0.01			0.01	
v/s Ratio Perm	c0.22			0.00			0.02			0.02		c0.02
v/c Ratio	0.36	0.24		0.00	0.31		0.17	0.10		0.13	0.12	0.17
Uniform Delay, d1	3.9	5.6		7.1	9.3		32.2	31.9		32.0	32.0	32.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.4	0.2		0.0	0.4		0.4	0.2		0.3	0.2	0.4
Delay (s)	4.2	5.9		7.1	9.7		32.6	32.1		32.4	32.2	32.6
Level of Service	A	A		A	A		C	C		C	C	C
Approach Delay (s)		5.4			9.7			32.4			32.5	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	83.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		

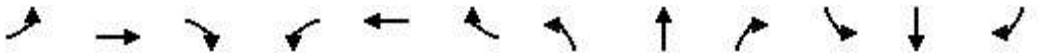
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	362	74	22	315	13	86	130	45	11	135	19
Future Volume (vph)	28	362	74	22	315	13	86	130	45	11	135	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.99		1.00	0.96		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3488		1789	3557		1789	1811		1789	1848	
Flt Permitted	0.54	1.00		0.48	1.00		0.65	1.00		0.63	1.00	
Satd. Flow (perm)	1015	3488		906	3557		1226	1811		1181	1848	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	393	80	24	342	14	93	141	49	12	147	21
RTOR Reduction (vph)	0	21	0	0	4	0	0	20	0	0	8	0
Lane Group Flow (vph)	30	452	0	24	352	0	93	170	0	12	160	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	40.6	40.6		40.6	40.6		12.0	12.0		12.0	12.0	
Effective Green, g (s)	40.6	40.6		40.6	40.6		12.0	12.0		12.0	12.0	
Actuated g/C Ratio	0.63	0.63		0.63	0.63		0.19	0.19		0.19	0.19	
Clearance Time (s)	6.0	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	3.0	
Lane Grp Cap (vph)	637	2192		569	2235		227	336		219	343	
v/s Ratio Prot		c0.13			0.10			c0.09			0.09	
v/s Ratio Perm	0.03			0.03			0.08			0.01		
v/c Ratio	0.05	0.21		0.04	0.16		0.41	0.51		0.05	0.47	
Uniform Delay, d1	4.6	5.1		4.6	4.9		23.2	23.6		21.6	23.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.2		0.1	0.2		1.2	1.2		0.1	1.0	
Delay (s)	4.7	5.3		4.7	5.1		24.4	24.8		21.7	24.4	
Level of Service	A	A		A	A		C	C		C	C	
Approach Delay (s)		5.3			5.1			24.7			24.3	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	11.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	64.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.2%	ICU Level of Service	B
Analysis Period (min)	15		

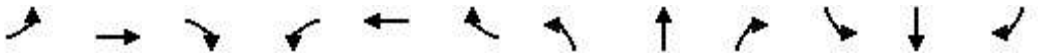
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	0	50	40	0	66	43	145	13	22	171	27
Future Volume (Veh/h)	49	0	50	40	0	66	43	145	13	22	171	27
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	53	0	54	43	0	72	47	158	14	24	186	29
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)								294			86	
pX, platoon unblocked	0.94	0.94	0.94	0.94	0.94		0.94					
vC, conflicting volume	572	514	200	562	522	165	215			172		
vC1, stage 1 conf vol	248	248		259	259							
vC2, stage 2 conf vol	324	266		302	263							
vCu, unblocked vol	515	454	120	504	462	165	136			172		
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 %	90	100	94	92	100	92	97			98		
cM capacity (veh/h)	544	579	877	563	571	879	1364			1405		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	107	115	47	172	239
Volume Left	53	43	47	0	24
Volume Right	54	72	0	14	29
cSH	673	727	1364	1700	1405
Volume to Capacity	0.16	0.16	0.03	0.10	0.02
Queue Length 95th (m)	4.3	4.3	0.8	0.0	0.4
Control Delay (s)	11.4	10.9	7.7	0.0	0.9
Lane LOS	B	B	A		A
Approach Delay (s)	11.4	10.9	1.7		0.9
Approach LOS	B	B			

