West Ridge Trailside Development

Traffic Impact Study Report - Final

February 01, 2023

Delivering a better world

Statement of Qualifications and Limitations

The attached Report (the “Report”) has been prepared by AECOM Canada Ltd. (“AECOM”) for the benefit of the Client (“Client”) in accordance with the agreement between AECOM and Client, including the scope of work detailed therein (the “Agreement”).

The information, data, recommendations and conclusions contained in the Report (collectively, the “Information”):

is subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the “Limitations”);

represents AECOM’s professional judgement in light of the Limitations and industry standards for the preparation of similar reports;

may be based on information provided to AECOM which has not been independently verified;

has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued;

must be read as a whole and sections thereof should not be read out of such context;

was prepared for the specific purposes described in the Report and the Agreement; and

in the case of subsurface, environmental or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time.

AECOM shall be entitled to rely upon the accuracy and completeness of information that was provided to it and has no obligation to update such information. AECOM accepts no responsibility for any events or circumstances that may have occurred since the date on which the Report was prepared and, in the case of subsurface, environmental or geotechnical conditions, is not responsible for any variability in such conditions, geographically or over time.

AECOM agrees that the Report represents its professional judgement as described above and that the Information has been prepared for the specific purpose and use described in the Report and the Agreement, but AECOM makes no other representations, or any guarantees or warranties whatsoever, whether express or implied, with respect to the Report, the Information or any part thereof.

Without in any way limiting the generality of the foregoing, any estimates or opinions regarding probable construction costs or construction schedule provided by AECOM represent AECOM’s professional judgement in light of its experience and the knowledge and information available to it at the time of preparation. Since AECOM has no control over market or economic conditions, prices for construction labour, equipment or materials or bidding procedures, AECOM, its directors, officers and employees are not able to, nor do they, make any representations, warranties or guarantees whatsoever, whether express or implied, with respect to such estimates or opinions, or their variance from actual construction costs or schedules, and accept no responsibility for any loss or damage arising therefrom or in any way related thereto. Persons relying on such estimates or opinions do so at their own risk.

Except (1) as agreed to in writing by AECOM and Client; (2) as required by-law; or (3) to the extent used by governmental reviewing agencies for the purpose of obtaining permits or approvals, the Report and the Information may be used and relied upon only by Client.

AECOM accepts no responsibility, and denies any liability whatsoever, to parties other than Client who may obtain access to the Report or the Information for any injury, loss or damage suffered by such parties arising from their use of, reliance upon, or decisions or actions based on the Report or any of the Information (“improper use of the Report”), except to the extent those parties have obtained the prior written consent of AECOM to use and rely upon the Report and the Information. Any injury, loss or damages arising from improper use of the Report shall be borne by the party making such use.

This Statement of Qualifications and Limitations is attached to and forms part of the Report and any use of the Report is subject to the terms hereof.

AECOM: 2015-04-13
© 2009-2022 AECOM Canada Ltd. All Rights Reserved.

Quality information

Prepared by	Checked by	Verified by	Approved by
FINAL	FINAL	FINAL	FINAL
Ahmad Kamal, E.I.T	Debang Chen, P.Eng.,	Calvin Pin, P.Eng.	Khawar Ashraf, P.Eng.,

Revision History

Revision	Revision date	Details	Authorized	Name	Position
0	22-July-2022	Draft	KHA	K. Ashraf	Project Manager
1	02-August-2022	Incorporated Charter Construction LP's comments	KHA	K. Ashraf	Project Manager
2	28-September-2022	Incorporated City of Orillia's comments	KHA	K.Ashraf	Project Manager
4	01-February-2023	Final	KHA	K.Ashraf	Project Manager

Distribution List

# Hard Copies	PDF Required	Association/Company Name
-	1	AECOM Project Folder
-	1	West Ridge Trailside Development

Prepared for:

Charter Construction LP

Prepared by:

AECOM Canada Ltd.
1000 – 5090 Explorer Drive
Mississauga, ON L4W 4X6
Canada

T: 905.238.0007
aecom.com

© 2022 AECOM Canada Ltd.. All Rights Reserved.

This document has been prepared by AECOM Canada Ltd. (“AECOM”) for sole use of our client (the “Client”) in accordance with generally accepted consultancy principles, the budget for fees and the terms of reference agreed between AECOM and the Client. Any information provided by third parties and ref-ed to herein has not been checked or verified by AECOM, unless otherwise expressly stated in the document. No third party may rely upon this document without the prior and express written agreement of AECOM.

Executive Summary

AECOM Canada Ltd. (ACL) was commissioned by the Charter Construction LP to provide consulting engineering services to review and update the previously prepared Traffic Impact Study (TIS) for the West Ridge Trailside Neighbourhood by JD Northcote Engineering Inc., dated October 29, 2020. This updated TIS is to comply with the County of Simcoe's TIS guidelines and address the City of Orillia's comments from December 22, 2021.

This document presents the enclosed TIS report that supports the Neighbourhood Plan and a Draft Application Plan for the new development proposed by Charter Construction LP in the West Ridge Trailside Neighbourhood located to the southeast of Line 15 North and Bass Lake Side Road East in West Orillia. The study area is bounded by Bass Lake Side Road East to the north, Line 15 North to the west, Old Barrie Road East to the south and University Avenue/West Ridge Boulevard to the east. The proposed development site is located on the southeast side of Bass Lake Side Road East and Line 15 North. There are existing developments in the vicinity of the proposed development, including residential, commercial, and industrial developments to the east; and institutional developments such as Lakehead University Orillia campus to the south. No development is currently present on the subject site.

As per information provided by Charter Construction LP, the proposed development on the subject site will be constructed in seven (7) phases and is expected to be fully built out by the year 2047. Each development phase entails various land-use types such as single-family dwellings, townhouses, medium-density dwellings, high-density units, commercial blocks and schools.

Five (5) accesses will accommodate traffic to/from the proposed development subject site. Four (4) of the accesses, Line 15 North via Stone Ridge Boulevard Extension, Bass Lake Side Road East via Hepinstall Place, University Avenue via Diana Drive and West Ridge Boulevard via Stone Ridge Boulevard, are expected to be fully operational by 2032. The fifth access on Bass Lake Side Road East via the Old Scotia Place extension is expected to mostly accommodate traffic from the final development of 227 units for phase 7 and is assumed to be fully operational by 2047.

A detailed traffic operations analysis was performed for six scenarios presented in the table below to evaluate the effects of the proposed developments on the surrounding road network in the study area. The full build-out of the West Ridge Trailside development is expected to generate 886 trips in the AM peak hour and 1083 trips in the PM peak hour.

The intersection traffic operations performance was analyzed using the procedures and methodologies contained in the Highway Capacity Manual 2000 (HCM 2000). The intersection performance was undertaken using the traffic analysis software, Synchro (Version 11) which models the road network providing detailed outputs using the HCM 2000 methodologies. Synchro 11 allows the evaluation of both signalized and unsignalized intersections. SimTraffic will be used to conduct the queueing analysis of the site.

Scenario #	1	2	3	4	5	6
Scenario	Existing Conditions	Interim Build-out	Interim Build-out	Full Build-out	Full Build-out + 5 Years	Full Build-out + 10 Years
Horizon Year	2022	2032	2042	2047	2052	2057

The analysis indicates that, under existing conditions, all of the intersections operate within acceptable levels of service with the exception that the southbound approach at Old Barrie Road East/University Avenue currently operates with moderate delays and significant queueing. In addition. the southbound approach at Line 15 North/Old Barrie Road East and the eastbound left turn movement at Stone Ridge Boulevard/West Ridge Boulevard currently operate at an unacceptable level of service.

For future scenarios, most intersections operate within capacity with an acceptable level of service. The critical intersections that experienced delays and overcapacity issues have been identified, and optimization strategies such as changes to the control type, additional lane movements to increase capacity and updating Signal Timing Plans (STP) were applied to the critical movements to mitigate unacceptable traffic operations conditions at the associated intersections.

Signal warrant analysis has been conducted for two stop-controlled intersections at Line 15 North/Old Barrie Road East and Stone Ridge Boulevard/West Ridge Boulevard, which has indicated that signalization may be required for the Line 15 North/Old Barrie Road East and Stone Ridge Boulevard/West Ridge Boulevard intersections under the 2032 future scenario background traffic volume.

In line with the City of Orillia's Multi-Modal Transportation Master Plan, it is recommended to provide enhanced active transportation connections and facilities such as multi-use paths on Line 15 North (between Bass Lake Side Road East and Old Barrie Road East), Old Barrie Road East (between Line 15 North and University Avenue/West Ridge Boulevard), and Bass Lake Side Road East (between Line 15 North and University Avenue/West Ridge Boulevard) to connect the future development access points to the active transportation network and address combined pedestrian and cycling needs. Furthermore, the existing multi-use paths on University Avenue/West Ridge Boulevard can be upgraded to dedicated bike lanes in future to accommodate the potential growth in cycling demand in west Orillia. There are also plans to develop a multi-use trail system within the proposed development, which will provide both an internal trail network and connections to the surrounding active transportation network.

Table of Contents

Executive Summary 5
List of Acronyms 10
1 Introduction 11
2 Development Context 11
2.1 Study Area 11
2.2 Proposed Development 13
2.3 Existing Transportation System 14
2.3.1 Road Network 14
2.3.2 Transit Service 16
2.3.3 Active Transportation Network 16
2.4 Proposed Transportation Improvements 17
3 Transportation Assessment Methodologies 17
3.1 Traffic Operations Analysis 17
3.2 Traffic Data Collection 19
3.3 Horizon Years and Scenarios 19
4 Existing Conditions (Scenario 1) 20
4.1 Existing Traffic Volumes 20
4.2 Existing Traffic Operations 22
5 Future Conditions (Scenario 2 to 6) 22
5.1 Trip Generation 22
5.1.1 Proposed Developments 22
5.1.2 Background Traffic Growth 24
5.2 Trip Assignment 24
5.2.1 Trip Assignment – Proposed Developments 25
5.3 Future Traffic Operations 26
5.3.1 Scenario 2 (2032) – Background Condition 26
5.3.2 Scenario 2: Interim Build-Out (2032) – Do-Nothing 27
5.3.3 Scenario 2: Interim Build-Out (2032) – With Improvements 27
5.3.4 Scenario 3 (2042) – Background Condition 28
5.3.5 Scenario 3: Interim Build-Out (2042) – Do- Nothing 29
5.3.6 Scenario 3: Interim Build-Out (2042) – With Improvements 30
5.3.7 Scenario 4 (2047) – Background Condition 31
5.3.8 Scenario 4: Full Build-Out (2047) – Do-Nothing 32
5.3.9 Scenario 4: Full Build-Out (2047) – With Improvements 33
5.3.10 Scenario 5 (2052) – Background Condition 34
5.3.11 Scenario 5: Full Build-Out + 5 years (2052) – Do-Nothing 35
5.3.12 Scenario 5: Full Build-Out + 5 years (2052) – With Improvements 36
5.3.13 Scenario 6 (2057) – Background Condition 37
5.3.14 Scenario 6: Full Build-Out + 10 years (2057) – Do-Nothing 38
5.3.15 Scenario 6: Full Build-Out + 10 years (2057) – With Improvements 39
5.4 Signal Warrant Analysis 41
5.5 Recommendations for Active Transportation 41
5.6 Transportation Demand Management 42

6 Conclusions and Recommendations....42
Appendix A – Site Plans....44
Appendix B – Traffic Count Data....47
Appendix C – Traffic Volumes....112
C.1 Background Volumes....112
C.2 Site Generated Volumes....119
C.3 Total Volumes....123
C.4 Critical intersections and Movements....129
Appendix D – Synchro Analysis....142
Existing Conditions....142
Appendix E – Synchro Analysis – Background and Future Traffic Conditions....175
Background Analysis....175
Synchro Analysis – Do Nothing....336
Synchro Analysis – with improvements....497
Appendix F – Transportation Tomorrow Survey (TTS) – Excerpts....658
Appendix G – Signal Warrant Analysis....662
Appendix H – Trip Generated By Proposed Development....665
Appendix I – Proposed Development Activity Map....667

List of Figures

Figure 1: Study Area 12
Figure 2: Existing Road Network 15
Figure 3: City of Orillia's Transit Network 16
Figure 4: City of Orillia's Active Transportation Network (MMTMP) 17
Figure 5: Existing Condition Volumes 21

List of Tables

Table 1: Traffic Analysis Intersections 12
Table 2: Phase Development Build-Out 13
Table 3: Volume to Capacity Criteria 18
Table 4: Level of Service (LOS) 18
Table 5: Summary of Traffic Data 19
Table 6: Traffic Analysis Scenarios 20
Table 7: Existing Conditions Traffic Operations Performance 22
Table 8: Trip Generation Rates 23
Table 9: Proposed Development vehicular Trip Generation during each build-out year 23
Table 10: TTS Trip Distribution (AM PEAK) 25
Table 11: TTS Trip Distribution (PM PEAK) 25
Table 12: Access Points for Proposed Developments 25
Table 13: 2032 future Background Traffic Critical Intersections 26
Table 14: 2032 Traffic Operations Analysis 27
Table 15: Recommended improvements for the critical intersections under the 2032 future scenario traffic 28
Table 16: 2032 Optimized Traffic Operations Analysis 28
Table 17: 2042 future Background Traffic Critical Intersections 28
Table 18: 2042 Do-Nothing Traffic Operations Analysis 29
Table 19: Recommended improvements for the critical intersections under the 2042 future scenario traffic 30
Table 20: 2042 Optimized Traffic Operations Analysis 30
Table 21: 2047 Background Traffic Critical Intersections 31
Table 22: 2047 Traffic Operations Analysis 32
Table 23: Recommended improvements for the critical intersections under the 2047 future scenario traffic 33
Table 24: 2047 Optimized Traffic Operations Analysis 33
Table 25: 2052 Background Traffic Critical Intersections 34
Table 26: 2052 Traffic Operations Analysis 35
Table 27: Recommended improvements for the critical intersections under the 2052 future scenario traffic 36
Table 28: 2052 Optimized Traffic Operations Analysis 36
Table 29: Scenario 6 Background Traffic Critical Intersections 37
Table 30: 2057 Traffic Operations Analysis 38
Table 31: Recommended improvements for the critical intersections under the 2057 future scenario traffic 40
Table 32: 2057 Optimized Traffic Operations Analysis 40

List of Acronyms

Acronym	Description
EB	Eastbound
EBL	Eastbound left turn movement
EBLTR	Eastbound left, thru, right turn movement (single lane)
HCM	Highway Capacity Manual
LOS	Level of Service
MMTMP	Multi-Modal Transportation Master Plan
NB	Northbound
NBL	Northbound left turn movement
NBLTR	Northbound left, thru, right turn movement (single lane)
OTM	Ontario Traffic Manual
SB	Southbound
SBL	Southbound left turn movement
SBLTR	Southbound left, thru, right turn movement (single lane)
STP	Signal Timing Plan
V/C	Volume-to-Capacity
WB	Westbound
WBL	Westbound left turn movement
WBLTR	Westbound left, thru, right turn movement (single lane)

1 Introduction

AECOM Canada Ltd. (ACL) was commissioned by the Charter Construction LP to provide consulting engineering services to review and update the previously prepared Traffic Impact Study (TIS) for the West Ridge Trailside Neighbourhood by JD Northcote Engineering Inc. dated October 29th, 2020. The purpose of this updated TIS is to comply with the County of Simcoe's TIS guidelines and address the City of Orillia's comments from December 22, 2021.

This TIS supports the Neighbourhood Plan and a Draft Application Plan for the proposed West Ridge Trailside Neighbourhood development which covers an area of approximately 103 hectares located southeast of the intersection at Bass Lakeside Road East and Line 15 North on the west side of the City of Orillia. The proposed development consists of the following land-uses, which will be constructed in seven phases:

- 1,280 residential units;
- 0.52 Ha commercial land; and
- 4.58 Ha school blocks.

The study evaluates traffic operations performance at key intersections in the study area and the potential impacts on traffic flow caused by the proposed development. It also identifies infrastructure improvements and mitigation measures needed to ensure the road network operates safely and efficiently throughout all phases of the development, including after the full buildout.

2 Development Context

This section provides an overview of the existing conditions of the study area and the proposed development on the subject site.

2.1 Study Area

As shown in **Figure 1**, the study area is bounded by Bass Lake Side Road East to the north, Line 15 North to the west, Old Barrie Road East to the south and University Avenue/West Ridge Boulevard to the east. The proposed development site is located on the southeast side of Bass Lake Side Road East and Line 15 North.

There are existing developments in the vicinity of the proposed development, including residential, commercial, and industrial developments to the east; and institutional developments such as Lakehead University Orillia campus to the south. As per the City's comments, seven (7) intersections were requested to be added to the report's scope in addition to the four (4) intersections analyzed in initial JD Northcote's TIS report.

Therefore, the scope of the analysis includes eleven (11) intersections that would allow for a fulsome evaluation of the associated traffic impacts of the proposed development on the surrounding road network.

A summary of the study area intersections is shown in **Table 1**.

Figure 1: Study Area



Table 1: Traffic Analysis Intersections

No.	Intersection Location	Control Type
1	Line 15 & Stone Ridge Boulevard Extension	Stop-controlled
2	MD Access & Bass Lake Side Road East	Stop-controlled
3	Orion Boulevard & Bass Lake Side Road East	Stop-controlled
4	Stone Ridge Boulevard & West Ridge Boulevard	Stop-controlled
5	Line 15 North & Bass Lake Side road East	Stop-controlled
6	Diana Drive & University Avenue	Signalized
7	Monarch Drive & West Ridge Boulevard	Signalized
8	Bass Lake Side Road East & West Ridge Boulevard	Signalized
9	Line 15 North & Old Barrie Road	Stop-controlled
10	Atlantis Drive & Bass Lake Side Road East	Stop-controlled
11	Old Barrie Road & University Avenue	Signalized

2.2 Proposed Development

The latest phasing and site plans (see **Appendix A**) were provided by Charter Construction LP. The West Ridge Trailside Neighbourhood would comprise of single detached units, medium-density units, street townhouses, schools, and commercial blocks. It will be constructed in seven phases, and the full build-out is anticipated to be completed by 2047. It should be noted that the building outlay in the commercial block is not yet confirmed and discussions are ongoing with the City to determine the footprint. The approximate building size may be in order of 5,000 sqft potentially. The proposed development and phases of construction are presented in **Table 2**.

Table 2: Phase Development Build-Out

Phase	Build-Out Year	Total Unit/Area	Type	Unit/Area
1	2025	107	Single Detached Units	107
2	2027	248 + 4.5Ha schools	Single Detached Units	86
			Medium-Density Units	151
			Street Townhouse	6
			School Block	4.58Ha[1]
3	2030	138	Single & Semi-Detached Units	37
			Medium-Density Units	101
4	2032	63	Single Detached Units	57
			Street Townhouse	6
5	2035	295	Single Detached Units	55
			High-Density Units	240
			Commercial Block	0.52Ha
6	2038	205	Single & Semi-Detached Units	174
			Street Townhouse	31
7	2042	24	Single Detached Units	24
	2047	227	Single Detached Units	94
			Medium-Density Units	111
			Street Townhouse	22
		Total	**Residential Units**	**1280**
			Commercial Block	**0.52Ha**
			Elementary School	**4.58Ha**

[1] School size based on school board letter between the City, Simcoe Muskoka Catholic District School Board, and Simcoe County District School Board summarizing the meeting held on May 10, 2021 that discussed that the functional servicing report has allocated school population based on 450 pupil places per site.

2.3 Existing Transportation System

2.3.1 Road Network

The key roads in the existing road network in the vicinity of the study area shown in **Figure 1** are described below:

Old Barrie Road East: A two-way arterial road with a rural cross-section. It has a dedicated left and right turn lane at the University Avenue intersection and a posted speed limit of 60 km/h. Old Barrie Road provides a connection to Highway 11 towards the east side.

University Avenue/West Ridge Boulevard: An arterial road with a 5-lane urban cross-section. University Avenue travels from Old Barrie Road to Stone Ridge Boulevard/Hunter Valley Road, where it transitions to West Ridge Boulevard in the northbound direction. West Ridge Boulevard was widened from a 2-lane to a 5-lane cross-section in 2019.

Stone Ridge Boulevard: An urban two-way arterial road that connects to University Avenue/West Ridge Boulevard from the west. There are plans for the Stone Ridge Boulevard extension to connect the road to Line 15 North on the west to provide access for new developments in the area. Stone Ridge Boulevard has a posted speed limit of 50km/h.

Bass Lake Side Road East: An urban two-way arterial road east of Atlantis Drive, which changes to a rural collector road towards the west. it has a posted speed limit of 50km/h east of Atlantis Drive, 60km/h west of Hepinstall Place and 40km/h in between. The segment of Bass Lake Side Road East to the east side of Atlantis Drive is under the jurisdiction of the City, the segment between Atlantis Drive and Line 15 North is under shared jurisdiction of the City and the Town of Oro Medonte and the segment west of Line 15 North under the jurisdiction of the Town of Oro Medonte.

Orion Boulevard: A newly developed two-way urban collector road with an assumed speed limit of 50km/h. Orion Boulevard is approximately 1.2km and connects to Bass Lake Side Road East on the north and Stone Ridge Boulevard on the south

Hunter Valley Road: A rural two-way local road that extends approximately 190m east from the Stone Ridge Boulevard and University Avenue/ West Ridge intersection. Hunter Valley Road has an assumed speed limit of 50km/h.

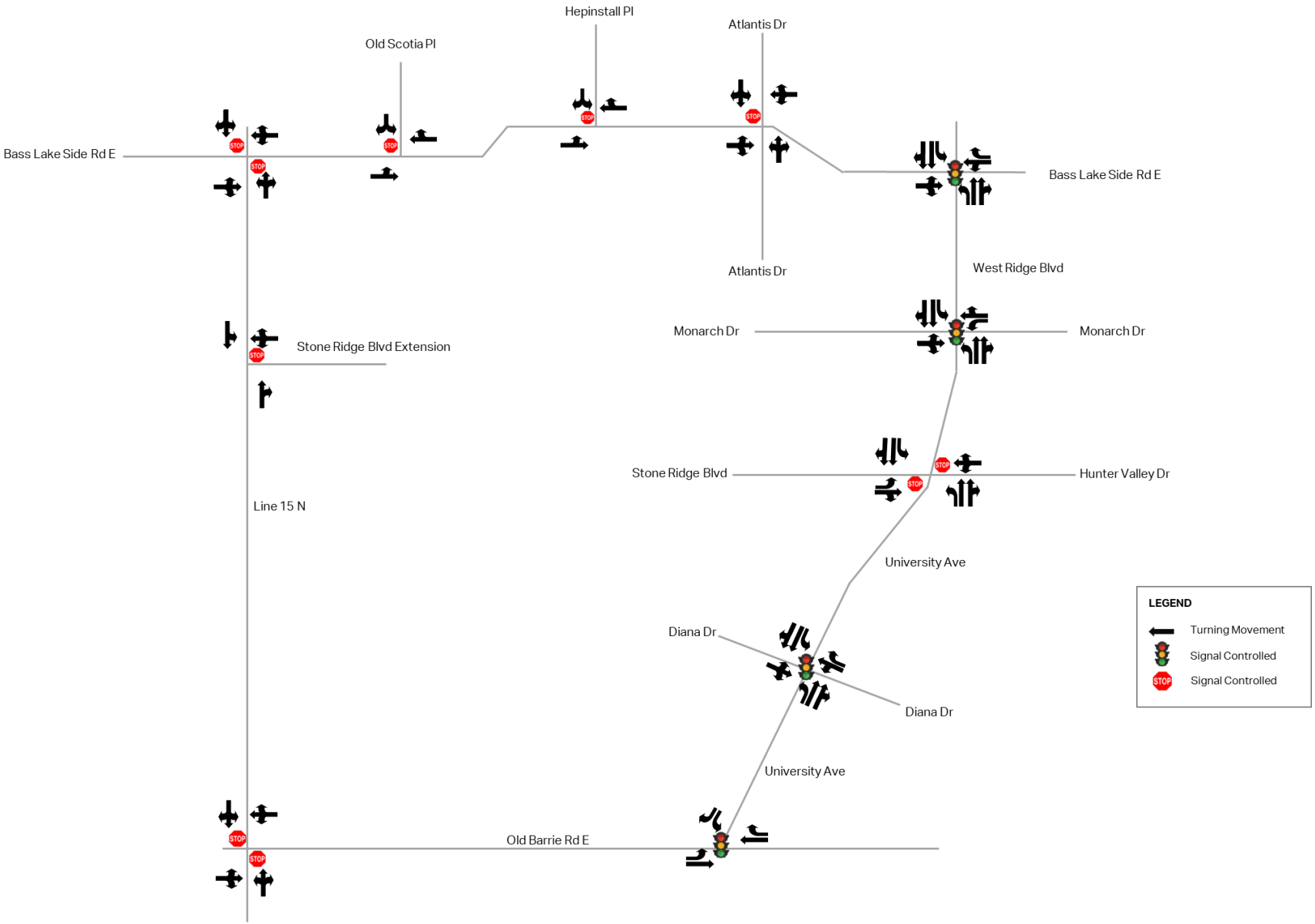
Line 15 North: A rural two-way arterial road with a posted speed limit of 60km/h.

Monarch Drive: An urban collector road with a two-way lane configuration west of West Ridge Boulevard and a four-way lane configuration east of West Ridge Boulevard.

Diana Drive: A two-way urban local road with a dedicated westbound right turn at the Diana Drive and University Avenue intersection. Diana Drive has an assumed speed limit of 50 km/h.

Figure 2 illustrates the existing road network in the study area.

Figure 2: Existing Road Network



2.3.2 Transit Service

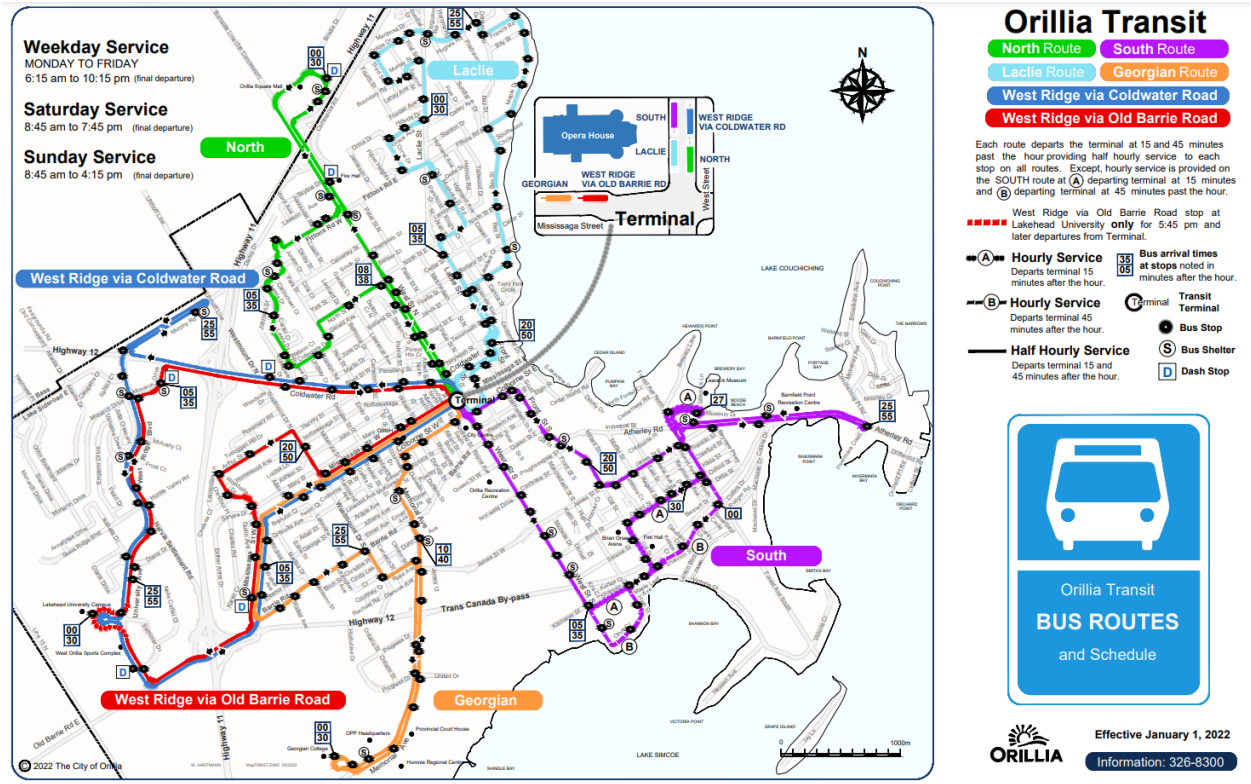
The City of Orillia provides two unidirectional transit routes through the study area:

West Ridge via Coldwater Road: Travels in the southbound direction, establishing a counter-clockwise connection between the Orillia transit terminal and Lakehead University, passing by the Walmart Plaza present on the northwest side of the Coldwater Road and Highway 11 intersection.

West Ridge via Old Barrie Road: Travels in the northbound direction, providing a clockwise connection for dwellings around Homewood Park immediately east of Highway 11 to downtown Orillia, going through Lakehead University.

The transit routes operate on a thirty (30) minute daily headway. **Figure 3** illustrates the transit network in the City of Orillia.

Figure 3: City of Orillia's Transit Network[2]



2.3.3 Active Transportation Network

The City of Orillia's 2019 Multi-Modal Transportation Master Plan (MMTMP) has existing sidewalks and multi-use paths in the study area and plans to overhaul the complete active transportation network across the City, which will be completed in three phases. **Figure 4** shows the City's existing active transportation network, and the existing active transportation infrastructure in the study area is as follows:

Old Barrie Road East: An existing multi-use path runs on the south side of the road and terminates at the intersection of Old Barrie Road East/University Avenue.

University Avenue/West Ridge Boulevard: As per the City's MMTMP, a multi-use path continues from Old Barrie Road East, running along the west side of University Avenue/ West Ridge Boulevard till Monarch Drive where it transitions to the east side until Highway 12. There is also a boulevard sidewalk that travels along the east side of University Avenue and West Ridge Boulevard between Old Barrie Road East and Monarch Drive, which then transitions to the west side, finishing at the intersection at Bass Lake Side Road East/West Ridge Boulevard.

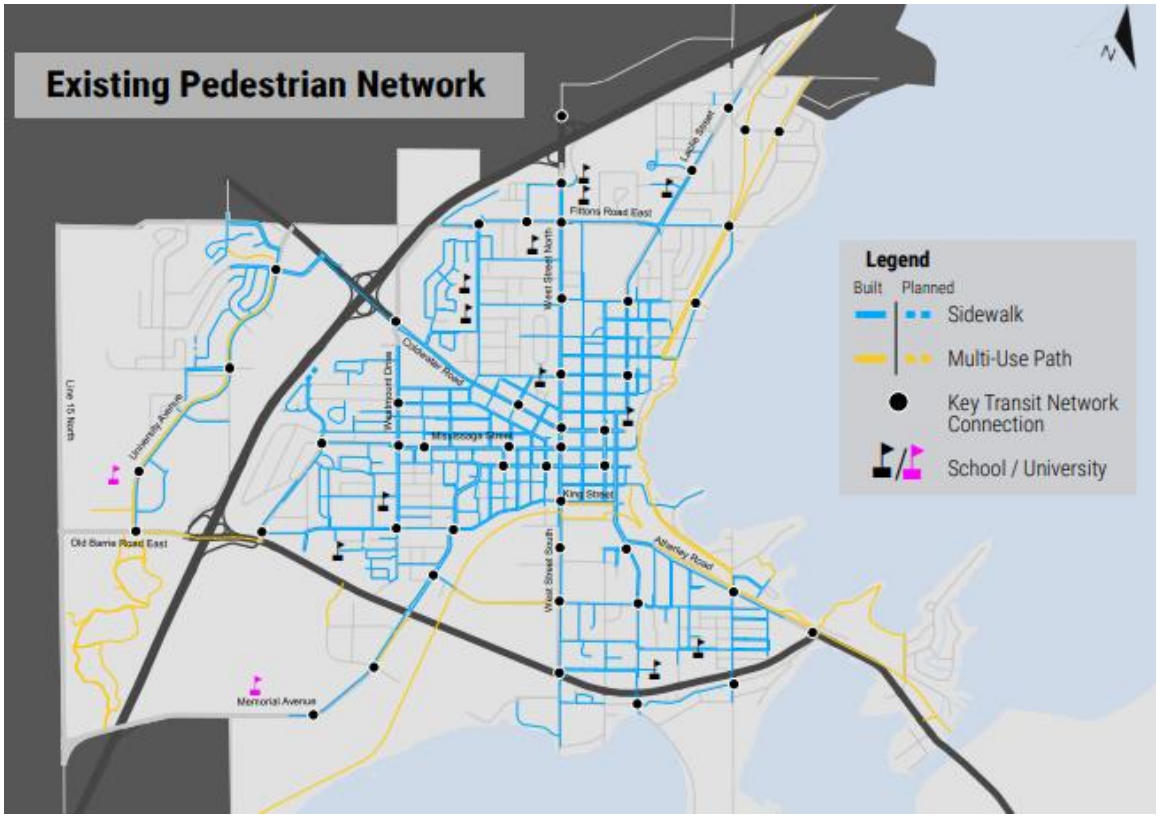
Stone Ridge Boulevard/Hunter Valley Road: Boulevard sidewalks are present on both sides of Stone Ridge Boulevard, while there are no sidewalks on Hunter Valley Road.

Monarch Drive: As per the aerial imagery from Google Earth, there are boulevard sidewalks on both sides of Monarch Drive.

[2] https://www.orillia.ca/en/living-here/resources/Transit/Orillia-Transit-Map---Front-Side.pdf

Bass Lakeside Road East: There are boulevard sidewalks present on both sides of the road till the Bass Lake Side Road East/Atlantis Drive intersection.

Figure 4: City of Orillia's Active Transportation Network (MMTMP)[3]



2.4 Proposed Transportation Improvements

As previously noted, West Ridge Boulevard has been widened from a 2-lane to a 5-lane cross-section in 2019, matching the existing lane configuration for University Avenue. Besides the widening of West Ridge Boulevard, the City of Orillia (MMTMP) does not identify any further road network improvements in the study area.

3 Transportation Assessment Methodologies

This section provides details about the methodologies and criteria that will be utilized to conduct the traffic operations analysis of the subject site.

3.1 Traffic Operations Analysis

A detailed traffic operations analysis was performed to evaluate the effects of the proposed developments on the surrounding road network in the study area. The intersection operations were analyzed using the procedures and methodologies contained in the Highway Capacity Manual 2000 (HCM 2000).

The intersection performance was undertaken using the traffic analysis software, Synchro (Version 11) which models the road network providing detailed outputs using the HCM 2000 methodologies. Synchro 11 allows the evaluation of both signalized and unsignalized intersections.

The threshold of the intersections will be determined in terms of the delays, Volume to Capacity (V/C) ratios, 95th percentile queue and the Level of Service (LOS).

[3] https://www.orillia.ca/en/city-hall/resources/Engineering/1_Orillia_MMTMP_20191125.pdf

Delay experienced by a driver is a criterion that can be used to determine the intersection performance of the road network. Control delay is the component of delays that is caused by the type of control at an intersection while the driver experiences queue delay from queue spillback due to overcapacity.

The v/c Ratio represents the closeness an intersection is to reaching capacity. Lane approaches with a v/c Ratio less than 0.85 are typically classified as unsaturated and have adequate operational capacity. **Table 3** provides ranges for the v/c Ratio along with the threshold.

Table 3: Volume to Capacity Criteria

V/C Ratio	Description	Threshold
< 0.85	Intersection is operating under capacity. Excessive delays are not experienced.	Acceptable
0.85–0.95	Intersection is operating near its capacity. Higher delays may be expected, but continuously increasing queues should not occur.	Acceptable
0.95–1.00	Unstable flow results in a wide range of delays. Intersection improvements will be required soon to avoid excessive delays.	Unacceptable
> 1.00	The demand exceeds the available capacity of the intersection. Excessive delays and queuing are anticipated.	Unacceptable

The 95th percentile queue length is defined as the length of the queue in metres with a 5 percent probability of being exceeded during the analysis. It is useful in determining the queue length of an individual movement or lane group.

The LOS utilizes Synchro's control delays and queue times data to determine the operating conditions for the overall intersection and individual turning movements. LOS A indicates free-flowing traffic with no delays, whereas LOS F represents overcapacity flow with excessive details. **Table 4** below provides detailed criteria of the LOS classification for signalized and unsignalized intersections.

Table 4: Level of Service (LOS)

LOS	Description	Total Delay (Sec/Veh)		Threshold
		Signalized	Unsignalized	
A	Free Flow / Insignificant Delay Extremely favorable progression. Individual users are virtually unaffected by others in the traffic stream.	< 10	< 10	Acceptable
B	Stable Operations / Minimum Delays Good progression. The presence of other users in the traffic stream becomes noticeable.	> 10 to 20	> 10 to 15	Acceptable
C	Stable Operations / Acceptable Delays Fair progression. The operation of individual users is affected by interactions with others in the traffic stream	> 20 to 35	> 15 to 25	Acceptable
D	Approaching Unstable Flows / Tolerable Delays Marginal progression. Operating conditions are noticeably more constrained.	> 35 to 55	> 25 to 35	Acceptable
E	Unstable Operations / Significant Delays Can Occur Poor progression. Operating conditions are at or near capacity.	> 55 to 80	> 35 to 50	Unacceptable
F	Forced, Unpredictable Flows / Excessive Delays Unacceptable progression with forced or breakdown of operating conditions.	> 80	> 50	Unacceptable

SimTraffic was used to conduct the queueing analysis of the site. Queues exceeding the storage length or reaching the adjacent intersections will be considered critical. The key parameters for the Synchro/SimTraffic analyses include:

- The peak hour factor (PHF) will be calculated from existing traffic counts, and a default value of 0.92 will be assumed where the data is not available;

- Analysis period of 10 minutes for the HCM delay and capacity analysis; 60 minutes for the SimTraffic queuing results. An average of three (3) runs will be considered for queuing results;
- Heavy vehicle percentage calculated from the existing counts; a default value of 2% used where the data is not available;
- Signal timing and phasing parameters according to the Signal Timing Plans (STP) that have been received from the City;
- Link speeds are set to posted speed limits; and
- Synchro defaults for all other parameters

3.2 Traffic Data Collection

A traffic survey was conducted on June 20th, 2022, to determine the Turning Movement Count (TMCs) volumes for the study intersections.. The traffic data is summarized in **Table 5**. A high-level analysis was conducted on the traffic count data to evaluate the potential impact of the COVID-19 pandemic on traffic demands in the study area. Using the previous 2019 Charter Construction TIS report and comparing the volumes with the more recent 2022 dataset, the analysis revealed that the 2022 volumes were marginally higher than the 2019 data. As a result, it can be construed that within the study area, travel demand has not been supressed below pre-pandemic levels and therefore using 2022 volumes will not result in an underestimation of traffic operations impacts. The City provided Signal Timing Plans (STP) for the signalized intersections

Table 5: Summary of Traffic Data

Intersection	Source	Collection Date
Traffic Movement Counts (TMCs)		
Stone Ridge Boulevard & West Ridge Boulevard	2022 Traffic Survey	2022-06-20
Line 15 North & Bass Lake Sideroad East	2022 Traffic Survey	2022-06-20
Diana Drive & University Avenue	2022 Traffic Survey	2022-06-20
Monarch Drive & West Ridge Boulevard	2022 Traffic Survey	2022-06-20
Bass Lake Sideroad East & West Ridge Boulevard	2022 Traffic Survey	2022-06-20
Line 15 North & Old Barrie Road East	2022 Traffic Survey	2022-06-20
Atlantis Drive & Bass Lake Sideroad East	2022 Traffic Survey	2022-06-20
Old Barrie Road East & University Avenue	2022 Traffic Survey	2022-06-20
Signal Timing Plans		
Old Barrie Road East & University Avenue	City of Orillia	2022-06-17
Monarch Drive & West Ridge Boulevard	City of Orillia	2022-06-17
Bass Lake Sideroad East & West Ridge Boulevard	City of Orillia	2022-06-17
Diana Drive & University Avenue	City of Orillia	2022-06-17

3.3 Horizon Years and Scenarios

As per discussion with the City and Charter Construction LP, six scenarios were developed to align with the development projection and phasing plan; including two scenarios that are five years and ten years beyond the full buildout. It should be

noted that with the development being constructed over 25 years, the TIS may need to be reconducted after 20 years to account for any changes that may arise during that time.

The traffic analysis will be conducted for the weekday AM peak and PM peak periods for the following six scenarios, as shown in **Table 6**.

Table 6: Traffic Analysis Scenarios

Scenario #	1	2	3	4	5	6
Scenario	Existing Conditions	Interim Build-out	Interim Build-out	Full Build-out	Full Build-out + 5 Years	Full Build-out + 10 Years
Horizon Year	2022	2032	2042	2047	2052	2057
Development Phasing Plan	No Proposed Development	Phase 1 ,2, 3, and 4	Phase 1, 2, 3, 4, 5, 6, and Partially Phase 7	All Phases	All Phases	All Phases

4 Existing Conditions (Scenario 1)

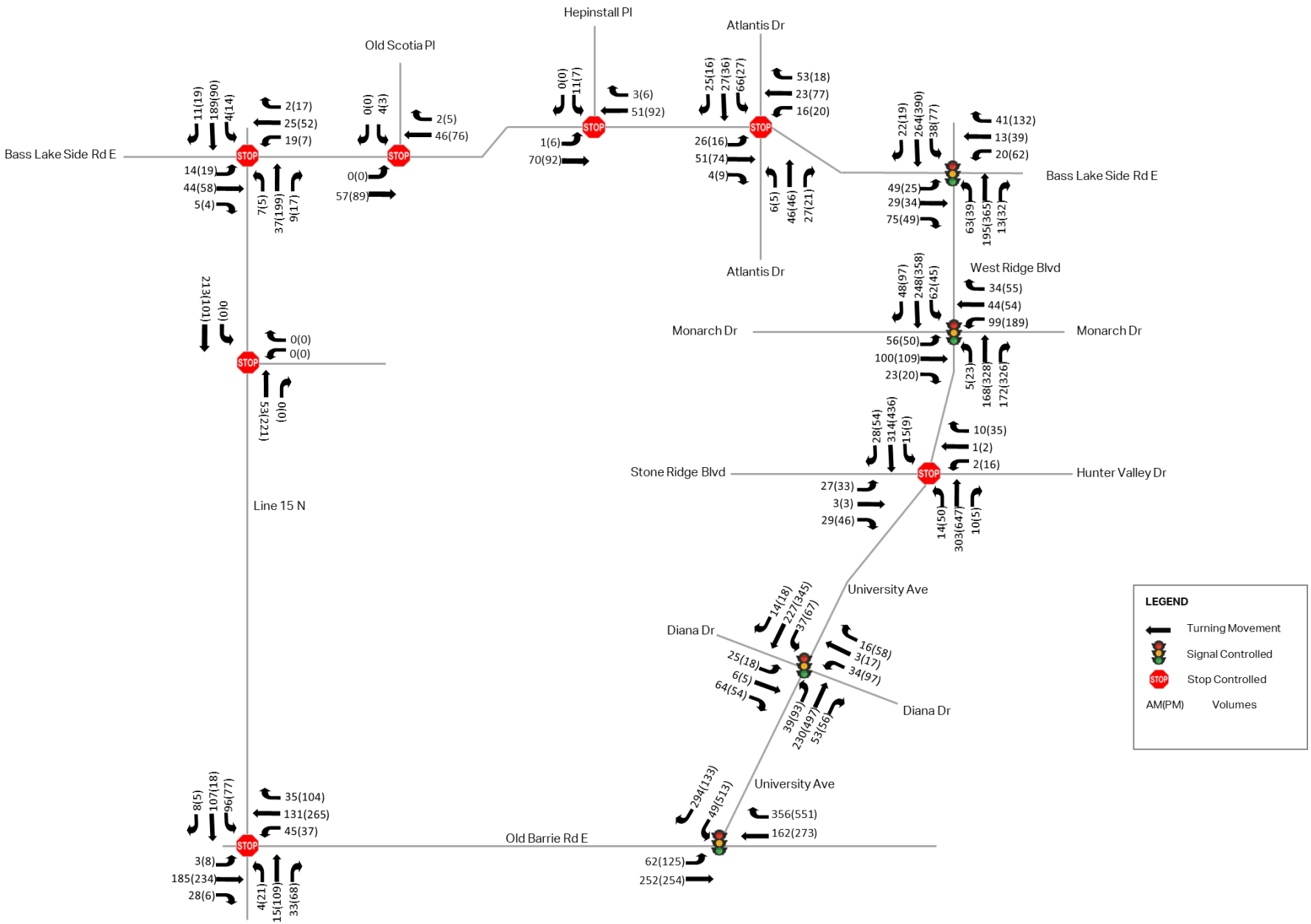
This section provides an overview of the vehicle volumes and the traffic operations performance across the study area intersections for the existing conditions of Scenario 1.

4.1 Existing Traffic Volumes

The traffic survey provided detailed traffic count data for passenger vehicles, heavy vehicles, pedestrians, and cyclists during the AM and the PM peak period, which were included as inputs into the Synchro model. Prior to importing traffic count data into the model, the data cleaned and organized to ensure that it was accurate and consistent. This involved removing any duplicate or missing data, identifying any anomalies, and ensuring that the data is in a format that can be easily imported. Subsequently, traffic volumes were balanced across the network to ensure there were no major discrepancies between adjacent intersections while accounting for traffic sinks and sources. As Simcoe County TIS guidelines do not specify a traffic volume balancing methodology, standard best practices was adopted from corresponding TIS guidelines to appropriately balance the road network volumes. This involved applying adjustments primarily to the through movement volumes while accounting for access from local roadways.

The balanced existing traffic volumes for the AM and PM peak hours are shown in **Figure 5.**

Figure 5: Existing Condition Volumes



4.2 Existing Traffic Operations

The existing traffic operations were analyzed in both AM and PM peak hours. **Table 7** summarizes the v/c ratios, delays, LOS, and 95th percentile queue lengths for the critical intersections in the study area.

The critical movements with significant delays, extensive queues, v/c ratios greater than 0.85 and LOS E/F have been highlighted in red in the table. A detailed breakdown of all other intersections and critical movements has been provided in **Appendix D**.

During AM peak hour, all the intersections in the study area operate at an acceptable level of service with LOS D or better. The PM peak hour is the critical period with several movements operating at LOS E or F.

The southbound left at Old Barrie Road East and University Avenue is expected to operate slightly under capacity with moderate delays of less than a minute and queue blocking the upstream unsignalized intersection at University Avenue and Swinimer Drive.

Furthermore, the stop-controlled movements on minor streets at both Line 15 North and Old Barrie Road East; and Stone Ridge Boulevard and West Ridge Boulevard are expected to experience moderate delays (less than one minute) due to constant traffic flows on uncontrolled main streets.

Table 7: Existing Conditions Traffic Operations Performance

Locations	Approach	AM Peak Hour				PM Peak Hour			
		v/c Ratio	Delay (s)	Level of Service	95th Percentile Queue	v/c Ratio	Delay (s)	Level of Service	95th Percentile Queue
Old Barrie Road East/University Avenue (Signalized)	SBL	0.57	29	C	57	0.96	55	D	162
	Overall Intersection	0.45	20	B	-	0.69	30	C	-
Line 15 North/Old Barrie Road East (Unsignalized)	SBLTR	0.52	22	C	30	0.55	43	E	23
	Overall Intersection	-	-	-	-	-	-	-	-
Stone Ridge Boulevard/West Ridge Boulevard (Unsignalized)	EBLTR	0.08	16	C	14	0.24	35	E	15
	Overall Intersection	-	-	-	-	-	-	-	-

5 Future Conditions (Scenario 2 to 6)

This section provides an overview of the vehicle volumes and the traffic operations performance across the study area intersections for the future conditions of Scenarios 2 to 6.

5.1 Trip Generation

5.1.1 Proposed Developments

The traffic volumes generated from the proposed developments at the study intersections have been calculated using trip generation rates for various land use on the development site from ITE's Trip Generation Manual 10th Edition. A General Urban/Suburban Setting will be assumed for all land uses. The following land use codes will be used for this TIS:

- Shopping Centre – LUC-820
- Single Family Detached – LUC-210
- Multi-Family Housing (Mid-Rise) – LUC-221
- High-Density Units – LUC-222
- Elementary School – LUC-520

- Commercial Block – LUC-820

Table 8 and **Table 9** summarize the average trip generation rates and total trips generated by the proposed development during each build-out year provided by Charter Construction LP, respectively. Both school sites in the proposed development are assumed to have traffic volume equivalent to that of an elementary school. As per the school board letter provided by the client, a meeting between the city, Simcoe Muskoka Catholic District School Board and Simcoe County District School Board held on May 10, 2021, discussed that the functional servicing report has allocated (school) population based on 450 pupil places per site.

The land use code for a shopping centre is assumed for the commercial block on site. The details of the trip generation from each phase during AM Peak and PM Peak hour periods are provided in **Appendix H**.

Table 8: Trip Generation Rates

Land Use	Land Use Code (LUC)	Measurement	AM Peak Hour			PM Peak Hour		
			Rate	Enter	Exit	Rate	Enter	Exit
Single Detached Units	LUC-210	trips per units	0.74	0.19	0.56	0.99	0.62	0.37
Townhouse	LUC-220	trips per units	0.46	0.11	0.35	0.56	0.35	0.21
Medium-Density Units	LUC-221	trips per units	0.36	0.09	0.27	0.44	0.27	0.17
High-Density Units	LUC-222	trips per units	0.31	0.07	0.24	0.36	0.22	0.14
Elementary school	LUC-520	trips/students	0.67	0.36	0.31	0.17	0.08	0.09
Commercial Block	LUC-820	trips/1000 Sq ft. GLA	0.94	0.58	0.36	3.81	1.83	1.98

It should be noted that the site-generated trips also include pass-by trips within the neighbourhood road network of the proposed development where vehicles may travel to/from the commercial block or the elementary school. To capture these trips, a catchment rate of 50% and 80% have been assumed for the trips generated from the commercial block and the elementary school, respectively.

This assumption was established based on the surrounding existing commercial infrastructures and schools. Therefore, 50% and 20% of the total trips generated from the commercial block and the elementary schools respectively are considered in the trip distribution towards the study area road network and intersections.

Table 9: Proposed Development vehicular Trip Generation during each build-out year

Phase	Build-Out Year	Total Unit/Area	Type	Unit/Area	Two-Way Vehicular Trips Generated	
					AM Peak Hour	PM Peak Hour
1	2025	107	Single Detached Units	107	80	106
2	2027	248 + 4.5Ha schools	Single Detached Units	86	64	85
			Medium-Density Units	151	55	67
			Street Townhouse	6	3	3
			School Block	4.58Ha	121	31

Phase	Build-Out Year	Total Unit/Area	Type	Unit/Area	Two-Way Vehicular Trips Generated	
					AM Peak Hour	PM Peak Hour
3	2030	138	Single & Semi-Detached Units	37	28	37
			Medium-Density Units	101	36	44
4	2032	63	Single Detached Units	57	43	56
			Street Townhouse	6	3	3
5	2035	295	Single Detached Units	55	41	54
			High-Density Units	240	75	87
			Commercial Block	0.52Ha	26	107
6	2038	205	Single & Semi-Detached Units	174	149	196
			Street Townhouse	31	14	18
7	2042	24	Single Detached Units	24	18	24
	2047	227	Single Detached Units	94	71	93
			Medium-Density Units	111	51	62
			Street Townhouse	22	3	10
			Total Vehicular Trips		**886**	**1083**

5.1.2 Background Traffic Growth

To capture background traffic growth, an average growth rate has been applied to existing conditions traffic volumes of the study area intersections. The City has provided a linear future background traffic growth rate of 1.7% to align with the population growth rate identified in the City's "Land Needs Assessment" report.

In addition, there are recently completed developments in the vicinity of the study area, which include:

- Stone Ridge Subdivision;
- Hydro One Facility;
- West Orillia Commercial Complex and;
- Commercial developments east of the Bass Lake Side Road East/ West Ridge intersection

A recent development activity map from the City's website is provided in **Appendix I**. As per the City's confirmation, the trips generated from these developments will be part of the existing background traffic volumes.

The total trips have been calculated by summation of the cumulative site generated traffic and background traffic for each scenario.

5.2 Trip Assignment

The trip distribution data has been extracted from the 2016 TTS' Data Retrieval System (DRS) for traffic zone 8685. An output of the TTS data is attached in **Appendix F**. **Table 10** and **Table 11** illustrate summaries of the trip distribution in each direction during AM peak and PM peak hours. It is observed that 56% of the trips during AM peak period and 70% of the trips during the PM peak period are directed eastward. Most of these trips are concentrated internally within the City of Orillia, specifically around the downtown area.

During AM peak hours, most trips outside of the City are concentrated in the southern direction, with the City of Barrie receiving a significant portion of the trips. During PM peak hours, however, most of the trips heading towards the study area are from both the south and east. In the east, most trips originate from the Cities of Kawartha Lakes and Ramara, while in the south, most trips originate from the City of Barrie. Based on a geographic overview of the potential routes to/from the study area, the primary routes externally for most travellers are Highway 11 towards north/south and Highway 12 towards east/west.

Table 10: TTS Trip Distribution (AM PEAK)

Direction	Vol%
N	14%
S	26%
E	56%
W	4%

Table 11: TTS Trip Distribution (PM PEAK)

Direction	Vol%
N	7%
S	15%
E	70%
W	8%

5.2.1 Trip Assignment – Proposed Developments

The trip distribution data was calculated from the 2016 Transportation Tomorrow Survey (TTS) using the Data Retrieval System (DRS). The TTS provides raw data for the origin and destination trips for selected areas or traffic zones within Southern Ontario.

The trips generated from the proposed developments have been distributed based on the findings mentioned above, along with various pre-determined site access points and road configurations within the study area. **Table 12** shows five (5) potential access points for the proposed developments, all of which have been assumed to be fully operational by 2047.

The proposed developments' first four (4) phases are expected to be fully built out by 2032. Orion Boulevard, Diana Drive and Stone Ridge Boulevard road extensions will help accommodate traffic from these phases in addition to phases 5-7 and are expected to be fully operational by 2032.

The extension for Old Scotia Place from Bass Lake Side Road East would mostly accommodate traffic from the 227 mid-density units, which are expected to be completed by 2047.

Table 12: Access Points for Proposed Developments

Access Points	Operational by (date)
Stone Ridge Boulevard extension to Line 15 North	2032
Stone Ridge Boulevard extension to West Ridge Boulevard	2032
Orion Boulevard extension	2032
Diana Drive	2032
Old Scotia Place extension	2047

For **Phase 1**, 80% of the trips have been distributed to the Bass Lake Side Road East/ Hepinstall Pl intersection, the closest access point which provides a local and highway route towards the east, where most traffic is concentrated as per the TTS data. 20% of the trips from phase 1 have been distributed to the Stone Ridge Boulevard towards West Ridge Boulevard, providing an access point south towards Old Barrie Road East.

The trips generated by **Phases 2-7** have distributed along three routes: 50% to the Stone Ridge Boulevard extension heading towards West Ridge Boulevard, 20% to Diana Drive heading towards University Avenue, 20% to Monarch Drive heading towards West Ridge Boulevard, and 10% to the Stone Ridge Boulevard extension heading towards Line 15 North.

The final development of 227 units in 2047 has been assumed to have a slightly different trip distribution due to the introduction of the Old Scotia Place access point on Bass Lake Side Road East and the location of the development immediately south of Bass Lake Side Road East.

60% of the trips from the 227 units have been assumed to use Stone Ridge Boulevard extension towards the West Ridge Boulevard, 10% on Stone Ridge Boulevard extension towards Line 15 North, 10% on Monarch Drive towards West Ridge Boulevard, 20% on Old Scotia Pl extension towards Bass Lake Side Road East.

5.3 Future Traffic Operations

The Synchro traffic operations analyses have been performed under three (3) conditions for each future scenario:

1. **Background Condition** – The road network with future background traffic only to help determine the net impact of the development in comparison to the background traffic growth.
2. **Do-Nothing Condition** – Traffic operations with proposed development volume in addition to the background traffic where the road network retains its existing lane configurations and traffic control; and
3. **Improved Condition** – Traffic operations with proposed development volume in addition to the background traffic where the road network's STP and lane configurations (as required) are optimized to mitigate overcapacity and queueing problems.

The road network traffic volume diagrams can be found in **Appendix C** which contains background traffic and incremental site generated traffic in addition to the total traffic. **Appendix C** also contains colour-coded maps indicating the traffic operations performance of each intersection for each scenario. The detailed Synchro reports under the above conditions can be found in **Appendix E**. Where applicable, a common signal cycle length was considered for corridors with critical intersections as part of each scenario's optimization strategy. Common signal cycles allow for signal coordination but also constrain the cycle length options available.

5.3.1 Scenario 2 (2032) – Background Condition

Table 13 below shows the operational condition of the critical intersections under the 2032 background volumes. Significant queueing is observed on the southbound left turn at Old Barrie Road East/University Avenue with delays of more than a minute. The overall intersection still operates at an acceptable LOS. The stop-controlled southbound movement at Line 15 North/Old Barrie Road East also experiences significant delay of more than two (2) minutes during the PM peak period.

Table 13: 2032 future Background Traffic Critical Intersections

Locations	Approach	AM Peak Hour				PM Peak Hour			
		v/c Ratio	Delay (s)	LOS	95th Percentile Queue	v/c Ratio	Delay (s)	LOS	95th Percentile Queue
Old Barrie Road East/University Avenue (Signalized)	SBL	0.68	32	C	68	1.13	106	F	361
	Overall Intersection	0.54	21	C	-	0.81	45	D	-
Line 15 North/Old Barrie Road East (Unsignalized)	NBLTR	0.14	13	B	20	0.77	44	E	46
	SBLTR	0.72	36	E	39	1.02	154	F	27
	Overall Intersection	-	-	-	-	-	-	-	-
Stone Ridge Boulevard/West Ridge Boulevard (Unsignalized)	EBL	0.11	18	C	15	0.41	60	F	15
	WBLTR	0.03	11	B	11	0.40	39	E	20
	Overall Intersection	-	-	-	-	-	-	-	-

5.3.2 Scenario 2: Interim Build-Out (2032) – Do-Nothing

As per the information provided by Charter Construction LP and the City, the first four (4) phases are expected to be completed by 2032; therefore, the volumes generated from these phases were added to the 2032 future background volumes. **Table 14** shows the critical intersections during the 2032 future scenario traffic operations analysis under a Do-Nothing condition.

Table 14: 2032 Traffic Operations Analysis

Locations	Approach	AM Peak Hour				PM Peak Hour			
		v/c Ratio	Delay (s)	LOS	95th Percentile Queue	v/c Ratio	Delay (s)	LOS	95th Percentile Queue
Old Barrie Road East/University Avenue (Signalized)	SBL	0.83	41	D	88	1.21	137	F	671
	Overall Intersection	0.61	25	C	-	0.86	54	D	-
Line 15 North/Old Barrie Road East (Unsignalized)	NBLTR	0.14	14	B	22	0.79	48	E	55
	SBLTR	0.78	42	E	45	1.16	202	F	32
	Overall Intersection	-	-	-	-	-	-	-	-
Stone Ridge Boulevard/West Ridge Boulevard (Unsignalized)	EBL	0.41	31	D	21	1.23	289	F	23
	WBLTR	0.03	12	B	20	0.65	87	F	18
	Overall Intersection	-	-	-	-	-	-	-	-

Most intersections in the 2032 do-nothing scenario operate at acceptable LOS with minimal delays (See **Appendix E**). It was noted that significant bidirectional volumes on major approaches limit the available gaps in the conflicting traffic stream from minor roads, especially the stop-controlled left-turning movements from minor roads.

