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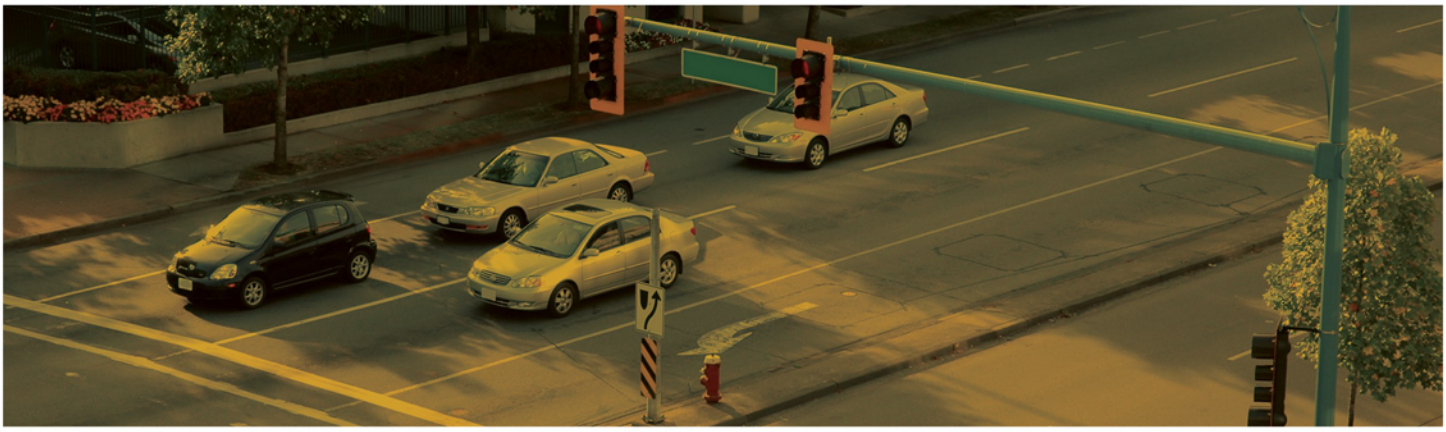

Barrie Waterfront Developments

TRAFFIC IMPACT STUDY

Barrie Waterfront Developments Inc.

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Version	Date	Description
1	April 29, 2019	Final Report
2	February 14, 2020	SPA – Pre-Consultation Submission
3	June 23, 2020	SPA - First Submission

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Executive Summary

Tatham Engineering Limited was retained by Barrie Waterfront Developments Inc. to address the traffic impacts associated with the proposed mixed-use development, located at 39-67 Dunlop Street West & 35-37 Mary Street West within the City of Barrie. A Traffic Impact Study is required by the City of Barrie as per the Pre-Consultation Site Plan Review dated November 22, 2018 completed by City staff.

Development Details

The development is proposed to include two condominium towers with a total of 572 residential units, 4 hotel units and 1,547 m^2 (16,617 ft^2) of retail/commercial space. Access to the development will be provided via Mary Street. Upon completion (expected 2025), the site is expected to generate a total of 191 trips during the AM peak hour and 269 trips during the PM peak hour. However, in considering public transit and other non-automotive modes of transport (i.e. walking, cycling etc.), the net trip estimates are estimated to be 173 new trips during the AM peak hour and 243 new trips during the PM peak hour.

Parking Review

As per special provisions outlined in the approved site-specific zoning by-law amendment, Phase 1 of the development is required to provide a parking supply of 1 space per unit, whereas an overall parking supply of 0.70 spaces per unit is required upon full build-out of the site. The 290-unit West Tower (Phase 1) will include 290 parking spaces which equates to a parking supply rate of 1 space per unit. The 282-unit East Tower (Phase 2) will include 255 parking spaces, or 0.90 spaces per unit. Thus, upon completion of Phase 2, the site will provide 544 parking spaces to serve 572 residential units (i.e. 0.95 spaces per unit). As such, the parking supply as proposed satisfies the parking requirements as defined in the site-specific zoning by-law amendment.

Study Area

The road network addressed by the study consists of Dunlop Street, Mary Street, Maple Avenue, Simcoe Street, Bayfield Street and the following intersections:

- Dunlop Street with Mary Street;
- Dunlop Street with Maple Avenue;
- Simcoe Street with Mary Street;
- Simcoe Street with Maple Avenue; and
- Dunlop Street with Bayfield Street/Clapperton Street (5 Points).

Transportation Impacts

In addressing the study area operations, the key intersections were analysed under existing (2019) conditions and for the 2025, 2030 and 2035 horizon periods. The results of the operational analysis indicate that the key intersections will provide acceptable operating conditions through 2035 under both future background and future total conditions. The site access operations were also reviewed and are expected to provide excellent levels of service through the 2035 horizon period given the projected traffic volumes.

Despite the otherwise excellent access operations, the need for exclusive turn lanes at the site access points was reviewed based on industry warrant criteria. Given the relatively low volumes on Mary Street and Maple Avenue, exclusive turn lanes are not warranted at the site access points.

Sight Line Analysis

The available sight lines along Mary Street and Maple Avenue at the site access points were reviewed based on Transportation Association of Canada (TAC) design guidelines and found to satisfy the TAC minimum stopping sight distance requirements.

Construction Staging Plan

A preliminary construction staging plan was prepared to illustrate how construction of the development will temporarily impact the area road network. The staging plan considers trades parking, construction related deliveries, impacts to on-street parking and pedestrian facilities. The primary impacts relate to the temporary closure of sidewalks and on-street parking on Mary Street and Maple Avenue. To accommodate pedestrian movements, covered walkways will be provided so as to maintain connectivity through the area.

Summary

Based on the findings of the traffic impact study, the study area road network will accommodate the additional traffic volumes associated with the subject development. Notwithstanding planned improvements by the City (i.e. the signalization of Mary Street), no further improvements to the road network are required to accommodate the proposed 39-67 Dunlop Street West & 35-37 Mary Street West development.

1 Introduction

Tatham Engineering Limited was retained by Barrie Waterfront Developments Inc. to address the traffic impacts associated with the proposed mixed-use development, located at 39-67 Dunlop Street West & 35-37 Mary Street West within the City of Barrie. The location of the development site is illustrated in Figure 1.

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;
- an estimation of the growth in the traffic volumes not otherwise attributed to the development (i.e. from overall growth in the area and/or other developments);
- an estimation of 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;
- the resulting impacts and need for mitigating measures (if required) to ensure acceptable overall road operations; and
- the preparation of the preliminary construction staging plan.

Chapter 2 of this report addresses the existing conditions, detailing the road system and corresponding traffic operations. Chapter 3 addresses future conditions, prior to the completion of the proposed development, and the expected growth in the traffic levels and the resulting operating conditions. Chapters 4 and 5 address the proposed development, the ensuing vehicle trips that it will generate, and the associated impacts on the road system. Chapter 6 outlines the proposed construction staging plan. Lastly, Chapter 7 summarizes the report and the 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 Dunlop Street, Mary Street, Maple Avenue, Simcoe Street and Bayfield Street. The following intersections have also been considered as part of the study area road network:

- Dunlop Street with Mary Street;
- Dunlop Street with Maple Avenue;
- Simcoe Street with Mary Street;
- Simcoe Street with Maple Avenue; and
- Dunlop Street with Bayfield Street/Clapperton Street (5 Points).

An aerial photo of the study area and photographs of the road system are provided in Figure 2.

2.1.1 Road Network

Dunlop Street

As per the *City of Barrie Official Plan*[1], Dunlop Street is classified as an east-west arterial road. Through the study area Dunlop Street has a 2-lane cross section (one lane of travel per direction) with on-street parking provided on both sides of the street. As per the *City of Barrie Multi-Modal Active Transportation Master Plan,* an arterial road has an assumed planning capacity in the order of 650 to 850 vehicles per hour per lane (vphpl), depending on lane configuration and status (i.e. major or minor). For the purpose of this study, a reduced planning capacity of 650 vphpl has been assumed for Dunlop Street, recognizing the urban downtown environment it serves (i.e. on-street parking, increased pedestrian traffic, etc.).

Bayfield Street

Bayfield Street is classified as an arterial road orientated north-south through the study area. To the north of Dunlop Street, the road provides one-way operations in the southbound direction with on-street provided on both sides of the street. To the south of Dunlop Street, Bayfield Street has a 2-lane cross section (one lane of travel per direction). As per the *City of Barrie Multi-*

[1] *City of Barrie Official Plan.* City of Barrie Planning Services Department, Jan 2018.

Modal Active Transportation Master Plan, an arterial road reflective of Bayfield Street has an assumed planning capacity of 750 vphpl.

Simcoe Street

Simcoe Street is classified as a major collector oriented east-west through the study area. To the west of Bayfield Street, Simcoe Street has a 4-lane cross-section (two lanes of travel per direction) transitioning to a 2-lane cross-section (one lane of travel per direction) east of Bayfield Street. As a major collector, Simcoe Street has a planning capacity of 650 vphpl.

Mary Street

Mary Street is classified as a local road orientated north-south through the study area. To the south of Dunlop Street, Mary Street has a 2-lane cross section with on-street parking available on both sides of the road. To the north of Dunlop Street, the road provides one-way operations in the northbound direction with on-street parking provided on the east side of the road. As a local road, Maple Avenue has a planning capacity of 400 vphpl.

Maple Avenue

Maple Avenue is a north-south local road with a 2-lane cross section. To the north of Dunlop Street, on-street parking is provided on the east side of the road, whereas to the south of Dunlop Street, on-street parking is provided on both sides of the road. As a local road, Maple Avenue has a planning capacity of 400 vphpl.

Speed Limits

The speed limit on all study area roads is 50 km/h. In accordance with City of Barrie standards, a design speed of 70 km/h (posted speed + 20 km/h) has been applied.

2.1.2 Key Intersections

The intersection configurations for each of the study area intersections are detailed below:

Dunlop Street & Mary Street		**control: stop control on Mary Street**
west leg:	Dunlop Street	1 shared left/through/right turn lane
east leg:	Dunlop Street	1 shared left/through/right turn lane
north leg:	Mary Street	1 one-way northbound receiving lane
south leg:	Mary Street	1 shared left/through/right turn lane

Dunlop Street & Maple Avenue		**control: traffic signals**
west leg:	Dunlop Street	1 shared left/through/right turn lane
east leg:	Dunlop Street	1 shared left/through/right turn lane
north leg:	Maple Avenue	1 shared left/through/right turn lane
south leg:	Maple Avenue	1 shared left/through/right turn lane
Simcoe Street & Mary Street		**control: stop control on Mary St & Parking Lot**
west leg:	Simcoe Street	1 left turn lane, 1 through lane and 1 shared through/right lane
east leg:	Simcoe Street	1 left turn lane, 1 through lane and 1 shared through/right lane
north leg:	Mary Street	1 shared left/through/right turn lane
south leg:	Parking Lot Driveway	1 shared left/through/right turn lane
Simcoe Street & Maple Avenue		**control: traffic signals**
west leg:	Simcoe Street	1 left turn lane, 1 through lane and 1 shared through/right lane
east leg:	Simcoe Street	1 left turn lane, 1 through lane and 1 shared through/right lane
north leg:	Maple Avenue	1 left turn lane and 1 shared through/right lane
south leg:	Parking Lot Driveway	1 left turn lane and 1 shared through/right lane
5 Points		**control: traffic signals**
west leg:	Dunlop Street	1 left turn lane and 1 shared through/right lane
east leg:	Dunlop Street	1 through lane and 1 right turn lane
N/W leg:	Bayfield Street	1 left turn lane, 1 through lane and 1 right turn lane
N/E leg:	Clapperton Street	1 one-way northbound receiving lane
south leg:	Bayfield Street	1 shared through/right turn lane

The following restrictions are currently in place at the study area intersections:

- no northbound or westbound left turns at the Five Points intersection;
- no right turns on red at the Five Points intersection;
- southbound operations only on Bayfield Street from Collier Street to Five Points;
- northbound operations only on Clapperton Street from Five Points to Collier Street; and
- northbound operations only on Mary Street north of Dunlop Street.

2.2 EXISTING TRAFFIC VOLUMES

To determine existing traffic volumes, traffic counts were conducted at the following intersections:

- Dunlop Street with Mary Street and Maple Avenue;
- Simcoe Street with Mary Street and Maple Avenue; and
- the 5 Points intersection.

The traffic counts were conducted on Wednesday February 20, 2019 from 7:00 to 10:00 and 16:00 to 19:00. The corresponding traffic count details are provided in Appendix A.

As previously noted, the south legs of the intersections along Simcoe Street (Mary Street and Maple Avenue) serve as access to municipal parking lots (although it is noted that the south leg of the Simcoe Street/Mary Street intersection also serves the private parking lot for 34 Simcoe Street). The parking areas consist of the following lots, as identified in the *City of Barrie MMATMP - Technical Memorandum - Parking Study, Draft Final*[2], and further illustrated in Figure 3:

- Spirit Catcher Parking Lot (ML-20) – 79 spaces;
- Marina Lot North (ML-23) – 50 spaces;
- Lakeshore Drive Lot (ML-24) – 56 spaces; and
- private parking lot for 34 Simcoe Street – 83 spaces.

Parking surveys were conducted at the municipal lots (to coincide with the peak hours identified in the February counts), from which the following utilization rates were observed:

- Spirit Catcher Parking Lot - 5% utilization (4 occupied spaces out of 79);
- Marina Lot North - 0% utilization (parking lot closed during winter months); and
- Lakeshore Drive Lot - 0% utilization (0 occupied spaces out of 56).

Given the seasonal nature of the waterfront area, usage of the municipal parking lots is expected to increase during the summer months. In this respect, the traffic volumes observed entering/exiting the municipal parking lots during the February counts are not considered to be reflective of peak usage. Therefore, to establish volumes entering/exiting the municipal parking lots during the peak summer season, the following assumptions have been considered:

- trip generation rate of 0.81 trips per occupied space (as identified at the Spirit Catcher Parking Lot during the February parking surveys); and

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[2] *City of Barrie Multi-Modal Active Transportation Master Plan - Technical Memorandum - Parking Study, Draft Final.* Genivar. December 2011.

- parking utilization of 25% during the AM peak hour and 75% during the PM peak hour.

With respect to the trips associated with the private parking lot, those observed during the February counts are considered reflective of typical peak hour conditions, recognizing that the private lot serves employees and visitors of 34 Simcoe Street and will not otherwise be subject to seasonal variations. It is noted that all of the inbound/outbound trips observed at the parking access opposite Mary Street were associated with the private parking lot, recognizing that 0% utilization was observed at the municipal lots served by the same access.

The trip estimates for the municipal lots are summarized in Table 1 and reflect a trip generation rate of 0.81 trips per occupied space and the assumed utilization rates noted above. In terms of directional distribution, an inbound/outbound split of 80/20 has been assumed during the AM peak hour and 50/50 during the PM peak hour.

Table 1: Trip Estimates - Municipal Parking Lots

MUNICIPAL LOT	OCCUPIED SPACES		WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
	AM (25%)	PM (75%)	IN	OUT	TOTAL	IN	OUT	TOTAL
Spirit Catcher Lot (79 spaces)	20	59	13	3	16	24	24	48
Marina North Lot (50 spaces)	13	38	8	2	10	15	15	30
Lakeshore Dr Lot (56 spaces)	14	42	9	2	11	17	17	34
Total			**30**	**7**	**37**	**56**	**56**	**112**

As noted, the municipal parking lots are estimated to generate 37 trips during the AM peak hour and 112 trips during the PM peak hour. These volumes are considered as conservative, recognizing that the *City of Barrie MMATMP - Technical Memorandum - Parking Study, Draft Final* indicates that the noted lots experienced peak utilization of 20%, as per parking surveys conducted in July 2011. Furthermore, peak utilization occurred mid-day and in the evening (i.e. outside of the typical AM and PM peak hour periods). Regardless, the peak utilization as assumed ensures a conservative approach.

Trips associated with the municipal parking lots were distributed to the road network based on existing travel patterns observed during the traffic counts. In terms of access assignment, trips generated by the Spirit Catcher Lot were assigned to the access opposite Maple Avenue, whereas trips generated by the Lakeshore Drive Lot were assigned to the access opposite Mary Street. Trips generated by the Marina North Lot were split 50/50 between the two available access points.

The resulting 2019 traffic volumes are illustrated in Figure 4.

2.3 EXISTING TRAFFIC OPERATIONS

2.3.1 Intersection Operations

The assessment of existing conditions provides the baseline from which the future traffic volumes and operations (both with and without the subject development) can be assessed. The capacity, and hence operations, of a road system is effectively dictated by its intersections. As such, the analysis focused on the operations of the key intersections. The analysis is based on the 2019 traffic volumes, the existing configuration and intersection control and procedures outlined in the *2000 Highway Capacity Manual*[3] (using Synchro v.10 software). It is noted that the existing signal timings for the intersection were obtained from the City for use in the assessment. The "pedestrian scramble" phase at the Five Points intersection has been included in the analysis. For signalized intersections, the analysis considers each approach and the overall intersection. For the unsignalized intersections, the review considers the average delay (measured in seconds), level of service (LOS) and volume to capacity (v/c) for the critical movements, namely the stop movements on the minor street. A summary of the analyses is provided in Table 2. 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. 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. Detailed operations worksheets for the existing traffic conditions are included in Appendix B.

Based on the existing volumes and intersection control, all of the subject intersections provide good overall levels of service (LOS B) with average delays during both peak hours. As such, no improvements are required to support the existing conditions.

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

Table 2: Intersection Operations – 2019 Conditions

INTERSECTION & MOVEMENT		CONTROL	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			DELAY	LOS	V/C	DELAY	LOS	V/C
Dunlop Street & Mary Street	NB	stop	19	C	0.07	27	D	0.15
Dunlop Street & Maple Avenue	EB	signal	12	B	0.6	13	B	0.54
	WB		10	A	0.37	10	A	0.44
	NB		16	B	0.17	16	B	0.28
	SB		16	B	0.18	17	B	0.24
	overall	signal	12	B	0.35	13	B	0.44
Five Points - Dunlop Street & Bayfield Street & Clapperton Street	EB	signal	9	A	0.23	10	A	0.30
	WB		16	B	0.37	16	B	0.37
	NB		17	B	0.26	16	B	0.24
	SB		17	B	0.31	18	B	0.50
	overall	signal	14	B	0.35	15	B	0.44
Simcoe Street & Mary Street	NB	stop	15	B	0.05	16	C	0.14
	SB		10	B	0.04	11	B	0.09
Simcoe Street & Maple Avenue	EB	signal	5	A	0.30	5	A	0.35
	WB		9	A	0.35	10	A	0.41
	NB		24	C	0.06	24	C	0.10
	SB		25	C	0.20	24	C	0.13
	overall	signal	9	A	0.32	9	A	0.36

3 Future Background Conditions

This chapter will describe the road network and background traffic volumes expected for the years 2025, 2030 and 2035. The 2025 horizon year has been adopted to reflect full build-out of the subject development, whereas the 2030 and 2035 horizons will address the longer-term impacts (5 and 10 years beyond build-out).

3.1 ROAD NETWORK

3.1.1 Dunlop Street Class Environmental Assessment

As per the *Dunlop Street Corridor Improvements Class EA*[4], Dunlop Street is to be reconstructed to incorporate a reconfigurable street system. The improvements will allow on-street parking to be re-allocated as pedestrian and patio space during the summer season, ultimately creating an equitable balance between all road users. Despite the planned improvements, two-way traffic (one lane per direction) will be maintained through the corridor (i.e. lane provision will not be increased or decreased). As part of the project, traffic signals are to be implemented at the intersection of Dunlop Street with Mary Street. Furthermore, the westbound right turn lane and the northbound right turn lane at the intersection of Dunlop Street with Bayfield Street and Clapperton Street will be removed (i.e. the WB and NB approach will each consist of a shared through/right turn lane). Construction is set to start in the Fall of 2019, with completion expected by 2021.

3.1.2 Other Improvements

No further improvements to the study area road network have been identified.

3.2 BACKGROUND TRAFFIC VOLUMES

Future background traffic volumes expected for the 2025, 2030 and 2035 horizon years for the study area have been determined based on the existing traffic volumes, historical and projected growth, and additional increases in volumes due to other development within the immediate area (apart from the subject development).

3.2.1 Background Growth

Based on future traffic projections from the City's Transportation Model, City staff has indicated that the following annual growth rates are to be applied to the study are road network through to the 2031 horizon year.

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[4] *Dunlop Street Corridor Improvements Class EA, City of Barrie,* Revised December 2, 2015.

- Dunlop Street – 4% per annum;
- Mary Street & Maple Avenue – 1% per annum; and
- Bayfield Street & Simcoe Street – 2% per annum.

The model considers the travel demands of the entire City based primarily on population and employment levels within individual zones. In developing future travel demands, a number of factors are considered including planned growth, development levels, population forecasts, and transit initiatives and service levels.

3.2.2 Development Growth

The Residences at the Five Points

The Residences at the Five Points is a 20-storey mixed use development consisting of 208 residential condominium units with associated parking and approximately 518 m^2 (5,571 ft^2) of commercial gross floor area. The development site is located on northwest corner of the intersection of Dunlop Street with Bayfield Street and is served by access points on Bayfield Street and Maple Avenue. For the purpose of this study full build-out is assumed by 2025.

The trip estimates and distribution for the development are based on those provided in *The Residences at the Five Points Traffic Impact Study*[5]. The location plan and site plan for the development are provided in Appendix C.

The assignment of the background development volumes through the study area road network are illustrated in Figure 5.

Other Background Development

Through discussions with City staff it was noted that there are no other planned developments within the immediate study area that require consideration in the future background traffic volumes.

3.2.3 Background Traffic Volumes

The resulting 2025, 2030 and 2035 background traffic volumes are illustrated in Figure 6 through Figure 8. The background volumes are based on the 2019 traffic volumes, adjusted to reflect the respective annual background growth rates and the additional traffic volumes associated with the noted background development.

[5] The Residences at Five Points Traffic Impact Study. C.C. Tatham & Associates Ltd. August 2015.

3.3 BACKGROUND TRAFFIC OPERATIONS

3.3.1 Intersection Operations

The key intersections were again analyzed for each horizon year given the projected background volumes. As noted in Section 3.1.1, the reconstruction of Dunlop Street and the corresponding improvements (i.e. signalization of Mary Street and removal of the exclusive WB and NB right turn lanes at the intersection of Dunlop Street with Bayfield Street and Clapperton Street) are expected to be completed prior to the 2025 horizon year, and thus has been considered in the analysis of the future background conditions. The results are summarized in Table 3 through Table 5 (detailed worksheets are provided in Appendix D). The existing intersection configurations have been maintained in the analysis as have the existing signal timings.

As indicated, the key intersections are expected to provide acceptable overall operating conditions (LOS C or better) with average delays through the considered horizon periods given the assumed background traffic volumes.

No improvements are considered necessary to accommodate the future background conditions.

Table 3: Intersection Operations – 2025 Background Conditions

INTERSECTION & MOVEMENT		CONTROL	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			DELAY	LOS	V/C	DELAY	LOS	V/C
Dunlop Street & Mary Street	EB	signal	2	A	0.42	4	A	0.52
	WB		2	A	0.34	3	A	0.43
	NB		31	C	0.39	29	C	0.24
	overall	signal	3	A	0.42	4	A	0.51
Dunlop Street & Maple Avenue	EB	signal	14	B	0.60	18	B	0.74
	WB		10	B	0.47	11	B	0.56
	NB		16	B	0.21	17	B	0.36
	SB		17	B	0.25	18	B	0.32
	overall	signal	13	B	0.46	16	B	0.59
Five Points - Dunlop Street & Bayfield Street & Clapperton Street	EB	signal	10	A	0.30	10	B	0.38
	WB		18	B	0.51	18	B	0.53
	NB		17	B	0.33	17	B	0.32
	SB		17	B	0.36	19	B	0.57
	overall	signal	15	B	0.44	16	B	0.56
Simcoe Street & Mary Street	NB	stop	16	C	0.06	18	C	0.16
	SB		10	B	0.04	11	B	0.10
Simcoe Street & Maple Avenue	EB	signal	7	A	0.35	6	A	0.39
	WB		12	B	0.42	11	B	0.49
	NB		23	C	0.05	24	C	0.10
	SB		23	C	0.19	24	C	0.14
	overall	signal	11	B	0.37	10	A	0.41

Table 4: Intersection Operations – 2030 Background Conditions

INTERSECTION & MOVEMENT		CONTROL	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			DELAY	LOS	V/C	DELAY	LOS	V/C
Dunlop Street & Mary Street	EB	signal	3	A	0.49	4	A	0.62
	WB		2	A	0.40	3	A	0.41
	NB		36	D	0.47	32	C	0.29
	overall	signal	3	A	0.49	5	A	0.60
Dunlop Street & Maple Avenue	EB	signal	17	B	0.71	26	C	0.87
	WB		11	B	0.57	13	B	0.67
	NB		16	B	0.24	18	B	0.42
	SB		18	B	0.29	19	B	0.39
	overall	signal	15	B	0.55	20	B	0.70
Five Points - Dunlop Street & Bayfield Street & Clapperton Street	EB	signal	10	B	0.36	11	B	0.46
	WB		19	B	0.61	21	C	0.64
	NB		18	B	0.37	17	B	0.35
	SB		17	B	0.39	20	B	0.62
	overall	signal	16	B	0.52	17	B	0.64
Simcoe Street & Mary Street	NB	stop	17	C	0.06	20	C	0.18
	SB		11	B	0.05	11	B	0.11
Simcoe Street & Maple Avenue	EB	signal	7	A	0.39	7	A	0.45
	WB		12	B	0.47	13	B	0.57
	NB		22	C	0.05	23	C	0.08
	SB		23	C	0.20	23	C	0.14
	overall	signal	11	B	0.40	12	B	0.46

Table 5: Intersection Operations – 2035 Background Conditions

INTERSECTION & MOVEMENT		CONTROL	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			DELAY	LOS	V/C	DELAY	LOS	V/C
Dunlop Street & Mary Street	EB	signal	4	A	0.60	7	A	0.73
	WB		3	A	0.49	4	A	0.59
	NB		30	C	0.29	38	D	0.26
	overall	signal	4	A	0.58	6	A	0.70
Dunlop Street & Maple Avenue	EB	signal	22	C	0.83	28	C	0.91
	WB		14	B	0.69	13	B	0.71
	NB		16	B	0.28	32	C	0.71
	SB		18	B	0.33	29	C	0.58
	overall	signal	18	B	0.64	24	C	0.85
Five Points - Dunlop Street & Bayfield Street & Clapperton Street	EB	signal	11	B	0.44	12	B	0.55
	WB		24	C	0.74	26	C	0.78
	NB		18	B	0.41	18	B	0.39
	SB		18	B	0.43	21	C	0.68
	overall	signal	17	B	0.61	19	B	0.75
Simcoe Street & Mary Street	NB	stop	19	C	0.07	23	C	0.21
	SB		11	B	0.06	12	B	0.13
Simcoe Street & Maple Avenue	EB	signal	7	A	0.43	8	A	0.50
	WB		13	B	0.52	16	B	0.65
	NB		22	C	0.05	2	C	0.08
	SB		23	C	0.21	23	C	0.15
	overall	signal	11	B	0.44	13	B	0.51

4 Proposed Development

This chapter will provide additional details with respect to the proposed development, including its location, the projected site generated traffic volumes and the assignment of such to the adjacent road network.

4.1 SITE LOCATION & ACCESS

The subject site is located located at 39-67 Dunlop Street West & 35-37 Mary Street in the City of Barrie (as per Figure 1). The property is bounded by Mary Street to the west, Dunlop Street to the north, Maple Avenue to the east and the Barrie Transit Terminal to the south. Access to the site will be provided via a full moves access on Mary Street.

The subject property has an overall area of approximately 4,348 m^2 (46,805 ft^2).

4.2 PROPOSED LAND-USE & PHASING

The proposed development will consist of two mixed-use (residential/commercial) condominium towers with the following characteristics:

- East Tower – 32-storey tower consisting of 282 condominium units and 847 m^2 (9,121 ft^2) of commercial space; and
- West Tower – 32-storey tower consisting of 290 condominium units, 696 m^2 (7,496 ft^2) of commercial space and 4 hotel rooms.

A site plan is provided in Figure 9.

Full build-out and occupancy has been assumed by 2025.

4.3 PARKING

As per special provisions outlined in the approved site-specific zoning by-law amendment, Phase 1 of the development is required to provide a parking supply of 1 space per unit, whereas an overall parking supply of 0.70 spaces per unit is required upon full build-out of the site. The 290-unit West Tower (Phase 1) will include 290 parking spaces which equates to a parking supply rate of 1 space per unit. The 282-unit East Tower (Phase 2) will include 255 parking spaces, or 0.90 spaces per unit. Thus, upon completion of Phase 2, the site will provide 544 parking spaces to serve 572 residential units (i.e. 0.95 spaces per unit). As such, the parking supply as proposed satisfies the parking requirements as defined in the site-specific zoning by-law amendment.

It is noted that commercial uses located within the Central Area Commercial (C1) and Urban Growth Centre area are not required to provide parking, as per the City's *Comprehensive Zoning By-law 2009*-141. As such, parking for the commercial/retail space has not been provided.

4.4 SITE TRAFFIC

4.4.1 Trip Generation

The number of vehicle trips to be generated by the proposed development for the weekday AM and PM peak hours has been determined based on type of use, development size, and trip generation rates as per the *ITE Trip Generation Manual*[6] *10th Edition*. Based on the proposed development the following trip rates have been considered:

- *multifamily housing - high-rise* (ITE code 222);
- *hotel* (ITE code 310); and
- *shopping centre* (ITE code 820).

The trip estimates for the *multifamily housing* land-use have been established based on the ITE trip generation fitted curve equations; whereas for the *hotel* and *shopping centre* land-uses, the trip estimates have been based on the ITE average trip rates (i.e. as per ITE guidelines, the fitted curve equations provided for the *hotel* and *shopping centre* land-uses are not considered statistically robust).

The associated trip rates and trip estimates are provided in Table 6 and Table 7.

Table 6: Trip Generation Rates

LAND USE	TRIP BASIS	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
		IN	OUT	TOTAL	IN	OUT	TOTAL
multifamily housing (high-rise) (ITE 222)	equation[1]	(T) = 0.28(X) + 12.86			(T) = 0.34(X) + 8.56		
	distribution	26%	74%	100%	61%	39%	100%
hotel (ITE 310)	occupied rooms	0.36	0.26	0.62	0.36	0.37	0.73
shopping centre (ITE 820)	1,000 ft^2 GFA	0.58	0.36	0.94	1.83	1.98	3.81

1 ITE fitted curve equations - where T = the number of trips, and X = the number of residential units

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

Table 7: Trip Estimates - Gross Trips

LAND USE	SIZE	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
		IN	OUT	TOTAL	IN	OUT	TOTAL
multifamily housing (high-rise)	572 units	45	128	173	124	79	203
hotel	4 rooms	1	1	2	1	2	3
shopping centre	16,617 ft^2	10	6	16	30	33	63
Total		**56**	**135**	**191**	**155**	**114**	**269**

As indicated, the proposed mixed-use development is expected to generate 191 gross trips during the AM peak hour and 269 gross trips during the PM peak hour.

Recognizing that the study area is well served by public transit and considering its centralized downtown location, it is expected that a portion of the trips to and from the site will be made via public transit or non-auto modes of transportation (i.e. walking, cycling etc.). Based on a review of the *2016 Transportation Tomorrow Survey* [7], 10% of all trips with an origin or destination in the City of Barrie were done so via walking, cycling or public transit. To account for these trips, a 10% reduction has been applied to the residential and commercial uses. A summary of the resulting estimates with consideration of the 10% reduction is provided in Table 8.

Table 8: Trip Estimates - New Trips

TRIP TYPE	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
	IN	OUT	TOTAL	IN	OUT	TOTAL
Gross Trips	56	135	191	155	114	269
Walk/Cycle/Transit Trips (10%)	-5	-13	-18	-15	-11	-26
New Trips	**51**	**122**	**173**	**140**	**103**	**243**

As noted, the proposed development is estimated to generate 173 new trips during the AM peak hour and 243 new trips during the PM peak hour.

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

4.4.2 Trip Distribution & Assignment

The distribution of the new trips generated by the site has been developed based on distribution data provided in the *2016 Transportation Tomorrow Survey (TTS)*. The TTS is a comprehensive travel survey conducted in the Greater Golden Horseshoe Area once every five years. As per the *TTS 2016 Data Guide*, the 39-67 Dunlop Street West & 35-37 Mary Street development resides in traffic boundary zone 8501. As such, the trip data was filtered to show all trips to/from the respective traffic zone. The following distribution was established:

- to/from the east – 5%;
- to/from the west – 5%;
- to/from the north – 10%;
- to/from the south – 10%; and
- to/from locations within Barrie – 70%.

As indicated, 70% of the trips remain wholly within Barrie whereas only 30% originate from, or are destined to, areas outside of the City. The trips that remain within Barrie were distributed based on additional TTS trip data for the traffic zone within which the development is located. When considering the distribution of trips that remain within the City, the ultimate trip distribution for the site is as follows:

- to/from the east – 15%;
- to/from the west – 15%;
- to/from the north – 40%; and
- to/from the south – 30%.

The assignment of the trips generated by the development to the area road network is based on the trip distribution noted above with consideration given to the expected travel routes. It is noted that trips generated by the commercial space will not access the site, recognizing that the site will not provide parking provision for the commercial uses (i.e. the commercial trips will be dispersed along the adjacent road network based on the location of available municipal on-street parking and parking lots). However, to ensure a conservative approach, it has been assumed that the commercial trips will access the site via Mary Street.

The resulting site generated traffic volumes assigned to the road network are illustrated in Figure 10.

5 Future Total Conditions

This chapter will address the resulting impacts of the proposed mixed-use development on the adjacent road system. Three areas are to be addressed:

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

5.1 FUTURE TRAFFIC VOLUMES

To assess the impacts of the increased traffic volumes resulting from the proposed development, the site generated traffic was combined with the 2025, 2030 and 2035 background traffic volumes. The resulting total traffic volumes are presented in Figure 11 through Figure 13.

5.2 FUTURE TRAFFIC OPERATIONS

5.2.1 Intersection Operations

The operations of the key intersections were again investigated considering the total traffic volumes for each horizon year. In addition to this, the operations of the site access points have also been reviewed, assuming stop control upon exit of the site. The existing intersection configurations have been maintained in the analysis as have the existing signal timings. The results of the operational review are provided in Table 9 through Table 11 (detailed worksheets are provided in Appendix E).

Table 9: Intersection Operations – 2025 Total Conditions

INTERSECTION & MOVEMENT		CONTROL	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			DELAY	LOS	V/C	DELAY	LOS	V/C
Dunlop Street & Mary Street	EB	signal	5	A	0.50	7	A	0.63
	WB		5	A	0.44	6	A	0.60
	NB		21	C	0.31	23	C	0.32
	overall	signal	7	A	0.47	8	A	0.58
Dunlop Street & Maple Avenue	EB	signal	14	B	0.65	19	B	0.80
	WB		9	A	0.45	12	B	0.57
	NB		18	B	0.25	18	B	0.43
	SB		18	B	0.29	18	B	0.38
	overall	signal	13	B	0.54	17	B	0.67
Five Points - Dunlop Street & Bayfield Street & Clapperton Street	EB	signal	10	A	0.33	11	B	0.38
	WB		18	B	0.51	19	B	0.55
	NB		17	B	0.33	17	B	0.31
	SB		17	B	0.36	19	B	0.59
	overall	signal	15	B	0.45	16	B	0.58
Simcoe Street & Mary Street	NB	stop	17	C	0.06	20	C	0.18
	SB		11	B	0.11	12	B	0.16
Simcoe Street & Maple Avenue	EB	signal	7	A	0.35	6	A	0.39
	WB		12	B	0.43	11	B	0.49
	NB		23	C	0.05	24	C	0.10
	SB		23	C	0.19	24	C	0.14
	overall	signal	11	B	0.37	9	A	0.42
Site Access & Mary Street	WB	stop	9	A	0.13	9	A	0.12

Table 10: Intersection Operations – 2030 Total Conditions

INTERSECTION & MOVEMENT		CONTROL	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			DELAY	LOS	V/C	DELAY	LOS	V/C
Dunlop Street & Mary Street	EB	signal	6	A	0.59	9	A	0.74
	WB		5	A	0.52	8	A	0.51
	NB		21	C	0.31	23	C	0.34
	overall	signal	7	A	0.55	9	A	0.68
Dunlop Street & Maple Avenue	EB	signal	18	B	0.77	24	C	0.88
	WB		11	B	0.55	13	B	0.63
	NB		17	B	0.27	23	C	0.59
	SB		18	B	0.34	22	C	0.53
	overall	signal	15	B	0.63	20	B	0.79
Five Points - Dunlop Street & Bayfield Street & Clapperton Street	EB	signal	10	B	0.41	11	B	0.47
	WB		20	B	0.62	21	C	0.66
	NB		18	B	0.37	17	B	0.35
	SB		17	B	0.40	20	C	0.64
	overall	signal	16	B	0.52	17	B	0.67
Simcoe Street & Mary Street	NB	stop	18	C	0.07	22	C	0.20
	SB		11	B	0.12	12	B	0.17
Simcoe Street & Maple Avenue	EB	signal	7	A	0.39	7	A	0.46
	WB		12	B	0.47	13	B	0.58
	NB		22	C	0.05	23	C	0.08
	SB		23	C	0.20	23	C	0.14
	overall	signal	11	B	0.40	12	B	0.46
Site Access & Mary Street	WB	stop	9	A	0.13	9	A	0.13

Table 11: Intersection Operations – 2035 Total Conditions

INTERSECTION & MOVEMENT		CONTROL	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			DELAY	LOS	V/C	DELAY	LOS	V/C
Dunlop Street & Mary Street	EB	signal	8	A	0.71	12	B	0.82
	WB		7	A	0.62	10	B	0.78
	NB		21	C	0.32	38	D	0.43
	overall	signal	9	A	0.65	13	B	0.77
Dunlop Street & Maple Avenue	EB	signal	22	C	0.85	36	D	0.96
	WB		12	B	0.63	14	B	0.70
	NB		20	B	0.34	69	E	0.93
	SB		21	C	0.43	35	D	0.73
	overall	signal	18	B	0.72	32	C	0.95
Five Points - Dunlop Street & Bayfield Street & Clapperton Street	EB	signal	11	B	0.52	13	B	0.56
	WB		24	C	0.75	27	C	0.80
	NB		18	B	0.41	17	B	0.39
	SB		18	B	0.43	22	C	0.70
	overall	signal	17	B	0.61	20	B	0.77
Simcoe Street & Mary Street	NB	stop	20	C	0.08	25	D	0.23
	SB		11	B	0.12	12	B	0.19
Simcoe Street & Maple Avenue	EB	signal	7	A	0.43	8	A	0.50
	WB		13	B	0.52	16	B	0.66
	NB		22	C	0.05	22	C	0.08
	SB		23	C	0.21	23	C	0.15
	overall	signal	11	B	0.44	13	B	0.52
Site Access & Mary Street	WB	stop	9	A	0.14	9	A	0.13

As indicated, the study area intersections will provide acceptable overall operations (LOS C or better) with average delays through the 2035 horizon given the projected total volumes. It is

noted that the total operating conditions are comparable to those experienced under background conditions (i.e. the proposed development has minimal impact on the intersection operations).