Intersection Summary				
Average Delay	4.5			
Intersection Capacity Utilization	38.7%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	420	25	7	403	62	24	78	16	55	93	154
Future Volume (vph)	84	420	25	7	403	62	24	78	16	55	93	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1789	3549		1789	3507		1789	1883	1601	1789	1883	1601
Flt Permitted	0.40	1.00		0.48	1.00		0.69	1.00	1.00	0.64	1.00	1.00
Satd. Flow (perm)	762	3549		896	3507		1303	1883	1601	1202	1883	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	91	457	27	8	438	67	26	85	17	60	101	167
RTOR Reduction (vph)	0	3	0	0	11	0	0	0	13	0	0	125
Lane Group Flow (vph)	91	481	0	8	494	0	26	85	4	60	101	42
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	63.1	57.8		55.0	53.7		27.9	25.0	25.0	32.9	27.5	27.5
Effective Green, g (s)	63.1	57.8		55.0	53.7		27.9	25.0	25.0	32.9	27.5	27.5
Actuated g/C Ratio	0.58	0.53		0.50	0.49		0.25	0.23	0.23	0.30	0.25	0.25
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	489	1873		460	1719		344	429	365	390	472	402
v/s Ratio Prot	c0.01	0.14		0.00	c0.14		0.00	0.05		c0.01	c0.05	
v/s Ratio Perm	0.10			0.01			0.02		0.00	0.04		0.03
v/c Ratio	0.19	0.26		0.02	0.29		0.08	0.20	0.01	0.15	0.21	0.10
Uniform Delay, d1	10.7	14.1		13.6	16.6		30.9	34.1	32.7	27.8	32.4	31.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.3		0.0	0.4		0.1	0.2	0.0	0.2	0.2	0.1
Delay (s)	10.8	14.4		13.6	17.0		30.9	34.4	32.7	27.9	32.7	31.6
Level of Service	B	B		B	B		C	C	C	C	C	C
Approach Delay (s)		13.9			16.9			33.5			31.3	
Approach LOS		B			B			C			C	

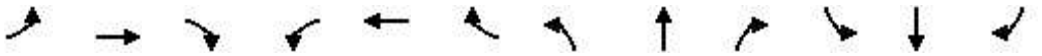
Intersection Summary			
HCM 2000 Control Delay	20.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	109.5	Sum of lost time (s)	20.0
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	12	14	56	36	44
Future Volume (Veh/h)	0	12	14	56	36	44
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	13	15	61	39	48
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			13		98	6
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			13		98	6
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		96	96
cM capacity (veh/h)			1606		893	1076

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	13	76	87
Volume Left	0	15	39
Volume Right	13	0	48
cSH	1700	1606	986
Volume to Capacity	0.01	0.01	0.09
Queue Length 95th (m)	0.0	0.2	2.2
Control Delay (s)	0.0	1.5	9.0
Lane LOS		A	A
Approach Delay (s)	0.0	1.5	9.0
Approach LOS			A