The eastbound movement on Stone Ridge Boulevard is expected to operate overcapacity with more than three (3) minutes of delay. The southbound left turn at the Old Barrie Road East/University Avenue intersection is expected to operate overcapacity, with queueing upstream towards the Diana Drive/University Avenue intersection blocking access for Lakehead University and Swiminer Drive.

The stop-controlled southbound movement for Line 15 North/Old Barrie Road East is expected to operate overcapacity with delays of approximately 3 minutes during the PM peak hours.

Based on the results of the background and do-nothing scenarios, the following intersections and turning movements experience a notable worsening of traffic operations due to the development:

- **Stone Ridge Boulevard/West Ridge Boulevard**
  - The eastbound left turn movement operates at a v/c ratio greater than 1.0 and delays of more than three (3) minutes.

It should also be noted that the eastbound left turn movement at Stone Ridge/West Ridge Boulevard already operates at an unacceptable LOS under the 2032 future background traffic volumes but worsens with the development site traffic overlaid.

Section 5.3.3 illustrates the recommended improvements for the critical intersections and the traffic operations analysis with those improvements.

5.3.3 Scenario 2: Interim Build-Out (2032) – With Improvements

As per requirements from the Ontario Traffic Manual (OTM) Book 12, signal warrant analysis (**Section 5.4**) has been performed for the critical stop-controlled intersections for justification of signalizing the intersections. As per the analysis, the intersection at Stone Ridge Boulevard/West Ridge Boulevard warrants signalization, as the 2032 future background traffic volumes at this intersection fulfills Justification 3, a combination of the trips exceeding minimum required volume and delays to the cross traffic at an intersection.

The signal warrant analysis was also performed on Line 15 North/Old Barrie Road East intersection. As per the analysis, signalization is warranted as the 2032 future background traffic volume at the intersection fulfills Justification 3 (see **Appendix G**).

Once signalized, the signal timing plans at the intersection will need to be optimized as required. A summary of the recommended improvements for the critical intersections is stated in **Table 15.** The results of the optimized critical intersections are provided in **Table 16** which demonstrates marked improvements to traffic operations performance.

Table 15: Recommended improvements for the critical intersections under the 2032 future scenario traffic

Location	Recommended Improvement	Rationale
Old Barrie Road East/University Avenue	Optimize STP with extended southbound approach green time and increased cycle length	Accommodate significant southbound left turn traffic volumes during the 2032 future scenario
Line 15 North/Old Barrie Road East	Signalize the intersection Optimize STP	Accommodate traffic on the southbound approach
Stone Ridge Boulevard/West Ridge Boulevard	Signalize the intersection Optimize STP	Accommodate turning movement traffic on the eastbound and westbound approach

Table 16: 2032 Optimized Traffic Operations Analysis

Locations	Approach	AM Peak Hour				PM Peak Hour			
		v/c Ratio	Delay (s)	LOS	95th Percentile Queue	v/c Ratio	Delay (s)	LOS	95th Percentile Queue
Old Barrie Road East/University Avenue (Signalized)	SBL	0.73	34	C	91	0.82	31	C	137
	Overall Intersection	0.56	24	C		0.78	32	C	-
Line 15 North/Old Barrie Road East (Signalized)	NBLTR	0.07	6	A	20	0.31	11	B	30
	SBLTR	0.36	9	A	41	0.26	11	B	28
	Overall Intersection	0.47	16	B	-	0.55	20	B	-
Stone Ridge Boulevard/West Ridge Boulevard (Signalized)	EBL	0.51	26	C	31	0.46	26	C	24
	EBTR	0.09	23	C	22	0.08	23	C	18
	Overall Intersection	0.26	7	A	-	0.38	7	A	-

5.3.4 Scenario 3 (2042) – Background Condition

Scenario 3 evaluates the 2042 horizon consisting of Phase 1, 2, 3, 4, 5, 6, and partially Phase 7 of the development. The 2042 background traffic volumes were shown to worsen the operational performance of the southbound left movement at Old Barrie Road East/University Avenue. The southbound movement at Line 15 North/Old Barrie Road East was observed to have a v/c ratio of excess of 1.0 with considerable queuing and delays. The poor performance is likely the result of insufficient gaps afforded by the free-flowing east-west traffic on Old Barrie Road East. **Table 17** shows the critical intersections under the 2042 background traffic volumes.

Table 17: 2042 future Background Traffic Critical Intersections

Locations	Approach	AM Peak Hour				PM Peak Hour			
		v/c Ratio	Delay (s)	LOS	95th Percentile Queue	v/c Ratio	Delay (s)	LOS	95th Percentile Queue
	SBL	0.80	36	D	97	1.34	190	F	966

Locations	Approach	AM Peak Hour				PM Peak Hour			
Old Barrie Road East/University Avenue (Signalized)	Overall Intersection	0.63	24	C	-	0.96	70	E	-
Line 15 North/Old Barrie Road East (Unsignalized)	NBLTR	0.20	16	C	26	1.15	142	F	70
	SBLTR	1.04	98	F	56	2.93	1033	F	42
	Overall Intersection	-	-	-	-	-	-	-	-
Stone Ridge Boulevard/West Ridge Boulevard (Unsignalized)	EBL	0.16	23	C	17	0.77	154	F	20
	WBLTR	0.08	12	B	11	0.23	18	C	23
	Overall Intersection	-	-	-	-	-	-	-	-

5.3.5 Scenario 3: Interim Build-Out (2042) – Do- Nothing

Table 18 presents the analysis for the critical intersection in the 2042 interim build-out scenario, which includes site generated volumes from proposed development phase 1 to phase 7 in addition to the 2042 future background traffic.

Table 18: 2042 Do-Nothing Traffic Operations Analysis

Locations	Approach	AM Peak Hour				PM Peak Hour			
		v/c Ratio	Delay (s)	LOS	95th Percentile Queue	v/c Ratio	Delay (s)	LOS	95th Percentile Queue
Old Barrie Road East/University Avenue (Signalized)	WBR	0.43	21	C	67	0.88	42	D	165
	SBL	1.10	96	F	192	1.53	276	F	1156
	Overall Intersection	0.77	42	D	-	1.11	100	F	-
Line 15 N/Old Barrie Road East (Unsignalized)	NBLTR	0.22	17	C	26	1.24	178	F	68
	SBLTR	1.19	152	F	53	#	#	F	50
	Overall Intersection	-	-	-	-	-	-	-	-
Diana Drive/University Avenue	NBL	0.37	22	C	25	0.93	51	D	53
	NBT	0.52	21	C	39	1.05	59	E	64
	Overall Intersection	0.41	17	B	-	0.66	35	D	-
Stone Ridge Boulevard/West Ridge Boulevard (Unsignalized)	EBL	1.06	148	F	37	6.95	#	F	97
	WBLTR	0.06	17	C	22	2.99	1194	F	35
	Overall Intersection	-	-	-	-	-	-	-	-

The operational conditions for the same critical intersections stated in the 2032 future scenario are expected to worsen under the 2042 future scenario traffic volumes with significant queueing, delays and overcapacity issues due to additional background and site-generated traffic. The northbound left and through approaches on Diana Drive/University Avenue operate at capacity. In addition, the westbound right turn movement at Old Barrie Road East/University Avenue also operates slightly above capacity. All other intersections still operate within capacity.

Based on the results of the background and do-nothing scenarios, the following intersections and turning movements experience a notable worsening of traffic operations due to the development:

- **Old Barrie Road East/University Avenue**
  - Westbound right turn movement operates at a high v/c ratio during the PM peak period
- **Diana Drive/University Avenue**
  - Northbound left turn movement operates at a high v/c ratio during the PM peak period
  - Northbound through movement operates at a worse LOS during the PM peak period

To accommodate the demand from the developmental phases, the following improvements have been proposed:

1. At **Old Barrie Road East/University Avenue**, the westbound right turn movement has been proposed to include an overlap phase with the southbound movement as the two movements do not conflict each other.
2. At **Diana Drive/University Avenue**, the northbound movement has been proposed to be optimized by extending the green time to accommodate through movement volumes at the intersection.

Section 5.3.6 illustrates the recommended improvements for the critical intersections and the Synchro analysis results with those improvements.

5.3.6 Scenario 3: Interim Build-Out (2042) – With Improvements

The signal warrant analysis performed for the intersection on Stone Ridge Boulevard/West Ridge Boulevard under the 2042 future scenario traffic demand warrants signalization at the intersection as Justification 3 of the signal warrant analysis is satisfied (see **Appendix G**). **Table 19** summarizes the optimization strategies for the critical intersection under the 2042 future scenario traffic . **Table 20** shows the results of the optimized traffic operations analysis at the critical intersections which demonstrates marked improvements to traffic operations performance.. It should be noted that although the westbound right turn at Old Barrie Road East and University Avenue currently operates acceptably, it is acknowledged that changing the movement to a permitted-overlap type with extended green time may yield incremental improvements under existing conditions from a traffic operations and safety standpoint. Therefore the City may want to consider implementing this improvement at an earlier timeframe.

Table 19: Recommended improvements for the critical intersections under the 2042 future scenario traffic

Location	Recommended Improvement	Rationale
Old Barrie Road East/University Avenue	- Change westbound right turn type to permitted + overlap (with the southbound movement) - Optimize STP with extended southbound left and westbound right green time	Accommodate significant southbound left and westbound right turn traffic during 2042 future scenario traffic volume
Diana Drive/University Avenue	Optimize STP with extended northbound through green time	Accommodate significant northbound through traffic during 2042 future scenario traffic volume
Stone Ridge Boulevard/West Ridge Boulevard	Retain improvements from 2032 future scenario	-
Line 15 North/Old Barrie Road East	Retain improvements from the 2032 scenario	-

Table 20: 2042 Optimized Traffic Operations Analysis

Locations	Approach	AM Peak Hour				PM Peak Hour			
		v/c Ratio	Delay (s)	LOS	95th Percentile Queue	v/c Ratio	Delay (s)	LOS	95th Percentile Queue
Old Barrie Road East/University Avenue (Signalized)	WBR	0.41	4	A	35	0.78	11	B	95
	SBL	0.74	30	C	119	1.04	72	E	471
	Overall Intersection	0.52	20	B	-	0.95	39	D	-
Line 15 N/Old Barrie Road East (Signalized)	NBLTR	0.09	7	A	22	0.43	14	B	37

Locations	Approach	AM Peak Hour				PM Peak Hour			
	SBLTR	0.48	11	B	48	0.42	15	B	39
	Overall Intersection	0.59	16	B	-	0.69	20	C	-
Diana Drive/University Avenue (Signalized)	NBL	0.22	16	B	23	0.55	24	C	52
	NBT	0.31	16	B	35	0.63	20	B	71
	Overall Intersection	0.36	16	B	-	0.59	19	B	-
Stone Ridge Boulevard/West Ridge Boulevard (Signalized)	EBL	0.58	24	C	47	0.56	24	C	32
	WBLTR	0.13	19	B	26	0.28	21	C	26
	Overall Intersection	0.37	9	A	-	0.7	10	B	-

5.3.7 Scenario 4 (2047) – Background Condition

The full build-out of the proposed developments is expected to be completed by 2047. **Table 21** notes the critical movements at the intersections under the 2047 background traffic volumes condition. During the PM peak hour, the southbound left turn movement operations at Old Barrie Road East/University Avenue considerably worsen. The movement is also found to be operating over the v/c ratio threshold during the AM peak hour. The southbound approach at Line 15 North/Old Barrie Road East operates well beyond capacity, resulting in considerable delays and overcapacity issues.

Table 21: 2047 Background Traffic Critical Intersections

Locations	Approach	AM Peak Hour				PM Peak Hour			
		v/c Ratio	Delay (s)	LOS	95th Percentile Queue	v/c Ratio	Delay (s)	LOS	95th Percentile Queue
Old Barrie Road East/University Avenue (Signalized)	SBL	0.87	44	D	101	1.46	241	F	1060
	Overall Intersection	0.69	26	C	-	1.05	86	F	-
Line 15 North/Old Barrie Road East (Unsignalized)	NBLTR	0.24	18	C	26	1.42	242	F	216
	SBLTR	1.26	178	F	56	#[4]	#	F	48
	Overall Intersection	-	-	-	-	-	-	-	-
Diana Drive/University Avenue	NBT	0.48	20	C	35	0.94	36	D	62
	Overall Intersection	0.30	16	B	-	0.59	24	C	-
Stone Ridge Boulevard/West Ridge Boulevard (Unsignalized)	EBL	0.21	26	D	17	1.10	288	F	19
	WBLTR	0.04	13	B	11	1.10	222	F	25
	Overall Intersection	-	-	-	-	-	-	-	-
Monarch Drive/West Ridge Boulevard (Signalized)	SBL	0.39	21	C	39	0.77	43	E	54
	Overall Intersection	0.46	18	B	-	0.74	23	C	-

[4] Represents values that exceeds reporting threshold

5.3.8 Scenario 4: Full Build-Out (2047) – Do-Nothing

The volume for this scenario includes the 2047 future background traffic and volumes generated from all developments in the study area in addition to the full buildout of the subject development. **Table 22** summarizes the traffic operation analysis of the critical intersections.

Table 22: 2047 Traffic Operations Analysis

Locations	Approach	AM Peak Hour				PM Peak Hour			
		v/c Ratio	Delay (s)	LOS	95th Percentile Queue	v/c Ratio	Delay (s)	LOS	95th Percentile Queue
Old Barrie Road East/University Avenue (Signalized)	WBR	0.47	22	C	74	1.13	105	F	165
	SBL	1.22	142	F	551	1.68	341	F	1236
	Overall Intersection	0.86	57	E		1.29	140	F	
Line 15 North/Old Barrie Road East (Unsignalized)	NBLTR	0.28	20	C	29	1.57	316	F	128
	SBLTR	1.51	284	F	79	#	#	F	62
	Overall Intersection	-	-	-	-	-	-	-	-
Diana Drive/University Avenue	NBL	0.41	24	C	29	1.06	73	E	52
	NBT	0.58	22	C	45	1.17	103	F	66
	Overall Intersection	0.45	17	B	-	0.73	56	E	-
Stone Ridge Boulevard/West Ridge Boulevard (Unsignalized)	EBL	1.58	356	F	46	#	#	F	267
	EBTR	0.38	15	B	28	0.94	94	F	81
	WBLTR	0.08	20	C	13	#	#	F	34
	Overall Intersection	-	-	-	-	-	-	-	-
Monarch Drive/West Ridge Boulevard (Signalized)	NBL	0.09	15	B	14	0.74	58	E	35
	NBT	0.53	19	B	55	0.89	31	C	66
	SBL	0.58	31	C	47	0.77	63	E	59
	Overall Intersection	0.66	23	C	-	0.84	30	C	-

Based on the results of the background and do-nothing scenarios, the following intersections and turning movements experience a notable worsening of traffic operations due to the development:

- **Stone Ridge Boulevard/Westridge Boulevard**
  - Eastbound through/right turn movement operates at a worse LOS and high v/c ratio during the PM peak period
- **Monarch Drive/West Ridge Boulevard**
  - The northbound left turn movement operates at a worse LOS during the PM peak period
  - The northbound through movement operates at a high v/c ratio during the PM peak period

To address the net impacts of the proposed development, the following changes have been proposed:

1. The intersection on **Stone Ridge Boulevard/West Ridge Boulevard** has been proposed to be signalized for the 2032 horizon year. To accommodate the volumes from the development on the eastbound through/right turn approach, the

improvements propose optimizing the overall STP for the intersection in conjunction with changing northbound left turn movements from permissive to protective.

2. The **Monarch Drive/West Ridge Boulevard** will retain improvements from the preceding horizon year to accommodate the incremental development volume.

The recommended improvements for all critical intersections and the intersection performance with those improvements can be found in **Section 5.3.9**

5.3.9 Scenario 4: Full Build-Out (2047) – With Improvements

Table 23 illustrates the optimization strategies for the critical intersections under the 2047 future scenario traffic. **Table 24** below shows the traffic operation analysis of the critical intersections under optimized conditions which demonstrates marked improvements to traffic operations performance.

Table 23: Recommended improvements for the critical intersections under the 2047 future scenario traffic

Location	Recommended Improvement	Rationale
Old Barrie Road East/University Avenue	- Change the southbound right turn movement to a dual left-turn lane with shared right turn. Note that this improvement will require an additional eastbound receiving lane to accommodate two southbound left movements. This would result in the potential widening the eastbound segment of Old Barrie Road from University Avenue to the intersection of Highway 11/Old Barrie Road East. It is recommended that if the widening is pursued, that a dedicated feasibility study be completed. - Optimize STP with extended eastbound and westbound movement green time	Accommodate traffic volumes at the southbound left turn, eastbound and westbound movement
Diana Drive/University Avenue	Retain improvements from the 2042 future scenario	-
Stone Ridge Boulevard/West Ridge Boulevard	- Change northbound left turn movement from permissive to protective/permissive - Optimize STP for the overall intersection to accommodate new lane configuration	Accommodate traffic volumes on the northbound left turn storage lane
Monarch Drive/West Ridge Boulevard	Retain existing configuration conditions	-
Line 15 North/Old Barrie Road East	Retain improvements from the 2032 future scenario	-

Table 24: 2047 Optimized Traffic Operations Analysis

Locations	Approach	AM Peak Hour				PM Peak Hour			
		v/c Ratio	Delay (s)	LOS	95th Percentile Queue	v/c Ratio	Delay (s)	LOS	95th Percentile Queue
Old Barrie Road East/University Avenue (Signalized)	WBR	0.46	4	A	31	0.84	12	B	78
	SBLR	0.58	28	C	82	0.85	37	D	118
	Overall Intersection	0.59	20	B	-	0.89	28	C	-
Line 15 North/Old Barrie Road East (Signalized)	NBLTR	0.10	8	A	23	0.50	15	B	44
	SBLTR	0.56	13	B	48	0.52	18	B	40
	Overall Intersection	0.67	17	B	-	0.77	26	C	-

Locations	Approach	AM Peak Hour				PM Peak Hour			
Diana Drive/University Avenue (Signalized)	NBL	0.25	16	B	29	0.63	27	C	53
	NBT	0.35	16	B	44	0.70	22	C	75
	Overall Intersection	0.40	16	B	-	0.65	20	C	-
Stone Ridge Boulevard/West Ridge Boulevard (Signalized)	EBL	0.68	33	C	58	0.63	33	C	46
	EBTR	0.15	24	C	28	0.15	26	C	32
	WBLTR	0.02	23	C	11	0.17	26	C	23
	Overall Intersection	0.47	13	B	-	0.69	13	B	-
Monarch Drive/West Ridge Boulevard (Signalized)	NBL	0.09	18	B	17	0.74	57	E	52
	NBT	0.53	24	C	59	0.89	33	C	107
	SBL	0.58	31	C	42	0.77	63	E	130
	Overall Intersection	0.66	25	C	-	0.84	31	C	-

5.3.10 Scenario 5 (2052) – Background Condition

Scenario 5 evaluates the study area five years following the full build-out of the development. **Table 25** below shows the operational conditions of the critical intersections during the 2052 background future traffic volumes. The westbound through movement at Old Barrie Road East/University Avenue operates slightly above the v/c ratio threshold with heavy queuing.

Table 25: 2052 Background Traffic Critical Intersections

Locations	Approach	AM Peak Hour				PM Peak Hour			
		v/c Ratio	Delay (s)	LOS	95th Percentile Queue	v/c Ratio	Delay (s)	LOS	95th Percentile Queue
Old Barrie Road East/University Avenue (Signalized)	WBT	0.54	23	C	62	0.88	40	D	383
	SBL	0.95	55	E	125	1.58	297	F	1174
	Overall Intersection	0.75	28	C	-	1.15	104	F	-
Line 15 North/Old Barrie Road East (Unsignalized)	NBLTR	0.31	22	C	26	1.78	409	F	428
	SBLTR	1.55	302	F	78	#	#	F	61
	Overall Intersection	-	-	-	-	-	-	-	-
University Avenue/Diana Drive (Signalized)	NBT	0.53	21	C	35	1.03	51	D	68
	Overall Intersection	0.32	16	B	-	0.65	31	C	-
Stone Ridge Boulevard/West Ridge Boulevard (Unsignalized)	EBL	0.26	31	D	17	1.66	557	F	20
	WBLTR	0.05	13	B	12	1.73	513	F	31

	Overall Intersection	-	-	-	-	-	-	-	-
Monarch Drive/West Ridge Boulevard (Signalized)	SBL	0.47	24	C	36	0.83	73	E	63
	Overall Intersection	0.53	19	B	-	0.82	25	C	-

5.3.11 Scenario 5: Full Build-Out + 5 years (2052) – Do-Nothing

Table 26 below presents the 2052 build-out traffic operations performance with the full development in place including site generated traffic volumes. The southbound left-turn at Old Barrie Road East/University Avenue was observed to experience significant queue spillback upstream, potentially blocking the intersection at Diana Drive and University Avenue.

Table 26: 2052 Traffic Operations Analysis

Locations	Approach	AM Peak Hour				PM Peak Hour			
		v/c Ratio	Delay (s)	LOS	95th Percentile Queue	v/c Ratio	Delay (s)	LOS	95th Percentile Queue
Old Barrie Road East/University Avenue (Signalized)	WBT	0.57	24	C	60	0.93	47	D	349
	WBR	0.51	23	C	79	1.31	176	F	164
	SBL	1.30	174	F	708	1.81	398	F	1268
	Overall Intersection	0.92	66	E	-	1.44	181	F	-
Line 15 North/Old Barrie Road East (Unsignalized)	NBLTR	0.37	26	D	27	1.97	496	F	330
	SBLTR	1.83	428	F	131	#	#	F	73
	Overall Intersection	-	-	-	-	-	-	-	-
University Avenue/Diana Drive (Signalized)	NBL	0.46	25	C	27	1.19	115	F	57
	NBT	0.62	23	C	44	1.25	139	F	69
	Overall Intersection	0.48	18	B	-	0.79	74	E	-
Stone Ridge Boulevard/West Ridge Boulevard (Unsignalized)	EBL	1.89	498	F	48	#	#	F	354
	EBTR	0.40	16	C	30	1.21	191	F	358
	WBLTR	0.10	22	C	13	#	#	F	73
	Overall Intersection	-	-	-	-	-	-	-	-
Monarch Drive/West Ridge Boulevard (Signalized)	NBL	0.10	16	B	13	0.77	63	E	49
	NBT	0.56	20	B	52	0.94	41	D	68
	SBL	0.70	42	D	43	0.84	75	E	66

Overall Intersection	0.75	26	C	-	0.91	36	D	-	

The net impact of the development during the 2052 horizon year remains the same as the 2047 horizon year.

5.3.12 Scenario 5: Full Build-Out + 5 years (2052) – With Improvements

Table 27 illustrates the optimization strategies for the critical intersections under the 2052 future scenario traffic. **Table 28** shows the optimized analysis for the critical intersections which show marked improvement to intersection traffic operations performance. It should be noted that the recommendation of a separated eastbound left turn lane at Monarch Drive/West Ridge Boulevard may be a low cost improvement as the current width of the eastbound roadway is approximately 7 metres, and therefore implementing a separate left and right turn lane would likely only involve sign and paint markings and no other geometric upgrades.

Table 27: Recommended improvements for the critical intersections under the 2052 future scenario traffic

Location	Recommended Improvement	Rationale
Old Barrie Road East/University Avenue	Optimize STP with extended green time at the eastbound and westbound movement	Accommodate traffic volumes for the eastbound westbound movement
Diana Drive/University Avenue	Retain improvements from the 2042 future scenario.	-
Stone Ridge Boulevard/West Ridge Boulevard	Retain improvements from the 2047 future scenario	-
Monarch Drive/West Ridge Boulevard	– Add a dedicated eastbound left turn lane with permissive left turn movement – Change northbound and southbound permissive left-turn movements to protective/permissive movements. – Optimize STP to accommodate new lane configuration. Allocate extended green time to the through and northbound left movements.	Accommodate traffic volumes for the eastbound, northbound and southbound left turn movements
Line 15 North/Old Barrie Road East	Optimize STP with extended eastbound and westbound movement green time	Accommodate traffic volumes on the eastbound and westbound movement

Table 28: 2052 Optimized Traffic Operations Analysis

Locations	Approach	AM Peak Hour				PM Peak Hour			
		v/c Ratio	Delay (s)	LOS	95th Percentile Queue	v/c Ratio	Delay (s)	LOS	95th Percentile Queue
Old Barrie Road East/University Avenue (Signalized)	WBT	0.47	29	C	79	0.81	44	D	147
	WBR	0.50	4	C	37	0.93	23	C	115
	SBLR	0.62	28	C	91	0.95	50	D	174
	Overall Intersection	0.63	21	C	-	0.98	37	D	-
Line 15 North/Old Barrie Road East (Signalized)	NBLTR	0.10	13	B	36	0.64	32	C	78
	SBLTR	0.57	20	B	76	0.83	54	D	105
	Overall Intersection	0.67	24	C	-	0.83	25	C	-
University Avenue/Diana Drive (Signalized)	NBL	0.27	17	B	33	0.71	32	C	58

Locations	Approach	AM Peak Hour				PM Peak Hour			
	NBT	0.37	16	B	46	0.75	23	C	83
	Overall Intersection	0.42	16	B	-	0.71	22	C	-
Stone Ridge Boulevard/West Ridge Boulevard (Signalized)	EBL	0.69	33	C	58	0.65	33	C	43
	EBTR	0.16	24	C	37	0.15	25	C	33
	WBLTR	0.02	23	C	11	0.24	26	C	28
	Overall Intersection	0.50	13	B	-	0.74	16	B	-
Monarch Drive/West Ridge Boulevard (Signalized)	NBL	0.07	19	B	13	0.55	37	D	56
	NBT	0.56	28	C	79	0.95	49	D	145
	SBL	0.49	29	C	50	0.65	49	D	178
	Overall Intersection	0.54	31	C	-	0.91	43	D	-

5.3.13 Scenario 6 (2057) – Background Condition

Table 29 below shows the operational conditions of the critical intersections during the 2057 background future traffic volumes. This scenario represents the horizon year ten years after full build-out of the development. The westbound through movement on Old Barrie Road East/University Avenue operates at a high v/c ratio with moderate delays of one (1) minute during the PM peak period under the 2057 future background traffic. The eastbound through/right movement on Stone Ridge Boulevard/West Ridge Boulevard operates at an unacceptable LOS during the PM peak period. The northbound through movement at Monarch Drive/West Ridge Boulevard operates slightly above the v/c ratio threshold during the PM peak period.

Table 29: Scenario 6 Background Traffic Critical Intersections

Locations	Approach	AM Peak Hour				PM Peak Hour			
		v/c Ratio	Delay (s)	LOS	95th Percentile Queue	v/c Ratio	Delay (s)	LOS	95th Percentile Queue
Old Barrie Road East/University Avenue (Signalized)	WBT	0.59	25	C	66	0.96	52	D	379
	WBR	0.47	22	C	84	0.97	57	E	166
	SBL	1.03	75	E	253	1.72	359	F	1225
	Overall Intersection	0.82	34	C	-	1.27	131	F	-
Line 15 North/Old Barrie Road East (Unsignalized)	NBLTR	0.46	33	D	31	2.29	640	F	769
	SBLTR	1.93	572	F	149	#	#	F	66
	Overall Intersection	-	-	-	-	-	-	-	-
University Avenue/Diana Drive (Signalized)	NBL	0.33	21	C	26	0.92	43	D	53

Locations	Approach	AM Peak Hour				PM Peak Hour			
	NBT	0.57	22	C	44	1.12	81	F	69
	Overall Intersection	0.35	17	B	-	0.71	45	D	-
Stone Ridge Boulevard/West Ridge Boulevard (Unsignalized)	EBL	0.33	39	E	20	2.53	1012	F	23
	EBTR	0.13	14	B	17	0.48	38	E	19
	WBLTR	0.06	15	B	12	2.86	1068	F	28
	Overall Intersection	-	-	-	-	-	-	-	-
Monarch Drive/West Ridge Boulevard (Signalized)	NBT	0.38	17	B	42	0.88	31	C	71
	SBL	0.56	28	C	44	0.91	90	F	64
	Overall Intersection	0.61	20	C	-	0.91	29	C	-

5.3.14 Scenario 6: Full Build-Out + 10 years (2057) – Do-Nothing

Table 30 below presents the 2057 build-out traffic operations performance with the full development in place. The unoptimized conditions for the 2057 scenario traffic volumes are unfavourable, with delays of approximately 10 minutes and more than 1.2km long queues. There is a massive queue spillback upstream, completely blocking the Diana Drive/University Avenue intersection.

Table 30: 2057 Traffic Operations Analysis

Locations	Approach	AM Peak Hour				PM Peak Hour			
		v/c Ratio	Delay (s)	LOS	95th Percentile Queue	v/c Ratio	Delay (s)	LOS	95th Percentile Queue
Old Barrie Road East/University Avenue (Signalized)	WBT	0.62	25	C	87	1.00	63	E	357
	WBR	0.55	24	C	118	1.50	259	F	165
	SBL	1.38	210	F	840	1.95	460	F	1254
	Overall Intersection	0.98	76	E	-	1.60	227	F	-
Line 15 North/Old Barrie Road East (Unsignalized)	NBLTR	0.59	50	E	30	2.54	758	F	929
	SBLTR	2.27	627	F	334	-	-	F	114
	Overall Intersection	-	-	-	-	-	-	-	-
University Avenue/Diana Drive (Signalized)	NBL	0.51	27	C	35	1.35	185	F	55
	NBT	0.67	24	C	46	1.35	180	F	67

Locations	Approach	AM Peak Hour				PM Peak Hour			
	Overall Intersection	0.52	18	B	-	0.86	96	F	-
Stone Ridge Boulevard/West Ridge Boulevard (Unsignalized)	EBL	2.26	675	F	107	#	#	F	358
	EBTR	0.43	17	C	29	1.64	380	F	400
	WBLTR	0.13	27	D	12	#	#	F	184
	Overall Intersection	-	-	-	-	-	-	-	-
Monarch Drive/West Ridge Boulevard (Signalized)	EBLTR	0.98	64	E	119	0.95	56	E	112
	WBL	0.43	17	B	39	0.85	38	D	79
	NBL	0.11	16	B	15	0.81	69	E	62
	NBT	0.60	21	C	56	1.05	63	E	116
	SBL	0.87	68	E	64	0.91	90	F	64
	SBT	0.53	19	B	157	0.92	34	C	158
	Overall Intersection	0.86	30	C	-	0.99	49	D	-

Based on the results of the background and do-nothing scenarios, the following intersections and turning movements experience worsening of traffic operations due to the development:

- **Monarch Drive/West Ridge Boulevard**
    - The eastbound left/through/right turn movement operates at a high LOS and v/c ratio during AM and PM peak period
    - The westbound left turn movement operates at the v/c ratio threshold during the PM peak period
    - The southbound through movement operates at a high v/c ratio during the PM peak period

To address the net impact of the development on **Monarch Drive/West Ridge Boulevard**, the following improvements have been proposed:

1. Add a dedicated northbound right turn lane,
2. Change the eastbound left turn movement from permissive to protective
3. Optimize the overall STP to accommodate the changes.

Section 5.3.15 highlights key improvement strategies for all critical intersections and intersection performances with those improvements.

5.3.15 Scenario 6: Full Build-Out + 10 years (2057) – With Improvements

Table 31 shows the optimization strategies for the critical intersections under the 2057 future scenario traffic. The optimized analysis of the critical intersection is present in **Table 32** below which demonstrates marked improvements to traffic operations performance.. It should be noted that the implementation of a westbound right turn lane at the intersection at Line 15 North/Old Barrie Road East has been suggested to reduce delay and queuing as a result of higher right turn volumes. In addition, from a best practices standpoint and notwithstanding the traffic operations performance, new left turn bays may also be considered at intersections undergoing geometric improvements (such as at Line 15 North/Old Barrie Road East) as a measure to improve safety and efficiency.

Table 31: Recommended improvements for the critical intersections under the 2057 future scenario traffic

Location	Recommended Improvement	Rationale
Old Barrie Road East/University Avenue	- Add a westbound through lane. - Optimize STP with extended southbound and westbound right movement green time	Accommodate traffic volumes on the eastbound and westbound movement
Diana Drive/University Avenue	Retain improvements from the 2022 future scenario	-
Stone Ridge Boulevard/West Ridge Boulevard	Retain improvements from the 2047 future scenario	-
Monarch Drive/West Ridge Boulevard	– Change eastbound permissive left-turn movement to protective/permissive movement – Add dedicated northbound right turn movement – Optimize STP to accommodate new change	Accommodate traffic volumes on all movements
Line 15 North/Old Barrie Road East	- Add dedicated westbound right turn lane - Optimize STP to accommodate new lane configuration	Accommodate traffic volumes on all movements

Table 32: 2057 Optimized Traffic Operations Analysis

Locations	Approach	AM Peak Hour				PM Peak Hour			
		v/c Ratio	Delay (s)	LOS	95th Percentile Queue	v/c Ratio	Delay (s)	LOS	95th Percentile Queue
Old Barrie Road East/University Avenue (Signalized)	WBT	0.29	27	C	42	0.47	30	C	352
	WBR	0.55	4	A	40	0.96	24	C	208
	SBLR	0.61	26	C	84	0.92	40	D	153
	Overall Intersection	0.68	21	C	-	1.01	34	C	-
Line 15 North/Old Barrie Road East (Signalized)	WBLT	0.85	18	D	97	0.79	25	C	167
	WBR	0.06	18	B	19	0.15	13	B	54
	NBLTR	0.11	12	B	35	0.56	24	C	73
	SBLTR	0.59	18	B	78	0.65	31	C	74
	Overall Intersection	0.70	26	C	-	0.73	22	C	-
University Avenue/Diana Drive (Signalized)	NBL	0.30	17	B	26	0.80	41	D	63
	NBT	0.40	17	B	49	0.80	25	C	89
	Overall Intersection	0.45	17	B	-	0.78	24	C	-

Locations	Approach	AM Peak Hour				PM Peak Hour			
Stone Ridge Boulevard/West Ridge Boulevard (Signalized)	EBL	0.70	34	C	59	0.67	34	C	42
	EBTR	0.16	23	C	33	0.16	25	C	33
	WBLTR	0.03	23	C	13	0.31	26	C	31
	Overall Intersection	0.53	14	B	-	0.76	18	B	-
Monarch Drive/West Ridge Boulevard (Signalized)	EBL	0.44	27	C	45	0.36	26	C	33
	EBTR	0.75	46	D	64	0.78	49	D	78
	WBL	0.57	29	C	45	0.88	41	D	84
	NBL	0.08	17	B	13	0.57	28	C	33
	NBT	0.39	22	C	50	0.63	28	C	78
	SBL	0.31	13	B	42	0.41	20	B	56
	SBT	0.45	19	B	67	0.93	42	D	141
	Overall Intersection	0.56	25	C	-	0.93	35	C	-

5.4 Signal Warrant Analysis

Signal warrant analysis helps determine whether an intersection requires signalization. Ontario Traffic Manual (OTM) Book 12 identifies the justification criteria intersections need to meet to warrant traffic signals' installation. Refer to **Appendix G** for additional information in input data and the analysis results.

Due to high volumes on the approaches at Stone Ridge Boulevard/West Ridge Boulevard and Line 15 North/Old Barrie Road East, signal warrant analysis was performed on the intersections for each scenario to determine whether a traffic signal installation is warranted.

The analysis determined that the Line 15 North/Old Barrie Road East intersection would require signalization to accommodate the 2032 scenario background traffic volume as it exceeds the 4-hour minimum volume criteria, satisfying Justification 3 of the signal warrant analysis.

The Stone Ridge Boulevard/West Ridge Boulevard intersection also warrants signalization to accommodate the 2032 future scenario total traffic volume as it satisfies Justification 3 of the signal warrant analysis.

5.5 Recommendations for Active Transportation

In line with the City's MMTMP, it is recommended to provide enhanced active transportation connections and facilities in the study area to encourage mode shift and integration of the transportation network.

The proposed development is one of the emerging subdivisions in west Orillia and is bounded by several arterial roads, including Bass Lake Side Road East to the north, Line 15 North to the west, Old Barrie Road East to the south, and University Avenue/West Ridge Boulevard to the east.

Currently, there are a lack of active transportation facilities along Line 15 North (between Bass Lake Side Road East and Old Barrie Road East), Old Barrie Road East (between Line 15 North and University Avenue/West Ridge Boulevard), and Bass Lake Side Road East (between Line 15 North and Atlantis Drive). Considering the low-density nature of the study area, It is recommended to provide multi-use paths on these streets to connect the future development access points to the active

transportation network and address combined pedestrian and cycling needs. Furthermore, the existing multi-use paths on University Avenue/West Ridge Boulevard can be upgraded to dedicated bike lanes in future to accommodate the potential growth in cycling demand in west Orillia.

There are also plans to develop a multi-use trail system within the proposed development, which will provide an internal trail network and connections to the surrounding active transportation network. Refer to **Appendix A** for the draft Trailside Neighbourhood Plan of the proposed development.

5.6 Transportation Demand Management

Transportation Demand Management (TDM) is a series of coordinated actions that encourage people to use the sustainable modes of transportation and reducing their reliance of automobiles. Some of TDM measures include: bicycle and pedestrian facilities, public transit enhancements, and ridesharing.

The following TDM measures and incentives have been recommended for the proposed developments:

- Provide sidewalks on all internal streets within the proposed development.
- Provide dedicated bike lanes along Stone Ridge Boulevard which connects to the multi-use path on West Ridge Boulevard.
- Provide multi-use paths from the commercial and school block within the proposed development to encourage active transportation to/from the blocks.
- Provide ridesharing facilities for employees along with additional incentives (transit pass, discounts, etc.).
- Provide new bus stops within the proposed development to enhance the bus facility in the area.

6 Conclusions and Recommendations

The findings and conclusions of the analysis are as follows:

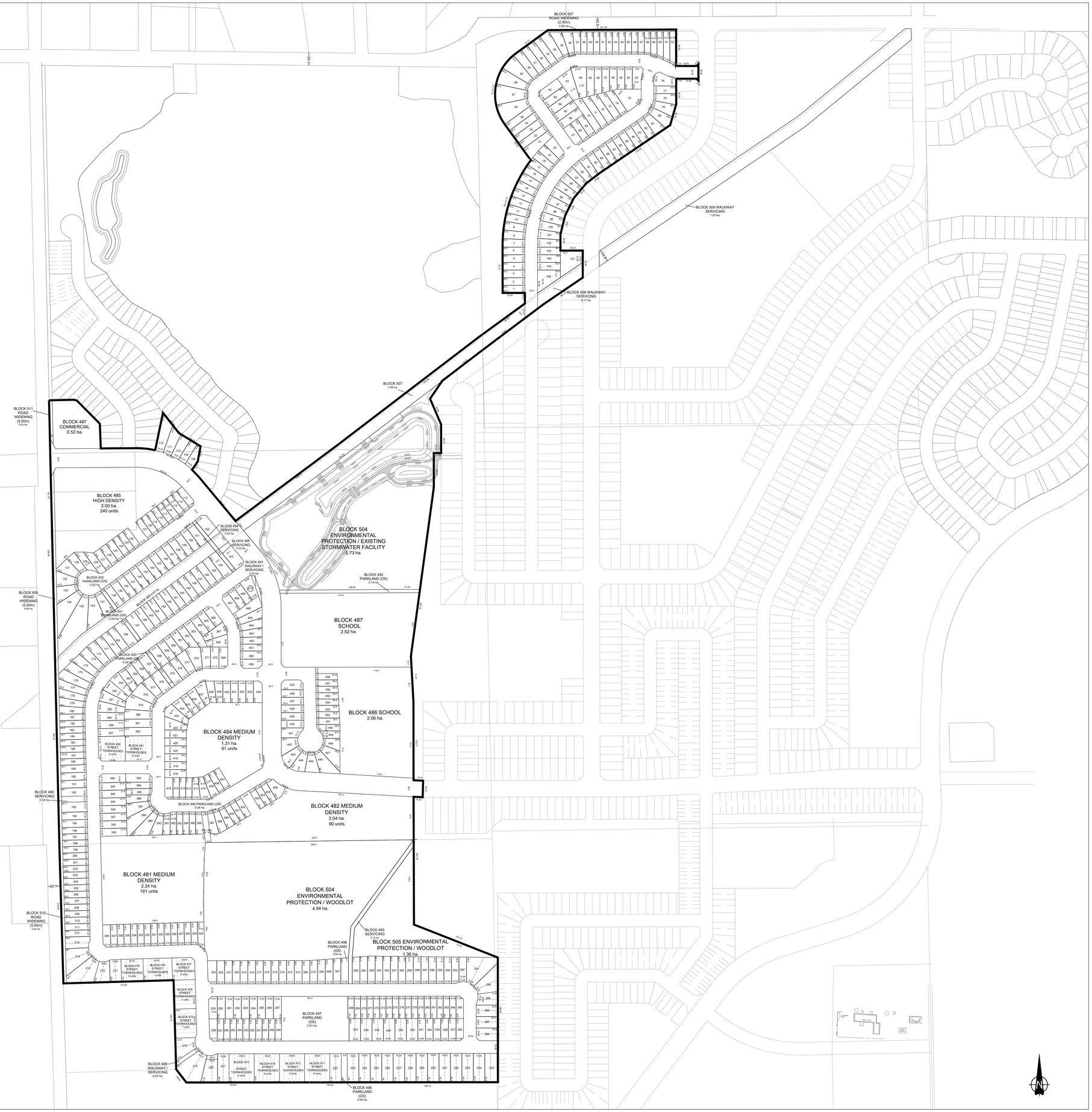
- The full build-out of the West Ridge Trailside development is expected to generate 886 vehicular trips in the AM peak hour and 1083 trips in the PM peak hour.
- The analysis indicates that, under existing conditions, all of the intersections operate within acceptable levels of service with the exception of the southbound approach at Old Barrie Road East/University Avenue which currently operates with moderate delays and significant queueing. In addition the southbound approach at Line 15 North/Old Barrie Road East and the eastbound left turn movement at Stone Ridge Boulevard/West Ridge Boulevard currently operate at an unacceptable level of service.
- For future scenarios, signal warrant analysis (**Section 5.4)** has been conducted for two stop-controlled intersections at Line 15 North/Old Barrie Road East and Stone Ridge Boulevard/West Ridge Boulevard, indicating that signalization will be required on both intersections to accommodate the future scenario traffic volumes.

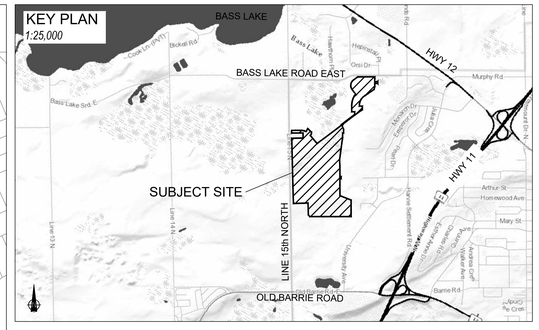
Overall, this TIS recommended improvements for each horizon year scenario including signalization, signal optimization and updated lane configurations for the critical intersections. A summary of the proposed improvements is provided below for each horizon year::

- **Scenario 2 (2032) – Interim Build-out**
  - Signalize the Line 15 North/Old Barrie Road East intersection and Stone Ridge Boulevard/West Ridge Boulevard.
  - Develop and optimize STP for the Old Barrie Road East/University Avenue and Stone Ridge Boulevard/West Ridge Boulevard intersections.
  - Optimize signal timing by increasing cycle length at Old Barrie Road East/University Avenue intersection with more green time allocated to the southbound left movement.
- **Scenario 3 (2042) – Interim Build-out**
  - Change westbound right turn at Old Barrie Road East/University Avenue to permitted + overlap (with the southbound movement) to accommodate significant right turn traffic. Optimize STP with more green time allocated to westbound right and southbound movement.
  - Optimize STP on the intersection at Diana Drive/University by allocating more green time to the northbound through movement.

- **Scenario 4 (2047) – Full Build-out**
    - Change the dedicated southbound right turn approach on Old Barrie Road East/University Avenue to southbound left/right turn movement. This will require an additional eastbound exit lane. Optimize the signal timing plans for the overall intersection by allocating more green time to the eastbound and westbound approaches.
    - Change permissive northbound left turn movement to protective/permissive left-turn movement on Stone Ridge Boulevard/West Ridge Boulevard and optimize the overall intersection's STP.
- **Scenario 5 (2052) – Full Build-out + 5 years**
    - Optimize STP at the Old Barrie Road East/University Avenue intersection with extended green time at the eastbound and westbound movement.
    - Add a dedicated eastbound left turn lane with permissive movement at the Monarch Drive/West Ridge Boulevard intersection. Optimize STP to accommodate new lane configuration and allocate more green time to the through and northbound left movements.
- **Scenario 6 (2057) – Full Build-out + 10 years**
    - Add another westbound through lane at the Old Barrie Road East/University Avenue intersection to accommodate westbound traffic. Optimize STP with more green time allocated to the southbound and westbound right turn movement.
    - Add dedicated westbound right turn lane at the Line 15 North/Old Barrie Road intersection and optimize STP to accommodate new lane configuration
    - Change the eastbound left turn movement at the Monarch Drive/West Ridge Boulevard intersection from permissive to permissive/protective.
    - Add a dedicated northbound right turn lane at Monarch Drive/West Ridge Boulevard to accommodate significant right turn volumes and optimize STP.

Appendix A – Site Plan





WEST RIDGE - TRAILSIDE
DRAFT PLAN
OF SUBDIVISION

LOT 6, PART OF THE WEST HALF OF LOT 7
AND PART OF LOT 8,
CONCESSION 2 (SOUTH ORILLIA)
FORMERLY IN THE GEOGRAPHIC TOWNSHIP OF ORILLIA
NOW IN THE
CITY OF ORILLIA
COUNTY OF SIMCOE

-40 0 40 80 120 160 200
SCALE = 1:2000

OWNER'S CERTIFICATE

I, THE UNDERSIGNED, BEING THE REGISTERED OWNER OF THE SUBJECT LANDS, HEREBY AUTHORIZE MORGAN PLANNING & DEVELOPMENT INC., TO PREPARE THIS DRAFT PLAN OF SUBDIVISION AND TO SUBMIT SAME TO THE CITY OF ORILLIA FOR APPROVAL.

DATE

CHARTER CONSTRUCTION LIMITED
CHARTER DEVELOPMENT GP INC.
CHARTER DEVELOPMENT LP.
765037 ONTARIO LIMITED
ANGELO ORSI
I HAVE THE AUTHORITY TO BIND THE CORPORATION.

DATE

MARK RICH HOMES LIMITED
PETER MANNA
I HAVE THE AUTHORITY TO BIND THE CORPORATION.

SURVEYOR'S CERTIFICATE

I CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN.

DATE RUDY MAK, OLS

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT

a) SHOWN ON PLAN
b) SHOWN ON PLAN
c) SEE KEY PLAN
d) RESIDENTIAL, OPEN SPACE, COMMERCIAL
e) SHOWN ON PLAN
f) SHOWN ON PLAN
g) SHOWN ON PLAN
h) MUNICIPAL WATER
i) SILTY SAND TILL
j) SHOWN ON PLAN
k) ALL MUNICIPAL SERVICES TO BE PROVIDED
l) NONE

LAND USE STATISTICS

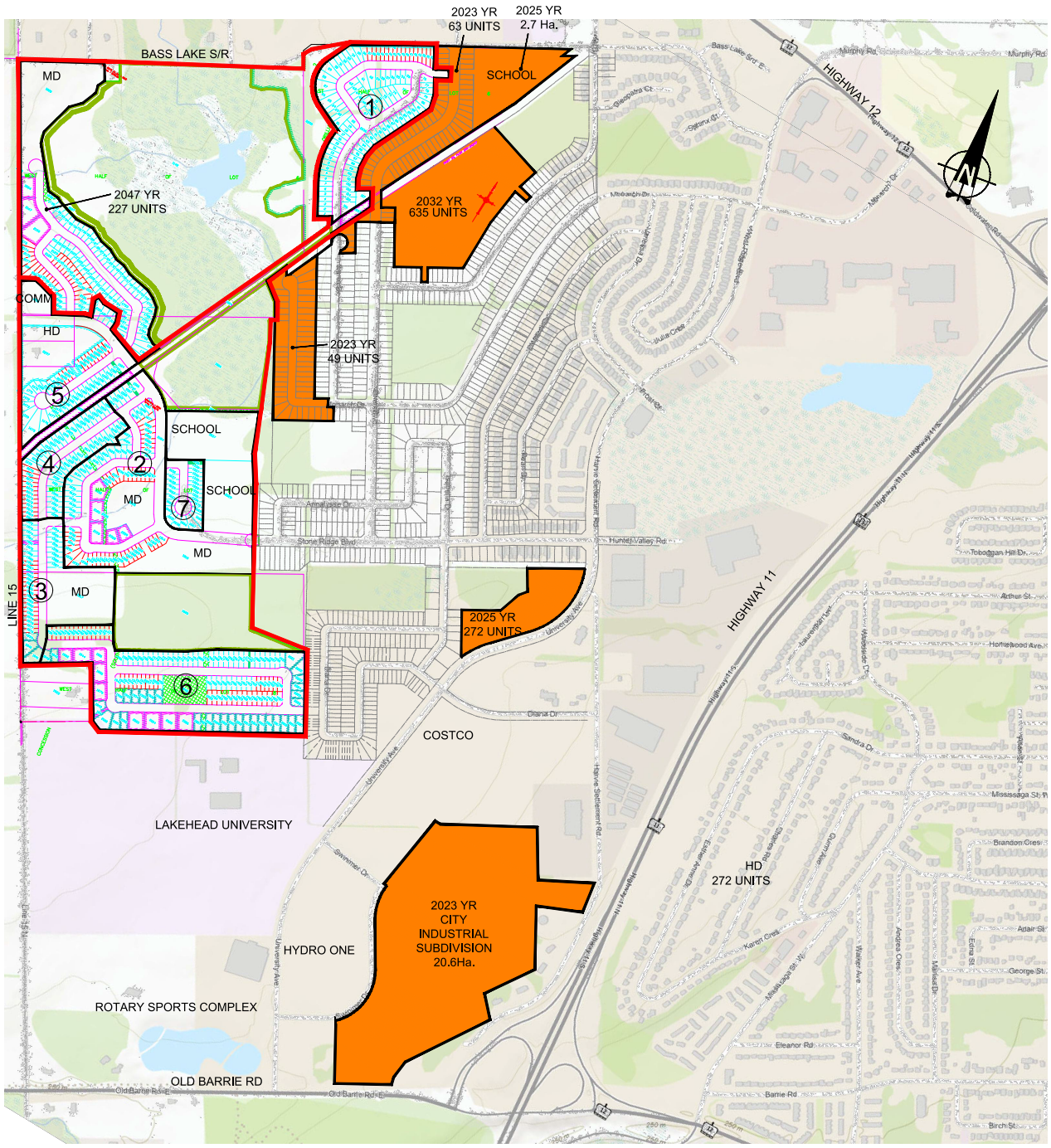
Land Use	Lot / Block No.	No. of Lots / Blocks	Units	Area (ha.)
RESIDENTIAL SINGLE LOT (10.0m / 30')	37-124, 177-212, 236-285, 324-338, 383-415, 435-458, 461-466	206	125	6.77
RESIDENTIAL SINGLE LOT (12.0m / 40')	1-36, 53-112,112-176, 189-195, 259-267, 292-323, 339-382, 416-434, 459-460, 467-470,	328	308	13.92
RESIDENTIAL SEMI-DETACHED LOT (18.0m lots / 9m units)	213-235, 242-292	35	72	2.88
RESIDENTIAL TOWNHOUSES (6.1m / 20' units)	471-481	11	55	1.75
RESIDENTIAL - MEDIUM DENSITY	482-484	3	252	5.60
RESIDENTIAL - HIGH DENSITY	485	1	240	1.99
INSTITUTIONAL - SCHOOL	486, 487	2		4.47
COMMERCIAL	488	1		0.50
WALKWAY / SERVICING	489-492	3		0.19
SERVICING	493-495	3		0.06
TC ENERGY CORRIDOR	506-509	4		3.06
PARKLAND (OS)	496-502	7		0.96
ENVIRONMENTAL PROTECTION ENVIRONMENTAL / WOODLOT - 6.43 ha. ENVIRONMENTAL / EXISTING SWM FACILITY -5.73 ha.	503, 504, 505	2		12.03
ROAD WIDENINGS	510, 511	2		0.43
ROADS (Street A- G, Trailside Drive & Stone Ridge Blvd.)				10.99
TOTAL		608	1052	65.60

CHARTER DEVELOPMENT LP

MORGAN PLANNING & DEVELOPMENT INC.