The site access will also operate well below capacity during the noted peak hour conditions and provide excellent operations (LOS A).

In consideration of the above, no improvements are considered necessary to accommodate the future total conditions.

5.3 TURN LANE REQUIREMENTS

The volumes accessing the site, in combination with the through volumes on Mary Street are not such that would otherwise require the provision of exclusive right or left turn lanes. Nor would such be recommended given the downtown nature of the streetscape and associated constraints with respect to the available right-of-way widths vs those required to accommodate the additional width associated with exclusive turn lanes.

5.4 SIGHT LINE ANALYSIS

Based on TAC geometric design standards, the minimum stopping sight distance for a design speed of 70 km/h (posted 50 km/h + 20 km/h) is 105 metres. This provides a 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 sight distances to the north and south along Mary Street at the site access are in excess of 150 metres. Thus, the available sight distances at both access points satisfy the TAC minimum stopping sight distance requirement for the noted design speed.

6 Construction Staging Plan

This chapter will describe the preparation of a preliminary construction staging plan, illustrating how construction of the development will temporarily impact the area road network. The staging plan considers trades parking, deliveries, impacts to on-street parking and pedestrian facilities, etc. It is noted that the construction staging plan is considered preliminary and for discussion purposes only, recognizing that the contractor selected to construct the development may require revisions based on the actual construction operations.

6.1 CONSTRUCTION STAGING PLAN

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

1. Close the sidewalk on the east side of Mary Street from the south limit of the site and extending north 30 metres; pedestrians will be directed to a protected 1.5 metre covered walkway adjacent to the northbound curb lane.
2. Close the sidewalk on the west side of Maple Avenue from the south limit of the site and extending 35 metres north; pedestrians will be directed to a protected 1.5 metre covered walkway adjacent to the southbound curb lane.
3. Temporarily remove the 3 parallel parking spaces on Mary Street (1 on the west side and 2 on the east side) and 7 parallel parking spaces on Maple Avenue (3 on the west side and 4 on the east side). Removal of the parking spaces will allow the existing 2-lane configurations along both roads to be maintained while facilitating the accommodation of temporary covered walkways within the existing road platform and mitigating impacts to the capacity of the road network.
4. Re-stripe Mary Street and Maple Avenue through the construction area to identify the new lane configurations.
5. Institute and enforce a “No Stopping” zone along Mary Street and Maple Avenue.
6. Erect construction hoarding along the frontage of the site along Dunlop Street frontage and construct a covered sidewalk to protect pedestrians.

The preliminary construction staging plan is illustrated in Figure 14.

6.2 TRADES PARKING

Given that the proposed development will be constructed to the limits of the property boundary, there will not be space available to accommodate the parking requirements for the various trade

workers working on the site. As such, trade workers will be expected to utilize available municipal parking lots in the immediate area. There is 1 municipal lot located on Mary Street in close proximity to the site, 3 municipal lots located along Maple Avenue between Dunlop Street and Ross Street to the north and 3 municipal lots located on Simcoe Street to the south of the site.

6.3 CONSTRUCTION ACCESS

Access to the site will occur via Mary Street and Maple Avenue. Both accesses will serve as primary access points during site preparation and main access for small scale deliveries and trades vehicles. Given the layout of the site and the location of the condominium towers, and recognizing that the crane operations will require that construction materials be located in relatively close proximity to the tower, allowing for 2 primary access points will provide flexibility for larger construction vehicles and deliveries (i.e. cement trucks, larger scale construction material, etc.). Additional information regarding the staging requirements to establish the access is discussed above and illustrated in Figure 14.

6.4 IMPACT TO ADJACENT PROPERTIES

The construction staging requirements are not expected to inhibit or prevent access to the adjacent properties and businesses. While it is acknowledged that the site will require construction hoarding along the perimeter, all efforts will be made to ensure access is maintained throughout the construction process. It is noted that no lane closures are proposed as part of the construction, rather lane re-alignments on both Mary Street and Maple Avenue. Minimal disruption to delivery services for existing businesses along Mary Street and Maple Street is expected given the ability for deliver vehicles to access the businesses from adjacent roads/laneways and recognizing the deliveries themselves are relatively small in nature (i.e. small trucks, vans, etc.). Laneways to the existing transit terminal abutting the site to the south will remain unobstructed during construction allowing the terminal to continue normal operations.

6.5 PEDESTRIAN MOVEMENTS

Pedestrian movements on Mary Street and Maple Avenue will be largely unaffected by the construction of the proposed development. While portions of the sidewalks on both roads are recommended for closure, sidewalk continuity will be maintained via a covered 1.5 metre pedestrian walkway.

6.6 ON-STREET PARKING

As previously noted, the proposed construction staging plan will require the temporary closure of 10 on-street parking spaces (3 on Mary Street and 7 on Maple Avenue). It is expected that vehicles displaced by the removal of the noted parking spaces will park in other municipal lots in the area.

7 Summary

Proposed Development

This study has addressed the transportation impacts associated with the proposed mixed-use development located at 39-67 Dunlop Street West & 35-37 Mary Street West within the City of Barrie. The proposed development will include two condominium towers with 572 residential units, 4 hotel rooms and 1,547 m^2 (16,617 ft^2) ground floor retail space.

Upon completion, the site is expected to generate a total of 191 trips during the AM peak hour and 269 trips during the PM peak hour. However, in considering public transit and other non-automotive modes of transport (i.e. walking, cycling etc.), the site is estimated to generate 173 new trips during the AM peak hour and 243 new trips during the PM peak hour.

Intersection Operations

In addressing the study area operations, the key intersections were analysed under existing conditions (2019) and for the 2025, 2030 and 2035 horizon periods. The results of the operational analysis indicate that the key intersections will provide acceptable operating conditions through 2035 under both future background and future total conditions. The site access operations were also reviewed, with the Mary Street access providing excellent levels of service through the 2035 horizon period given the projected traffic volumes.

Turn Lane Requirements

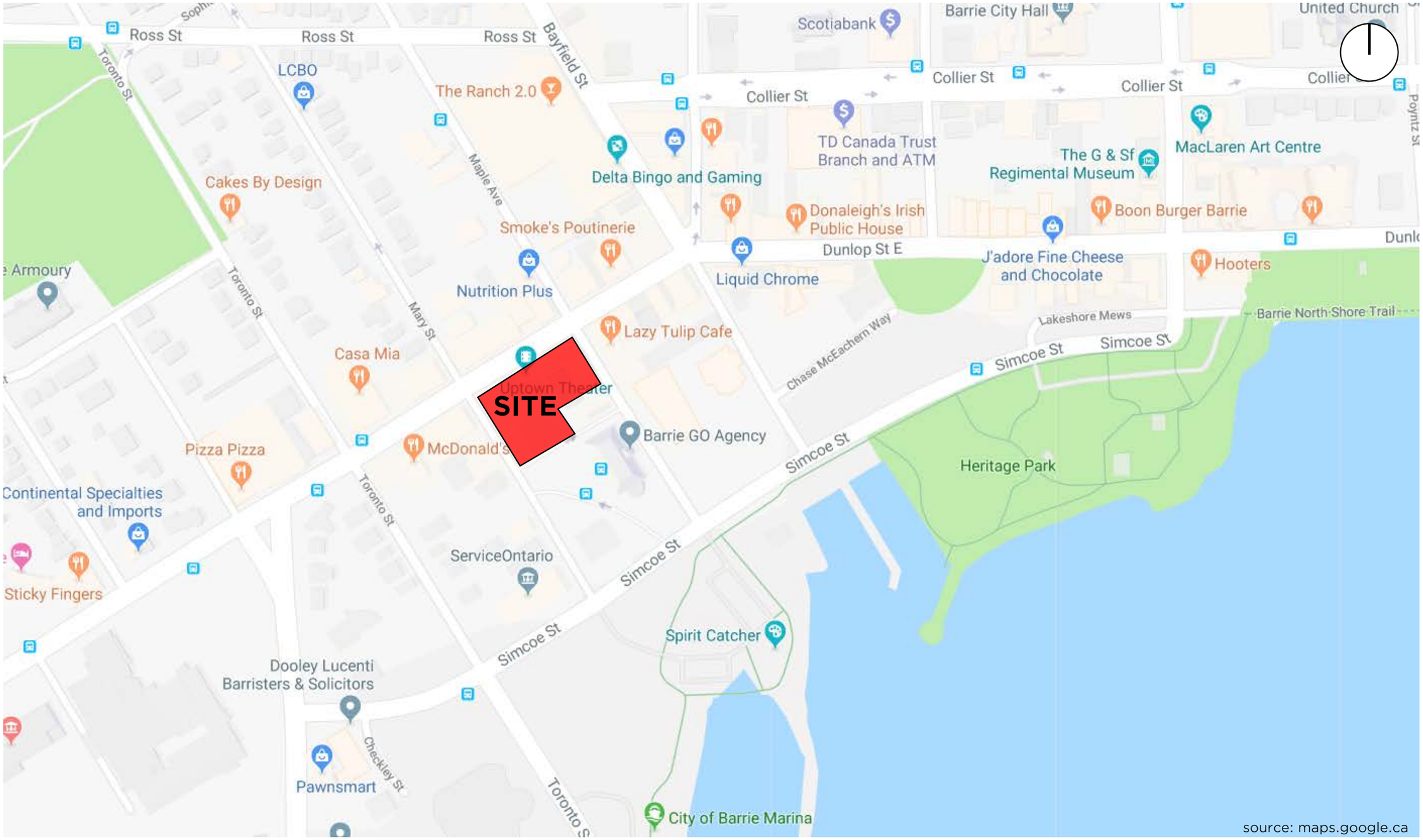
The proposed site access points on Mary Street and Maple Avenue were reviewed with respect to the need to implement exclusive turn lanes to accommodate the projected traffic volumes. After review, no turn lanes are considered necessary.

Sight Lines

Sight lines were reviewed at each of the proposed site access points to ensure that adequate sight distances are provided with respect to TAC design requirements. The sight lines satisfy TAC requirements and thus no improvements are required to address such.

Construction Staging

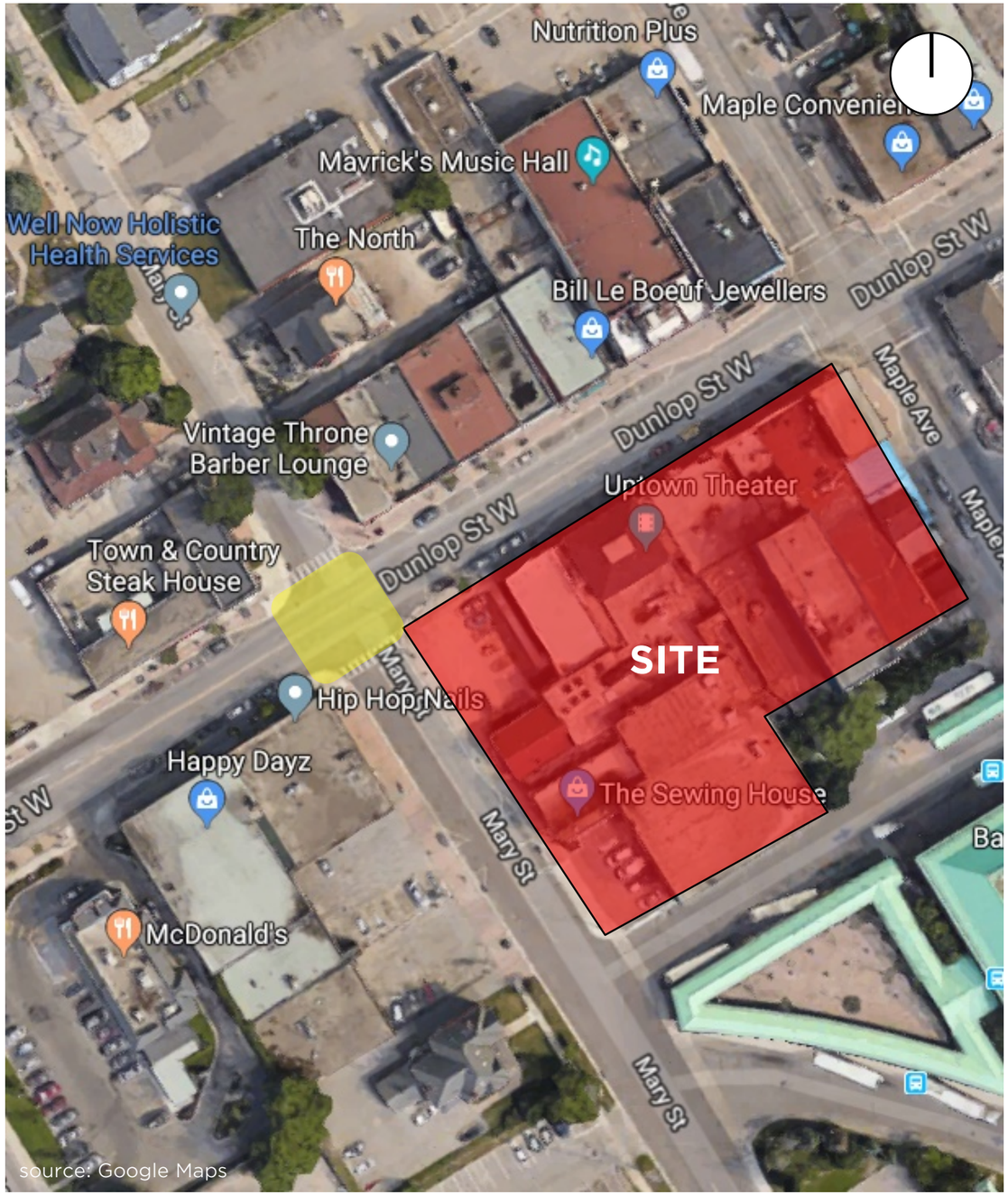
The preparation of the preliminary construction staging plan was undertaken to illustrate how construction of the development will temporarily impact the area road network. The staging plan considered trades parking, deliveries, impacts to on-street parking and pedestrian facilities, etc. and mitigating measures to ensure minimal impacts to the adjacent roadways.