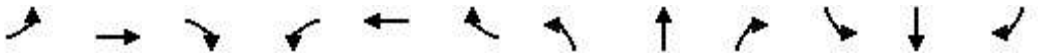
Intersection Summary			
Average Delay		5.1	
Intersection Capacity Utilization		21.7%	ICU Level of Service
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	154	471	150	18	381	131	153	351	15	196	421	149
Future Volume (vph)	154	471	150	18	381	131	153	351	15	196	421	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.96		1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3449		1789	3441		1789	3557		1789	3438	
Flt Permitted	0.22	1.00		0.27	1.00		0.31	1.00		0.52	1.00	
Satd. Flow (perm)	417	3449		511	3441		583	3557		974	3438	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	167	512	163	20	414	142	166	382	16	213	458	162
RTOR Reduction (vph)	0	32	0	0	38	0	0	4	0	0	40	0
Lane Group Flow (vph)	167	643	0	20	518	0	166	394	0	213	580	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	30.5	23.8		22.2	19.5		47.0	37.0		41.0	34.0	
Effective Green, g (s)	30.5	23.8		22.2	19.5		47.0	37.0		41.0	34.0	
Actuated g/C Ratio	0.34	0.26		0.25	0.22		0.52	0.41		0.45	0.38	
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	246	907		163	741		436	1454		504	1291	
v/s Ratio Prot	c0.05	c0.19		0.00	0.15		c0.04	0.11		0.03	c0.17	
v/s Ratio Perm	0.18			0.03			0.16			0.16		
v/c Ratio	0.68	0.71		0.12	0.70		0.38	0.27		0.42	0.45	
Uniform Delay, d1	22.9	30.2		26.3	32.8		12.2	17.8		15.4	21.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.2	2.6		0.3	2.9		0.6	0.5		0.6	1.1	
Delay (s)	30.1	32.8		26.6	35.7		12.7	18.2		15.9	22.4	
Level of Service	C	C		C	D		B	B		B	C	
Approach Delay (s)		32.3			35.4			16.6			20.7	
Approach LOS		C			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	26.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	90.5	Sum of lost time (s)	20.0
Intersection Capacity Utilization	79.5%	ICU Level of Service	D
Analysis Period (min)	15		

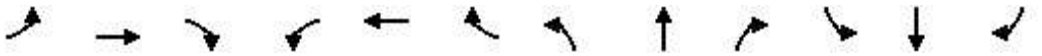
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	1	3	43	1	58	7	451	13	86	477	2
Future Volume (Veh/h)	8	1	3	43	1	58	7	451	13	86	477	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	1	3	47	1	63	8	490	14	93	518	2
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)											113	
pX, platoon unblocked	0.85	0.85	0.85	0.85	0.85		0.85					
vC, conflicting volume	1274	1225	519	1220	1219	497	520			504		
vC1, stage 1 conf vol	705	705		513	513							
vC2, stage 2 conf vol	570	520		708	706							
vCu, unblocked vol	1236	1178	350	1172	1171	497	351			504		
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 %	97	100	99	86	100	89	99			91		
cM capacity (veh/h)	277	316	591	327	332	573	1030			1061		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	13	111	8	504	93	520
Volume Left	9	47	8	0	93	0
Volume Right	3	63	0	14	0	2
cSH	319	433	1030	1700	1061	1700
Volume to Capacity	0.04	0.26	0.01	0.30	0.09	0.31
Queue Length 95th (m)	1.0	7.7	0.2	0.0	2.2	0.0
Control Delay (s)	16.7	16.2	8.5	0.0	8.7	0.0
Lane LOS	C	C	A		A	
Approach Delay (s)	16.7	16.2	0.1		1.3	
Approach LOS	C	C				