DATE: Rev. June 9, 2022
SCALE: 1:2000 (ARCH E)

DRAWN BY: B.H./PH

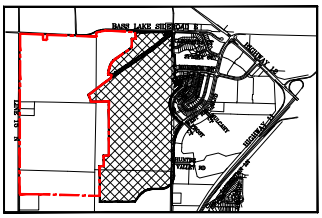


TRAILSIDE DRAFT PLAN

1 2025 - 107 UNITS
2 2027 - 248 UNITS, 4.5Ha SCHOOLS
3 2030 - 138 UNITS
4 2032 - 63 UNITS
5 2035 - 295 UNITS
6 2038 - 205 UNITS
7 2042 - 24 UNITS

TRAILSIDE NEIGHBOURHOOD PLAN

Lots 6 and 7, Part of Lot 8
Concession 2
Formerly in the
Geographic Township of Orillia
Now in the
City of Orillia
Simcoe County



KEY PLAN NOT TO SCALE

SUBJECT LANDS
STONE RIDGE SUBDIVISION

0 25 50 100 200 400
metres

REVISED: AP. 7/22

Appendix B – Traffic Count Data

Stone Ridge Boulevard & West Ridge Boulevard

Morning Peak Diagram

Specified Period
From: 6:30:00
To: 10:30:00

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

Municipality: Orillia
Site #: 0000002201
Intersection: West Ridge Boulevard & Stone Ridg
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

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

Major Road: West Ridge Boulevard runs N/S

North Leg Total:	697
North Entering:	357
North Peds:	0
Peds Cross:	⋈

Heavys	2	8	0	10
Trucks	0	7	0	7
Cars	26	299	15	340
Totals	28	314	15	

Heavys	7
Trucks	4
Cars	329
Totals	340

East Leg Total:	41
East Entering:	13
East Peds:	0
Peds Cross:	⧖

West Ridge Boulevard

Heavys	Trucks	Cars	Totals
4	0	39	43

Cars	Trucks	Heavys	Totals
10	0	0	10
1	0	0	1
2	0	0	2
13	0	0	

Stone Ridge Boulevard

N
W E
S

Heavys	Trucks	Cars	Totals
2	0	25	27
0	0	3	3
2	0	27	29
4	0	55	

Hunter Valley Road

Cars	Trucks	Heavys	Totals
28	0	0	28

West Ridge Boulevard

Peds Cross:	⧖
West Peds:	2
West Entering:	59
West Leg Total:	102

Cars	328			
Trucks	7			
Heavys	10			
Totals	345			

Cars	12	294	10	316
Trucks	0	4	0	4
Heavys	2	5	0	7
Totals	14	303	10	

Peds Cross:	⋈
South Peds:	1
South Entering:	327
South Leg Total:	672

Comments

Stone Ridge Boulevard & West Ridge Boulevard

Afternoon Peak Diagram

Specified Period
From: 15:30:00
To: 19:30:00

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

Municipality: Orillia
Site #: 0000002201
Intersection: West Ridge Boulevard & Stone Ridg
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

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

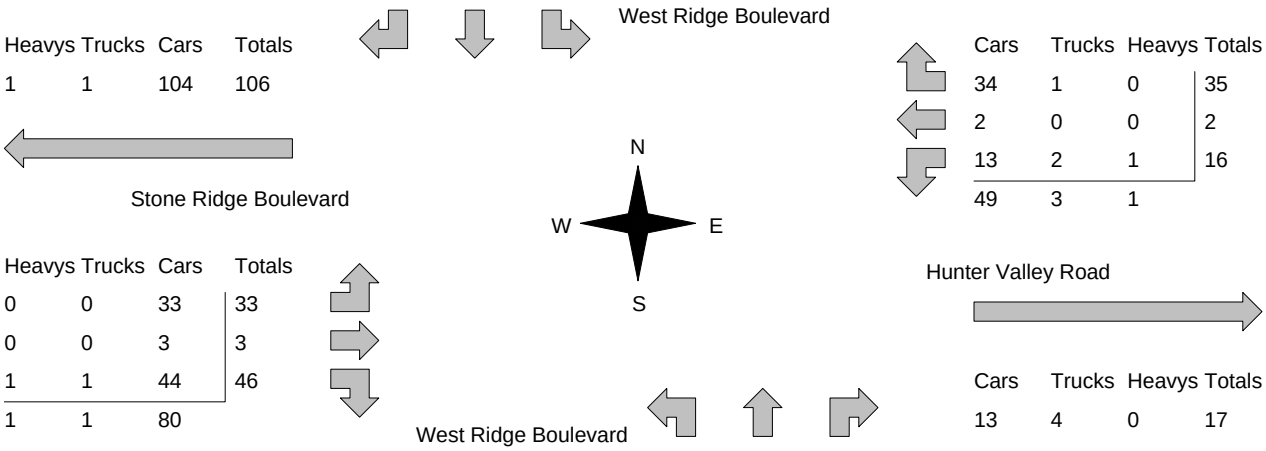
Major Road: West Ridge Boulevard runs N/S

North Leg Total: 1214
North Entering: 499
North Peds: 0
Peds Cross: ⋈

Heavys	0	4	0	4
Trucks	0	3	3	6
Cars	54	429	6	489
Totals	54	436	9	

Heavys	4
Trucks	4
Cars	707
Totals	715

East Leg Total: 70
East Entering: 53
East Peds: 4
Peds Cross: ⧖



Peds Cross: ⧖
West Peds: 8
West Entering: 82
West Leg Total: 188

Cars	486			
Trucks	6			
Heavys	6			
Totals	498			

Cars	48	640	4	692
Trucks	1	3	1	5
Heavys	1	4	0	5
Totals	50	647	5	

Peds Cross: ⋈
South Peds: 3
South Entering: 702
South Leg Total: 1200

Comments

Stone Ridge Boulevard & West Ridge Boulevard

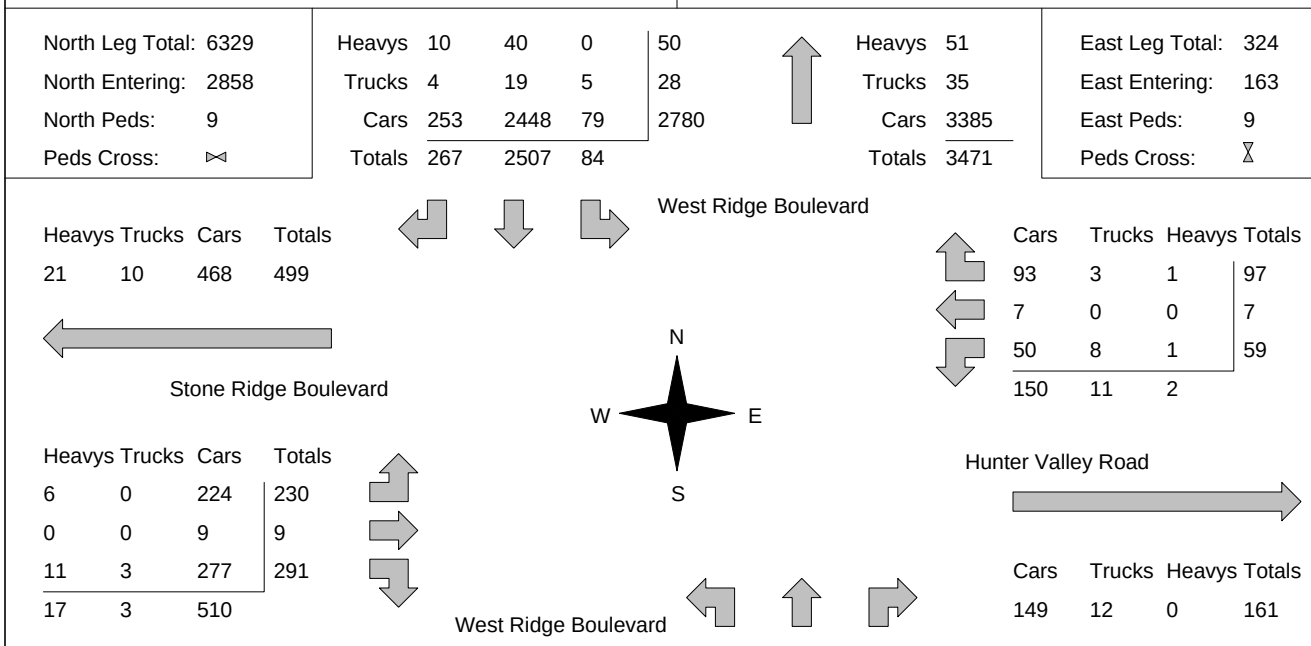
Total Count Diagram

Municipality: Orillia
Site #: 0000002201
Intersection: West Ridge Boulevard & Stone Ridg
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear
Person(s) who counted:

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

Major Road: West Ridge Boulevard runs N/S



Comments

Stone Ridge Boulevard & West Ridge Boulevard
Traffic Count Summary

Intersection: West Ridge Boulevard & Stone Rid | **Count Date:** 15-Jun-2022 | **Municipality:** Orillia

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	13	69	4	86	1	156
8:00:00	16	210	8	234	2	462
9:00:00	17	264	26	307	0	612
10:00:00	10	311	29	350	1	680
16:00:00	8	327	44	379	1	881
17:00:00	5	414	56	475	1	1135
18:00:00	7	424	39	470	2	1128
19:00:00	6	350	44	400	0	854
Totals:	82	2369	250	2701	8	5908

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	2	55	13	70	1
8:00:00	23	186	19	228	0
9:00:00	20	270	15	305	1
10:00:00	13	314	3	330	0
16:00:00	33	462	7	502	0
17:00:00	48	608	4	660	2
18:00:00	40	614	4	658	1
19:00:00	28	423	3	454	1
Totals:	207	2932	68	3207	6

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	2	1	7	10	1	36
8:00:00	10	1	8	19	0	89
9:00:00	3	1	6	10	1	104
10:00:00	3	1	9	13	0	58
16:00:00	7	0	9	16	2	86
17:00:00	11	1	25	37	4	125
18:00:00	14	1	22	37	1	92
19:00:00	7	1	7	15	0	68
Totals:	57	7	93	157	9	658

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	13	1	12	26	1
8:00:00	27	2	41	70	4
9:00:00	38	2	54	94	3
10:00:00	18	1	26	45	3
16:00:00	29	0	41	70	1
17:00:00	29	3	56	88	8
18:00:00	28	0	27	55	8
19:00:00	32	0	21	53	7
Totals:	214	9	278	501	35

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:	18	41	44	23	37	46	46	41

Stone Ridge Boulevard & West Ridge Boulevard

Morning Peak Diagram

Specified Period
From: 6:30:00
To: 10:30:00

One Hour Peak
From: 9:30:00
To: 10:30:00

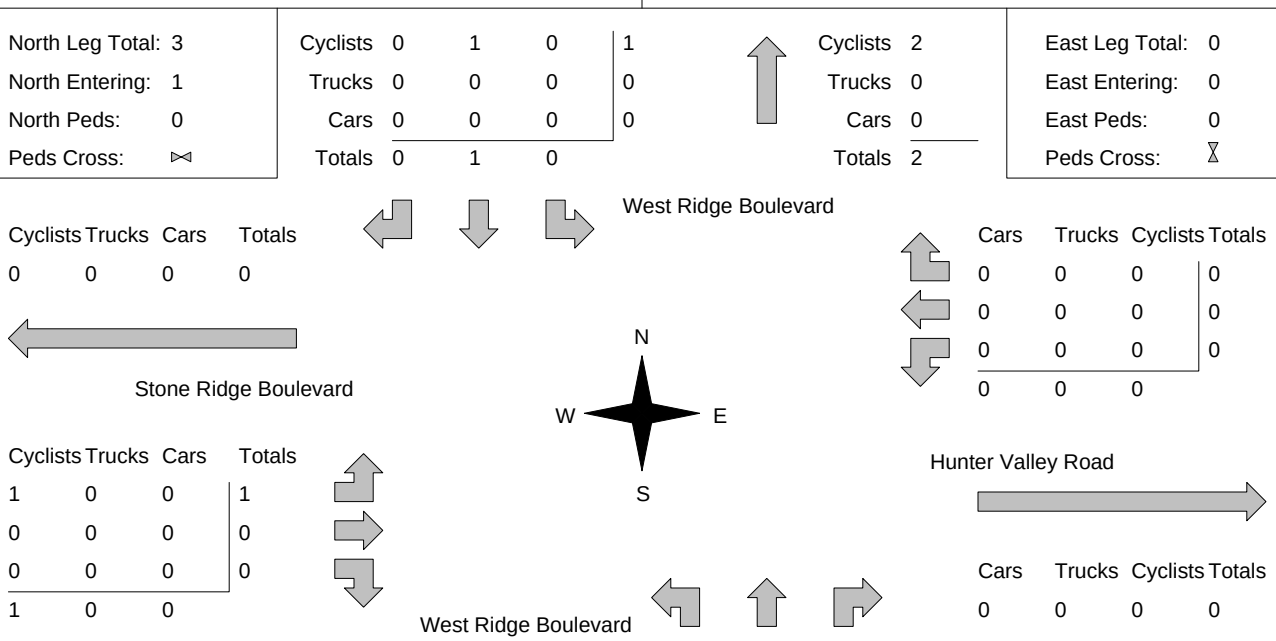
Municipality: Orillia
Site #: 5000002201
Intersection: West Ridge Boulevard & Stone Ridg
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

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

Major Road: West Ridge Boulevard runs N/S



Comments

Stone Ridge Boulevard & West Ridge Boulevard

Afternoon Peak Diagram

Specified Period
From: 15:30:00
To: 19:30:00

One Hour Peak
From: 15:30:00
To: 16:30:00

Municipality: Orillia
Site #: 5000002201
Intersection: West Ridge Boulevard & Stone Ridg
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

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

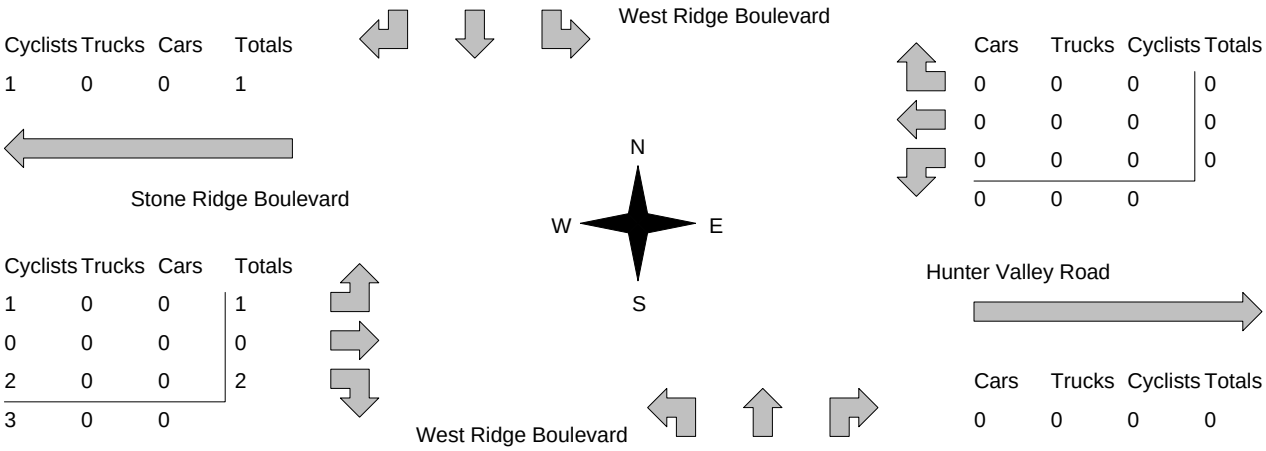
Major Road: West Ridge Boulevard runs N/S

North Leg Total: 6
North Entering: 4
North Peds: 0
Peds Cross: ⋈

Cyclists	1	3	0	4
Trucks	0	0	0	0
Cars	0	0	0	0
Totals	1	3	0	

Cyclists	2
Trucks	0
Cars	0
Totals	2

East Leg Total: 0
East Entering: 0
East Peds: 0
Peds Cross: ⧖



Cyclists	Trucks	Cars	Totals
1	0	0	1

Cars	Trucks	Cyclists	Totals
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	

Cyclists	Trucks	Cars	Totals
1	0	0	1
0	0	0	0
2	0	0	2
3	0	0	

Cars	Trucks	Cyclists	Totals
0	0	0	0

Peds Cross: ⧖
West Peds: 0
West Entering: 3
West Leg Total: 4

Cars	0
Trucks	0
Cyclists	5
Totals	5

Cars	0	0	0	0
Trucks	0	0	0	0
Cyclists	0	1	0	1
Totals	0	1	0	

Peds Cross: ⋈
South Peds: 0
South Entering: 1
South Leg Total: 6

Comments

Stone Ridge Boulevard & West Ridge Boulevard

Total Count Diagram

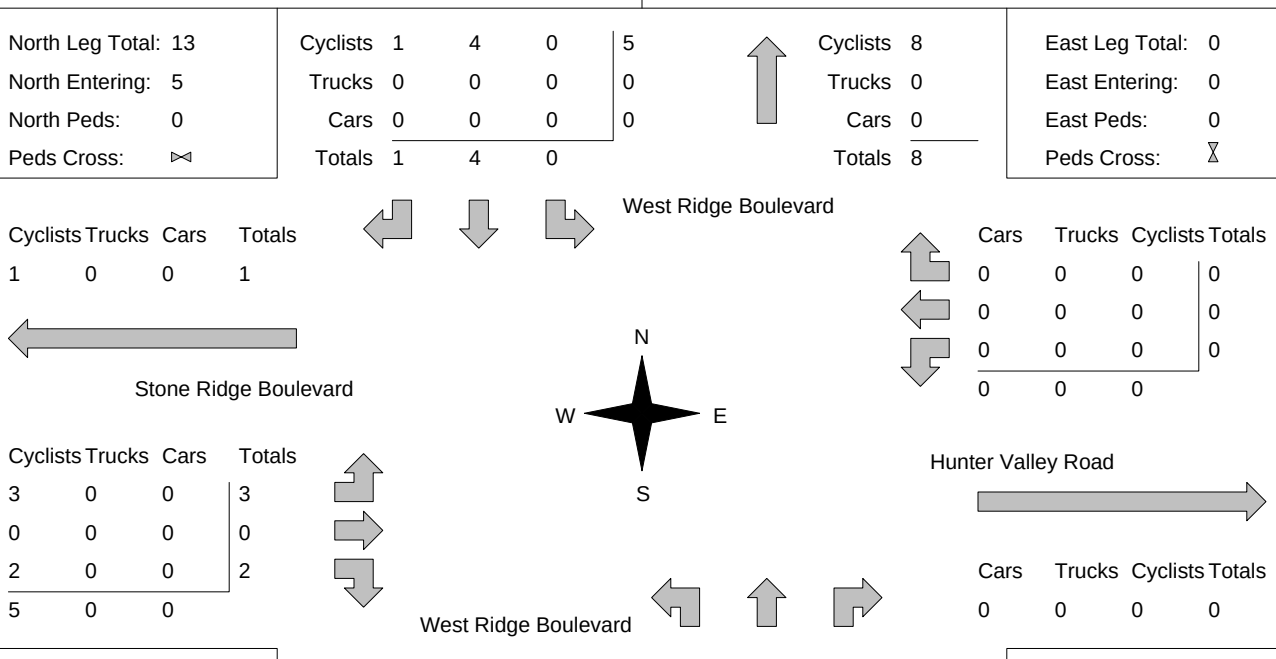
Municipality: Orillia
Site #: 5000002201
Intersection: West Ridge Boulevard & Stone Ridg
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

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

Major Road: West Ridge Boulevard runs N/S



Comments

Stone Ridge Boulevard & West Ridge Boulevard
Traffic Count Summary

Intersection: West Ridge Boulevard & Stone Rid | **Count Date:** 15-Jun-2022 | **Municipality:** Orillia

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: 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	0	0
9:00:00	0	0	0	0	0	0
10:00:00	0	1	0	1	0	1
16:00:00	0	2	1	3	0	4
17:00:00	0	1	0	1	0	3
18:00:00	0	0	0	0	0	2
19:00:00	0	0	0	0	0	0
Totals:	0	4	1	5	0	10

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	0
9:00:00	0	0	0	0	0
10:00:00	0	0	0	0	0
16:00:00	0	1	0	1	0
17:00:00	0	2	0	2	0
18:00:00	0	2	0	2	0
19:00:00	0	0	0	0	0
Totals:	0	5	0	5	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	0	0	0	0	0	0
9:00:00	0	0	0	0	0	0
10:00:00	0	0	0	0	0	1
16:00:00	0	0	0	0	0	2
17:00:00	0	0	0	0	0	1
18:00:00	0	0	0	0	0	0
19:00:00	0	0	0	0	0	0
Totals:	0	0	0	0	0	4

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	0
9:00:00	0	0	0	0	0
10:00:00	1	0	0	1	0
16:00:00	0	0	2	2	0
17:00:00	1	0	0	1	0
18:00:00	0	0	0	0	0
19:00:00	0	0	0	0	0
Totals:	2	0	2	4	0

Calculated Values for Traffic Crossing Major Street

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

Line 15 North & Bass Lake Road East

Morning Peak Diagram

Specified Period
From: 6:30:00
To: 10:30:00

One Hour Peak
From: 7:30:00
To: 8:30:00

Municipality: Orillia
Site #: 0000002202
Intersection: Line 15 North & Bass Lake Road Ea
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

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

Major Road: Line 15 North runs N/S

North Leg Total:	257
North Entering:	204
North Peds:	0
Peds Cross:	⋈

Heavys	0	0	1	1
Trucks	2	0	0	2
Cars	9	189	3	201
Totals	11	189	4	

Heavys	1
Trucks	3
Cars	49
Totals	53

East Leg Total:	75
East Entering:	37
East Peds:	0
Peds Cross:	⧖

Line 15 North

Heavys	Trucks	Cars	Totals
0	2	32	34

Bass Lake Road East

Heavys	Trucks	Cars	Totals
0	1	13	14
1	0	24	25
0	0	5	5
1	1	42	

Cars	Trucks	Heavys	Totals
2	0	0	2
16	0	0	16
19	0	0	19
37	0	0	

N
W E
S

Bass Lake Road East

Cars	Trucks	Heavys	Totals
36	0	2	38

Line 15 North

Peds Cross:	⧖
West Peds:	1
West Entering:	44
West Leg Total:	78

Cars	213
Trucks	0
Heavys	0
Totals	213

Cars	7	34	9	50
Trucks	0	2	0	2
Heavys	0	1	0	1
Totals	7	37	9	

Peds Cross:	⋈
South Peds:	0
South Entering:	53
South Leg Total:	266

Comments

Line 15 North & Bass Lake Road East

Afternoon Peak Diagram

Specified Period
From: 15:30:00
To: 19:30:00

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

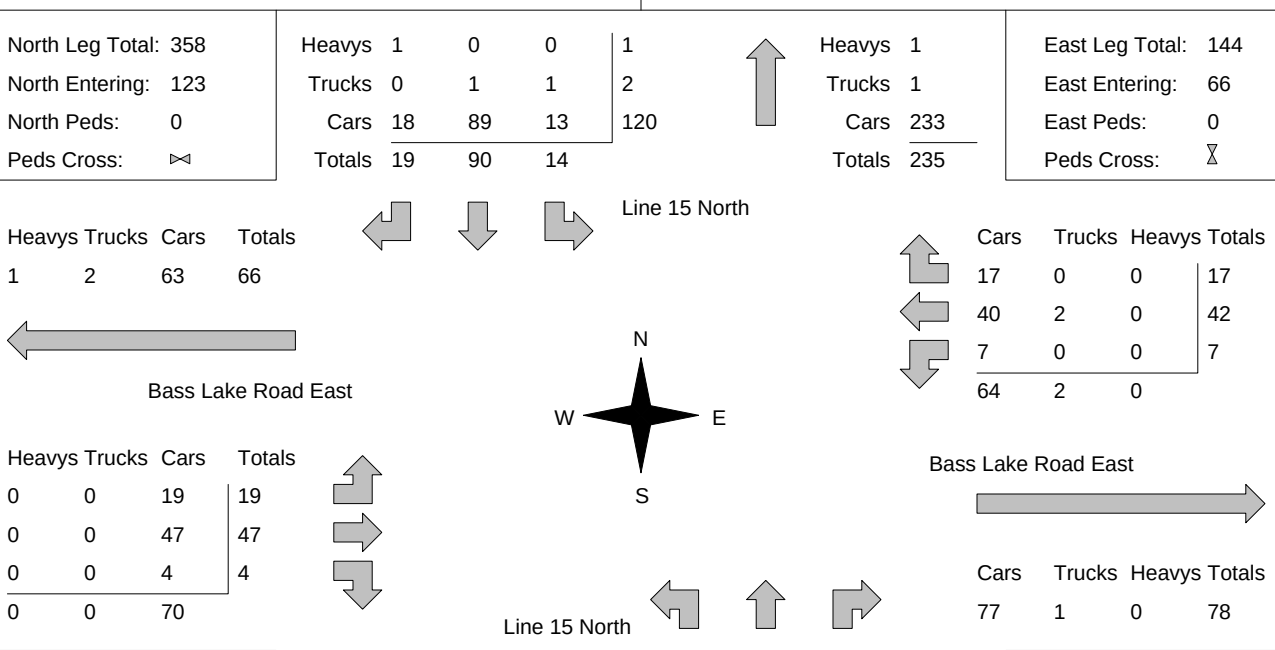
Municipality: Orillia
Site #: 0000002202
Intersection: Line 15 North & Bass Lake Road Ea
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

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

Major Road: Line 15 North runs N/S



Comments

Line 15 North & Bass Lake Road East

Total Count Diagram

Municipality: Orillia
Site #: 0000002202
Intersection: Line 15 North & Bass Lake Road Ea
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

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

Major Road: Line 15 North runs N/S

North Leg Total:	1947
North Entering:	1015
North Peds:	2
Peds Cross:	⋈

Heavys	3	1	2	6
Trucks	2	8	1	11
Cars	93	835	70	998
Totals	98	844	73	

Heavys	7	
Trucks	9	
Cars	916	
Totals	932	

East Leg Total:	730
East Entering:	345
East Peds:	0
Peds Cross:	⧖

Line 15 North

Heavys	Trucks	Cars	Totals
7	5	326	338

Cars	Trucks	Heavys	Totals
59	1	1	61
202	3	4	209
70	0	5	75
331	4	10	

Bass Lake Road East

N
W E
S

Heavys	Trucks	Cars	Totals
4	1	76	81
2	3	222	227
0	0	34	34
6	4	332	

Bass Lake Road East

Cars	Trucks	Heavys	Totals
373	6	6	385

Line 15 North

Peds Cross:	⧖
West Peds:	1
West Entering:	342
West Leg Total:	680

Cars	939			
Trucks	8			
Heavys	6			
Totals	953			

Cars	31	781	81	893
Trucks	0	7	2	9
Heavys	0	2	2	4
Totals	31	790	85	

Peds Cross:	⋈
South Peds:	1
South Entering:	906
South Leg Total:	1859

Comments

Line 15 North & Bass Lake Road East
Traffic Count Summary

Intersection: Line 15 North & Bass Lake Road E | **Count Date:** 15-Jun-2022 | **Municipality:** Orillia

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	2	79	5	86	0	107
8:00:00	8	167	13	188	0	238
9:00:00	3	145	7	155	0	228
10:00:00	8	86	13	107	1	161
16:00:00	14	71	12	97	0	225
17:00:00	13	94	17	124	0	340
18:00:00	10	112	13	135	0	315
19:00:00	8	69	11	88	0	207
Totals:	66	823	91	980	1	1821

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	1	20	0	21	0
8:00:00	4	40	6	50	0
9:00:00	5	55	13	73	0
10:00:00	1	46	7	54	0
16:00:00	3	114	11	128	0
17:00:00	7	190	19	216	0
18:00:00	2	164	14	180	0
19:00:00	5	104	10	119	1
Totals:	28	733	80	841	1

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	7	2	0	9	0	20
8:00:00	17	16	0	33	0	62
9:00:00	17	14	7	38	0	88
10:00:00	6	22	6	34	0	74
16:00:00	3	33	9	45	0	82
17:00:00	6	38	17	61	0	130
18:00:00	8	43	12	63	0	111
19:00:00	10	26	6	42	0	78
Totals:	74	194	57	325	0	645

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	4	6	1	11	0
8:00:00	12	16	1	29	1
9:00:00	11	30	9	50	0
10:00:00	5	31	4	40	0
16:00:00	5	31	1	37	0
17:00:00	18	44	7	69	0
18:00:00	14	29	5	48	0
19:00:00	5	28	3	36	0
Totals:	74	215	31	320	1

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:	17	45	58	43	41	68	65	44

Line 15 North & Bass Lake Road East

Morning Peak Diagram

Specified Period
From: 6:30:00
To: 10:30:00

One Hour Peak
From: 6:30:00
To: 7:30:00

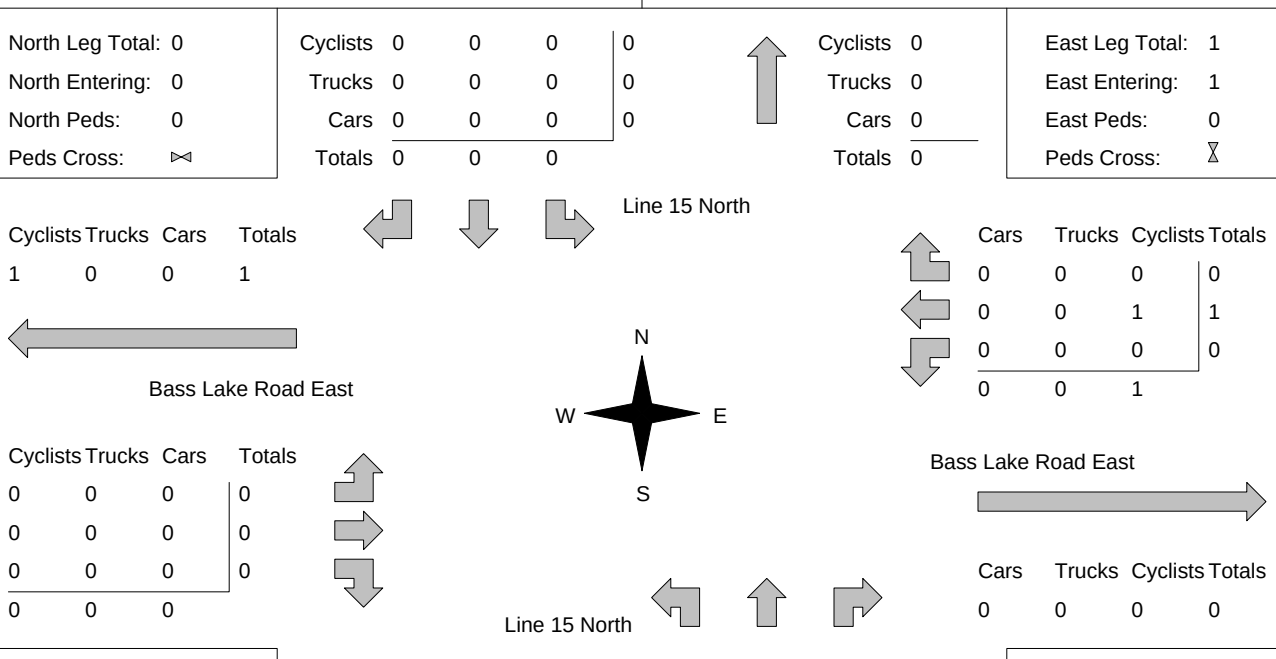
Municipality: Orillia
Site #: 5000002202
Intersection: Line 15 North & Bass Lake Road Ea
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

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

Major Road: Line 15 North runs N/S



Comments

Line 15 North & Bass Lake Road East

Afternoon Peak Diagram

Specified Period
From: 15:30:00
To: 19:30:00

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

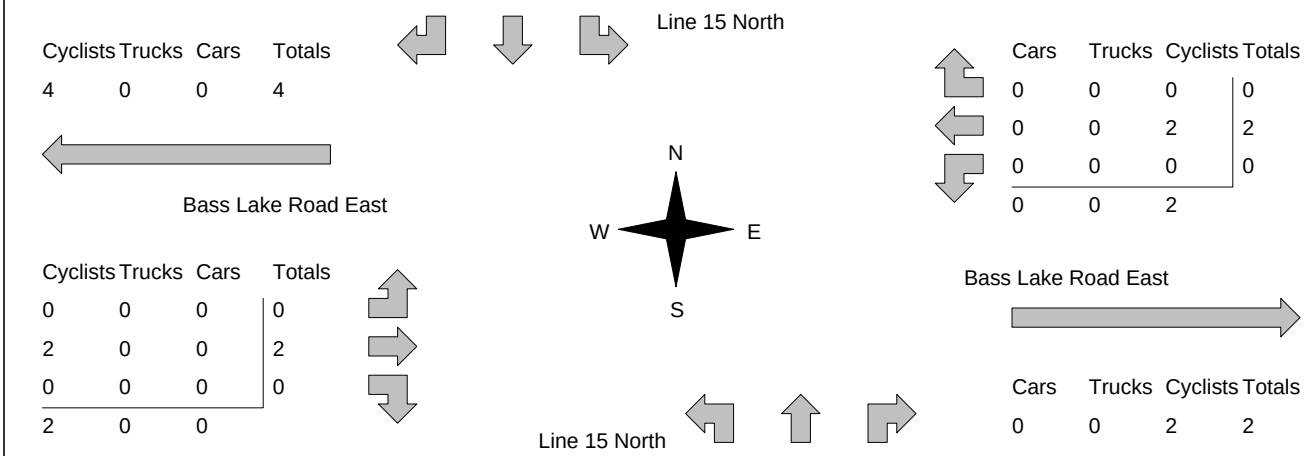
Municipality: Orillia
Site #: 5000002202
Intersection: Line 15 North & Bass Lake Road Ea
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

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

Major Road: Line 15 North runs N/S



Comments

Line 15 North & Bass Lake Road East

Total Count Diagram

Municipality: Orillia
Site #: 5000002202
Intersection: Line 15 North & Bass Lake Road Ea
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

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

Major Road: Line 15 North runs N/S

North Leg Total:	3			
North Entering:	2			
North Peds:	0			
Peds Cross:	⋈			
Cyclists	2	0	0	2
Trucks	0	0	0	0
Cars	0	0	0	0
Totals	2	0	0	
Cyclists	1			
Trucks	0			
Cars	0			
Totals	1			
East Leg Total:	9			
East Entering:	5			
East Peds:	0			
Peds Cross:	⧖			

Line 15 North

Cyclists	Trucks	Cars	Totals
9	0	0	9

Bass Lake Road East

Cyclists	Trucks	Cars	Totals
0	0	0	0
4	0	0	4
0	0	0	0
4	0	0	

Cars	Trucks	Cyclists	Totals
0	0	0	0
0	0	5	5
0	0	0	0
0	0	5	

N
W E
S

Bass Lake Road East

Cars	Trucks	Cyclists	Totals
0	0	4	4

Line 15 North

Peds Cross:	⧖			
West Peds:	0			
West Entering:	4			
West Leg Total:	13			
Cars	0			
Trucks	0			
Cyclists	0			
Totals	0			
Cars	0	0	0	0
Trucks	0	0	0	0
Cyclists	2	1	0	3
Totals	2	1	0	
Peds Cross:	⋈			
South Peds:	0			
South Entering:	3			
South Leg Total:	3			

Comments

Line 15 North & Bass Lake Road East
Traffic Count Summary

Intersection: Line 15 North & Bass Lake Road E | **Count Date:** 15-Jun-2022 | **Municipality:** Orillia

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: 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	1	1	0	1
9:00:00	0	0	0	0	0	0
10:00:00	0	0	0	0	0	0
16:00:00	0	0	0	0	0	1
17:00:00	0	0	0	0	0	0
18:00:00	0	0	0	0	0	2
19:00:00	0	0	0	0	0	0
Totals:	0	0	1	1	0	4

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	0
9:00:00	0	0	0	0	0
10:00:00	0	0	0	0	0
16:00:00	0	1	0	1	0
17:00:00	0	0	0	0	0
18:00:00	2	0	0	2	0
19:00:00	0	0	0	0	0
Totals:	2	1	0	3	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	1	0	1	0	1
8:00:00	0	0	0	0	0	0
9:00:00	0	0	0	0	0	0
10:00:00	0	0	0	0	0	1
16:00:00	0	1	0	1	0	2
17:00:00	0	2	0	2	0	4
18:00:00	0	1	0	1	0	1
19:00:00	0	0	0	0	0	0
Totals:	0	5	0	5	0	9

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	0
9:00:00	0	0	0	0	0
10:00:00	0	1	0	1	0
16:00:00	0	1	0	1	0
17:00:00	0	2	0	2	0
18:00:00	0	0	0	0	0
19:00:00	0	0	0	0	0
Totals:	0	4	0	4	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00
Crossing Values:	1	0	0	1	1	2	1	0

Diana Drive & University Avenue

Morning Peak Diagram

Specified Period
From: 6:30:00
To: 10:30:00

One Hour Peak
From: 8:15:00
To: 9:15:00

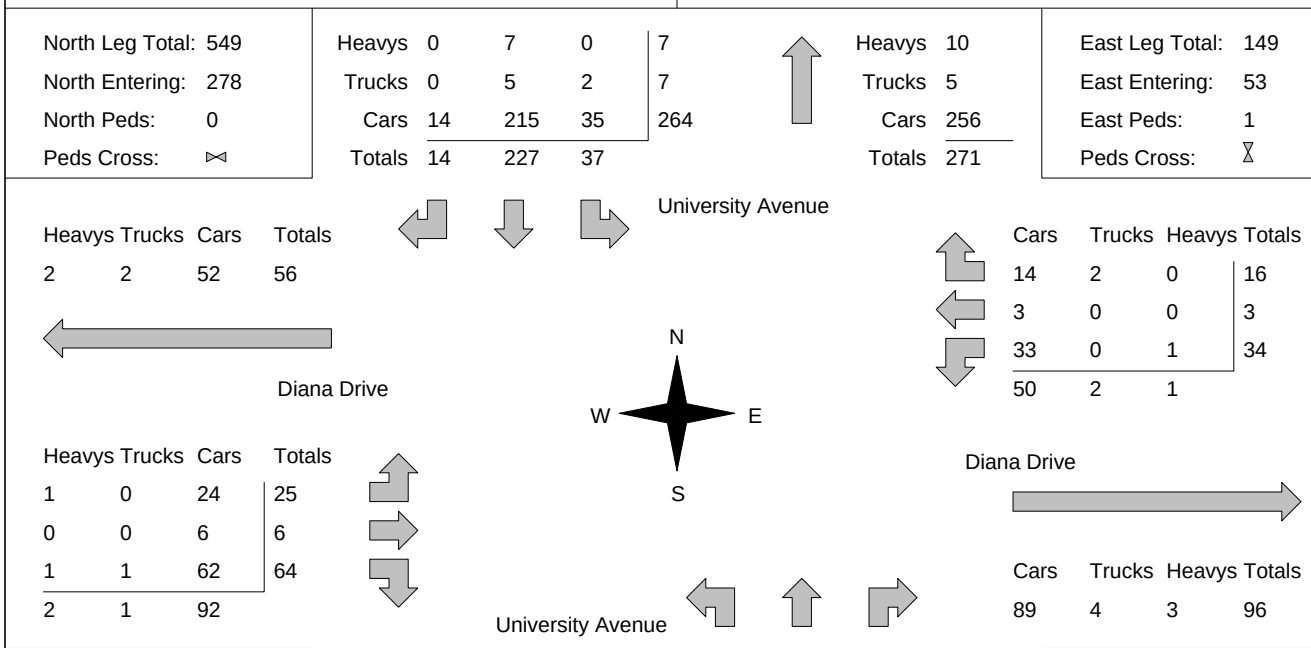
Municipality: Orillia
Site #: 0000002203
Intersection: University Avenue & Diana Drive
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Avenue runs N/S



Comments

Diana Drive & University Avenue

Afternoon Peak Diagram

Specified Period
From: 15:30:00
To: 19:30:00

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

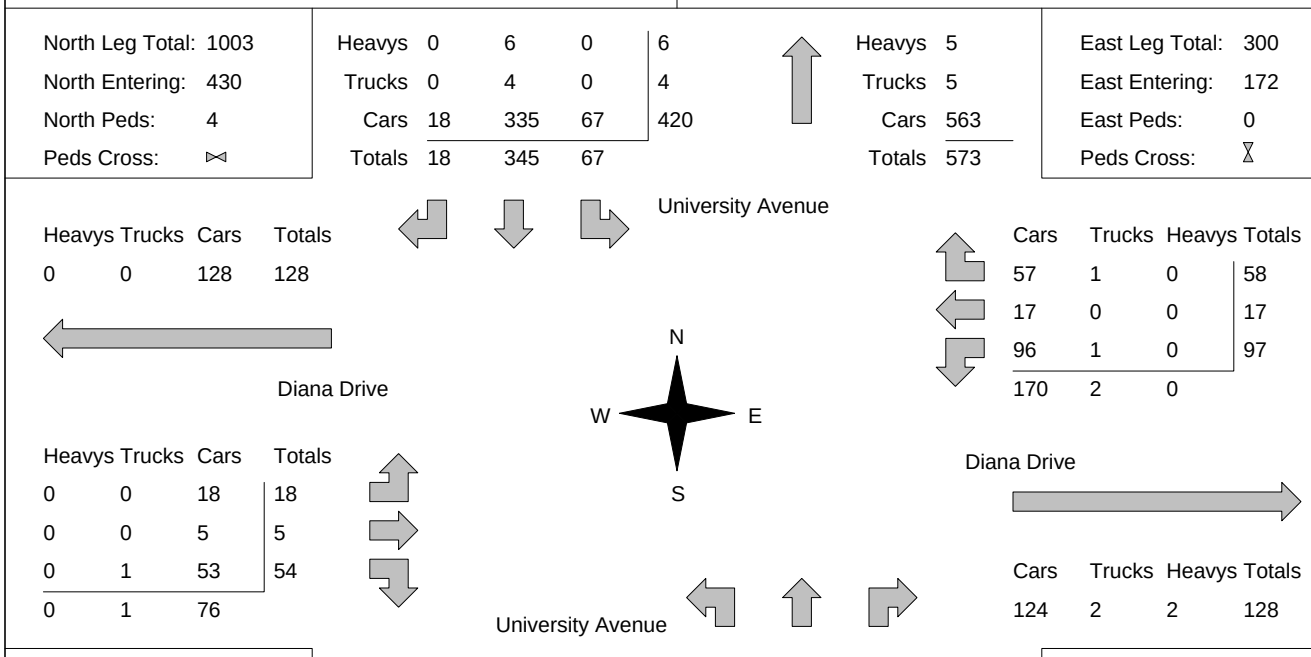
Municipality: Orillia
Site #: 0000002203
Intersection: University Avenue & Diana Drive
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Avenue runs N/S



Comments

Diana Drive & University Avenue

Total Count Diagram

Municipality: Orillia
Site #: 0000002203
Intersection: University Avenue & Diana Drive
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear
Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Avenue runs N/S

North Leg Total:	5320				
North Entering:	2417				
North Peds:	17				
Peds Cross:	⋈				
Heavys	1	50	0	51	
Trucks	0	27	5	32	
Cars	98	1928	308	2334	
Totals	99	2005	313		
Heavys	57				
Trucks	40				
Cars	2806				
Totals	2903				
East Leg Total:	1480				
East Entering:	731				
East Peds:	2				
Peds Cross:	⧖				

University Avenue

Heavys	Trucks	Cars	Totals
5	7	555	567

Cars	Trucks	Heavys	Totals
254	3	1	258
41	0	0	41
413	10	9	432
708	13	10	

Diana Drive

N
W E
S

Heavys	Trucks	Cars	Totals
3	0	145	148
0	0	56	56
3	2	394	399
6	2	595	

Diana Drive

Cars	Trucks	Heavys	Totals
727	9	13	749

University Avenue

Peds Cross:	⧖				
West Peds:	22				
West Entering:	603				
West Leg Total:	1170				
Cars	2735				
Trucks	39				
Heavys	62				
Totals	2836				
Cars	416	2407	363	3186	
Trucks	7	37	4	48	
Heavys	4	53	13	70	
Totals	427	2497	380		
Peds Cross:	⋈				
South Peds:	26				
South Entering:	3304				
South Leg Total:	6140				

Comments

Diana Drive & University Avenue
Traffic Count Summary

Intersection: University Avenue & Diana Drive | **Count Date:** 15-Jun-2022 | **Municipality:** Orillia

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	56	0	56	1	144
8:00:00	2	192	4	198	1	461
9:00:00	28	223	14	265	0	577
10:00:00	51	220	7	278	2	564
16:00:00	51	268	11	330	5	786
17:00:00	66	329	16	411	5	1012
18:00:00	55	336	24	415	3	1039
19:00:00	44	271	16	331	0	766
Totals:	297	1895	92	2284	17	5349

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	5	60	23	88	0
8:00:00	22	185	56	263	4
9:00:00	38	217	57	312	2
10:00:00	28	224	34	286	1
16:00:00	51	367	38	456	1
17:00:00	90	473	38	601	6
18:00:00	84	473	67	624	4
19:00:00	66	325	44	435	5
	384	2324	357	3065	23

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	5	0	0	5	0	38
8:00:00	28	0	2	30	1	134
9:00:00	34	5	9	48	0	147
10:00:00	41	1	24	66	1	114
16:00:00	67	6	42	115	0	183
17:00:00	100	10	57	167	0	247
18:00:00	87	11	63	161	0	242
19:00:00	48	6	38	92	0	158
Totals:	410	39	235	684	2	1263

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	4	0	29	33	5
8:00:00	22	6	76	104	3
9:00:00	25	4	70	99	0
10:00:00	12	9	27	48	1
16:00:00	25	7	36	68	2
17:00:00	24	9	47	80	2
18:00:00	16	9	56	81	4
19:00:00	14	9	43	66	1
	142	53	384	579	18

Calculated Values for Traffic Crossing Major Street

Hours Ending:	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00
Crossing Values:	10	61	66	65	105	145	121	76

Diana Drive & University Avenue

Morning Peak Diagram

Specified Period
From: 6:30:00
To: 10:30:00

One Hour Peak
From: 7:30:00
To: 8:30:00

Municipality: Orillia
Site #: 5000002203
Intersection: University Avenue & Diana Drive
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

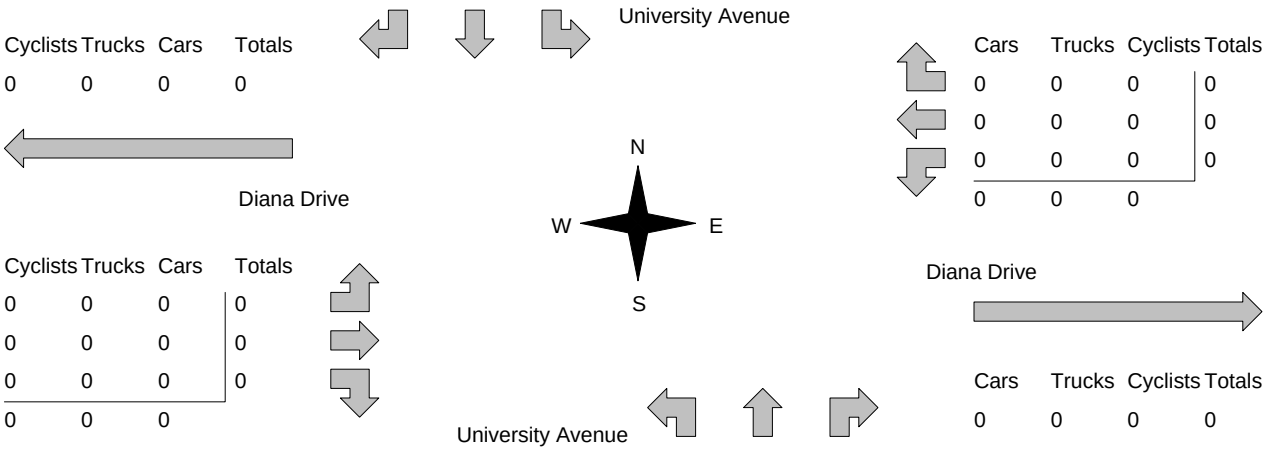
Major Road: University Avenue runs N/S

North Leg Total: 2
North Entering: 1
North Peds: 0
Peds Cross: ⋈

Cyclists	0	1	0	1
Trucks	0	0	0	0
Cars	0	0	0	0
Totals	0	1	0	

Cyclists	1
Trucks	0
Cars	0
Totals	1

East Leg Total: 0
East Entering: 0
East Peds: 0
Peds Cross: ⧖



Peds Cross: ⧖
West Peds: 0
West Entering: 0
West Leg Total: 0

Cars	0
Trucks	0
Cyclists	1
Totals	1

Cars	0	0	0	0
Trucks	0	0	0	0
Cyclists	0	1	0	1
Totals	0	1	0	

Peds Cross: ⋈
South Peds: 0
South Entering: 1
South Leg Total: 2

Comments

Diana Drive & University Avenue

Afternoon Peak Diagram

Specified Period
From: 15:30:00
To: 19:30:00

One Hour Peak
From: 15:30:00
To: 16:30:00

Municipality: Orillia
Site #: 5000002203
Intersection: University Avenue & Diana Drive
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Avenue runs N/S

North Leg Total: 6
North Entering: 4
North Peds: 0
Peds Cross: ⋈

Cyclists	0	4	0	4
Trucks	0	0	0	0
Cars	0	0	0	0
Totals	0	4	0	

Cyclists	2
Trucks	0
Cars	0
Totals	2

East Leg Total: 5
East Entering: 3
East Peds: 0
Peds Cross: ⧖

University Avenue

Cyclists	Trucks	Cars	Totals
3	0	0	3

Diana Drive

Cars	Trucks	Cyclists	Totals
0	0	1	1
0	0	2	2
0	0	0	0
0	0	3	

N
W E
S

Cyclists	Trucks	Cars	Totals
0	0	0	0
2	0	0	2
0	0	0	0
2	0	0	

Diana Drive

Cars	Trucks	Cyclists	Totals
0	0	2	2

University Avenue

Peds Cross: ⧖
West Peds: 0
West Entering: 2
West Leg Total: 5

Cars	0
Trucks	0
Cyclists	4
Totals	4

Cars	0	0	0	0
Trucks	0	0	0	0
Cyclists	1	1	0	2
Totals	1	1	0	

Peds Cross: ⋈
South Peds: 0
South Entering: 2
South Leg Total: 6

Comments

Diana Drive & University Avenue

Total Count Diagram

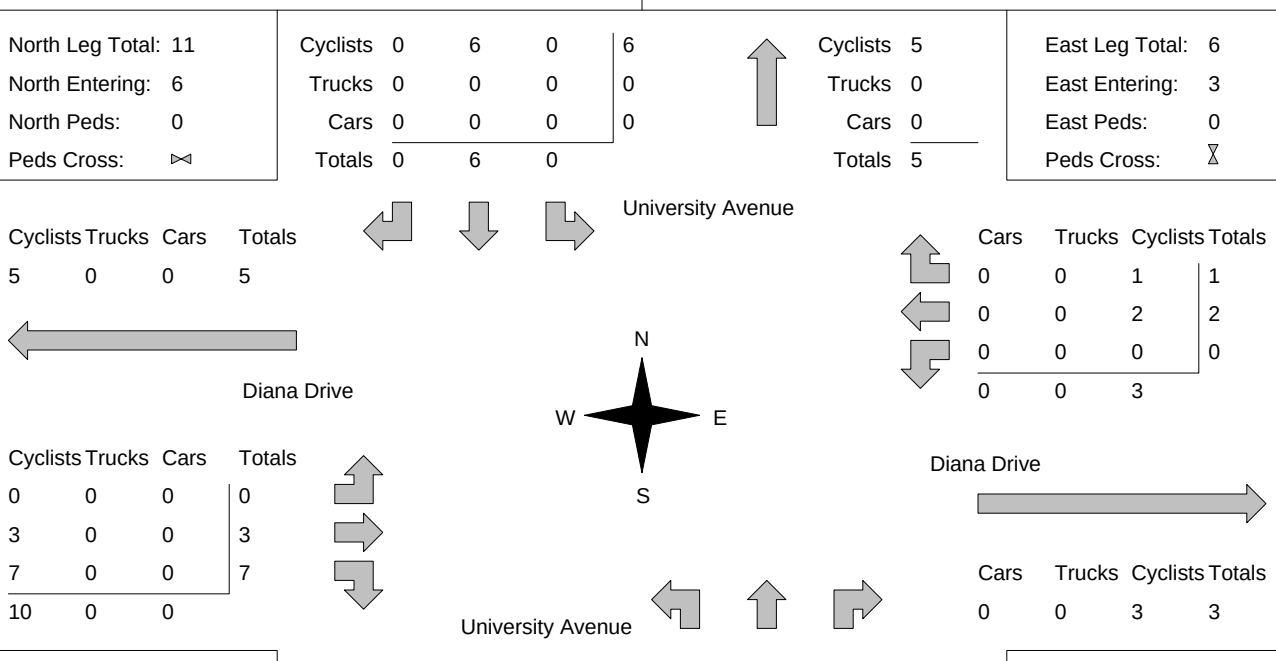
Municipality: Orillia
Site #: 5000002203
Intersection: University Avenue & Diana Drive
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: University Avenue runs N/S



Comments

Diana Drive & University Avenue
Traffic Count Summary

Intersection: University Avenue & Diana Drive | **Count Date:** 15-Jun-2022 | **Municipality:** Orillia

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	0	1	0	1	0	1
9:00:00	0	1	0	1	0	2
10:00:00	0	0	0	0	0	1
16:00:00	0	2	0	2	0	3
17:00:00	0	2	0	2	0	3
18:00:00	0	0	0	0	0	2
19:00:00	0	0	0	0	0	1
Totals:	0	6	0	6	0	13

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	0
9:00:00	0	1	0	1	0
10:00:00	0	1	0	1	0
16:00:00	0	1	0	1	0
17:00:00	1	0	0	1	0
18:00:00	1	1	0	2	0
19:00:00	1	0	0	1	0
Totals:	3	4	0	7	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	0	0	0	0	0	0
9:00:00	0	0	0	0	0	0
10:00:00	0	0	0	0	0	0
16:00:00	0	0	0	0	0	1
17:00:00	0	2	1	3	0	5
18:00:00	0	0	0	0	0	3
19:00:00	0	0	0	0	0	4
Totals:	0	2	1	3	0	13

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	0
9:00:00	0	0	0	0	0
10:00:00	0	0	0	0	0
16:00:00	0	1	0	1	0
17:00:00	0	1	1	2	0
18:00:00	0	1	2	3	0
19:00:00	0	0	4	4	0
Totals:	0	3	7	10	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00
Crossing Values:	0	0	0	0	1	2	1	0

Monarch Drive & West Ridge Boulevard

Morning Peak Diagram

Specified Period
From: 6:30:00
To: 10:30:00

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

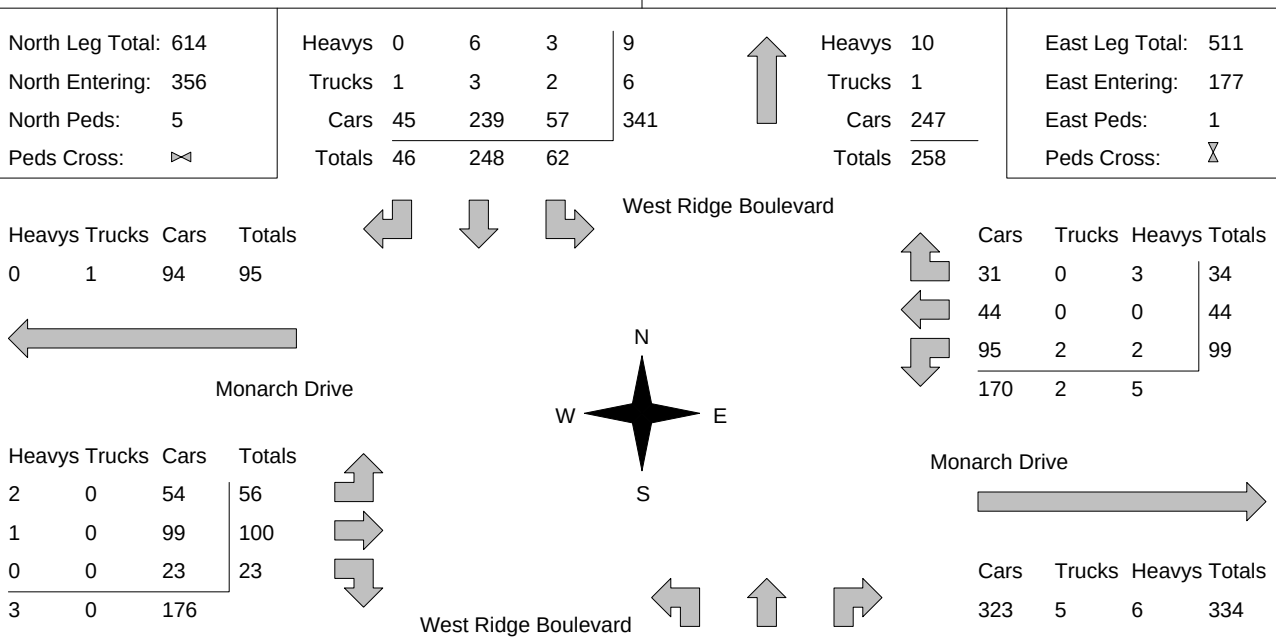
Municipality: Orillia
Site #: 0000002204
Intersection: West Ridge Boulevard & Monarch D
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: West Ridge Boulevard runs N/S



Comments

Monarch Drive & West Ridge Boulevard

Afternoon Peak Diagram

Specified Period
From: 15:30:00
To: 19:30:00

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

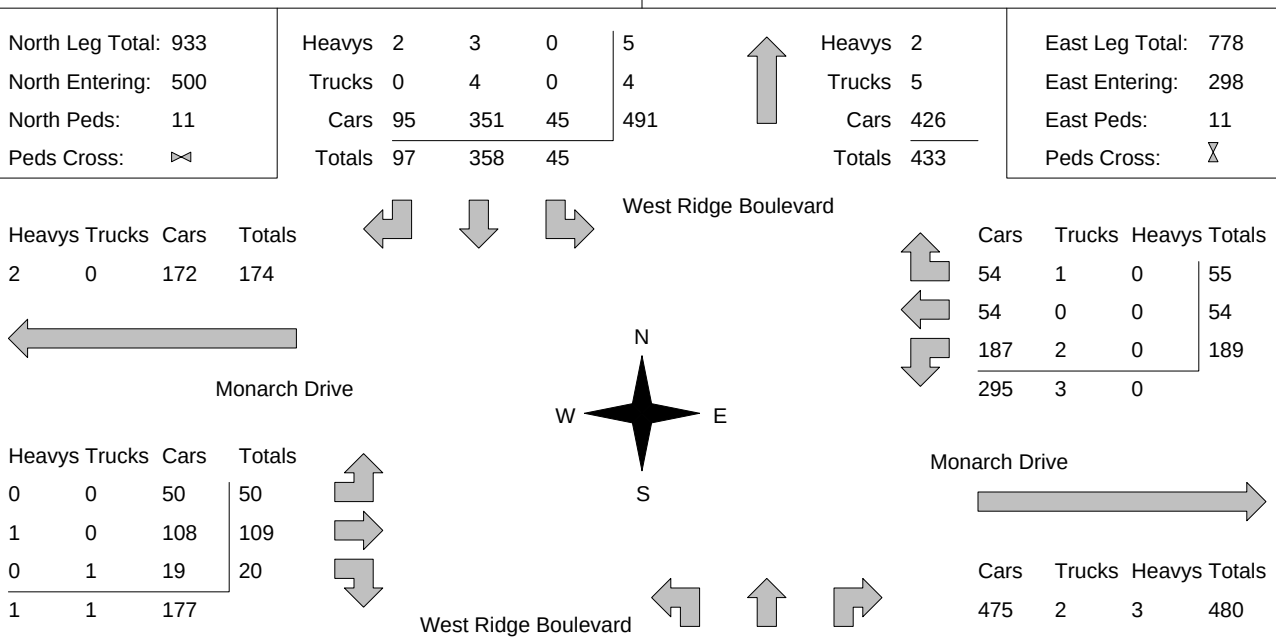
Municipality: Orillia
Site #: 0000002204
Intersection: West Ridge Boulevard & Monarch D
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: West Ridge Boulevard runs N/S



Comments

Monarch Drive & West Ridge Boulevard

Total Count Diagram

Municipality: Orillia
Site #: 0000002204
Intersection: West Ridge Boulevard & Monarch D
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: West Ridge Boulevard runs N/S

North Leg Total:	4876
North Entering:	2553
North Peds:	44
Peds Cross:	⋈

Heavys	6	45	10	61
Trucks	1	19	4	24
Cars	425	1716	327	2468
Totals	432	1780	341	

Heavys	45	
Trucks	26	
Cars	2252	
Totals	2323	

East Leg Total:	4397
East Entering:	1756
East Peds:	34
Peds Cross:	⧖

West Ridge Boulevard

Heavys	Trucks	Cars	Totals
9	3	934	946

Cars	Trucks	Heavys	Totals
317	3	4	324
391	1	3	395
1026	8	3	1037
1734	12	10	

Monarch Drive

N
W E
S

Heavys	Trucks	Cars	Totals
9	0	315	324
2	1	627	630
0	1	130	131
11	2	1072	

Monarch Drive

Cars	Trucks	Heavys	Totals
2593	18	30	2641

West Ridge Boulevard

Peds Cross:	⧖
West Peds:	21
West Entering:	1085
West Leg Total:	2031

Cars	2872
Trucks	28
Heavys	48
Totals	2948

Cars	118	1620	1639	3377
Trucks	1	23	13	37
Heavys	0	32	18	50
Totals	119	1675	1670	

Peds Cross:	⋈
South Peds:	20
South Entering:	3464
South Leg Total:	6412

Comments

Monarch Drive & West Ridge Boulevard
Traffic Count Summary

Intersection: West Ridge Boulevard & Monarch | **Count Date:** 15-Jun-2022 | **Municipality:** Orillia

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	10	52	3	65	0	136
8:00:00	20	140	24	184	0	405
9:00:00	52	203	40	295	3	625
10:00:00	59	215	37	311	3	648
16:00:00	62	226	48	336	5	826
17:00:00	53	332	106	491	14	1128
18:00:00	37	292	88	417	7	1070
19:00:00	39	226	59	324	8	823
Totals:	332	1686	405	2423	40	5661

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	31	40	71	0
8:00:00	6	89	126	221	3
9:00:00	4	172	154	330	1
10:00:00	7	165	165	337	0
16:00:00	15	245	230	490	1
17:00:00	23	309	305	637	1
18:00:00	34	307	312	653	12
19:00:00	17	244	238	499	1
Totals:	106	1562	1570	3238	19

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	31	15	1	47	1	97
8:00:00	73	21	12	106	2	230
9:00:00	88	40	26	154	1	338
10:00:00	122	39	34	195	1	312
16:00:00	140	49	69	258	4	367
17:00:00	180	55	59	294	9	454
18:00:00	169	71	62	302	9	462
19:00:00	162	72	42	276	4	399
Totals:	965	362	305	1632	31	2659

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	12	30	8	50	1
8:00:00	35	76	13	124	4
9:00:00	58	109	17	184	0
10:00:00	29	71	17	117	1
16:00:00	32	64	13	109	3
17:00:00	46	97	17	160	3
18:00:00	54	87	19	160	1
19:00:00	42	64	17	123	3
Totals:	308	598	121	1027	16

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:	73	187	259	225	242	338	329	285

Monarch Drive & West Ridge Boulevard

Morning Peak Diagram

Specified Period
From: 6:30:00
To: 10:30:00

One Hour Peak
From: 7:15:00
To: 8:15:00

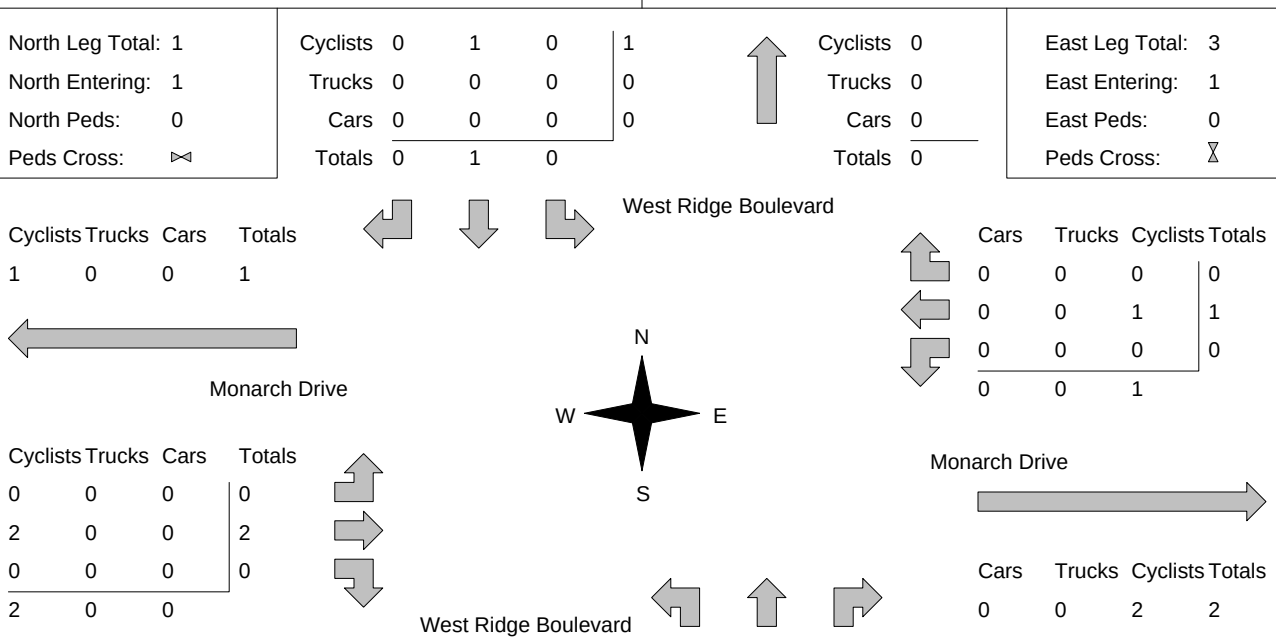
Municipality: Orillia
Site #: 5000002204
Intersection: West Ridge Boulevard & Monarch D
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: West Ridge Boulevard runs N/S