source: maps.google.ca

BARRIE WATERFRONT DEVELOPMENTS

Figure 1: Site Location



BARRIE WATERFRONT DEVELOPMENTS

Figure 2A: Site Location

BARRIE WATERFRONT DEVELOPMENTS

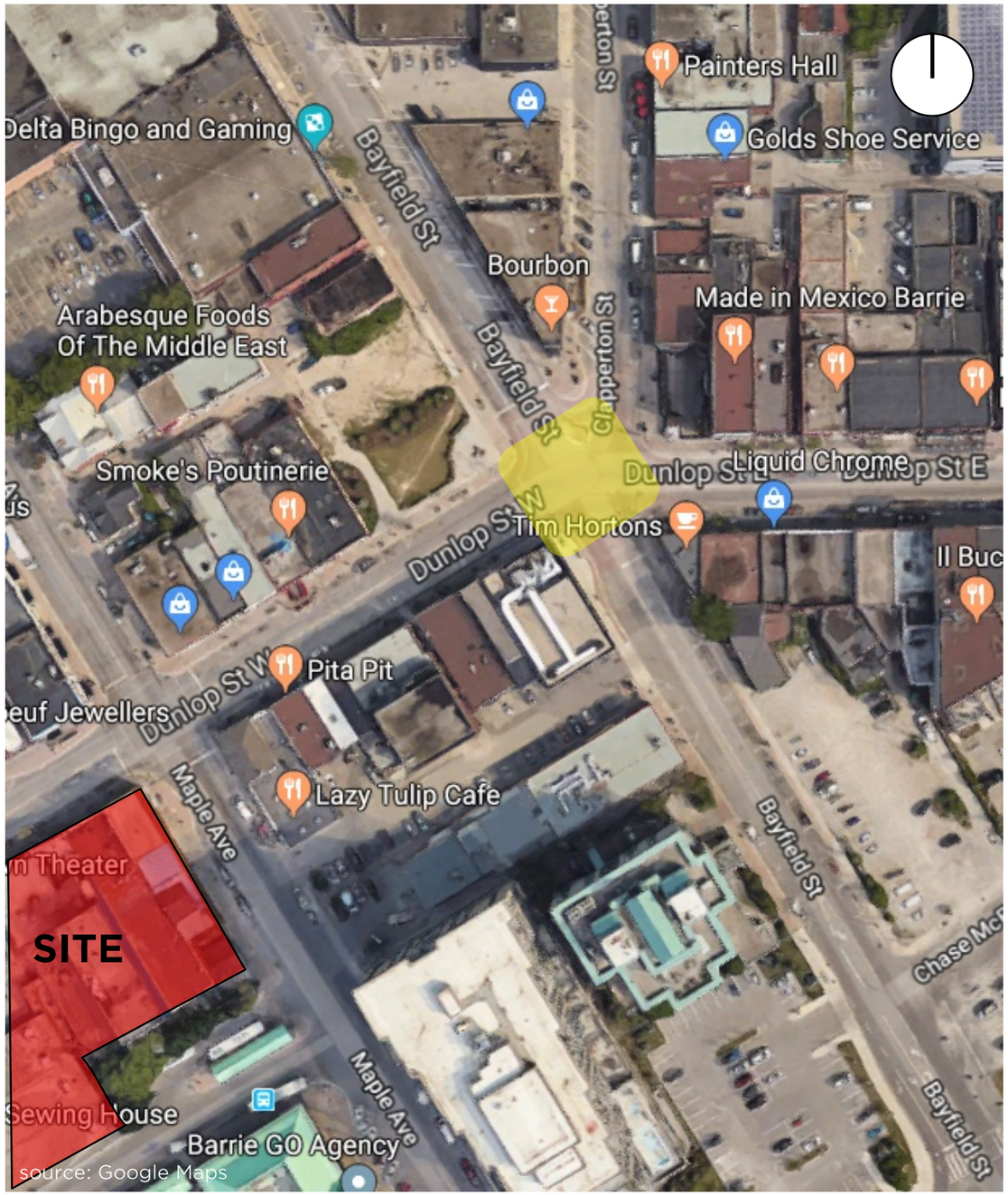
Figure 2B: Site Location

BARRIE WATERFRONT DEVELOPMENTS

Figure 2C: Site Location

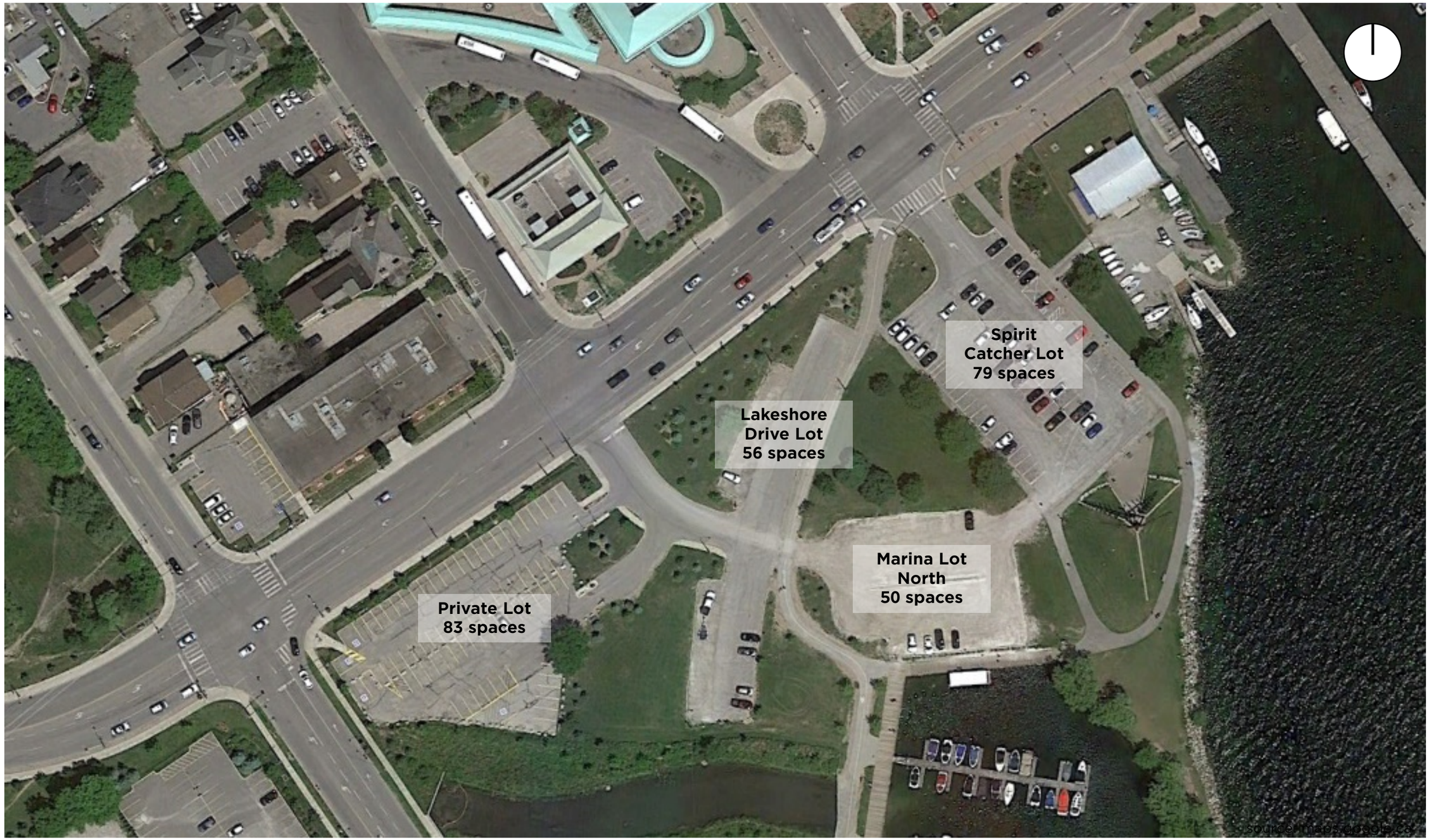
BARRIE WATERFRONT DEVELOPMENTS

Figure 2D: Site Location



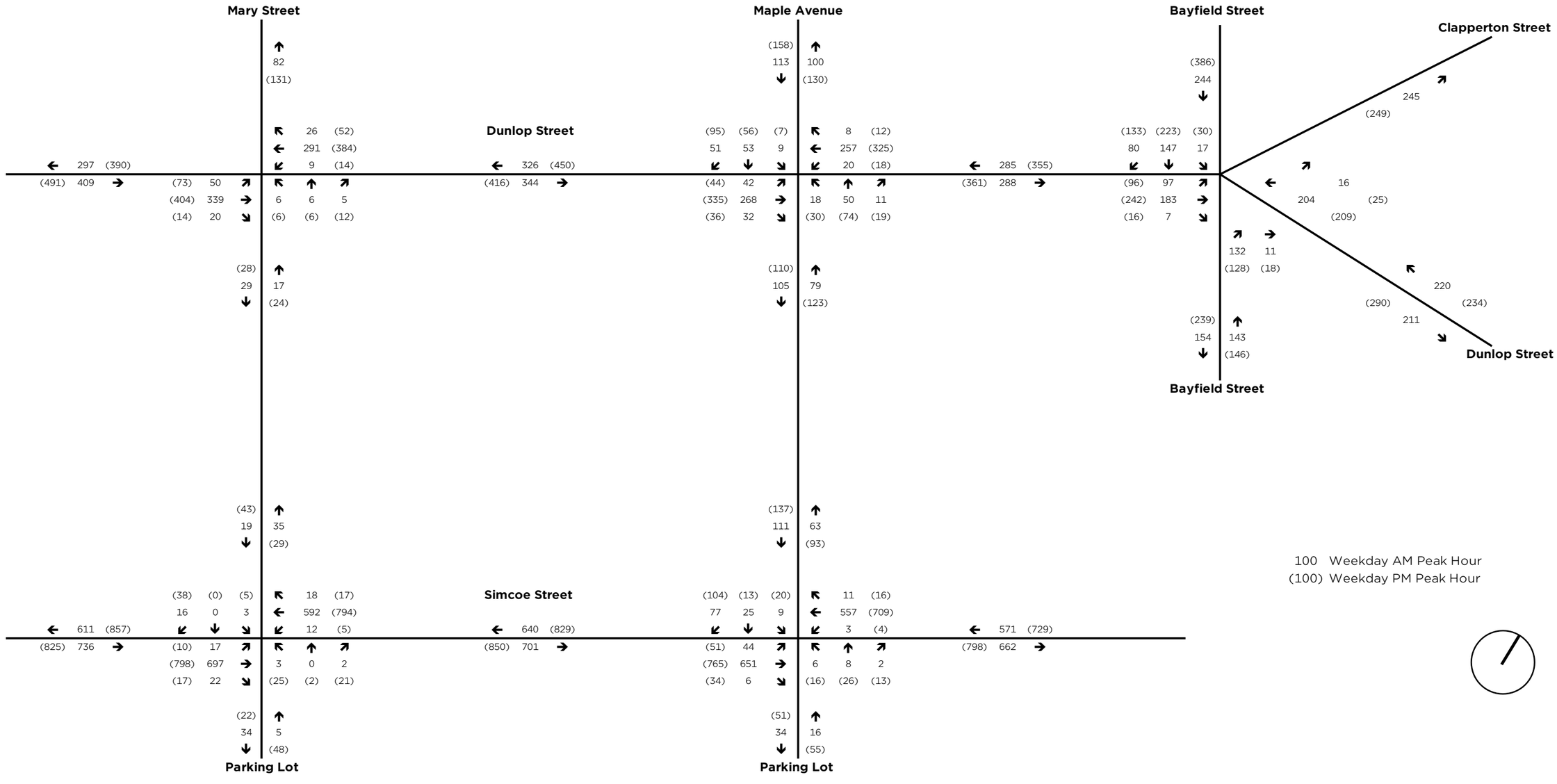
BARRIE WATERFRONT DEVELOPMENTS

Figure 2E: Site Location



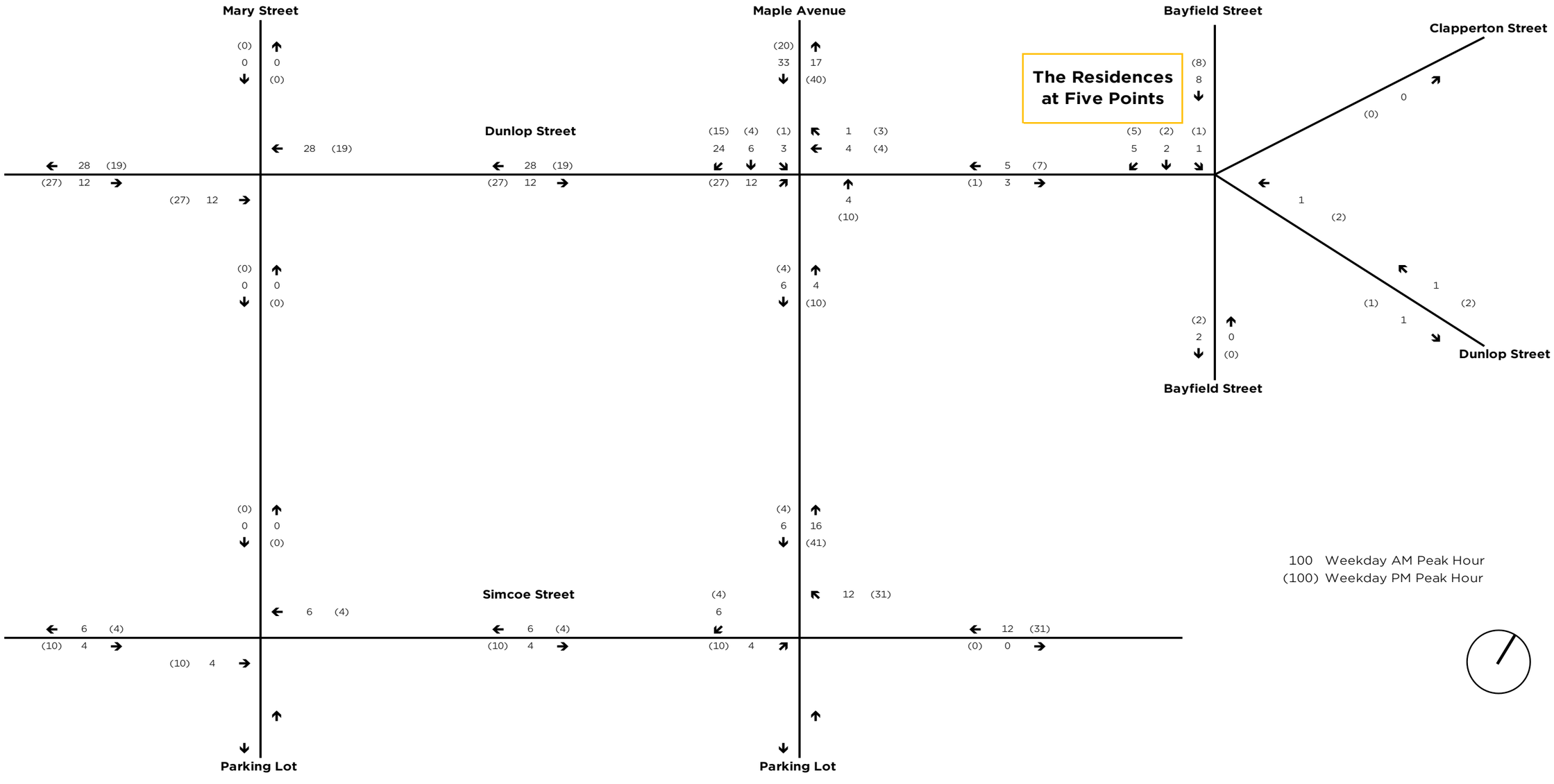
BARRIE WATERFRONT DEVELOPMENTS

Figure 3: Study Parking Lots



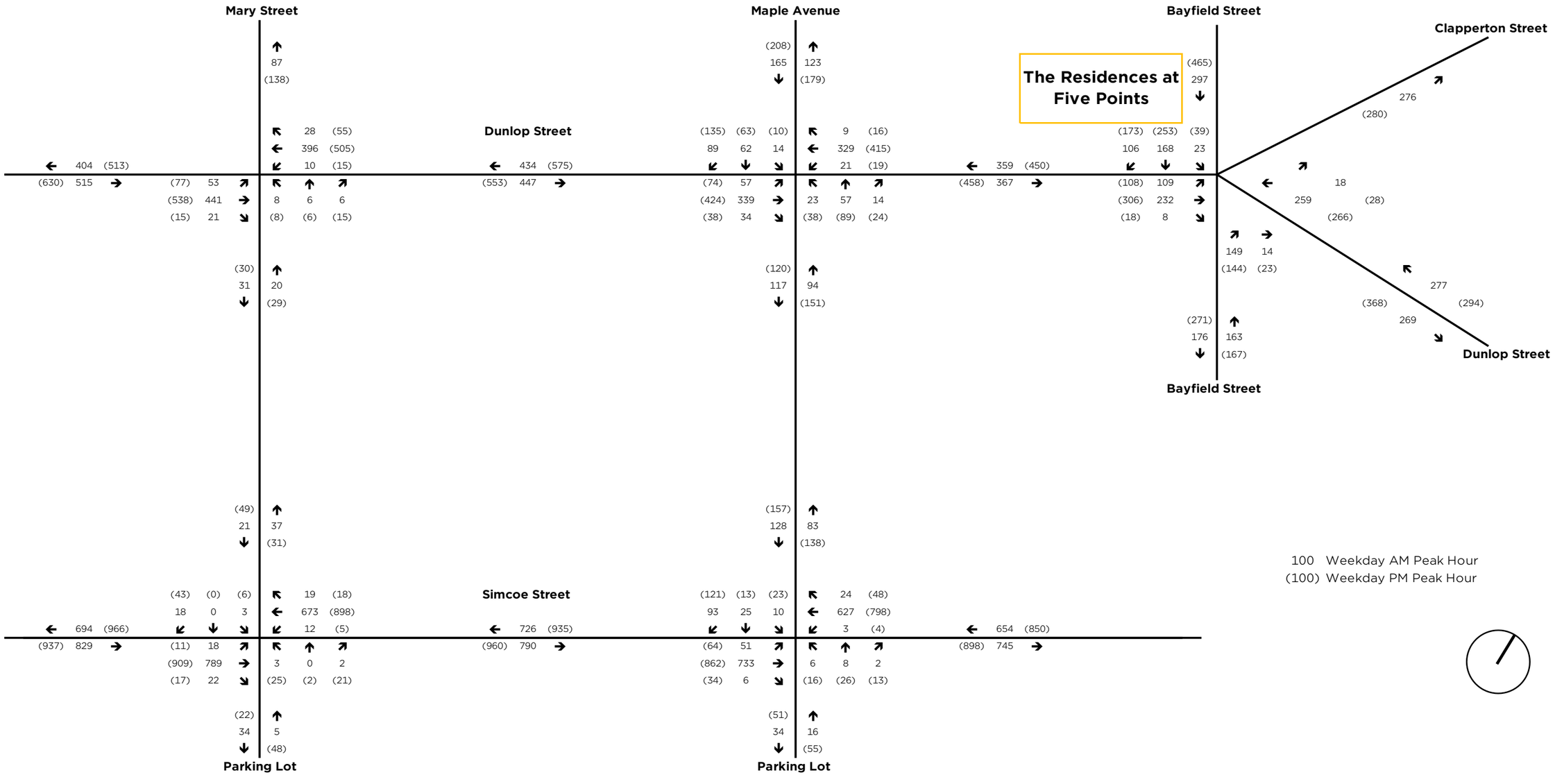
BARRIE WATERFRONT DEVELOPMENTS

Figure 4: 2019 Traffic Volumes



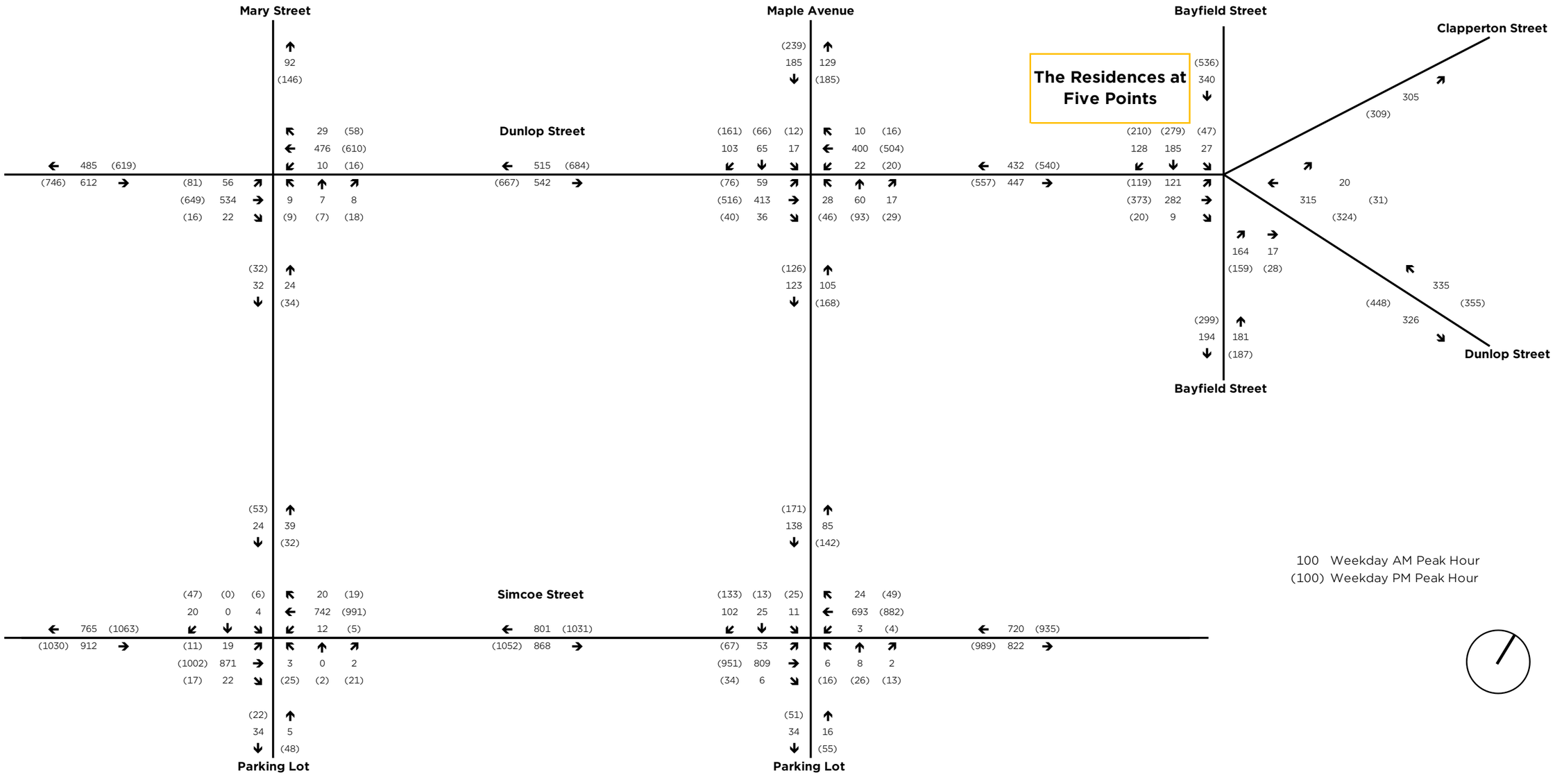
BARRIE WATERFRONT DEVELOPMENTS

Figure 5: Background Development Traffic Volumes



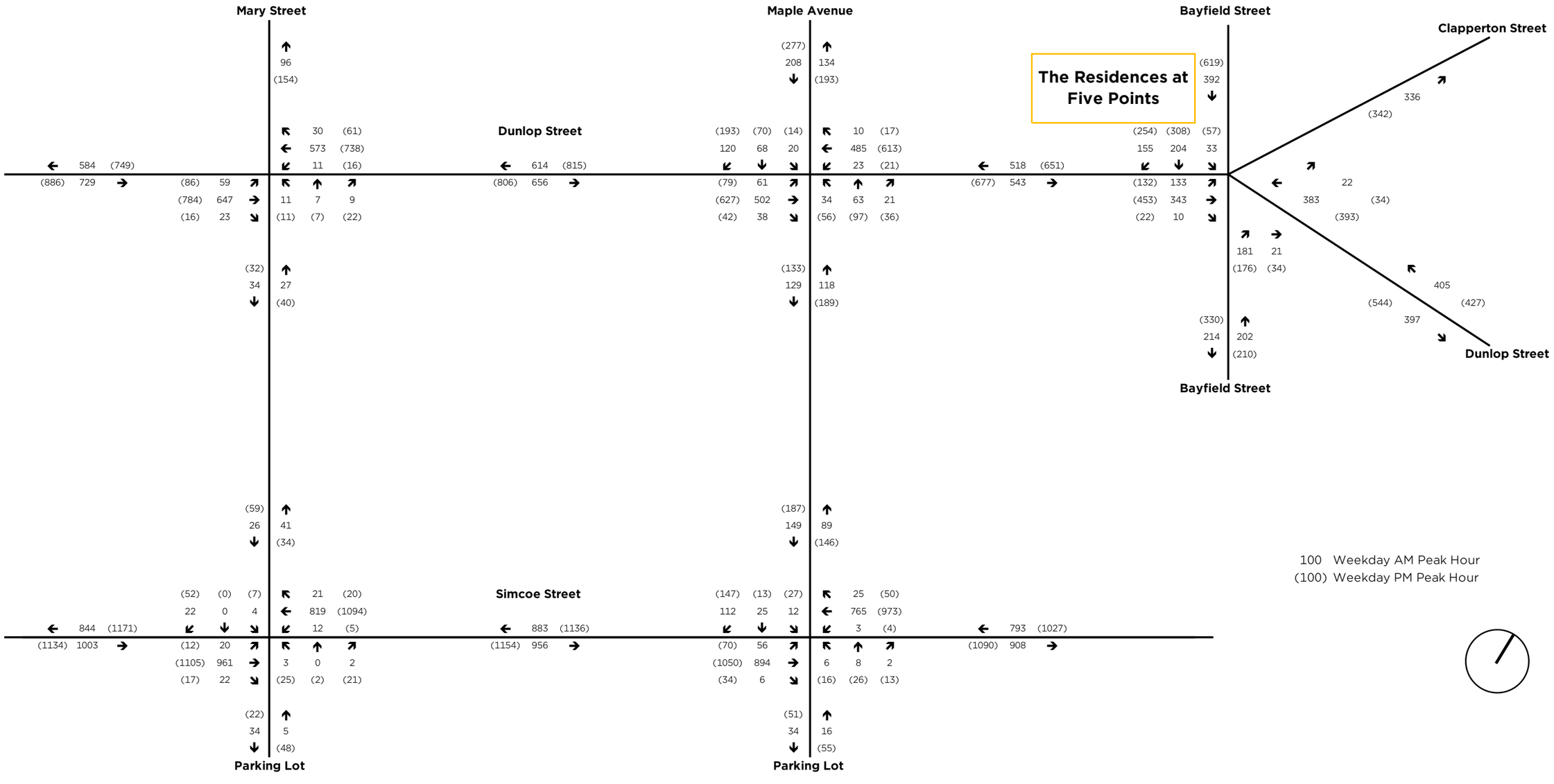
BARRIE WATERFRONT DEVELOPMENTS

Figure 6: 2025 Background Traffic Volumes



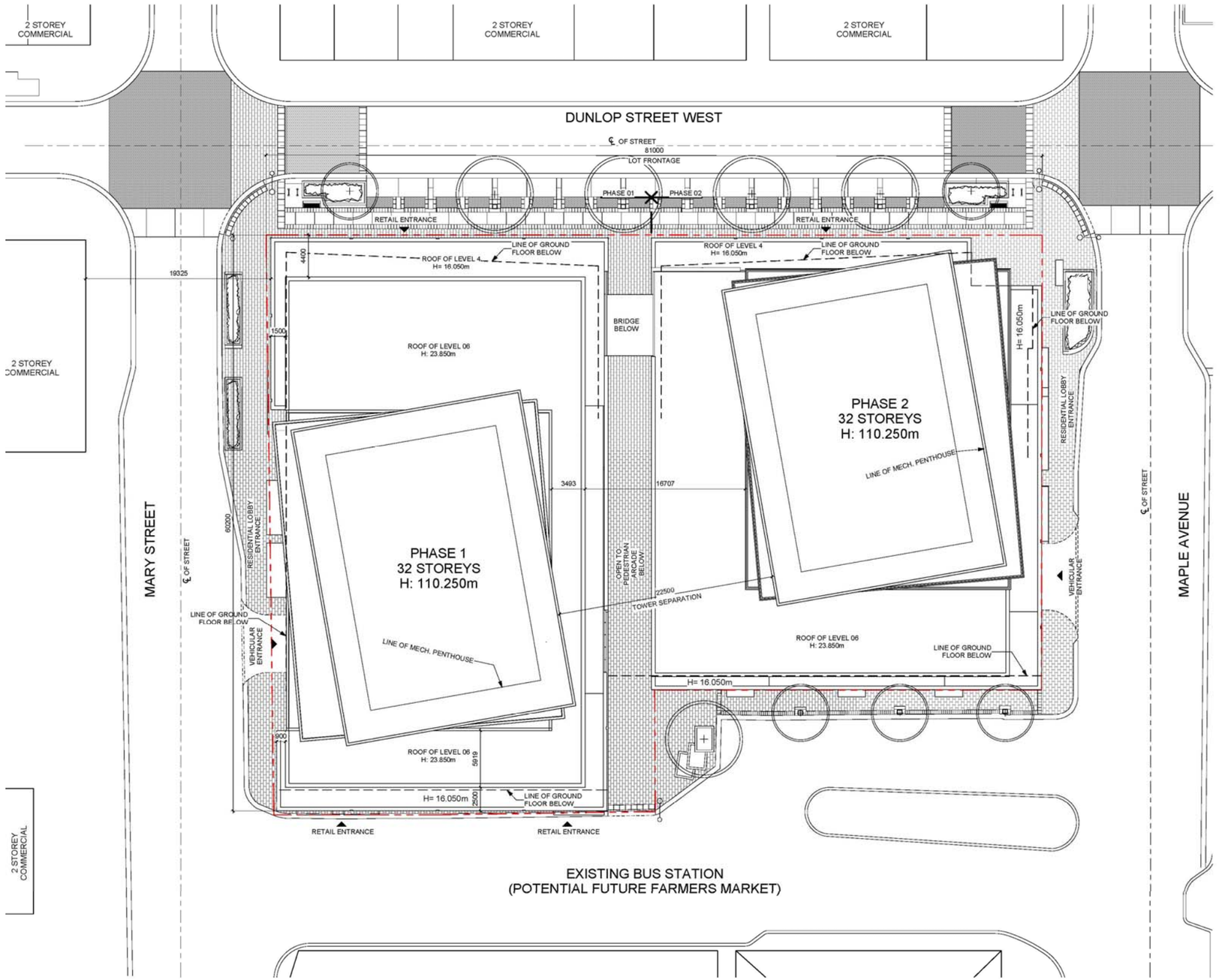
BARRIE WATERFRONT DEVELOPMENTS

Figure 7: 2030 Background Traffic Volumes



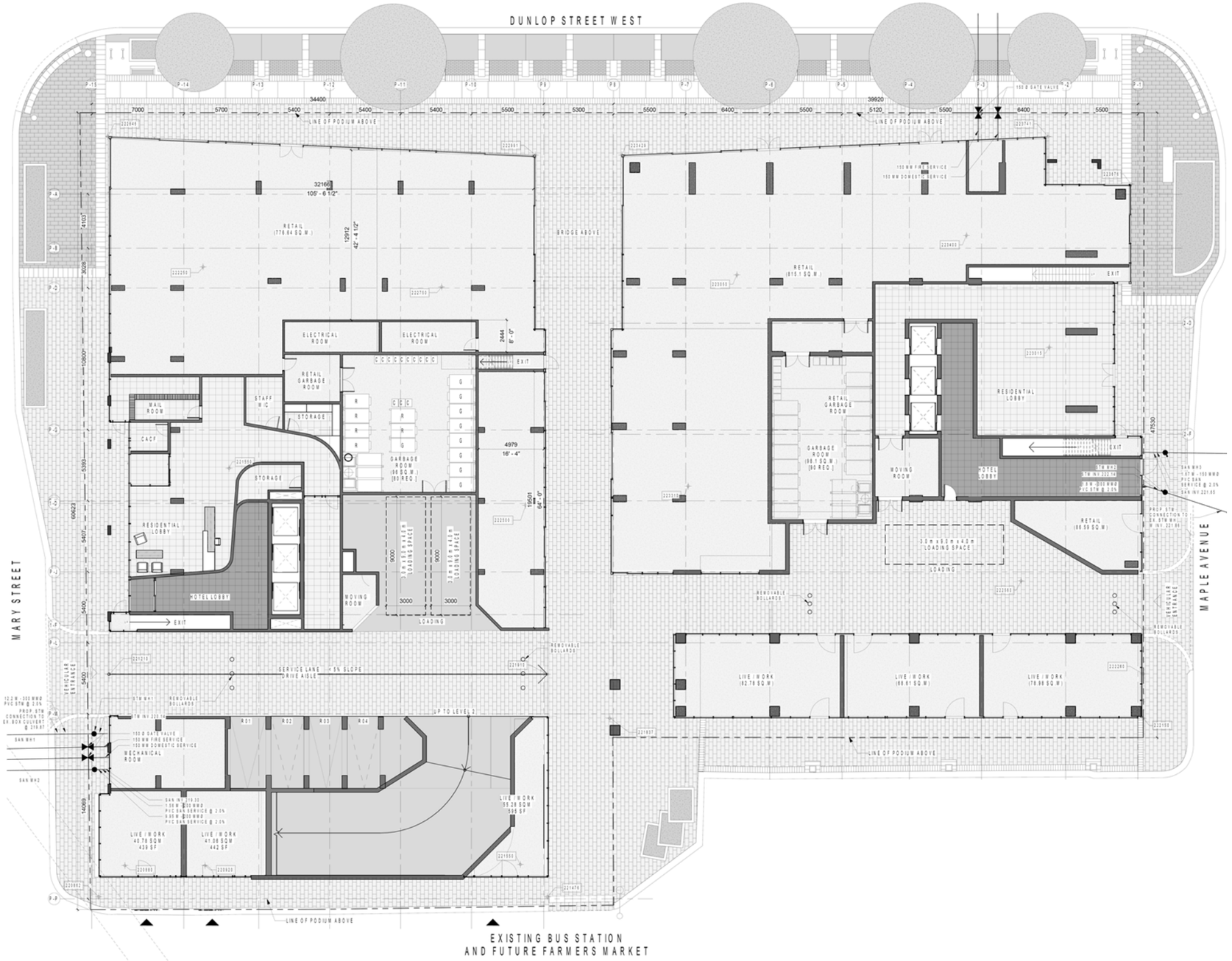
BARRIE WATERFRONT DEVELOPMENTS

Figure 8: 2035 Background Traffic Volumes



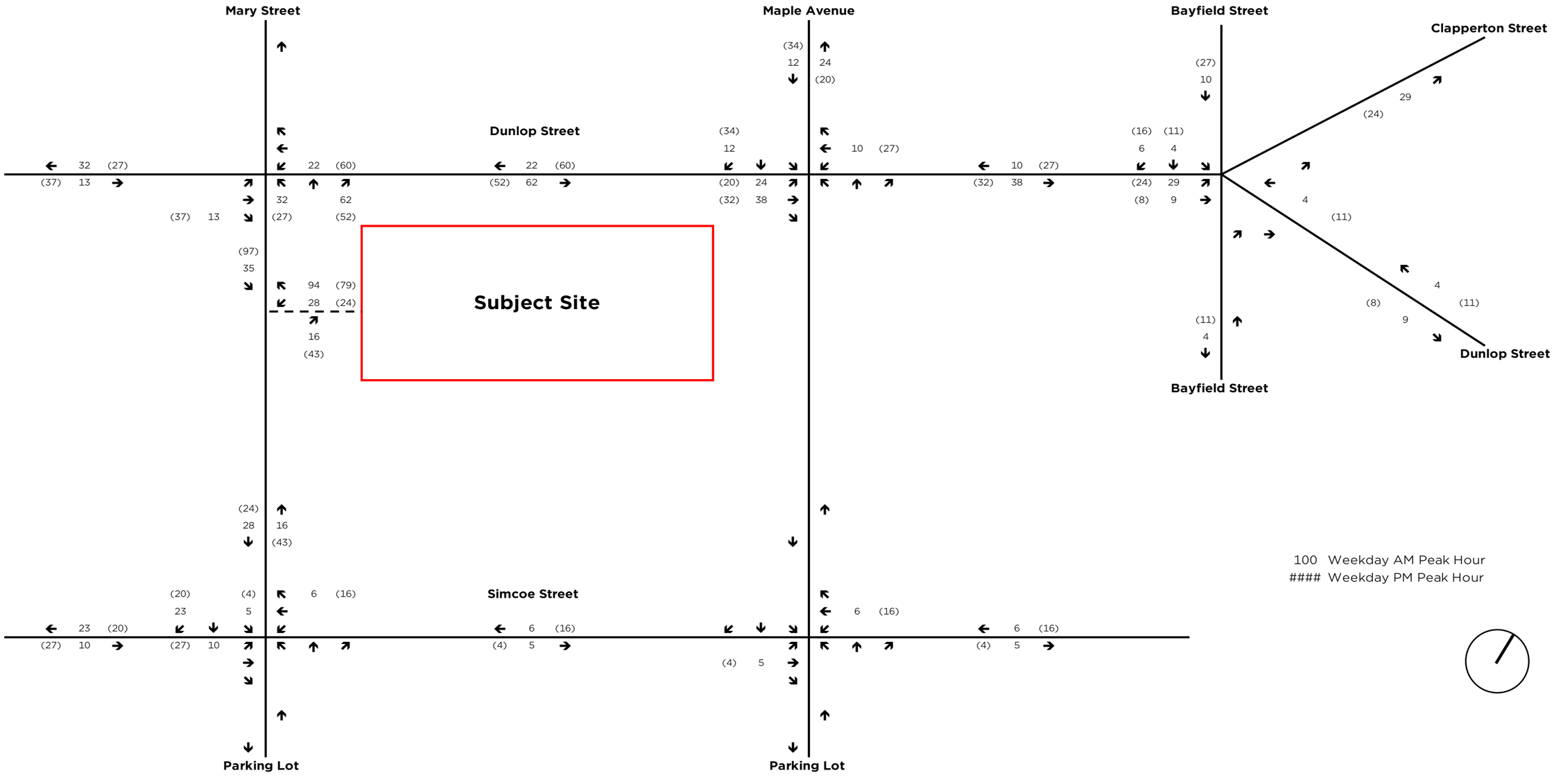
BARRIE WATERFRONT DEVELOPMENTS

Figure 9A: Site Plan



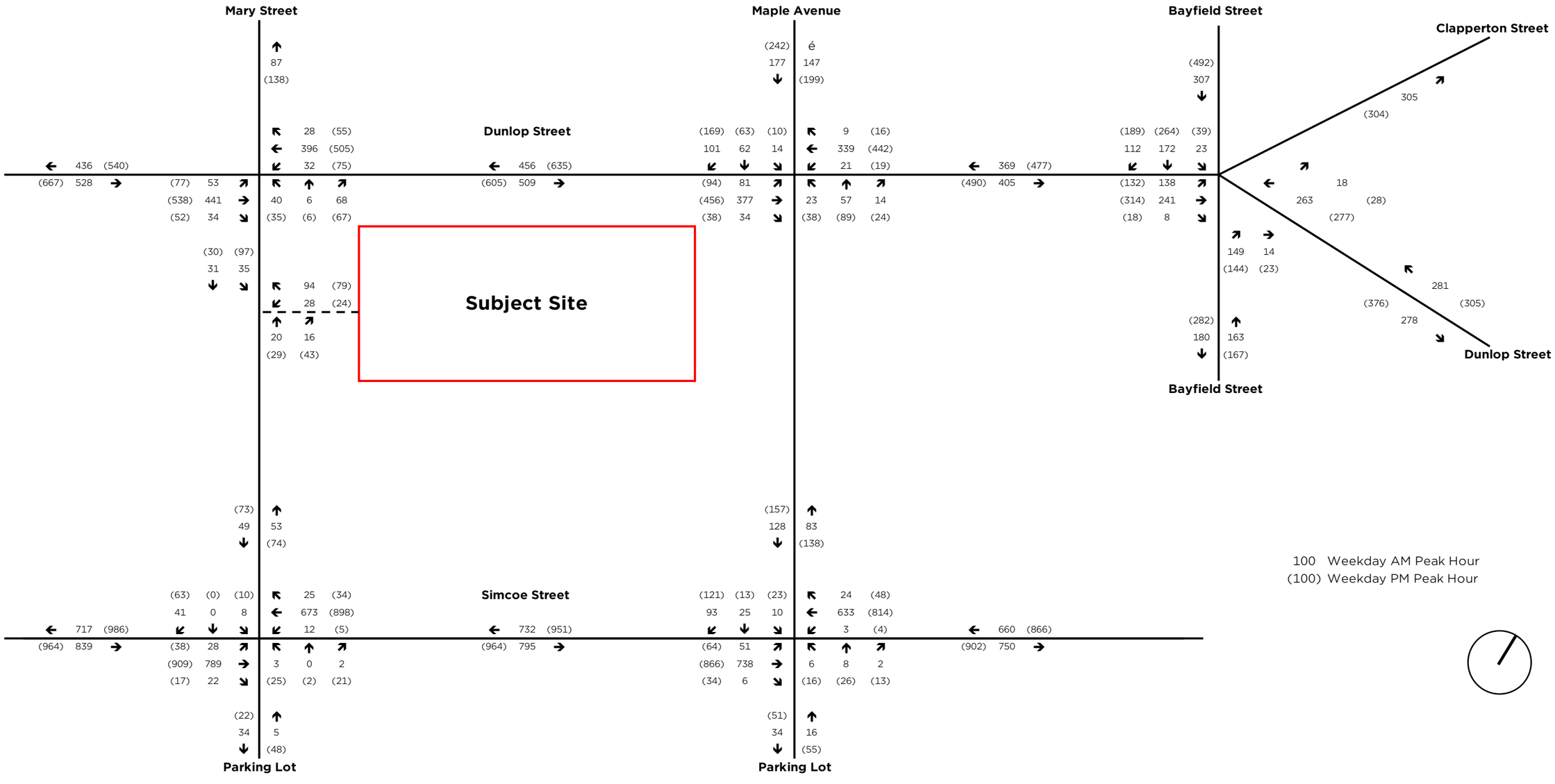
BARRIE WATERFRONT DEVELOPMENTS

Figure 9B: Site Plan – Ground Floor



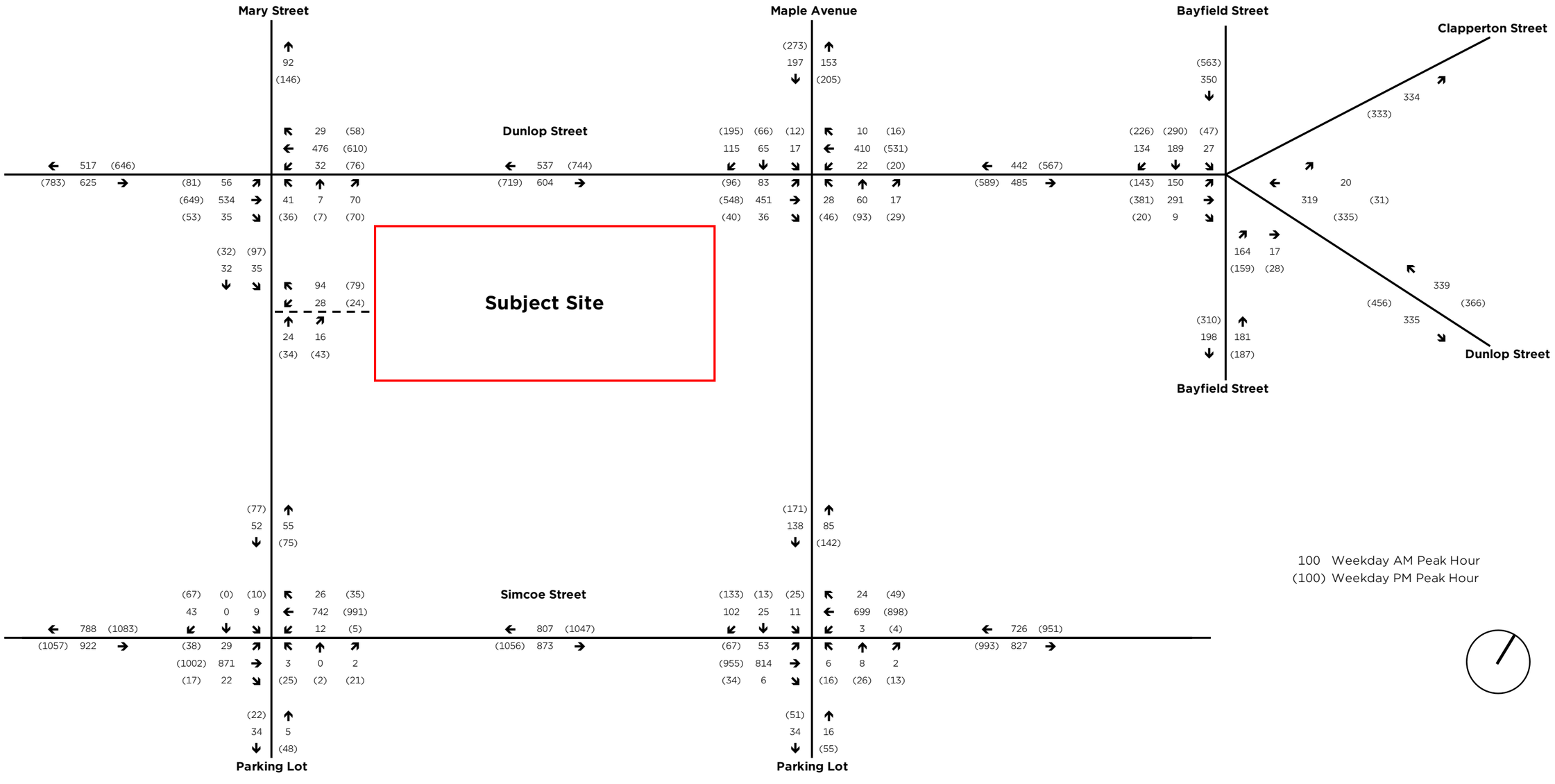
BARRIE WATERFRONT DEVELOPMENTS

Figure 10: Site Traffic



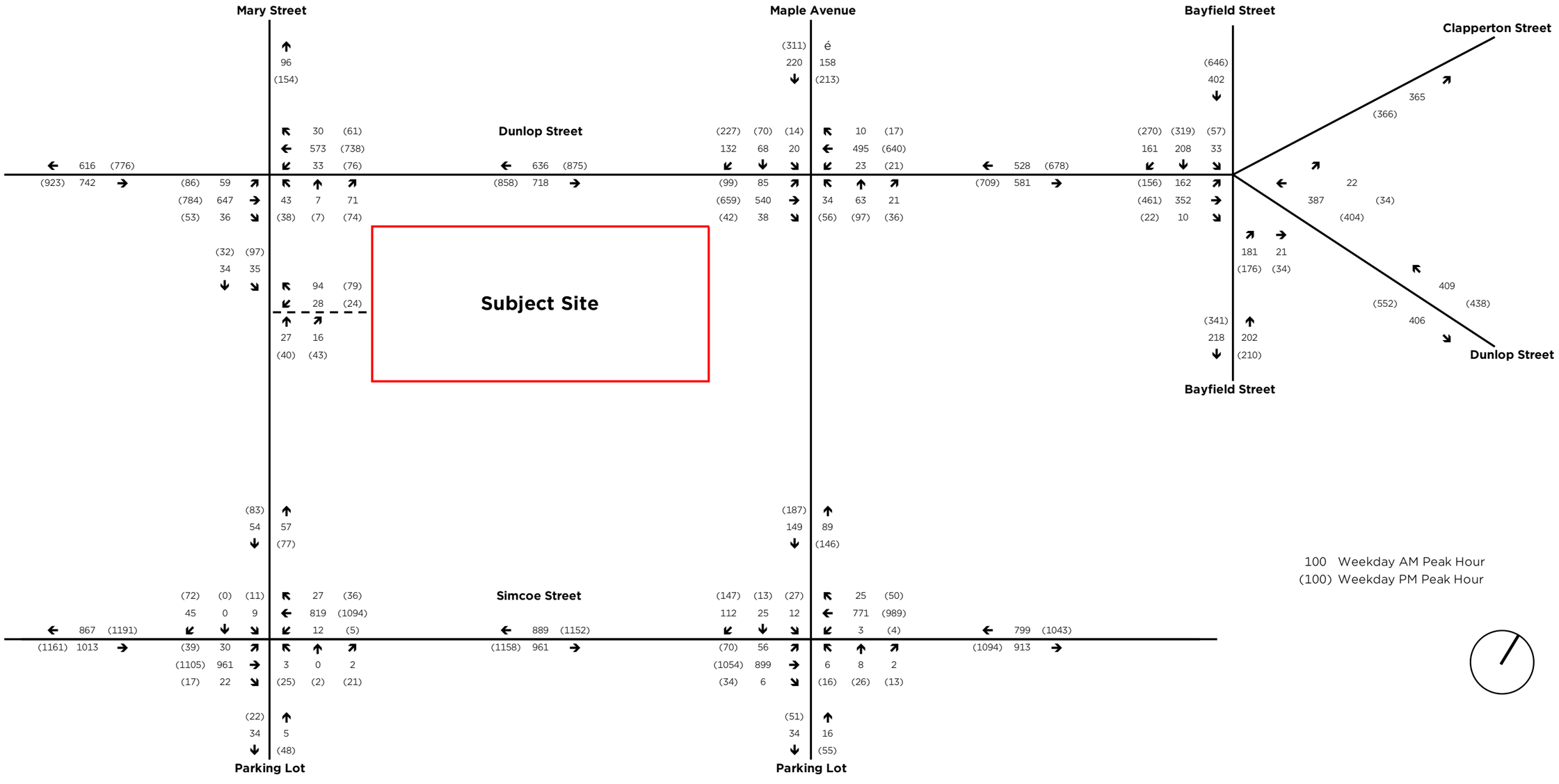
BARRIE WATERFRONT DEVELOPMENTS

Figure 11: 2025 Total Traffic



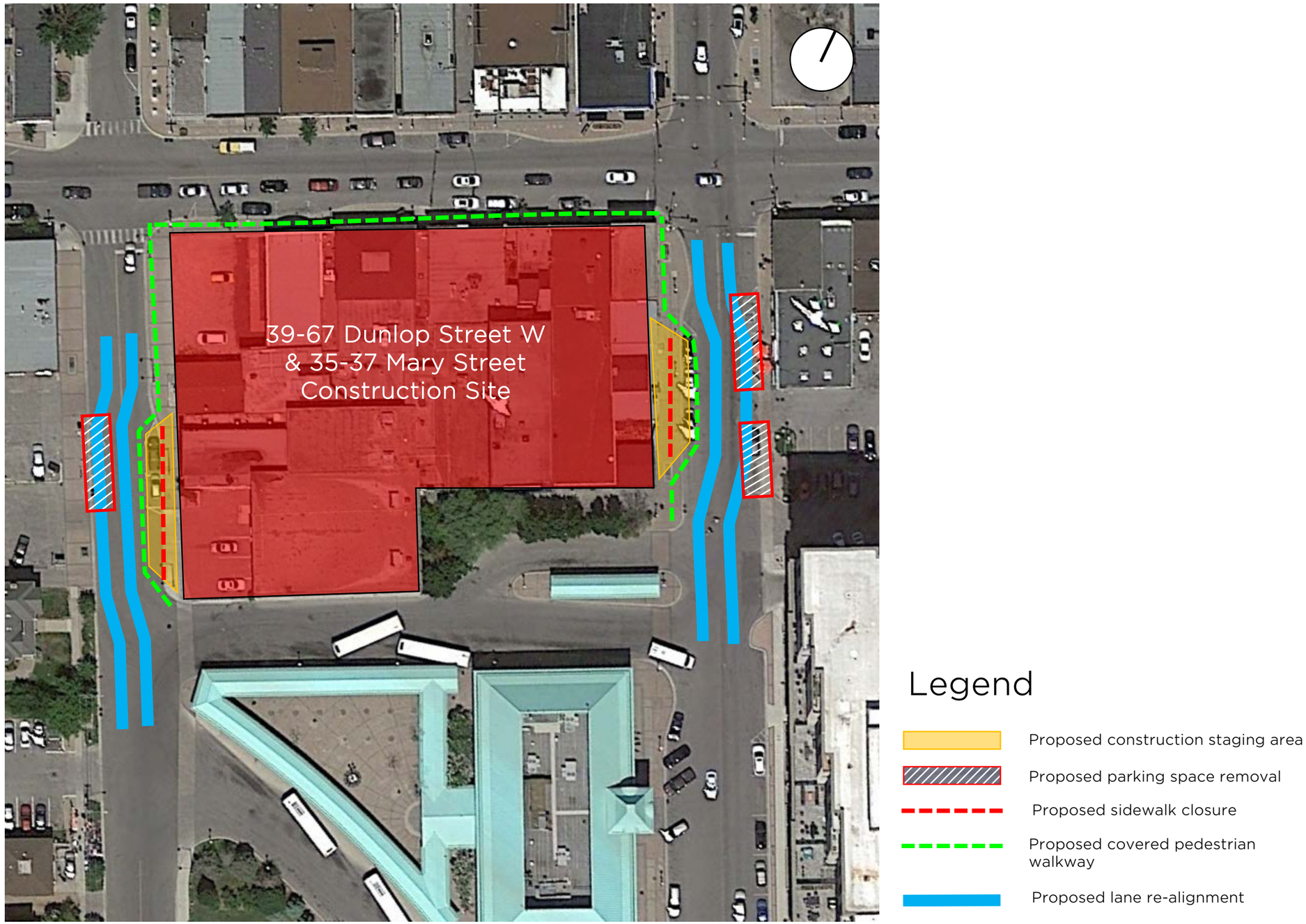
BARRIE WATERFRONT DEVELOPMENTS

Figure 12: 2030 Total Traffic



BARRIE WATERFRONT DEVELOPMENTS

Figure 13: 2035 Total Traffic



BARRIE WATERFRONT DEVELOPMENTS

Figure 14: Construction Staging Plan

Appendix A:
Traffic Counts

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 10:00:00

One Hour Peak
From: 8:30:00
To: 9:30:00

Municipality: Barrie
Site #: 1905000001
Intersection: Dunlop St W & Mary St
TFR File #: 1
Count date: 20-Feb-19

Weather conditions:

Person(s) who counted:

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

Major Road: Dunlop St W runs W/E

North Leg Total:	82
North Entering:	0
North Peds:	11
Peds Cross:	⋈

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

Heavys	0
Trucks	0
Cars	82
Totals	82

East Leg Total:	664
East Entering:	325
East Peds:	6
Peds Cross:	⧖

Mary St

Heavys	Trucks	Cars	Totals
0	9	287	296

Cars	Trucks	Heavys	Totals
26	0	0	26
281	9	0	290
9	0	0	9
316	9	0	

Dunlop St W

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Heavys	Trucks	Cars	Totals
0	0	50	50
0	16	318	334
0	1	19	20
0	17	387	

Dunlop St W

Cars	Trucks	Heavys	Totals
323	16	0	339

Mary St

Peds Cross:	⧖
West Peds:	5
West Entering:	404
West Leg Total:	700

Cars	28
Trucks	1
Heavys	0
Totals	29

Cars	6	6	5	17
Trucks	0	0	0	0
Heavys	0	0	0	0
Totals	6	6	5	

Peds Cross:	⋈
South Peds:	36
South Entering:	17
South Leg Total:	46

Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 16:00:00
To: 19:00:00

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

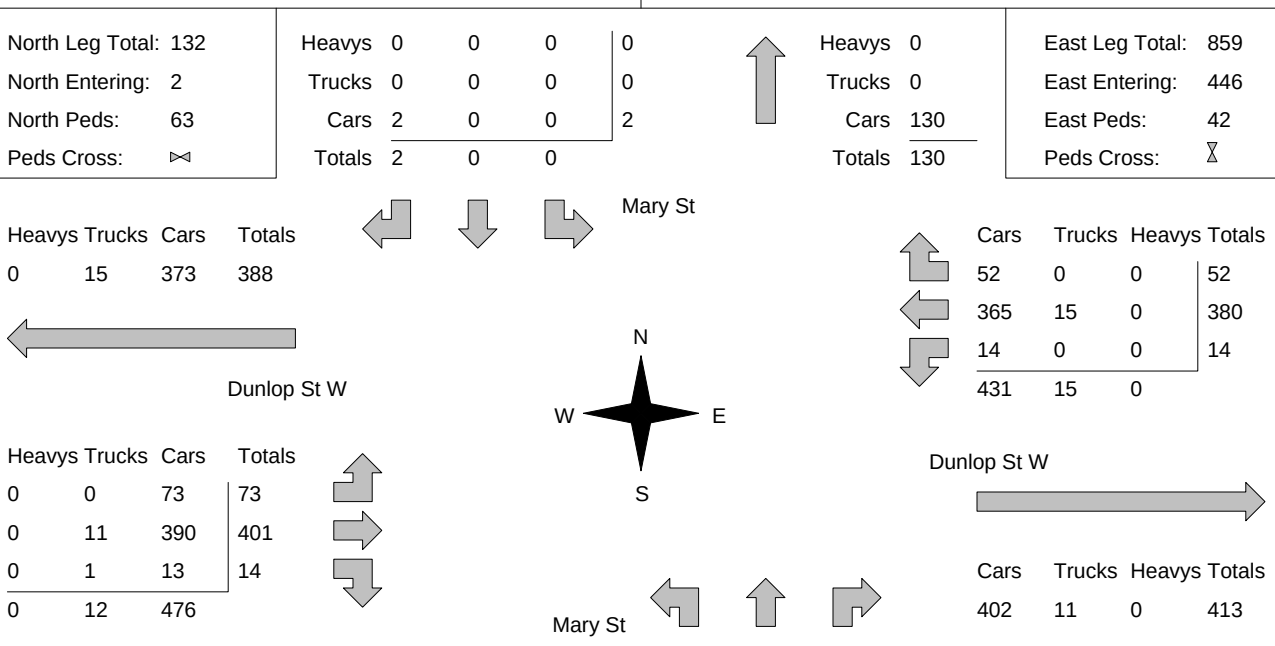
Municipality: Barrie
Site #: 1905000001
Intersection: Dunlop St W & Mary St
TFR File #: 1
Count date: 20-Feb-19

Weather conditions:

Person(s) who counted:

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

Major Road: Dunlop St W runs W/E



Comments

Ontario Traffic Inc.