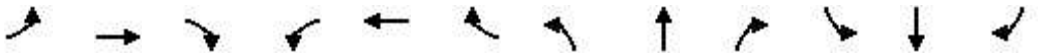
Intersection Summary				
Average Delay	2.3			
Intersection Capacity Utilization	45.5%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	486	947	40	2	673	64	27	56	5	55	54	367
Future Volume (vph)	486	947	40	2	673	64	27	56	5	55	54	367
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1789	3557		1789	3532		1789	1862		1789	1883	1601
Flt Permitted	0.25	1.00		0.27	1.00		0.72	1.00		0.71	1.00	1.00
Satd. Flow (perm)	468	3557		502	3532		1353	1862		1345	1883	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	528	1029	43	2	732	70	29	61	5	60	59	399
RTOR Reduction (vph)	0	2	0	0	6	0	0	3	0	0	0	347
Lane Group Flow (vph)	528	1070	0	2	796	0	29	63	0	60	59	52
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)	66.0	60.8		42.2	41.0		11.8	11.8		11.8	11.8	11.8
Effective Green, g (s)	66.0	60.8		42.2	41.0		11.8	11.8		11.8	11.8	11.8
Actuated g/C Ratio	0.73	0.68		0.47	0.46		0.13	0.13		0.13	0.13	0.13
Clearance Time (s)	4.0	6.0		4.0	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	3.0	3.0
Lane Grp Cap (vph)	652	2408		253	1612		177	244		176	247	210
v/s Ratio Prot	c0.19	0.30		0.00	0.23			0.03			0.03	
v/s Ratio Perm	c0.41			0.00			0.02			c0.04		0.03
v/c Ratio	0.81	0.44		0.01	0.49		0.16	0.26		0.34	0.24	0.25
Uniform Delay, d1	10.6	6.7		12.6	17.1		34.6	35.1		35.5	35.0	35.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.4	0.6		0.0	1.1		0.4	0.6		1.2	0.5	0.6
Delay (s)	18.0	7.3		12.6	18.2		35.1	35.6		36.6	35.5	35.7
Level of Service	B	A		B	B		D	D		D	D	D
Approach Delay (s)		10.8			18.2			35.4			35.7	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	89.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	555	137	47	389	42	101	265	36	44	236	25
Future Volume (vph)	24	555	137	47	389	42	101	265	36	44	236	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.99		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3472		1789	3526		1789	1850		1789	1857	
Flt Permitted	0.48	1.00		0.35	1.00		0.46	1.00		0.38	1.00	
Satd. Flow (perm)	910	3472		657	3526		865	1850		714	1857	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	603	149	51	423	46	110	288	39	48	257	27
RTOR Reduction (vph)	0	29	0	0	11	0	0	8	0	0	6	0
Lane Group Flow (vph)	26	723	0	51	458	0	110	319	0	48	278	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	38.1	38.1		38.1	38.1		15.7	15.7		15.7	15.7	
Effective Green, g (s)	38.1	38.1		38.1	38.1		15.7	15.7		15.7	15.7	
Actuated g/C Ratio	0.58	0.58		0.58	0.58		0.24	0.24		0.24	0.24	
Clearance Time (s)	6.0	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	3.0	
Lane Grp Cap (vph)	526	2010		380	2041		206	441		170	443	
v/s Ratio Prot		c0.21			0.13			c0.17			0.15	
v/s Ratio Perm	0.03			0.08			0.13			0.07		
v/c Ratio	0.05	0.36		0.13	0.22		0.53	0.72		0.28	0.63	
Uniform Delay, d1	6.0	7.4		6.3	6.7		21.9	23.1		20.5	22.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.5		0.7	0.3		2.6	5.8		0.9	2.8	
Delay (s)	6.2	7.9		7.1	7.0		24.5	28.9		21.4	25.2	
Level of Service	A	A		A	A		C	C		C	C	
Approach Delay (s)		7.8			7.0			27.8			24.6	
Approach LOS		A			A			C			C	

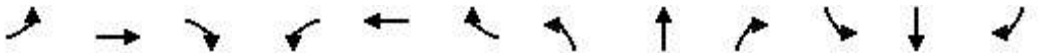
Intersection Summary			
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	65.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	0	49	29	0	48	90	322	42	70	273	63
Future Volume (Veh/h)	33	0	49	29	0	48	90	322	42	70	273	63
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	36	0	53	32	0	52	98	350	46	76	297	68
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)								294			86	
pX, platoon unblocked	0.88	0.88	0.88	0.88	0.88		0.88					
vC, conflicting volume	1081	1075	331	1105	1086	373	365			396		
vC1, stage 1 conf vol	483	483		569	569							
vC2, stage 2 conf vol	598	592		536	517							
vCu, unblocked vol	1021	1014	165	1049	1027	373	203			396		
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 %	88	100	93	90	100	92	92			93		
cM capacity (veh/h)	307	335	770	318	338	673	1198			1163		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	89	84	98	396	441
Volume Left	36	32	98	0	76
Volume Right	53	52	0	46	68
cSH	479	472	1198	1700	1163
Volume to Capacity	0.19	0.18	0.08	0.23	0.07
Queue Length 95th (m)	5.1	4.9	2.0	0.0	1.6
Control Delay (s)	14.2	14.3	8.3	0.0	2.0
Lane LOS	B	B	A		A
Approach Delay (s)	14.2	14.3	1.6		2.0
Approach LOS	B	B			