Comments

Monarch Drive & West Ridge Boulevard

Afternoon Peak Diagram

Specified Period
From: 15:30:00
To: 19:30:00

One Hour Peak
From: 15:30:00
To: 16:30:00

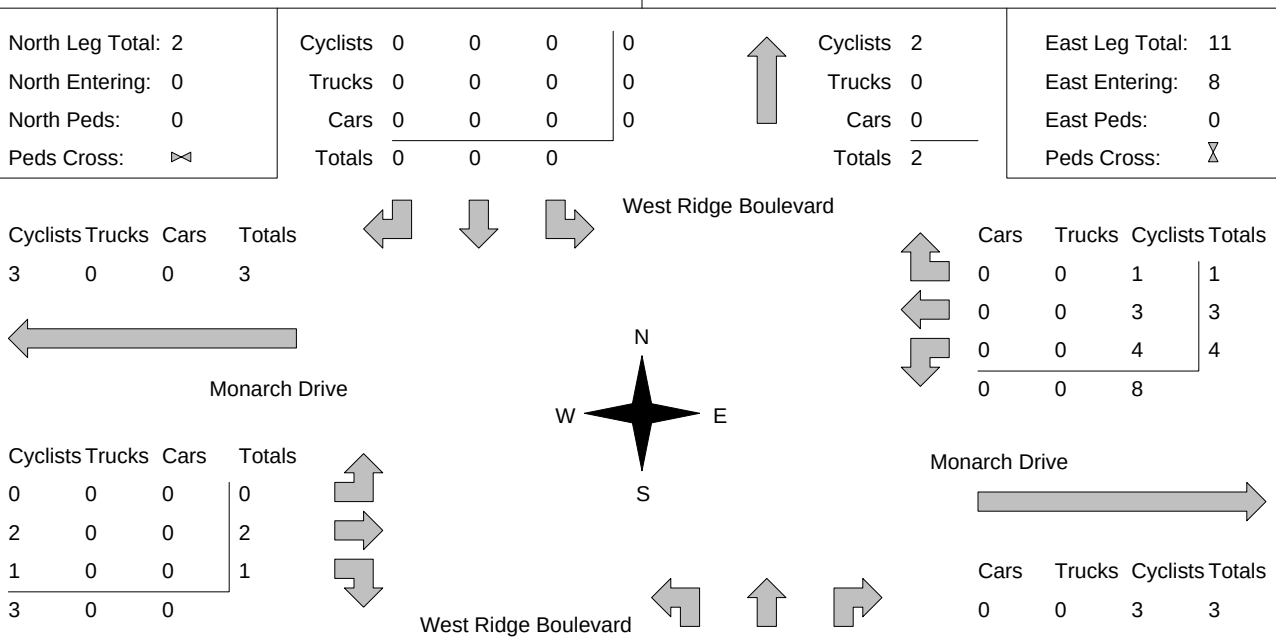
Municipality: Orillia
Site #: 5000002204
Intersection: West Ridge Boulevard & Monarch D
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: West Ridge Boulevard runs N/S



Comments

Monarch Drive & West Ridge Boulevard

Total Count Diagram

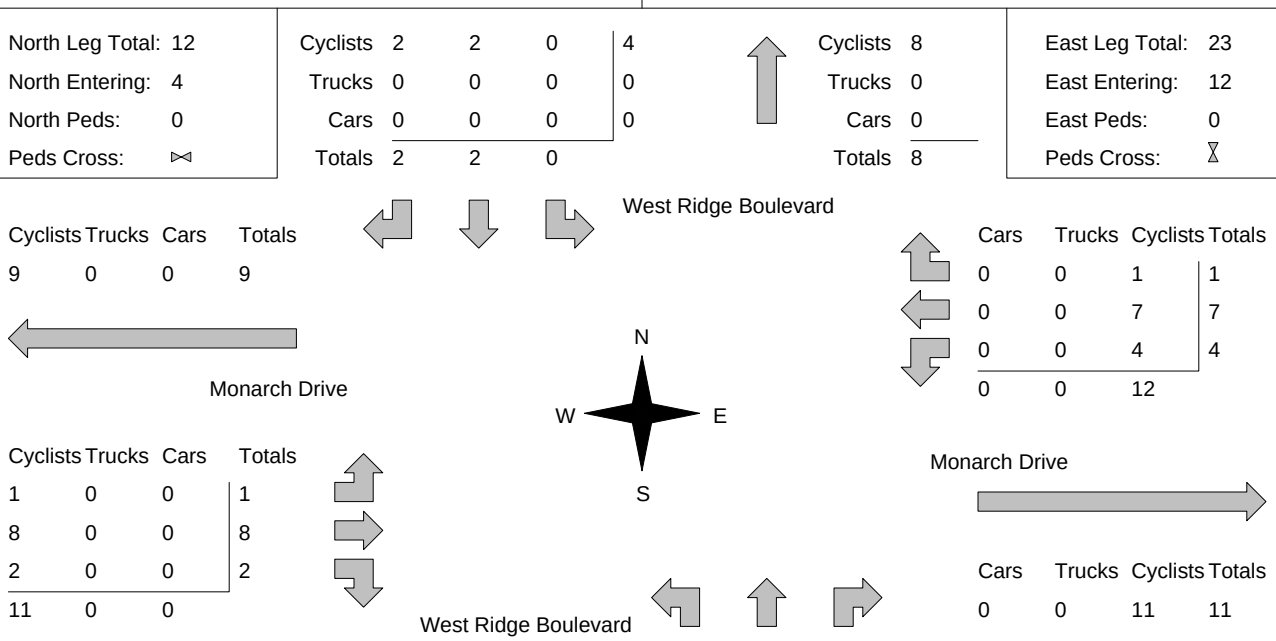
Municipality: Orillia
Site #: 5000002204
Intersection: West Ridge Boulevard & Monarch D
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: West Ridge Boulevard runs N/S



Comments

Monarch Drive & West Ridge Boulevard
Traffic Count Summary

Intersection: West Ridge Boulevard & Monarch | **Count Date:** 15-Jun-2022 | **Municipality:** Orillia

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	0	1	0	1	0	1
9:00:00	0	0	0	0	0	1
10:00:00	0	0	0	0	0	2
16:00:00	0	0	0	0	0	1
17:00:00	0	0	0	0	0	3
18:00:00	0	1	0	1	0	3
19:00:00	0	0	2	2	0	2
Totals:	0	2	2	4	0	13

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	0
9:00:00	0	1	0	1	0
10:00:00	0	0	2	2	0
16:00:00	0	0	1	1	0
17:00:00	0	3	0	3	0
18:00:00	0	2	0	2	0
19:00:00	0	0	0	0	0
Totals:	0	6	3	9	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	0	0	0	0	0	2
9:00:00	0	1	0	1	0	2
10:00:00	0	1	0	1	0	2
16:00:00	2	3	1	6	0	8
17:00:00	2	0	0	2	0	3
18:00:00	0	1	0	1	0	2
19:00:00	0	1	0	1	0	4
Totals:	4	7	1	12	0	23

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	2	0	2	0
9:00:00	1	0	0	1	0
10:00:00	0	0	1	1	0
16:00:00	0	1	1	2	0
17:00:00	0	1	0	1	0
18:00:00	0	1	0	1	0
19:00:00	0	3	0	3	0
Totals:	1	8	2	11	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00
Crossing Values:	0	2	2	1	5	3	1	3

Bass Lake Road East & West Ridge Boulevard

Morning Peak Diagram

Specified Period
From: 6:30:00
To: 10:30:00

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

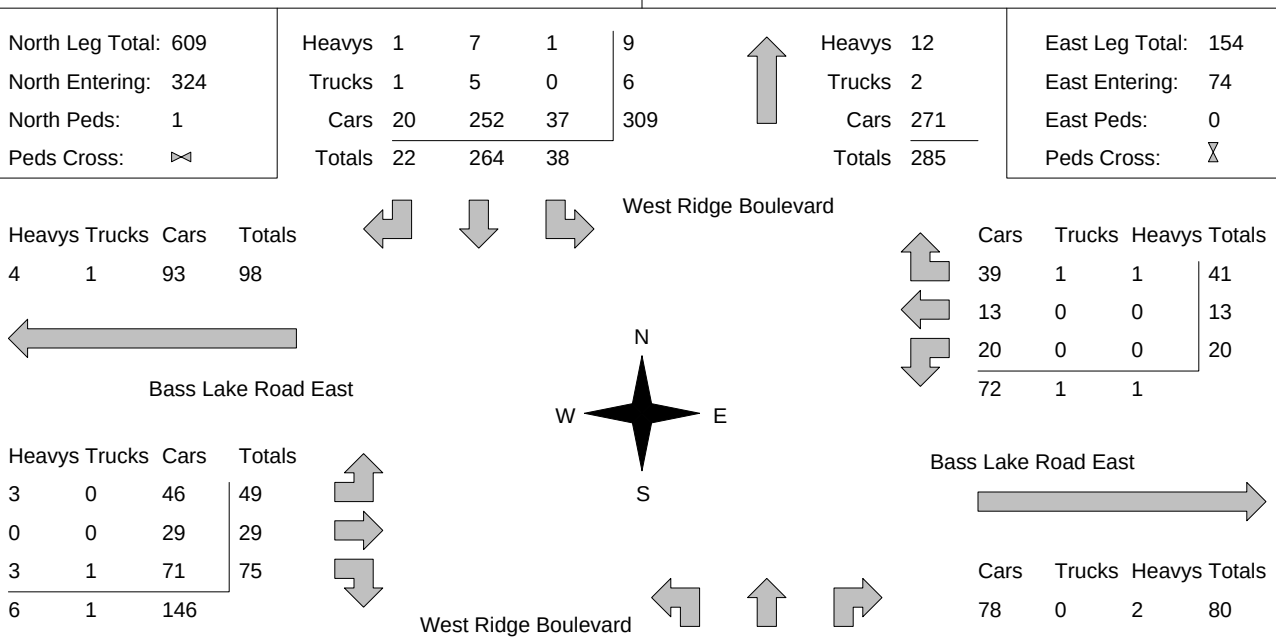
Municipality: Orillia
Site #: 0000002205
Intersection: West Ridge Boulevard & Bass Lake
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: West Ridge Boulevard runs N/S



Comments

Bass Lake Road East & West Ridge Boulevard

Afternoon Peak Diagram

Specified Period
From: 15:30:00
To: 19:30:00

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

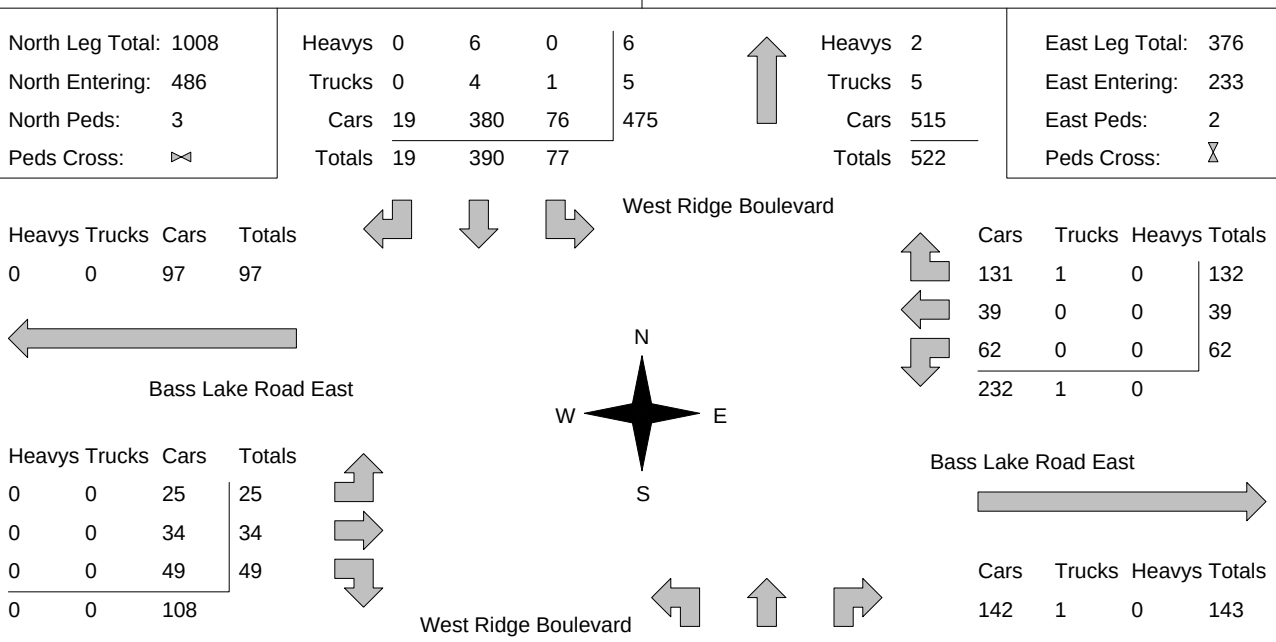
Municipality: Orillia
Site #: 0000002205
Intersection: West Ridge Boulevard & Bass Lake
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: West Ridge Boulevard runs N/S



Comments

Bass Lake Road East & West Ridge Boulevard

Total Count Diagram

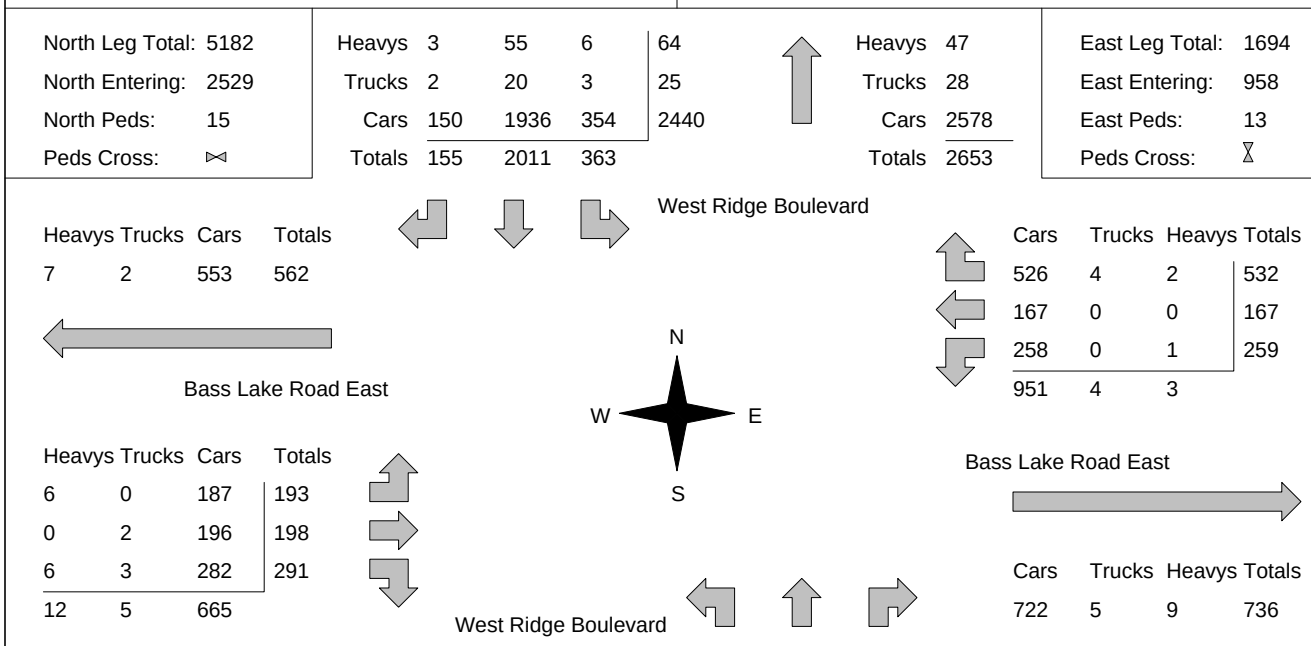
Municipality: Orillia
Site #: 0000002205
Intersection: West Ridge Boulevard & Bass Lake
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: West Ridge Boulevard runs N/S



Comments

Bass Lake Road East & West Ridge Boulevard
Traffic Count Summary

Intersection: West Ridge Boulevard & Bass Lak | **Count Date:** 15-Jun-2022 | **Municipality:** Orillia

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	2	54	2	58	0	97
8:00:00	6	154	12	172	2	307
9:00:00	32	217	17	266	2	519
10:00:00	47	262	15	324	1	562
16:00:00	66	262	28	356	1	707
17:00:00	62	384	25	471	3	894
18:00:00	77	333	29	439	3	862
19:00:00	53	242	16	311	2	642
Totals:	345	1908	144	2397	14	4590

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	5	34	0	39	3
8:00:00	9	123	3	135	2
9:00:00	70	173	10	253	2
10:00:00	16	205	17	238	2
16:00:00	31	288	32	351	5
17:00:00	38	341	44	423	5
18:00:00	33	360	30	423	3
19:00:00	24	281	26	331	2
Totals:	226	1805	162	2193	24

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	1	1	1	3	0	20
8:00:00	3	13	8	24	2	86
9:00:00	14	13	20	47	0	189
10:00:00	19	18	57	94	0	176
16:00:00	38	26	72	136	2	230
17:00:00	55	34	143	232	4	340
18:00:00	59	32	110	201	3	272
19:00:00	52	21	81	154	2	220
Totals:	241	158	492	891	13	1533

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	4	7	6	17	2
8:00:00	28	11	23	62	0
9:00:00	47	30	65	142	0
10:00:00	25	18	39	82	1
16:00:00	23	31	40	94	0
17:00:00	27	32	49	108	1
18:00:00	17	27	27	71	0
19:00:00	15	25	26	66	1
Totals:	186	181	275	642	5

Calculated Values for Traffic Crossing Major Street

Hours Ending:	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00
Crossing Values:	15	48	95	65	98	124	114	96

Bass Lake Road East & West Ridge Boulevard

Morning Peak Diagram

Specified Period
From: 6:30:00
To: 10:30:00

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

Municipality: Orillia
Site #: 5000002205
Intersection: West Ridge Boulevard & Bass Lake
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

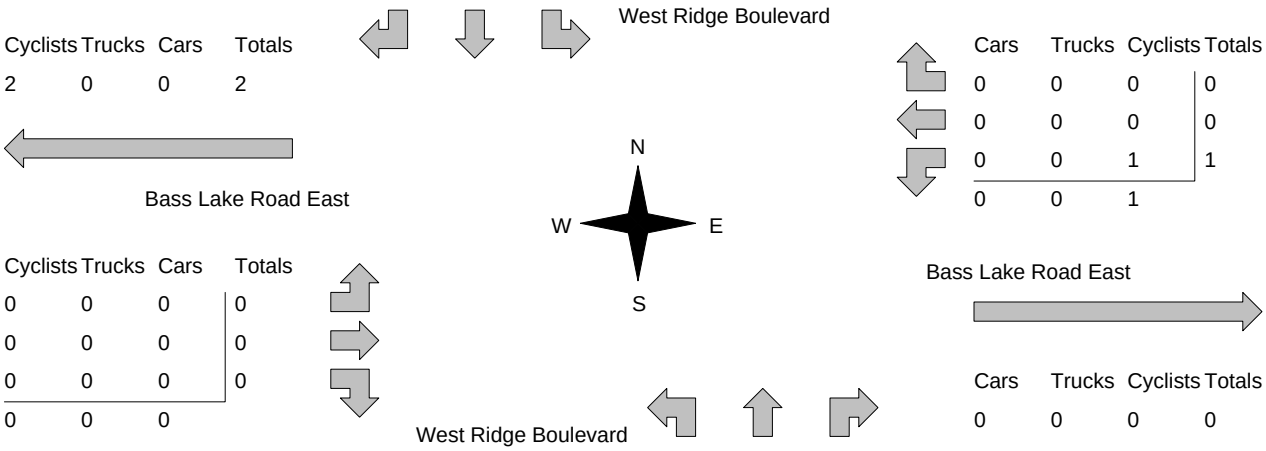
Major Road: West Ridge Boulevard runs N/S

North Leg Total: 1
North Entering: 0
North Peds: 0
Peds Cross: ⋈

Cyclists	0	0	0	0
Trucks	0	0	0	0
Cars	0	0	0	0
Totals	0	0	0	

Cyclists	1
Trucks	0
Cars	0
Totals	1

East Leg Total: 1
East Entering: 1
East Peds: 0
Peds Cross: ⧖



Cyclists	Trucks	Cars	Totals
2	0	0	2

Cars	Trucks	Cyclists	Totals
0	0	0	0
0	0	0	0
0	0	1	1
0	0	1	

Cyclists	Trucks	Cars	Totals
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	

Cars	Trucks	Cyclists	Totals
0	0	0	0

Peds Cross: ⧖
West Peds: 0
West Entering: 0
West Leg Total: 2

Cars	0			
Trucks	0			
Cyclists	1			
Totals	1			

Cars	0	0	0	0
Trucks	0	0	0	0
Cyclists	2	1	0	3
Totals	2	1	0	

Peds Cross: ⋈
South Peds: 0
South Entering: 3
South Leg Total: 4

Comments

Bass Lake Road East & West Ridge Boulevard

Afternoon Peak Diagram

Specified Period
From: 15:30:00
To: 19:30:00

One Hour Peak
From: 15:30:00
To: 16:30:00

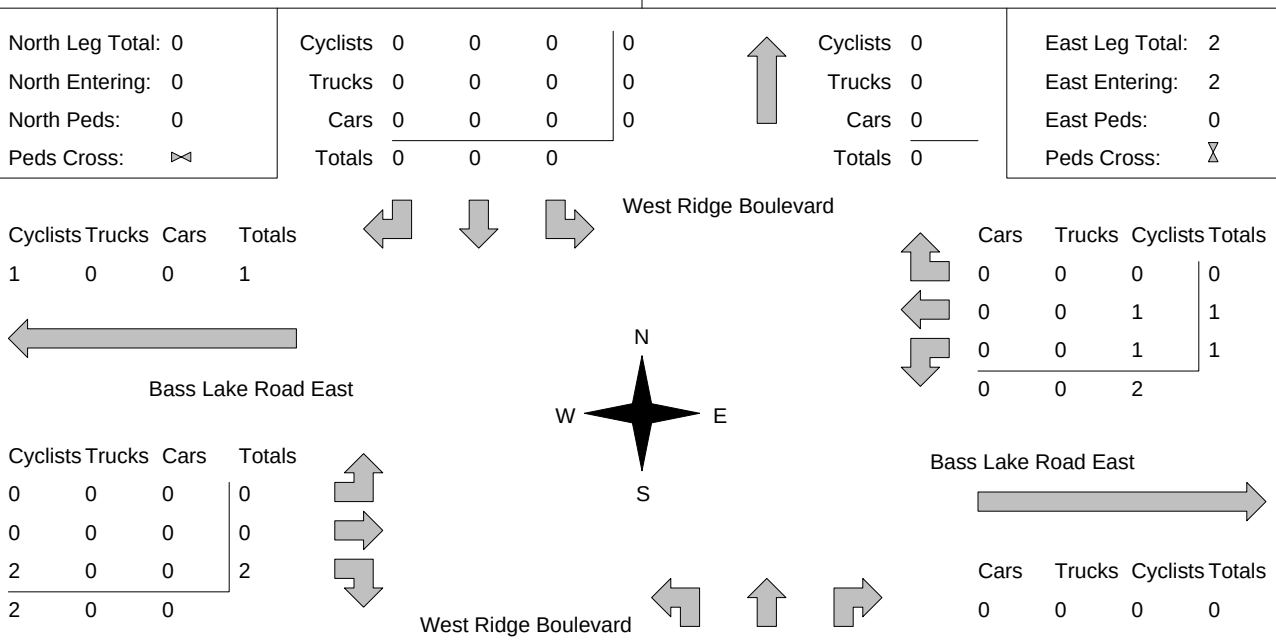
Municipality: Orillia
Site #: 5000002205
Intersection: West Ridge Boulevard & Bass Lake
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: West Ridge Boulevard runs N/S



Comments

Bass Lake Road East & West Ridge Boulevard

Total Count Diagram

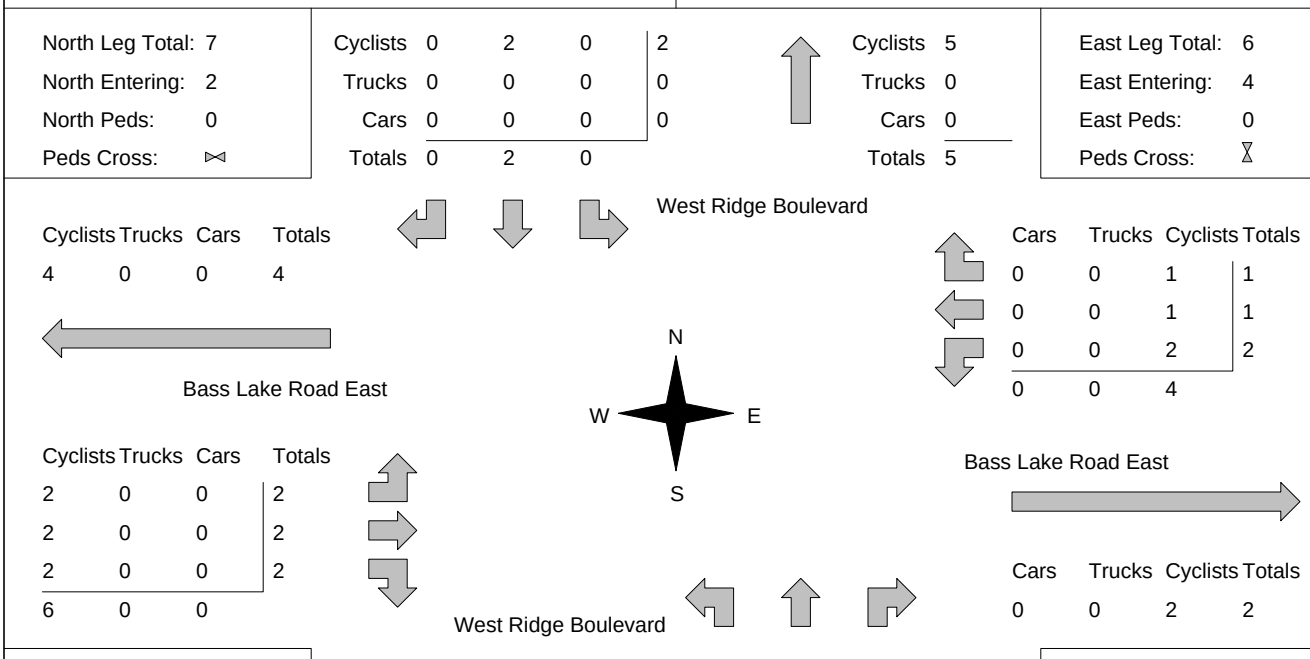
Municipality: Orillia
Site #: 5000002205
Intersection: West Ridge Boulevard & Bass Lake
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: West Ridge Boulevard runs N/S



Comments

Bass Lake Road East & West Ridge Boulevard
Traffic Count Summary

Intersection: West Ridge Boulevard & Bass Lak | **Count Date:** 15-Jun-2022 | **Municipality:** Orillia

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	0	1	0	1	0	1
9:00:00	0	0	0	0	0	3
10:00:00	0	0	0	0	0	0
16:00:00	0	0	0	0	0	0
17:00:00	0	0	0	0	0	0
18:00:00	0	0	0	0	0	0
19:00:00	0	0	0	0	0	1
Totals:	0	1	0	1	0	5

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	0
9:00:00	2	1	0	3	0
10:00:00	0	0	0	0	0
16:00:00	0	0	0	0	0
17:00:00	0	0	0	0	0
18:00:00	0	0	0	0	0
19:00:00	0	1	0	1	0
Totals:	2	2	0	4	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	1
8:00:00	0	0	0	0	0	0
9:00:00	1	0	0	1	0	1
10:00:00	0	0	0	0	0	0
16:00:00	0	1	0	1	0	3
17:00:00	1	0	0	1	0	3
18:00:00	0	0	0	0	0	1
19:00:00	0	0	0	0	0	0
Totals:	2	1	0	3	0	9

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	1	0	1	0
8:00:00	0	0	0	0	0
9:00:00	0	0	0	0	0
10:00:00	0	0	0	0	0
16:00:00	0	0	2	2	0
17:00:00	2	0	0	2	0
18:00:00	0	1	0	1	0
19:00:00	0	0	0	0	0
Totals:	2	2	2	6	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00
Crossing Values:	1	0	1	0	1	3	1	0

Line 15 North & Old Barrie Road East

Morning Peak Diagram

Specified Period
From: 6:30:00
To: 10:30:00

One Hour Peak
From: 7:30:00
To: 8:30:00

Municipality: Orillia
Site #: 0000002206
Intersection: Old Barrie Road East & Line 15 Nor
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

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

Major Road: Old Barrie Road East runs W/E

North Leg Total:	264
North Entering:	211
North Peds:	0
Peds Cross:	⋈

Heavys	0	0	0	0
Trucks	1	1	0	2
Cars	7	106	96	209
Totals	8	107	96	

Heavys	1
Trucks	2
Cars	50
Totals	53

East Leg Total:	525
East Entering:	211
East Peds:	0
Peds Cross:	⧖

Line 15 North

Heavys	Trucks	Cars	Totals
18	6	119	143

Cars	Trucks	Heavys	Totals
33	1	1	35
112	5	14	131
41	0	4	45
186	6	19	

Old Barrie Road East

N
W E
S

Heavys	Trucks	Cars	Totals
0	0	3	3
13	2	170	185
4	0	24	28
17	2	197	

Old Barrie Road East

Cars	Trucks	Heavys	Totals
292	2	20	314

Line 15 North

Peds Cross:	⧖
West Peds:	0
West Entering:	216
West Leg Total:	359

Cars	171
Trucks	1
Heavys	8
Totals	180

Cars	0	14	26	40
Trucks	0	1	0	1
Heavys	4	0	7	11
Totals	4	15	33	

Peds Cross:	⋈
South Peds:	0
South Entering:	52
South Leg Total:	232

Comments

Line 15 North & Old Barrie Road East

Afternoon Peak Diagram

Specified Period
From: 15:30:00
To: 19:30:00

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

Municipality: Orillia
Site #: 0000002206
Intersection: Old Barrie Road East & Line 15 Nor
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

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

Major Road: Old Barrie Road East runs W/E

North Leg Total:	302
North Entering:	100
North Peds:	0
Peds Cross:	⋈

Heavys	0	0	0	0
Trucks	0	0	3	3
Cars	5	18	74	97
Totals	5	18	77	

Heavys	0
Trucks	4
Cars	198
Totals	202

East Leg Total:	773
East Entering:	406
East Peds:	0
Peds Cross:	⧖

Line 15 North

Heavys	Trucks	Cars	Totals
3	1	287	291

Cars	Trucks	Heavys	Totals
102	2	0	104
261	1	3	265
33	1	3	37
396	4	6	

Old Barrie Road East

N
W E
S

Heavys	Trucks	Cars	Totals
0	0	8	8
4	0	218	222
1	1	4	6
5	1	230	

Old Barrie Road East

Cars	Trucks	Heavys	Totals
358	4	5	367

Line 15 North

Peds Cross:	⧖
West Peds:	0
West Entering:	236
West Leg Total:	527

Cars	55
Trucks	2
Heavys	4
Totals	61

Cars	21	88	66	175
Trucks	0	2	1	3
Heavys	0	0	1	1
Totals	21	90	68	

Peds Cross:	⋈
South Peds:	0
South Entering:	179
South Leg Total:	240

Comments

Line 15 North & Old Barrie Road East

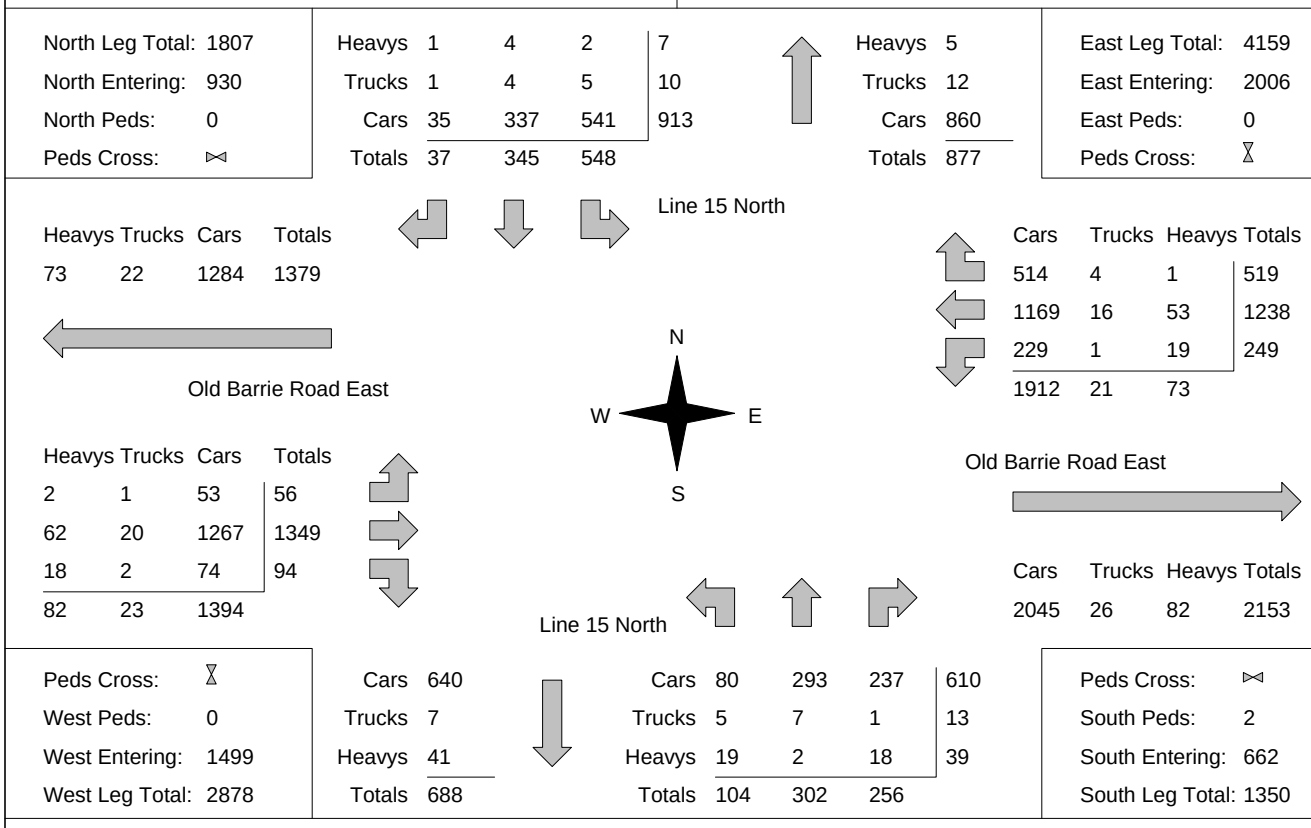
Total Count Diagram

Municipality: Orillia
Site #: 0000002206
Intersection: Old Barrie Road East & Line 15 Nor
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions: Clear
Person(s) who counted:

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

Major Road: Old Barrie Road East runs W/E



Comments

Line 15 North & Old Barrie Road East
Traffic Count Summary

Intersection: Old Barrie Road East & Line 15 No | **Count Date:** 15-Jun-2022 | **Municipality:** Orillia

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	26	64	3	93	0	106
8:00:00	79	84	7	170	0	212
9:00:00	97	80	5	182	0	253
10:00:00	70	33	3	106	0	140
16:00:00	58	12	3	73	0	162
17:00:00	66	24	3	93	0	299
18:00:00	83	22	7	112	0	258
19:00:00	48	21	4	73	0	117
Totals:	527	340	35	902	0	1547

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	2	7	4	13	0
8:00:00	9	10	23	42	0
9:00:00	8	28	35	71	2
10:00:00	8	10	16	34	0
16:00:00	18	39	32	89	0
17:00:00	36	107	63	206	0
18:00:00	16	73	57	146	0
19:00:00	4	19	21	44	0
Totals:	101	293	251	645	2

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	13	50	15	78	0	150
8:00:00	45	117	39	201	0	393
9:00:00	27	127	37	191	0	395
10:00:00	18	118	34	170	0	363
16:00:00	40	167	74	281	0	467
17:00:00	45	235	104	384	0	594
18:00:00	30	225	98	353	0	585
19:00:00	23	151	79	253	0	411
Totals:	241	1190	480	1911	0	3358

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	61	11	72	0
8:00:00	1	164	27	192	0
9:00:00	4	174	26	204	0
10:00:00	11	172	10	193	0
16:00:00	11	169	6	186	0
17:00:00	8	196	6	210	0
18:00:00	11	215	6	232	0
19:00:00	9	148	1	158	0
Totals:	55	1299	93	1447	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00
Crossing Values:	92	172	185	111	115	209	172	73

Line 15 North & Old Barrie Road East

Morning Peak Diagram

Specified Period
From: 6:30:00
To: 10:30:00

One Hour Peak
From: 8:45:00
To: 9:45:00

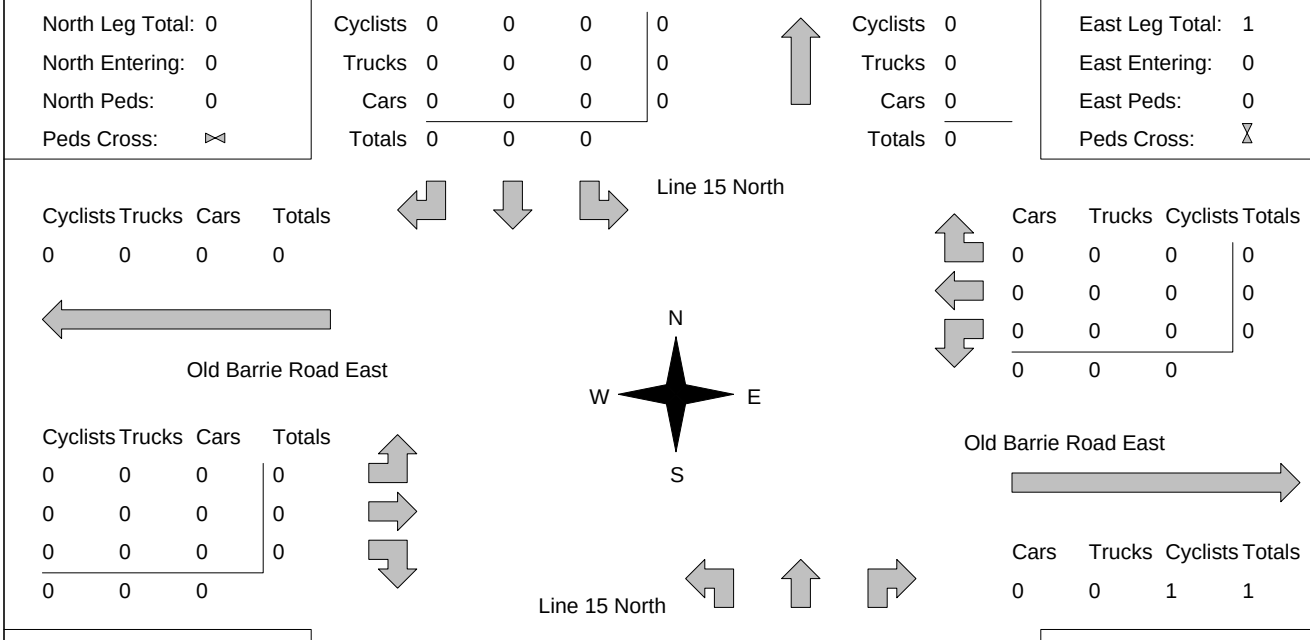
Municipality: Orillia
Site #: 5000002206
Intersection: Old Barrie Road East & Line 15 Nor
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

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

Major Road: Old Barrie Road East runs W/E



Comments

Line 15 North & Old Barrie Road East

Afternoon Peak Diagram

Specified Period
From: 15:30:00
To: 19:30:00

One Hour Peak
From: 15:30:00
To: 16:30:00

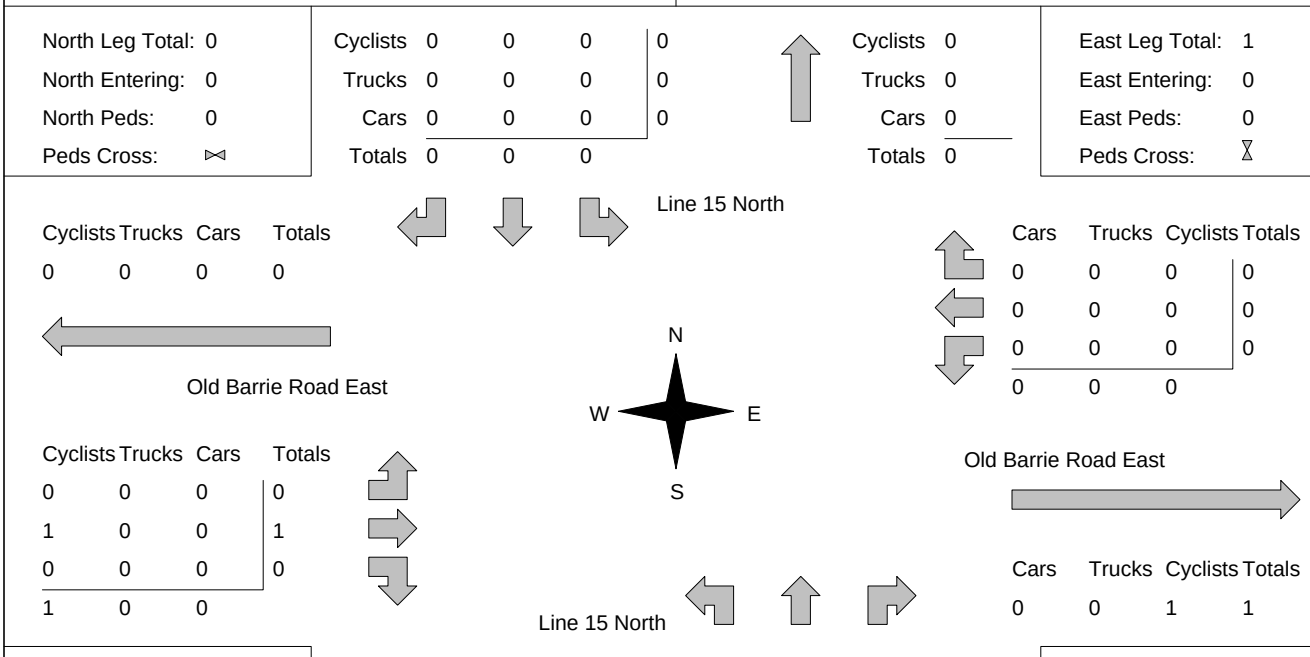
Municipality: Orillia
Site #: 5000002206
Intersection: Old Barrie Road East & Line 15 Nor
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

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

Major Road: Old Barrie Road East runs W/E



Comments

Line 15 North & Old Barrie Road East

Total Count Diagram

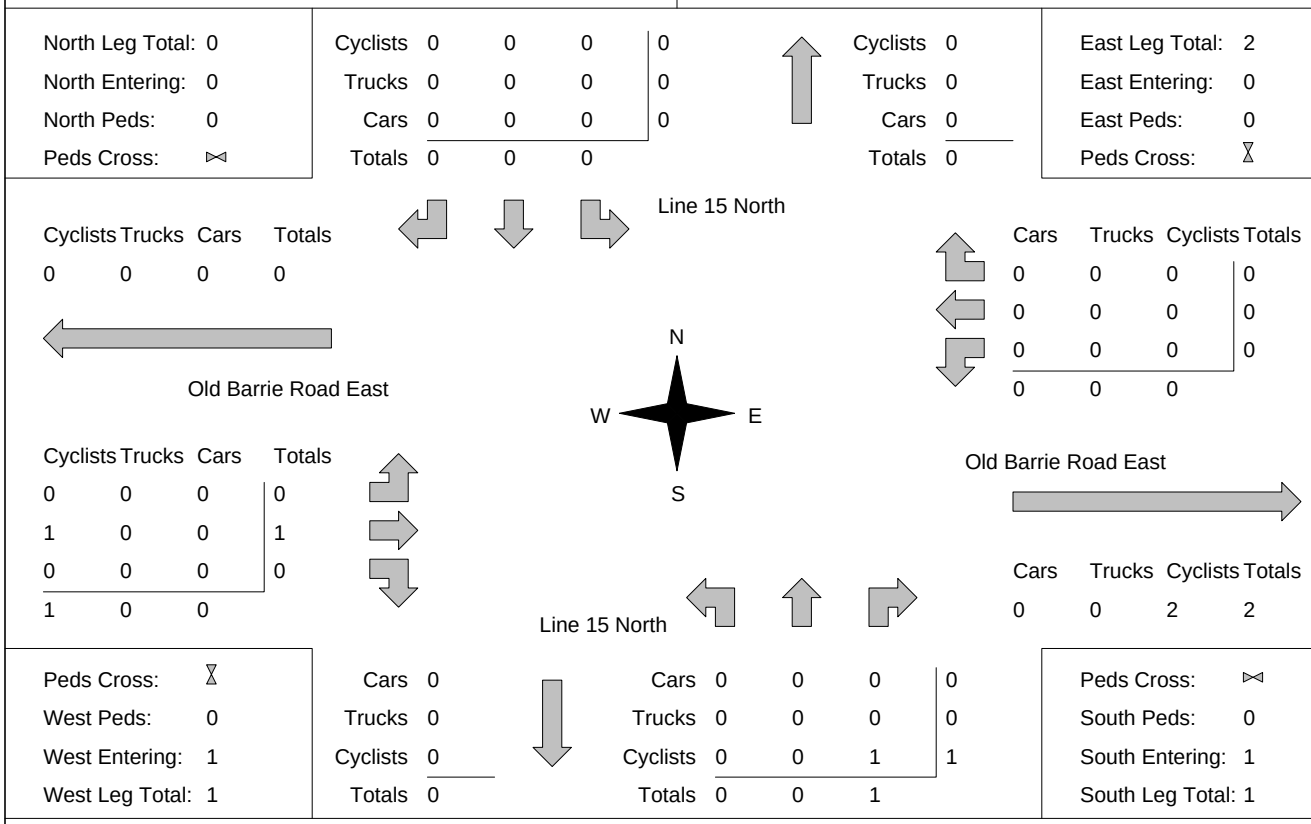
Municipality: Orillia
Site #: 5000002206
Intersection: Old Barrie Road East & Line 15 Nor
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

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

Major Road: Old Barrie Road East runs W/E



Comments

Line 15 North & Old Barrie Road East
Traffic Count Summary

Intersection: Old Barrie Road East & Line 15 No | **Count Date:** 15-Jun-2022 | **Municipality:** Orillia

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: 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	0	0
9:00:00	0	0	0	0	0	0
10:00:00	0	0	0	0	0	1
16:00:00	0	0	0	0	0	0
17:00:00	0	0	0	0	0	0
18:00:00	0	0	0	0	0	0
19:00:00	0	0	0	0	0	0
Totals:	0	0	0	0	0	1

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	0
9:00:00	0	0	0	0	0
10:00:00	0	0	1	1	0
16:00:00	0	0	0	0	0
17:00:00	0	0	0	0	0
18:00:00	0	0	0	0	0
19:00:00	0	0	0	0	0
Totals:	0	0	1	1	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	0	0	0	0	0	0
9:00:00	0	0	0	0	0	0
10:00:00	0	0	0	0	0	0
16:00:00	0	0	0	0	0	1
17:00:00	0	0	0	0	0	0
18:00:00	0	0	0	0	0	0
19:00:00	0	0	0	0	0	0
Totals:	0	0	0	0	0	1

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	0
9:00:00	0	0	0	0	0
10:00:00	0	0	0	0	0
16:00:00	0	1	0	1	0
17:00:00	0	0	0	0	0
18:00:00	0	0	0	0	0
19:00:00	0	0	0	0	0
Totals:	0	1	0	1	0

Calculated Values for Traffic Crossing Major Street

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

Atlantis Drive & Bass Lake Road East

Morning Peak Diagram

Specified Period
From: 6:30:00
To: 10:30:00

One Hour Peak
From: 8:15:00
To: 9:15:00

Municipality: Orillia
Site #: 0000002207
Intersection: Bass Lake Road East & Atlantis Driv
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear
Person(s) who counted:

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

Major Road: Bass Lake Road East runs W/E

North Leg Total:	243
North Entering:	118
North Peds:	2
Peds Cross:	⋈

Heavys	2	1	5	8
Trucks	0	1	0	1
Cars	23	25	61	109
Totals	25	27	66	

Heavys	3
Trucks	1
Cars	121
Totals	125

East Leg Total:	225
East Entering:	90
East Peds:	0
Peds Cross:	⧖

Atlantis Drive

Heavys	Trucks	Cars	Totals
2	0	50	52

Bass Lake Road East

Heavys	Trucks	Cars	Totals
0	0	26	26
1	0	41	42
0	0	4	4
1	0	71	

Cars	Trucks	Heavys	Totals
51	0	2	53
21	0	0	21
14	1	1	16
86	1	3	

N
W E
S

Bass Lake Road East

Cars	Trucks	Heavys	Totals
126	1	8	135

Atlantis Drive

Peds Cross:	⧖
West Peds:	34
West Entering:	72
West Leg Total:	124

Cars	43
Trucks	2
Heavys	2
Totals	47

Cars	6	44	24	74
Trucks	0	1	1	2
Heavys	0	1	2	3
Totals	6	46	27	

Peds Cross:	⋈
South Peds:	11
South Entering:	79
South Leg Total:	126

Comments

Atlantis Drive & Bass Lake Road East

Afternoon Peak Diagram

Specified Period
From: 15:30:00
To: 19:30:00

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

Municipality: Orillia
Site #: 0000002207
Intersection: Bass Lake Road East & Atlantis Driv
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

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

Major Road: Bass Lake Road East runs W/E

North Leg Total:	159			
North Entering:	79			
North Peds:	0			
Peds Cross:	⋈			
Heavys	0	0	0	0
Trucks	2	0	0	2
Cars	14	36	27	77
Totals	16	36	27	
Heavys	2			
Trucks	0			
Cars	78			
Totals	80			
East Leg Total:	206			
East Entering:	92			
East Peds:	0			
Peds Cross:	⧖			

Atlantis Drive

Heavys	Trucks	Cars	Totals
0	2	73	75

	Cars	Trucks	Heavys	Totals
	18	0	0	18
	54	0	0	54
	20	0	0	20
	92	0	0	

Bass Lake Road East

N
W E
S

Heavys	Trucks	Cars	Totals
0	0	16	16
0	0	66	66
0	0	9	9
0	0	91	

Bass Lake Road East

Cars	Trucks	Heavys	Totals
114	0	0	114

Atlantis Drive

Peds Cross:	⧖			
West Peds:	2			
West Entering:	91			
West Leg Total:	166			
Cars	65			
Trucks	0			
Heavys	0			
Totals	65			
Cars	5	44	21	70
Trucks	0	0	0	0
Heavys	0	2	0	2
Totals	5	46	21	
Peds Cross:	⋈			
South Peds:	1			
South Entering:	72			
South Leg Total:	137			

Comments

Atlantis Drive & Bass Lake Road East

Total Count Diagram

Municipality: Orillia
Site #: 0000002207
Intersection: Bass Lake Road East & Atlantis Driv
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear
Person(s) who counted:

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

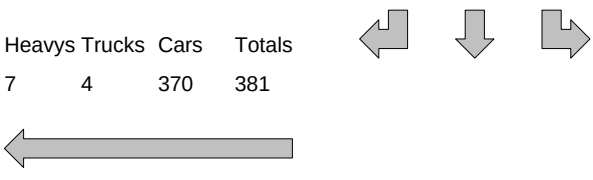
Major Road: Bass Lake Road East runs W/E

North Leg Total: 909
North Entering: 458
North Peds: 3
Peds Cross: ⋈

Heavys	6	1	7	14
Trucks	3	1	1	5
Cars	95	168	176	439
Totals	104	170	184	

Heavys	12
Trucks	5
Cars	434
Totals	451

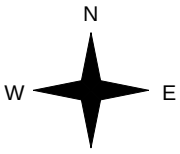
East Leg Total: 1094
East Entering: 502
East Peds: 5
Peds Cross: ⧖



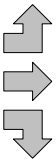
Heavys	Trucks	Cars	Totals
7	4	370	381

Cars	Trucks	Heavys	Totals
134	0	3	137
247	1	1	249
111	2	3	116
492	3	7	

Bass Lake Road East



Heavys	Trucks	Cars	Totals
2	3	106	111
2	1	282	285
0	0	31	31
4	4	419	



Bass Lake Road East



Cars	Trucks	Heavys	Totals
575	5	12	592



Peds Cross: ⧖
West Peds: 49
West Entering: 427
West Leg Total: 808

Cars	310			
Trucks	3			
Heavys	4			
Totals	317			

Cars	28	194	117	339
Trucks	0	2	3	5
Heavys	0	7	3	10
Totals	28	203	123	

Peds Cross: ⋈
South Peds: 26
South Entering: 354
South Leg Total: 671

Comments

Atlantis Drive & Bass Lake Road East
Traffic Count Summary

Intersection: Bass Lake Road East & Atlantis Dr | **Count Date:** 15-Jun-2022 | **Municipality:** Orillia

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	3	2	2	7	0	23
8:00:00	8	18	9	35	0	73
9:00:00	62	28	24	114	2	190
10:00:00	20	12	10	42	1	81
16:00:00	23	23	7	53	0	84
17:00:00	32	35	15	82	0	142
18:00:00	13	30	16	59	0	112
19:00:00	13	15	15	43	0	72
Totals:	174	163	98	435	3	777

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	1	12	3	16	3
8:00:00	2	26	10	38	2
9:00:00	8	43	25	76	11
10:00:00	0	21	18	39	1
16:00:00	2	15	14	31	1
17:00:00	4	38	18	60	2
18:00:00	5	30	18	53	2
19:00:00	5	13	11	29	2
Totals:	27	198	117	342	24

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	3	4	7	0	17
8:00:00	13	11	11	35	0	72
9:00:00	14	21	53	88	0	151
10:00:00	9	24	8	41	0	90
16:00:00	22	43	16	81	0	135
17:00:00	17	49	15	81	0	166
18:00:00	25	49	14	88	3	147
19:00:00	13	27	12	52	2	101
Totals:	113	227	133	473	5	879

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	1	9	0	10	3
8:00:00	12	21	4	37	1
9:00:00	23	36	4	63	34
10:00:00	14	33	2	49	1
16:00:00	11	40	3	54	0
17:00:00	18	59	8	85	3
18:00:00	17	36	6	59	0
19:00:00	11	35	3	49	5
Totals:	107	269	30	406	47

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:	19	37	147	42	48	77	51	40

Atlantis Drive & Bass Lake Road East

Morning Peak Diagram

Specified Period
From: 6:30:00
To: 10:30:00

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

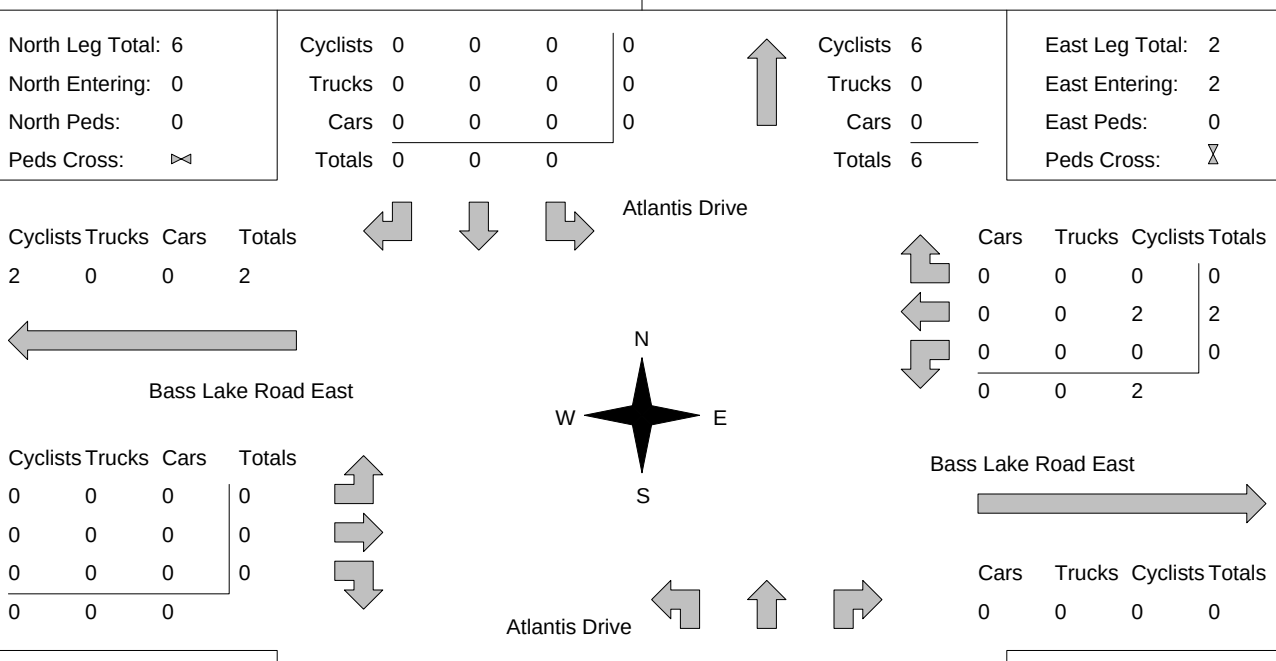
Municipality: Orillia
Site #: 5000002207
Intersection: Bass Lake Road East & Atlantis Driv
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

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

Major Road: Bass Lake Road East runs W/E



Comments

Atlantis Drive & Bass Lake Road East

Afternoon Peak Diagram

Specified Period
From: 15:30:00
To: 19:30:00

One Hour Peak
From: 15:45:00
To: 16:45:00

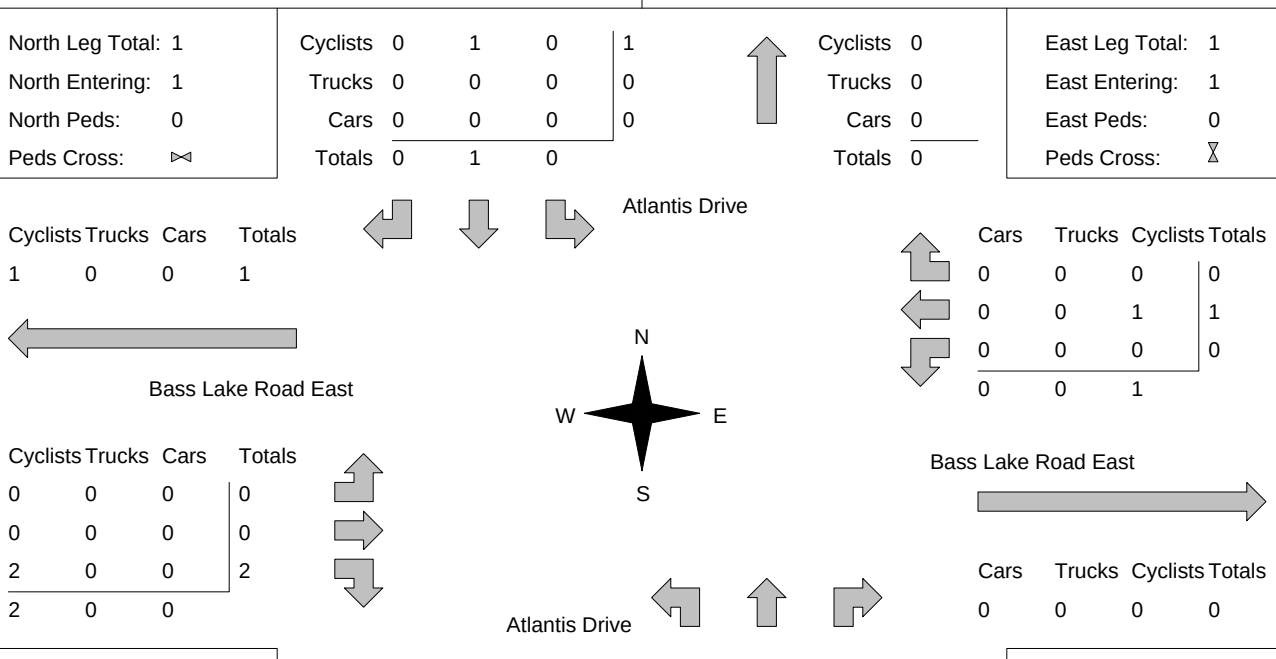
Municipality: Orillia
Site #: 5000002207
Intersection: Bass Lake Road East & Atlantis Driv
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