Total Count Diagram

Municipality: Barrie
Site #: 1905000001
Intersection: Dunlop St W & Mary St
TFR File #: 1
Count date: 20-Feb-19

Weather conditions:

Person(s) who counted:

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

Major Road: Dunlop St W runs W/E

North Leg Total:	476
North Entering:	4
North Peds:	202
Peds Cross:	⋈

Heavys	0	0	0	0
Trucks	0	0	0	0
Cars	3	1	0	4
Totals	3	1	0	

Heavys	0
Trucks	0
Cars	472
Totals	472

East Leg Total:	3910
East Entering:	1945
East Peds:	94
Peds Cross:	⧖

Mary St

Heavys	Trucks	Cars	Totals
0	63	1681	1744

Cars	Trucks	Heavys	Totals
180	0	0	180
1648	63	0	1711
52	2	0	54
1880	65	0	

Dunlop St W

N
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Heavys	Trucks	Cars	Totals
0	0	261	261
0	75	1840	1915
0	5	64	69
0	80	2165	

Dunlop St W

Cars	Trucks	Heavys	Totals
1890	75	0	1965

Mary St

Peds Cross:	⧖
West Peds:	109
West Entering:	2245
West Leg Total:	3989

Cars	117
Trucks	7
Heavys	0
Totals	124

Cars	30	31	50	111
Trucks	0	0	0	0
Heavys	0	0	0	0
Totals	30	31	50	

Peds Cross:	⋈
South Peds:	290
South Entering:	111
South Leg Total:	235

Comments

Ontario Traffic Inc.
Traffic Count Summary

Intersection: Dunlop St W & Mary St | **Count Date:** 20-Feb-19 | **Municipality:** Barrie

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	0	0	0	0	4	12
9:00:00	0	0	0	0	13	12
10:00:00	0	1	1	2	29	18
16:00:00	0	0	0	0	0	0
17:00:00	0	0	2	2	63	25
18:00:00	0	0	0	0	55	20
19:00:00	0	0	0	0	38	28
Totals:	0	1	3	4	202	115

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	2	7	3	12	15
9:00:00	5	5	2	12	18
10:00:00	5	5	6	16	43
16:00:00	0	0	0	0	0
17:00:00	6	5	12	23	88
18:00:00	5	5	10	20	68
19:00:00	7	4	17	28	58
Totals:	30	31	50	111	290

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	2	247	9	258	1	479
9:00:00	7	282	21	310	6	678
10:00:00	10	277	30	317	5	715
16:00:00	0	0	0	0	0	0
17:00:00	14	380	52	446	42	934
18:00:00	10	285	46	341	30	768
19:00:00	11	240	22	273	10	616
Totals:	54	1711	180	1945	94	4190

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	10	204	7	221	9
9:00:00	44	313	11	368	4
10:00:00	39	340	19	398	15
16:00:00	0	0	0	0	0
17:00:00	73	401	14	488	40
18:00:00	58	361	8	427	25
19:00:00	37	296	10	343	16
Totals:	261	1915	69	2245	109

Calculated Values for Traffic Crossing Major Street

Hours Ending:	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00
Crossing Values:	0	19	20	30	0	93	65	37

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 10:00:00

One Hour Peak
From: 8:30:00
To: 9:30:00

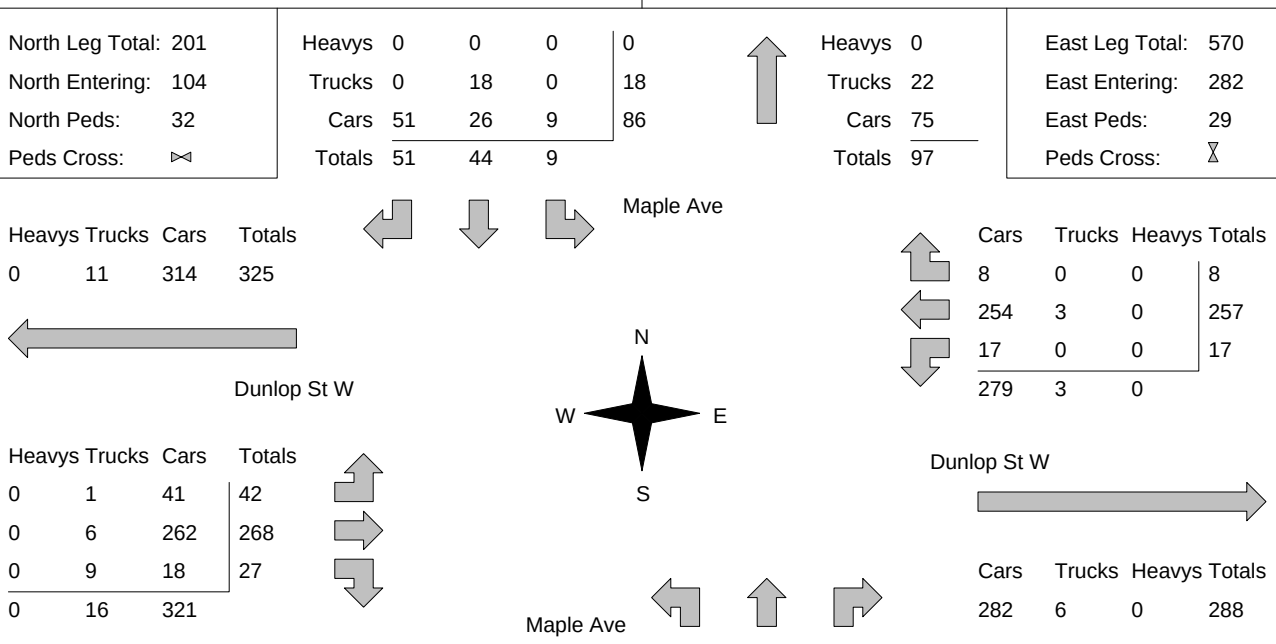
Municipality: Barrie
Site #: 1905000002
Intersection: Dunlop St W & Maple Ave
TFR File #: 1
Count date: 20-Feb-19

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Dunlop St W runs W/E



Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 16:00:00
To: 19:00:00

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

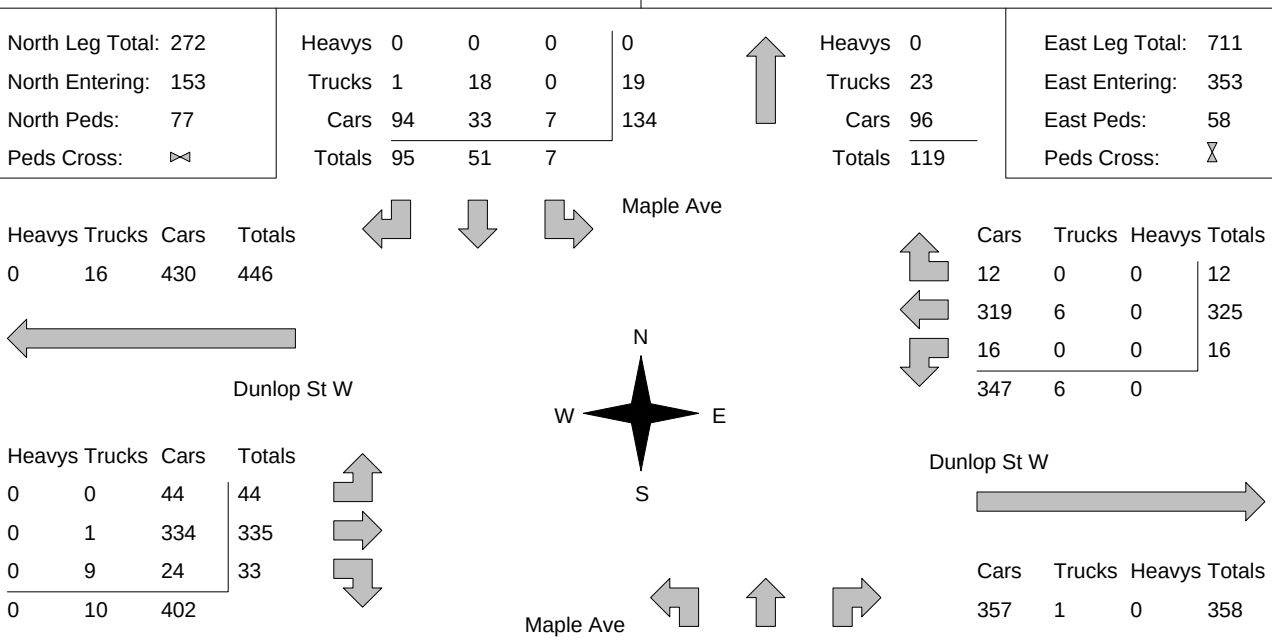
Municipality: Barrie
Site #: 1905000002
Intersection: Dunlop St W & Maple Ave
TFR File #: 1
Count date: 20-Feb-19

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Dunlop St W runs W/E



Comments

Ontario Traffic Inc.

Total Count Diagram

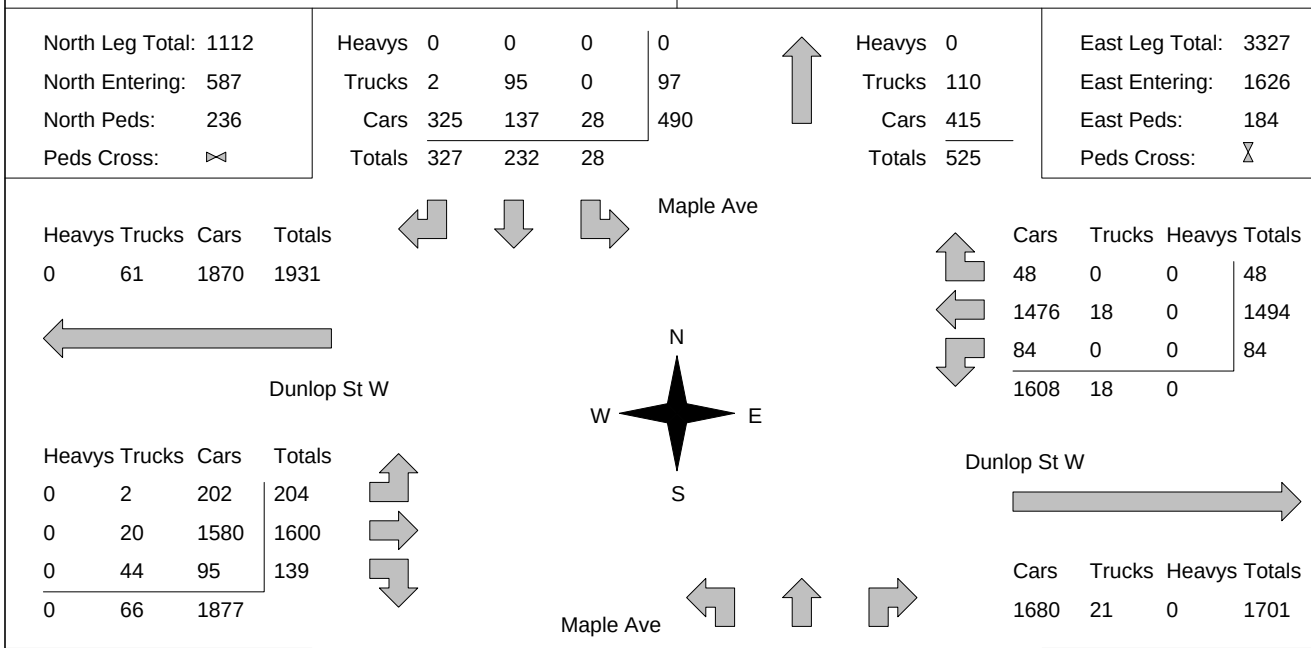
Municipality: Barrie
Site #: 1905000002
Intersection: Dunlop St W & Maple Ave
TFR File #: 1
Count date: 20-Feb-19

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Dunlop St W runs W/E



Comments

Ontario Traffic Inc.
Traffic Count Summary

Intersection: Dunlop St W & Maple Ave | **Count Date:** 20-Feb-19 | **Municipality:** Barrie

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	3	27	33	63	7	134
9:00:00	7	34	42	83	14	152
10:00:00	6	41	50	97	49	174
16:00:00	0	0	0	0	0	0
17:00:00	7	51	95	153	77	258
18:00:00	3	50	72	125	62	210
19:00:00	2	29	35	66	27	115
Totals:	28	232	327	587	236	1043

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	17	39	15	71	18
9:00:00	14	45	10	69	26
10:00:00	18	45	14	77	55
16:00:00	0	0	0	0	0
17:00:00	26	63	16	105	92
18:00:00	23	50	12	85	66
19:00:00	12	31	6	49	26
Totals:	110	273	73	456	283

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	6	205	2	213	4	420
9:00:00	15	253	5	273	21	587
10:00:00	16	250	13	279	31	620
16:00:00	0	0	0	0	0	0
17:00:00	16	325	12	353	58	765
18:00:00	17	242	12	271	46	641
19:00:00	14	219	4	237	24	536
Totals:	84	1494	48	1626	184	3569

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	25	163	19	207	6
9:00:00	26	259	29	314	9
10:00:00	39	279	23	341	20
16:00:00	0	0	0	0	0
17:00:00	44	335	33	412	50
18:00:00	44	303	23	370	23
19:00:00	26	261	12	299	14
Totals:	204	1600	139	1943	122

Calculated Values for Traffic Crossing Major Street

Hours Ending:	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00
Crossing Values:	0	69	96	120	0	204	145	83

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 10:00:00

One Hour Peak
From: 7:45:00
To: 8:45:00

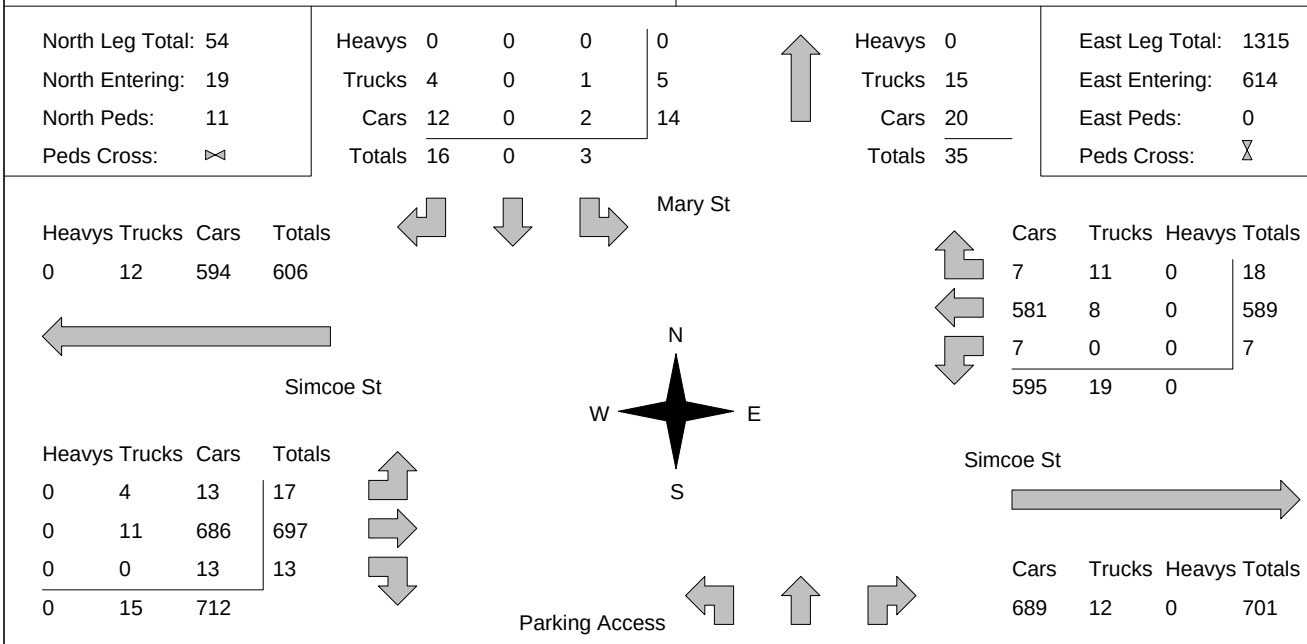
Municipality: Barrie
Site #: 1905000003
Intersection: Simcoe St & Mary St-Parking Acce
TFR File #: 1
Count date: 20-Feb-19

Weather conditions:

Person(s) who counted:

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

Major Road: Simcoe St runs W/E



Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 16:00:00
To: 19:00:00

One Hour Peak
From: 16:30:00
To: 17:30:00

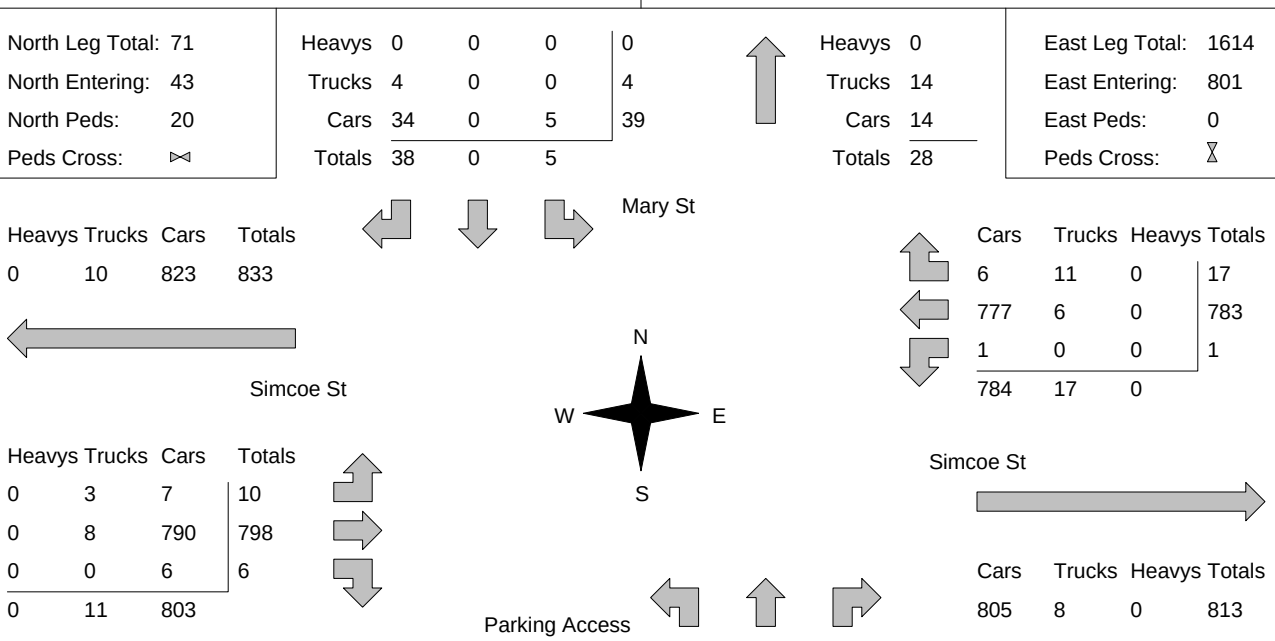
Municipality: Barrie
Site #: 1905000003
Intersection: Simcoe St & Mary St-Parking Acce
TFR File #: 1
Count date: 20-Feb-19

Weather conditions:

Person(s) who counted:

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

Major Road: Simcoe St runs W/E



Comments

Ontario Traffic Inc.

Total Count Diagram

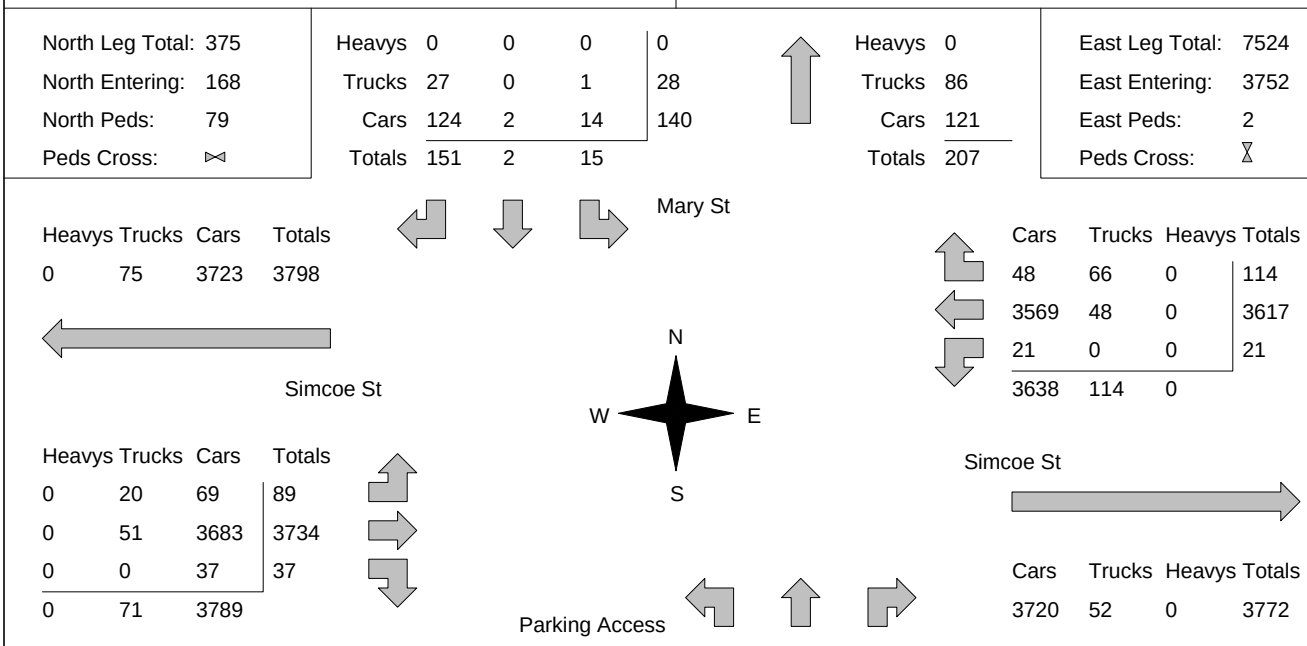
Municipality: Barrie
Site #: 1905000003
Intersection: Simcoe St & Mary St-Parking Acce
TFR File #: 1
Count date: 20-Feb-19

Weather conditions:

Person(s) who counted:

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

Major Road: Simcoe St runs W/E



Comments

Ontario Traffic Inc.
Traffic Count Summary

Intersection: Simcoe St & Mary St-Parking Acce | **Count Date:** 20-Feb-19 | **Municipality:** Barrie

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	1	0	13	14	7	15
9:00:00	3	0	20	23	10	27
10:00:00	1	2	23	26	13	31
16:00:00	0	0	0	0	0	0
17:00:00	6	0	42	48	12	69
18:00:00	1	0	27	28	22	49
19:00:00	3	0	26	29	15	34
Totals:	15	2	151	168	79	225

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	0	1	1	1
9:00:00	1	0	3	4	1
10:00:00	3	0	2	5	1
16:00:00	0	0	0	0	0
17:00:00	11	2	8	21	7
18:00:00	12	2	7	21	1
19:00:00	3	0	2	5	1
Totals:	30	4	23	57	12

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	1	537	15	553	0	1076
9:00:00	9	571	19	599	0	1323
10:00:00	8	523	23	554	0	1113
16:00:00	0	0	0	0	0	0
17:00:00	0	734	18	752	0	1515
18:00:00	3	725	20	748	1	1467
19:00:00	0	527	19	546	1	1118
Totals:	21	3617	114	3752	2	7612

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	17	505	1	523	0
9:00:00	15	692	17	724	15
10:00:00	17	531	11	559	16
16:00:00	0	0	0	0	0
17:00:00	20	737	6	763	12
18:00:00	7	710	2	719	1
19:00:00	13	559	0	572	1
Totals:	89	3734	37	3860	45

Calculated Values for Traffic Crossing Major Street

Hours Ending:	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00
Crossing Values:	0	1	19	22	0	31	17	8

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 10:00:00

One Hour Peak
From: 7:45:00
To: 8:45:00

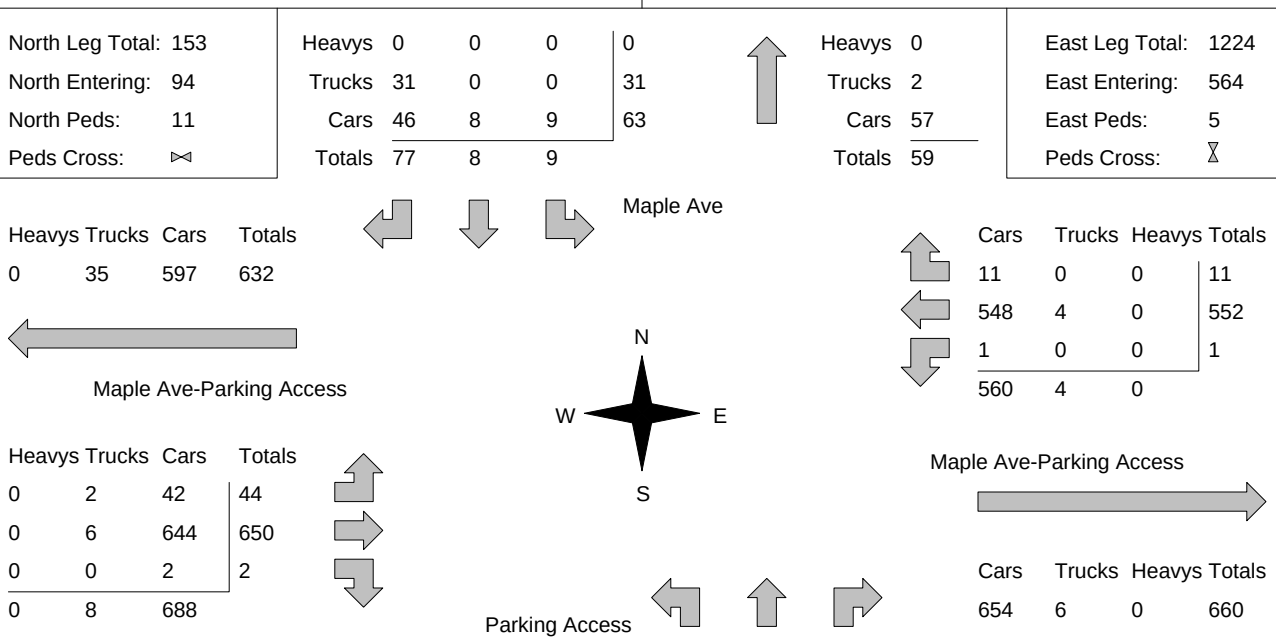
Municipality: Barrie
Site #: 1905000004
Intersection: Simcoe St & Maple Ave-Parking Ac
TFR File #: 1
Count date: 20-Feb-19

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Simcoe St runs N/S



Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 16:00:00
To: 19:00:00

One Hour Peak
From: 16:30:00
To: 17:30:00

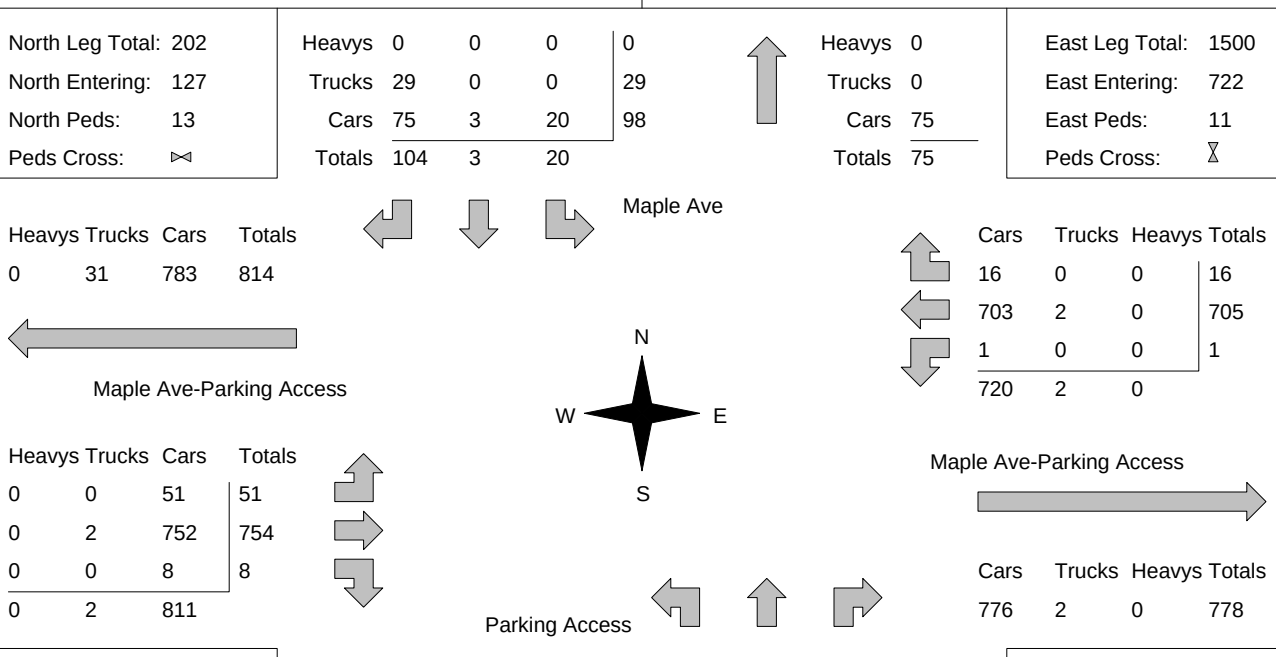
Municipality: Barrie
Site #: 1905000004
Intersection: Simcoe St & Maple Ave-Parking Ac
TFR File #: 1
Count date: 20-Feb-19

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Simcoe St runs N/S



Comments

Ontario Traffic Inc.

Total Count Diagram

Municipality: Barrie
Site #: 1905000004
Intersection: Simcoe St & Maple Ave-Parking Ac
TFR File #: 1
Count date: 20-Feb-19

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Simcoe St runs N/S

North Leg Total: 1010
North Entering: 640
North Peds: 63
Peds Cross: ⋈

Heavys	0	0	0	0
Trucks	188	0	0	188
Cars	352	21	79	452
Totals	540	21	79	

Heavys	0
Trucks	5
Cars	365
Totals	370

East Leg Total: 6943
East Entering: 3387
East Peds: 44
Peds Cross: ⧖

Maple Ave

Heavys	Trucks	Cars	Totals
0	211	3649	3860

Cars	Trucks	Heavys	Totals
78	1	0	79
3277	23	0	3300
8	0	0	8
3363	24	0	

Maple Ave-Parking Access

N
W E
S

Heavys	Trucks	Cars	Totals
0	4	257	261
0	18	3449	3467
0	0	37	37
0	22	3743	

Maple Ave-Parking Access

Cars	Trucks	Heavys	Totals
3538	18	0	3556

Parking Access

Peds Cross: ⧖
West Peds: 81
West Entering: 3765
West Leg Total: 7625

Cars	66
Trucks	0
Heavys	0
Totals	66

Cars	20	30	10	60
Trucks	0	0	0	0
Heavys	0	0	0	0
Totals	20	30	10	

Peds Cross: ⋈
South Peds: 192
South Entering: 60
South Leg Total: 126

Comments

Ontario Traffic Inc.
Traffic Count Summary

Intersection: Simcoe St & Maple Ave-Parking A | **Count Date:** 20-Feb-19 | **Municipality:** Barrie

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	1	3	59	63	5	65
9:00:00	10	8	88	106	14	115
10:00:00	15	2	88	105	15	110
16:00:00	0	0	0	0	0	0
17:00:00	13	5	124	142	10	156
18:00:00	23	2	100	125	13	144
19:00:00	17	1	81	99	6	110
Totals:	79	21	540	640	63	700

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	2	0	2	17
9:00:00	3	5	1	9	29
10:00:00	2	2	1	5	31
16:00:00	0	0	0	0	0
17:00:00	7	5	2	14	40
18:00:00	5	10	4	19	48
19:00:00	3	6	2	11	27
Totals:	20	30	10	60	192

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	0	514	3	517	2	1026
9:00:00	1	528	13	542	6	1237
10:00:00	1	479	11	491	1	1015
16:00:00	0	0	0	0	0	0
17:00:00	3	644	17	664	11	1415
18:00:00	2	656	20	678	19	1400
19:00:00	1	479	15	495	5	1059
Totals:	8	3300	79	3387	44	7152

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	20	483	6	509	6
9:00:00	45	648	2	695	8
10:00:00	37	480	7	524	10
16:00:00	0	0	0	0	0
17:00:00	56	686	9	751	17
18:00:00	48	667	7	722	21
19:00:00	55	503	6	564	19
Totals:	261	3467	37	3765	81

Calculated Values for Traffic Crossing Major Street

Hours Ending:	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00
Crossing Values:	0	556	737	564	0	795	778	592

Ontario Traffic Inc.

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 10:00:00

One Hour Peak
From: 8:30:00
To: 9:30:00

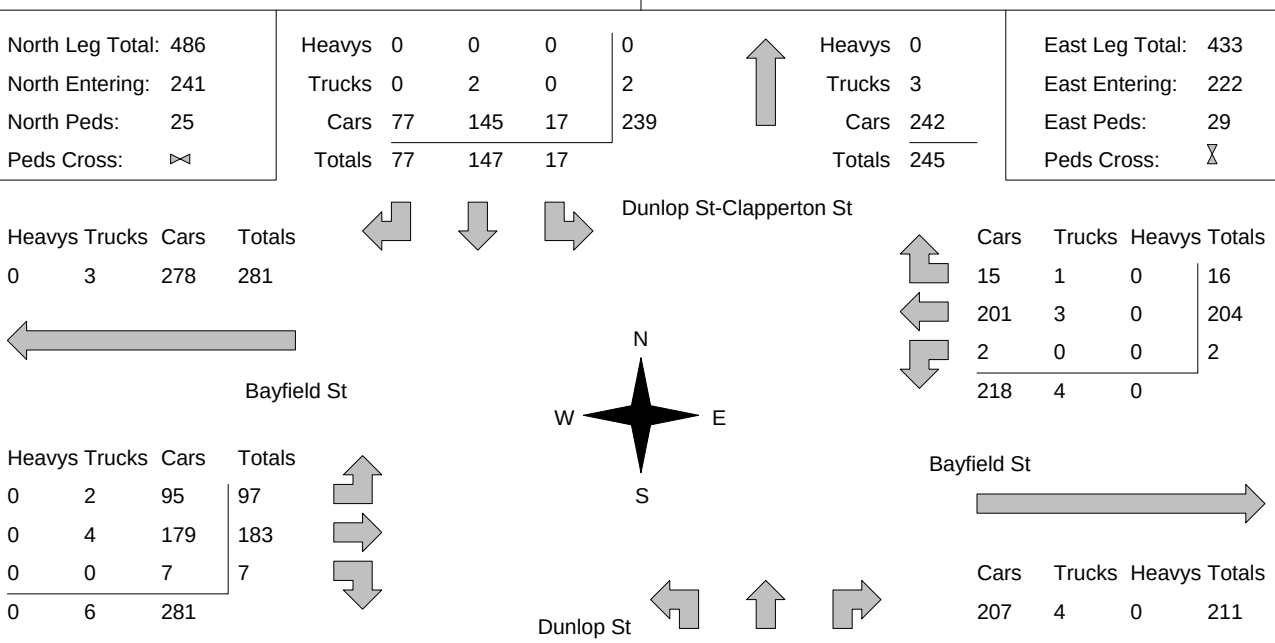
Municipality: Barrie
Site #: 1905000005
Intersection: Bayfield St & Dunlop St-Clapperton
TFR File #: 1
Count date: 20-Feb-19

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Bayfield St runs W/E



Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 16:00:00
To: 19:00:00

One Hour Peak
From: 16:15:00
To: 17:15:00

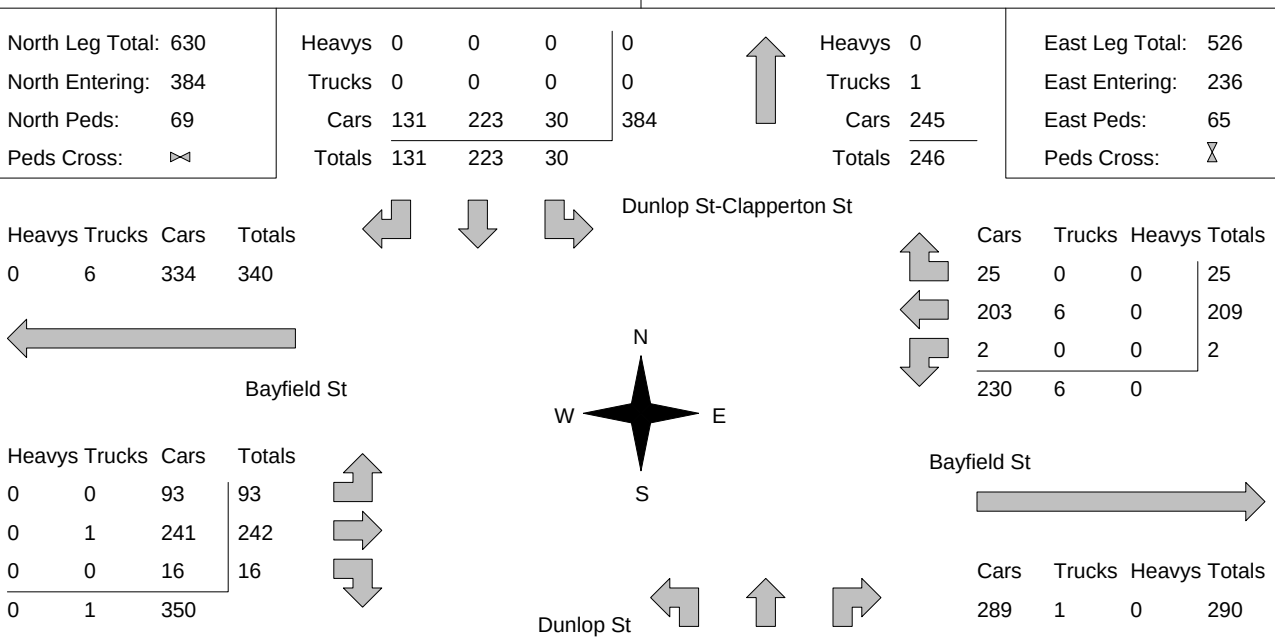
Municipality: Barrie
Site #: 1905000005
Intersection: Bayfield St & Dunlop St-Clapperton
TFR File #: 1
Count date: 20-Feb-19

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Bayfield St runs W/E



Comments

Ontario Traffic Inc.