Intersection Summary				
Average Delay	3.8			
Intersection Capacity Utilization	58.0%	ICU Level of Service		B
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	270	688	45	23	573	74	18	127	15	85	114	149
Future Volume (vph)	270	688	45	23	573	74	18	127	15	85	114	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1789	3546		1789	3517		1789	1883	1601	1789	1883	1601
Flt Permitted	0.27	1.00		0.34	1.00		0.68	1.00	1.00	0.57	1.00	1.00
Satd. Flow (perm)	512	3546		635	3517		1276	1883	1601	1065	1883	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	293	748	49	25	623	80	20	138	16	92	124	162
RTOR Reduction (vph)	0	4	0	0	9	0	0	0	12	0	0	119
Lane Group Flow (vph)	293	793	0	25	694	0	20	138	4	92	124	43
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	62.9	54.8		49.9	45.8		27.5	25.6	25.6	34.5	29.1	29.1
Effective Green, g (s)	62.9	54.8		49.9	45.8		27.5	25.6	25.6	34.5	29.1	29.1
Actuated g/C Ratio	0.57	0.50		0.45	0.42		0.25	0.23	0.23	0.31	0.26	0.26
Clearance Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	445	1768		331	1465		328	438	372	369	498	423
v/s Ratio Prot	c0.08	0.22		0.00	0.20		0.00	c0.07		c0.01	0.07	
v/s Ratio Perm	c0.30			0.03			0.01		0.00	0.07		0.03
v/c Ratio	0.66	0.45		0.08	0.47		0.06	0.32	0.01	0.25	0.25	0.10
Uniform Delay, d1	13.6	17.8		16.6	23.3		31.2	34.9	32.4	27.4	31.8	30.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.5	0.8		0.1	1.1		0.1	0.4	0.0	0.4	0.3	0.1
Delay (s)	17.2	18.6		16.7	24.4		31.3	35.3	32.4	27.7	32.1	30.6
Level of Service	B	B		B	C		C	D	C	C	C	C
Approach Delay (s)		18.2			24.1			34.6			30.4	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	23.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	109.9	Sum of lost time (s)	20.0
Intersection Capacity Utilization	94.1%	ICU Level of Service	F
Analysis Period (min)	15		

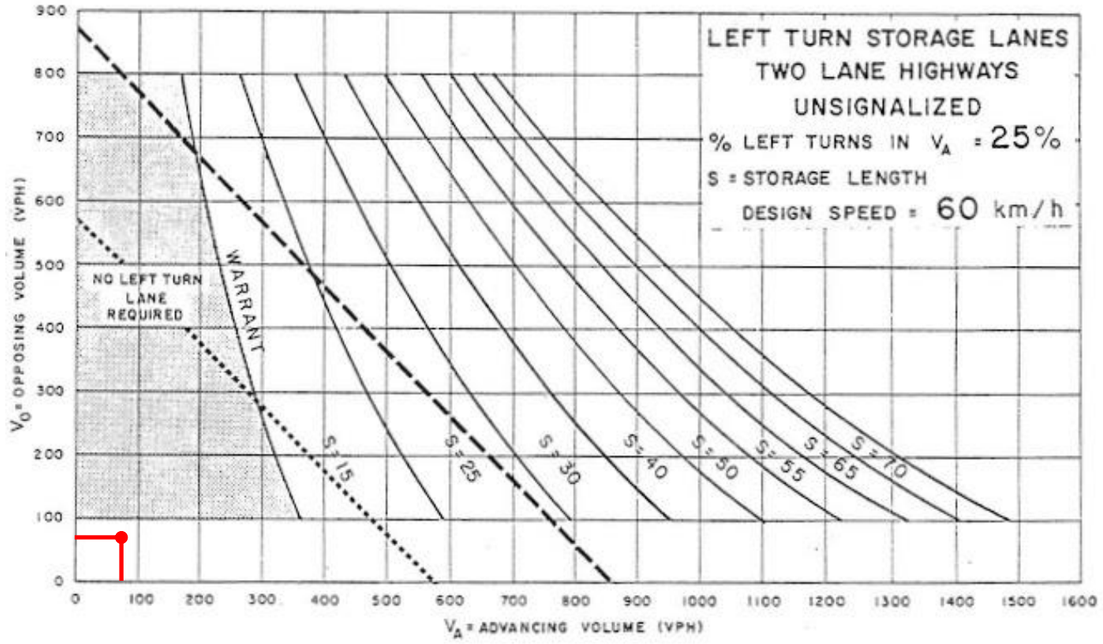
c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	0	34	41	111	21	26
Future Volume (Veh/h)	0	34	41	111	21	26
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	37	45	121	23	28
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			37		230	18
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			37		230	18
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		97	97
cM capacity (veh/h)			1574		737	1060