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

Major Road: Bass Lake Road East runs W/E



Comments

Atlantis Drive & Bass Lake Road East

Total Count Diagram

Municipality: Orillia
Site #: 5000002207
Intersection: Bass Lake Road East & Atlantis Driv
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear
Person(s) who counted:

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

Major Road: Bass Lake Road East runs W/E

North Leg Total:	11			
North Entering:	4			
North Peds:	0			
Peds Cross:	⋈			
Cyclists	1	2	1	4
Trucks	0	0	0	0
Cars	0	0	0	0
Totals	1	2	1	
Cyclists	7			
Trucks	0			
Cars	0			
Totals	7			
East Leg Total:	7			
East Entering:	3			
East Peds:	0			
Peds Cross:	⧖			

Atlantis Drive

Cyclists	Trucks	Cars	Totals
4	0	0	4

Bass Lake Road East

Cyclists	Trucks	Cars	Totals
0	0	0	0
3	0	0	3
2	0	0	2
5	0	0	

Cars	Trucks	Cyclists	Totals
0	0	0	0
0	0	3	3
0	0	0	0
0	0	3	

N
W E
S

Bass Lake Road East

Cars	Trucks	Cyclists	Totals
0	0	4	4

Atlantis Drive

Peds Cross:	⧖			
West Peds:	0			
West Entering:	5			
West Leg Total:	9			
Cars	0			
Trucks	0			
Cyclists	4			
Totals	4			
Cars	0	0	0	0
Trucks	0	0	0	0
Cyclists	0	7	0	7
Totals	0	7	0	
Peds Cross:	⋈			
South Peds:	0			
South Entering:	7			
South Leg Total:	11			

Comments

Atlantis Drive & Bass Lake Road East
Traffic Count Summary

Intersection: Bass Lake Road East & Atlantis Dr | **Count Date:** 15-Jun-2022 | **Municipality:** Orillia

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: 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	0	1	0	1
9:00:00	0	0	0	0	0	6
10:00:00	0	0	0	0	0	0
16:00:00	0	0	0	0	0	0
17:00:00	0	1	0	1	0	1
18:00:00	0	0	0	0	0	0
19:00:00	0	1	1	2	0	3
Totals:	1	2	1	4	0	11

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	0
9:00:00	0	6	0	6	0
10:00:00	0	0	0	0	0
16:00:00	0	0	0	0	0
17:00:00	0	0	0	0	0
18:00:00	0	0	0	0	0
19:00:00	0	1	0	1	0
Totals:	0	7	0	7	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	1
8:00:00	0	0	0	0	0	0
9:00:00	0	2	0	2	0	2
10:00:00	0	0	0	0	0	0
16:00:00	0	1	0	1	0	2
17:00:00	0	0	0	0	0	3
18:00:00	0	0	0	0	0	0
19:00:00	0	0	0	0	0	0
Totals:	0	3	0	3	0	8

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	1	0	1	0
8:00:00	0	0	0	0	0
9:00:00	0	0	0	0	0
10:00:00	0	0	0	0	0
16:00:00	0	1	0	1	0
17:00:00	0	1	2	3	0
18:00:00	0	0	0	0	0
19:00:00	0	0	0	0	0
Totals:	0	3	2	5	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00
Crossing Values:	0	1	6	0	0	1	0	1

Old Barrie Road & University Avenue

Morning Peak Diagram

Specified Period
From: 6:30:00
To: 10:30:00

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

Municipality: Orillia
Site #: 0000002208
Intersection: Old Barrie Road & University Avenu
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Old Barrie Road runs W/E

North Leg Total:	761		
North Entering:	343		
North Peds:	0		
Peds Cross:	⋈		

Heavys	4	7	11
Trucks	0	5	5
Cars	45	282	327
Totals	49	294	

Heavys	16
Trucks	7
Cars	395
Totals	418

East Leg Total:	1031
East Entering:	495
East Peds:	0
Peds Cross:	⧖

University Avenue

Heavys	Trucks	Cars	Totals
17	6	165	188

Old Barrie Road

Heavys	Trucks	Cars	Totals
4	0	58	62
13	6	223	242
17	6	281	

N
W E
S

Cars	Trucks	Heavys	Totals
337	7	12	356
120	6	13	139
457	13	25	

Old Barrie Road

Cars	Trucks	Heavys	Totals
505	11	20	536

Peds Cross:	⧖
West Peds:	0
West Entering:	304
West Leg Total:	492

Comments

Old Barrie Road & University Avenue

Afternoon Peak Diagram

Specified Period
From: 15:30:00
To: 19:30:00

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

Municipality: Orillia
Site #: 0000002208
Intersection: Old Barrie Road & University Avenu
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Old Barrie Road runs W/E

North Leg Total:	1322		
North Entering:	646		
North Peds:	0		
Peds Cross:	⋈		

Heavys	0	6	6
Trucks	1	8	9
Cars	132	499	631
Totals	133	513	

Heavys	7		
Trucks	7		
Cars	662		
Totals	676		

East Leg Total:	1579
East Entering:	812
East Peds:	0
Peds Cross:	⧖

University Avenue

Heavys	Trucks	Cars	Totals
6	4	384	394

Cars	Trucks	Heavys	Totals
539	6	6	551
252	3	6	261
791	9	12	

Old Barrie Road

N
W E
S

Heavys	Trucks	Cars	Totals
1	1	123	125
4	1	249	254
5	2	372	

Old Barrie Road

Cars	Trucks	Heavys	Totals
748	9	10	767

Peds Cross:	⧖
West Peds:	1
West Entering:	379
West Leg Total:	773

Comments

Old Barrie Road & University Avenue

Total Count Diagram

Municipality: Orillia
Site #: 0000002208
Intersection: Old Barrie Road & University Avenu
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Old Barrie Road runs W/E

North Leg Total: 7138
North Entering: 3322
North Peds: 0
Peds Cross: ⋈

Heavys	8	56	64
Trucks	4	39	43
Cars	592	2623	3215
Totals	604	2718	

Heavys	71
Trucks	52
Cars	3693
Totals	3816

East Leg Total: 8778
East Entering: 4526
East Peds: 0
Peds Cross: ⧖

University Avenue

Heavys	Trucks	Cars	Totals
73	20	1856	1949

Cars	Trucks	Heavys	Totals
3075	50	56	3181
1264	16	65	1345
4339	66	121	

Old Barrie Road

N
W E
S

Heavys	Trucks	Cars	Totals
15	2	618	635
69	21	1444	1534
84	23	2062	

Old Barrie Road

Cars	Trucks	Heavys	Totals
4067	60	125	4252

Peds Cross: ⧖
West Peds: 5
West Entering: 2169
West Leg Total: 4118

Comments

Old Barrie Road & University Avenue
Traffic Count Summary

Intersection: Old Barrie Road & University Aven | **Count Date:** 15-Jun-2022 | **Municipality:** Orillia

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	82	0	14	96	0	96
8:00:00	240	0	55	295	0	295
9:00:00	294	0	49	343	0	343
10:00:00	239	0	57	296	0	296
16:00:00	338	0	95	433	0	433
17:00:00	499	0	126	625	0	625
18:00:00	487	0	109	596	0	596
19:00:00	365	0	71	436	0	436
Totals:	2544	0	576	3120	0	3120

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	0	0	0
9:00:00	0	0	0	0	0
10:00:00	0	0	0	0	0
16:00:00	0	0	0	0	0
17:00:00	0	0	0	0	0
18:00:00	0	0	0	0	0
19:00:00	0	0	0	0	0
Totals:	0	0	0	0	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	66	111	177	0	265
8:00:00	0	143	284	427	0	687
9:00:00	0	139	356	495	0	799
10:00:00	0	115	327	442	0	702
16:00:00	0	175	437	612	0	876
17:00:00	0	240	518	758	0	1087
18:00:00	0	236	545	781	0	1148
19:00:00	0	175	406	581	0	801
Totals:	0	1289	2984	4273	0	6365

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	21	67	0	88	0
8:00:00	52	208	0	260	1
9:00:00	62	242	0	304	0
10:00:00	80	180	0	260	0
16:00:00	92	172	0	264	2
17:00:00	113	216	0	329	0
18:00:00	120	247	0	367	1
19:00:00	67	153	0	220	0
Totals:	607	1485	0	2092	4

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:	82	241	294	239	340	499	488	365

Old Barrie Road & University Avenue

Morning Peak Diagram

Specified Period
From: 6:30:00
To: 10:30:00

One Hour Peak
From: 7:30:00
To: 8:30:00

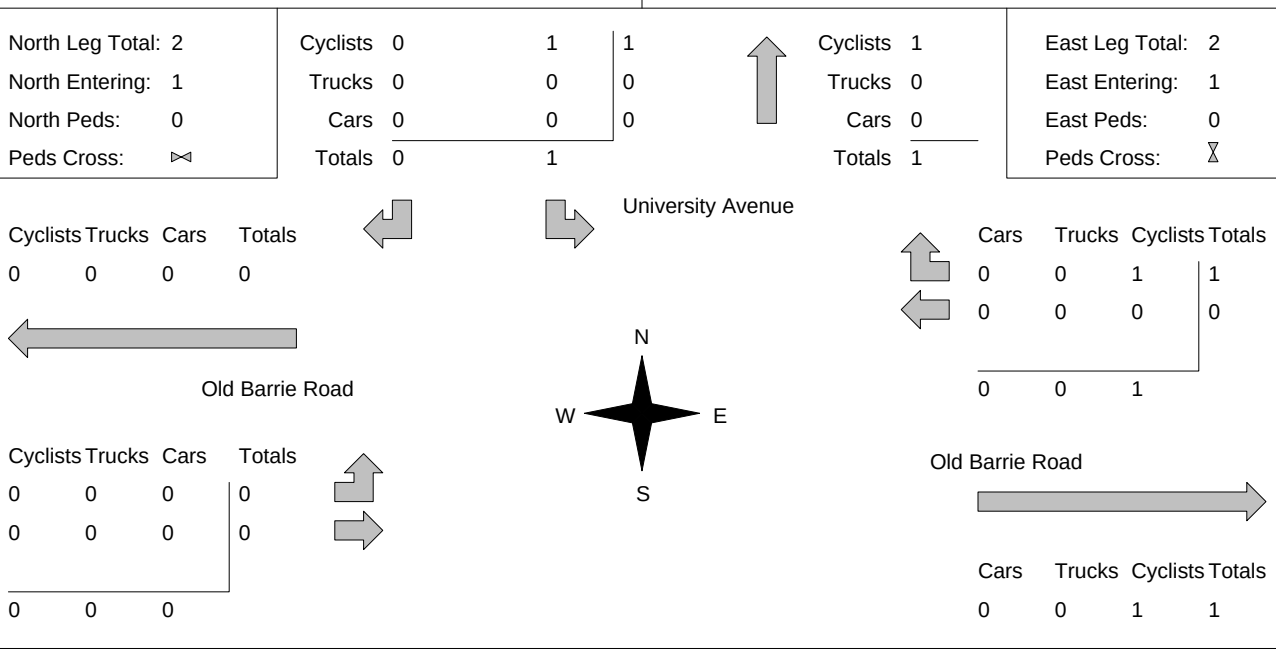
Municipality: Orillia
Site #: 5000002208
Intersection: Old Barrie Road & University Avenu
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Old Barrie Road runs W/E



Peds Cross:
West Peds: 0
West Entering: 0
West Leg Total: 0

Comments

Old Barrie Road & University Avenue

Afternoon Peak Diagram

Specified Period
From: 15:30:00
To: 19:30:00

One Hour Peak
From: 18:15:00
To: 19:15:00

Municipality: Orillia
Site #: 5000002208
Intersection: Old Barrie Road & University Avenu
TFR File #: 1
Count date: 15-Jun-2022

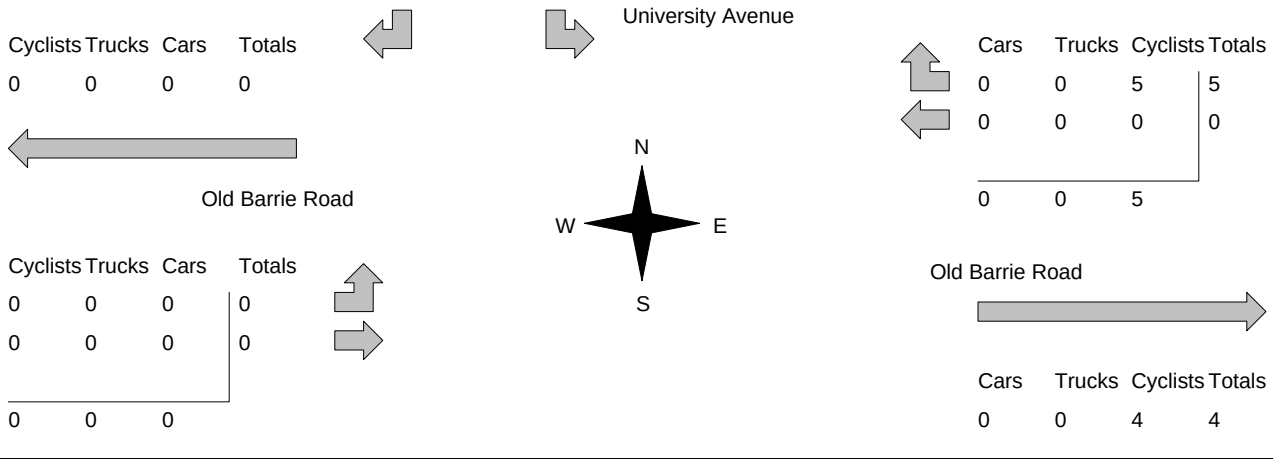
Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Old Barrie Road runs W/E

North Leg Total:	9			
North Entering:	4			
North Peds:	0			
Peds Cross:	⋈			
Cyclists	0	4	4	
Trucks	0	0	0	
Cars	0	0	0	
Totals	0	4		
Cyclists	5			
Trucks	0			
Cars	0			
Totals	5			
East Leg Total:	9			
East Entering:	5			
East Peds:	0			
Peds Cross:	⧖			



Peds Cross:	⧖
West Peds:	0
West Entering:	0
West Leg Total:	0

Comments

Old Barrie Road & University Avenue

Total Count Diagram

Municipality: Orillia
Site #: 5000002208
Intersection: Old Barrie Road & University Avenu
TFR File #: 1
Count date: 15-Jun-2022

Weather conditions:
Clear

Person(s) who counted:

**** Signalized Intersection ****

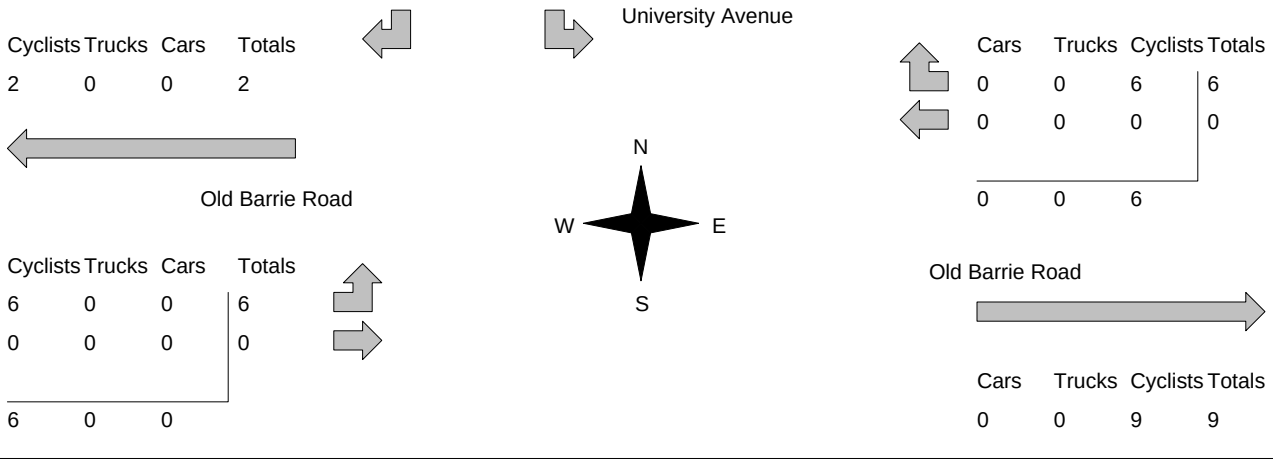
Major Road: Old Barrie Road runs W/E

North Leg Total: 23
North Entering: 11
North Peds: 0
Peds Cross: ⋈

Cyclists	2	9	11
Trucks	0	0	0
Cars	0	0	0
Totals	2	9	

Cyclists	12
Trucks	0
Cars	0
Totals	12

East Leg Total: 15
East Entering: 6
East Peds: 0
Peds Cross: ⧖



Peds Cross: ⧖
West Peds: 0
West Entering: 6
West Leg Total: 8

Comments

Old Barrie Road & University Avenue
Traffic Count Summary

Intersection: Old Barrie Road & University Aven | **Count Date:** 15-Jun-2022 | **Municipality:** Orillia

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: 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	0	0
9:00:00	1	0	0	1	0	1
10:00:00	0	0	0	0	0	0
16:00:00	0	0	1	1	0	1
17:00:00	3	0	1	4	0	4
18:00:00	1	0	0	1	0	1
19:00:00	1	0	0	1	0	1
Totals:	6	0	2	8	0	8

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	0
9:00:00	0	0	0	0	0
10:00:00	0	0	0	0	0
16:00:00	0	0	0	0	0
17:00:00	0	0	0	0	0
18:00:00	0	0	0	0	0
19:00:00	0	0	0	0	0
Totals:	0	0	0	0	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	0	0	0	0	0	0
9:00:00	0	0	1	1	0	1
10:00:00	0	0	0	0	0	1
16:00:00	0	0	0	0	0	1
17:00:00	0	0	0	0	0	0
18:00:00	0	0	0	0	0	4
19:00:00	0	0	1	1	0	1
Totals:	0	0	2	2	0	8

West Approach Totals

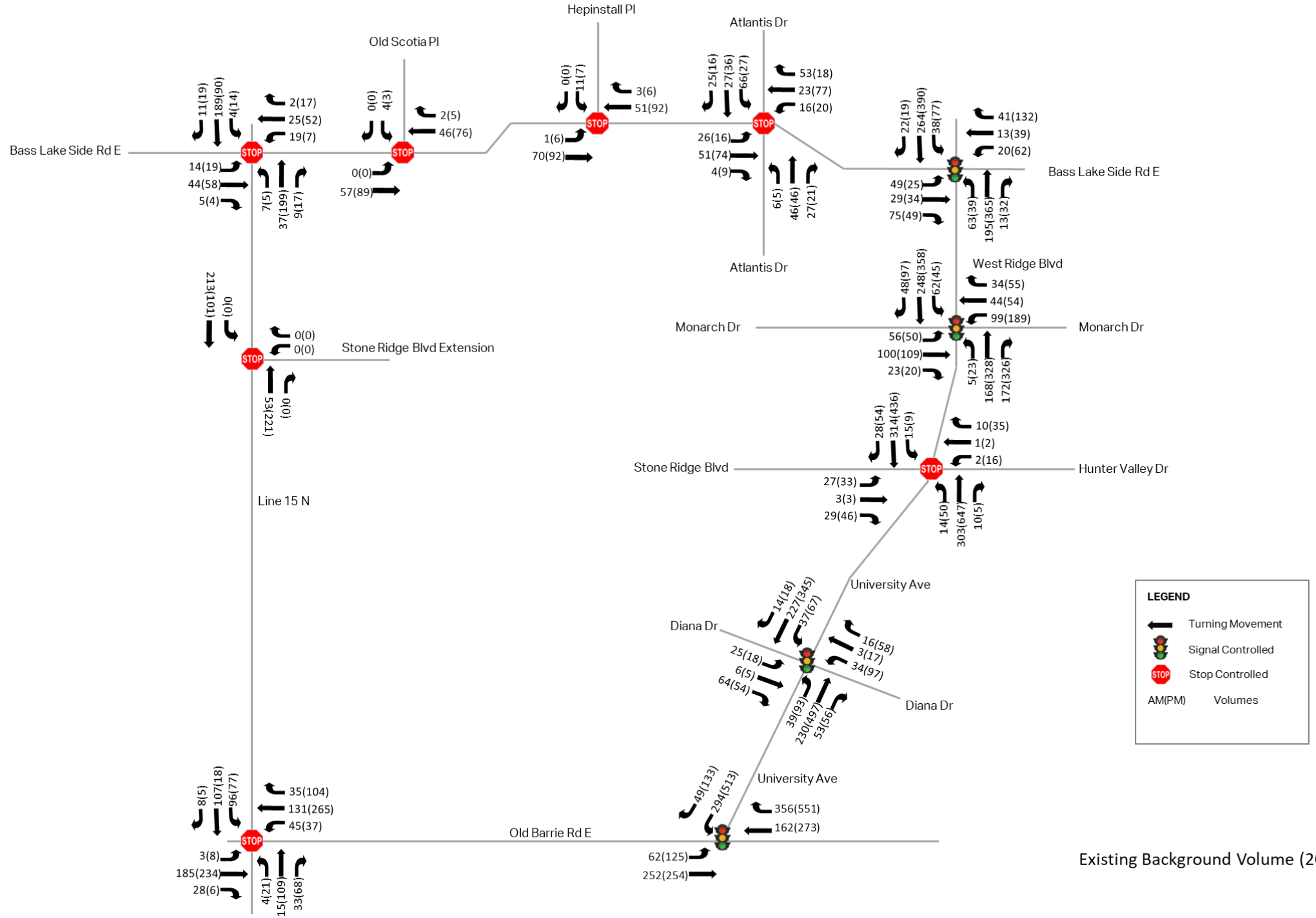
Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	0
9:00:00	0	0	0	0	0
10:00:00	1	0	0	1	0
16:00:00	1	0	0	1	0
17:00:00	0	0	0	0	0
18:00:00	4	0	0	4	0
19:00:00	0	0	0	0	0
Totals:	6	0	0	6	0

Calculated Values for Traffic Crossing Major Street

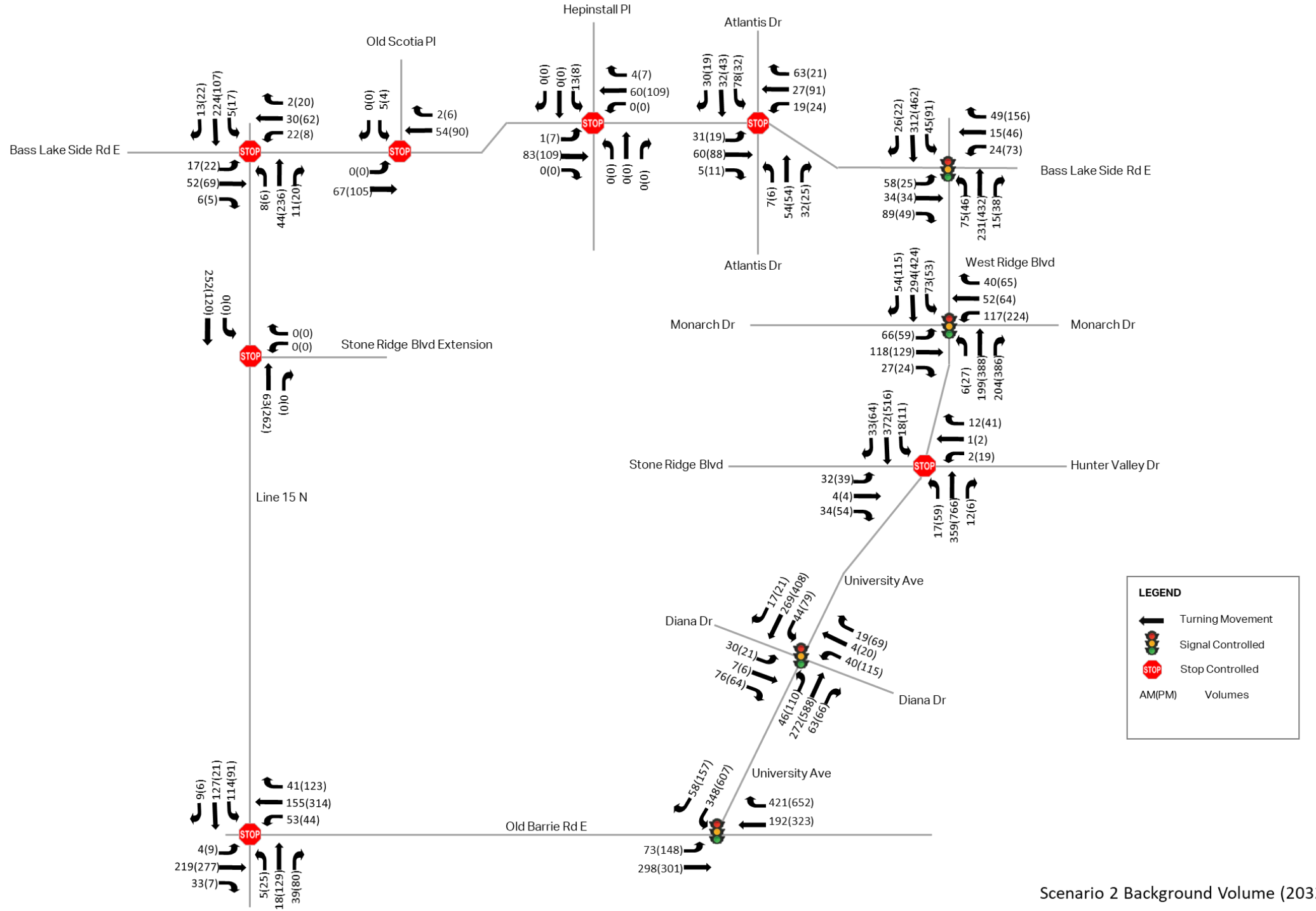
Hours Ending:	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00
Crossing Values:	0	0	1	0	0	3	1	1

Appendix C – Traffic Volumes

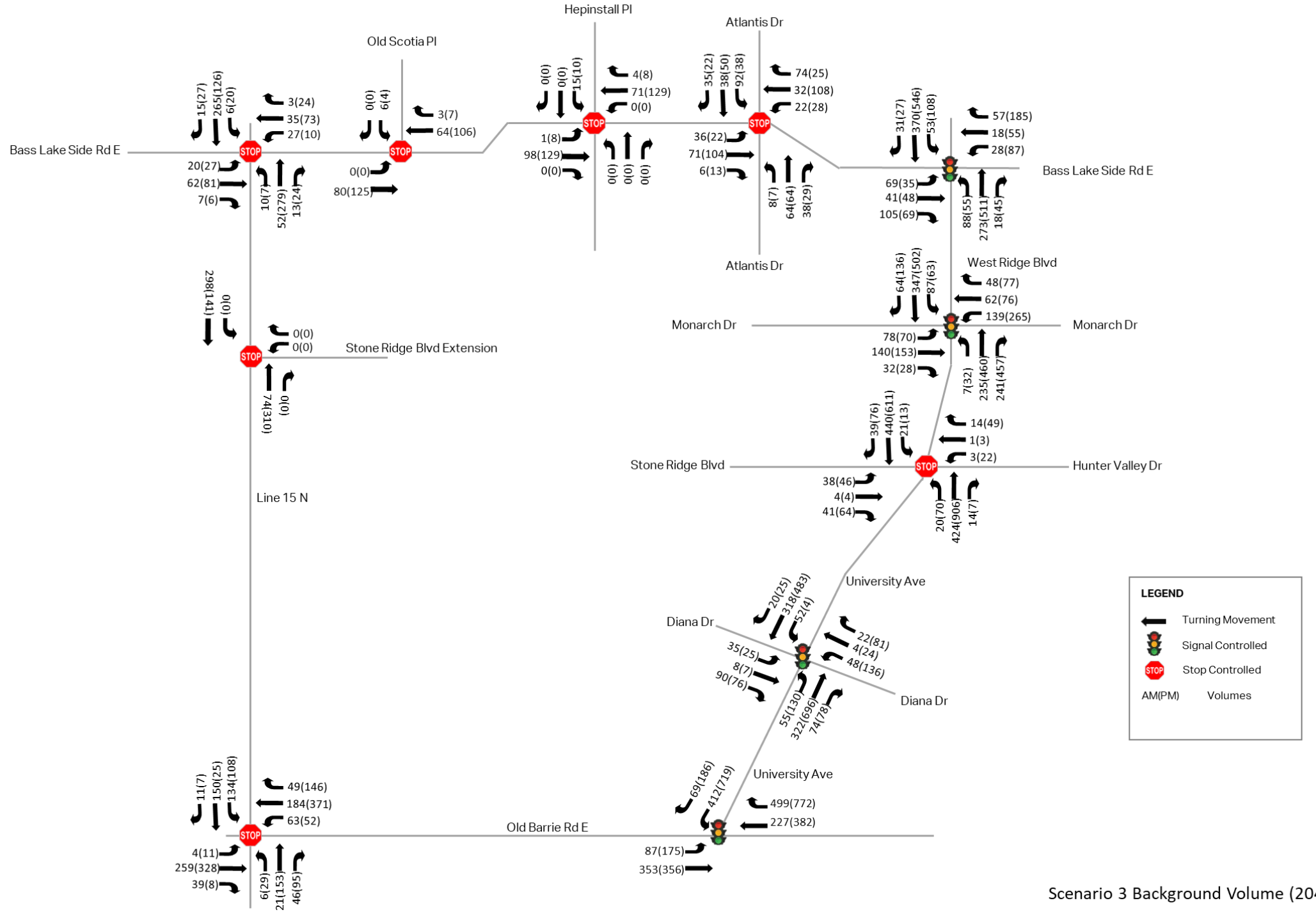
C.1 Background Volumes



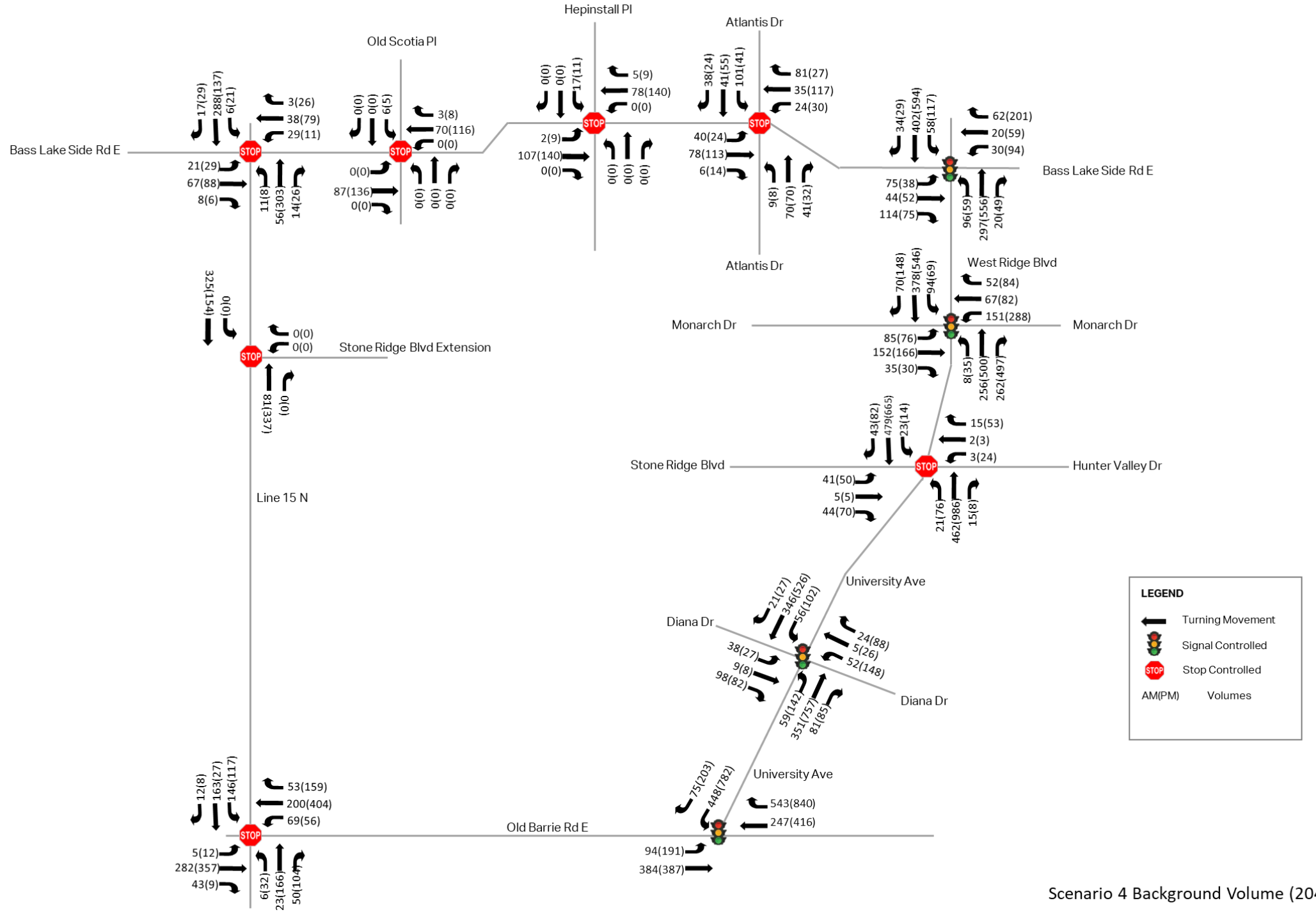
Existing Background Volume (2022)



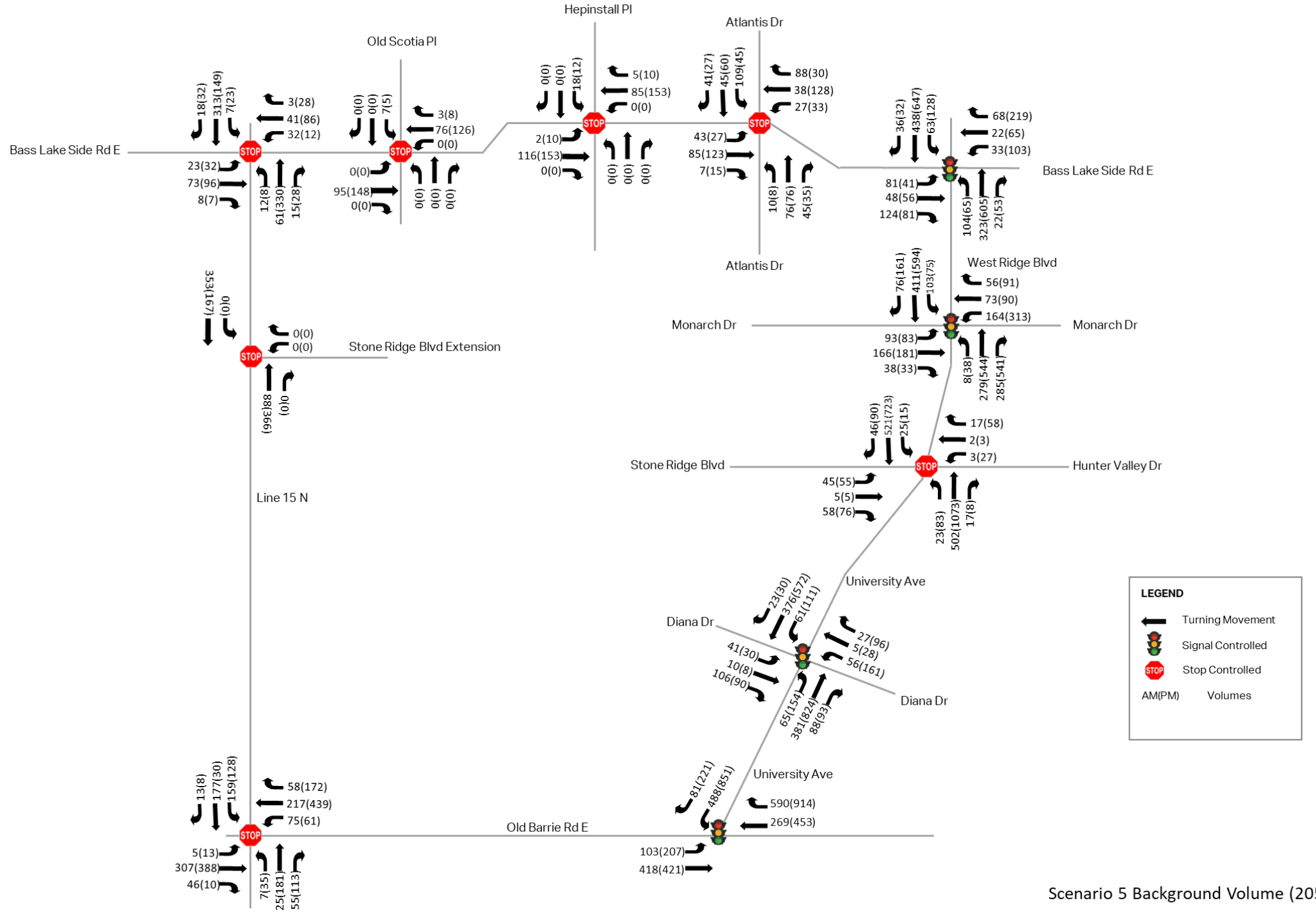
Scenario 2 Background Volume (2032)



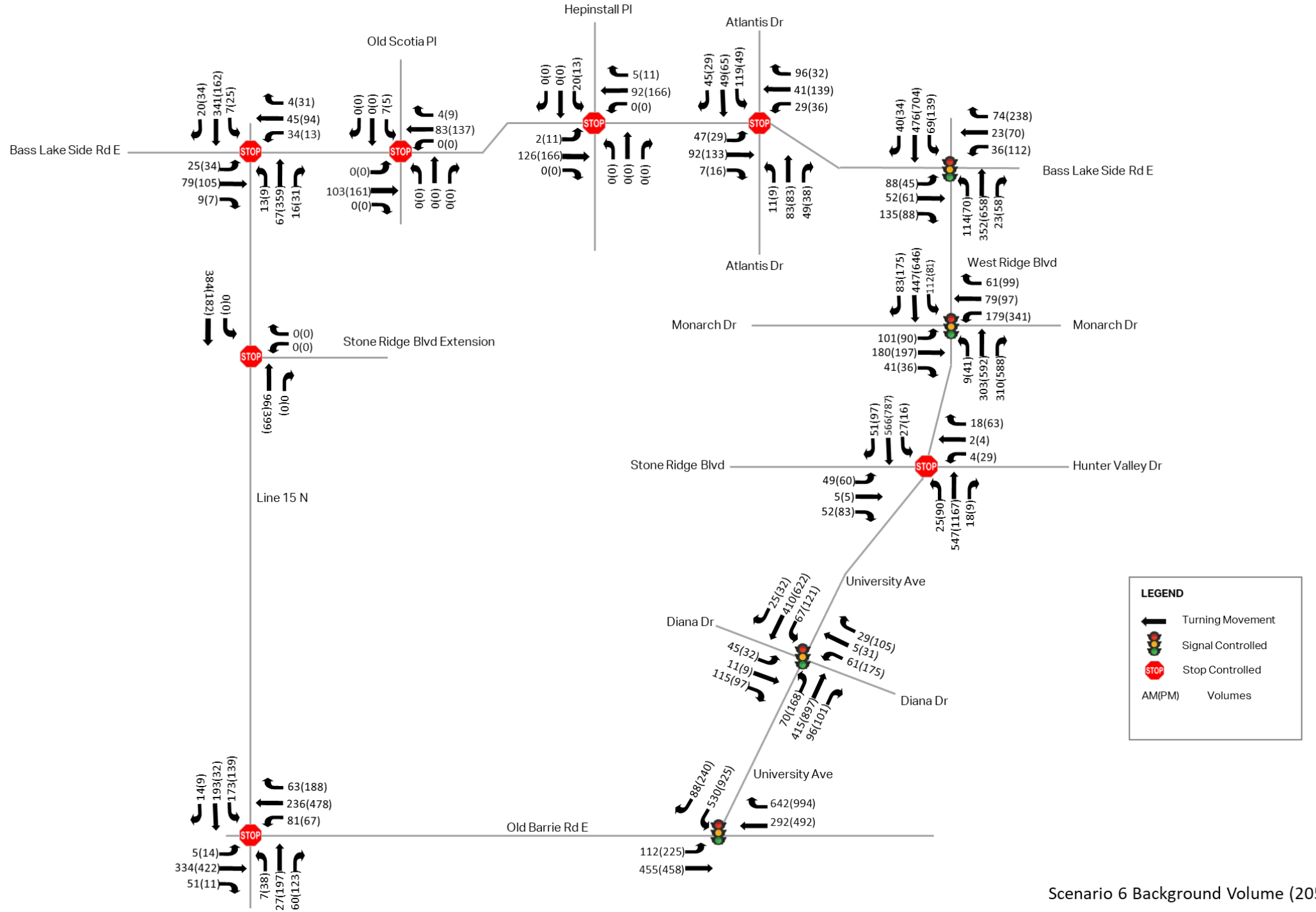
Scenario 3 Background Volume (2042)



Scenario 4 Background Volume (2047)

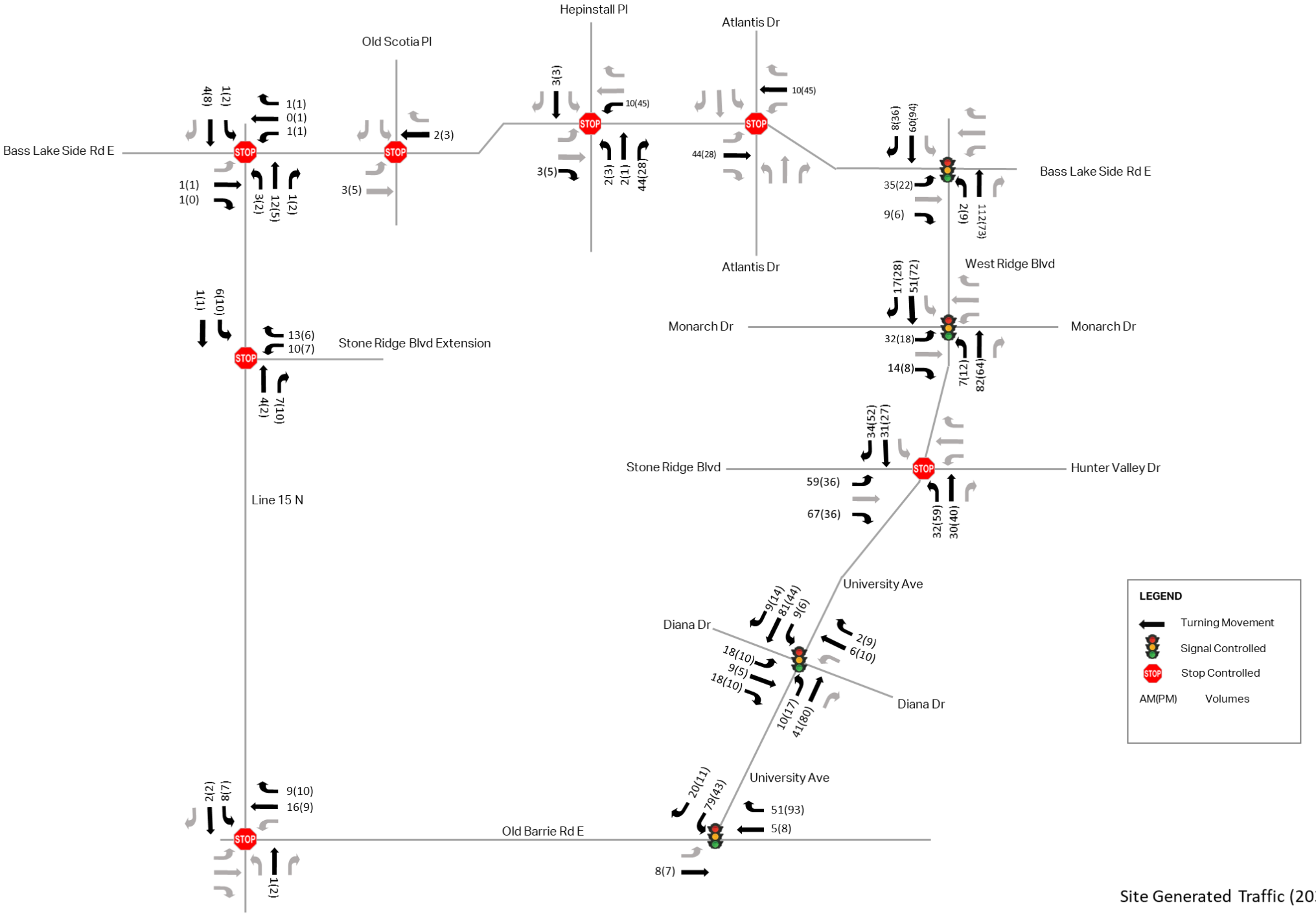


Scenario 5 Background Volume (2052)

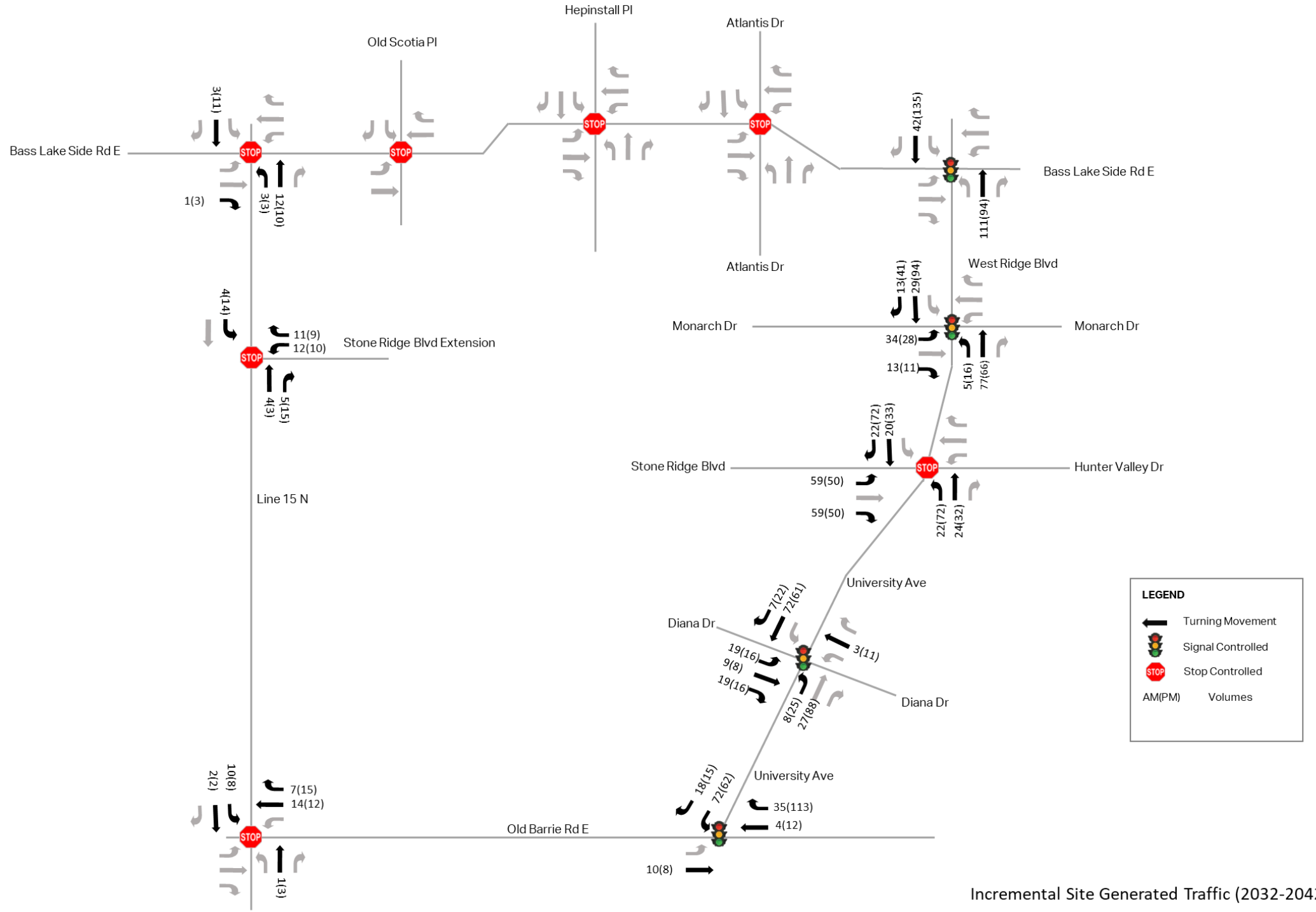


Scenario 6 Background Volume (2057)

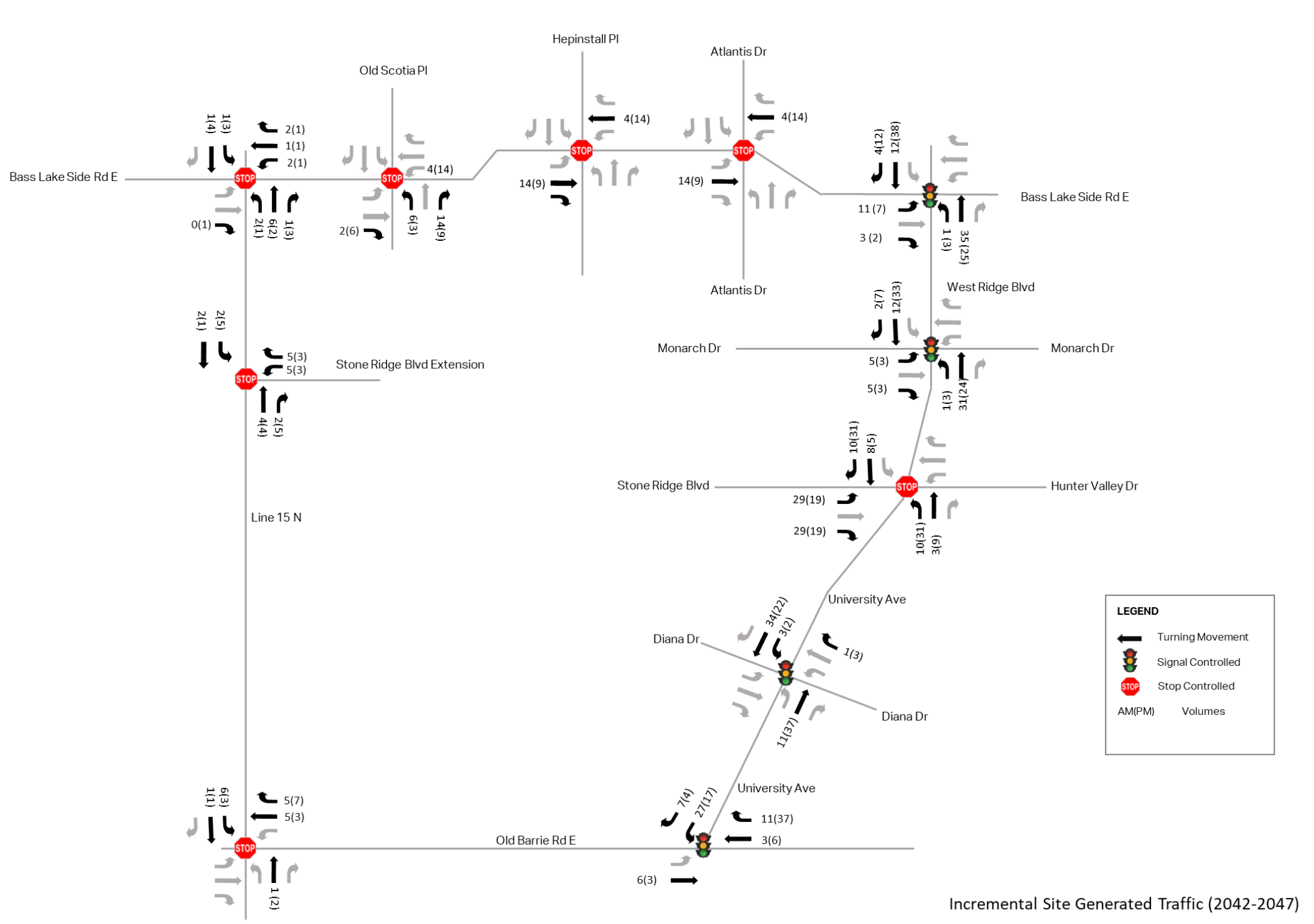
C.2 Site Generated Volumes



Site Generated Traffic (2032)

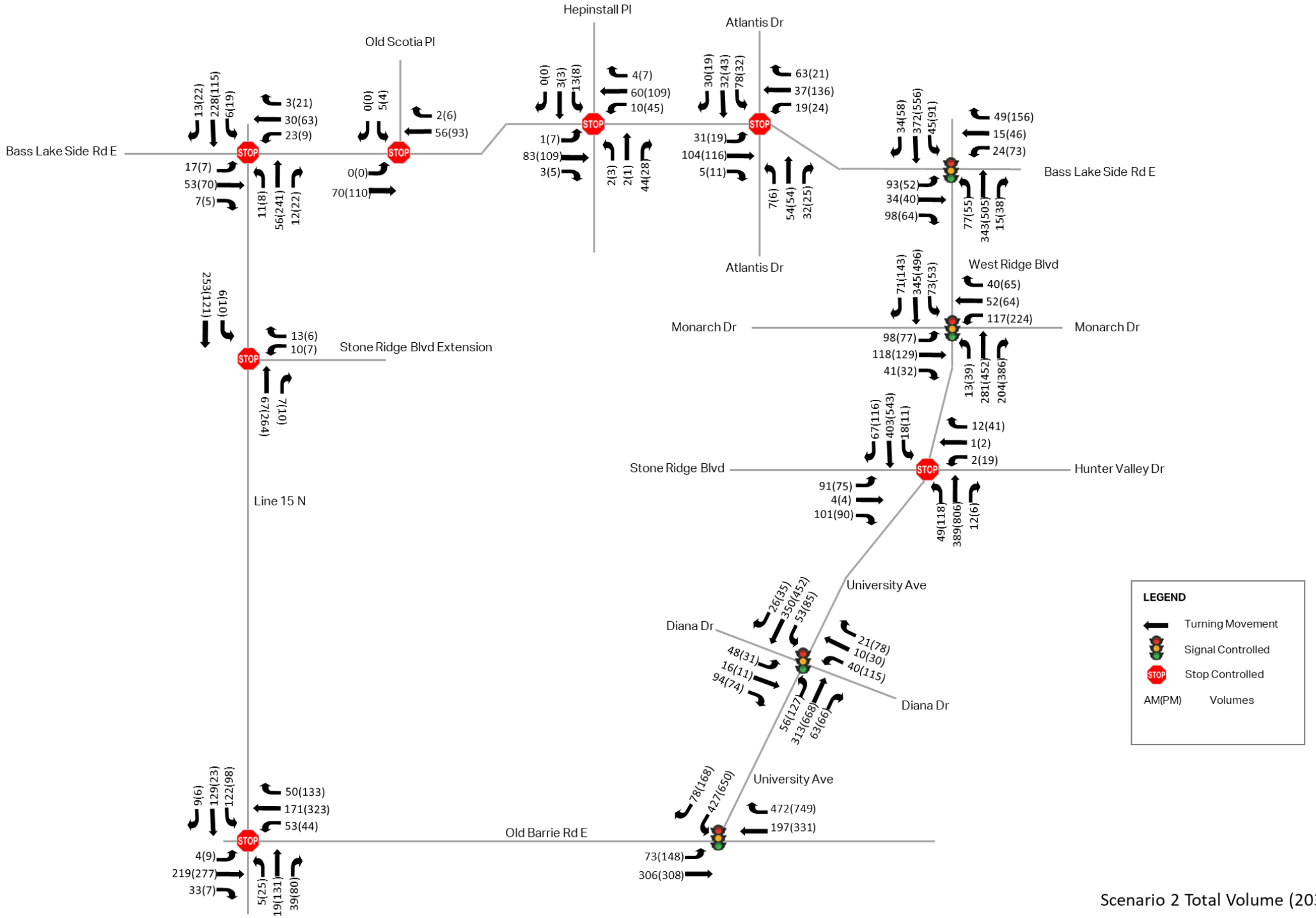


Incremental Site Generated Traffic (2032-2042)

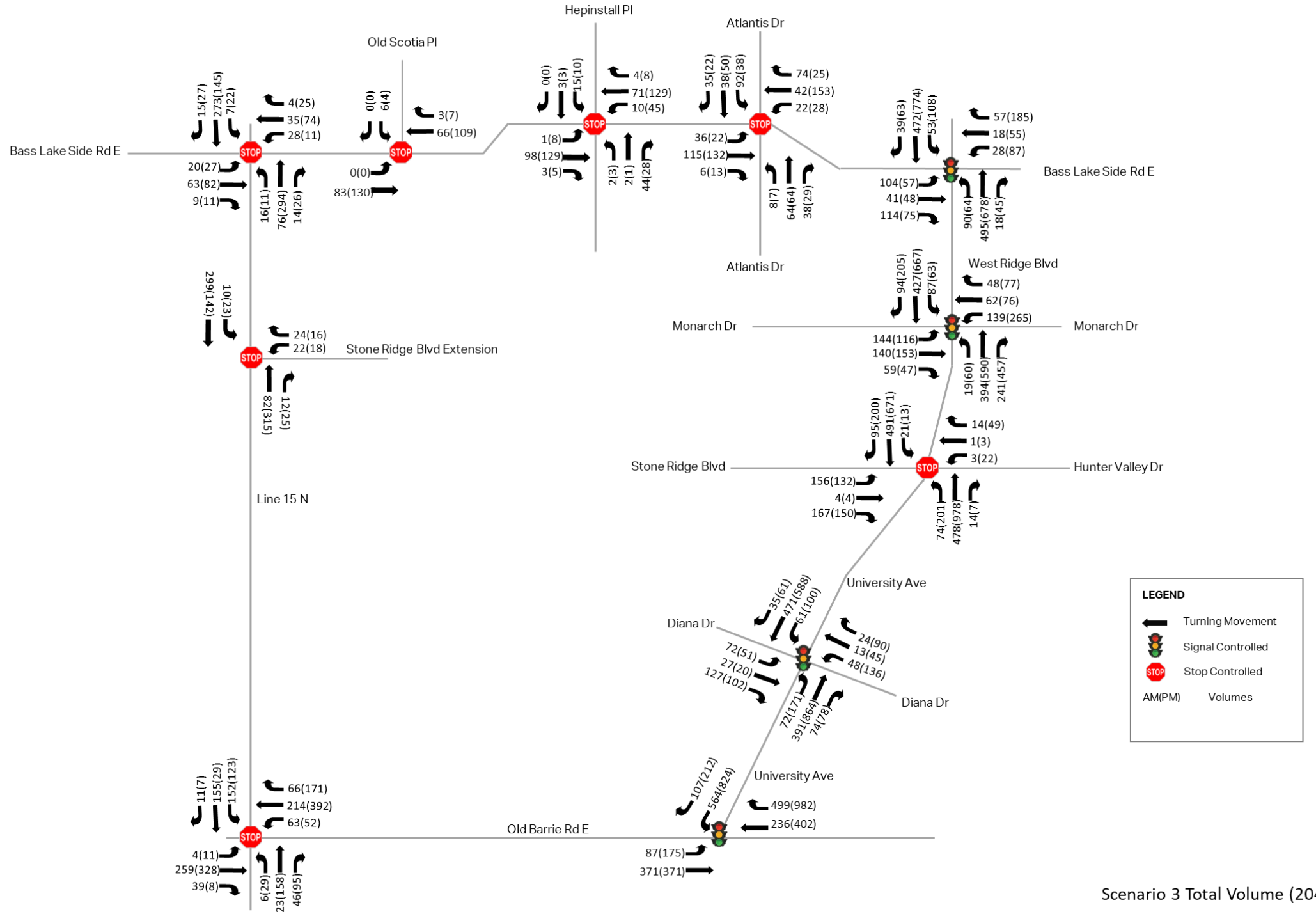


Incremental Site Generated Traffic (2042-2047)