Total Count Diagram

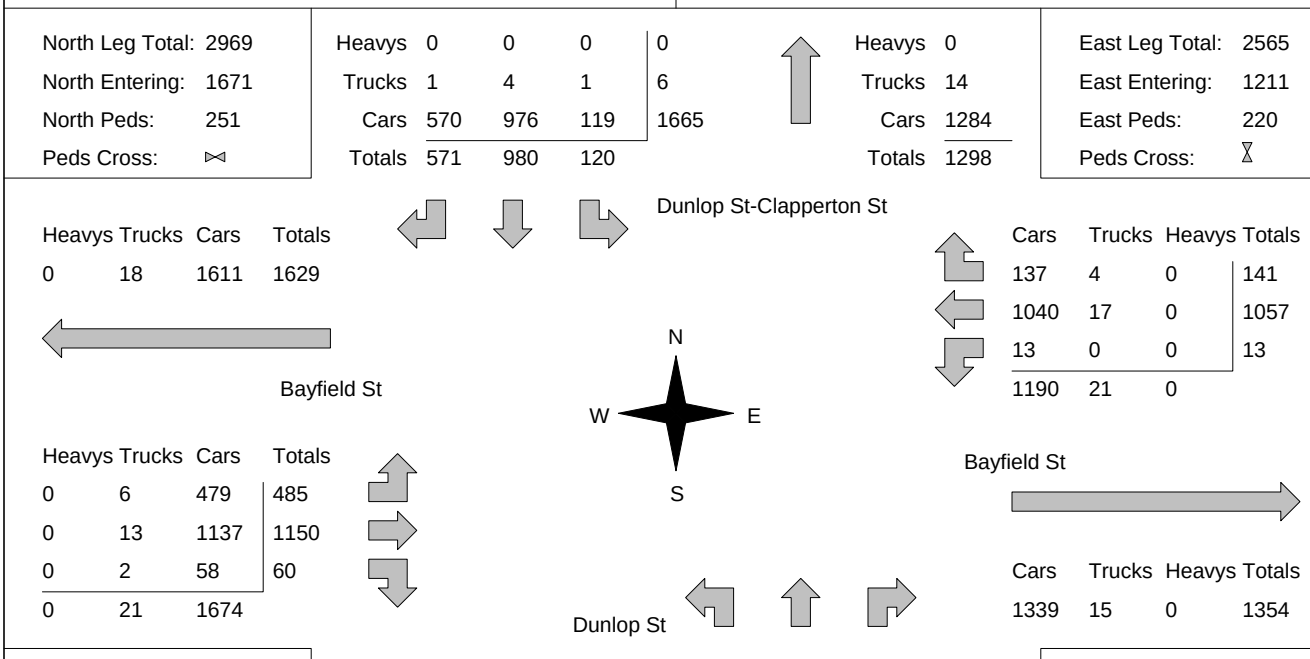
Municipality: Barrie
Site #: 1905000005
Intersection: Bayfield St & Dunlop St-Clapperton
TFR File #: 1
Count date: 20-Feb-19

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Bayfield St runs W/E



Comments

Ontario Traffic Inc.
Traffic Count Summary

Intersection: Bayfield St & Dunlop St-Clapperto | **Count Date:** 20-Feb-19 | **Municipality:** Barrie

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	12	110	76	198	13	292
9:00:00	18	136	86	240	16	398
10:00:00	17	157	84	258	40	370
16:00:00	0	0	0	0	0	0
17:00:00	27	209	120	356	66	499
18:00:00	25	213	114	352	68	490
19:00:00	21	155	91	267	48	379
Totals:	120	980	571	1671	251	2428

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	89	5	94	19
9:00:00	0	145	13	158	35
10:00:00	0	97	15	112	46
16:00:00	0	0	0	0	0
17:00:00	1	129	13	143	66
18:00:00	0	121	17	138	74
19:00:00	0	91	21	112	36
Totals:	1	672	84	757	276

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	0	136	8	144	13	322
9:00:00	2	187	12	201	24	477
10:00:00	1	194	24	219	27	515
16:00:00	0	0	0	0	0	0
17:00:00	1	231	23	255	45	615
18:00:00	3	160	29	192	76	513
19:00:00	6	149	45	200	35	464
Totals:	13	1057	141	1211	220	2906

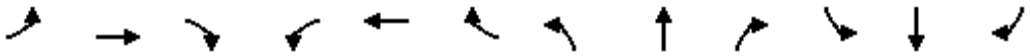
West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	56	120	2	178	6
9:00:00	94	174	8	276	14
10:00:00	90	195	11	296	20
16:00:00	0	0	0	0	0
17:00:00	99	246	15	360	22
18:00:00	79	234	8	321	25
19:00:00	67	181	16	264	17
Totals:	485	1150	60	1695	104

Calculated Values for Traffic Crossing Major Street

Hours Ending:	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00
Crossing Values:	0	141	201	221	0	304	339	228

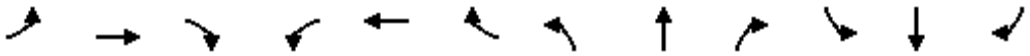
Appendix B:
Existing Operations



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	339	20	9	291	26	6	6	5	0	0	0
Future Volume (Veh/h)	50	339	20	9	291	26	6	6	5	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.85	0.85	0.85	0.85	0.85	0.85	0.92	0.92	0.92
Hourly flow rate (vph)	56	381	22	11	342	31	7	7	6	0	0	0
Pedestrians		5			6			36			11	
Lane Width (m)		3.7			3.7			3.7			0.0	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		0			1			4			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					101							
pX, platoon unblocked	0.91						0.91	0.91		0.91	0.91	0.91
vC, conflicting volume	384			439			924	946	434	910	942	374
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	268			439			865	888	434	849	883	256
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			99			97	97	99	100	100	100
cM capacity (veh/h)	1174			1081			222	233	596	228	234	705

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	459	384	20
Volume Left	56	11	7
Volume Right	22	31	6
cSH	1174	1081	279
Volume to Capacity	0.05	0.01	0.07
Queue Length 95th (m)	1.1	0.2	1.7
Control Delay (s)	1.5	0.3	18.9
Lane LOS	A	A	C
Approach Delay (s)	1.5	0.3	18.9
Approach LOS			C

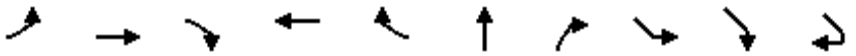
Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	268	32	20	257	8	18	50	11	9	53	51
Future Volume (vph)	42	268	32	20	257	8	18	50	11	9	53	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			1.00			0.99			0.98	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.99			1.00			0.98			0.94	
Flt Protected		0.99			1.00			0.99			1.00	
Satd. Flow (prot)		1794			1824			1760			1678	
Flt Permitted		0.92			0.96			0.92			0.98	
Satd. Flow (perm)		1669			1758			1638			1648	
Peak-hour factor, PHF	0.88	0.88	0.88	0.86	0.86	0.86	0.85	0.85	0.85	0.87	0.87	0.87
Adj. Flow (vph)	48	305	36	23	299	9	21	59	13	10	61	59
RTOR Reduction (vph)	0	6	0	0	2	0	0	9	0	0	41	0
Lane Group Flow (vph)	0	383	0	0	330	0	0	84	0	0	89	0
Confl. Peds. (#/hr)	32		38	38		32	18		29	29		18
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		30.0			30.0			18.0			18.0	
Effective Green, g (s)		30.0			30.0			18.0			18.0	
Actuated g/C Ratio		0.50			0.50			0.30			0.30	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		834			879			491			494	
v/s Ratio Prot												
v/s Ratio Perm		c0.23			0.19			0.05			c0.05	
v/c Ratio		0.46			0.37			0.17			0.18	
Uniform Delay, d1		9.7			9.2			15.5			15.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.8			0.3			0.2			0.8	
Delay (s)		11.6			9.5			15.7			16.3	
Level of Service		B			A			B			B	
Approach Delay (s)		11.6			9.5			15.7			16.3	
Approach LOS		B			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	11.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.9%	ICU Level of Service	A
Analysis Period (min)	15		

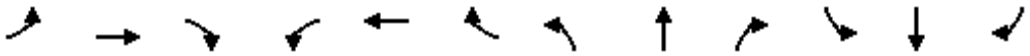
c Critical Lane Group



Movement	EBL	EBT	EBR	WBT	WBR2	NBT	NBR	SEL	SER	SER2
Lane Configurations										
Traffic Volume (vph)	97	183	7	204	16	132	11	17	147	80
Future Volume (vph)	97	183	7	204	16	132	11	17	147	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)	4.0	4.0		6.0	6.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.95	1.00	0.94	1.00	1.00	0.96
Flpb, ped/bikes	0.99	1.00		1.00	1.00	1.00	1.00	0.96	1.00	1.00
Frt	1.00	0.99		1.00	0.85	1.00	0.85	1.00	0.85	0.85
Flt Protected	0.95	1.00		1.00	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1731	1828		1842	1481	1842	1467	1673	1566	1499
Flt Permitted	0.59	1.00		1.00	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1075	1828		1842	1481	1842	1467	1673	1566	1499
Peak-hour factor, PHF	0.85	0.85	0.85	0.84	0.84	0.83	0.83	0.92	0.92	0.92
Adj. Flow (vph)	114	215	8	243	19	159	13	18	160	87
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	114	223	0	243	19	159	13	18	160	87
Confl. Peds. (#/hr)	25		41		25		29	29		15
Turn Type	pm+pt	NA		NA	Perm	NA	Perm	D.Pm	Prot	Perm
Protected Phases	1	1 2		2		3			3	
Permitted Phases	1 2				2		3	3		3
Actuated Green, G (s)	31.0	35.0		24.0	24.0	22.0	22.0	22.0	22.0	22.0
Effective Green, g (s)	31.0	35.0		24.0	24.0	22.0	22.0	22.0	22.0	22.0
Actuated g/C Ratio	0.46	0.52		0.36	0.36	0.33	0.33	0.33	0.33	0.33
Clearance Time (s)	4.0			6.0	6.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	565	954		659	530	604	481	549	514	492
v/s Ratio Prot	0.02	c0.12		c0.13		0.09			c0.10	
v/s Ratio Perm	0.07				0.01		0.01	0.01		0.06
v/c Ratio	0.20	0.23		0.37	0.04	0.26	0.03	0.03	0.31	0.18
Uniform Delay, d1	10.4	8.7		15.9	14.0	16.5	15.2	15.3	16.8	16.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.1		0.4	0.0	0.2	0.0	0.0	0.3	0.2
Delay (s)	10.5	8.8		16.2	14.0	16.8	15.3	15.3	17.2	16.2
Level of Service	B	A		B	B	B	B	B	B	B
Approach Delay (s)		9.4		16.1		16.7		16.7		
Approach LOS		A		B		B		B		

Intersection Summary			
HCM 2000 Control Delay	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	67.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	77.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



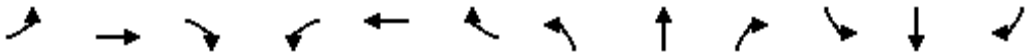
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	697	22	12	592	18	3	0	2	3	0	16
Future Volume (Veh/h)	17	697	22	12	592	18	3	0	2	3	0	16
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.87	0.87	0.87	0.25	0.25	0.25	0.68	0.68	0.68
Hourly flow rate (vph)	18	749	24	14	680	21	12	0	8	4	0	24
Pedestrians		11						1			11	
Lane Width (m)		3.7						3.7			3.7	
Walking Speed (m/s)		1.1						1.1			1.1	
Percent Blockage		1						0			1	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)					98							
pX, platoon unblocked	0.91						0.91	0.91		0.91	0.91	0.91
vC, conflicting volume	712			774			1201	1538	388	1148	1540	372
vC1, stage 1 conf vol							798	798		730	730	
vC2, stage 2 conf vol							403	740		418	810	
vCu, unblocked vol	487			774			1024	1394	388	966	1396	114
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			98			96	100	99	99	100	97
cM capacity (veh/h)	966			837			318	310	610	381	307	817

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	18	499	274	14	453	248	20	28
Volume Left	18	0	0	14	0	0	12	4
Volume Right	0	0	24	0	0	21	8	24
cSH	966	1700	1700	837	1700	1700	393	702
Volume to Capacity	0.02	0.29	0.16	0.02	0.27	0.15	0.05	0.04
Queue Length 95th (m)	0.4	0.0	0.0	0.4	0.0	0.0	1.2	0.9
Control Delay (s)	8.8	0.0	0.0	9.4	0.0	0.0	14.7	10.3
Lane LOS	A			A			B	B
Approach Delay (s)	0.2			0.2			14.7	10.3
Approach LOS							B	B

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	33.0%	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)	44	651	6	3	557	11	6	8	2	9	25	77
Future Volume (vph)	44	651	6	3	557	11	6	8	2	9	25	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		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	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.97		1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1787	3573		1774	3566		1778	1821		1779	1645	
Flt Permitted	0.34	1.00		0.38	1.00		0.66	1.00		0.74	1.00	
Satd. Flow (perm)	642	3573		716	3566		1236	1821		1394	1645	
Peak-hour factor, PHF	0.93	0.93	0.93	0.84	0.84	0.84	0.50	0.50	0.50	0.67	0.67	0.67
Adj. Flow (vph)	47	700	6	4	663	13	12	16	4	13	37	115
RTOR Reduction (vph)	0	1	0	0	1	0	0	3	0	0	95	0
Lane Group Flow (vph)	47	705	0	4	675	0	12	17	0	13	57	0
Confl. Peds. (#/hr)	11		20	20		11	7		5	5		7
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	45.9	45.9		37.4	37.4		11.8	11.8		11.8	11.8	
Effective Green, g (s)	45.9	45.9		37.4	37.4		11.8	11.8		11.8	11.8	
Actuated g/C Ratio	0.67	0.67		0.54	0.54		0.17	0.17		0.17	0.17	
Clearance Time (s)	4.0	5.0		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)	487	2387		389	1941		212	312		239	282	
v/s Ratio Prot	0.00	c0.20			c0.19			0.01			c0.03	
v/s Ratio Perm	0.06			0.01			0.01			0.01		
v/c Ratio	0.10	0.30		0.01	0.35		0.06	0.05		0.05	0.20	
Uniform Delay, d1	4.1	4.7		7.2	8.8		23.8	23.8		23.8	24.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.3		0.0	0.5		0.1	0.1		0.1	0.4	
Delay (s)	4.2	5.0		7.2	9.3		23.9	23.9		23.9	24.8	
Level of Service	A	A		A	A		C	C		C	C	
Approach Delay (s)		5.0			9.3			23.9			24.7	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	9.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	68.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	58.8%	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)	73	404	14	14	384	52	6	6	12	0	0	0
Future Volume (Veh/h)	73	404	14	14	384	52	6	6	12	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.82	0.82	0.82	0.92	0.92	0.92
Hourly flow rate (vph)	79	439	15	15	417	57	7	7	15	0	0	0
Pedestrians		40			42			88			63	
Lane Width (m)		3.7			3.7			3.7			0.0	
Walking Speed (m/s)		1.1			1.1			1.1			1.1	
Percent Blockage		4			4			9			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					101							
pX, platoon unblocked	0.88						0.88	0.88		0.88	0.88	0.88
vC, conflicting volume	537			542			1208	1260	576	1204	1238	548
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	406			542			1168	1227	576	1163	1203	419
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	92			98			94	95	97	100	100	100
cM capacity (veh/h)	1015			938			114	130	453	117	135	536

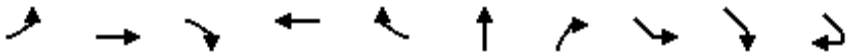
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	533	489	29
Volume Left	79	15	7
Volume Right	15	57	15
cSH	1015	938	196
Volume to Capacity	0.08	0.02	0.15
Queue Length 95th (m)	1.9	0.4	3.9
Control Delay (s)	2.1	0.5	26.6
Lane LOS	A	A	D
Approach Delay (s)	2.1	0.5	26.6
Approach LOS			D

Intersection Summary			
Average Delay		2.0	
Intersection Capacity Utilization		73.1%	ICU Level of Service D
Analysis Period (min)		15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	335	36	18	325	12	30	74	19	7	56	95
Future Volume (vph)	44	335	36	18	325	12	30	74	19	7	56	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			1.00			0.98			0.94	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.99			1.00			0.98			0.92	
Flt Protected		0.99			1.00			0.99			1.00	
Satd. Flow (prot)		1785			1819			1726			1580	
Flt Permitted		0.93			0.97			0.89			0.98	
Satd. Flow (perm)		1664			1766			1548			1560	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.85	0.85	0.85	0.81	0.81	0.81
Adj. Flow (vph)	48	368	40	20	357	13	35	87	22	9	69	117
RTOR Reduction (vph)	0	6	0	0	2	0	0	11	0	0	82	0
Lane Group Flow (vph)	0	450	0	0	388	0	0	134	0	0	113	0
Confl. Peds. (#/hr)	77		92	92		77	50		58	58		50
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		30.0			30.0			18.0			18.0	
Effective Green, g (s)		30.0			30.0			18.0			18.0	
Actuated g/C Ratio		0.50			0.50			0.30			0.30	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		832			883			464			468	
v/s Ratio Prot												
v/s Ratio Perm		c0.27			0.22			c0.09			0.07	
v/c Ratio		0.54			0.44			0.29			0.24	
Uniform Delay, d1		10.3			9.6			16.1			15.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		2.5			0.4			0.3			1.2	
Delay (s)		12.8			10.0			16.4			17.1	
Level of Service		B			A			B			B	
Approach Delay (s)		12.8			10.0			16.4			17.1	
Approach LOS		B			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		

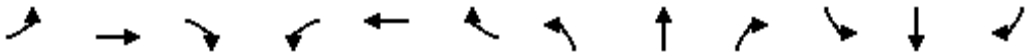
c Critical Lane Group



Movement	EBL	EBT	EBR	WBT	WBR2	NBT	NBR	SEL	SER	SER2
Lane Configurations										
Traffic Volume (vph)	96	242	16	209	25	128	18	30	223	133
Future Volume (vph)	96	242	16	209	25	128	18	30	223	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)	4.0	4.0		6.0	6.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.89	1.00	0.88	1.00	1.00	0.95
Flpb, ped/bikes	0.97	1.00		1.00	1.00	1.00	1.00	0.90	1.00	1.00
Frt	1.00	0.99		1.00	0.85	1.00	0.85	1.00	0.85	0.85
Flt Protected	0.95	1.00		1.00	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1697	1816		1842	1386	1842	1384	1579	1566	1481
Flt Permitted	0.59	1.00		1.00	1.00	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1058	1816		1842	1386	1842	1384	1579	1566	1481
Peak-hour factor, PHF	0.92	0.92	0.92	0.87	0.87	0.89	0.89	0.85	0.85	0.85
Adj. Flow (vph)	104	263	17	240	29	144	20	35	262	156
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	104	280	0	240	29	144	20	35	262	156
Confl. Peds. (#/hr)	69		64		69		65	65		23
Turn Type	pm+pt	NA		NA	Perm	NA	Perm	D.Pm	Prot	Perm
Protected Phases	1	1 2		2		3			3	
Permitted Phases	1 2				2		3	3		3
Actuated Green, G (s)	31.0	35.0		24.0	24.0	22.4	22.4	22.4	22.4	22.4
Effective Green, g (s)	31.0	35.0		24.0	24.0	22.4	22.4	22.4	22.4	22.4
Actuated g/C Ratio	0.46	0.52		0.36	0.36	0.33	0.33	0.33	0.33	0.33
Clearance Time (s)	4.0			6.0	6.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	552	943		655	493	612	459	524	520	492
v/s Ratio Prot	0.02	c0.15		c0.13		0.08			c0.17	
v/s Ratio Perm	0.07				0.02		0.01	0.02		0.11
v/c Ratio	0.19	0.30		0.37	0.06	0.24	0.04	0.07	0.50	0.32
Uniform Delay, d1	10.5	9.2		16.1	14.3	16.3	15.2	15.4	18.0	16.8
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.2		0.3	0.1	0.2	0.0	0.1	0.8	0.4
Delay (s)	10.6	9.4		16.4	14.3	16.5	15.3	15.4	18.8	17.2
Level of Service	B	A		B	B	B	B	B	B	B
Approach Delay (s)		9.7		16.2		16.3		18.0		
Approach LOS		A		B		B		B		

Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	67.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	77.5%	ICU Level of Service	D
Analysis Period (min)	15		

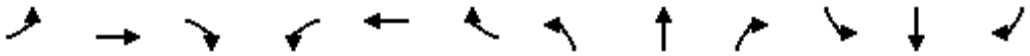
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	798	17	5	794	17	25	2	21	5	0	38
Future Volume (Veh/h)	10	798	17	5	794	17	25	2	21	5	0	38
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.91	0.91	0.91	0.92	0.92	0.92	0.72	0.72	0.72
Hourly flow rate (vph)	10	831	18	5	873	19	27	2	23	7	0	53
Pedestrians		2						1			20	
Lane Width (m)		3.7						3.7			3.7	
Walking Speed (m/s)		1.1						1.1			1.1	
Percent Blockage		0						0			2	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)					98							
pX, platoon unblocked	0.87						0.87	0.87		0.87	0.87	0.87
vC, conflicting volume	912			850			1362	1783	426	1372	1782	468
vC1, stage 1 conf vol							861	861		912	912	
vC2, stage 2 conf vol							502	922		460	870	
vCu, unblocked vol	608			850			1124	1606	426	1135	1605	100
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			91	99	96	98	100	93
cM capacity (veh/h)	827			783			291	276	577	321	276	800

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	10	554	295	5	582	310	52	60
Volume Left	10	0	0	5	0	0	27	7
Volume Right	0	0	18	0	0	19	23	53
cSH	827	1700	1700	783	1700	1700	371	681
Volume to Capacity	0.01	0.33	0.17	0.01	0.34	0.18	0.14	0.09
Queue Length 95th (m)	0.3	0.0	0.0	0.1	0.0	0.0	3.7	2.2
Control Delay (s)	9.4	0.0	0.0	9.6	0.0	0.0	16.3	10.8
Lane LOS	A			A			C	B
Approach Delay (s)	0.1			0.1			16.3	10.8
Approach LOS							C	B

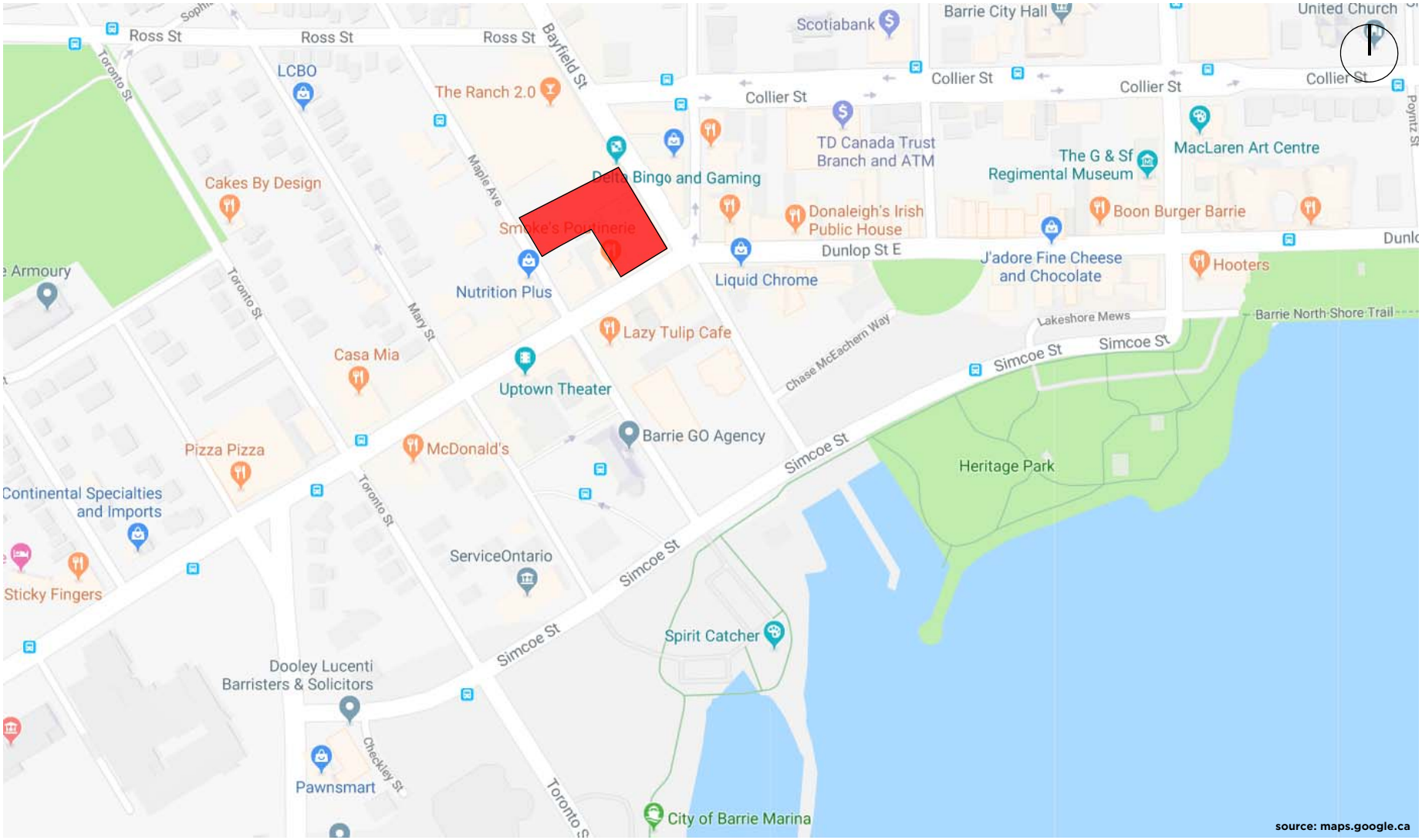
Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	37.8%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	765	34	4	709	16	16	26	13	20	13	104
Future Volume (vph)	51	765	34	4	709	16	16	26	13	20	13	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		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	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		0.98	1.00		0.98	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.95		1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1787	3546		1762	3564		1755	1775		1768	1583	
Flt Permitted	0.28	1.00		0.34	1.00		0.67	1.00		0.73	1.00	
Satd. Flow (perm)	536	3546		628	3564		1241	1775		1358	1583	
Peak-hour factor, PHF	0.96	0.96	0.96	0.90	0.90	0.90	0.92	0.92	0.92	0.88	0.88	0.88
Adj. Flow (vph)	53	797	35	4	788	18	17	28	14	23	15	118
RTOR Reduction (vph)	0	4	0	0	2	0	0	12	0	0	98	0
Lane Group Flow (vph)	53	828	0	4	804	0	17	30	0	23	35	0
Confl. Peds. (#/hr)	13		43	43		13	20		11	11		20
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	45.9	45.9		37.4	37.4		11.8	11.8		11.8	11.8	
Effective Green, g (s)	45.9	45.9		37.4	37.4		11.8	11.8		11.8	11.8	
Actuated g/C Ratio	0.67	0.67		0.54	0.54		0.17	0.17		0.17	0.17	
Clearance Time (s)	4.0	5.0		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)	421	2369		341	1940		213	304		233	271	
v/s Ratio Prot	0.01	c0.23			c0.23			0.02			c0.02	
v/s Ratio Perm	0.08			0.01			0.01			0.02		
v/c Ratio	0.13	0.35		0.01	0.41		0.08	0.10		0.10	0.13	
Uniform Delay, d1	4.4	4.9		7.2	9.2		23.9	24.0		24.0	24.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.4		0.1	0.7		0.2	0.1		0.2	0.2	
Delay (s)	4.5	5.3		7.2	9.9		24.1	24.1		24.2	24.3	
Level of Service	A	A		A	A		C	C		C	C	
Approach Delay (s)		5.3			9.9			24.1			24.3	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	9.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	68.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

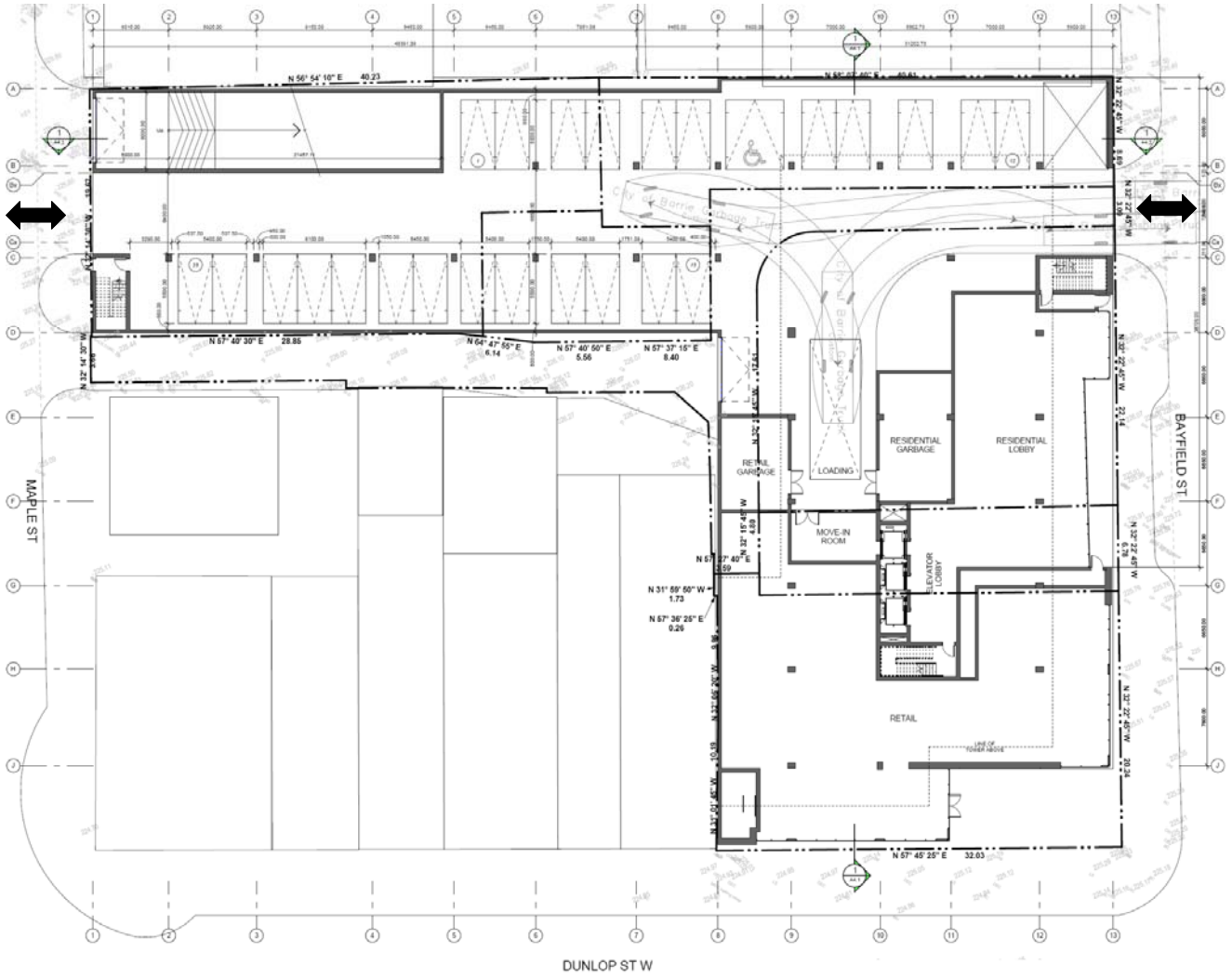
Appendix C:
Background Development



39-59 Dunlop Street

Appendix C: Background Development – The Residences at the Five Points

Access 2



Access 1

39-59 Dunlop Street

Appendix C: The Residences at Five Points – Site Plan

Appendix D:
Future Background Operations

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	441	21	10	396	28	8	6	6	0	0	0
Future Volume (vph)	53	441	21	10	396	28	8	6	6	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5				
Lane Util. Factor		1.00			1.00			1.00				
Frpb, ped/bikes		1.00			1.00			0.99				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		0.99			0.99			0.96				
Flt Protected		0.99			1.00			0.98				
Satd. Flow (prot)		1856			1859			1751				
Flt Permitted		0.92			0.99			0.98				
Satd. Flow (perm)		1719			1839			1751				
Peak-hour factor, PHF	0.89	0.89	0.89	0.85	0.85	0.85	0.85	0.85	0.85	0.92	0.92	0.92
Adj. Flow (vph)	60	496	24	12	466	33	9	7	7	0	0	0
RTOR Reduction (vph)	0	1	0	0	2	0	0	7	0	0	0	0
Lane Group Flow (vph)	0	579	0	0	509	0	0	16	0	0	0	0
Confl. Peds. (#/hr)	11		36	36		11	5		6	6		5
Turn Type	Perm	NA		Perm	NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4			8			2					
Actuated Green, G (s)		42.9			42.9			1.3				
Effective Green, g (s)		42.9			42.9			1.3				
Actuated g/C Ratio		0.81			0.81			0.02				
Clearance Time (s)		4.5			4.5			4.5				
Vehicle Extension (s)		3.0			3.0			3.0				
Lane Grp Cap (vph)		1386			1482			42				
v/s Ratio Prot												
v/s Ratio Perm		c0.34			0.28			0.01				
v/c Ratio		0.42			0.34			0.39				
Uniform Delay, d1		1.5			1.4			25.6				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		0.9			0.6			5.8				
Delay (s)		2.4			2.0			31.3				
Level of Service		A			A			C				
Approach Delay (s)		2.4			2.0			31.3			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	2.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	53.2	Sum of lost time (s)	9.0
Intersection Capacity Utilization	68.8%	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)	57	339	34	21	329	9	23	57	14	14	62	89
Future Volume (vph)	57	339	34	21	329	9	23	57	14	14	62	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.99			0.97	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.99			1.00			0.98			0.93	
Flt Protected		0.99			1.00			0.99			1.00	
Satd. Flow (prot)		1798			1827			1757			1649	
Flt Permitted		0.90			0.96			0.89			0.97	
Satd. Flow (perm)		1624			1759			1591			1609	
Peak-hour factor, PHF	0.88	0.88	0.88	0.86	0.86	0.86	0.85	0.85	0.85	0.87	0.87	0.87
Adj. Flow (vph)	65	385	39	24	383	10	27	67	16	16	71	102
RTOR Reduction (vph)	0	5	0	0	2	0	0	11	0	0	70	0
Lane Group Flow (vph)	0	484	0	0	416	0	0	100	0	0	119	0
Confl. Peds. (#/hr)	32		38	38		32	18		29	29		18
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		30.0			30.0			18.0			18.0	
Effective Green, g (s)		30.0			30.0			18.0			18.0	
Actuated g/C Ratio		0.50			0.50			0.30			0.30	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		812			879			477			482	
v/s Ratio Prot												
v/s Ratio Perm		c0.30			0.24			0.06			c0.07	
v/c Ratio		0.60			0.47			0.21			0.25	
Uniform Delay, d1		10.7			9.8			15.7			15.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		3.2			0.4			0.2			1.2	
Delay (s)		13.9			10.2			15.9			17.1	
Level of Service		B			B			B			B	
Approach Delay (s)		13.9			10.2			15.9			17.1	
Approach LOS		B			B			B			B	

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

c Critical Lane Group

Movement	EBL	EBT	EBR	WBT	WBR2	NBT	NBR	SEL	SER	SER2
Lane Configurations										
Traffic Volume (vph)	109	232	8	259	18	149	14	23	168	106
Future Volume (vph)	109	232	8	259	18	149	14	23	168	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)	4.0	4.0		6.0		4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00		1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00		0.99		1.00	1.00	0.96
Flpb, ped/bikes	0.99	1.00		1.00		1.00		0.96	1.00	1.00
Frt	1.00	1.00		0.99		0.99		1.00	0.85	0.85
Flt Protected	0.95	1.00		1.00		1.00		0.95	1.00	1.00
Satd. Flow (prot)	1737	1830		1820		1811		1673	1566	1499
Flt Permitted	0.48	1.00		1.00		1.00		0.95	1.00	1.00
Satd. Flow (perm)	873	1830		1820		1811		1673	1566	1499
Peak-hour factor, PHF	0.85	0.85	0.85	0.84	0.84	0.83	0.83	0.92	0.92	0.92
Adj. Flow (vph)	128	273	9	308	21	180	17	25	183	115
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	128	282	0	329	0	197	0	25	183	115
Confl. Peds. (#/hr)	25		41		25		29	29		15
Turn Type	pm+pt	NA		NA		NA		D.Pm	Prot	Perm
Protected Phases	1	1 2		2		3			3	
Permitted Phases	1 2							3		3
Actuated Green, G (s)	31.0	35.0		24.0		22.0		22.0	22.0	22.0
Effective Green, g (s)	31.0	35.0		24.0		22.0		22.0	22.0	22.0
Actuated g/C Ratio	0.46	0.52		0.36		0.33		0.33	0.33	0.33
Clearance Time (s)	4.0			6.0		4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0		3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	494	955		651		594		549	514	492
v/s Ratio Prot	0.03	c0.15		c0.18		0.11			c0.12	
v/s Ratio Perm	0.09							0.01		0.08
v/c Ratio	0.26	0.30		0.51		0.33		0.05	0.36	0.23
Uniform Delay, d1	10.6	9.0		16.8		17.0		15.3	17.1	16.4
Progression Factor	1.00	1.00		1.00		1.00		1.00	1.00	1.00
Incremental Delay, d2	0.3	0.2		0.6		0.3		0.0	0.4	0.2
Delay (s)	10.8	9.2		17.5		17.3		15.4	17.5	16.6
Level of Service	B	A		B		B		B	B	B
Approach Delay (s)		9.7		17.5		17.3		17.0		
Approach LOS		A		B		B		B		