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	37	166	51
Volume Left	0	45	23
Volume Right	37	0	28
cSH	1700	1574	885
Volume to Capacity	0.02	0.03	0.06
Queue Length 95th (m)	0.0	0.7	1.4
Control Delay (s)	0.0	2.2	9.3
Lane LOS		A	A
Approach Delay (s)	0.0	2.2	9.3
Approach LOS			A

Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	24.8%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix G:
MTO Left Turn Warrant



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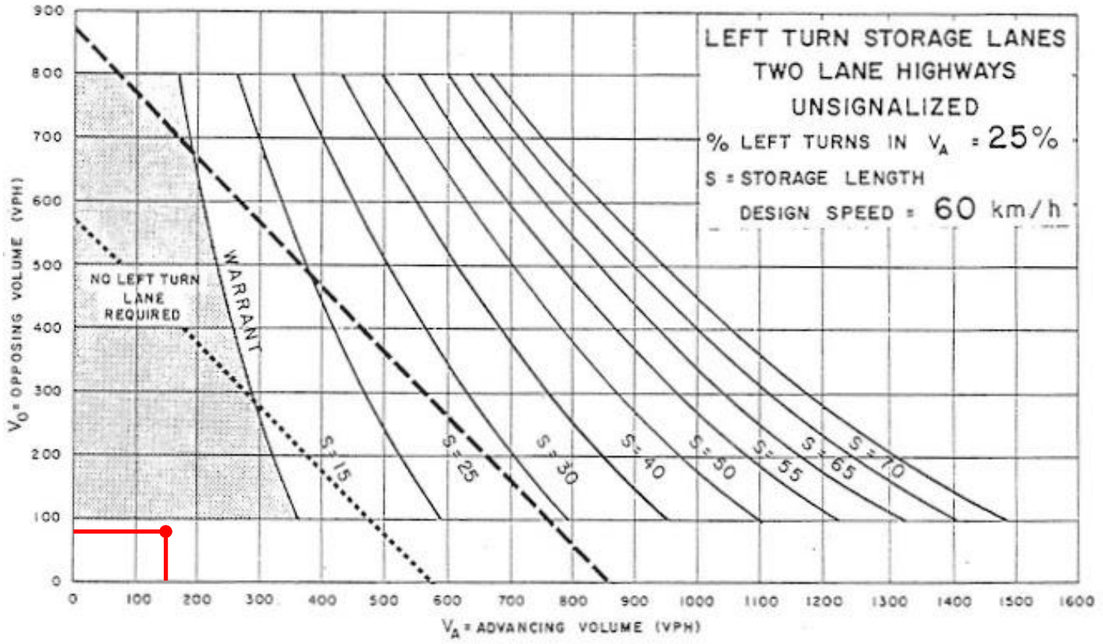

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