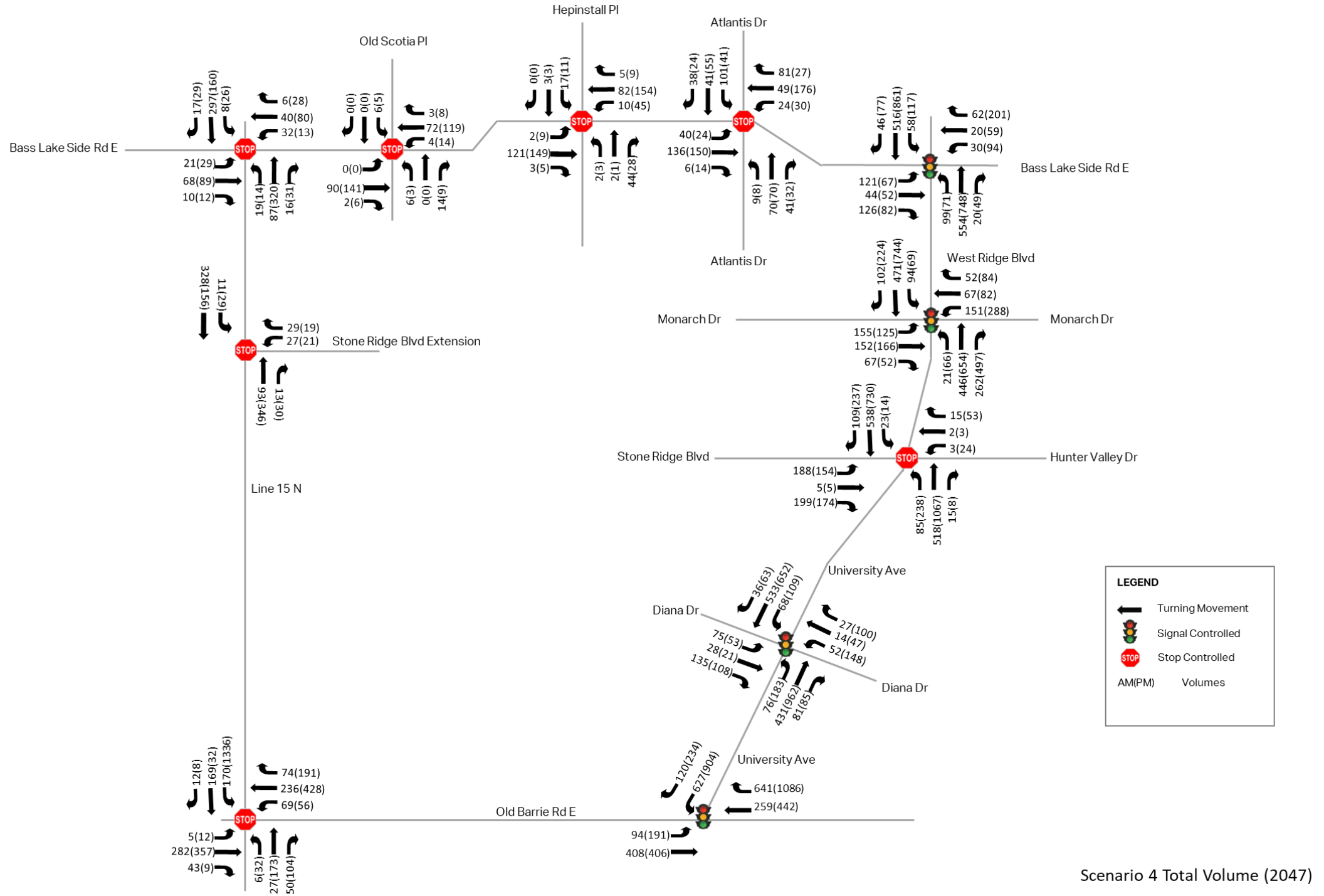
C.3 Total Volumes



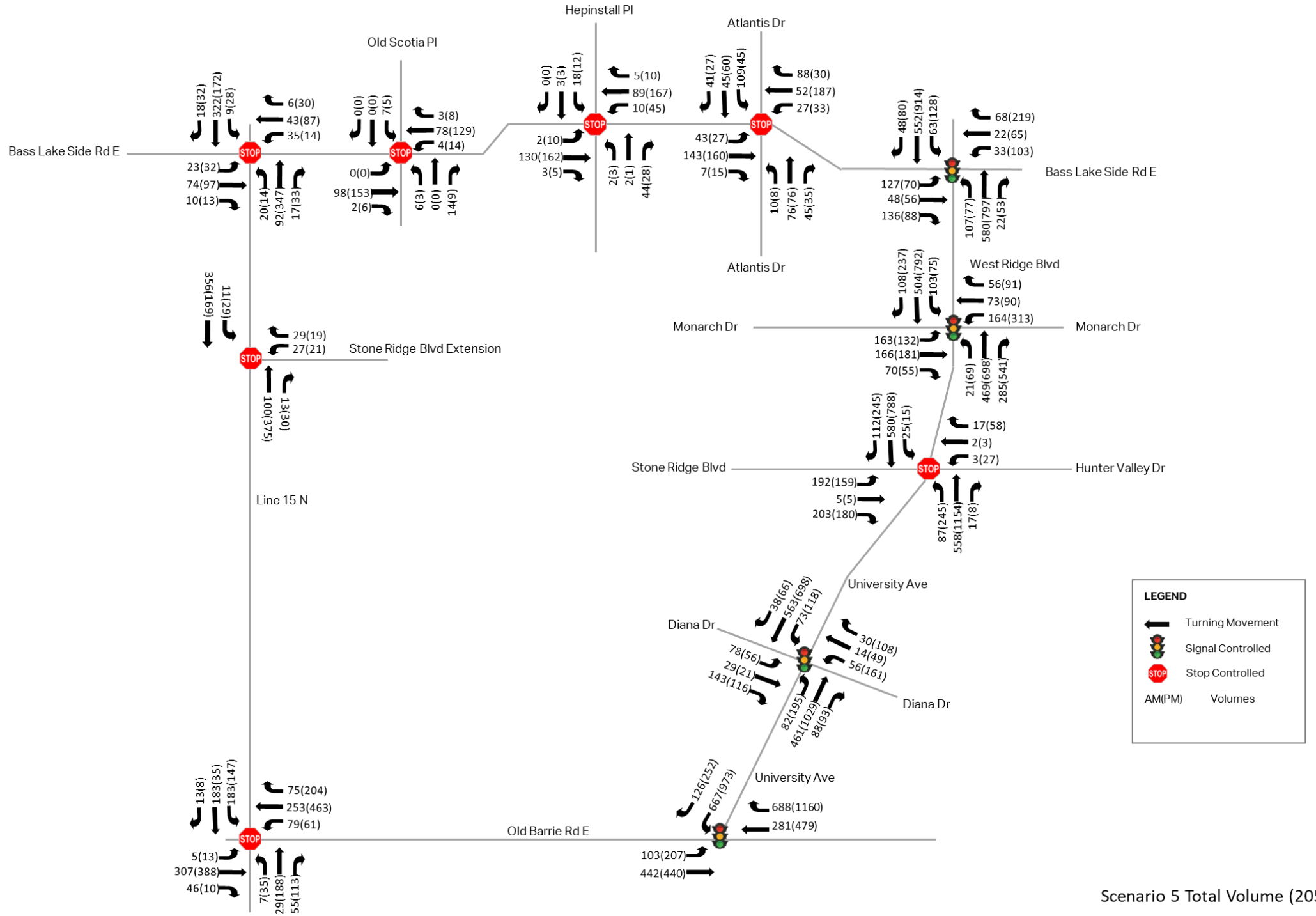
Scenario 2 Total Volume (2032)



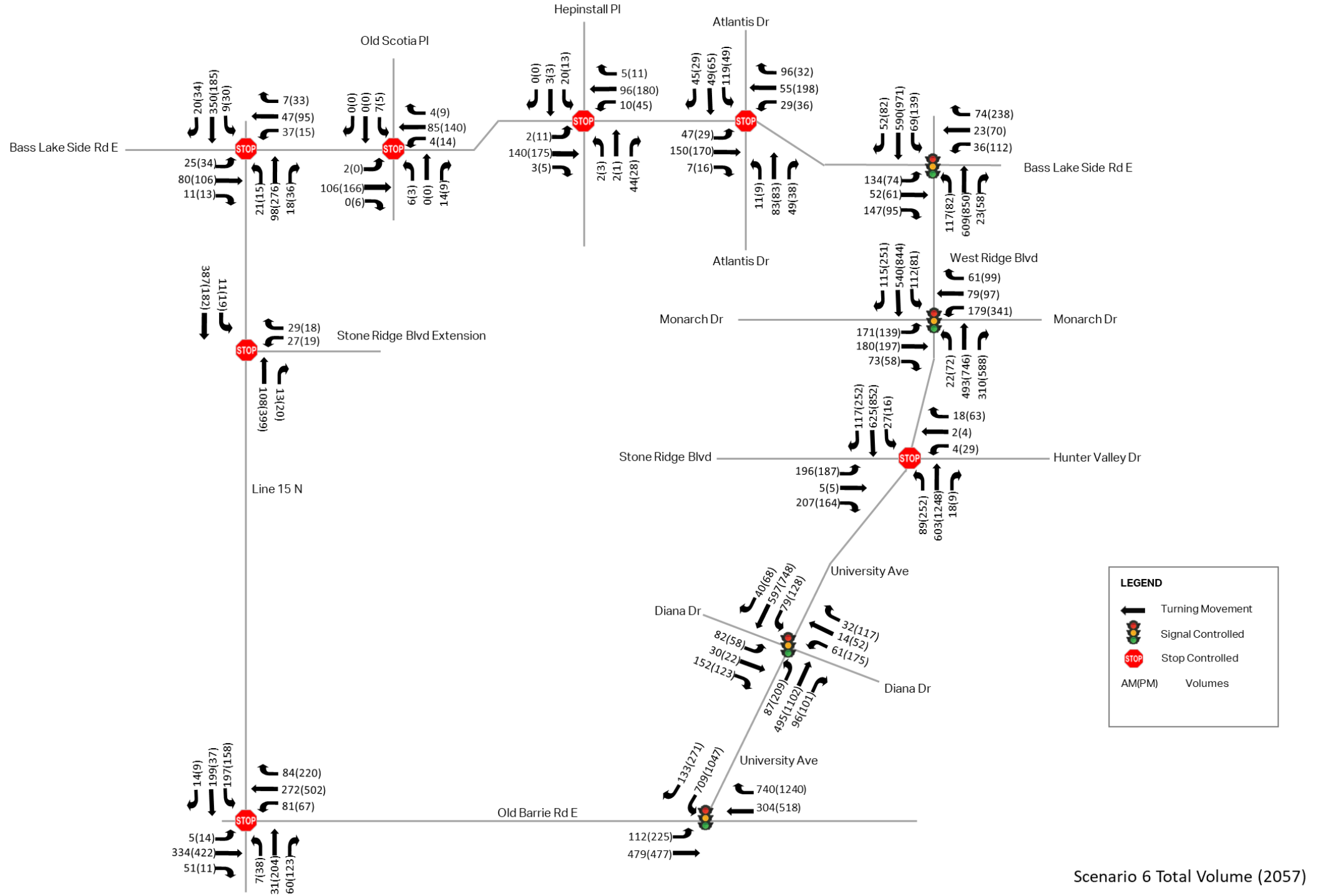
Scenario 3 Total Volume (2042)



Scenario 4 Total Volume (2047)

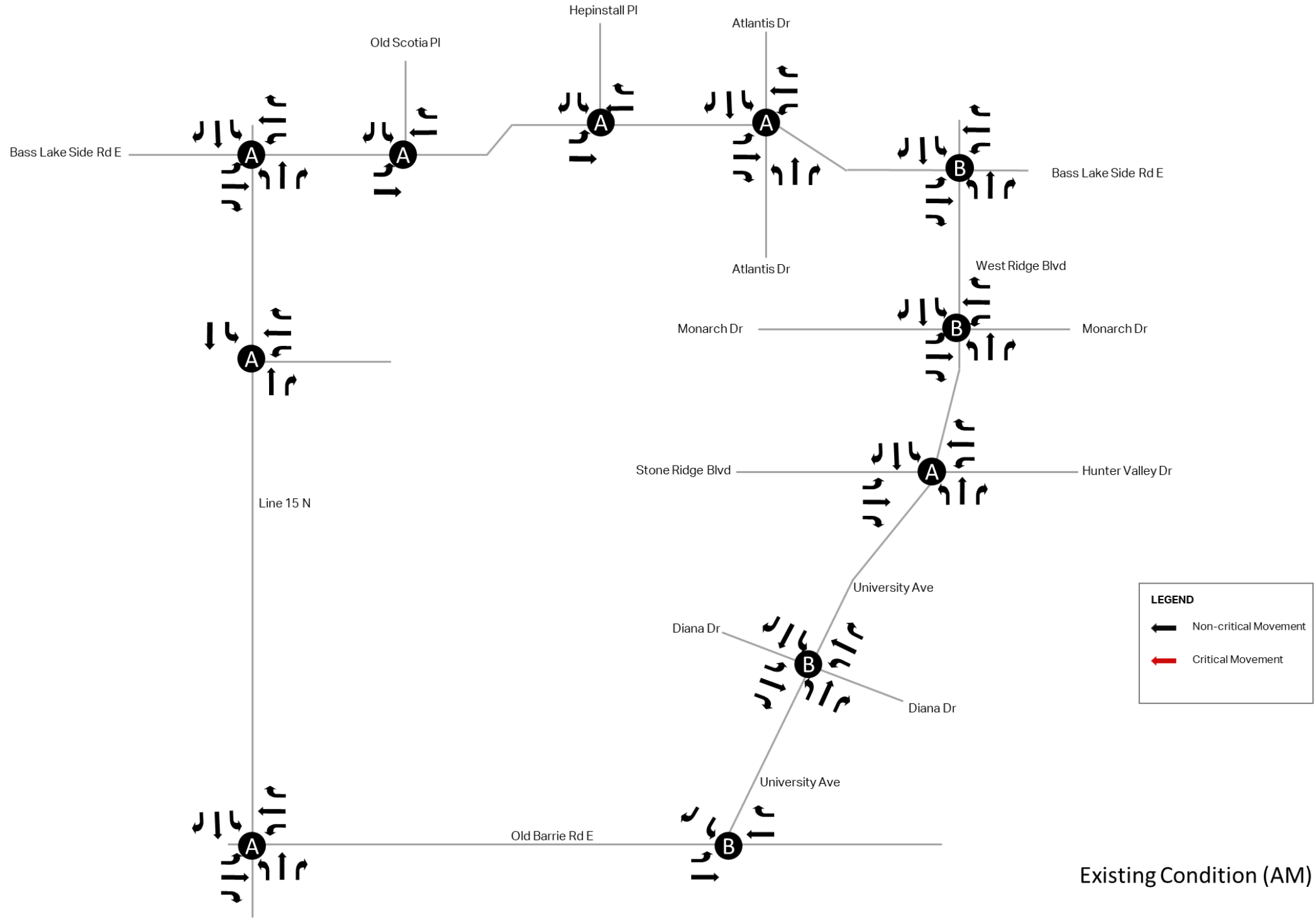


Scenario 5 Total Volume (2052)

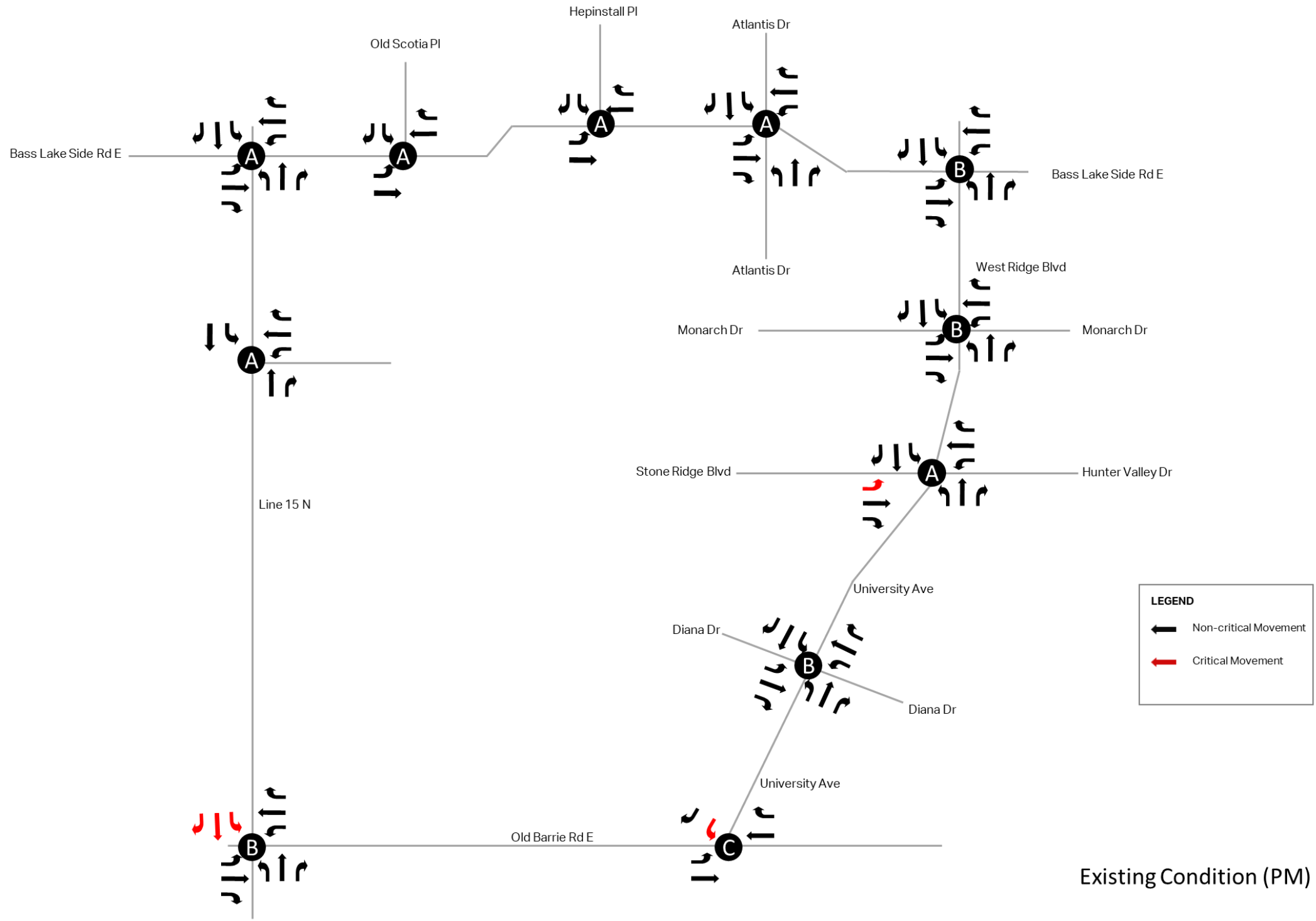


Scenario 6 Total Volume (2057)

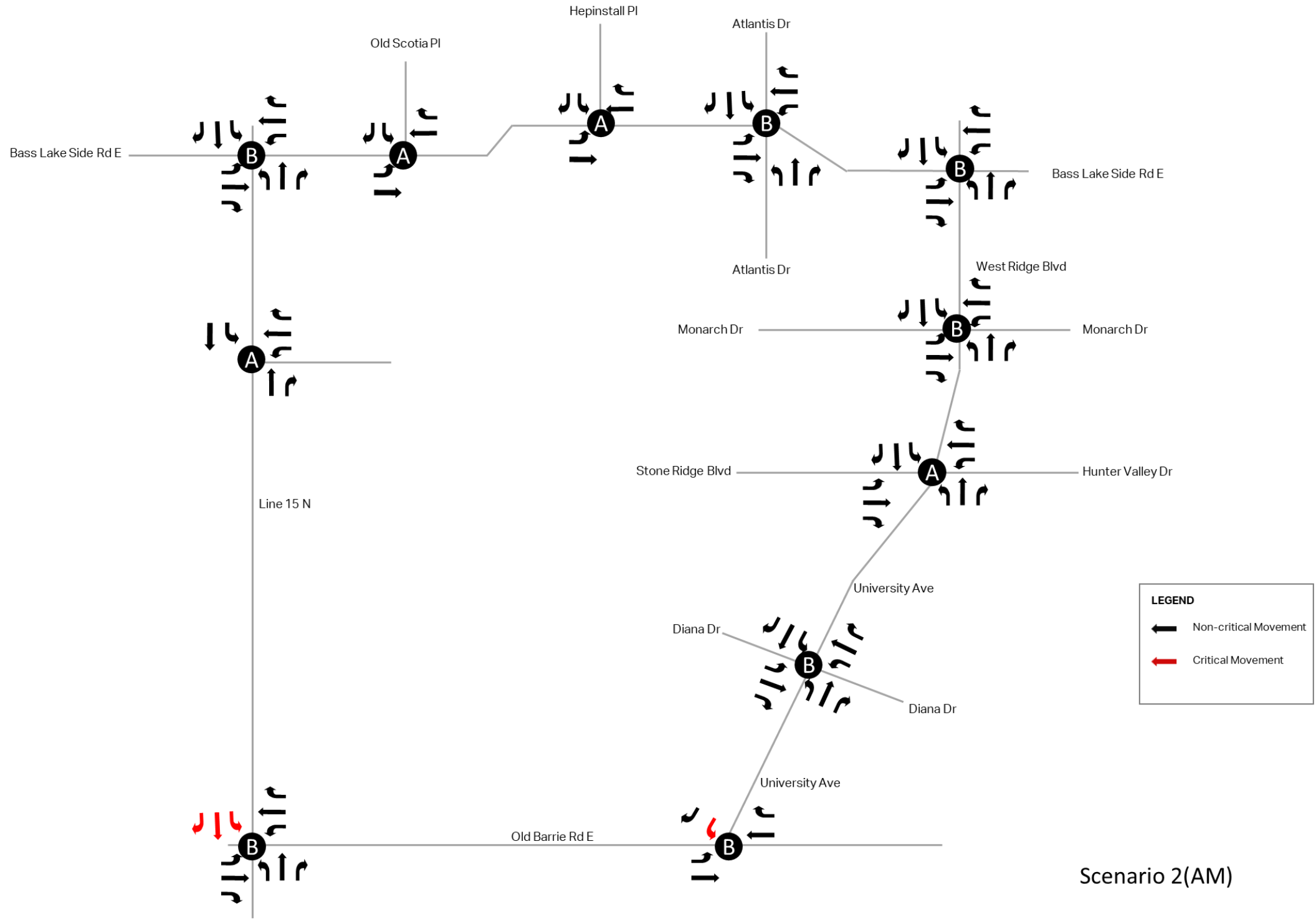
C.4 Critical intersections and Movements



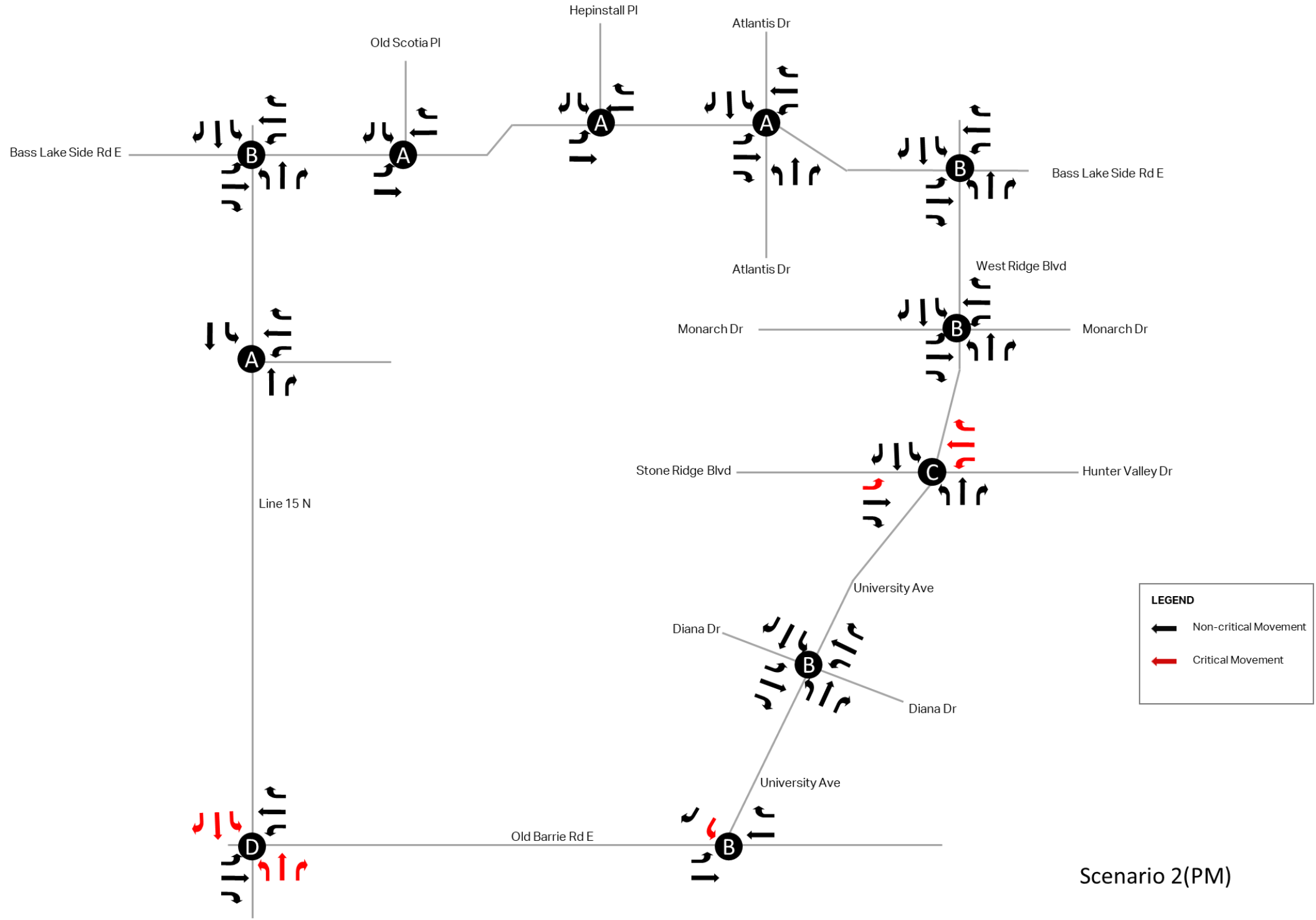
Existing Condition (AM)

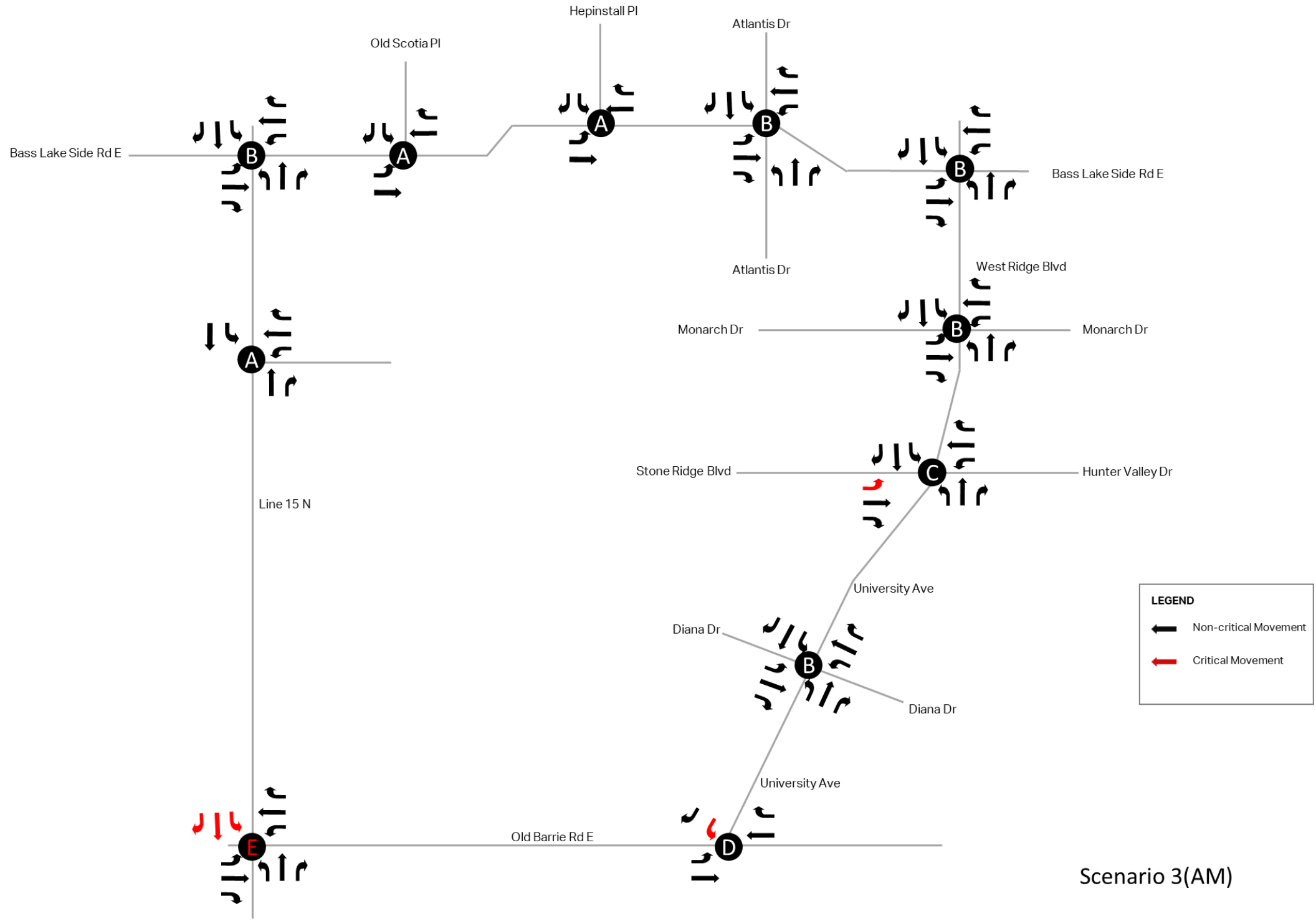


Existing Condition (PM)

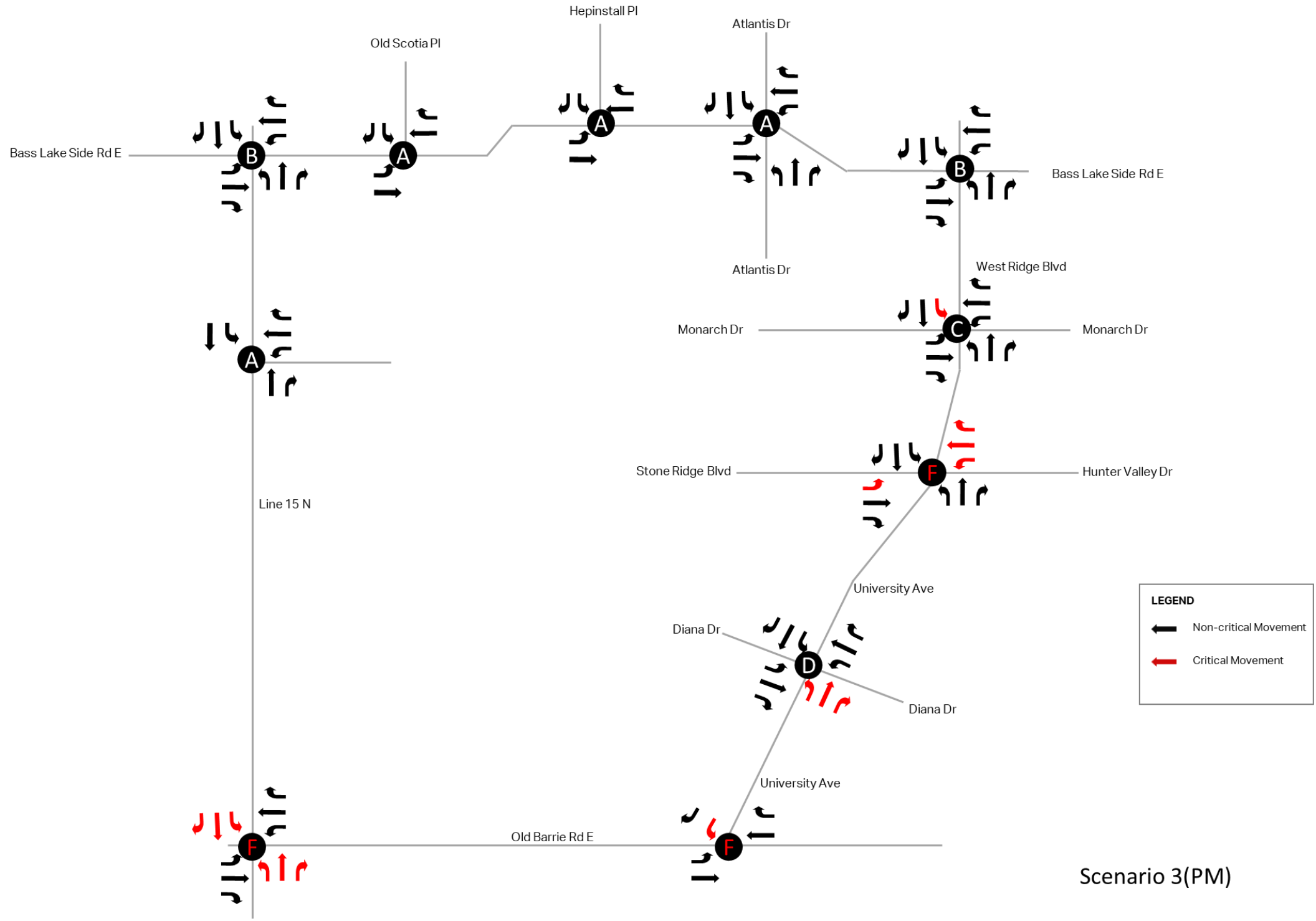


Scenario 2(AM)

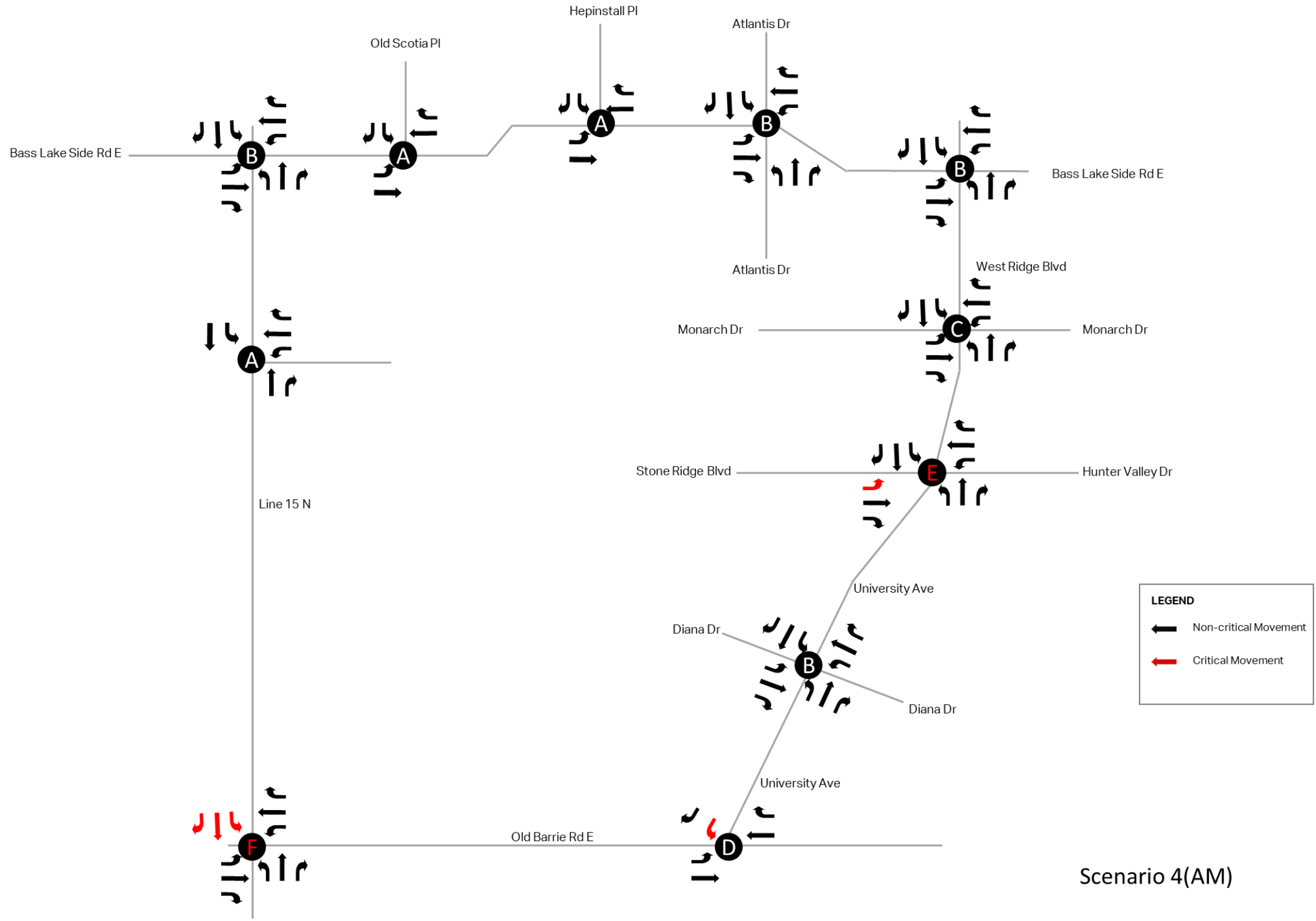

Hepinstall Pl
Old Scotia Pl
Atlantis Dr
Bass Lake Side Rd E
Atlantis Dr
Bass Lake Side Rd E
West Ridge Blvd
Monarch Dr
Monarch Dr
Stone Ridge Blvd
Hunter Valley Dr
Line 15 N
University Ave
Diana Dr
Diana Dr
University Ave
Old Barrie Rd E
LEGEND
Non-critical Movement
Critical Movement
Scenario 2(PM)



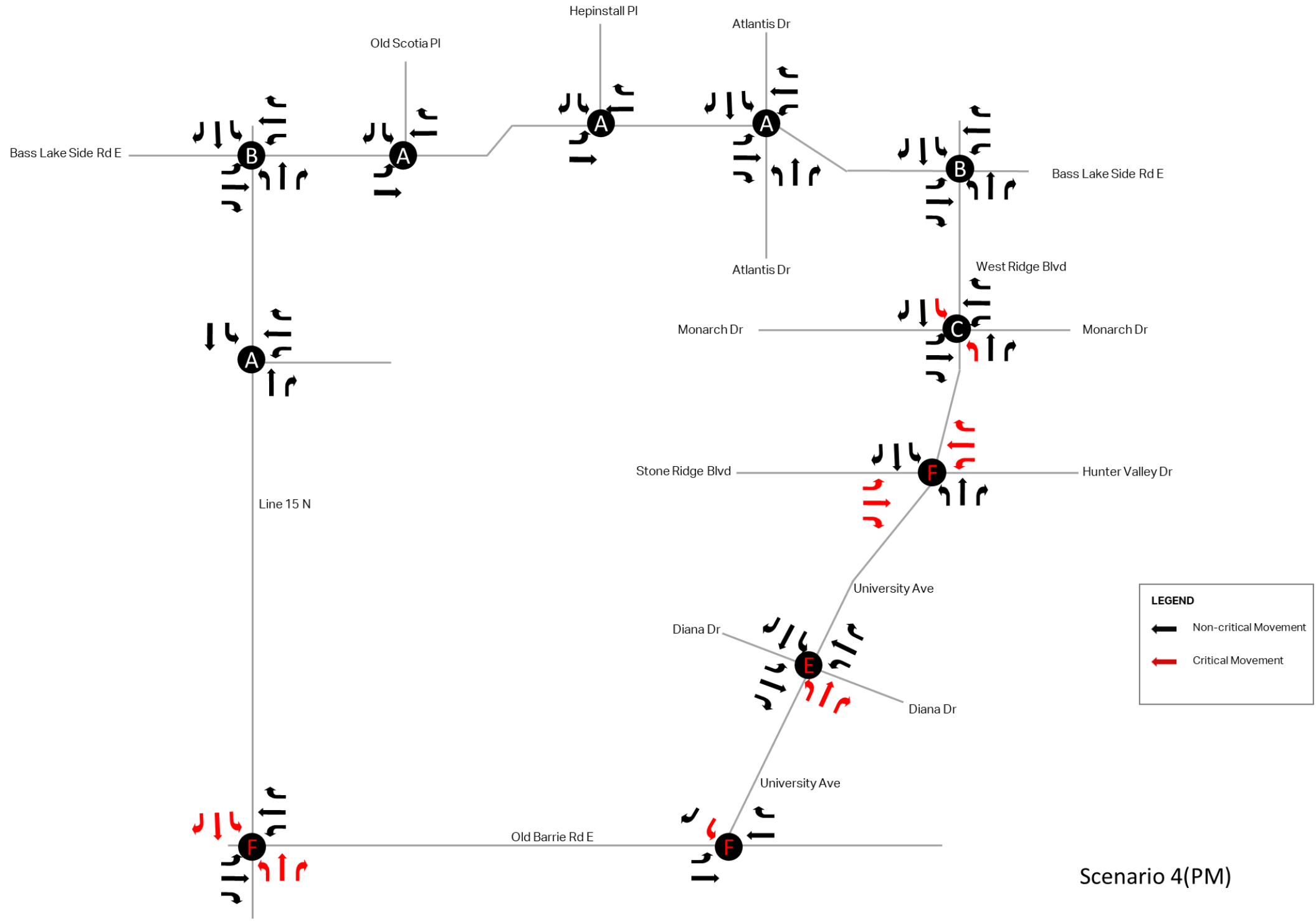
Scenario 3(AM)

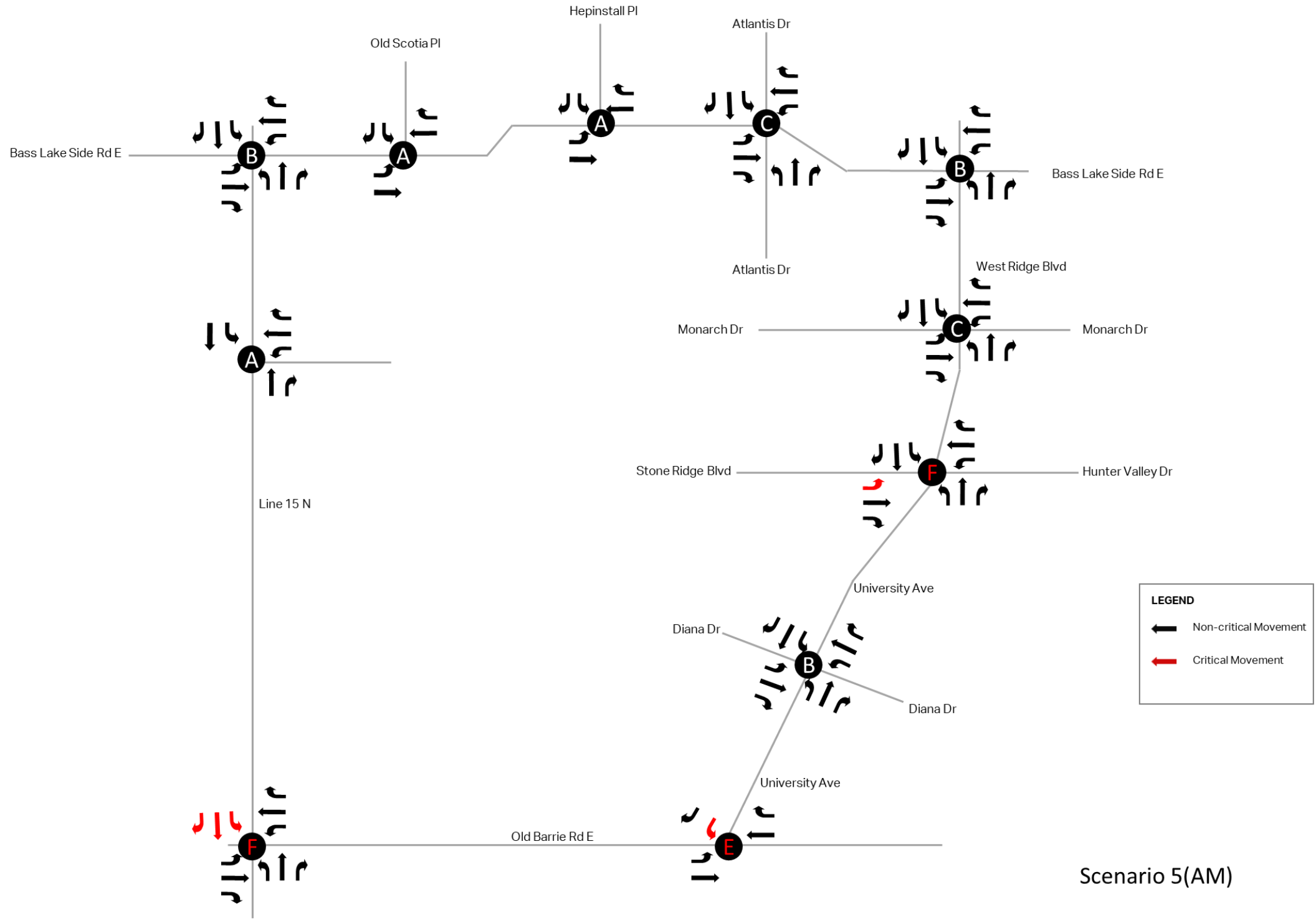


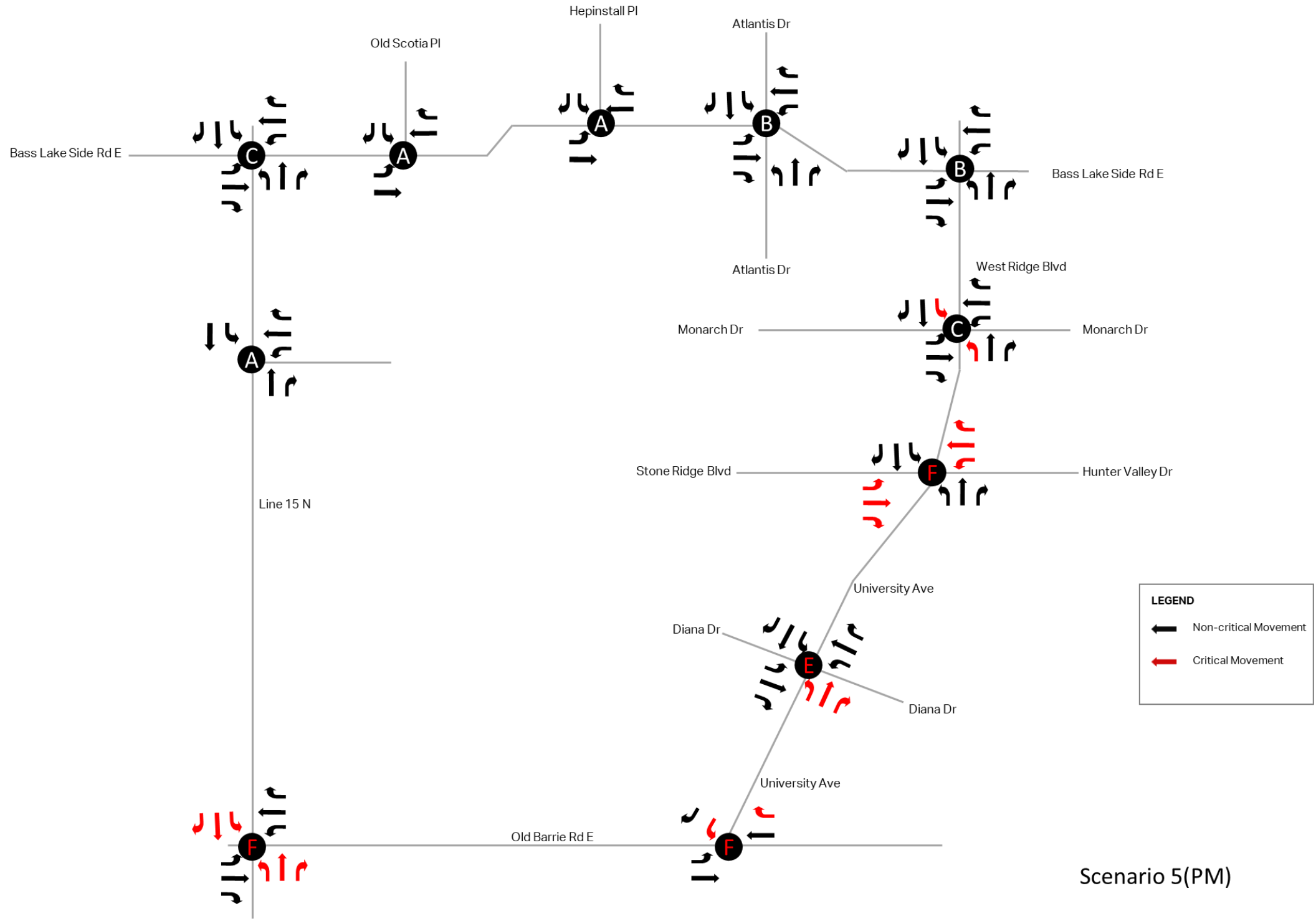
Scenario 3(PM)



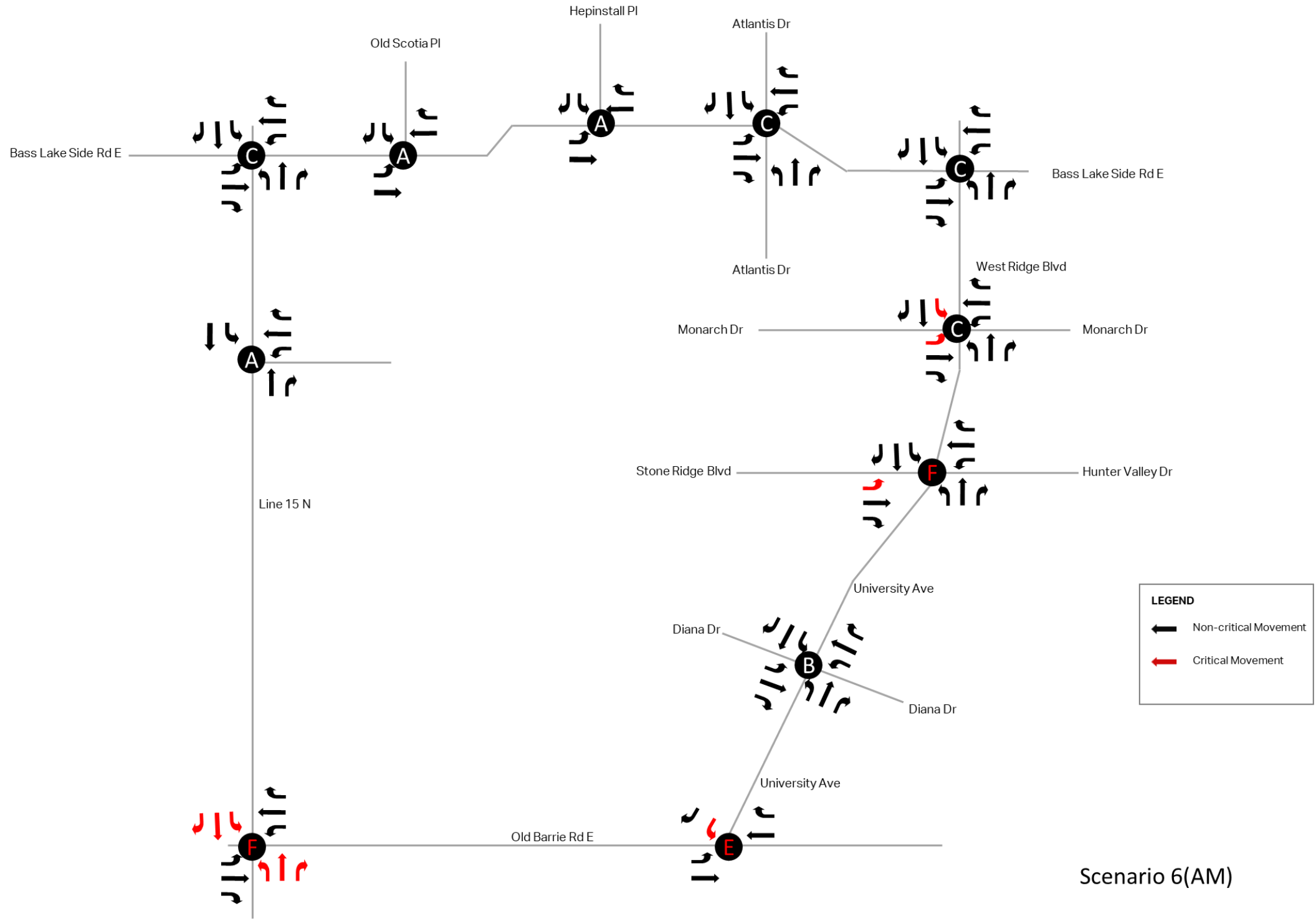
Scenario 4(AM)


Hepinstall Pl
Old Scotia Pl
Atlantis Dr
Bass Lake Side Rd E
Atlantis Dr
Bass Lake Side Rd E
West Ridge Blvd
Monarch Dr
Monarch Dr
Stone Ridge Blvd
Hunter Valley Dr
Line 15 N
University Ave
Diana Dr
Diana Dr
University Ave
Old Barrie Rd E
LEGEND
Non-critical Movement
Critical Movement
Scenario 4(PM)

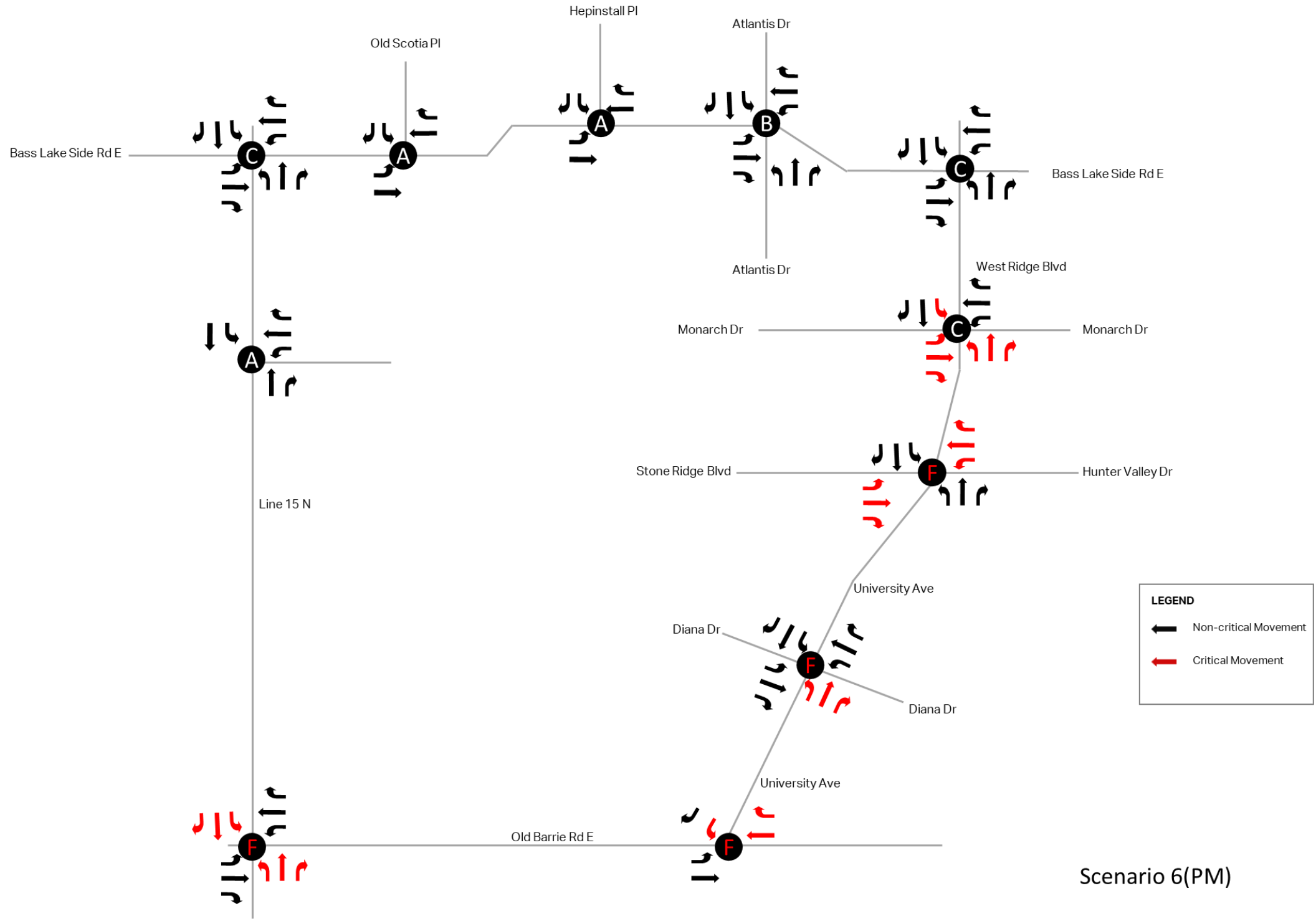

Hepinstall Pl
Atlantis Dr
Old Scotia Pl
Bass Lake Side Rd E
Bass Lake Side Rd E
Atlantis Dr
West Ridge Blvd
Monarch Dr
Monarch Dr
Stone Ridge Blvd
Hunter Valley Dr
Line 15 N
University Ave
Diana Dr
Diana Dr
University Ave
Old Barrie Rd E
LEGEND
Non-critical Movement
Critical Movement
Scenario 5(AM)



Scenario 5(PM)



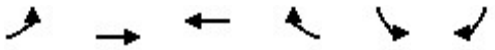
Scenario 6(AM)



Scenario 6(PM)