Intersection Summary			
HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	67.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	77.7%	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)	18	789	22	12	673	19	3	0	2	3	0	18
Future Volume (Veh/h)	18	789	22	12	673	19	3	0	2	3	0	18
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.87	0.87	0.87	0.25	0.25	0.25	0.68	0.68	0.68
Hourly flow rate (vph)	19	848	24	14	774	22	12	0	8	4	0	26
Pedestrians		11						1			11	
Lane Width (m)		3.7						3.7			3.7	
Walking Speed (m/s)		1.1						1.1			1.1	
Percent Blockage		1						0			1	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)					98							
pX, platoon unblocked	0.88						0.88	0.88		0.88	0.88	0.88
vC, conflicting volume	807			873			1351	1734	437	1294	1735	420
vC1, stage 1 conf vol							899	899		824	824	
vC2, stage 2 conf vol							452	835		470	911	
vCu, unblocked vol	510			873			1127	1562	437	1063	1564	70
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			98			96	100	99	99	100	97
cM capacity (veh/h)	916			768			277	277	567	349	273	843

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	19	565	307	14	516	280	20	30
Volume Left	19	0	0	14	0	0	12	4
Volume Right	0	0	24	0	0	22	8	26
cSH	916	1700	1700	768	1700	1700	349	709
Volume to Capacity	0.02	0.33	0.18	0.02	0.30	0.16	0.06	0.04
Queue Length 95th (m)	0.5	0.0	0.0	0.4	0.0	0.0	1.4	1.0
Control Delay (s)	9.0	0.0	0.0	9.8	0.0	0.0	16.0	10.3
Lane LOS	A			A			C	B
Approach Delay (s)	0.2			0.2			16.0	10.3
Approach LOS							C	B

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	35.6%	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)	51	733	6	3	627	24	6	8	2	10	25	93
Future Volume (vph)	51	733	6	3	627	24	6	8	2	10	25	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		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	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.97		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1788	3573		1775	3554		1778	1820		1779	1634	
Flt Permitted	0.29	1.00		0.35	1.00		0.64	1.00		0.74	1.00	
Satd. Flow (perm)	541	3573		657	3554		1200	1820		1394	1634	
Peak-hour factor, PHF	0.93	0.93	0.93	0.84	0.84	0.84	0.50	0.50	0.50	0.67	0.67	0.67
Adj. Flow (vph)	55	788	6	4	746	29	12	16	4	15	37	139
RTOR Reduction (vph)	0	1	0	0	3	0	0	3	0	0	110	0
Lane Group Flow (vph)	55	793	0	4	772	0	12	17	0	15	66	0
Confl. Peds. (#/hr)	11		20	20		11	7		5	5		7
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	45.4	45.4		36.6	36.6		15.1	15.1		15.1	15.1	
Effective Green, g (s)	45.4	45.4		36.6	36.6		15.1	15.1		15.1	15.1	
Actuated g/C Ratio	0.63	0.63		0.51	0.51		0.21	0.21		0.21	0.21	
Clearance Time (s)	4.0	5.0		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)	409	2268		336	1819		253	384		294	345	
v/s Ratio Prot	0.01	c0.22			c0.22			0.01			c0.04	
v/s Ratio Perm	0.08			0.01			0.01			0.01		
v/c Ratio	0.13	0.35		0.01	0.42		0.05	0.04		0.05	0.19	
Uniform Delay, d1	5.4	6.1		8.6	10.9		22.5	22.5		22.5	23.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.4		0.1	0.7		0.1	0.0		0.1	0.3	
Delay (s)	5.6	6.6		8.6	11.6		22.5	22.5		22.6	23.5	
Level of Service	A	A		A	B		C	C		C	C	
Approach Delay (s)		6.5			11.6			22.5			23.4	
Approach LOS		A			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	71.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	64.6%	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)	77	538	15	15	505	55	8	6	15	0	0	0
Future Volume (vph)	77	538	15	15	505	55	8	6	15	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5				
Lane Util. Factor		1.00			1.00			1.00				
Frpb, ped/bikes		1.00			0.99			0.95				
Flpb, ped/bikes		0.99			1.00			0.98				
Frt		1.00			0.99			0.93				
Flt Protected		0.99			1.00			0.99				
Satd. Flow (prot)		1849			1832			1619				
Flt Permitted		0.88			0.98			0.99				
Satd. Flow (perm)		1633			1803			1619				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.82	0.82	0.82	0.92	0.92	0.92
Adj. Flow (vph)	84	585	16	16	549	60	10	7	18	0	0	0
RTOR Reduction (vph)	0	1	0	0	3	0	0	17	0	0	0	0
Lane Group Flow (vph)	0	684	0	0	622	0	0	18	0	0	0	0
Confl. Peds. (#/hr)	63		88	88		63	40		42	42		40
Turn Type	Perm	NA		Perm	NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4			8			2					
Actuated Green, G (s)		47.7			47.7			2.7				
Effective Green, g (s)		47.7			47.7			2.7				
Actuated g/C Ratio		0.80			0.80			0.05				
Clearance Time (s)		4.5			4.5			4.5				
Vehicle Extension (s)		3.0			3.0			3.0				
Lane Grp Cap (vph)		1311			1447			73				
v/s Ratio Prot												
v/s Ratio Perm		c0.42			0.35			0.01				
v/c Ratio		0.52			0.43			0.24				
Uniform Delay, d1		2.0			1.8			27.4				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		1.5			0.9			1.7				
Delay (s)		3.5			2.7			29.1				
Level of Service		A			A			C				
Approach Delay (s)		3.5			2.7			29.1			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	3.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	59.4	Sum of lost time (s)	9.0
Intersection Capacity Utilization	89.1%	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)	74	424	38	19	415	16	38	89	24	10	63	135
Future Volume (vph)	74	424	38	19	415	16	38	89	24	10	63	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			1.00			0.98			0.93	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.99			1.00			0.98			0.91	
Flt Protected		0.99			1.00			0.99			1.00	
Satd. Flow (prot)		1789			1820			1726			1561	
Flt Permitted		0.88			0.97			0.88			0.98	
Satd. Flow (perm)		1587			1763			1533			1536	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.85	0.85	0.85	0.81	0.81	0.81
Adj. Flow (vph)	81	466	42	21	456	18	45	105	28	12	78	167
RTOR Reduction (vph)	0	5	0	0	3	0	0	11	0	0	111	0
Lane Group Flow (vph)	0	585	0	0	493	0	0	167	0	0	146	0
Confl. Peds. (#/hr)	77		92	92		77	50		58	58		50
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		30.0			30.0			18.0			18.0	
Effective Green, g (s)		30.0			30.0			18.0			18.0	
Actuated g/C Ratio		0.50			0.50			0.30			0.30	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		793			881			459			460	
v/s Ratio Prot												
v/s Ratio Perm		c0.37			0.28			c0.11			0.09	
v/c Ratio		0.74			0.56			0.36			0.32	
Uniform Delay, d1		11.9			10.4			16.5			16.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		6.1			0.8			0.5			1.8	
Delay (s)		17.9			11.2			17.0			18.0	
Level of Service		B			B			B			B	
Approach Delay (s)		17.9			11.2			17.0			18.0	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	87.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBT	WBR2	NBT	NBR	SEL	SER	SER2
Lane Configurations										
Traffic Volume (vph)	108	306	18	266	28	144	23	39	253	173
Future Volume (vph)	108	306	18	266	28	144	23	39	253	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)	4.0	4.0		6.0		4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00		1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		0.99		0.98		1.00	1.00	0.95
Flpb, ped/bikes	0.98	1.00		1.00		1.00		0.90	1.00	1.00
Frt	1.00	0.99		0.99		0.98		1.00	0.85	0.85
Flt Protected	0.95	1.00		1.00		1.00		0.95	1.00	1.00
Satd. Flow (prot)	1717	1818		1799		1779		1580	1566	1482
Flt Permitted	0.46	1.00		1.00		1.00		0.95	1.00	1.00
Satd. Flow (perm)	836	1818		1799		1779		1580	1566	1482
Peak-hour factor, PHF	0.92	0.92	0.92	0.87	0.87	0.89	0.89	0.85	0.85	0.85
Adj. Flow (vph)	117	333	20	306	32	162	26	46	298	204
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	117	353	0	338	0	188	0	46	298	204
Confl. Peds. (#/hr)	69		64		69		65	65		23
Turn Type	pm+pt	NA		NA		NA		D.Pm	Prot	Perm
Protected Phases	1	1 2		2		3			3	
Permitted Phases	1 2							3		3
Actuated Green, G (s)	31.0	35.0		24.0		22.6		22.6	22.6	22.6
Effective Green, g (s)	31.0	35.0		24.0		22.6		22.6	22.6	22.6
Actuated g/C Ratio	0.46	0.52		0.36		0.33		0.33	0.33	0.33
Clearance Time (s)	4.0			6.0		4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0		3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	474	941		638		594		528	523	495
v/s Ratio Prot	0.03	c0.19		c0.19		0.11			c0.19	
v/s Ratio Perm	0.09							0.03		0.14
v/c Ratio	0.25	0.38		0.53		0.32		0.09	0.57	0.41
Uniform Delay, d1	10.8	9.8		17.3		16.8		15.4	18.5	17.4
Progression Factor	1.00	1.00		1.00		1.00		1.00	1.00	1.00
Incremental Delay, d2	0.3	0.3		0.8		0.3		0.1	1.4	0.6
Delay (s)	11.0	10.0		18.1		17.1		15.5	19.9	17.9
Level of Service	B	B		B		B		B	B	B
Approach Delay (s)		10.3		18.1		17.1		18.8		
Approach LOS		B		B		B		B		

Intersection Summary			
HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	67.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	77.7%	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)	11	909	17	5	898	18	25	2	21	6	0	43
Future Volume (Veh/h)	11	909	17	5	898	18	25	2	21	6	0	43
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.91	0.91	0.91	0.92	0.92	0.92	0.72	0.72	0.72
Hourly flow rate (vph)	11	947	18	5	987	20	27	2	23	8	0	60
Pedestrians		2						1			20	
Lane Width (m)		3.7						3.7			3.7	
Walking Speed (m/s)		1.1						1.1			1.1	
Percent Blockage		0						0			2	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)					98							
pX, platoon unblocked	0.84						0.84	0.84		0.84	0.84	0.84
vC, conflicting volume	1027			966			1544	2016	484	1546	2015	526
vC1, stage 1 conf vol							979	979		1027	1027	
vC2, stage 2 conf vol							566	1037		520	988	
vCu, unblocked vol	661			966			1275	1834	484	1277	1832	67
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			89	99	96	97	100	93
cM capacity (veh/h)	763			708			247	240	529	284	241	811

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	11	631	334	5	658	349	52	68
Volume Left	11	0	0	5	0	0	27	8
Volume Right	0	0	18	0	0	20	23	60
cSH	763	1700	1700	708	1700	1700	323	666
Volume to Capacity	0.01	0.37	0.20	0.01	0.39	0.21	0.16	0.10
Queue Length 95th (m)	0.3	0.0	0.0	0.2	0.0	0.0	4.3	2.6
Control Delay (s)	9.8	0.0	0.0	10.1	0.0	0.0	18.3	11.0
Lane LOS	A			B			C	B
Approach Delay (s)	0.1			0.1			18.3	11.0
Approach LOS							C	B

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	40.6%	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)	64	862	34	4	798	48	16	26	13	23	13	121
Future Volume (vph)	64	862	34	4	798	48	16	26	13	23	13	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		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	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.98	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.95		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1788	3549		1765	3541		1756	1775		1768	1578	
Flt Permitted	0.23	1.00		0.31	1.00		0.66	1.00		0.73	1.00	
Satd. Flow (perm)	439	3549		569	3541		1220	1775		1358	1578	
Peak-hour factor, PHF	0.96	0.96	0.96	0.90	0.90	0.90	0.92	0.92	0.92	0.88	0.88	0.88
Adj. Flow (vph)	67	898	35	4	887	53	17	28	14	26	15	138
RTOR Reduction (vph)	0	3	0	0	5	0	0	12	0	0	114	0
Lane Group Flow (vph)	67	930	0	4	935	0	17	30	0	26	39	0
Confl. Peds. (#/hr)	13		43	43		13	20		11	11		20
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	45.9	45.9		37.4	37.4		11.8	11.8		11.8	11.8	
Effective Green, g (s)	45.9	45.9		37.4	37.4		11.8	11.8		11.8	11.8	
Actuated g/C Ratio	0.67	0.67		0.54	0.54		0.17	0.17		0.17	0.17	
Clearance Time (s)	4.0	5.0		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)	362	2371		309	1927		209	304		233	271	
v/s Ratio Prot	0.01	c0.26			c0.26			0.02			c0.02	
v/s Ratio Perm	0.11			0.01			0.01			0.02		
v/c Ratio	0.19	0.39		0.01	0.49		0.08	0.10		0.11	0.14	
Uniform Delay, d1	4.7	5.1		7.2	9.7		23.9	24.0		24.0	24.2	
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		0.1	0.9		0.2	0.1		0.2	0.2	
Delay (s)	5.0	5.6		7.3	10.6		24.1	24.1		24.2	24.4	
Level of Service	A	A		A	B		C	C		C	C	
Approach Delay (s)		5.6			10.6			24.1			24.4	
Approach LOS		A			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	9.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	68.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	69.7%	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)	56	534	22	10	476	29	9	7	8	0	0	0
Future Volume (vph)	56	534	22	10	476	29	9	7	8	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5				
Lane Util. Factor		1.00			1.00			1.00				
Frpb, ped/bikes		1.00			1.00			0.99				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.99			0.96				
Flt Protected		1.00			1.00			0.98				
Satd. Flow (prot)		1859			1863			1745				
Flt Permitted		0.92			0.99			0.98				
Satd. Flow (perm)		1711			1842			1745				
Peak-hour factor, PHF	0.89	0.89	0.89	0.85	0.85	0.85	0.85	0.85	0.85	0.92	0.92	0.92
Adj. Flow (vph)	63	600	25	12	560	34	11	8	9	0	0	0
RTOR Reduction (vph)	0	1	0	0	1	0	0	9	0	0	0	0
Lane Group Flow (vph)	0	687	0	0	605	0	0	19	0	0	0	0
Confl. Peds. (#/hr)	11		36	36		11	5		6	6		5
Turn Type	Perm	NA		Perm	NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4			8			2					
Actuated Green, G (s)		47.9			47.9			1.4				
Effective Green, g (s)		47.9			47.9			1.4				
Actuated g/C Ratio		0.82			0.82			0.02				
Clearance Time (s)		4.5			4.5			4.5				
Vehicle Extension (s)		3.0			3.0			3.0				
Lane Grp Cap (vph)		1405			1513			41				
v/s Ratio Prot												
v/s Ratio Perm		c0.40			0.33			0.01				
v/c Ratio		0.49			0.40			0.47				
Uniform Delay, d1		1.6			1.4			28.1				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		1.2			0.8			8.2				
Delay (s)		2.8			2.2			36.3				
Level of Service		A			A			D				
Approach Delay (s)		2.8			2.2			36.3			0.0	
Approach LOS		A			A			D			A	

Intersection Summary			
HCM 2000 Control Delay	3.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	58.3	Sum of lost time (s)	9.0
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 (vph)	59	413	36	22	400	10	28	60	17	17	65	103
Future Volume (vph)	59	413	36	22	400	10	28	60	17	17	65	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.99			0.97	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.99			1.00			0.98			0.93	
Flt Protected		0.99			1.00			0.99			1.00	
Satd. Flow (prot)		1803			1828			1749			1644	
Flt Permitted		0.89			0.96			0.87			0.97	
Satd. Flow (perm)		1623			1754			1550			1594	
Peak-hour factor, PHF	0.88	0.88	0.88	0.86	0.86	0.86	0.85	0.85	0.85	0.87	0.87	0.87
Adj. Flow (vph)	67	469	41	26	465	12	33	71	20	20	75	118
RTOR Reduction (vph)	0	5	0	0	2	0	0	11	0	0	74	0
Lane Group Flow (vph)	0	573	0	0	502	0	0	113	0	0	139	0
Confl. Peds. (#/hr)	32		38	38		32	18		29	29		18
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		30.0			30.0			18.0			18.0	
Effective Green, g (s)		30.0			30.0			18.0			18.0	
Actuated g/C Ratio		0.50			0.50			0.30			0.30	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		811			877			465			478	
v/s Ratio Prot												
v/s Ratio Perm		c0.35			0.29			0.07			c0.09	
v/c Ratio		0.71			0.57			0.24			0.29	
Uniform Delay, d1		11.6			10.5			15.9			16.1	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		5.1			0.9			0.3			1.5	
Delay (s)		16.7			11.4			16.1			17.6	
Level of Service		B			B			B			B	
Approach Delay (s)		16.7			11.4			16.1			17.6	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBT	WBR2	NBT	NBR	SEL	SER	SER2
Lane Configurations										
Traffic Volume (vph)	121	282	9	315	20	164	17	27	185	128
Future Volume (vph)	121	282	9	315	20	164	17	27	185	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)	4.0	4.0		6.0		4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00		1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00		0.99		1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00		1.00		1.00		0.96	1.00	1.00
Frt	1.00	1.00		0.99		0.99		1.00	0.85	0.85
Flt Protected	0.95	1.00		1.00		1.00		0.95	1.00	1.00
Satd. Flow (prot)	1741	1830		1821		1809		1673	1566	1499
Flt Permitted	0.39	1.00		1.00		1.00		0.95	1.00	1.00
Satd. Flow (perm)	714	1830		1821		1809		1673	1566	1499
Peak-hour factor, PHF	0.85	0.85	0.85	0.84	0.84	0.83	0.83	0.92	0.92	0.92
Adj. Flow (vph)	142	332	11	375	24	198	20	29	201	139
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	142	343	0	399	0	218	0	29	201	139
Confl. Peds. (#/hr)	25		41		25		29	29		15
Turn Type	pm+pt	NA		NA		NA		D.Pm	Prot	Perm
Protected Phases	1	1 2		2		3			3	
Permitted Phases	1 2							3		3
Actuated Green, G (s)	31.0	35.0		24.0		22.0		22.0	22.0	22.0
Effective Green, g (s)	31.0	35.0		24.0		22.0		22.0	22.0	22.0
Actuated g/C Ratio	0.46	0.52		0.36		0.33		0.33	0.33	0.33
Clearance Time (s)	4.0			6.0		4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0		3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	437	955		652		594		549	514	492
v/s Ratio Prot	0.03	c0.19		c0.22		0.12			c0.13	
v/s Ratio Perm	0.12							0.02		0.09
v/c Ratio	0.32	0.36		0.61		0.37		0.05	0.39	0.28
Uniform Delay, d1	10.9	9.4		17.7		17.2		15.4	17.3	16.7
Progression Factor	1.00	1.00		1.00		1.00		1.00	1.00	1.00
Incremental Delay, d2	0.4	0.2		1.7		0.4		0.0	0.5	0.3
Delay (s)	11.3	9.6		19.4		17.6		15.4	17.8	17.0
Level of Service	B	A		B		B		B	B	B
Approach Delay (s)		10.1		19.4		17.6		17.3		
Approach LOS		B		B		B		B		

Intersection Summary			
HCM 2000 Control Delay	15.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	67.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	78.4%	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)	19	871	22	12	742	20	3	0	2	4	0	20
Future Volume (Veh/h)	19	871	22	12	742	20	3	0	2	4	0	20
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.87	0.87	0.87	0.25	0.25	0.25	0.68	0.68	0.68
Hourly flow rate (vph)	20	937	24	14	853	23	12	0	8	6	0	29
Pedestrians		11						1			11	
Lane Width (m)		3.7						3.7			3.7	
Walking Speed (m/s)		1.1						1.1			1.1	
Percent Blockage		1						0			1	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)					98							
pX, platoon unblocked	0.86						0.86	0.86		0.86	0.86	0.86
vC, conflicting volume	887			962			1484	1905	482	1420	1906	460
vC1, stage 1 conf vol							990	990		904	904	
vC2, stage 2 conf vol							494	915		516	1002	
vCu, unblocked vol	546			962			1240	1728	482	1165	1729	50
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			98			95	100	98	98	100	97
cM capacity (veh/h)	868			710			244	250	530	320	246	849

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	20	625	336	14	569	307	20	35
Volume Left	20	0	0	14	0	0	12	6
Volume Right	0	0	24	0	0	23	8	29
cSH	868	1700	1700	710	1700	1700	312	661
Volume to Capacity	0.02	0.37	0.20	0.02	0.33	0.18	0.06	0.05
Queue Length 95th (m)	0.5	0.0	0.0	0.5	0.0	0.0	1.6	1.3
Control Delay (s)	9.2	0.0	0.0	10.2	0.0	0.0	17.3	10.7
Lane LOS	A			B			C	B
Approach Delay (s)	0.2			0.2			17.3	10.7
Approach LOS							C	B

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	37.8%	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)	53	809	6	3	693	24	6	8	2	11	25	102
Future Volume (vph)	53	809	6	3	693	24	6	8	2	11	25	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		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	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.97		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1788	3574		1777	3556		1778	1820		1779	1629	
Flt Permitted	0.25	1.00		0.32	1.00		0.61	1.00		0.74	1.00	
Satd. Flow (perm)	479	3574		606	3556		1148	1820		1394	1629	
Peak-hour factor, PHF	0.93	0.93	0.93	0.84	0.84	0.84	0.50	0.50	0.50	0.67	0.67	0.67
Adj. Flow (vph)	57	870	6	4	825	29	12	16	4	16	37	152
RTOR Reduction (vph)	0	1	0	0	3	0	0	3	0	0	120	0
Lane Group Flow (vph)	57	875	0	4	851	0	12	17	0	16	69	0
Confl. Peds. (#/hr)	11		20	20		11	7		5	5		7
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	45.2	45.2		36.4	36.4		15.1	15.1		15.1	15.1	
Effective Green, g (s)	45.2	45.2		36.4	36.4		15.1	15.1		15.1	15.1	
Actuated g/C Ratio	0.63	0.63		0.51	0.51		0.21	0.21		0.21	0.21	
Clearance Time (s)	4.0	5.0		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)	373	2265		309	1815		243	385		295	344	
v/s Ratio Prot	0.01	c0.24			c0.24			0.01			c0.04	
v/s Ratio Perm	0.09			0.01			0.01			0.01		
v/c Ratio	0.15	0.39		0.01	0.47		0.05	0.04		0.05	0.20	
Uniform Delay, d1	5.6	6.3		8.6	11.2		22.4	22.4		22.4	23.1	
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		0.1	0.9		0.1	0.0		0.1	0.3	
Delay (s)	5.8	6.8		8.7	12.1		22.5	22.4		22.5	23.4	
Level of Service	A	A		A	B		C	C		C	C	
Approach Delay (s)		6.8			12.1			22.4			23.4	
Approach LOS		A			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	10.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	71.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	66.2%	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 (vph)	81	649	16	16	610	58	9	7	18	0	0	0
Future Volume (vph)	81	649	16	16	610	58	9	7	18	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5				
Lane Util. Factor		1.00			1.00			1.00				
Frpb, ped/bikes		1.00			0.99			0.95				
Flpb, ped/bikes		1.00			1.00			0.98				
Frt		1.00			0.99			0.93				
Flt Protected		0.99			1.00			0.99				
Satd. Flow (prot)		1853			1837			1613				
Flt Permitted		0.87			0.98			0.99				
Satd. Flow (perm)		1617			1804			1613				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.82	0.82	0.82	0.92	0.92	0.92
Adj. Flow (vph)	88	705	17	17	663	63	11	9	22	0	0	0
RTOR Reduction (vph)	0	1	0	0	2	0	0	21	0	0	0	0
Lane Group Flow (vph)	0	809	0	0	741	0	0	21	0	0	0	0
Confl. Peds. (#/hr)	63		88	88		63	40		42	42		40
Turn Type	Perm	NA		Perm	NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4			8			2					
Actuated Green, G (s)		52.2			52.2			2.9				
Effective Green, g (s)		52.2			52.2			2.9				
Actuated g/C Ratio		0.81			0.81			0.05				
Clearance Time (s)		4.5			4.5			4.5				
Vehicle Extension (s)		3.0			3.0			3.0				
Lane Grp Cap (vph)		1316			1469			72				
v/s Ratio Prot												
v/s Ratio Perm		c0.50			0.41			0.01				
v/c Ratio		0.62			0.50			0.29				
Uniform Delay, d1		2.2			1.9			29.6				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		2.2			1.2			2.2				
Delay (s)		4.4			3.1			31.9				
Level of Service		A			A			C				
Approach Delay (s)		4.4			3.1			31.9			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	4.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	64.1	Sum of lost time (s)	9.0
Intersection Capacity Utilization	98.4%	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)	76	516	40	20	504	16	46	93	29	12	66	161
Future Volume (vph)	76	516	40	20	504	16	46	93	29	12	66	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			1.00			0.98			0.93	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.99			1.00			0.98			0.91	
Flt Protected		0.99			1.00			0.99			1.00	
Satd. Flow (prot)		1796			1824			1717			1550	
Flt Permitted		0.88			0.96			0.84			0.98	
Satd. Flow (perm)		1584			1763			1457			1520	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.85	0.85	0.85	0.81	0.81	0.81
Adj. Flow (vph)	84	567	44	22	554	18	54	109	34	15	81	199
RTOR Reduction (vph)	0	4	0	0	2	0	0	13	0	0	119	0
Lane Group Flow (vph)	0	691	0	0	592	0	0	184	0	0	176	0
Confl. Peds. (#/hr)	77		92	92		77	50		58	58		50
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		30.0			30.0			18.0			18.0	
Effective Green, g (s)		30.0			30.0			18.0			18.0	
Actuated g/C Ratio		0.50			0.50			0.30			0.30	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		792			881			437			456	
v/s Ratio Prot												
v/s Ratio Perm		c0.44			0.34			c0.13			0.12	
v/c Ratio		0.87			0.67			0.42			0.39	
Uniform Delay, d1		13.3			11.3			16.8			16.6	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		12.7			2.0			0.7			2.5	
Delay (s)		26.0			13.3			17.5			19.1	
Level of Service		C			B			B			B	
Approach Delay (s)		26.0			13.3			17.5			19.1	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	98.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBT	WBR2	NBT	NBR	SEL	SER	SER2
Lane Configurations										
Traffic Volume (vph)	119	373	20	324	31	159	28	47	279	210
Future Volume (vph)	119	373	20	324	31	159	28	47	279	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)	4.0	4.0		6.0		4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00		1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		0.99		0.98		1.00	1.00	0.95
Flpb, ped/bikes	0.99	1.00		1.00		1.00		0.90	1.00	1.00
Frt	1.00	0.99		0.99		0.98		1.00	0.85	0.85
Flt Protected	0.95	1.00		1.00		1.00		0.95	1.00	1.00
Satd. Flow (prot)	1727	1820		1802		1775		1582	1566	1482
Flt Permitted	0.37	1.00		1.00		1.00		0.95	1.00	1.00
Satd. Flow (perm)	677	1820		1802		1775		1582	1566	1482
Peak-hour factor, PHF	0.92	0.92	0.92	0.87	0.87	0.89	0.89	0.85	0.85	0.85
Adj. Flow (vph)	129	405	22	372	36	179	31	55	328	247
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	129	427	0	408	0	210	0	55	328	247
Confl. Peds. (#/hr)	69		64		69		65	65		23
Turn Type	pm+pt	NA		NA		NA		D.Pm	Prot	Perm
Protected Phases	1	1 2		2		3			3	
Permitted Phases	1 2							3		3
Actuated Green, G (s)	31.0	35.0		24.0		23.0		23.0	23.0	23.0
Effective Green, g (s)	31.0	35.0		24.0		23.0		23.0	23.0	23.0
Actuated g/C Ratio	0.46	0.51		0.35		0.34		0.34	0.34	0.34
Clearance Time (s)	4.0			6.0		4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0		3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	416	936		636		600		535	529	501
v/s Ratio Prot	0.03	c0.23		c0.23		0.12			c0.21	
v/s Ratio Perm	0.11							0.03		0.17
v/c Ratio	0.31	0.46		0.64		0.35		0.10	0.62	0.49
Uniform Delay, d1	11.3	10.5		18.4		16.9		15.4	18.8	17.9
Progression Factor	1.00	1.00		1.00		1.00		1.00	1.00	1.00
Incremental Delay, d2	0.4	0.4		2.2		0.4		0.1	2.3	0.8
Delay (s)	11.7	10.8		20.6		17.2		15.5	21.1	18.6
Level of Service	B	B		C		B		B	C	B
Approach Delay (s)		11.0		20.6		17.2		19.6		
Approach LOS		B		C		B		B		

Intersection Summary			
HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	68.0	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 (veh/h)	11	1002	17	5	991	19	25	2	21	6	0	47
Future Volume (Veh/h)	11	1002	17	5	991	19	25	2	21	6	0	47
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.91	0.91	0.91	0.92	0.92	0.92	0.72	0.72	0.72
Hourly flow rate (vph)	11	1044	18	5	1089	21	27	2	23	8	0	65
Pedestrians		2						1			20	
Lane Width (m)		3.7						3.7			3.7	
Walking Speed (m/s)		1.1						1.1			1.1	
Percent Blockage		0						0			2	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)					98							
pX, platoon unblocked	0.80						0.80	0.80		0.80	0.80	0.80
vC, conflicting volume	1130			1063			1698	2216	532	1698	2214	577
vC1, stage 1 conf vol							1076	1076		1130	1130	
vC2, stage 2 conf vol							622	1140		568	1085	
vCu, unblocked vol	676			1063			1381	2026	532	1381	2024	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			88	99	95	97	100	92
cM capacity (veh/h)	719			650			218	216	492	261	217	854

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	11	696	366	5	726	384	52	73
Volume Left	11	0	0	5	0	0	27	8
Volume Right	0	0	18	0	0	21	23	65
cSH	719	1700	1700	650	1700	1700	289	684
Volume to Capacity	0.02	0.41	0.22	0.01	0.43	0.23	0.18	0.11
Queue Length 95th (m)	0.4	0.0	0.0	0.2	0.0	0.0	4.9	2.7
Control Delay (s)	10.1	0.0	0.0	10.6	0.0	0.0	20.2	10.9
Lane LOS	B			B			C	B
Approach Delay (s)	0.1			0.0			20.2	10.9
Approach LOS							C	B

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	43.6%	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)	67	951	34	4	882	49	16	26	13	25	13	133
Future Volume (vph)	67	951	34	4	882	49	16	26	13	25	13	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		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	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.98	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.95		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3552		1767	3544		1755	1774		1767	1574	
Flt Permitted	0.19	1.00		0.28	1.00		0.65	1.00		0.73	1.00	
Satd. Flow (perm)	357	3552		520	3544		1205	1774		1357	1574	
Peak-hour factor, PHF	0.96	0.96	0.96	0.90	0.90	0.90	0.92	0.92	0.92	0.88	0.88	0.88
Adj. Flow (vph)	70	991	35	4	980	54	17	28	14	28	15	151
RTOR Reduction (vph)	0	3	0	0	5	0	0	11	0	0	119	0
Lane Group Flow (vph)	70	1023	0	4	1029	0	17	31	0	28	47	0
Confl. Peds. (#/hr)	13		43	43		13	20		11	11		20
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	45.4	45.4		36.6	36.6		15.1	15.1		15.1	15.1	
Effective Green, g (s)	45.4	45.4		36.6	36.6		15.1	15.1		15.1	15.1	
Actuated g/C Ratio	0.63	0.63		0.51	0.51		0.21	0.21		0.21	0.21	
Clearance Time (s)	4.0	5.0		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)	302	2255		266	1814		254	374		286	332	
v/s Ratio Prot	0.01	c0.29			c0.29			0.02			c0.03	
v/s Ratio Perm	0.13			0.01			0.01			0.02		
v/c Ratio	0.23	0.45		0.02	0.57		0.07	0.08		0.10	0.14	
Uniform Delay, d1	6.3	6.7		8.6	12.0		22.6	22.6		22.7	22.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.7		0.1	1.3		0.1	0.1		0.2	0.2	
Delay (s)	6.7	7.4		8.7	13.3		22.7	22.7		22.9	23.1	
Level of Service	A	A		A	B		C	C		C	C	
Approach Delay (s)		7.3			13.3			22.7			23.1	
Approach LOS		A			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	11.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	71.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	72.1%	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)	59	647	23	11	573	30	11	7	9	0	0	0
Future Volume (vph)	59	647	23	11	573	30	11	7	9	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5				
Lane Util. Factor		1.00			1.00			1.00				
Frpb, ped/bikes		1.00			1.00			0.99				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.99			0.95				
Flt Protected		1.00			1.00			0.98				
Satd. Flow (prot)		1862			1865			1736				
Flt Permitted		0.91			0.99			0.98				
Satd. Flow (perm)		1702			1841			1736				
Peak-hour factor, PHF	0.89	0.89	0.89	0.85	0.85	0.85	0.85	0.85	0.85	0.92	0.92	0.92
Adj. Flow (vph)	66	727	26	13	674	35	13	8	11	0	0	0
RTOR Reduction (vph)	0	1	0	0	1	0	0	11	0	0	0	0
Lane Group Flow (vph)	0	818	0	0	721	0	0	21	0	0	0	0
Confl. Peds. (#/hr)	11		36	36		11	5		6	6		5
Turn Type	Perm	NA		Perm	NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4			8			2					
Actuated Green, G (s)		48.0			48.0			2.6				
Effective Green, g (s)		48.0			48.0			2.6				
Actuated g/C Ratio		0.81			0.81			0.04				
Clearance Time (s)		4.5			4.5			4.5				
Vehicle Extension (s)		3.0			3.0			3.0				
Lane Grp Cap (vph)		1370			1482			75				
v/s Ratio Prot												
v/s Ratio Perm		c0.48			0.39			0.01				
v/c Ratio		0.60			0.49			0.29				
Uniform Delay, d1		2.2			1.9			27.6				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		1.9			1.1			2.1				
Delay (s)		4.1			3.0			29.7				
Level of Service		A			A			C				
Approach Delay (s)		4.1			3.0			29.7			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	4.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	59.6	Sum of lost time (s)	9.0
Intersection Capacity Utilization	85.5%	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)	61	502	38	23	485	10	34	63	21	20	68	120
Future Volume (vph)	61	502	38	23	485	10	34	63	21	20	68	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.99			0.97	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.99			1.00			0.98			0.92	
Flt Protected		0.99			1.00			0.99			1.00	
Satd. Flow (prot)		1808			1830			1741			1636	
Flt Permitted		0.90			0.96			0.86			0.96	
Satd. Flow (perm)		1635			1754			1525			1581	
Peak-hour factor, PHF	0.88	0.88	0.88	0.86	0.86	0.86	0.85	0.85	0.85	0.87	0.87	0.87
Adj. Flow (vph)	69	570	43	27	564	12	40	74	25	23	78	138
RTOR Reduction (vph)	0	4	0	0	1	0	0	13	0	0	82	0
Lane Group Flow (vph)	0	678	0	0	602	0	0	126	0	0	157	0
Confl. Peds. (#/hr)	32		38	38		32	18		29	29		18
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		30.0			30.0			18.0			18.0	
Effective Green, g (s)		30.0			30.0			18.0			18.0	
Actuated g/C Ratio		0.50			0.50			0.30			0.30	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		817			877			457			474	
v/s Ratio Prot												
v/s Ratio Perm		c0.41			0.34			0.08			c0.10	
v/c Ratio		0.83			0.69			0.28			0.33	
Uniform Delay, d1		12.8			11.4			16.0			16.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		9.6			2.2			0.3			1.9	
Delay (s)		22.4			13.7			16.4			18.2	
Level of Service		C			B			B			B	
Approach Delay (s)		22.4			13.7			16.4			18.2	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBT	WBR2	NBT	NBR	SEL	SER	SER2
Lane Configurations										
Traffic Volume (vph)	133	343	10	383	22	181	21	33	204	155
Future Volume (vph)	133	343	10	383	22	181	21	33	204	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)	4.0	4.0		6.0		4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00		1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00		0.99		1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00		1.00		1.00		0.96	1.00	1.00
Frt	1.00	1.00		0.99		0.99		1.00	0.85	0.85
Flt Protected	0.95	1.00		1.00		1.00		0.95	1.00	1.00
Satd. Flow (prot)	1745	1831		1823		1805		1673	1566	1500
Flt Permitted	0.29	1.00		1.00		1.00		0.95	1.00	1.00
Satd. Flow (perm)	529	1831		1823		1805		1673	1566	1500
Peak-hour factor, PHF	0.85	0.85	0.85	0.84	0.84	0.83	0.83	0.92	0.92	0.92
Adj. Flow (vph)	156	404	12	456	26	218	25	36	222	168
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	156	416	0	482	0	243	0	36	222	168
Confl. Peds. (#/hr)	25		41		25		29	29		15
Turn Type	pm+pt	NA		NA		NA		D.Pm	Prot	Perm
Protected Phases	1	1 2		2		3			3	
Permitted Phases	1 2							3		3
Actuated Green, G (s)	31.0	35.0		24.0		22.3		22.3	22.3	22.3
Effective Green, g (s)	31.0	35.0		24.0		22.3		22.3	22.3	22.3
Actuated g/C Ratio	0.46	0.52		0.36		0.33		0.33	0.33	0.33
Clearance Time (s)	4.0			6.0		4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0		3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	370	952		650		598		554	518	497
v/s Ratio Prot	0.04	c0.23		c0.26		0.13			c0.14	
v/s Ratio Perm	0.15							0.02		0.11
v/c Ratio	0.42	0.44		0.74		0.41		0.06	0.43	0.34
Uniform Delay, d1	11.6	10.0		18.9		17.4		15.4	17.5	16.9
Progression Factor	1.00	1.00		1.00		1.00		1.00	1.00	1.00
Incremental Delay, d2	0.8	0.3		4.6		0.5		0.0	0.6	0.4
Delay (s)	12.4	10.4		23.5		17.8		15.4	18.1	17.3
Level of Service	B	B		C		B		B	B	B
Approach Delay (s)		10.9		23.5		17.8		17.6		
Approach LOS		B		C		B		B		

Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	67.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	80.7%	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)	20	961	22	12	819	21	3	0	2	4	0	22
Future Volume (Veh/h)	20	961	22	12	819	21	3	0	2	4	0	22
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.87	0.87	0.87	0.25	0.25	0.25	0.68	0.68	0.68
Hourly flow rate (vph)	22	1033	24	14	941	24	12	0	8	6	0	32
Pedestrians		11						1			11	
Lane Width (m)		3.7						3.7			3.7	
Walking Speed (m/s)		1.1						1.1			1.1	
Percent Blockage		1						0			1	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)					98							
pX, platoon unblocked	0.84						0.84	0.84		0.84	0.84	0.84
vC, conflicting volume	976			1058			1632	2094	530	1560	2094	504
vC1, stage 1 conf vol							1090	1090		992	992	
vC2, stage 2 conf vol							542	1004		568	1102	
vCu, unblocked vol	582			1058			1365	1918	530	1280	1918	18
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			98			94	100	98	98	100	96
cM capacity (veh/h)	818			653			212	222	493	290	218	864

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	22	689	368	14	627	338	20	38
Volume Left	22	0	0	14	0	0	12	6
Volume Right	0	0	24	0	0	24	8	32
cSH	818	1700	1700	653	1700	1700	275	659
Volume to Capacity	0.03	0.41	0.22	0.02	0.37	0.20	0.07	0.06
Queue Length 95th (m)	0.6	0.0	0.0	0.5	0.0	0.0	1.8	1.4
Control Delay (s)	9.5	0.0	0.0	10.6	0.0	0.0	19.1	10.8
Lane LOS	A			B			C	B
Approach Delay (s)	0.2			0.2			19.1	10.8
Approach LOS							C	B

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	40.3%	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)	56	894	6	3	765	25	6	8	2	12	25	112
Future Volume (vph)	56	894	6	3	765	25	6	8	2	12	25	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		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	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.97		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1788	3574		1778	3558		1779	1820		1779	1625	
Flt Permitted	0.22	1.00		0.30	1.00		0.59	1.00		0.74	1.00	
Satd. Flow (perm)	415	3574		554	3558		1095	1820		1394	1625	
Peak-hour factor, PHF	0.93	0.93	0.93	0.84	0.84	0.84	0.50	0.50	0.50	0.67	0.67	0.67
Adj. Flow (vph)	60	961	6	4	911	30	12	16	4	18	37	167
RTOR Reduction (vph)	0	0	0	0	3	0	0	3	0	0	131	0
Lane Group Flow (vph)	60	967	0	4	938	0	12	17	0	18	73	0
Confl. Peds. (#/hr)	11		20	20		11	7		5	5		7
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	44.3	44.3		35.6	35.6		15.0	15.0		15.0	15.0	
Effective Green, g (s)	44.3	44.3		35.6	35.6		15.0	15.0		15.0	15.0	
Actuated g/C Ratio	0.63	0.63		0.51	0.51		0.21	0.21		0.21	0.21	
Clearance Time (s)	4.0	5.0		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)	333	2252		280	1801		233	388		297	346	
v/s Ratio Prot	0.01	c0.27			c0.26			0.01			c0.04	
v/s Ratio Perm	0.10			0.01			0.01			0.01		
v/c Ratio	0.18	0.43		0.01	0.52		0.05	0.04		0.06	0.21	
Uniform Delay, d1	6.0	6.6		8.6	11.6		22.0	22.0		22.0	22.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.6		0.1	1.1		0.1	0.0		0.1	0.3	
Delay (s)	6.2	7.2		8.7	12.7		22.1	22.0		22.1	23.1	
Level of Service	A	A		A	B		C	C		C	C	
Approach Delay (s)		7.1			12.7			22.0			23.0	
Approach LOS		A			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	11.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	70.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	68.7%	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)	86	784	16	16	738	61	11	7	22	0	0	0
Future Volume (vph)	86	784	16	16	738	61	11	7	22	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5				
Lane Util. Factor		1.00			1.00			1.00				
Frpb, ped/bikes		1.00			0.99			0.94				
Flpb, ped/bikes		1.00			1.00			0.98				
Frt		1.00			0.99			0.93				
Flt Protected		1.00			1.00			0.99				
Satd. Flow (prot)		1856			1839			1576				
Flt Permitted		0.85			0.98			0.99				
Satd. Flow (perm)		1586			1802			1576				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.82	0.82	0.82	0.92	0.92	0.92
Adj. Flow (vph)	93	852	17	17	802	66	13	9	27	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	25	0	0	0	0
Lane Group Flow (vph)	0	962	0	0	883	0	0	24	0	0	0	0
Confl. Peds. (#/hr)	63		88	88		63	40		42	42		40
Turn Type	Perm	NA		Perm	NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4			8			2					
Actuated Green, G (s)		66.9			66.9			4.6				
Effective Green, g (s)		66.9			66.9			4.6				
Actuated g/C Ratio		0.83			0.83			0.06				
Clearance Time (s)		4.5			4.5			4.5				
Vehicle Extension (s)		3.0			3.0			3.0				
Lane Grp Cap (vph)		1318			1497			90				
v/s Ratio Prot												
v/s Ratio Perm		c0.61			0.49			0.01				
v/c Ratio		0.73			0.59			0.26				
Uniform Delay, d1		2.9			2.3			36.3				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		3.6			1.7			1.6				
Delay (s)		6.5			4.0			37.9				
Level of Service		A			A			D				
Approach Delay (s)		6.5			4.0			37.9			0.0	
Approach LOS		A			A			D			A	

Intersection Summary			
HCM 2000 Control Delay	6.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	80.5	Sum of lost time (s)	9.0
Intersection Capacity Utilization	110.7%	ICU Level of Service	H
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)	79	627	42	21	613	17	56	97	36	14	70	193
Future Volume (vph)	79	627	42	21	613	17	56	97	36	14	70	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			1.00			0.98			0.92	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.99			1.00			0.97			0.91	
Flt Protected		0.99			1.00			0.99			1.00	
Satd. Flow (prot)		1800			1826			1702			1525	
Flt Permitted		0.87			0.96			0.67			0.98	
Satd. Flow (perm)		1575			1763			1150			1492	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.85	0.85	0.85	0.81	0.81	0.81
Adj. Flow (vph)	87	689	46	23	674	19	66	114	42	17	86	238
RTOR Reduction (vph)	0	3	0	0	1	0	0	12	0	0	119	0
Lane Group Flow (vph)	0	819	0	0	715	0	0	210	0	0	222	0
Confl. Peds. (#/hr)	77		92	92		77	50		58	58		50
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		40.0			40.0			18.0			18.0	
Effective Green, g (s)		40.0			40.0			18.0			18.0	
Actuated g/C Ratio		0.57			0.57			0.26			0.26	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		900			1007			295			383	
v/s Ratio Prot												
v/s Ratio Perm		c0.52			0.41			c0.18			0.15	
v/c Ratio		0.91			0.71			0.71			0.58	
Uniform Delay, d1		13.4			10.8			23.6			22.7	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		14.8			2.3			7.9			6.3	
Delay (s)		28.2			13.1			31.5			29.0	
Level of Service		C			B			C			C	
Approach Delay (s)		28.2			13.1			31.5			29.0	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	23.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	113.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBT	WBR2	NBT	NBR	SEL	SER	SER2
Lane Configurations										
Traffic Volume (vph)	132	453	22	393	34	176	34	57	308	254
Future Volume (vph)	132	453	22	393	34	176	34	57	308	254
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)	4.0	4.0		6.0		4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00		1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		0.99		0.98		1.00	1.00	0.95
Flpb, ped/bikes	0.99	1.00		1.00		1.00		0.91	1.00	1.00
Frt	1.00	0.99		0.99		0.98		1.00	0.85	0.85
Flt Protected	0.95	1.00		1.00		1.00		0.95	1.00	1.00
Satd. Flow (prot)	1737	1822		1805		1769		1584	1566	1483
Flt Permitted	0.27	1.00		1.00		1.00		0.95	1.00	1.00
Satd. Flow (perm)	492	1822		1805		1769		1584	1566	1483
Peak-hour factor, PHF	0.92	0.92	0.92	0.87	0.87	0.89	0.89	0.85	0.85	0.85
Adj. Flow (vph)	143	492	24	452	39	198	38	67	362	299
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	143	516	0	491	0	236	0	67	362	299
Confl. Peds. (#/hr)	69		64		69		65	65		23
Turn Type	pm+pt	NA		NA		NA		D.Pm	Prot	Perm
Protected Phases	1	1 2		2		3			3	
Permitted Phases	1 2							3		3
Actuated Green, G (s)	31.0	35.0		24.0		23.4		23.4	23.4	23.4
Effective Green, g (s)	31.0	35.0		24.0		23.4		23.4	23.4	23.4
Actuated g/C Ratio	0.45	0.51		0.35		0.34		0.34	0.34	0.34
Clearance Time (s)	4.0			6.0		4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0		3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	350	932		633		605		541	535	507
v/s Ratio Prot	0.04	c0.28		c0.27		0.13			c0.23	
v/s Ratio Perm	0.14							0.04		0.20
v/c Ratio	0.41	0.55		0.78		0.39		0.12	0.68	0.59
Uniform Delay, d1	12.1	11.4		19.8		17.1		15.5	19.3	18.5
Progression Factor	1.00	1.00		1.00		1.00		1.00	1.00	1.00
Incremental Delay, d2	0.8	0.7		5.9		0.4		0.1	3.4	1.8
Delay (s)	12.9	12.1		25.7		17.5		15.6	22.6	20.3
Level of Service	B	B		C		B		B	C	C
Approach Delay (s)		12.3		25.7		17.5		21.0		
Approach LOS		B		C		B		C		

Intersection Summary			
HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	68.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	82.1%	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 (veh/h)	12	1105	17	5	1094	20	25	2	21	7	0	52
Future Volume (Veh/h)	12	1105	17	5	1094	20	25	2	21	7	0	52
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.91	0.91	0.91	0.92	0.92	0.92	0.72	0.72	0.72
Hourly flow rate (vph)	13	1151	18	5	1202	22	27	2	23	10	0	72
Pedestrians		2						1			20	
Lane Width (m)		3.7						3.7			3.7	
Walking Speed (m/s)		1.1						1.1			1.1	
Percent Blockage		0						0			2	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)					98							
pX, platoon unblocked	0.76						0.76	0.76		0.76	0.76	0.76
vC, conflicting volume	1244			1170			1872	2441	586	1868	2439	634
vC1, stage 1 conf vol							1187	1187		1243	1243	
vC2, stage 2 conf vol							685	1254		626	1196	
vCu, unblocked vol	696			1170			1520	2267	586	1516	2264	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			85	99	95	96	100	91
cM capacity (veh/h)	669			592			186	191	453	236	191	809

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	13	767	402	5	801	423	52	82
Volume Left	13	0	0	5	0	0	27	10
Volume Right	0	0	18	0	0	22	23	72
cSH	669	1700	1700	592	1700	1700	252	624
Volume to Capacity	0.02	0.45	0.24	0.01	0.47	0.25	0.21	0.13
Queue Length 95th (m)	0.5	0.0	0.0	0.2	0.0	0.0	5.8	3.4
Control Delay (s)	10.5	0.0	0.0	11.1	0.0	0.0	23.0	11.6
Lane LOS	B			B			C	B
Approach Delay (s)	0.1			0.0			23.0	11.6
Approach LOS							C	B

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	46.2%	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)	70	1050	34	4	973	50	16	26	13	27	13	147
Future Volume (vph)	70	1050	34	4	973	50	16	26	13	27	13	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		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	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.98	1.00		0.99	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.95		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3554		1770	3546		1757	1775		1767	1572	
Flt Permitted	0.15	1.00		0.25	1.00		0.63	1.00		0.73	1.00	
Satd. Flow (perm)	280	3554		470	3546		1169	1775		1358	1572	
Peak-hour factor, PHF	0.96	0.96	0.96	0.90	0.90	0.90	0.92	0.92	0.92	0.88	0.88	0.88
Adj. Flow (vph)	73	1094	35	4	1081	56	17	28	14	31	15	167
RTOR Reduction (vph)	0	3	0	0	5	0	0	11	0	0	131	0
Lane Group Flow (vph)	73	1126	0	4	1132	0	17	31	0	31	51	0
Confl. Peds. (#/hr)	13		43	43		13	20		11	11		20
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	44.5	44.5		34.5	34.5		15.1	15.1		15.1	15.1	
Effective Green, g (s)	44.5	44.5		34.5	34.5		15.1	15.1		15.1	15.1	
Actuated g/C Ratio	0.63	0.63		0.49	0.49		0.21	0.21		0.21	0.21	
Clearance Time (s)	4.0	5.0		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)	283	2240		229	1732		250	379		290	336	
v/s Ratio Prot	0.02	c0.32			c0.32			0.02			c0.03	
v/s Ratio Perm	0.14			0.01			0.01			0.02		
v/c Ratio	0.26	0.50		0.02	0.65		0.07	0.08		0.11	0.15	
Uniform Delay, d1	7.2	7.1		9.3	13.6		22.1	22.2		22.3	22.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.8		0.1	1.9		0.1	0.1		0.2	0.2	
Delay (s)	7.7	7.9		9.4	15.5		22.3	22.3		22.5	22.8	
Level of Service	A	A		A	B		C	C		C	C	
Approach Delay (s)		7.9			15.5			22.3			22.7	
Approach LOS		A			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	70.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	74.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Appendix E:
Future Total Operations

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	441	34	32	396	28	40	6	68	0	0	0
Future Volume (vph)	53	441	34	32	396	28	40	6	68	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5				
Lane Util. Factor		1.00			1.00			1.00				
Frpb, ped/bikes		1.00			1.00			0.98				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		0.99			0.99			0.92				
Flt Protected		0.99			1.00			0.98				
Satd. Flow (prot)		1848			1855			1669				
Flt Permitted		0.92			0.94			0.98				
Satd. Flow (perm)		1706			1758			1669				
Peak-hour factor, PHF	0.89	0.89	0.89	0.85	0.85	0.85	0.85	0.85	0.85	0.92	0.92	0.92
Adj. Flow (vph)	60	496	38	38	466	33	47	7	80	0	0	0
RTOR Reduction (vph)	0	3	0	0	3	0	0	70	0	0	0	0
Lane Group Flow (vph)	0	591	0	0	534	0	0	64	0	0	0	0
Confl. Peds. (#/hr)	11		36	36		11	5		6	6		5
Turn Type	Perm	NA		Perm	NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4			8			2					
Actuated Green, G (s)		34.8			34.8			6.3				
Effective Green, g (s)		34.8			34.8			6.3				
Actuated g/C Ratio		0.69			0.69			0.13				
Clearance Time (s)		4.5			4.5			4.5				
Vehicle Extension (s)		3.0			3.0			3.0				
Lane Grp Cap (vph)		1185			1221			209				
v/s Ratio Prot												
v/s Ratio Perm		c0.35			0.30			0.04				
v/c Ratio		0.50			0.44			0.31				
Uniform Delay, d1		3.6			3.4			19.9				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		1.5			1.1			0.8				
Delay (s)		5.1			4.5			20.7				
Level of Service		A			A			C				
Approach Delay (s)		5.1			4.5			20.7			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	6.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	50.1	Sum of lost time (s)	9.0
Intersection Capacity Utilization	62.3%	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 (vph)	81	377	34	21	339	9	23	57	14	14	62	101
Future Volume (vph)	81	377	34	21	339	9	23	57	14	14	62	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.99			0.97	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.99			1.00			0.98			0.92	
Flt Protected		0.99			1.00			0.99			1.00	
Satd. Flow (prot)		1798			1827			1758			1641	
Flt Permitted		0.86			0.96			0.88			0.97	
Satd. Flow (perm)		1566			1755			1572			1599	
Peak-hour factor, PHF	0.88	0.88	0.88	0.86	0.86	0.86	0.85	0.85	0.85	0.87	0.87	0.87
Adj. Flow (vph)	92	428	39	24	394	10	27	67	16	16	71	116
RTOR Reduction (vph)	0	4	0	0	1	0	0	11	0	0	85	0
Lane Group Flow (vph)	0	555	0	0	427	0	0	99	0	0	118	0
Confl. Peds. (#/hr)	32		38	38		32	18		29	29		18
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		32.1			32.1			15.1			15.1	
Effective Green, g (s)		32.1			32.1			15.1			15.1	
Actuated g/C Ratio		0.54			0.54			0.26			0.26	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		849			951			400			407	
v/s Ratio Prot												
v/s Ratio Perm		c0.35			0.24			0.06			c0.07	
v/c Ratio		0.65			0.45			0.25			0.29	
Uniform Delay, d1		9.6			8.2			17.5			17.7	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		3.9			1.5			0.3			0.4	
Delay (s)		13.5			9.7			17.9			18.1	
Level of Service		B			A			B			B	
Approach Delay (s)		13.5			9.7			17.9			18.1	
Approach LOS		B			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	59.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBT	WBR2	NBT	NBR	SEL	SER	SER2
Lane Configurations										
Traffic Volume (vph)	138	241	8	263	18	149	14	23	172	112
Future Volume (vph)	138	241	8	263	18	149	14	23	172	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)	4.0	4.0		6.0		4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00		1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00		0.99		1.00	1.00	0.96
Flpb, ped/bikes	0.99	1.00		1.00		1.00		0.96	1.00	1.00
Frt	1.00	1.00		0.99		0.99		1.00	0.85	0.85
Flt Protected	0.95	1.00		1.00		1.00		0.95	1.00	1.00
Satd. Flow (prot)	1738	1830		1820		1811		1673	1566	1499
Flt Permitted	0.47	1.00		1.00		1.00		0.95	1.00	1.00
Satd. Flow (perm)	861	1830		1820		1811		1673	1566	1499
Peak-hour factor, PHF	0.85	0.85	0.85	0.84	0.84	0.83	0.83	0.92	0.92	0.92
Adj. Flow (vph)	162	284	9	313	21	180	17	25	187	122
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	162	293	0	334	0	197	0	25	187	122
Confl. Peds. (#/hr)	25		41		25		29	29		15
Turn Type	pm+pt	NA		NA		NA		D.Pm	Prot	Perm
Protected Phases	1	1 2		2		3			3	
Permitted Phases	1 2							3		3
Actuated Green, G (s)	31.0	35.0		24.0		22.0		22.0	22.0	22.0
Effective Green, g (s)	31.0	35.0		24.0		22.0		22.0	22.0	22.0
Actuated g/C Ratio	0.46	0.52		0.36		0.33		0.33	0.33	0.33
Clearance Time (s)	4.0			6.0		4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0		3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	490	955		651		594		549	514	492
v/s Ratio Prot	0.03	c0.16		c0.18		0.11			c0.12	
v/s Ratio Perm	0.12							0.01		0.08
v/c Ratio	0.33	0.31		0.51		0.33		0.05	0.36	0.25
Uniform Delay, d1	10.8	9.1		16.9		17.0		15.3	17.2	16.5
Progression Factor	1.00	1.00		1.00		1.00		1.00	1.00	1.00
Incremental Delay, d2	0.4	0.2		0.7		0.3		0.0	0.4	0.3
Delay (s)	11.2	9.3		17.6		17.3		15.4	17.6	16.7
Level of Service	B	A		B		B		B	B	B
Approach Delay (s)		10.0		17.6		17.3		17.1		
Approach LOS		A		B		B		B		

Intersection Summary			
HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	67.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	79.3%	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 (veh/h)	28	789	22	12	673	25	3	0	2	8	0	41
Future Volume (Veh/h)	28	789	22	12	673	25	3	0	2	8	0	41
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.87	0.87	0.87	0.25	0.25	0.25	0.68	0.68	0.68
Hourly flow rate (vph)	30	848	24	14	774	29	12	0	8	12	0	60
Pedestrians		11						1			11	
Lane Width (m)		3.7						3.7			3.7	
Walking Speed (m/s)		1.1						1.1			1.1	
Percent Blockage		1						0			1	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)					98							
pX, platoon unblocked	0.88						0.88	0.88		0.88	0.88	0.88
vC, conflicting volume	814			873			1407	1763	437	1320	1760	424
vC1, stage 1 conf vol							921	921		828	828	
vC2, stage 2 conf vol							486	842		492	933	
vCu, unblocked vol	512			873			1187	1592	437	1088	1589	68
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			98			95	100	99	96	100	93
cM capacity (veh/h)	912			768			263	267	567	341	265	844

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	30	565	307	14	516	287	20	72
Volume Left	30	0	0	14	0	0	12	12
Volume Right	0	0	24	0	0	29	8	60
cSH	912	1700	1700	768	1700	1700	334	678
Volume to Capacity	0.03	0.33	0.18	0.02	0.30	0.17	0.06	0.11
Queue Length 95th (m)	0.8	0.0	0.0	0.4	0.0	0.0	1.4	2.7
Control Delay (s)	9.1	0.0	0.0	9.8	0.0	0.0	16.5	10.9
Lane LOS	A			A			C	B
Approach Delay (s)	0.3			0.2			16.5	10.9
Approach LOS							C	B

Intersection Summary				
Average Delay	0.8			
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)	51	738	6	3	633	24	6	8	2	10	25	93
Future Volume (vph)	51	738	6	3	633	24	6	8	2	10	25	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		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	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.97		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1788	3573		1775	3554		1778	1820		1779	1634	
Flt Permitted	0.28	1.00		0.35	1.00		0.64	1.00		0.74	1.00	
Satd. Flow (perm)	534	3573		653	3554		1200	1820		1394	1634	
Peak-hour factor, PHF	0.93	0.93	0.93	0.84	0.84	0.84	0.50	0.50	0.50	0.67	0.67	0.67
Adj. Flow (vph)	55	794	6	4	754	29	12	16	4	15	37	139
RTOR Reduction (vph)	0	1	0	0	3	0	0	3	0	0	110	0
Lane Group Flow (vph)	55	799	0	4	780	0	12	17	0	15	66	0
Confl. Peds. (#/hr)	11		20	20		11	7		5	5		7
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	45.4	45.4		36.6	36.6		15.1	15.1		15.1	15.1	
Effective Green, g (s)	45.4	45.4		36.6	36.6		15.1	15.1		15.1	15.1	
Actuated g/C Ratio	0.63	0.63		0.51	0.51		0.21	0.21		0.21	0.21	
Clearance Time (s)	4.0	5.0		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)	405	2268		334	1819		253	384		294	345	
v/s Ratio Prot	0.01	c0.22			c0.22			0.01			c0.04	
v/s Ratio Perm	0.08			0.01			0.01			0.01		
v/c Ratio	0.14	0.35		0.01	0.43		0.05	0.04		0.05	0.19	
Uniform Delay, d1	5.4	6.1		8.6	10.9		22.5	22.5		22.5	23.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.4		0.1	0.7		0.1	0.0		0.1	0.3	
Delay (s)	5.6	6.6		8.6	11.7		22.5	22.5		22.6	23.5	
Level of Service	A	A		A	B		C	C		C	C	
Approach Delay (s)		6.5			11.6			22.5			23.4	
Approach LOS		A			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	71.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	64.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	28	94	20	16	35	31
Future Volume (Veh/h)	28	94	20	16	35	31
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)	30	102	22	17	38	34
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						76
pX, platoon unblocked						
vC, conflicting volume	140	30			39	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	140	30			39	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	90			98	
cM capacity (veh/h)	832	1044			1571	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	132	39	72
Volume Left	30	0	38
Volume Right	102	17	0
cSH	987	1700	1571
Volume to Capacity	0.13	0.02	0.02
Queue Length 95th (m)	3.5	0.0	0.6
Control Delay (s)	9.2	0.0	4.0
Lane LOS	A		A
Approach Delay (s)	9.2	0.0	4.0
Approach LOS	A		

Intersection Summary			
Average Delay	6.2		
Intersection Capacity Utilization	24.2%	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)	77	538	52	75	505	55	35	6	67	0	0	0
Future Volume (vph)	77	538	52	75	505	55	35	6	67	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5				
Lane Util. Factor		1.00			1.00			1.00				
Frpb, ped/bikes		0.99			0.99			0.95				
Flpb, ped/bikes		1.00			0.99			0.98				
Frt		0.99			0.99			0.92				
Flt Protected		0.99			0.99			0.98				
Satd. Flow (prot)		1823			1822			1578				
Flt Permitted		0.87			0.87			0.98				
Satd. Flow (perm)		1600			1586			1578				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.82	0.82	0.82	0.92	0.92	0.92
Adj. Flow (vph)	84	585	57	82	549	60	43	7	82	0	0	0
RTOR Reduction (vph)	0	3	0	0	3	0	0	72	0	0	0	0
Lane Group Flow (vph)	0	723	0	0	688	0	0	60	0	0	0	0
Confl. Peds. (#/hr)	63		88	88		63	40		42	42		40
Turn Type	Perm	NA		Perm	NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4			8			2					
Actuated Green, G (s)		39.9			39.9			6.5				
Effective Green, g (s)		39.9			39.9			6.5				
Actuated g/C Ratio		0.72			0.72			0.12				
Clearance Time (s)		4.5			4.5			4.5				
Vehicle Extension (s)		3.0			3.0			3.0				
Lane Grp Cap (vph)		1152			1142			185				
v/s Ratio Prot												
v/s Ratio Perm		c0.45			0.43			0.04				
v/c Ratio		0.63			0.60			0.32				
Uniform Delay, d1		4.0			3.8			22.4				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		2.6			2.4			1.0				
Delay (s)		6.5			6.2			23.4				
Level of Service		A			A			C				
Approach Delay (s)		6.5			6.2			23.4			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	7.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	55.4	Sum of lost time (s)	9.0
Intersection Capacity Utilization	70.4%	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 (vph)	94	456	38	19	442	16	38	89	24	10	63	169
Future Volume (vph)	94	456	38	19	442	16	38	89	24	10	63	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			1.00			0.98			0.93	
Flpb, ped/bikes		0.99			1.00			0.99			1.00	
Frt		0.99			1.00			0.98			0.91	
Flt Protected		0.99			1.00			0.99			1.00	
Satd. Flow (prot)		1790			1822			1730			1546	
Flt Permitted		0.85			0.97			0.83			0.98	
Satd. Flow (perm)		1539			1763			1461			1523	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.85	0.85	0.85	0.81	0.81	0.81
Adj. Flow (vph)	103	501	42	21	486	18	45	105	28	12	78	209
RTOR Reduction (vph)	0	4	0	0	2	0	0	12	0	0	146	0
Lane Group Flow (vph)	0	642	0	0	523	0	0	166	0	0	153	0
Confl. Peds. (#/hr)	77		92	92		77	50		58	58		50
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		30.0			30.0			15.4			15.4	
Effective Green, g (s)		30.0			30.0			15.4			15.4	
Actuated g/C Ratio		0.52			0.52			0.27			0.27	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		804			921			391			408	
v/s Ratio Prot												
v/s Ratio Perm		c0.42			0.30			c0.11			0.10	
v/c Ratio		0.80			0.57			0.43			0.38	
Uniform Delay, d1		11.2			9.3			17.3			17.1	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		8.2			2.5			0.7			0.6	
Delay (s)		19.4			11.8			18.1			17.7	
Level of Service		B			B			B			B	
Approach Delay (s)		19.4			11.8			18.1			17.7	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	57.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	96.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBT	WBR2	NBT	NBR	SEL	SER	SER2
Lane Configurations										
Traffic Volume (vph)	132	314	18	277	28	144	23	39	264	189
Future Volume (vph)	132	314	18	277	28	144	23	39	264	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)	4.0	4.0		6.0		4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00		1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		0.99		0.98		1.00	1.00	0.95
Flpb, ped/bikes	0.98	1.00		1.00		1.00		0.90	1.00	1.00
Frt	1.00	0.99		0.99		0.98		1.00	0.85	0.85
Flt Protected	0.95	1.00		1.00		1.00		0.95	1.00	1.00
Satd. Flow (prot)	1719	1819		1800		1779		1581	1566	1482
Flt Permitted	0.45	1.00		1.00		1.00		0.95	1.00	1.00
Satd. Flow (perm)	807	1819		1800		1779		1581	1566	1482
Peak-hour factor, PHF	0.92	0.92	0.92	0.87	0.87	0.89	0.89	0.85	0.85	0.85
Adj. Flow (vph)	143	341	20	318	32	162	26	46	311	222
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	143	361	0	350	0	188	0	46	311	222
Confl. Peds. (#/hr)	69		64		69		65	65		23
Turn Type	pm+pt	NA		NA		NA		D.Pm	Prot	Perm
Protected Phases	1	1 2		2		3			3	
Permitted Phases	1 2							3		3
Actuated Green, G (s)	31.0	35.0		24.0		22.8		22.8	22.8	22.8
Effective Green, g (s)	31.0	35.0		24.0		22.8		22.8	22.8	22.8
Actuated g/C Ratio	0.46	0.52		0.35		0.34		0.34	0.34	0.34
Clearance Time (s)	4.0			6.0		4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0		3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	463	939		637		598		531	526	498
v/s Ratio Prot	0.03	c0.20		c0.19		0.11			c0.20	
v/s Ratio Perm	0.11							0.03		0.15
v/c Ratio	0.31	0.38		0.55		0.31		0.09	0.59	0.45
Uniform Delay, d1	11.1	9.9		17.6		16.7		15.4	18.6	17.6
Progression Factor	1.00	1.00		1.00		1.00		1.00	1.00	1.00
Incremental Delay, d2	0.4	0.3		1.0		0.3		0.1	1.8	0.6
Delay (s)	11.5	10.2		18.5		17.0		15.5	20.4	18.2
Level of Service	B	B		B		B		B	C	B
Approach Delay (s)		10.5		18.5		17.0		19.2		
Approach LOS		B		B		B		B		

Intersection Summary			
HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	67.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	79.0%	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)	38	909	17	5	898	34	25	2	21	10	0	63
Future Volume (Veh/h)	38	909	17	5	898	34	25	2	21	10	0	63
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.91	0.91	0.91	0.92	0.92	0.92	0.72	0.72	0.72
Hourly flow rate (vph)	40	947	18	5	987	37	27	2	23	14	0	88
Pedestrians		2						1			20	
Lane Width (m)		3.7						3.7			3.7	
Walking Speed (m/s)		1.1						1.1			1.1	
Percent Blockage		0						0			2	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)					98							
pX, platoon unblocked	0.84						0.84	0.84		0.84	0.84	0.84
vC, conflicting volume	1044			966			1630	2091	484	1613	2082	534
vC1, stage 1 conf vol							1037	1037		1036	1036	
vC2, stage 2 conf vol							594	1054		578	1046	
vCu, unblocked vol	669			966			1368	1917	484	1347	1905	61
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			99			88	99	96	95	100	89
cM capacity (veh/h)	754			708			218	216	529	269	224	814

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	40	631	334	5	658	366	52	102
Volume Left	40	0	0	5	0	0	27	14
Volume Right	0	0	18	0	0	37	23	88
cSH	754	1700	1700	708	1700	1700	294	637
Volume to Capacity	0.05	0.37	0.20	0.01	0.39	0.22	0.18	0.16
Queue Length 95th (m)	1.3	0.0	0.0	0.2	0.0	0.0	4.8	4.3
Control Delay (s)	10.0	0.0	0.0	10.1	0.0	0.0	19.8	11.7
Lane LOS	B			B			C	B
Approach Delay (s)	0.4			0.0			19.8	11.7
Approach LOS							C	B

Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	46.0%	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)	64	866	34	4	814	48	16	26	13	23	13	121
Future Volume (vph)	64	866	34	4	814	48	16	26	13	23	13	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		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	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.98	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.95		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1788	3549		1765	3542		1756	1775		1768	1578	
Flt Permitted	0.23	1.00		0.31	1.00		0.66	1.00		0.73	1.00	
Satd. Flow (perm)	428	3549		567	3542		1220	1775		1358	1578	
Peak-hour factor, PHF	0.96	0.96	0.96	0.90	0.90	0.90	0.92	0.92	0.92	0.88	0.88	0.88
Adj. Flow (vph)	67	902	35	4	904	53	17	28	14	26	15	138
RTOR Reduction (vph)	0	3	0	0	5	0	0	12	0	0	114	0
Lane Group Flow (vph)	67	934	0	4	952	0	17	30	0	26	39	0
Confl. Peds. (#/hr)	13		43	43		13	20		11	11		20
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	45.9	45.9		37.4	37.4		11.8	11.8		11.8	11.8	
Effective Green, g (s)	45.9	45.9		37.4	37.4		11.8	11.8		11.8	11.8	
Actuated g/C Ratio	0.67	0.67		0.54	0.54		0.17	0.17		0.17	0.17	
Clearance Time (s)	4.0	5.0		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)	355	2371		308	1928		209	304		233	271	
v/s Ratio Prot	0.01	c0.26			c0.27			0.02			c0.02	
v/s Ratio Perm	0.12			0.01			0.01			0.02		
v/c Ratio	0.19	0.39		0.01	0.49		0.08	0.10		0.11	0.14	
Uniform Delay, d1	4.8	5.1		7.2	9.8		23.9	24.0		24.0	24.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.5		0.1	0.9		0.2	0.1		0.2	0.2	
Delay (s)	5.0	5.6		7.3	10.7		24.1	24.1		24.2	24.4	
Level of Service	A	A		A	B		C	C		C	C	
Approach Delay (s)		5.6			10.6			24.1			24.4	
Approach LOS		A			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	9.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	68.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	24	79	29	43	30	97
Future Volume (Veh/h)	24	79	29	43	30	97
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)	26	86	32	47	33	105
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						77
pX, platoon unblocked						
vC, conflicting volume	226	56			79	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	226	56			79	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	91			98	
cM capacity (veh/h)	745	1011			1519	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	112	79	138
Volume Left	26	0	33
Volume Right	86	47	0
cSH	934	1700	1519
Volume to Capacity	0.12	0.05	0.02
Queue Length 95th (m)	3.1	0.0	0.5
Control Delay (s)	9.4	0.0	1.9
Lane LOS	A		A
Approach Delay (s)	9.4	0.0	1.9
Approach LOS	A		

Intersection Summary			
Average Delay	4.0		
Intersection Capacity Utilization	26.3%	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)	56	534	35	32	476	29	41	7	70	0	0	0
Future Volume (vph)	56	534	35	32	476	29	41	7	70	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5				
Lane Util. Factor		1.00			1.00			1.00				
Frpb, ped/bikes		1.00			1.00			0.98				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		0.99			0.99			0.92				
Flt Protected		1.00			1.00			0.98				
Satd. Flow (prot)		1853			1859			1670				
Flt Permitted		0.91			0.94			0.98				
Satd. Flow (perm)		1702			1761			1670				
Peak-hour factor, PHF	0.89	0.89	0.89	0.85	0.85	0.85	0.85	0.85	0.85	0.92	0.92	0.92
Adj. Flow (vph)	63	600	39	38	560	34	48	8	82	0	0	0
RTOR Reduction (vph)	0	2	0	0	2	0	0	72	0	0	0	0
Lane Group Flow (vph)	0	700	0	0	630	0	0	66	0	0	0	0
Confl. Peds. (#/hr)	11		36	36		11	5		6	6		5
Turn Type	Perm	NA		Perm	NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4			8			2					
Actuated Green, G (s)		34.6			34.6			6.4				
Effective Green, g (s)		34.6			34.6			6.4				
Actuated g/C Ratio		0.69			0.69			0.13				
Clearance Time (s)		4.5			4.5			4.5				
Vehicle Extension (s)		3.0			3.0			3.0				
Lane Grp Cap (vph)		1177			1218			213				
v/s Ratio Prot												
v/s Ratio Perm		c0.41			0.36			0.04				
v/c Ratio		0.59			0.52			0.31				
Uniform Delay, d1		4.0			3.7			19.8				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		2.2			1.6			0.8				
Delay (s)		6.2			5.3			20.6				
Level of Service		A			A			C				
Approach Delay (s)		6.2			5.3			20.6			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	7.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	69.9%	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 (vph)	83	451	36	22	410	10	28	60	17	17	65	115
Future Volume (vph)	83	451	36	22	410	10	28	60	17	17	65	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.99			0.97	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.99			1.00			0.98			0.92	
Flt Protected		0.99			1.00			0.99			1.00	
Satd. Flow (prot)		1803			1828			1751			1637	
Flt Permitted		0.87			0.95			0.88			0.96	
Satd. Flow (perm)		1575			1750			1567			1586	
Peak-hour factor, PHF	0.88	0.88	0.88	0.86	0.86	0.86	0.85	0.85	0.85	0.87	0.87	0.87
Adj. Flow (vph)	94	512	41	26	477	12	33	71	20	20	75	132
RTOR Reduction (vph)	0	4	0	0	1	0	0	12	0	0	88	0
Lane Group Flow (vph)	0	644	0	0	514	0	0	112	0	0	139	0
Confl. Peds. (#/hr)	32		38	38		32	18		29	29		18
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		30.5			30.5			15.0			15.0	
Effective Green, g (s)		30.5			30.5			15.0			15.0	
Actuated g/C Ratio		0.53			0.53			0.26			0.26	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		835			928			408			413	
v/s Ratio Prot												
v/s Ratio Perm		c0.41			0.29			0.07			c0.09	
v/c Ratio		0.77			0.55			0.27			0.34	
Uniform Delay, d1		10.7			9.0			16.9			17.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		6.8			2.4			0.4			0.5	
Delay (s)		17.6			11.3			17.3			17.7	
Level of Service		B			B			B			B	
Approach Delay (s)		17.6			11.3			17.3			17.7	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	57.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	81.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBT	WBR2	NBT	NBR	SEL	SER	SER2
Lane Configurations										
Traffic Volume (vph)	150	291	9	319	20	164	17	27	189	134
Future Volume (vph)	150	291	9	319	20	164	17	27	189	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)	4.0	4.0		6.0		4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00		1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00		0.99		1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00		1.00		1.00		0.96	1.00	1.00
Frt	1.00	1.00		0.99		0.99		1.00	0.85	0.85
Flt Protected	0.95	1.00		1.00		1.00		0.95	1.00	1.00
Satd. Flow (prot)	1741	1830		1821		1809		1673	1566	1499
Flt Permitted	0.38	1.00		1.00		1.00		0.95	1.00	1.00
Satd. Flow (perm)	703	1830		1821		1809		1673	1566	1499
Peak-hour factor, PHF	0.85	0.85	0.85	0.84	0.84	0.83	0.83	0.92	0.92	0.92
Adj. Flow (vph)	176	342	11	380	24	198	20	29	205	146
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	176	353	0	404	0	218	0	29	205	146
Confl. Peds. (#/hr)	25		41		25		29	29		15
Turn Type	pm+pt	NA		NA		NA		D.Pm	Prot	Perm
Protected Phases	1	1 2		2		3			3	
Permitted Phases	1 2							3		3
Actuated Green, G (s)	31.0	35.0		24.0		22.0		22.0	22.0	22.0
Effective Green, g (s)	31.0	35.0		24.0		22.0		22.0	22.0	22.0
Actuated g/C Ratio	0.46	0.52		0.36		0.33		0.33	0.33	0.33
Clearance Time (s)	4.0			6.0		4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0		3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	433	955		652		594		549	514	492
v/s Ratio Prot	0.04	c0.19		c0.22		0.12			c0.13	
v/s Ratio Perm	0.15							0.02		0.10
v/c Ratio	0.41	0.37		0.62		0.37		0.05	0.40	0.30
Uniform Delay, d1	11.1	9.5		17.7		17.2		15.4	17.4	16.7
Progression Factor	1.00	1.00		1.00		1.00		1.00	1.00	1.00
Incremental Delay, d2	0.6	0.2		1.8		0.4		0.0	0.5	0.3
Delay (s)	11.8	9.7		19.5		17.6		15.4	17.9	17.1
Level of Service	B	A		B		B		B	B	B
Approach Delay (s)		10.4		19.5		17.6		17.4		
Approach LOS		B		B		B		B		