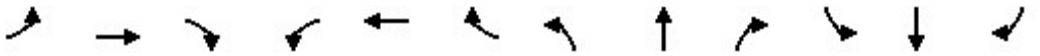
Appendix D – Synchro Analysis

Existing Conditions



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	62	252	162	356	49	294
Future Volume (vph)	62	252	162	356	49	294
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1703	1759	1667	1519	1736	1464
Flt Permitted	0.55	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	987	1759	1667	1519	1736	1464
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	70	283	182	400	55	330
RTOR Reduction (vph)	0	0	0	267	0	220
Lane Group Flow (vph)	70	283	182	133	55	110
Confl. Bikes (#/hr)				1		1
Heavy Vehicles (%)	6%	8%	14%	5%	4%	8%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	36.0	36.0	24.0	24.0	24.0	24.0
Effective Green, g (s)	36.0	36.0	24.0	24.0	24.0	24.0
Actuated g/C Ratio	0.50	0.50	0.33	0.33	0.33	0.33
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	573	879	555	506	578	488
v/s Ratio Prot	0.01	c0.16	0.11		0.03	
v/s Ratio Perm	0.05			0.09		c0.08
v/c Ratio	0.12	0.32	0.33	0.26	0.10	0.23
Uniform Delay, d1	9.5	10.7	18.0	17.5	16.5	17.3
Progression Factor	1.00	1.00	1.00	1.00	1.22	3.90
Incremental Delay, d2	0.4	1.0	1.6	1.3	0.3	1.1
Delay (s)	9.9	11.7	19.5	18.8	20.6	68.6
Level of Service	A	B	B	B	C	E
Approach Delay (s)		11.3	19.0		61.7	
Approach LOS		B	B		E	

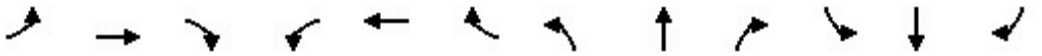
Intersection Summary			
HCM 2000 Control Delay	29.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	40.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	185	28	45	131	35	4	15	33	96	107	8
Future Volume (Veh/h)	3	185	28	45	131	35	4	15	33	96	107	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	3	203	31	49	144	38	4	16	36	105	118	9
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	182			234			554	504	218	530	501	163
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	182			234			554	504	218	530	501	163
tC, single (s)	4.1			4.2			8.1	6.6	6.4	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.3			4.4	4.1	3.5	3.5	4.0	3.4
p0 queue free %	100			96			98	96	95	75	74	99
cM capacity (veh/h)	1405			1293			249	444	776	416	455	854

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	237	231	56	232
Volume Left	3	49	4	105
Volume Right	31	38	36	9
cSH	1405	1293	569	444
Volume to Capacity	0.00	0.04	0.10	0.52
Queue Length 95th (m)	0.1	0.9	2.6	23.6
Control Delay (s)	0.1	1.9	12.0	21.6
Lane LOS	A	A	B	C
Approach Delay (s)	0.1	1.9	12.0	21.6
Approach LOS			B	C

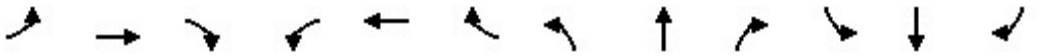
Intersection Summary				
Average Delay	8.2			
Intersection Capacity Utilization	51.2%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	6	64	34	3	16	39	230	53	37	227	14
Future Volume (vph)	25	6	64	34	3	16	39	230	53	37	227	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.91			1.00	0.85	1.00	0.97		1.00	0.99	
Flt Protected		0.99			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1640			1766	1429	1637	3304		1719	3413	
Flt Permitted		0.93			0.76	1.00	0.59	1.00		0.47	1.00	
Satd. Flow (perm)		1553			1413	1429	1016	3304		851	3413	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	7	70	37	3	17	42	250	58	40	247	15
RTOR Reduction (vph)	0	46	0	0	0	11	0	28	0	0	6	0
Lane Group Flow (vph)	0	58	0	0	40	6	42	280	0	40	256	0
Confl. Peds. (#/hr)			1	1			2					2
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	4%	0%	3%	3%	0%	13%	10%	5%	9%	5%	5%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Effective Green, g (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Actuated g/C Ratio		0.35			0.35	0.35	0.28	0.28		0.50	0.50	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Grp Cap (vph)		539			490	496	282	917		570	1706	
v/s Ratio Prot								c0.08		0.01	c0.08	
v/s Ratio Perm		c0.04			0.03	0.00	0.04			0.02		
v/c Ratio		0.11			0.08	0.01	0.15	0.31		0.07	0.15	
Uniform Delay, d1		15.9			15.8	15.4	19.6	20.5		9.3	9.7	
Progression Factor		1.00			1.00	1.00	0.82	0.84		1.00	1.00	
Incremental Delay, d2		0.4			0.3	0.0	1.0	0.8		0.2	0.2	
Delay (s)		16.3			16.1	15.4	17.2	17.9		9.6	9.9	
Level of Service		B			B	B	B	B		A	A	
Approach Delay (s)		16.3			15.9			17.8			9.9	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.19		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	62.4%	ICU Level of Service	B
Analysis Period (min)	15		

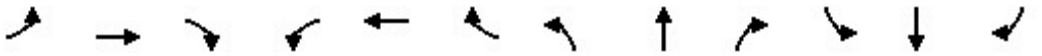
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	3	29	2	1	10	14	303	10	15	314	28
Future Volume (Veh/h)	27	3	29	2	1	10	14	303	10	15	314	28
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	29	3	31	2	1	11	15	322	11	16	334	30
Pedestrians		1									2	
Lane Width (m)		3.6									3.6	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	586	745	183	589	754	168	365			333		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	586	745	183	589	754	168	365			333		
tC, single (s)	7.6	6.5	7.0	7.5	6.5	6.9	4.4			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.4	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	92	99	96	99	100	99	99			99		
cM capacity (veh/h)	369	335	812	371	331	851	1108			1238		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	29	34	14	15	215	118	16	223	141
Volume Left	29	0	2	15	0	0	16	0	0
Volume Right	0	31	11	0	0	11	0	0	30
cSH	369	722	656	1108	1700	1700	1238	1700	1700
Volume to Capacity	0.08	0.05	0.02	0.01	0.13	0.07	0.01	0.13	0.08
Queue Length 95th (m)	2.0	1.2	0.5	0.3	0.0	0.0	0.3	0.0	0.0
Control Delay (s)	15.6	10.2	10.6	8.3	0.0	0.0	7.9	0.0	0.0
Lane LOS	C	B	B	A			A		
Approach Delay (s)	12.7		10.6	0.4			0.3		
Approach LOS	B		B						

Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	25.9%	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	100	23	99	44	34	5	168	172	62	248	46
Future Volume (vph)	56	100	23	99	44	34	5	168	172	62	248	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00	0.99		1.00	0.98		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		0.99	1.00	
Frt		0.98		1.00	0.93		1.00	0.92		1.00	0.98	
Flt Protected		0.98		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1799		1729	1698		1803	3165		1655	3387	
Flt Permitted		0.88		0.59	1.00		0.56	1.00		0.53	1.00	
Satd. Flow (perm)		1605		1067	1698		1055	3165		922	3387	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	62	110	25	109	48	37	5	185	189	68	273	51
RTOR Reduction (vph)	0	7	0	0	20	0	0	116	0	0	20	0
Lane Group Flow (vph)	0	190	0	109	65	0	5	258	0	68	304	0
Confl. Peds. (#/hr)	3		11	11		3	1		11	11		1
Confl. Bikes (#/hr)			2			1						1
Heavy Vehicles (%)	4%	1%	0%	4%	0%	9%	0%	4%	3%	8%	4%	2%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio		0.32		0.45	0.45		0.39	0.39		0.39	0.39	
Clearance Time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		513		545	769		407	1223		356	1309	
v/s Ratio Prot				c0.02	0.04			0.08			c0.09	
v/s Ratio Perm		c0.12		0.07			0.00			0.07		
v/c Ratio		0.37		0.20	0.08		0.01	0.21		0.19	0.23	
Uniform Delay, d1		19.7		12.3	11.7		14.2	15.4		15.2	15.5	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.1		0.8	0.2		0.1	0.4		1.2	0.4	
Delay (s)		21.7		13.1	11.9		14.2	15.8		16.4	15.9	
Level of Service		C		B	B		B	B		B	B	
Approach Delay (s)		21.7			12.6			15.7			16.0	
Approach LOS		C			B			B			B	

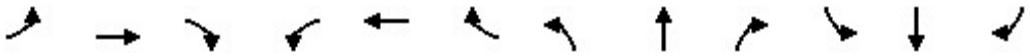
Intersection Summary			
HCM 2000 Control Delay	16.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	29	75	20	13	41	63	195	13	38	264	22
Future Volume (vph)	49	29	75	20	13	41	63	195	13	38	264	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.93			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1674			1844	1516	1716	3395		1750	3382	
Flt Permitted		0.90			0.81	1.00	0.56	1.00		0.61	1.00	
Satd. Flow (perm)		1522			1541	1516	1014	3395		1123	3382	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	54	32	82	22	14	45	69	214	14	42	290	24
RTOR Reduction (vph)	0	43	0	0	0	31	0	6	0	0	8	0
Lane Group Flow (vph)	0	125	0	0	36	14	69	222	0	42	306	0
Confl. Peds. (#/hr)							2		1	1		2
Confl. Bikes (#/hr)						3			3			1
Heavy Vehicles (%)	6%	0%	5%	0%	0%	5%	5%	5%	8%	3%	5%	9%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Effective Green, g (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Actuated g/C Ratio		0.30			0.30	0.30	0.51	0.41		0.51	0.41	
Clearance Time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Grp Cap (vph)		462			468	460	584	1375		632	1369	
v/s Ratio Prot							c0.01	0.07		0.01	c0.09	
v/s Ratio Perm		c0.08			0.02	0.01	0.05			0.03		
v/c Ratio		0.27			0.08	0.03	0.12	0.16		0.07	0.22	
Uniform Delay, d1		20.9			19.6	19.3	10.0	15.0		9.9	15.4	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.4			0.3	0.1	0.4	0.3		0.2	0.4	
Delay (s)		22.3			19.9	19.4	10.4	15.2		10.1	15.8	
Level of Service		C			B	B	B	B		B	B	
Approach Delay (s)		22.3			19.7			14.1			15.1	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	45.5%	ICU Level of Service	A
Analysis Period (min)	15		

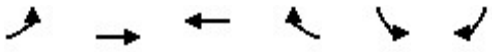
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	26	51	4	16	23	53	6	46	27	66	27	25
Future Volume (vph)	26	51	4	16	23	53	6	46	27	66	27	25
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Hourly flow rate (vph)	42	82	6	26	37	85	10	74	44	106	44	40

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	130	148	128	190
Volume Left (vph)	42	26	10	106
Volume Right (vph)	6	85	44	40
Hadj (s)	0.06	-0.23	-0.09	0.12
Departure Headway (s)	4.9	4.6	4.8	4.9
Degree Utilization, x	0.18	0.19	0.17	0.26
Capacity (veh/h)	672	716	704	692
Control Delay (s)	9.0	8.7	8.7	9.6
Approach Delay (s)	9.0	8.7	8.7	9.6
Approach LOS	A	A	A	A

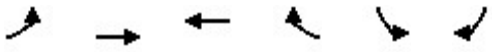
Intersection Summary				
Delay	9.1			
Level of Service	A			
Intersection Capacity Utilization	31.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	57	46	2	4	0
Future Volume (Veh/h)	0	57	46	2	4	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	62	50	2	4	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	52				113	51
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	52				113	51
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1554				884	1017

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	62	52	4
Volume Left	0	0	4
Volume Right	0	2	0
cSH	1554	1700	884
Volume to Capacity	0.00	0.03	0.00
Queue Length 95th (m)	0.0	0.0	0.1
Control Delay (s)	0.0	0.0	9.1
Lane LOS			A
Approach Delay (s)	0.0	0.0	9.1
Approach LOS			A

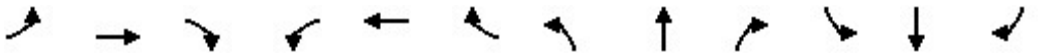
Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	70	51	3	11	0
Future Volume (Veh/h)	1	70	51	3	11	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	76	55	3	12	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	58				134	56
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	58				134	56
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1546				859	1010

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	77	58	12
Volume Left	1	0	12
Volume Right	0	3	0
cSH	1546	1700	859
Volume to Capacity	0.00	0.03	0.01
Queue Length 95th (m)	0.0	0.0	0.3
Control Delay (s)	0.1	0.0	9.3
Lane LOS	A		A
Approach Delay (s)	0.1	0.0	9.3
Approach LOS			A

Intersection Summary			
Average Delay		0.8	
Intersection Capacity Utilization		14.5%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	44	5	19	25	2	7	37	9	4	189	11
Future Volume (Veh/h)	14	44	5	19	25	2	7	37	9	4	189	11
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	16	51	6	22	29	2	8	43	10	5	217	13
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	31			57			282	161	54	192	163	30
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	31			57			282	161	54	192	163	30
tC, single (s)	4.2			4.1			7.1	6.6	6.2	7.3	6.5	6.4
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.1	3.3	3.7	4.0	3.5
p0 queue free %	99			99			98	94	99	99	70	99
cM capacity (veh/h)	1550			1560			501	703	1019	668	715	1000

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	73	53	61	235
Volume Left	16	22	8	5
Volume Right	6	2	10	13
cSH	1550	1560	701	726
Volume to Capacity	0.01	0.01	0.09	0.32
Queue Length 95th (m)	0.3	0.3	2.3	11.2
Control Delay (s)	1.7	3.1	10.6	12.3
Lane LOS	A	A	B	B
Approach Delay (s)	1.7	3.1	10.6	12.3
Approach LOS			B	B

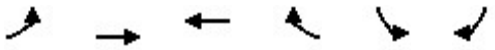
Intersection Summary				
Average Delay	9.1			
Intersection Capacity Utilization	22.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	53	0	0	213
Future Volume (Veh/h)	0	0	53	0	0	213
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	58	0	0	232
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	290	58			58	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	290	58			58	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	701	1008			1546	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	58	232
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1546
Volume to Capacity	0.00	0.03	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

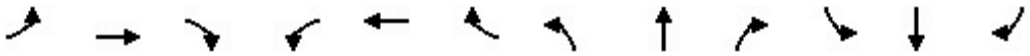
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	14.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	125	254	273	551	513	133
Future Volume (vph)	125	254	273	551	513	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1702	1759	1667	1518	1736	1459
Flt Permitted	0.43	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	766	1759	1667	1518	1736	1459
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	134	273	294	592	552	143
RTOR Reduction (vph)	0	0	0	395	0	95
Lane Group Flow (vph)	134	273	294	197	552	48
Confl. Peds. (#/hr)	1			1		
Confl. Bikes (#/hr)						4
Heavy Vehicles (%)	6%	8%	14%	5%	4%	8%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	36.0	36.0	24.0	24.0	24.0	24.0
Effective Green, g (s)	36.0	36.0	24.0	24.0	24.0	24.0
Actuated g/C Ratio	0.50	0.50	0.33	0.33	0.33	0.33
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	487	879	555	506	578	486
v/s Ratio Prot	0.03	c0.16	c0.18		c0.32	
v/s Ratio Perm	0.11			0.13		0.03
v/c Ratio	0.28	0.31	0.53	0.39	0.96	0.10
Uniform Delay, d1	10.2	10.7	19.4	18.4	23.5	16.5
Progression Factor	1.00	1.00	1.00	1.00	1.15	2.27
Incremental Delay, d2	1.4	0.9	3.6	2.3	27.7	0.4
Delay (s)	11.6	11.6	23.0	20.6	54.8	38.0
Level of Service	B	B	C	C	D	D
Approach Delay (s)		11.6	21.4		51.3	
Approach LOS		B	C		D	

Intersection Summary			
HCM 2000 Control Delay	29.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		

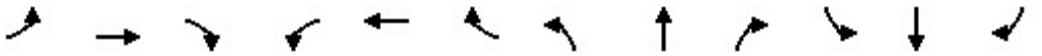
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	234	6	37	265	104	21	109	68	77	18	5
Future Volume (Veh/h)	8	234	6	37	265	104	21	109	68	77	18	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	9	257	7	41	291	114	23	120	75	85	20	5
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	405			264			724	766	260	844	712	348
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	405			264			724	766	260	844	712	348
tC, single (s)	4.1			4.2			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			97			93	62	90	51	94	99
cM capacity (veh/h)	1165			1250			316	320	776	175	346	700

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	273	446	218	110
Volume Left	9	41	23	85
Volume Right	7	114	75	5
cSH	1165	1250	400	199
Volume to Capacity	0.01	0.03	0.54	0.55
Queue Length 95th (m)	0.2	0.8	25.2	23.4
Control Delay (s)	0.3	1.0	24.2	43.3
Lane LOS	A	A	C	E
Approach Delay (s)	0.3	1.0	24.2	43.3
Approach LOS			C	E

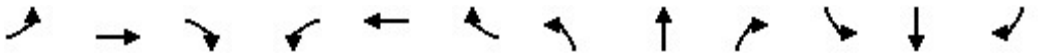
Intersection Summary				
Average Delay	10.1			
Intersection Capacity Utilization	63.8%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	5	54	97	17	58	93	497	56	67	345	18
Future Volume (vph)	18	5	54	97	17	58	93	497	56	67	345	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	0.99	1.00		1.00	1.00	
Frt		0.91			1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected		0.99			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1659			1807	1555	1794	3458		1804	3477	
Flt Permitted		0.93			0.72	1.00	0.52	1.00		0.26	1.00	
Satd. Flow (perm)		1562			1348	1555	980	3458		501	3477	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	5	59	105	18	63	101	540	61	73	375	20
RTOR Reduction (vph)	0	39	0	0	0	41	0	12	0	0	6	0
Lane Group Flow (vph)	0	45	0	0	123	22	101	589	0	73	390	0
Confl. Peds. (#/hr)	5					5	6		4	4		6
Confl. Bikes (#/hr)			2			3			2			4
Heavy Vehicles (%)	0%	0%	2%	1%	0%	2%	0%	2%	7%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Effective Green, g (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Actuated g/C Ratio		0.35			0.35	0.35	0.28	0.28		0.50	0.50	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Grp Cap (vph)		542			468	539	272	960		467	1738	
v/s Ratio Prot								c0.17		0.03	c0.11	
v/s Ratio Perm		0.03			c0.09	0.01	0.10			0.05		
v/c Ratio		0.08			0.26	0.04	0.37	0.61		0.16	0.22	
Uniform Delay, d1		15.8			16.9	15.6	20.9	22.6		10.0	10.1	
Progression Factor		1.00			1.00	1.00	0.83	0.86		1.00	1.00	
Incremental Delay, d2		0.3			1.4	0.1	3.2	2.4		0.7	0.3	
Delay (s)		16.1			18.2	15.7	20.6	21.7		10.7	10.4	
Level of Service		B			B	B	C	C		B	B	
Approach Delay (s)		16.1			17.4			21.6			10.5	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

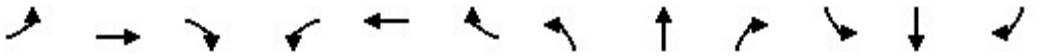
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	3	46	16	2	35	50	647	5	9	436	54
Future Volume (Veh/h)	33	3	46	16	2	35	50	647	5	9	436	54
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	37	3	52	18	2	39	56	727	6	10	490	61
Pedestrians		3						4			8	
Lane Width (m)		3.6						3.6			3.6	
Walking Speed (m/s)		1.2						1.2			1.2	
Percent Blockage		0						0			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1067	1388	282	1164	1416	374	554			733		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1067	1388	282	1164	1416	374	554			733		
tC, single (s)	7.5	6.5	7.0	7.9	6.5	7.0	4.2			4.8		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.0	3.3	2.2			2.5		
p0 queue free %	76	98	93	84	98	94	94			99		
cM capacity (veh/h)	155	134	704	112	129	616	996			691		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	37	55	59	56	485	248	10	327	224
Volume Left	37	0	18	56	0	0	10	0	0
Volume Right	0	52	39	0	0	6	0	0	61
cSH	155	571	246	996	1700	1700	691	1700	1700
Volume to Capacity	0.24	0.10	0.24	0.06	0.29	0.15	0.01	0.19	0.13
Queue Length 95th (m)	7.1	2.5	7.3	1.4	0.0	0.0	0.4	0.0	0.0
Control Delay (s)	35.3	12.0	24.2	8.8	0.0	0.0	10.3	0.0	0.0
Lane LOS	E	B	C	A			B		
Approach Delay (s)	21.4		24.2	0.6			0.2		
Approach LOS	C		C						

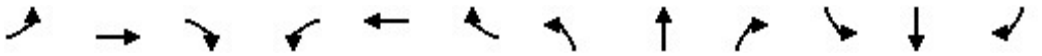
Intersection Summary				
Average Delay	2.7			
Intersection Capacity Utilization	42.4%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	109	20	189	54	55	23	328	326	45	358	97
Future Volume (vph)	50	109	20	189	54	55	23	328	326	45	358	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00	0.99		1.00	0.98		1.00	0.99	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		0.99	1.00	
Frt		0.98		1.00	0.92		1.00	0.93		1.00	0.97	
Flt Protected		0.99		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1818		1781	1722		1804	3230		1796	3408	
Flt Permitted		0.88		0.57	1.00		0.43	1.00		0.28	1.00	
Satd. Flow (perm)		1624		1077	1722		809	3230		536	3408	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	57	124	23	215	61	62	26	373	370	51	407	110
RTOR Reduction (vph)	0	6	0	0	34	0	0	227	0	0	33	0
Lane Group Flow (vph)	0	198	0	215	90	0	26	516	0	51	484	0
Confl. Peds. (#/hr)	3		11	11		3	1		11	11		1
Confl. Bikes (#/hr)			2			7			1			4
Heavy Vehicles (%)	0%	1%	5%	1%	0%	2%	0%	2%	1%	0%	2%	2%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio		0.32		0.45	0.45		0.39	0.39		0.39	0.39	
Clearance Time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		519		553	780		312	1248		207	1317	
v/s Ratio Prot				c0.04	0.05			c0.16			0.14	
v/s Ratio Perm		0.12		c0.14			0.03			0.10		
v/c Ratio		0.38		0.39	0.11		0.08	0.41		0.25	0.37	
Uniform Delay, d1		19.7		13.1	11.8		14.6	16.8		15.6	16.4	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.1		2.1	0.3		0.5	1.0		2.8	0.8	
Delay (s)		21.9		15.2	12.1		15.1	17.8		18.4	17.2	
Level of Service		C		B	B		B	B		B	B	
Approach Delay (s)		21.9			14.1			17.7			17.3	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	77.7%	ICU Level of Service	D
Analysis Period (min)	15		

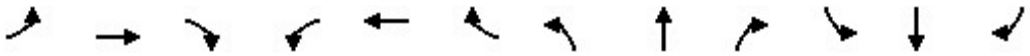
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	34	49	62	39	132	39	365	32	77	390	19
Future Volume (vph)	25	34	49	62	39	132	39	365	32	77	390	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.94			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1752			1841	1576	1800	3494		1784	3480	
Flt Permitted		0.92			0.77	1.00	0.49	1.00		0.50	1.00	
Satd. Flow (perm)		1630			1457	1576	921	3494		931	3480	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	27	36	52	66	41	140	41	388	34	82	415	20
RTOR Reduction (vph)	0	36	0	0	0	97	0	8	0	0	4	0
Lane Group Flow (vph)	0	79	0	0	107	43	41	414	0	82	431	0
Confl. Peds. (#/hr)	1		2	2		1	4		3	3		4
Confl. Bikes (#/hr)						2						1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	2%	0%	1%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Effective Green, g (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Actuated g/C Ratio		0.30			0.30	0.30	0.51	0.41		0.51	0.41	
Clearance Time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Grp Cap (vph)		495			442	478	555	1415		557	1409	
v/s Ratio Prot							0.01	0.12		c0.01	c0.12	
v/s Ratio Perm		0.05			c0.07	0.03	0.03			0.06		
v/c Ratio		0.16			0.24	0.09	0.07	0.29		0.15	0.31	
Uniform Delay, d1		20.1			20.7	19.7	9.9	15.9		10.1	16.0	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.7			1.3	0.4	0.3	0.5		0.6	0.6	
Delay (s)		20.8			22.0	20.0	10.1	16.4		10.7	16.5	
Level of Service		C			C	C	B	B		B	B	
Approach Delay (s)		20.8			20.9			15.8			15.6	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		

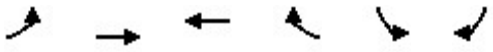
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	16	74	9	20	77	18	5	46	21	27	36	16
Future Volume (vph)	16	74	9	20	77	18	5	46	21	27	36	16
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	18	81	10	22	85	20	5	51	23	30	40	18

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	109	127	79	88
Volume Left (vph)	18	22	5	30
Volume Right (vph)	10	20	23	18
Hadj (s)	-0.02	-0.06	-0.12	-0.01
Departure Headway (s)	4.4	4.4	4.4	4.5
Degree Utilization, x	0.13	0.15	0.10	0.11
Capacity (veh/h)	779	782	762	743
Control Delay (s)	8.1	8.1	7.9	8.1
Approach Delay (s)	8.1	8.1	7.9	8.1
Approach LOS	A	A	A	A

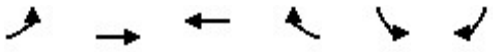
Intersection Summary				
Delay	8.1			
Level of Service	A			
Intersection Capacity Utilization	26.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	89	76	5	3	0
Future Volume (Veh/h)	0	89	76	5	3	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	98	84	5	3	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	89				184	86
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	89				184	86
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1506				805	972

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	98	89	3
Volume Left	0	0	3
Volume Right	0	5	0
cSH	1506	1700	805
Volume to Capacity	0.00	0.05	0.00
Queue Length 95th (m)	0.0	0.0	0.1
Control Delay (s)	0.0	0.0	9.5
Lane LOS			A
Approach Delay (s)	0.0	0.0	9.5
Approach LOS			A

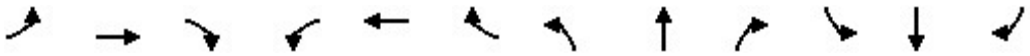
Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	14.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	92	92	6	7	0
Future Volume (Veh/h)	6	92	92	6	7	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	7	101	101	7	8	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	108				220	104
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	108				220	104
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1483				765	950

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	108	108	8
Volume Left	7	0	8
Volume Right	0	7	0
cSH	1483	1700	765
Volume to Capacity	0.00	0.06	0.01
Queue Length 95th (m)	0.1	0.0	0.3
Control Delay (s)	0.5	0.0	9.8
Lane LOS	A		A
Approach Delay (s)	0.5	0.0	9.8
Approach LOS			A

Intersection Summary			
Average Delay		0.6	
Intersection Capacity Utilization		19.8%	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 (veh/h)	19	58	4	7	52	17	5	199	17	14	90	19
Future Volume (Veh/h)	19	58	4	7	52	17	5	199	17	14	90	19
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	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	21	63	4	8	57	18	5	216	18	15	98	21
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	75			67			259	198	65	315	191	66
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	75			67			259	198	65	315	191	66
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.2	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.0	3.3
p0 queue free %	99			99			99	69	98	97	86	98
cM capacity (veh/h)	1537			1547			601	686	1005	460	692	989

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	88	83	239	134
Volume Left	21	8	5	15
Volume Right	4	18	18	21
cSH	1537	1547	701	686
Volume to Capacity	0.01	0.01	0.34	0.20
Queue Length 95th (m)	0.3	0.1	12.1	5.8
Control Delay (s)	1.8	0.7	12.8	11.5
Lane LOS	A	A	B	B
Approach Delay (s)	1.8	0.7	12.8	11.5
Approach LOS			B	B

Intersection Summary				
Average Delay	8.9			
Intersection Capacity Utilization	28.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	221	0	0	101
Future Volume (Veh/h)	0	0	221	0	0	101
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	0	243	0	0	111
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	354	243			243	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	354	243			243	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	644	796			1323	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	243	111
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1323
Volume to Capacity	0.00	0.14	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	15.0%	ICU Level of Service	A
Analysis Period (min)	15		

Summary of All Intervals

Run Number	1	2	3	Avg
Start Time	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	3712	3505	3527	3584
Vehs Exited	3730	3486	3505	3574
Starting Vehs	204	165	169	176
Ending Vehs	186	184	191	188
Travel Distance (km)	6970	6731	6533	6745
Travel Time (hr)	187.0	173.9	168.8	176.6
Total Delay (hr)	44.7	36.4	35.0	38.7
Total Stops	5520	5035	4856	5139
Fuel Used (l)	550.4	524.5	508.5	527.8

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	Avg
Vehs Entered	3712	3505	3527	3584
Vehs Exited	3730	3486	3505	3574
Starting Vehs	204	165	169	176
Ending Vehs	186	184	191	188
Travel Distance (km)	6970	6731	6533	6745
Travel Time (hr)	187.0	173.9	168.8	176.6
Total Delay (hr)	44.7	36.4	35.0	38.7
Total Stops	5520	5035	4856	5139
Fuel Used (l)	550.4	524.5	508.5	527.8

Intersection: 3: Old Barrie Rd E & University Ave

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (m)	32.8	47.0	74.4	67.8	179.6	54.7
Average Queue (m)	14.1	21.7	34.3	35.2	91.8	11.3
95th Queue (m)	26.2	39.1	62.0	59.3	161.6	30.9
Link Distance (m)		579.8	318.4		1089.4	1089.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	106.0			64.0		
Storage Blk Time (%)			1	1		
Queuing Penalty (veh)			3	2		

Intersection: 5: Old Barrie Rd E & Line 15 N

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	6.1	23.9	44.0	26.4
Average Queue (m)	0.8	2.8	17.7	13.4
95th Queue (m)	5.0	13.3	31.3	23.2
Link Distance (m)	288.0	579.8	1006.6	1844.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: University Ave & Diana Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	18.2	31.6	20.3	38.3	47.5	54.0	20.5	33.2	33.7
Average Queue (m)	8.2	13.4	6.7	14.1	26.7	33.0	9.2	11.8	15.8
95th Queue (m)	16.9	25.1	15.4	28.4	40.4	48.5	18.0	24.8	28.1
Link Distance (m)	144.4	117.8	117.8		1089.4	1089.4		535.9	535.9
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				36.0			58.0		
Storage Blk Time (%)				0	1				
Queuing Penalty (veh)				1	1				

Intersection: 12: University Ave & Stone Ridge Blvd/Hunter Valley Rd

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	15.6	19.1	20.5	21.3	15.9	12.7	12.7	10.9	11.5
Average Queue (m)	7.9	8.0	9.6	5.4	1.2	1.1	1.4	0.7	0.9
95th Queue (m)	15.2	15.3	18.2	15.4	7.8	8.0	8.2	5.0	5.5
Link Distance (m)	278.2	278.2	176.5		535.9	535.9		944.3	944.3
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				42.5			90.0		
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 16: University Ave & Monarch Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	57.5	49.4	27.6	21.2	56.6	76.6	31.8	45.4	44.1
Average Queue (m)	21.7	22.1	10.1	4.9	22.5	42.6	9.3	22.5	23.8
95th Queue (m)	42.2	41.5	20.4	13.9	41.5	68.1	20.6	42.2	42.8
Link Distance (m)	173.4	268.3	268.3		944.3	944.3		141.5	141.5
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				47.0			38.0		
Storage Blk Time (%)					0			1	
Queuing Penalty (veh)					0			1	

Intersection: 19: University Ave & Bass Lake Side Rd E

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	33.6	35.9	19.8	14.9	38.2	43.3	22.6	53.3	41.8
Average Queue (m)	13.3	12.7	9.7	5.8	16.1	20.0	10.1	25.1	17.3
95th Queue (m)	25.5	26.3	17.5	14.0	31.1	36.5	19.1	44.0	33.5
Link Distance (m)	514.5	80.4	80.4		141.5	141.5		174.0	174.0
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				39.0			42.0		
Storage Blk Time (%)					0			1	
Queuing Penalty (veh)					0			1	

Intersection: 23: Bass Lake Side Rd E & Atlantis Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	20.9	18.3	17.6	16.1
Average Queue (m)	10.9	11.1	8.5	8.8
95th Queue (m)	18.6	17.2	14.8	14.0
Link Distance (m)	314.0	514.5	221.1	203.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: Bass Lake Side Rd E & Old Scotia Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	8.8
Average Queue (m)	0.8
95th Queue (m)	4.9
Link Distance (m)	239.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: Bass Lake Side Rd E & Hepinstall Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	9.2
Average Queue (m)	1.6
95th Queue (m)	7.3
Link Distance (m)	176.0
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 32: Line 15 N & Bass Lake Side Rd E

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	8.5	5.6	36.5	20.3
Average Queue (m)	0.6	0.3	17.6	10.7
95th Queue (m)	4.2	2.9	27.0	16.3
Link Distance (m)	278.4	157.8	607.9	420.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 35: Line 15 N & Stone Ridge Blvd extension

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 8

Summary of All Intervals

Run Number	1	2	3	Avg
Start Time	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	2297	2286	2368	2316
Vehs Exited	2297	2301	2388	2329
Starting Vehs	115	118	119	109
Ending Vehs	115	103	99	101
Travel Distance (km)	4327	4340	4421	4363
Travel Time (hr)	105.2	106.2	109.2	106.9
Total Delay (hr)	17.8	17.9	19.1	18.2
Total Stops	3154	3157	3244	3179
Fuel Used (l)	333.6	337.2	342.0	337.6

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	Avg
Vehs Entered	2297	2286	2368	2316
Vehs Exited	2297	2301	2388	2329
Starting Vehs	115	118	119	109
Ending Vehs	115	103	99	101
Travel Distance (km)	4327	4340	4421	4363
Travel Time (hr)	105.2	106.2	109.2	106.9
Total Delay (hr)	17.8	17.9	19.1	18.2
Total Stops	3154	3157	3244	3179
Fuel Used (l)	333.6	337.2	342.0	337.6

Intersection: 3: Old Barrie Rd E & University Ave

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (m)	20.2	56.1	64.8	46.0	21.4	53.3
Average Queue (m)	7.1	23.7	23.9	20.7	6.5	23.5
95th Queue (m)	17.4	42.8	44.9	34.4	15.9	41.9
Link Distance (m)		579.8	318.4		1089.4	1089.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	106.0			64.0		
Storage Blk Time (%)			0			
Queuing Penalty (veh)			0			

Intersection: 5: Old Barrie Rd E & Line 15 N

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	2.9	24.2	22.9	36.5
Average Queue (m)	0.2	4.3	9.8	18.5
95th Queue (m)	2.0	14.9	19.9	29.5
Link Distance (m)	288.0	579.8	1006.6	1844.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: University Ave & Diana Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	26.5	19.0	13.6	20.6	34.2	39.0	19.8	22.0	24.4
Average Queue (m)	10.1	5.1	3.0	6.0	9.4	20.4	4.6	7.7	11.8
95th Queue (m)	20.5	14.2	10.2	16.6	22.8	33.4	14.1	16.9	22.1
Link Distance (m)	144.4	117.8	117.8		1089.4	1089.4		535.9	535.9
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				36.0			58.0		
Storage Blk Time (%)					0				
Queuing Penalty (veh)					0				

Intersection: 12: University Ave & Stone Ridge Blvd/Hunter Valley Rd

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	L	TR	LTR	L	T	L	TR
Maximum Queue (m)	16.6	17.5	9.1	6.0	9.8	6.0	5.5
Average Queue (m)	5.8	7.1	2.9	0.6	0.3	1.0	0.2
95th Queue (m)	14.1	15.6	9.5	4.3	3.9	5.5	3.0
Link Distance (m)	278.2	278.2	176.5		535.9		944.3
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)				42.5		90.0	
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 16: University Ave & Monarch Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	42.4	31.7	26.0	8.3	26.3	50.4	34.5	34.4	35.1
Average Queue (m)	19.5	13.3	9.3	1.1	10.9	20.8	11.9	14.3	16.7
95th Queue (m)	35.0	27.2	20.1	5.4	21.7	37.4	26.1	28.8	31.2
Link Distance (m)	173.4	268.3	268.3		944.3	944.3		141.5	141.5
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				47.0			38.0		
Storage Blk Time (%)							0	0	
Queuing Penalty (veh)							0	0	

Intersection: 19: University Ave & Bass Lake Side Rd E

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	41.9	15.1	15.8	18.9	28.2	38.2	18.9	45.0	29.4
Average Queue (m)	17.9	5.5	5.2	7.0	11.3	13.4	5.2	23.3	9.5
95th Queue (m)	33.9	13.3	12.7	16.2	23.7	28.8	14.5	40.4	21.5
Link Distance (m)	514.5	80.4	80.4		141.5	141.5		174.0	174.0
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				39.0			42.0		
Storage Blk Time (%)					0			1	
Queuing Penalty (veh)					0			0	

Intersection: 23: Bass Lake Side Rd E & Atlantis Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	18.2	21.0	21.3	24.2
Average Queue (m)	9.9	10.2	10.4	11.2
95th Queue (m)	15.7	17.4	17.4	18.9
Link Distance (m)	314.0	514.5	221.1	203.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: Bass Lake Side Rd E & Old Scotia Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	9.0
Average Queue (m)	0.9
95th Queue (m)	5.3
Link Distance (m)	239.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: Bass Lake Side Rd E & Hepinstall Pl

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (m)	2.9	9.2
Average Queue (m)	0.1	3.3
95th Queue (m)	1.6	10.4
Link Distance (m)	883.2	176.0
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 32: Line 15 N & Bass Lake Side Rd E

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	5.6	5.2	21.4	30.6
Average Queue (m)	0.2	0.3	8.3	12.7
95th Queue (m)	2.2	2.5	17.2	20.8
Link Distance (m)	278.4	157.8	607.9	420.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 35: Line 15 N & Stone Ridge Blvd extension

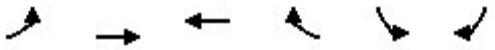
Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 1

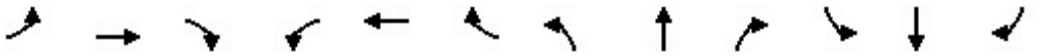
Appendix E – Synchro Analysis – Background and Future Traffic Conditions

Background Analysis



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	73	299	192	421	348	58
Future Volume (vph)	73	299	192	421	348	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1703	1759	1667	1519	1736	1464
Flt Permitted	0.52	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	935	1759	1667	1519	1736	1464
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	82	336	216	473	391	65
RTOR Reduction (vph)	0	0	0	315	0	43
Lane Group Flow (vph)	82	336	216	158	391	22
Confl. Bikes (#/hr)				1		1
Heavy Vehicles (%)	6%	8%	14%	5%	4%	8%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	36.0	36.0	24.0	24.0	24.0	24.0
Effective Green, g (s)	36.0	36.0	24.0	24.0	24.0	24.0
Actuated g/C Ratio	0.50	0.50	0.33	0.33	0.33	0.33
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	552	879	555	506	578	488
v/s Ratio Prot	0.02	c0.19	0.13		c0.23	
v/s Ratio Perm	0.06			0.10		0.01
v/c Ratio	0.15	0.38	0.39	0.31	0.68	0.04
Uniform Delay, d1	9.6	11.1	18.4	17.9	20.7	16.2
Progression Factor	1.00	1.00	1.00	1.00	1.24	2.13
Incremental Delay, d2	0.6	1.3	2.1	1.6	6.2	0.2
Delay (s)	10.2	12.4	20.4	19.5	31.8	34.8
Level of Service	B	B	C	B	C	C
Approach Delay (s)		12.0	19.8		32.2	
Approach LOS		B	B		C	

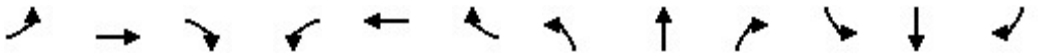
Intersection Summary			
HCM 2000 Control Delay	21.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	49.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	219	33	53	156	41	5	18	39	114	127	9
Future Volume (Veh/h)	4	219	33	53	156	41	5	18	39	114	127	9
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	4	241	36	58	171	45	5	20	43	125	140	10
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	216			277			656	599	259	630	594	194
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	216			277			656	599	259	630	594	194
tC, single (s)	4.1			4.2			8.1	6.6	6.4	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.3			4.4	4.1	3.5	3.5	4.0	3.4
p0 queue free %	100			95			97	95	94	64	65	99
cM capacity (veh/h)	1366			1247			188	388	736	346	398	821

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	281	274	68	275
Volume Left	4	58	5	125
Volume Right	36	45	43	10
cSH	1366	1247	498	379
Volume to Capacity	0.00	0.05	0.14	0.72
Queue Length 95th (m)	0.1	1.2	3.8	44.4
Control Delay (s)	0.1	2.0	13.4	35.8
Lane LOS	A	A	B	E
Approach Delay (s)	0.1	2.0	13.4	35.8
Approach LOS			B	E

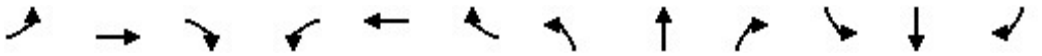
Intersection Summary				
Average Delay	12.6			
Intersection Capacity Utilization	57.6%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	7	76	40	4	19	46	272	63	44	269	17
Future Volume (vph)	30	7	76	40	4	19	46	272	63	44	269	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.91			1.00	0.85	1.00	0.97		1.00	0.99	
Flt Protected		0.99			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1641			1767	1429	1637	3305		1719	3413	
Flt Permitted		0.93			0.75	1.00	0.56	1.00		0.44	1.00	
Satd. Flow (perm)		1542			1378	1429	971	3305		798	3413	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	8	83	43	4	21	50	296	68	48	292	18
RTOR Reduction (vph)	0	54	0	0	0	14	0	27	0	0	6	0
Lane Group Flow (vph)	0	70	0	0	47	7	50	337	0	48	304	0
Confl. Peds. (#/hr)			1	1			2					2
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	4%	0%	3%	3%	0%	13%	10%	5%	9%	5%	5%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Effective Green, g (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Actuated g/C Ratio		0.35			0.35	0.35	0.28	0.28		0.50	0.50	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Grp Cap (vph)		535			478	496	269	918		552	1706	
v/s Ratio Prot								c0.10		0.01	c0.09	
v/s Ratio Perm		c0.05			0.03	0.01	0.05			0.03		
v/c Ratio		0.13			0.10	0.01	0.19	0.37		0.09	0.18	
Uniform Delay, d1		16.1			15.9	15.4	19.8	20.9		9.4	9.9	
Progression Factor		1.00			1.00	1.00	0.83	0.85		1.00	1.00	
Incremental Delay, d2		0.5			0.4	0.1	1.3	1.0		0.3	0.2	
Delay (s)		16.6			16.3	15.5	17.8	18.7		9.7	10.1	
Level of Service		B			B	B	B	B		A	B	
Approach Delay (s)		16.6			16.0			18.6			10.1	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	4	34	2	1	12	17	359	12	18	372	33
Future Volume (Veh/h)	32	4	34	2	1	12	17	359	12	18	372	33
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	34	4	36	2	1	13	18	382	13	19	396	35
Pedestrians		1									2	
Lane Width (m)		3.6									3.6	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	695	884	216	698	894	200	432			395		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	695	884	216	698	894	200	432			395		
tC, single (s)	7.6	6.5	7.0	7.5	6.5	6.9	4.4			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.4	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	89	99	95	99	100	98	98			98		
cM capacity (veh/h)	304	277	772	304	273	813	1042			1175		

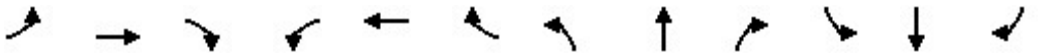
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	34	40	16	18	255	140	19	264	167
Volume Left	34	0	2	18	0	0	19	0	0
Volume Right	0	36	13	0	0	13	0	0	35
cSH	304	655	610	1042	1700	1700	1175	1700	1700
Volume to Capacity	0.11	0.06	0.03	0.02	0.15	0.08	0.02	0.16	0.10
Queue Length 95th (m)	3.0	1.6	0.6	0.4	0.0	0.0	0.4	0.0	0.0
Control Delay (s)	18.3	10.9	11.1	8.5	0.0	0.0	8.1	0.0	0.0
Lane LOS	C	B	B	A			A		
Approach Delay (s)	14.3		11.1	0.4			0.3		
Approach LOS	B		B						

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	30.1%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	118	27	117	52	40	6	199	204	73	294	54
Future Volume (vph)	66	118	27	117	52	40	6	199	204	73	294	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00	0.99		1.00	0.98		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		0.99	1.00	
Frt		0.98		1.00	0.93		1.00	0.92		1.00	0.98	
Flt Protected		0.98		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1799		1730	1698		1803	3165		1657	3389	
Flt Permitted		0.87		0.55	1.00		0.53	1.00		0.48	1.00	
Satd. Flow (perm)		1586		1005	1698		998	3165		839	3389	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	73	130	30	129	57	44	7	219	224	80	323	59
RTOR Reduction (vph)	0	7	0	0	24	0	0	137	0	0	20	0
Lane Group Flow (vph)	0	226	0	129	77	0	7	306	0	80	362	0
Confl. Peds. (#/hr)	3		11	11		3	1		11	11		1
Confl. Bikes (#/hr)			2			1						1
Heavy Vehicles (%)	4%	1%	0%	4%	0%	9%	0%	4%	3%	8%	4%	2%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio		0.32		0.45	0.45		0.39	0.39		0.39	0.39	
Clearance Time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		507		523	769		385	1223		324	1310	
v/s Ratio Prot				c0.02	0.05			0.10			c0.11	
v/s Ratio Perm		c0.14		0.09			0.01			0.10		
v/c Ratio		0.45		0.25	0.10		0.02	0.25		0.25	0.28	
Uniform Delay, d1		20.2		12.6	11.7		14.2	15.6		15.6	15.8	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.8		1.1	0.3		0.1	0.5		1.8	0.5	
Delay (s)		23.1		13.7	12.0		14.3	16.1		17.4	16.3	
Level of Service		C		B	B		B	B		B	B	
Approach Delay (s)		23.1			13.0			16.1			16.5	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

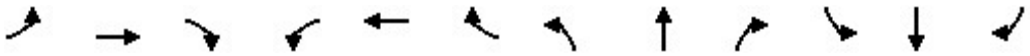
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	34	89	24	15	49	75	231	15	45	312	26
Future Volume (vph)	58	34	89	24	15	49	75	231	15	45	312	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.93			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1672			1843	1516	1716	3397		1751	3381	
Flt Permitted		0.89			0.79	1.00	0.53	1.00		0.59	1.00	
Satd. Flow (perm)		1509			1497	1516	959	3397		1079	3381	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	64	37	98	26	16	54	82	254	16	49	343	29
RTOR Reduction (vph)	0	45	0	0	0	38	0	6	0	0	8	0
Lane Group Flow (vph)	0	154	0	0	42	16	82	264	0	49	364	0
Confl. Peds. (#/hr)							2		1	1		2
Confl. Bikes (#/hr)						3			3			1
Heavy Vehicles (%)	6%	0%	5%	0%	0%	5%	5%	5%	8%	3%	5%	9%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Effective Green, g (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Actuated g/C Ratio		0.30			0.30	0.30	0.51	0.41		0.51	0.41	
Clearance Time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Grp Cap (vph)		458			454	460	562	1376		614	1369	
v/s Ratio Prot							c0.01	0.08		0.01	c0.11	
v/s Ratio Perm		c0.10			0.03	0.01	0.06			0.03		
v/c Ratio		0.34			0.09	0.04	0.15	0.19		0.08	0.27	
Uniform Delay, d1		21.3			19.7	19.4	10.1	15.2		9.9	15.7	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.0			0.4	0.1	0.5	0.3		0.3	0.5	
Delay (s)		23.3			20.1	19.5	10.7	15.5		10.2	16.1	
Level of Service		C			C	B	B	B		B	B	
Approach Delay (s)		23.3			19.8			14.3			15.4	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
Analysis Period (min)	15		

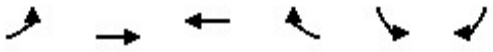
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	31	60	5	19	27	63	7	54	32	78	32	30
Future Volume (vph)	31	60	5	19	27	63	7	54	32	78	32	30
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Hourly flow rate (vph)	50	97	8	31	44	102	11	87	52	126	52	48

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	155	177	150	226
Volume Left (vph)	50	31	11	126
Volume Right (vph)	8	102	52	48
Hadj (s)	0.05	-0.23	-0.09	0.12
Departure Headway (s)	5.2	4.9	5.0	5.1
Degree Utilization, x	0.22	0.24	0.21	0.32
Capacity (veh/h)	634	674	661	661
Control Delay (s)	9.7	9.4	9.3	10.5
Approach Delay (s)	9.7	9.4	9.3	10.5
Approach LOS	A	A	A	B

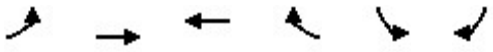
Intersection Summary				
Delay	9.8			
Level of Service	A			
Intersection Capacity Utilization	33.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	68	54	2	5	0
Future Volume (Veh/h)	0	68	54	2	5	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	74	59	2	5	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	61				134	60
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	61				134	60
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1542				860	1005

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	74	61	5
Volume Left	0	0	5
Volume Right	0	2	0
cSH	1542	1700	860
Volume to Capacity	0.00	0.04	0.01
Queue Length 95th (m)	0.0	0.0	0.1
Control Delay (s)	0.0	0.0	9.2
Lane LOS			A
Approach Delay (s)	0.0	0.0	9.2
Approach LOS			A

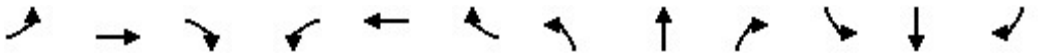
Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	13.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	83	60	4	13	0
Future Volume (Veh/h)	1	83	60	4	13	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	90	65	4	14	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	69				159	67
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	69				159	67
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				98	100
cM capacity (veh/h)	1532				832	997

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	91	69	14
Volume Left	1	0	14
Volume Right	0	4	0
cSH	1532	1700	832
Volume to Capacity	0.00	0.04	0.02
Queue Length 95th (m)	0.0	0.0	0.4
Control Delay (s)	0.1	0.0	9.4
Lane LOS	A		A
Approach Delay (s)	0.1	0.0	9.4
Approach LOS			A

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	15.2%	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 (veh/h)	17	52	6	22	30	2	8	44	11	5	224	13
Future Volume (Veh/h)	17	52	6	22	30	2	8	44	11	5	224	13
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	20	60	7	25	34	2	9	51	13	6	257	15
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	36			67			332	190	64	227	192	35
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	36			67			332	190	64	227	192	35
tC, single (s)	4.2			4.1			7.1	6.6	6.2	7.3	6.5	6.4
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.1	3.3	3.7	4.0	3.5
p0 queue free %	99			98			98	92	99	99	63	98
cM capacity (veh/h)	1543			1547			427	675	1007	621	686	994

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	87	61	73	278
Volume Left	20	25	9	6
Volume Right	7	2	13	15
cSH	1543	1547	666	696
Volume to Capacity	0.01	0.02	0.11	0.40
Queue Length 95th (m)	0.3	0.4	2.9	15.4
Control Delay (s)	1.8	3.1	11.1	13.6
Lane LOS	A	A	B	B
Approach Delay (s)	1.8	3.1	11.1	13.6
Approach LOS			B	B

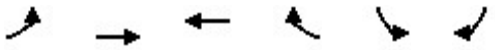
Intersection Summary				
Average Delay	9.9			
Intersection Capacity Utilization	25.2%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	63	0	0	252
Future Volume (Veh/h)	0	0	63	0	0	252
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	68	0	0	274
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	342	68			68	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	342	68			68	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	654	995			1533	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	68	274
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1533
Volume to Capacity	0.00	0.04	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

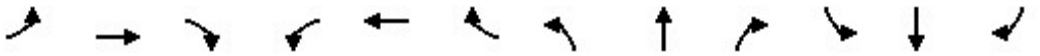
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	16.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	148	301	324	652	607	157
Future Volume (vph)	148	301	324	652	607	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1703	1759	1667	1518	1736	1459
Flt Permitted	0.36	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	654	1759	1667	1518	1736	1459
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	159	324	348	701	653	169
RTOR Reduction (vph)	0	0	0	467	0	113
Lane Group Flow (vph)	159	324	348	234	653	56
Confl. Peds. (#/hr)	1			1		
Confl. Bikes (#/hr)						4
Heavy Vehicles (%)	6%	8%	14%	5%	4%	8%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	36.0	36.0	24.0	24.0	24.0	24.0
Effective Green, g (s)	36.0	36.0	24.0	24.0	24.0	24.0
Actuated g/C Ratio	0.50	0.50	0.33	0.33	0.33	0.33
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	443	879	555	506	578	486
v/s Ratio Prot	0.04	c0.18	c0.21		c0.38	
v/s Ratio Perm	0.14			0.15		0.04
v/c Ratio	0.36	0.37	0.63	0.46	1.13	0.12
Uniform Delay, d1	10.7	11.0	20.2	18.9	24.0	16.6
Progression Factor	1.00	1.00	1.00	1.00	1.15	2.37
Incremental Delay, d2	2.3	1.2	5.3	3.0	78.4	0.5
Delay (s)	12.9	12.2	25.5	21.9	105.9	39.9
Level of Service	B	B	C	C	F	D
Approach Delay (s)		12.5	23.1		92.3	
Approach LOS		B	C		F	

Intersection Summary			
HCM 2000 Control Delay	45.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		

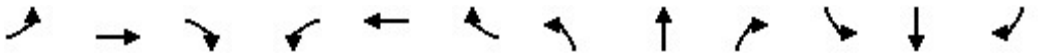
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	278	7	44	314	123	25	130	80	91	21	6
Future Volume (Veh/h)	9	278	7	44	314	123	25	130	80	91	21	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	10	305	8	48	345	135	27	143	88	100	23	7
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	480			313			856	905	309	997	842	412
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	480			313			856	905	309	997	842	412
tC, single (s)	4.1			4.2			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			96			89	46	88	7	92	99
cM capacity (veh/h)	1093			1198			251	263	729	107	288	644

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	323	528	258	130
Volume Left	10	48	27	100
Volume Right	8	135	88	7
cSH	1093	1198	334	127
Volume to Capacity	0.01	0.04	0.77	1.02
Queue Length 95th (m)	0.2	1.0	49.4	57.5
Control Delay (s)	0.3	1.2	44.4	153.5
Lane LOS	A	A	E	F
Approach Delay (s)	0.3	1.2	44.4	153.5
Approach LOS			E	F

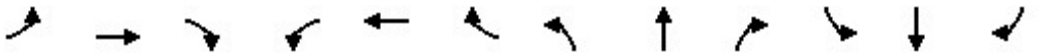
Intersection Summary				
Average Delay	25.9			
Intersection Capacity Utilization	74.2%	ICU Level of Service	D	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	6	64	115	20	69	110	588	66	79	408	21
Future Volume (vph)	21	6	64	115	20	69	110	588	66	79	408	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	0.99	1.00		1.00	1.00	
Frt		0.91			1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected		0.99			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1660			1807	1555	1795	3458		1804	3478	
Flt Permitted		0.93			0.69	1.00	0.48	1.00		0.20	1.00	
Satd. Flow (perm)		1554			1308	1555	915	3458		373	3478	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	7	70	125	22	75	120	639	72	86	443	23
RTOR Reduction (vph)	0	46	0	0	0	49	0	12	0	0	5	0
Lane Group Flow (vph)	0	54	0	0	147	26	120	699	0	86	461	0
Confl. Peds. (#/hr)	5					5	6		4	4		6
Confl. Bikes (#/hr)			2			3			2			4
Heavy Vehicles (%)	0%	0%	2%	1%	0%	2%	0%	2%	7%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Effective Green, g (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Actuated g/C Ratio		0.35			0.35	0.35	0.28	0.28		0.50	0.50	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Grp Cap (vph)		539			454	539	254	960		425	1739	
v/s Ratio Prot								c0.20		0.03	c0.13	
v/s Ratio Perm		0.03			c0.11	0.02	0.13			0.07		
v/c Ratio		0.10			0.32	0.05	0.47	0.73		0.20	0.27	
Uniform Delay, d1		15.9			17.3	15.6	21.6	23.5		10.5	10.4	
Progression Factor		1.00			1.00	1.00	0.88	0.89		1.00	1.00	
Incremental Delay, d2		0.4			1.9	0.2	4.7	3.7		1.1	0.4	
Delay (s)		16.3			19.2	15.8	23.6	24.6		11.6	10.7	
Level of Service		B			B	B	C	C		B	B	
Approach Delay (s)		16.3			18.0			24.4			10.9	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	18.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

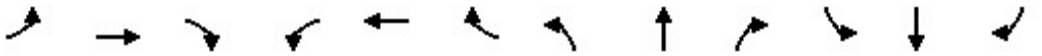
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	4	54	19	2	41	59	766	6	11	516	64
Future Volume (Veh/h)	39	4	54	19	2	41	59	766	6	11	516	64
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	44	4	61	21	2	46	66	861	7	12	580	72
Pedestrians		3						4			8	
Lane Width (m)		3.6						3.6			3.6	
Walking Speed (m/s)		1.2						1.2			1.2	
Percent Blockage		0						0			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1260	1643	333	1378	1676	442	655			868		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1260	1643	333	1378	1676	442	655			868		
tC, single (s)	7.5	6.5	7.0	7.9	6.5	7.0	4.2			4.8		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.0	3.3	2.2			2.5		
p0 queue free %	59	96	91	71	98	92	93			98		
cM capacity (veh/h)	107	91	653	72	87	557	912			603		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	44	65	69	66	574	294	12	387	265
Volume Left	44	0	21	66	0	0	12	0	0
Volume Right	0	61	46	0	0	7	0	0	72
cSH	107	474	175	912	1700	1700	603	1700	1700
Volume to Capacity	0.41	0.14	0.40	0.07	0.34	0.17	0.02	0.23	0.16
Queue Length 95th (m)	13.7	3.8	13.9	1.9	0.0	0.0	0.5	0.0	0.0
Control Delay (s)	60.2	13.8	38.5	9.3	0.0	0.0	11.1	0.0	0.0
Lane LOS	F	B	E	A			B		
Approach Delay (s)	32.5		38.5	0.7			0.2		
Approach LOS	D		E						

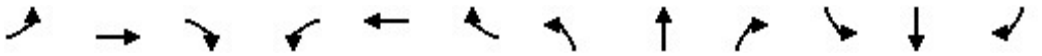
Intersection Summary				
Average Delay	3.9			
Intersection Capacity Utilization	46.2%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	129	24	224	64	65	27	388	386	53	424	115
Future Volume (vph)	59	129	24	224	64	65	27	388	386	53	424	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00	0.99		1.00	0.98		1.00	0.99	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.98		1.00	0.92		1.00	0.93		1.00	0.97	
Flt Protected		0.99		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1818		1782	1723		1804	3230		1798	3407	
Flt Permitted		0.87		0.54	1.00		0.36	1.00		0.21	1.00	
Satd. Flow (perm)		1603		1009	1723		686	3230		402	3407	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	67	147	27	255	73	74	31	441	439	60	482	131
RTOR Reduction (vph)	0	6	0	0	40	0	0	239	0	0	33	0
Lane Group Flow (vph)	0	235	0	255	107	0	31	641	0	60	580	0
Confl. Peds. (#/hr)	3		11	11		3	1		11	11		1
Confl. Bikes (#/hr)			2			7			1			4
Heavy Vehicles (%)	0%	1%	5%	1%	0%	2%	0%	2%	1%	0%	2%	2%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio		0.32		0.45	0.45		0.39	0.39		0.39	0.39	
Clearance Time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		512		529	781		265	1248		155	1317	
v/s Ratio Prot				c0.04	0.06			c0.20			0.17	
v/s Ratio Perm		0.15		c0.17			0.05			0.15		
v/c Ratio		0.46		0.48	0.14		0.12	0.51		0.39	0.44	
Uniform Delay, d1		20.3		13.6	11.9		14.8	17.6		16.6	17.0	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.9		3.1	0.4		0.9	1.5		7.1	1.1	
Delay (s)		23.3		16.8	12.3		15.7	19.1		23.7	18.1	
Level of Service		C		B	B		B	B		C	B	
Approach Delay (s)		23.3			15.1			19.0			18.6	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	102.4%	ICU Level of Service	G
Analysis Period (min)	15		