Intersection Summary			
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	67.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	80.0%	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)	29	871	22	12	742	26	3	0	2	9	0	43
Future Volume (Veh/h)	29	871	22	12	742	26	3	0	2	9	0	43
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.87	0.87	0.87	0.25	0.25	0.25	0.68	0.68	0.68
Hourly flow rate (vph)	31	937	24	14	853	30	12	0	8	13	0	63
Pedestrians		11						1			11	
Lane Width (m)		3.7						3.7			3.7	
Walking Speed (m/s)		1.1						1.1			1.1	
Percent Blockage		1						0			1	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)					98							
pX, platoon unblocked	0.86						0.86	0.86		0.86	0.86	0.86
vC, conflicting volume	894			962			1540	1934	482	1446	1931	464
vC1, stage 1 conf vol							1012	1012		907	907	
vC2, stage 2 conf vol							528	922		538	1024	
vCu, unblocked vol	548			962			1301	1759	482	1190	1756	47
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			98			95	100	98	96	100	93
cM capacity (veh/h)	864			710			232	240	530	313	238	850

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	31	625	336	14	569	314	20	76
Volume Left	31	0	0	14	0	0	12	13
Volume Right	0	0	24	0	0	30	8	63
cSH	864	1700	1700	710	1700	1700	299	657
Volume to Capacity	0.04	0.37	0.20	0.02	0.33	0.18	0.07	0.12
Queue Length 95th (m)	0.8	0.0	0.0	0.5	0.0	0.0	1.6	3.0
Control Delay (s)	9.3	0.0	0.0	10.2	0.0	0.0	17.9	11.2
Lane LOS	A			B			C	B
Approach Delay (s)	0.3			0.2			17.9	11.2
Approach LOS							C	B

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	38.4%	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)	53	814	6	3	699	24	6	8	2	11	25	102
Future Volume (vph)	53	814	6	3	699	24	6	8	2	11	25	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		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	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.97		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1788	3574		1777	3557		1778	1820		1779	1629	
Flt Permitted	0.25	1.00		0.32	1.00		0.61	1.00		0.74	1.00	
Satd. Flow (perm)	473	3574		603	3557		1148	1820		1394	1629	
Peak-hour factor, PHF	0.93	0.93	0.93	0.84	0.84	0.84	0.50	0.50	0.50	0.67	0.67	0.67
Adj. Flow (vph)	57	875	6	4	832	29	12	16	4	16	37	152
RTOR Reduction (vph)	0	1	0	0	3	0	0	3	0	0	120	0
Lane Group Flow (vph)	57	880	0	4	858	0	12	17	0	16	69	0
Confl. Peds. (#/hr)	11		20	20		11	7		5	5		7
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	45.2	45.2		36.4	36.4		15.1	15.1		15.1	15.1	
Effective Green, g (s)	45.2	45.2		36.4	36.4		15.1	15.1		15.1	15.1	
Actuated g/C Ratio	0.63	0.63		0.51	0.51		0.21	0.21		0.21	0.21	
Clearance Time (s)	4.0	5.0		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)	369	2265		307	1815		243	385		295	344	
v/s Ratio Prot	0.01	c0.25			c0.24			0.01			c0.04	
v/s Ratio Perm	0.09			0.01			0.01			0.01		
v/c Ratio	0.15	0.39		0.01	0.47		0.05	0.04		0.05	0.20	
Uniform Delay, d1	5.7	6.3		8.6	11.3		22.4	22.4		22.4	23.1	
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		0.1	0.9		0.1	0.0		0.1	0.3	
Delay (s)	5.9	6.8		8.7	12.1		22.5	22.4		22.5	23.4	
Level of Service	A	A		A	B		C	C		C	C	
Approach Delay (s)		6.8			12.1			22.4			23.4	
Approach LOS		A			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	71.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	28	94	24	16	35	32
Future Volume (Veh/h)	28	94	24	16	35	32
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)	30	102	26	17	38	35
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						76
pX, platoon unblocked						
vC, conflicting volume	146	34			43	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	146	34			43	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	90			98	
cM capacity (veh/h)	826	1039			1566	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	132	43	73
Volume Left	30	0	38
Volume Right	102	17	0
cSH	981	1700	1566
Volume to Capacity	0.13	0.03	0.02
Queue Length 95th (m)	3.5	0.0	0.6
Control Delay (s)	9.2	0.0	3.9
Lane LOS	A		A
Approach Delay (s)	9.2	0.0	3.9
Approach LOS	A		

Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	24.3%	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)	81	649	53	76	610	58	36	7	70	0	0	0
Future Volume (vph)	81	649	53	76	610	58	36	7	70	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5				
Lane Util. Factor		1.00			1.00			1.00				
Frpb, ped/bikes		0.99			0.99			0.95				
Flpb, ped/bikes		1.00			1.00			0.98				
Frt		0.99			0.99			0.92				
Flt Protected		0.99			0.99			0.98				
Satd. Flow (prot)		1832			1831			1581				
Flt Permitted		0.86			0.86			0.98				
Satd. Flow (perm)		1591			1584			1581				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.82	0.82	0.82	0.92	0.92	0.92
Adj. Flow (vph)	88	705	58	83	663	63	44	9	85	0	0	0
RTOR Reduction (vph)	0	3	0	0	3	0	0	75	0	0	0	0
Lane Group Flow (vph)	0	848	0	0	806	0	0	63	0	0	0	0
Confl. Peds. (#/hr)	63		88	88		63	40		42	42		40
Turn Type	Perm	NA		Perm	NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4			8			2					
Actuated Green, G (s)		39.7			39.7			6.6				
Effective Green, g (s)		39.7			39.7			6.6				
Actuated g/C Ratio		0.72			0.72			0.12				
Clearance Time (s)		4.5			4.5			4.5				
Vehicle Extension (s)		3.0			3.0			3.0				
Lane Grp Cap (vph)		1142			1137			188				
v/s Ratio Prot												
v/s Ratio Perm		c0.53			0.51			0.04				
v/c Ratio		0.74			0.71			0.34				
Uniform Delay, d1		4.7			4.5			22.3				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		4.4			3.7			1.1				
Delay (s)		9.1			8.2			23.4				
Level of Service		A			A			C				
Approach Delay (s)		9.1			8.2			23.4			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	9.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	55.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	79.0%	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)	96	548	40	20	531	16	46	93	29	12	66	195
Future Volume (vph)	96	548	40	20	531	16	46	93	29	12	66	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			1.00			0.98			0.92	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.99			1.00			0.98			0.90	
Flt Protected		0.99			1.00			0.99			1.00	
Satd. Flow (prot)		1795			1825			1718			1530	
Flt Permitted		0.85			0.97			0.72			0.98	
Satd. Flow (perm)		1533			1764			1256			1502	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.85	0.85	0.85	0.81	0.81	0.81
Adj. Flow (vph)	105	602	44	22	584	18	54	109	34	15	81	241
RTOR Reduction (vph)	0	3	0	0	2	0	0	12	0	0	135	0
Lane Group Flow (vph)	0	748	0	0	622	0	0	185	0	0	202	0
Confl. Peds. (#/hr)	77		92	92		77	50		58	58		50
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		35.0			35.0			15.8			15.8	
Effective Green, g (s)		35.0			35.0			15.8			15.8	
Actuated g/C Ratio		0.56			0.56			0.25			0.25	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		854			983			316			377	
v/s Ratio Prot												
v/s Ratio Perm		c0.49			0.35			c0.15			0.13	
v/c Ratio		0.88			0.63			0.59			0.53	
Uniform Delay, d1		12.0			9.5			20.6			20.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		12.2			3.1			2.8			1.5	
Delay (s)		24.2			12.6			23.4			21.8	
Level of Service		C			B			C			C	
Approach Delay (s)		24.2			12.6			23.4			21.8	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	62.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	109.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBT	WBR2	NBT	NBR	SEL	SER	SER2
Lane Configurations										
Traffic Volume (vph)	143	381	20	335	31	159	28	47	290	226
Future Volume (vph)	143	381	20	335	31	159	28	47	290	226
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)	4.0	4.0		6.0		4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00		1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		0.99		0.98		1.00	1.00	0.95
Flpb, ped/bikes	0.99	1.00		1.00		1.00		0.90	1.00	1.00
Frt	1.00	0.99		0.99		0.98		1.00	0.85	0.85
Flt Protected	0.95	1.00		1.00		1.00		0.95	1.00	1.00
Satd. Flow (prot)	1729	1821		1803		1775		1583	1566	1483
Flt Permitted	0.36	1.00		1.00		1.00		0.95	1.00	1.00
Satd. Flow (perm)	646	1821		1803		1775		1583	1566	1483
Peak-hour factor, PHF	0.92	0.92	0.92	0.87	0.87	0.89	0.89	0.85	0.85	0.85
Adj. Flow (vph)	155	414	22	385	36	179	31	55	341	266
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	155	436	0	421	0	210	0	55	341	266
Confl. Peds. (#/hr)	69		64		69		65	65		23
Turn Type	pm+pt	NA		NA		NA		D.Pm	Prot	Perm
Protected Phases	1	1 2		2		3			3	
Permitted Phases	1 2							3		3
Actuated Green, G (s)	31.0	35.0		24.0		23.2		23.2	23.2	23.2
Effective Green, g (s)	31.0	35.0		24.0		23.2		23.2	23.2	23.2
Actuated g/C Ratio	0.45	0.51		0.35		0.34		0.34	0.34	0.34
Clearance Time (s)	4.0			6.0		4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0		3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	404	934		634		603		538	532	504
v/s Ratio Prot	0.04	c0.24		c0.23		0.12			c0.22	
v/s Ratio Perm	0.13							0.03		0.18
v/c Ratio	0.38	0.47		0.66		0.35		0.10	0.64	0.53
Uniform Delay, d1	11.6	10.6		18.7		16.8		15.4	19.0	18.1
Progression Factor	1.00	1.00		1.00		1.00		1.00	1.00	1.00
Incremental Delay, d2	0.6	0.4		2.6		0.4		0.1	2.6	1.0
Delay (s)	12.2	11.0		21.3		17.2		15.5	21.6	19.1
Level of Service	B	B		C		B		B	C	B
Approach Delay (s)		11.3		21.3		17.2		20.1		
Approach LOS		B		C		B		C		

Intersection Summary			
HCM 2000 Control Delay	17.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	68.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	79.6%	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 (veh/h)	38	1002	17	5	991	35	25	2	21	10	0	67
Future Volume (Veh/h)	38	1002	17	5	991	35	25	2	21	10	0	67
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.91	0.91	0.91	0.92	0.92	0.92	0.72	0.72	0.72
Hourly flow rate (vph)	40	1044	18	5	1089	38	27	2	23	14	0	93
Pedestrians		2						1			20	
Lane Width (m)		3.7						3.7			3.7	
Walking Speed (m/s)		1.1						1.1			1.1	
Percent Blockage		0						0			2	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)					98							
pX, platoon unblocked	0.80						0.80	0.80		0.80	0.80	0.80
vC, conflicting volume	1147			1063			1784	2291	532	1764	2281	586
vC1, stage 1 conf vol							1134	1134		1138	1138	
vC2, stage 2 conf vol							650	1157		626	1143	
vCu, unblocked vol	682			1063			1478	2113	532	1454	2100	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			99			86	99	95	94	100	89
cM capacity (veh/h)	711			650			192	194	492	248	201	848

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	40	696	366	5	726	401	52	107
Volume Left	40	0	0	5	0	0	27	14
Volume Right	0	0	18	0	0	38	23	93
cSH	711	1700	1700	650	1700	1700	262	644
Volume to Capacity	0.06	0.41	0.22	0.01	0.43	0.24	0.20	0.17
Queue Length 95th (m)	1.4	0.0	0.0	0.2	0.0	0.0	5.5	4.5
Control Delay (s)	10.4	0.0	0.0	10.6	0.0	0.0	22.1	11.7
Lane LOS	B			B			C	B
Approach Delay (s)	0.4			0.0			22.1	11.7
Approach LOS							C	B

Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	46.3%	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)	67	955	34	4	898	49	16	26	13	25	13	133
Future Volume (vph)	67	955	34	4	898	49	16	26	13	25	13	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		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	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.98	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.95		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3552		1767	3545		1755	1774		1767	1574	
Flt Permitted	0.18	1.00		0.28	1.00		0.65	1.00		0.73	1.00	
Satd. Flow (perm)	346	3552		517	3545		1205	1774		1357	1574	
Peak-hour factor, PHF	0.96	0.96	0.96	0.90	0.90	0.90	0.92	0.92	0.92	0.88	0.88	0.88
Adj. Flow (vph)	70	995	35	4	998	54	17	28	14	28	15	151
RTOR Reduction (vph)	0	3	0	0	5	0	0	11	0	0	119	0
Lane Group Flow (vph)	70	1027	0	4	1047	0	17	31	0	28	47	0
Confl. Peds. (#/hr)	13		43	43		13	20		11	11		20
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	45.4	45.4		36.6	36.6		15.1	15.1		15.1	15.1	
Effective Green, g (s)	45.4	45.4		36.6	36.6		15.1	15.1		15.1	15.1	
Actuated g/C Ratio	0.63	0.63		0.51	0.51		0.21	0.21		0.21	0.21	
Clearance Time (s)	4.0	5.0		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)	296	2255		264	1814		254	374		286	332	
v/s Ratio Prot	0.01	c0.29			c0.30			0.02			c0.03	
v/s Ratio Perm	0.14			0.01			0.01			0.02		
v/c Ratio	0.24	0.46		0.02	0.58		0.07	0.08		0.10	0.14	
Uniform Delay, d1	6.4	6.7		8.6	12.1		22.6	22.6		22.7	22.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.7		0.1	1.3		0.1	0.1		0.2	0.2	
Delay (s)	6.8	7.4		8.7	13.4		22.7	22.7		22.9	23.1	
Level of Service	A	A		A	B		C	C		C	C	
Approach Delay (s)		7.3			13.4			22.7			23.1	
Approach LOS		A			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	11.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	71.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	72.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	24	79	34	43	97	32
Future Volume (Veh/h)	24	79	34	43	97	32
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)	26	86	37	47	105	35
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						77
pX, platoon unblocked						
vC, conflicting volume	306	60			84	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	306	60			84	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	91			93	
cM capacity (veh/h)	639	1005			1513	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	112	84	140
Volume Left	26	0	105
Volume Right	86	47	0
cSH	887	1700	1513
Volume to Capacity	0.13	0.05	0.07
Queue Length 95th (m)	3.3	0.0	1.7
Control Delay (s)	9.6	0.0	5.8
Lane LOS	A		A
Approach Delay (s)	9.6	0.0	5.8
Approach LOS	A		

Intersection Summary			
Average Delay	5.6		
Intersection Capacity Utilization	26.6%	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)	59	647	36	33	573	30	43	7	71	0	0	0
Future Volume (vph)	59	647	36	33	573	30	43	7	71	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5				
Lane Util. Factor		1.00			1.00			1.00				
Frpb, ped/bikes		1.00			1.00			0.98				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		0.99			0.99			0.92				
Flt Protected		1.00			1.00			0.98				
Satd. Flow (prot)		1857			1862			1671				
Flt Permitted		0.91			0.94			0.98				
Satd. Flow (perm)		1695			1758			1671				
Peak-hour factor, PHF	0.89	0.89	0.89	0.85	0.85	0.85	0.85	0.85	0.85	0.92	0.92	0.92
Adj. Flow (vph)	66	727	40	39	674	35	51	8	84	0	0	0
RTOR Reduction (vph)	0	2	0	0	2	0	0	73	0	0	0	0
Lane Group Flow (vph)	0	831	0	0	746	0	0	70	0	0	0	0
Confl. Peds. (#/hr)	11		36	36		11	5		6	6		5
Turn Type	Perm	NA		Perm	NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4			8			2					
Actuated Green, G (s)		34.3			34.3			6.4				
Effective Green, g (s)		34.3			34.3			6.4				
Actuated g/C Ratio		0.69			0.69			0.13				
Clearance Time (s)		4.5			4.5			4.5				
Vehicle Extension (s)		3.0			3.0			3.0				
Lane Grp Cap (vph)		1169			1213			215				
v/s Ratio Prot												
v/s Ratio Perm		c0.49			0.42			0.04				
v/c Ratio		0.71			0.62			0.32				
Uniform Delay, d1		4.7			4.1			19.7				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		3.7			2.3			0.9				
Delay (s)		8.4			6.5			20.6				
Level of Service		A			A			C				
Approach Delay (s)		8.4			6.5			20.6			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	49.7	Sum of lost time (s)	9.0
Intersection Capacity Utilization	78.4%	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)	85	540	38	23	495	10	34	63	21	20	68	132
Future Volume (vph)	85	540	38	23	495	10	34	63	21	20	68	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.99			0.97	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.99			1.00			0.98			0.92	
Flt Protected		0.99			1.00			0.99			1.00	
Satd. Flow (prot)		1807			1830			1740			1628	
Flt Permitted		0.86			0.95			0.84			0.96	
Satd. Flow (perm)		1570			1750			1485			1571	
Peak-hour factor, PHF	0.88	0.88	0.88	0.86	0.86	0.86	0.85	0.85	0.85	0.87	0.87	0.87
Adj. Flow (vph)	97	614	43	27	576	12	40	74	25	23	78	152
RTOR Reduction (vph)	0	3	0	0	1	0	0	13	0	0	86	0
Lane Group Flow (vph)	0	751	0	0	614	0	0	126	0	0	167	0
Confl. Peds. (#/hr)	32		38	38		32	18		29	29		18
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		35.0			35.0			15.5			15.5	
Effective Green, g (s)		35.0			35.0			15.5			15.5	
Actuated g/C Ratio		0.56			0.56			0.25			0.25	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		879			980			368			389	
v/s Ratio Prot												
v/s Ratio Perm		c0.48			0.35			0.08			c0.11	
v/c Ratio		0.85			0.63			0.34			0.43	
Uniform Delay, d1		11.6			9.3			19.3			19.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		10.4			3.0			0.6			0.8	
Delay (s)		22.0			12.3			19.9			20.5	
Level of Service		C			B			B			C	
Approach Delay (s)		22.0			12.3			19.9			20.5	
Approach LOS		C			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	62.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	89.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBT	WBR2	NBT	NBR	SEL	SER	SER2
Lane Configurations										
Traffic Volume (vph)	162	352	10	387	22	181	21	33	208	161
Future Volume (vph)	162	352	10	387	22	181	21	33	208	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)	4.0	4.0		6.0		4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00		1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00		0.99		1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00		1.00		1.00		0.96	1.00	1.00
Frt	1.00	1.00		0.99		0.99		1.00	0.85	0.85
Flt Protected	0.95	1.00		1.00		1.00		0.95	1.00	1.00
Satd. Flow (prot)	1745	1831		1823		1805		1674	1566	1500
Flt Permitted	0.28	1.00		1.00		1.00		0.95	1.00	1.00
Satd. Flow (perm)	517	1831		1823		1805		1674	1566	1500
Peak-hour factor, PHF	0.85	0.85	0.85	0.84	0.84	0.83	0.83	0.92	0.92	0.92
Adj. Flow (vph)	191	414	12	461	26	218	25	36	226	175
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	191	426	0	487	0	243	0	36	226	175
Confl. Peds. (#/hr)	25		41		25		29	29		15
Turn Type	pm+pt	NA		NA		NA		D.Pm	Prot	Perm
Protected Phases	1	1 2		2		3			3	
Permitted Phases	1 2							3		3
Actuated Green, G (s)	31.0	35.0		24.0		22.4		22.4	22.4	22.4
Effective Green, g (s)	31.0	35.0		24.0		22.4		22.4	22.4	22.4
Actuated g/C Ratio	0.46	0.52		0.36		0.33		0.33	0.33	0.33
Clearance Time (s)	4.0			6.0		4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0		3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	365	950		649		599		556	520	498
v/s Ratio Prot	0.05	c0.23		c0.27		0.13			c0.14	
v/s Ratio Perm	0.19							0.02		0.12
v/c Ratio	0.52	0.45		0.75		0.41		0.06	0.43	0.35
Uniform Delay, d1	12.0	10.2		19.1		17.4		15.4	17.6	17.0
Progression Factor	1.00	1.00		1.00		1.00		1.00	1.00	1.00
Incremental Delay, d2	1.4	0.3		4.9		0.5		0.0	0.6	0.4
Delay (s)	13.4	10.5		23.9		17.8		15.4	18.1	17.4
Level of Service	B	B		C		B		B	B	B
Approach Delay (s)		11.4		23.9		17.8		17.6		
Approach LOS		B		C		B		B		

Intersection Summary			
HCM 2000 Control Delay	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	67.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	82.5%	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 (veh/h)	30	961	22	12	819	27	3	0	2	9	0	45
Future Volume (Veh/h)	30	961	22	12	819	27	3	0	2	9	0	45
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.87	0.87	0.87	0.25	0.25	0.25	0.68	0.68	0.68
Hourly flow rate (vph)	32	1033	24	14	941	31	12	0	8	13	0	66
Pedestrians		11						1			11	
Lane Width (m)		3.7						3.7			3.7	
Walking Speed (m/s)		1.1						1.1			1.1	
Percent Blockage		1						0			1	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)					98							
pX, platoon unblocked	0.83						0.83	0.83		0.83	0.83	0.83
vC, conflicting volume	983			1058			1686	2121	530	1584	2118	508
vC1, stage 1 conf vol							1110	1110		996	996	
vC2, stage 2 conf vol							576	1011		588	1122	
vCu, unblocked vol	584			1058			1426	1947	530	1304	1943	15
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			98			94	100	98	95	100	92
cM capacity (veh/h)	815			653			202	214	493	284	212	866

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	32	689	368	14	627	345	20	79
Volume Left	32	0	0	14	0	0	12	13
Volume Right	0	0	24	0	0	31	8	66
cSH	815	1700	1700	653	1700	1700	265	648
Volume to Capacity	0.04	0.41	0.22	0.02	0.37	0.20	0.08	0.12
Queue Length 95th (m)	0.9	0.0	0.0	0.5	0.0	0.0	1.8	3.1
Control Delay (s)	9.6	0.0	0.0	10.6	0.0	0.0	19.7	11.3
Lane LOS	A			B			C	B
Approach Delay (s)	0.3			0.2			19.7	11.3
Approach LOS							C	B

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	40.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	899	6	3	771	25	6	8	2	12	25	112
Future Volume (vph)	56	899	6	3	771	25	6	8	2	12	25	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		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	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.97		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1788	3574		1778	3558		1779	1820		1779	1625	
Flt Permitted	0.22	1.00		0.29	1.00		0.59	1.00		0.74	1.00	
Satd. Flow (perm)	410	3574		551	3558		1095	1820		1394	1625	
Peak-hour factor, PHF	0.93	0.93	0.93	0.84	0.84	0.84	0.50	0.50	0.50	0.67	0.67	0.67
Adj. Flow (vph)	60	967	6	4	918	30	12	16	4	18	37	167
RTOR Reduction (vph)	0	0	0	0	3	0	0	3	0	0	131	0
Lane Group Flow (vph)	60	973	0	4	945	0	12	17	0	18	73	0
Confl. Peds. (#/hr)	11		20	20		11	7		5	5		7
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	44.3	44.3		35.6	35.6		15.0	15.0		15.0	15.0	
Effective Green, g (s)	44.3	44.3		35.6	35.6		15.0	15.0		15.0	15.0	
Actuated g/C Ratio	0.63	0.63		0.51	0.51		0.21	0.21		0.21	0.21	
Clearance Time (s)	4.0	5.0		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)	330	2252		279	1801		233	388		297	346	
v/s Ratio Prot	0.01	c0.27			c0.27			0.01			c0.04	
v/s Ratio Perm	0.10			0.01			0.01			0.01		
v/c Ratio	0.18	0.43		0.01	0.52		0.05	0.04		0.06	0.21	
Uniform Delay, d1	6.0	6.6		8.6	11.7		22.0	22.0		22.0	22.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.6		0.1	1.1		0.1	0.0		0.1	0.3	
Delay (s)	6.3	7.2		8.7	12.8		22.1	22.0		22.1	23.1	
Level of Service	A	A		A	B		C	C		C	C	
Approach Delay (s)		7.2			12.7			22.0			23.0	
Approach LOS		A			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	11.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	70.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	28	94	27	16	35	34
Future Volume (Veh/h)	28	94	27	16	35	34
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)	30	102	29	17	38	37
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						76
pX, platoon unblocked						
vC, conflicting volume	150	38			46	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	150	38			46	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	90			98	
cM capacity (veh/h)	821	1035			1562	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	132	46	75
Volume Left	30	0	38
Volume Right	102	17	0
cSH	977	1700	1562
Volume to Capacity	0.14	0.03	0.02
Queue Length 95th (m)	3.5	0.0	0.6
Control Delay (s)	9.3	0.0	3.8
Lane LOS	A		A
Approach Delay (s)	9.3	0.0	3.8
Approach LOS	A		

Intersection Summary			
Average Delay	6.0		
Intersection Capacity Utilization	24.4%	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)	86	784	53	76	738	61	38	7	74	0	0	0
Future Volume (vph)	86	784	53	76	738	61	38	7	74	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5				
Lane Util. Factor		1.00			1.00			1.00				
Frpb, ped/bikes		0.99			0.99			0.93				
Flpb, ped/bikes		1.00			1.00			0.97				
Frt		0.99			0.99			0.92				
Flt Protected		1.00			1.00			0.98				
Satd. Flow (prot)		1830			1829			1524				
Flt Permitted		0.84			0.85			0.98				
Satd. Flow (perm)		1546			1552			1524				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.82	0.82	0.82	0.92	0.92	0.92
Adj. Flow (vph)	93	852	58	83	802	66	46	9	90	0	0	0
RTOR Reduction (vph)	0	2	0	0	2	0	0	73	0	0	0	0
Lane Group Flow (vph)	0	1001	0	0	949	0	0	72	0	0	0	0
Confl. Peds. (#/hr)	63		88	88		63	40		42	42		40
Turn Type	Perm	NA		Perm	NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4			8			2					
Actuated Green, G (s)		68.7			68.7			9.6				
Effective Green, g (s)		68.7			68.7			9.6				
Actuated g/C Ratio		0.79			0.79			0.11				
Clearance Time (s)		4.5			4.5			4.5				
Vehicle Extension (s)		3.0			3.0			3.0				
Lane Grp Cap (vph)		1216			1221			167				
v/s Ratio Prot												
v/s Ratio Perm		c0.65			0.61			0.05				
v/c Ratio		0.82			0.78			0.43				
Uniform Delay, d1		5.6			5.1			36.3				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		6.4			4.9			1.8				
Delay (s)		12.0			10.0			38.1				
Level of Service		B			B			D				
Approach Delay (s)		12.0			10.0			38.1			0.0	
Approach LOS		B			B			D			A	

Intersection Summary			
HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	87.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	89.6%	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)	99	659	42	21	640	17	56	97	36	14	70	227
Future Volume (vph)	99	659	42	21	640	17	56	97	36	14	70	227
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			1.00			0.97			0.91	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.99			1.00			0.97			0.90	
Flt Protected		0.99			1.00			0.99			1.00	
Satd. Flow (prot)		1798			1826			1699			1497	
Flt Permitted		0.83			0.96			0.55			0.98	
Satd. Flow (perm)		1506			1761			952			1470	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.85	0.85	0.85	0.81	0.81	0.81
Adj. Flow (vph)	109	724	46	23	703	19	66	114	42	17	86	280
RTOR Reduction (vph)	0	2	0	0	1	0	0	11	0	0	124	0
Lane Group Flow (vph)	0	877	0	0	744	0	0	211	0	0	259	0
Confl. Peds. (#/hr)	77		92	92		77	50		58	58		50
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		48.0			48.0			19.0			19.0	
Effective Green, g (s)		48.0			48.0			19.0			19.0	
Actuated g/C Ratio		0.61			0.61			0.24			0.24	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		915			1069			228			353	
v/s Ratio Prot												
v/s Ratio Perm		c0.58			0.42			c0.22			0.18	
v/c Ratio		0.96			0.70			0.93			0.73	
Uniform Delay, d1		14.6			10.5			29.3			27.7	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		21.2			3.7			39.6			7.7	
Delay (s)		35.7			14.3			69.0			35.4	
Level of Service		D			B			E			D	
Approach Delay (s)		35.7			14.3			69.0			35.4	
Approach LOS		D			B			E			D	

Intersection Summary			
HCM 2000 Control Delay	31.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	126.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBT	WBR2	NBT	NBR	SEL	SER	SER2
Lane Configurations										
Traffic Volume (vph)	156	461	22	404	34	176	34	57	319	270
Future Volume (vph)	156	461	22	404	34	176	34	57	319	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Total Lost time (s)	4.0	4.0		6.0		4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00		1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		0.99		0.98		1.00	1.00	0.95
Flpb, ped/bikes	0.99	1.00		1.00		1.00		0.91	1.00	1.00
Frt	1.00	0.99		0.99		0.98		1.00	0.85	0.85
Flt Protected	0.95	1.00		1.00		1.00		0.95	1.00	1.00
Satd. Flow (prot)	1738	1823		1806		1769		1585	1566	1483
Flt Permitted	0.25	1.00		1.00		1.00		0.95	1.00	1.00
Satd. Flow (perm)	464	1823		1806		1769		1585	1566	1483
Peak-hour factor, PHF	0.92	0.92	0.92	0.87	0.87	0.89	0.89	0.85	0.85	0.85
Adj. Flow (vph)	170	501	24	464	39	198	38	67	375	318
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	170	525	0	503	0	236	0	67	375	318
Confl. Peds. (#/hr)	69		64		69		65	65		23
Turn Type	pm+pt	NA		NA		NA		D.Pm	Prot	Perm
Protected Phases	1	1 2		2		3			3	
Permitted Phases	1 2							3		3
Actuated Green, G (s)	31.0	35.0		24.0		23.6		23.6	23.6	23.6
Effective Green, g (s)	31.0	35.0		24.0		23.6		23.6	23.6	23.6
Actuated g/C Ratio	0.45	0.51		0.35		0.34		0.34	0.34	0.34
Clearance Time (s)	4.0			6.0		4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0			3.0		3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	339	930		631		608		545	538	510
v/s Ratio Prot	0.05	c0.29		c0.28		0.13			c0.24	
v/s Ratio Perm	0.18							0.04		0.21
v/c Ratio	0.50	0.56		0.80		0.39		0.12	0.70	0.62
Uniform Delay, d1	12.6	11.6		20.1		17.0		15.4	19.4	18.8
Progression Factor	1.00	1.00		1.00		1.00		1.00	1.00	1.00
Incremental Delay, d2	1.2	0.8		6.9		0.4		0.1	3.9	2.4
Delay (s)	13.7	12.3		27.0		17.4		15.5	23.3	21.2
Level of Service	B	B		C		B		B	C	C
Approach Delay (s)		12.7		27.0		17.4		21.7		
Approach LOS		B		C		B		C		

Intersection Summary			
HCM 2000 Control Delay	19.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	68.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	84.0%	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 (veh/h)	39	1105	17	5	1094	36	25	2	21	11	0	72
Future Volume (Veh/h)	39	1105	17	5	1094	36	25	2	21	11	0	72
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.91	0.91	0.91	0.92	0.92	0.92	0.72	0.72	0.72
Hourly flow rate (vph)	41	1151	18	5	1202	40	27	2	23	15	0	100
Pedestrians		2						1			20	
Lane Width (m)		3.7						3.7			3.7	
Walking Speed (m/s)		1.1						1.1			1.1	
Percent Blockage		0						0			2	
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (m)					98							
pX, platoon unblocked	0.76						0.76	0.76		0.76	0.76	0.76
vC, conflicting volume	1262			1170			1956	2515	586	1934	2504	643
vC1, stage 1 conf vol							1243	1243		1252	1252	
vC2, stage 2 conf vol							713	1272		682	1252	
vCu, unblocked vol	701			1170			1619	2359	586	1589	2344	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			99			84	99	95	93	100	88
cM capacity (veh/h)	661			592			164	170	453	224	177	802

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	41	767	402	5	801	441	52	115
Volume Left	41	0	0	5	0	0	27	15
Volume Right	0	0	18	0	0	40	23	100
cSH	661	1700	1700	592	1700	1700	229	600
Volume to Capacity	0.06	0.45	0.24	0.01	0.47	0.26	0.23	0.19
Queue Length 95th (m)	1.5	0.0	0.0	0.2	0.0	0.0	6.5	5.3
Control Delay (s)	10.8	0.0	0.0	11.1	0.0	0.0	25.3	12.4
Lane LOS	B			B			D	B
Approach Delay (s)	0.4			0.0			25.3	12.4
Approach LOS							D	B

Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	47.0%	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)	70	1054	34	4	989	50	16	26	13	27	13	147
Future Volume (vph)	70	1054	34	4	989	50	16	26	13	27	13	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		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	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.98	1.00		0.99	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.95		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	3554		1771	3546		1757	1775		1767	1572	
Flt Permitted	0.14	1.00		0.25	1.00		0.63	1.00		0.73	1.00	
Satd. Flow (perm)	270	3554		468	3546		1169	1775		1358	1572	
Peak-hour factor, PHF	0.96	0.96	0.96	0.90	0.90	0.90	0.92	0.92	0.92	0.88	0.88	0.88
Adj. Flow (vph)	73	1098	35	4	1099	56	17	28	14	31	15	167
RTOR Reduction (vph)	0	3	0	0	5	0	0	11	0	0	131	0
Lane Group Flow (vph)	73	1130	0	4	1150	0	17	31	0	31	51	0
Confl. Peds. (#/hr)	13		43	43		13	20		11	11		20
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	44.5	44.5		34.5	34.5		15.1	15.1		15.1	15.1	
Effective Green, g (s)	44.5	44.5		34.5	34.5		15.1	15.1		15.1	15.1	
Actuated g/C Ratio	0.63	0.63		0.49	0.49		0.21	0.21		0.21	0.21	
Clearance Time (s)	4.0	5.0		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)	277	2240		228	1732		250	379		290	336	
v/s Ratio Prot	0.02	c0.32			c0.32			0.02			c0.03	
v/s Ratio Perm	0.15			0.01			0.01			0.02		
v/c Ratio	0.26	0.50		0.02	0.66		0.07	0.08		0.11	0.15	
Uniform Delay, d1	7.3	7.1		9.3	13.7		22.1	22.2		22.3	22.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.8		0.1	2.0		0.1	0.1		0.2	0.2	
Delay (s)	7.8	7.9		9.5	15.7		22.3	22.3		22.5	22.8	
Level of Service	A	A		A	B		C	C		C	C	
Approach Delay (s)		7.9			15.7			22.3			22.7	
Approach LOS		A			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	70.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	24	79	40	43	97	32
Future Volume (Veh/h)	24	79	40	43	97	32
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)	26	86	43	47	105	35
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						77
pX, platoon unblocked						
vC, conflicting volume	312	66			90	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	312	66			90	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	91			93	
cM capacity (veh/h)	634	997			1505	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	112	90	140
Volume Left	26	0	105
Volume Right	86	47	0
cSH	880	1700	1505
Volume to Capacity	0.13	0.05	0.07
Queue Length 95th (m)	3.3	0.0	1.7
Control Delay (s)	9.7	0.0	5.8
Lane LOS	A		A
Approach Delay (s)	9.7	0.0	5.8
Approach LOS	A		

Intersection Summary			
Average Delay	5.6		
Intersection Capacity Utilization	26.6%	ICU Level of Service	A
Analysis Period (min)	15		