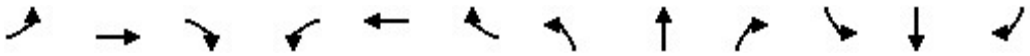
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	40	58	73	46	156	46	432	38	91	462	22
Future Volume (vph)	30	40	58	73	46	156	46	432	38	91	462	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.94			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1752			1842	1576	1802	3494		1784	3481	
Flt Permitted		0.91			0.77	1.00	0.43	1.00		0.44	1.00	
Satd. Flow (perm)		1616			1464	1576	813	3494		824	3481	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	32	43	62	78	49	166	49	460	40	97	491	23
RTOR Reduction (vph)	0	38	0	0	0	116	0	8	0	0	4	0
Lane Group Flow (vph)	0	99	0	0	127	50	49	492	0	97	510	0
Confl. Peds. (#/hr)	1		2	2		1	4		3	3		4
Confl. Bikes (#/hr)						2						1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	2%	0%	1%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Effective Green, g (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Actuated g/C Ratio		0.30			0.30	0.30	0.51	0.41		0.51	0.41	
Clearance Time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Grp Cap (vph)		490			444	478	511	1415		514	1410	
v/s Ratio Prot							0.01	0.14		c0.02	c0.15	
v/s Ratio Perm		0.06			c0.09	0.03	0.04			0.08		
v/c Ratio		0.20			0.29	0.11	0.10	0.35		0.19	0.36	
Uniform Delay, d1		20.4			21.0	19.8	9.9	16.3		10.2	16.4	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.9			1.6	0.4	0.4	0.7		0.8	0.7	
Delay (s)		21.3			22.6	20.2	10.3	16.9		11.0	17.1	
Level of Service		C			C	C	B	B		B	B	
Approach Delay (s)		21.3			21.2			16.4			16.1	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	68.2%	ICU Level of Service	C
Analysis Period (min)	15		

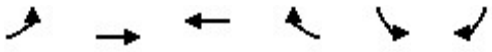
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	19	88	11	24	91	21	6	54	25	32	43	19
Future Volume (vph)	19	88	11	24	91	21	6	54	25	32	43	19
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	21	97	12	26	100	23	7	59	27	35	47	21

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	130	149	93	103
Volume Left (vph)	21	26	7	35
Volume Right (vph)	12	23	27	21
Hadj (s)	-0.02	-0.06	-0.12	-0.01
Departure Headway (s)	4.5	4.5	4.6	4.7
Degree Utilization, x	0.16	0.19	0.12	0.13
Capacity (veh/h)	746	759	734	717
Control Delay (s)	8.4	8.5	8.2	8.4
Approach Delay (s)	8.4	8.5	8.2	8.4
Approach LOS	A	A	A	A

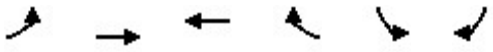
Intersection Summary				
Delay	8.4			
Level of Service	A			
Intersection Capacity Utilization	29.0%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	106	90	6	4	0
Future Volume (Veh/h)	0	106	90	6	4	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	116	99	7	4	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	106				218	102
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	106				218	102
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1485				770	953

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	116	106	4
Volume Left	0	0	4
Volume Right	0	7	0
cSH	1485	1700	770
Volume to Capacity	0.00	0.06	0.01
Queue Length 95th (m)	0.0	0.0	0.1
Control Delay (s)	0.0	0.0	9.7
Lane LOS			A
Approach Delay (s)	0.0	0.0	9.7
Approach LOS			A

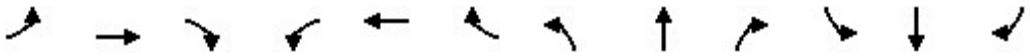
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	15.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	110	109	7	8	0
Future Volume (Veh/h)	7	110	109	7	8	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	8	121	120	8	9	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	128				261	124
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	128				261	124
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				99	100
cM capacity (veh/h)	1458				724	927

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	129	128	9
Volume Left	8	0	9
Volume Right	0	8	0
cSH	1458	1700	724
Volume to Capacity	0.01	0.08	0.01
Queue Length 95th (m)	0.1	0.0	0.3
Control Delay (s)	0.5	0.0	10.0
Lane LOS	A		B
Approach Delay (s)	0.5	0.0	10.0
Approach LOS			B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	21.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	69	5	8	62	20	6	236	20	17	107	22
Future Volume (Veh/h)	22	69	5	8	62	20	6	236	20	17	107	22
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	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	24	75	5	9	67	22	7	257	22	18	116	24
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	89			80			304	232	78	372	224	78
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	89			80			304	232	78	372	224	78
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.2	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.0	3.3
p0 queue free %	98			99			99	61	98	95	82	98
cM capacity (veh/h)	1519			1531			542	655	989	385	662	974

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	104	98	286	158
Volume Left	24	9	7	18
Volume Right	5	22	22	24
cSH	1519	1531	669	641
Volume to Capacity	0.02	0.01	0.43	0.25
Queue Length 95th (m)	0.4	0.1	17.2	7.7
Control Delay (s)	1.8	0.7	14.3	12.4
Lane LOS	A	A	B	B
Approach Delay (s)	1.8	0.7	14.3	12.4
Approach LOS			B	B

Intersection Summary				
Average Delay	9.8			
Intersection Capacity Utilization	32.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	262	0	0	120
Future Volume (Veh/h)	0	0	262	0	0	120
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	0	288	0	0	132
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	420	288			288	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	420	288			288	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	590	751			1274	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	288	132
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1274
Volume to Capacity	0.00	0.17	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	17.1%	ICU Level of Service	A
Analysis Period (min)	15		

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	2725	2802	2710	2834	2752	2765
Vehs Exited	2767	2776	2703	2811	2753	2763
Starting Vehs	153	103	128	114	126	118
Ending Vehs	111	129	135	137	125	119
Travel Distance (km)	5197	5268	5183	5247	5305	5240
Travel Time (hr)	130.3	131.3	129.1	130.4	131.5	130.5
Total Delay (hr)	25.0	24.9	24.0	23.8	24.5	24.4
Total Stops	3922	3864	3817	3880	3886	3873
Fuel Used (l)	405.3	410.8	400.6	408.7	410.6	407.2

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	2725	2802	2710	2834	2752	2765
Vehs Exited	2767	2776	2703	2811	2753	2763
Starting Vehs	153	103	128	114	126	118
Ending Vehs	111	129	135	137	125	119
Travel Distance (km)	5197	5268	5183	5247	5305	5240
Travel Time (hr)	130.3	131.3	129.1	130.4	131.5	130.5
Total Delay (hr)	25.0	24.9	24.0	23.8	24.5	24.4
Total Stops	3922	3864	3817	3880	3886	3873
Fuel Used (l)	405.3	410.8	400.6	408.7	410.6	407.2

Intersection: 3: Old Barrie Rd E & University Ave

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (m)	25.8	56.6	47.0	51.5	79.8	21.4
Average Queue (m)	9.5	25.7	25.4	25.0	44.2	5.2
95th Queue (m)	20.1	44.8	44.3	41.0	68.1	13.7
Link Distance (m)		579.8	318.4		1089.4	1089.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	106.0			64.0		
Storage Blk Time (%)				0		
Queuing Penalty (veh)				0		

Intersection: 5: Old Barrie Rd E & Line 15 N

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	16.5	28.1	23.3	50.2
Average Queue (m)	1.0	5.2	11.0	23.2
95th Queue (m)	7.8	18.1	20.4	39.1
Link Distance (m)	288.0	579.8	1006.6	1844.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: University Ave & Diana Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	26.0	16.8	13.0	24.6	37.7	42.1	20.2	24.7	29.1
Average Queue (m)	11.2	6.4	3.0	8.9	14.4	22.5	5.8	9.9	12.9
95th Queue (m)	21.1	15.0	10.4	19.4	29.4	36.1	15.2	20.7	24.9
Link Distance (m)	144.4	117.8	117.8		1089.4	1089.4		535.9	535.9
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				36.0			58.0		
Storage Blk Time (%)					0				
Queuing Penalty (veh)					0				

Intersection: 12: University Ave & Stone Ridge Blvd/Hunter Valley Rd

Movement	EB	EB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T
Maximum Queue (m)	17.0	17.0	10.4	17.2	6.5	1.8	10.1	2.7
Average Queue (m)	6.7	7.3	3.6	2.6	0.2	0.1	1.0	0.1
95th Queue (m)	15.3	14.8	10.8	10.8	2.8	1.6	5.8	1.9
Link Distance (m)	278.2	278.2	176.5		535.9	535.9		944.3
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)				42.5			90.0	
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 16: University Ave & Monarch Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	47.0	33.2	21.8	8.2	29.5	52.6	39.2	39.0	42.6
Average Queue (m)	23.6	15.1	8.5	1.3	14.3	25.4	13.7	16.8	19.9
95th Queue (m)	41.7	27.6	18.7	6.0	26.2	43.7	28.3	34.0	35.7
Link Distance (m)	173.4	268.3	268.3		944.3	944.3		141.5	141.5
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				47.0			38.0		
Storage Blk Time (%)							1	0	
Queuing Penalty (veh)							1	0	

Intersection: 19: University Ave & Bass Lake Side Rd E

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	50.6	19.8	14.4	27.2	37.9	39.2	21.9	48.6	34.7
Average Queue (m)	20.6	5.8	5.9	9.3	12.7	15.7	6.5	23.2	13.7
95th Queue (m)	39.3	16.0	12.9	20.3	28.9	31.0	16.3	40.6	27.2
Link Distance (m)	514.5	80.4	80.4		141.5	141.5		174.0	174.0
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				39.0			42.0		
Storage Blk Time (%)					0			0	
Queuing Penalty (veh)					0			0	

Intersection: 23: Bass Lake Side Rd E & Atlantis Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	18.7	19.6	26.0	25.4
Average Queue (m)	10.1	11.5	10.8	12.5
95th Queue (m)	16.3	18.1	19.9	21.0
Link Distance (m)	314.0	514.5	221.1	203.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: Bass Lake Side Rd E & Old Scotia Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	9.0
Average Queue (m)	1.2
95th Queue (m)	6.1
Link Distance (m)	239.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: Bass Lake Side Rd E & Hepinstall Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	10.4
Average Queue (m)	3.2
95th Queue (m)	10.4
Link Distance (m)	176.0
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 32: Line 15 N & Bass Lake Side Rd E

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	3.3	6.7	21.4	29.3
Average Queue (m)	0.3	0.4	9.4	14.2
95th Queue (m)	2.6	3.5	18.8	22.2
Link Distance (m)	278.4	157.8	607.9	420.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 35: Line 15 N & Stone Ridge Blvd extension

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 2

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	4260	4269	4198	4337	4279	4263
Vehs Exited	4267	4212	4198	4290	4287	4251
Starting Vehs	230	195	218	217	234	214
Ending Vehs	223	252	218	264	226	235
Travel Distance (km)	8063	7948	7878	8242	8032	8033
Travel Time (hr)	218.0	226.3	214.2	253.8	232.4	228.9
Total Delay (hr)	53.4	63.6	53.3	86.0	67.9	64.8
Total Stops	6427	6495	6335	6997	6734	6599
Fuel Used (l)	640.9	642.2	626.9	683.9	651.1	649.0

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	4260	4269	4198	4337	4279	4263
Vehs Exited	4267	4212	4198	4290	4287	4251
Starting Vehs	230	195	218	217	234	214
Ending Vehs	223	252	218	264	226	235
Travel Distance (km)	8063	7948	7878	8242	8032	8033
Travel Time (hr)	218.0	226.3	214.2	253.8	232.4	228.9
Total Delay (hr)	53.4	63.6	53.3	86.0	67.9	64.8
Total Stops	6427	6495	6335	6997	6734	6599
Fuel Used (l)	640.9	642.2	626.9	683.9	651.1	649.0

Intersection: 3: Old Barrie Rd E & University Ave

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (m)	43.0	56.0	93.3	113.3	281.7	226.8
Average Queue (m)	19.0	26.8	40.5	48.3	197.6	55.5
95th Queue (m)	34.5	46.2	71.2	87.1	360.8	191.0
Link Distance (m)		579.8	318.4		1089.4	1089.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	106.0			64.0		
Storage Blk Time (%)			1	4		
Queuing Penalty (veh)			4	14		

Intersection: 5: Old Barrie Rd E & Line 15 N

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	22.2	32.9	59.7	34.2
Average Queue (m)	2.0	6.2	25.2	15.5
95th Queue (m)	11.4	21.0	45.7	26.8
Link Distance (m)	288.0	579.8	1006.6	1844.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: University Ave & Diana Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	25.1	31.6	21.1	45.8	62.1	59.8	27.2	32.7	35.2
Average Queue (m)	9.7	15.5	8.0	17.9	35.6	40.5	11.1	13.4	17.8
95th Queue (m)	19.4	29.7	17.2	34.6	54.8	55.9	22.7	26.3	30.5
Link Distance (m)	144.4	117.8	117.8		1089.4	1089.4		535.9	535.9
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				36.0			58.0		
Storage Blk Time (%)				0	8				
Queuing Penalty (veh)				1	8				

Intersection: 12: University Ave & Stone Ridge Blvd/Hunter Valley Rd

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	16.6	16.1	26.2	18.4	23.2	30.5	16.4	9.9	16.8
Average Queue (m)	7.0	8.0	9.8	5.5	1.6	2.1	1.9	0.6	1.2
95th Queue (m)	15.2	15.5	19.6	14.7	10.6	12.9	9.4	4.9	7.6
Link Distance (m)	278.2	278.2	176.5		535.9	535.9		944.3	944.3
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				42.5			90.0		
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 16: University Ave & Monarch Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	49.8	48.1	33.5	16.1	65.0	94.7	36.6	62.4	59.3
Average Queue (m)	25.1	25.4	12.9	5.6	30.1	51.8	12.7	27.0	28.3
95th Queue (m)	42.9	41.6	25.5	13.9	55.9	84.7	26.1	51.0	51.1
Link Distance (m)	173.4	268.3	268.3		944.3	944.3		141.5	141.5
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				47.0			38.0		
Storage Blk Time (%)					1		0	3	
Queuing Penalty (veh)					0		0	2	

Intersection: 19: University Ave & Bass Lake Side Rd E

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	33.5	36.8	31.5	24.9	54.7	53.9	27.6	56.3	47.2
Average Queue (m)	13.6	15.0	13.5	7.2	21.0	24.2	11.9	29.0	22.6
95th Queue (m)	27.3	29.0	24.5	17.6	42.6	44.6	23.1	48.3	40.7
Link Distance (m)	514.5	80.4	80.4		141.5	141.5		174.0	174.0
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				39.0			42.0		
Storage Blk Time (%)					1			1	
Queuing Penalty (veh)					1			1	

Intersection: 23: Bass Lake Side Rd E & Atlantis Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	19.9	16.8	20.0	17.1
Average Queue (m)	11.7	11.3	9.7	9.4
95th Queue (m)	18.8	17.0	16.0	14.4
Link Distance (m)	314.0	514.5	221.1	203.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: Bass Lake Side Rd E & Old Scotia Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	7.2
Average Queue (m)	1.1
95th Queue (m)	5.9
Link Distance (m)	239.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: Bass Lake Side Rd E & Hepinstall Pl

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (m)	5.3	9.2
Average Queue (m)	0.2	2.0
95th Queue (m)	2.2	8.1
Link Distance (m)	883.2	176.0
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 32: Line 15 N & Bass Lake Side Rd E

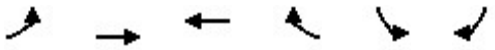
Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	8.6	9.3	37.1	23.6
Average Queue (m)	0.8	0.4	19.0	11.7
95th Queue (m)	4.9	3.7	29.8	18.4
Link Distance (m)	278.4	157.8	607.9	420.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 35: Line 15 N & Stone Ridge Blvd extension

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

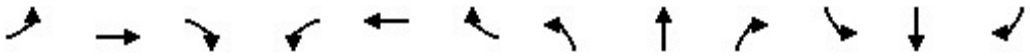
Network Summary

Network wide Queuing Penalty: 31



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	86	354	227	498	412	69
Future Volume (vph)	86	354	227	498	412	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1703	1759	1667	1519	1736	1464
Flt Permitted	0.47	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	850	1759	1667	1519	1736	1464
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	97	398	255	560	463	78
RTOR Reduction (vph)	0	0	0	373	0	52
Lane Group Flow (vph)	97	398	255	187	463	26
Confl. Bikes (#/hr)				1		1
Heavy Vehicles (%)	6%	8%	14%	5%	4%	8%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	36.0	36.0	24.0	24.0	24.0	24.0
Effective Green, g (s)	36.0	36.0	24.0	24.0	24.0	24.0
Actuated g/C Ratio	0.50	0.50	0.33	0.33	0.33	0.33
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	519	879	555	506	578	488
v/s Ratio Prot	0.02	c0.23	0.15		c0.27	
v/s Ratio Perm	0.07			0.12		0.02
v/c Ratio	0.19	0.45	0.46	0.37	0.80	0.05
Uniform Delay, d1	9.8	11.6	18.9	18.2	21.8	16.3
Progression Factor	1.00	1.00	1.00	1.00	1.23	2.22
Incremental Delay, d2	0.8	1.7	2.7	2.1	11.1	0.2
Delay (s)	10.6	13.3	21.6	20.3	38.0	36.4
Level of Service	B	B	C	C	D	D
Approach Delay (s)		12.8	20.7		37.8	
Approach LOS		B	C		D	

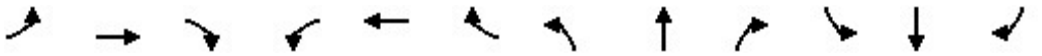
Intersection Summary			
HCM 2000 Control Delay	23.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	259	39	63	185	49	6	21	46	135	150	11
Future Volume (Veh/h)	5	259	39	63	185	49	6	21	46	135	150	11
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	5	285	43	69	203	54	7	23	51	148	165	12
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	257			328			779	712	306	747	706	230
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	257			328			779	712	306	747	706	230
tC, single (s)	4.1			4.2			8.1	6.6	6.4	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.3			4.4	4.1	3.5	3.5	4.0	3.4
p0 queue free %	100			94			95	93	93	47	51	98
cM capacity (veh/h)	1320			1193			128	330	691	277	340	783

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	333	326	81	325
Volume Left	5	69	7	148
Volume Right	43	54	51	12
cSH	1320	1193	409	314
Volume to Capacity	0.00	0.06	0.20	1.04
Queue Length 95th (m)	0.1	1.5	5.8	94.0
Control Delay (s)	0.2	2.2	16.0	97.9
Lane LOS	A	A	C	F
Approach Delay (s)	0.2	2.2	16.0	97.9
Approach LOS			C	F

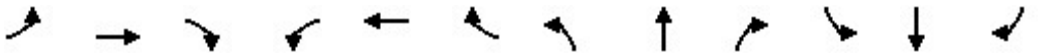
Intersection Summary			
Average Delay	31.8		
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	8	90	47	5	22	54	322	75	52	318	20
Future Volume (vph)	36	8	90	47	5	22	54	322	75	52	318	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.91			1.00	0.85	1.00	0.97		1.00	0.99	
Flt Protected		0.99			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1640			1768	1429	1637	3303		1719	3412	
Flt Permitted		0.92			0.72	1.00	0.53	1.00		0.39	1.00	
Satd. Flow (perm)		1531			1335	1429	918	3303		698	3412	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	39	9	98	51	5	24	59	350	82	57	346	22
RTOR Reduction (vph)	0	64	0	0	0	16	0	28	0	0	7	0
Lane Group Flow (vph)	0	82	0	0	56	8	59	404	0	57	362	0
Confl. Peds. (#/hr)			1	1			2					2
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	4%	0%	3%	3%	0%	13%	10%	5%	9%	5%	5%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Effective Green, g (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Actuated g/C Ratio		0.35			0.35	0.35	0.28	0.28		0.50	0.50	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Grp Cap (vph)		531			463	496	255	917		519	1706	
v/s Ratio Prot								c0.12		0.02	c0.11	
v/s Ratio Perm		c0.05			0.04	0.01	0.06			0.04		
v/c Ratio		0.15			0.12	0.02	0.23	0.44		0.11	0.21	
Uniform Delay, d1		16.2			16.0	15.4	20.1	21.4		9.5	10.1	
Progression Factor		1.00			1.00	1.00	0.84	0.85		1.00	1.00	
Incremental Delay, d2		0.6			0.5	0.1	1.8	1.3		0.4	0.3	
Delay (s)		16.8			16.5	15.5	18.5	19.4		10.0	10.4	
Level of Service		B			B	B	B	B		A	B	
Approach Delay (s)		16.8			16.2			19.3			10.3	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

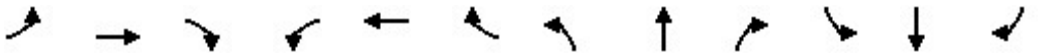
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	5	40	2	1	14	20	425	14	21	440	39
Future Volume (Veh/h)	38	5	40	2	1	14	20	425	14	21	440	39
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	40	5	43	2	1	15	21	452	15	22	468	41
Pedestrians		1									2	
Lane Width (m)		3.6									3.6	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	819	1042	256	825	1056	236	510			467		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	819	1042	256	825	1056	236	510			467		
tC, single (s)	7.6	6.5	7.0	7.5	6.5	6.9	4.4			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.4	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	84	98	94	99	100	98	98			98		
cM capacity (veh/h)	244	222	728	240	218	771	971			1105		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	40	48	18	21	301	166	22	312	197
Volume Left	40	0	2	21	0	0	22	0	0
Volume Right	0	43	15	0	0	15	0	0	41
cSH	244	588	556	971	1700	1700	1105	1700	1700
Volume to Capacity	0.16	0.08	0.03	0.02	0.18	0.10	0.02	0.18	0.12
Queue Length 95th (m)	4.6	2.1	0.8	0.5	0.0	0.0	0.5	0.0	0.0
Control Delay (s)	22.6	11.7	11.7	8.8	0.0	0.0	8.3	0.0	0.0
Lane LOS	C	B	B	A			A		
Approach Delay (s)	16.6		11.7	0.4			0.3		
Approach LOS	C		B						

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	32.9%	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)	78	140	32	138	62	47	7	236	241	86	348	64
Future Volume (vph)	78	140	32	138	62	47	7	236	241	86	348	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00	0.99		1.00	0.98		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		0.99	1.00	
Frt		0.98		1.00	0.94		1.00	0.92		1.00	0.98	
Flt Protected		0.98		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1799		1731	1699		1804	3165		1659	3389	
Flt Permitted		0.86		0.52	1.00		0.47	1.00		0.42	1.00	
Satd. Flow (perm)		1565		940	1699		900	3165		735	3389	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	86	154	35	152	68	52	8	259	265	95	382	70
RTOR Reduction (vph)	0	7	0	0	28	0	0	163	0	0	20	0
Lane Group Flow (vph)	0	268	0	152	92	0	8	361	0	95	432	0
Confl. Peds. (#/hr)	3		11	11		3	1		11	11		1
Confl. Bikes (#/hr)			2			1						1
Heavy Vehicles (%)	4%	1%	0%	4%	0%	9%	0%	4%	3%	8%	4%	2%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio		0.32		0.45	0.45		0.39	0.39		0.39	0.39	
Clearance Time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		500		499	770		348	1223		284	1310	
v/s Ratio Prot				c0.03	0.05			0.11			0.13	
v/s Ratio Perm		c0.17		0.11			0.01			c0.13		
v/c Ratio		0.54		0.30	0.12		0.02	0.30		0.33	0.33	
Uniform Delay, d1		20.9		12.9	11.8		14.2	15.9		16.2	16.2	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		4.1		1.6	0.3		0.1	0.6		3.2	0.7	
Delay (s)		25.0		14.5	12.2		14.4	16.5		19.4	16.8	
Level of Service		C		B	B		B	B		B	B	
Approach Delay (s)		25.0			13.5			16.5			17.3	
Approach LOS		C			B			B			B	

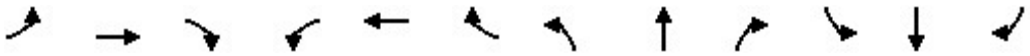
Intersection Summary			
HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	40	105	28	18	58	89	273	18	53	369	31
Future Volume (vph)	69	40	105	28	18	58	89	273	18	53	369	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.93			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1673			1844	1516	1717	3394		1751	3381	
Flt Permitted		0.88			0.77	1.00	0.48	1.00		0.56	1.00	
Satd. Flow (perm)		1495			1455	1516	873	3394		1028	3381	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	76	44	115	31	20	64	98	300	20	58	405	34
RTOR Reduction (vph)	0	44	0	0	0	45	0	6	0	0	8	0
Lane Group Flow (vph)	0	191	0	0	51	19	98	314	0	58	431	0
Confl. Peds. (#/hr)							2		1	1		2
Confl. Bikes (#/hr)						3			3			1
Heavy Vehicles (%)	6%	0%	5%	0%	0%	5%	5%	5%	8%	3%	5%	9%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Effective Green, g (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Actuated g/C Ratio		0.30			0.30	0.30	0.51	0.41		0.51	0.41	
Clearance Time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Grp Cap (vph)		454			442	460	527	1374		593	1369	
v/s Ratio Prot							c0.02	0.09		0.01	c0.13	
v/s Ratio Perm		c0.13			0.04	0.01	0.08			0.04		
v/c Ratio		0.42			0.12	0.04	0.19	0.23		0.10	0.32	
Uniform Delay, d1		22.0			19.8	19.4	10.2	15.4		10.0	16.0	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.9			0.5	0.2	0.8	0.4		0.3	0.6	
Delay (s)		24.8			20.4	19.6	11.0	15.8		10.3	16.6	
Level of Service		C			C	B	B	B		B	B	
Approach Delay (s)		24.8			19.9			14.7			15.9	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		

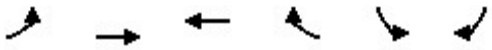
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	37	71	6	22	32	75	8	64	38	92	38	36
Future Volume (vph)	37	71	6	22	32	75	8	64	38	92	38	36
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Hourly flow rate (vph)	60	115	10	35	52	121	13	103	61	148	61	58

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	185	208	177	267
Volume Left (vph)	60	35	13	148
Volume Right (vph)	10	121	61	58
Hadj (s)	0.05	-0.24	-0.09	0.11
Departure Headway (s)	5.5	5.2	5.3	5.4
Degree Utilization, x	0.28	0.30	0.26	0.40
Capacity (veh/h)	593	630	606	623
Control Delay (s)	10.7	10.4	10.2	11.9
Approach Delay (s)	10.7	10.4	10.2	11.9
Approach LOS	B	B	B	B

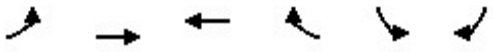
Intersection Summary				
Delay	10.9			
Level of Service	B			
Intersection Capacity Utilization	35.2%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	80	64	2	6	0
Future Volume (Veh/h)	0	80	64	2	6	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	87	70	2	7	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	72				158	71
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	72				158	71
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1528				833	991

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	87	72	7
Volume Left	0	0	7
Volume Right	0	2	0
cSH	1528	1700	833
Volume to Capacity	0.00	0.04	0.01
Queue Length 95th (m)	0.0	0.0	0.2
Control Delay (s)	0.0	0.0	9.4
Lane LOS			A
Approach Delay (s)	0.0	0.0	9.4
Approach LOS			A

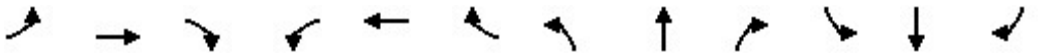
Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	14.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	98	71	5	15	0
Future Volume (Veh/h)	1	98	71	5	15	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	107	77	5	16	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	82				188	80
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	82				188	80
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				98	100
cM capacity (veh/h)	1515				800	981

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	108	82	16
Volume Left	1	0	16
Volume Right	0	5	0
cSH	1515	1700	800
Volume to Capacity	0.00	0.05	0.02
Queue Length 95th (m)	0.0	0.0	0.5
Control Delay (s)	0.1	0.0	9.6
Lane LOS	A		A
Approach Delay (s)	0.1	0.0	9.6
Approach LOS			A

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	16.0%	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 (veh/h)	20	62	7	26	36	2	9	52	13	6	265	15
Future Volume (Veh/h)	20	62	7	26	36	2	9	52	13	6	265	15
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	23	71	8	30	41	2	10	60	15	7	305	17
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	43			79			392	224	75	268	227	42
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	43			79			392	224	75	268	227	42
tC, single (s)	4.2			4.1			7.1	6.6	6.2	7.3	6.5	6.4
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.1	3.3	3.7	4.0	3.5
p0 queue free %	99			98			97	91	98	99	53	98
cM capacity (veh/h)	1534			1532			347	642	992	570	653	985

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	102	73	85	329
Volume Left	23	30	10	7
Volume Right	8	2	15	17
cSH	1534	1532	618	662
Volume to Capacity	0.01	0.02	0.14	0.50
Queue Length 95th (m)	0.4	0.5	3.8	22.2
Control Delay (s)	1.8	3.1	11.7	15.7
Lane LOS	A	A	B	C
Approach Delay (s)	1.8	3.1	11.7	15.7
Approach LOS			B	C

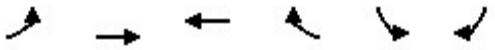
Intersection Summary				
Average Delay	11.1			
Intersection Capacity Utilization	28.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	75	0	0	298
Future Volume (Veh/h)	0	0	75	0	0	298
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	82	0	0	324
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	406	82			82	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	406	82			82	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	601	978			1515	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	82	324
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1515
Volume to Capacity	0.00	0.05	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

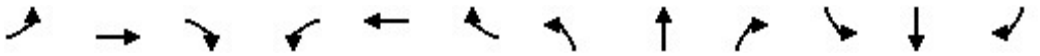
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	19.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	175	356	383	772	718	186
Future Volume (vph)	175	356	383	772	718	186
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1703	1759	1667	1518	1736	1459
Flt Permitted	0.29	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	525	1759	1667	1518	1736	1459
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	188	383	412	830	772	200
RTOR Reduction (vph)	0	0	0	553	0	133
Lane Group Flow (vph)	188	383	412	277	772	67
Confl. Peds. (#/hr)	1			1		
Confl. Bikes (#/hr)						4
Heavy Vehicles (%)	6%	8%	14%	5%	4%	8%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	36.0	36.0	24.0	24.0	24.0	24.0
Effective Green, g (s)	36.0	36.0	24.0	24.0	24.0	24.0
Actuated g/C Ratio	0.50	0.50	0.33	0.33	0.33	0.33
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	393	879	555	506	578	486
v/s Ratio Prot	0.05	c0.22	c0.25		c0.44	
v/s Ratio Perm	0.19			0.18		0.05
v/c Ratio	0.48	0.44	0.74	0.55	1.34	0.14
Uniform Delay, d1	11.4	11.5	21.3	19.6	24.0	16.8
Progression Factor	1.00	1.00	1.00	1.00	1.14	2.49
Incremental Delay, d2	4.1	1.6	8.7	4.2	162.4	0.6
Delay (s)	15.5	13.1	30.0	23.8	189.7	42.3
Level of Service	B	B	C	C	F	D
Approach Delay (s)		13.9	25.8		159.4	
Approach LOS		B	C		F	

Intersection Summary			
HCM 2000 Control Delay	70.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	83.0%	ICU Level of Service	E
Analysis Period (min)	15		

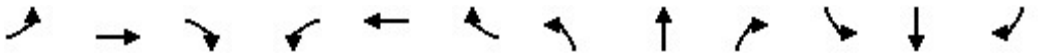
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	329	8	52	372	146	30	154	95	108	25	7
Future Volume (Veh/h)	11	329	8	52	372	146	30	154	95	108	25	7
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	12	362	9	57	409	160	33	169	104	119	27	8
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	569			371			1015	1074	366	1182	998	489
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	569			371			1015	1074	366	1182	998	489
tC, single (s)	4.1			4.2			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			95			82	18	85	0	88	99
cM capacity (veh/h)	1013			1140			187	207	677	43	231	583

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	383	626	306	154
Volume Left	12	57	33	119
Volume Right	9	160	104	8
cSH	1013	1140	266	53
Volume to Capacity	0.01	0.05	1.15	2.93
Queue Length 95th (m)	0.3	1.3	107.7	129.8
Control Delay (s)	0.4	1.3	141.8	1033.4
Lane LOS	A	A	F	F
Approach Delay (s)	0.4	1.3	141.8	1033.4
Approach LOS			F	F

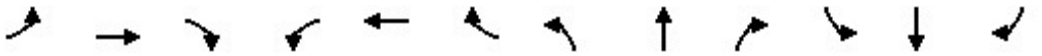
Intersection Summary				
Average Delay	138.6			
Intersection Capacity Utilization	85.8%	ICU Level of Service	E	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	7	76	136	24	82	130	696	78	94	483	25
Future Volume (vph)	25	7	76	136	24	82	130	696	78	94	483	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	0.99	1.00		1.00	1.00	
Frt		0.91			1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected		0.99			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1660			1807	1555	1796	3458		1805	3478	
Flt Permitted		0.92			0.72	1.00	0.45	1.00		0.17	1.00	
Satd. Flow (perm)		1538			1350	1555	842	3458		317	3478	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	8	83	148	26	89	141	757	85	102	525	27
RTOR Reduction (vph)	0	54	0	0	0	58	0	12	0	0	5	0
Lane Group Flow (vph)	0	64	0	0	174	31	141	830	0	102	547	0
Confl. Peds. (#/hr)	5					5	6		4	4		6
Confl. Bikes (#/hr)			2			3			2			4
Heavy Vehicles (%)	0%	0%	2%	1%	0%	2%	0%	2%	7%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Effective Green, g (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Actuated g/C Ratio		0.35			0.35	0.35	0.28	0.28		0.50	0.50	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Grp Cap (vph)		534			468	539	233	960		406	1739	
v/s Ratio Prot								c0.24		0.04	c0.16	
v/s Ratio Perm		0.04			c0.13	0.02	0.17			0.08		
v/c Ratio		0.12			0.37	0.06	0.61	0.87		0.25	0.31	
Uniform Delay, d1		16.0			17.6	15.7	22.6	24.7		11.3	10.7	
Progression Factor		1.00			1.00	1.00	0.90	0.90		1.00	1.00	
Incremental Delay, d2		0.5			2.3	0.2	7.6	7.2		1.5	0.5	
Delay (s)		16.5			19.9	15.9	27.9	29.6		12.8	11.2	
Level of Service		B			B	B	C	C		B	B	
Approach Delay (s)		16.5			18.5			29.3			11.4	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	21.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

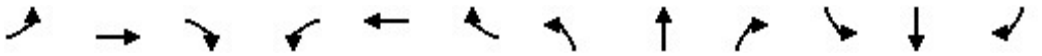
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	5	64	22	2	49	70	907	7	13	611	76
Future Volume (Veh/h)	46	5	64	22	2	49	70	907	7	13	611	76
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	52	6	72	25	2	55	79	1019	8	15	687	85
Pedestrians		3						4			8	
Lane Width (m)		3.6						3.6			3.6	
Walking Speed (m/s)		1.2						1.2			1.2	
Percent Blockage		0						0			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1494	1948	393	1634	1986	522	775			1027		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1494	1948	393	1634	1986	522	775			1027		
tC, single (s)	7.5	6.5	7.0	7.9	6.5	7.0	4.2			4.8		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.0	3.3	2.2			2.5		
p0 queue free %	23	90	88	39	96	89	90			97		
cM capacity (veh/h)	67	57	597	41	54	494	822			514		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	52	78	82	79	679	348	15	458	314
Volume Left	52	0	25	79	0	0	15	0	0
Volume Right	0	72	55	0	0	8	0	0	85
cSH	67	346	108	822	1700	1700	514	1700	1700
Volume to Capacity	0.77	0.23	0.76	0.10	0.40	0.20	0.03	0.27	0.18
Queue Length 95th (m)	28.5	6.8	33.1	2.5	0.0	0.0	0.7	0.0	0.0
Control Delay (s)	153.5	18.4	103.0	9.8	0.0	0.0	12.2	0.0	0.0
Lane LOS	F	C	F	A			B		
Approach Delay (s)	72.4		103.0	0.7			0.2		
Approach LOS	F		F						

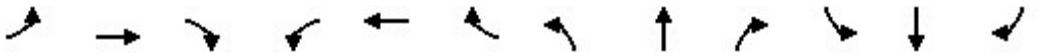
Intersection Summary				
Average Delay	8.9			
Intersection Capacity Utilization	50.6%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	153	28	265	76	77	32	459	457	63	502	136
Future Volume (vph)	70	153	28	265	76	77	32	459	457	63	502	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00	0.99		1.00	0.98		1.00	0.99	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.98		1.00	0.92		1.00	0.93		1.00	0.97	
Flt Protected		0.99		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1818		1782	1723		1804	3230		1800	3407	
Flt Permitted		0.85		0.50	1.00		0.29	1.00		0.14	1.00	
Satd. Flow (perm)		1575		937	1723		557	3230		267	3407	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	80	174	32	301	86	88	36	522	519	72	570	155
RTOR Reduction (vph)	0	6	0	0	48	0	0	240	0	0	33	0
Lane Group Flow (vph)	0	280	0	301	126	0	36	801	0	72	692	0
Confl. Peds. (#/hr)	3		11	11		3	1		11	11		1
Confl. Bikes (#/hr)			2			7			1			4
Heavy Vehicles (%)	0%	1%	5%	1%	0%	2%	0%	2%	1%	0%	2%	2%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio		0.32		0.45	0.45		0.39	0.39		0.39	0.39	
Clearance Time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		504		503	781		215	1248		103	1317	
v/s Ratio Prot				c0.06	0.07			0.25			0.20	
v/s Ratio Perm		0.18		c0.22			0.06			c0.27		
v/c Ratio		0.56		0.60	0.16		0.17	0.64		0.70	0.53	
Uniform Delay, d1		21.1		15.4	12.1		15.1	18.8		19.3	17.7	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		4.4		5.2	0.4		1.7	2.5		32.7	1.5	
Delay (s)		25.5		20.6	12.5		16.8	21.3		52.0	19.2	
Level of Service		C		C	B		B	C		D	B	
Approach Delay (s)		25.5			17.6			21.2			22.2	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	21.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	107.9%	ICU Level of Service	G
Analysis Period (min)	15		

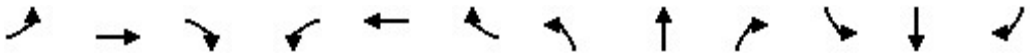
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	47	69	86	54	185	54	511	45	108	547	26
Future Volume (vph)	36	47	69	86	54	185	54	511	45	108	547	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.94			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1751			1842	1576	1803	3494		1785	3480	
Flt Permitted		0.90			0.74	1.00	0.37	1.00		0.38	1.00	
Satd. Flow (perm)		1597			1409	1576	694	3494		709	3480	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	38	50	73	91	57	197	57	544	48	115	582	28
RTOR Reduction (vph)	0	38	0	0	0	137	0	8	0	0	4	0
Lane Group Flow (vph)	0	123	0	0	148	60	57	584	0	115	606	0
Confl. Peds. (#/hr)	1		2	2		1	4		3	3		4
Confl. Bikes (#/hr)						2						1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	2%	0%	1%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Effective Green, g (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Actuated g/C Ratio		0.30			0.30	0.30	0.51	0.41		0.51	0.41	
Clearance Time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Grp Cap (vph)		485			428	478	463	1415		467	1409	
v/s Ratio Prot							0.01	0.17		c0.02	c0.17	
v/s Ratio Perm		0.08			c0.11	0.04	0.05			0.10		
v/c Ratio		0.25			0.35	0.13	0.12	0.41		0.25	0.43	
Uniform Delay, d1		20.7			21.4	19.9	10.1	16.8		10.4	16.9	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.3			2.2	0.5	0.5	0.9		1.3	1.0	
Delay (s)		22.0			23.6	20.4	10.6	17.7		11.7	17.9	
Level of Service		C			C	C	B	B		B	B	
Approach Delay (s)		22.0			21.8			17.1			16.9	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	70.6%	ICU Level of Service	C
Analysis Period (min)	15		

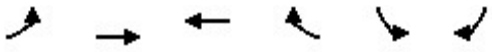
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	22	104	13	28	108	25	7	64	30	38	51	22
Future Volume (vph)	22	104	13	28	108	25	7	64	30	38	51	22
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	24	114	14	31	119	27	8	70	33	42	56	24

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	152	177	111	122
Volume Left (vph)	24	31	8	42
Volume Right (vph)	14	27	33	24
Hadj (s)	-0.02	-0.06	-0.12	-0.01
Departure Headway (s)	4.7	4.6	4.7	4.8
Degree Utilization, x	0.20	0.23	0.15	0.16
Capacity (veh/h)	718	732	703	687
Control Delay (s)	8.8	9.0	8.5	8.8
Approach Delay (s)	8.8	9.0	8.5	8.8
Approach LOS	A	A	A	A

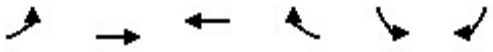
Intersection Summary				
Delay	8.8			
Level of Service	A			
Intersection Capacity Utilization	31.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	125	107	7	5	0
Future Volume (Veh/h)	0	125	107	7	5	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	137	118	8	5	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	126				259	122
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	126				259	122
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1460				730	929

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	137	126	5
Volume Left	0	0	5
Volume Right	0	8	0
cSH	1460	1700	730
Volume to Capacity	0.00	0.07	0.01
Queue Length 95th (m)	0.0	0.0	0.2
Control Delay (s)	0.0	0.0	10.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	10.0
Approach LOS			A

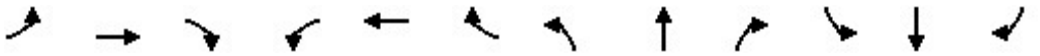
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	16.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	130	129	8	9	0
Future Volume (Veh/h)	8	130	129	8	9	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	9	143	142	9	10	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	151				308	146
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	151				308	146
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				99	100
cM capacity (veh/h)	1430				680	901

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	152	151	10
Volume Left	9	0	10
Volume Right	0	9	0
cSH	1430	1700	680
Volume to Capacity	0.01	0.09	0.01
Queue Length 95th (m)	0.2	0.0	0.4
Control Delay (s)	0.5	0.0	10.4
Lane LOS	A		B
Approach Delay (s)	0.5	0.0	10.4
Approach LOS			B

Intersection Summary			
Average Delay		0.6	
Intersection Capacity Utilization		23.4%	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 (veh/h)	26	82	6	9	73	24	7	279	24	20	127	26
Future Volume (Veh/h)	26	82	6	9	73	24	7	279	24	20	127	26
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	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	28	89	7	10	79	26	8	303	26	22	138	28
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	105			96			358	274	92	438	264	92
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	105			96			358	274	92	438	264	92
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.2	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.0	3.3
p0 queue free %	98			99			98	51	97	93	78	97
cM capacity (veh/h)	1499			1510			476	619	970	306	627	957

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	124	115	337	188
Volume Left	28	10	8	22
Volume Right	7	26	26	28
cSH	1499	1510	632	585
Volume to Capacity	0.02	0.01	0.53	0.32
Queue Length 95th (m)	0.5	0.2	25.2	11.1
Control Delay (s)	1.8	0.7	17.0	14.0
Lane LOS	A	A	C	B
Approach Delay (s)	1.8	0.7	17.0	14.0
Approach LOS			C	B

Intersection Summary			
Average Delay	11.3		
Intersection Capacity Utilization	37.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	310	0	0	142
Future Volume (Veh/h)	0	0	310	0	0	142
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	0	341	0	0	156
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	497	341			341	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	497	341			341	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	532	701			1218	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	341	156
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1218
Volume to Capacity	0.00	0.20	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	19.6%	ICU Level of Service	A
Analysis Period (min)	15		

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	3348	3338	3359	3400	3230	3334
Vehs Exited	3364	3325	3349	3412	3273	3342
Starting Vehs	179	153	164	165	186	165
Ending Vehs	163	166	174	153	143	159
Travel Distance (km)	6244	6294	6238	6497	6325	6320
Travel Time (hr)	159.8	161.4	159.1	165.7	159.8	161.2
Total Delay (hr)	33.1	33.5	32.8	34.7	32.1	33.2
Total Stops	4759	4801	4779	5019	4739	4817
Fuel Used (l)	491.3	494.1	490.2	508.8	491.1	495.1

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	3348	3338	3359	3400	3230	3334
Vehs Exited	3364	3325	3349	3412	3273	3342
Starting Vehs	179	153	164	165	186	165
Ending Vehs	163	166	174	153	143	159
Travel Distance (km)	6244	6294	6238	6497	6325	6320
Travel Time (hr)	159.8	161.4	159.1	165.7	159.8	161.2
Total Delay (hr)	33.1	33.5	32.8	34.7	32.1	33.2
Total Stops	4759	4801	4779	5019	4739	4817
Fuel Used (l)	491.3	494.1	490.2	508.8	491.1	495.1

Intersection: 3: Old Barrie Rd E & University Ave

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (m)	30.8	65.1	62.4	63.3	114.5	37.4
Average Queue (m)	12.1	31.6	30.7	28.8	59.5	7.7
95th Queue (m)	25.1	53.0	53.8	48.7	96.7	22.9
Link Distance (m)		579.8	318.4		1089.4	1089.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	106.0			64.0		
Storage Blk Time (%)			0	0		
Queuing Penalty (veh)			1	0		

Intersection: 5: Old Barrie Rd E & Line 15 N

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	11.8	38.2	35.1	67.5
Average Queue (m)	1.0	8.1	13.3	32.2
95th Queue (m)	5.9	24.9	25.6	55.6
Link Distance (m)	288.0	579.8	1006.6	1844.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: University Ave & Diana Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	35.4	20.5	13.9	30.8	36.4	46.6	19.5	33.9	40.3
Average Queue (m)	14.6	7.0	3.0	9.9	18.9	27.9	6.9	12.6	15.5
95th Queue (m)	27.9	17.3	10.5	22.2	33.3	41.8	17.0	26.4	31.3
Link Distance (m)	144.4	117.8	117.8		1089.4	1089.4		535.9	535.9
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				36.0			58.0		
Storage Blk Time (%)				0	1				
Queuing Penalty (veh)				0	0				

Intersection: 12: University Ave & Stone Ridge Blvd/Hunter Valley Rd

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	20.1	20.7	10.3	15.3	1.7	1.3	10.4	14.2	7.8
Average Queue (m)	7.7	7.4	3.9	2.3	0.1	0.0	2.2	0.5	0.3
95th Queue (m)	17.4	15.4	11.1	9.9	1.2	0.9	8.6	5.6	3.4
Link Distance (m)	278.2	278.2	176.5		535.9	535.9		944.3	944.3
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				42.5			90.0		
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 16: University Ave & Monarch Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	60.6	40.5	30.4	11.0	35.6	57.2	46.5	51.0	47.9
Average Queue (m)	29.4	17.0	11.9	1.4	16.9	28.6	18.7	21.2	23.2
95th Queue (m)	50.2	31.5	25.4	6.8	30.8	48.2	37.1	43.1	41.3
Link Distance (m)	173.4	268.3	268.3		944.3	944.3		141.5	141.5
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				47.0			38.0		
Storage Blk Time (%)							2	1	
Queuing Penalty (veh)							3	1	

Intersection: 19: University Ave & Bass Lake Side Rd E

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	56.9	20.4	18.1	32.3	38.3	44.8	20.8	55.3	46.5
Average Queue (m)	24.6	7.1	6.9	11.9	16.6	20.4	6.2	28.4	17.1
95th Queue (m)	45.9	17.2	14.8	24.3	31.7	35.7	16.3	48.5	35.7
Link Distance (m)	514.5	80.4	80.4		141.5	141.5		174.0	174.0
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				39.0			42.0		
Storage Blk Time (%)				0	0			2	
Queuing Penalty (veh)				0	0			1	

Intersection: 23: Bass Lake Side Rd E & Atlantis Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	21.6	23.1	20.7	25.7
Average Queue (m)	12.1	12.7	10.8	13.6
95th Queue (m)	18.9	19.9	17.2	22.4
Link Distance (m)	314.0	514.5	221.1	203.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: Bass Lake Side Rd E & Old Scotia Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	9.0
Average Queue (m)	1.7
95th Queue (m)	7.4
Link Distance (m)	239.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: Bass Lake Side Rd E & Hepinstall Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	9.2
Average Queue (m)	3.5
95th Queue (m)	10.8
Link Distance (m)	176.0
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 32: Line 15 N & Bass Lake Side Rd E

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	1.6	9.3	23.0	29.7
Average Queue (m)	0.1	0.6	10.8	16.0
95th Queue (m)	1.6	4.5	19.2	24.8
Link Distance (m)	278.4	157.8	607.9	420.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 35: Line 15 N & Stone Ridge Blvd extension

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 7

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	4833	5026	5011	5018	5083	4995
Vehs Exited	4694	4908	4852	4877	4962	4859
Starting Vehs	295	272	250	292	278	270
Ending Vehs	434	390	409	433	399	407
Travel Distance (km)	9079	9469	9310	9572	9501	9386
Travel Time (hr)	389.7	334.5	317.0	376.9	358.1	355.3
Total Delay (hr)	204.2	142.0	127.3	181.3	163.8	163.7
Total Stops	8455	8519	8337	8992	8818	8623
Fuel Used (l)	849.4	827.4	794.7	869.4	847.3	837.6

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	4833	5026	5011	5018	5083	4995
Vehs Exited	4694	4908	4852	4877	4962	4859
Starting Vehs	295	272	250	292	278	270
Ending Vehs	434	390	409	433	399	407
Travel Distance (km)	9079	9469	9310	9572	9501	9386
Travel Time (hr)	389.7	334.5	317.0	376.9	358.1	355.3
Total Delay (hr)	204.2	142.0	127.3	181.3	163.8	163.7
Total Stops	8455	8519	8337	8992	8818	8623
Fuel Used (l)	849.4	827.4	794.7	869.4	847.3	837.6

Intersection: 3: Old Barrie Rd E & University Ave

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (m)	45.1	54.5	227.5	154.1	864.6	793.0
Average Queue (m)	21.5	27.0	74.4	88.5	597.7	423.9
95th Queue (m)	36.5	47.6	192.9	162.1	965.6	795.8
Link Distance (m)		579.8	318.4		1089.4	1089.4
Upstream Blk Time (%)			1			
Queuing Penalty (veh)			0			
Storage Bay Dist (m)	106.0			64.0		
Storage Blk Time (%)			2	31		
Queuing Penalty (veh)			19	117		

Intersection: 5: Old Barrie Rd E & Line 15 N

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	19.4	40.2	83.0	52.0
Average Queue (m)	2.2	8.9	39.2	22.8
95th Queue (m)	10.5	26.0	69.8	41.6
Link Distance (m)	288.0	579.8	1006.6	1844.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: University Ave & Diana Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	26.6	40.5	19.5	51.7	64.8	68.6	27.3	41.8	43.0
Average Queue (m)	12.3	17.9	7.7	22.7	42.3	47.9	11.9	17.0	21.3
95th Queue (m)	22.7	32.1	16.1	44.4	60.6	64.7	23.6	33.2	36.6
Link Distance (m)	144.4	117.8	117.8		1089.4	1089.4		535.9	535.9
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				36.0			58.0		
Storage Blk Time (%)				1	17			0	
Queuing Penalty (veh)				2	22			0	

Intersection: 12: University Ave & Stone Ridge Blvd/Hunter Valley Rd

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	22.9	22.0	30.3	22.3	15.2	22.2	18.6	11.5	17.9
Average Queue (m)	9.9	9.8	11.5	7.3	1.2	1.9	2.5	0.8	1.4
95th Queue (m)	19.9	17.1	23.1	17.5	8.3	12.1	11.3	5.6	8.7
Link Distance (m)	278.2	278.2	176.5		535.9	535.9		944.3	944.3
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				42.5			90.0		
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 16: University Ave & Monarch Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	65.4	64.2	38.4	37.7	71.7	104.6	49.3	64.6	71.0
Average Queue (m)	30.9	29.9	15.3	7.9	36.3	59.7	19.3	31.8	34.7
95th Queue (m)	53.7	51.6	29.4	22.3	60.4	92.9	39.3	57.9	60.6
Link Distance (m)	173.4	268.3	268.3		944.3	944.3		141.5	141.5
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				47.0			38.0		
Storage Blk Time (%)					3		4	5	
Queuing Penalty (veh)					1		10	3	

Intersection: 19: University Ave & Bass Lake Side Rd E

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	40.7	45.4	31.3	25.5	62.5	61.4	26.1	59.1	56.6
Average Queue (m)	17.5	21.5	14.0	8.4	25.6	27.8	12.2	31.7	28.5
95th Queue (m)	32.9	38.6	25.0	18.6	51.0	51.8	23.0	50.7	49.3
Link Distance (m)	514.5	80.4	80.4		141.5	141.5		174.0	174.0
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				39.0			42.0		
Storage Blk Time (%)					2			2	
Queuing Penalty (veh)					1			2	

Intersection: 23: Bass Lake Side Rd E & Atlantis Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	20.3	19.2	22.4	20.1
Average Queue (m)	12.8	12.5	10.6	10.2
95th Queue (m)	19.2	18.8	17.6	15.7
Link Distance (m)	314.0	514.5	221.1	203.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: Bass Lake Side Rd E & Old Scotia Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	9.0
Average Queue (m)	1.2
95th Queue (m)	6.1
Link Distance (m)	239.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: Bass Lake Side Rd E & Hepinstall Pl

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (m)	8.4	10.6
Average Queue (m)	0.4	3.0
95th Queue (m)	3.3	10.2
Link Distance (m)	883.2	176.0
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 32: Line 15 N & Bass Lake Side Rd E

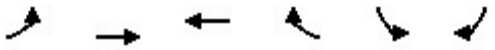
Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	10.1	4.0	35.8	23.2
Average Queue (m)	0.6	0.1	20.7	12.6
95th Queue (m)	4.5	1.7	30.5	19.7
Link Distance (m)	278.4	157.8	607.9	420.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 35: Line 15 N & Stone Ridge Blvd extension

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

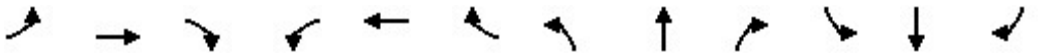
Network Summary

Network wide Queuing Penalty: 177



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	94	385	247	542	448	75
Future Volume (vph)	94	385	247	542	448	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1703	1759	1667	1519	1736	1464
Flt Permitted	0.45	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	800	1759	1667	1519	1736	1464
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	106	433	278	609	503	84
RTOR Reduction (vph)	0	0	0	406	0	56
Lane Group Flow (vph)	106	433	278	203	503	28
Confl. Bikes (#/hr)				1		1
Heavy Vehicles (%)	6%	8%	14%	5%	4%	8%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	36.0	36.0	24.0	24.0	24.0	24.0
Effective Green, g (s)	36.0	36.0	24.0	24.0	24.0	24.0
Actuated g/C Ratio	0.50	0.50	0.33	0.33	0.33	0.33
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	500	879	555	506	578	488
v/s Ratio Prot	0.02	c0.25	0.17		c0.29	
v/s Ratio Perm	0.08			0.13		0.02
v/c Ratio	0.21	0.49	0.50	0.40	0.87	0.06
Uniform Delay, d1	10.0	11.9	19.2	18.5	22.5	16.3
Progression Factor	1.00	1.00	1.00	1.00	1.23	2.27
Incremental Delay, d2	1.0	2.0	3.2	2.4	16.2	0.2
Delay (s)	10.9	13.9	22.4	20.8	43.9	37.3
Level of Service	B	B	C	C	D	D
Approach Delay (s)		13.3	21.3		43.0	
Approach LOS		B	C		D	

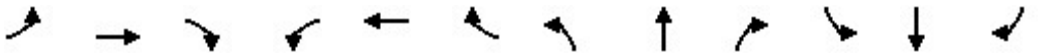
Intersection Summary			
HCM 2000 Control Delay	25.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	282	42	68	201	53	6	23	50	147	164	12
Future Volume (Veh/h)	5	282	42	68	201	53	6	23	50	147	164	12
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	5	310	46	75	221	58	7	25	55	162	180	13
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	279			356			846	772	333	810	766	250
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	279			356			846	772	333	810	766	250
tC, single (s)	4.1			4.2			8.1	6.6	6.4	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.3			4.4	4.1	3.5	3.5	4.0	3.4
p0 queue free %	100			94			93	92	92	34	42	98
cM capacity (veh/h)	1295			1165			99	302	667	245	311	763

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	361	354	87	355
Volume Left	5	75	7	162
Volume Right	46	58	55	13
cSH	1295	1165	369	283
Volume to Capacity	0.00	0.06	0.24	1.26
Queue Length 95th (m)	0.1	1.6	7.2	135.3
Control Delay (s)	0.1	2.3	17.7	177.9
Lane LOS	A	A	C	F
Approach Delay (s)	0.1	2.3	17.7	177.9
Approach LOS			C	F

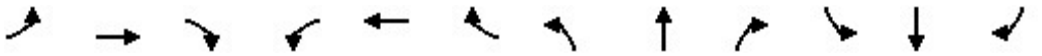
Intersection Summary				
Average Delay	56.7			
Intersection Capacity Utilization	69.4%	ICU Level of Service	C	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	9	98	52	5	24	59	350	81	57	346	22
Future Volume (vph)	39	9	98	52	5	24	59	350	81	57	346	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.91			1.00	0.85	1.00	0.97		1.00	0.99	
Flt Protected		0.99			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1640			1767	1429	1638	3304		1719	3412	
Flt Permitted		0.92			0.70	1.00	0.52	1.00		0.36	1.00	
Satd. Flow (perm)		1526			1302	1429	890	3304		647	3412	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	42	10	107	57	5	26	64	380	88	62	376	24
RTOR Reduction (vph)	0	70	0	0	0	17	0	28	0	0	7	0
Lane Group Flow (vph)	0	89	0	0	62	9	64	440	0	62	394	0
Confl. Peds. (#/hr)			1	1			2					2
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	4%	0%	3%	3%	0%	13%	10%	5%	9%	5%	5%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Effective Green, g (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Actuated g/C Ratio		0.35			0.35	0.35	0.28	0.28		0.50	0.50	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Grp Cap (vph)		529			452	496	247	917		502	1706	
v/s Ratio Prot								c0.13		0.02	c0.12	
v/s Ratio Perm		c0.06			0.05	0.01	0.07			0.04		
v/c Ratio		0.17			0.14	0.02	0.26	0.48		0.12	0.23	
Uniform Delay, d1		16.3			16.1	15.4	20.2	21.7		9.6	10.2	
Progression Factor		1.00			1.00	1.00	0.85	0.86		1.00	1.00	
Incremental Delay, d2		0.7			0.6	0.1	2.0	1.4		0.5	0.3	
Delay (s)		17.0			16.7	15.5	19.1	20.1		10.1	10.5	
Level of Service		B			B	B	B	C		B	B	
Approach Delay (s)		17.0			16.4			20.0			10.4	
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	0.30		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

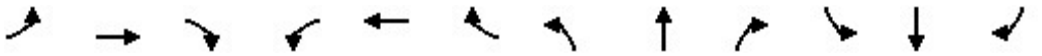
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	5	44	3	1	15	22	462	15	23	479	42
Future Volume (Veh/h)	41	5	44	3	1	15	22	462	15	23	479	42
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	44	5	47	3	1	16	23	491	16	24	510	45
Pedestrians		1									2	
Lane Width (m)		3.6									3.6	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	892	1134	278	898	1149	256	556			507		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	892	1134	278	898	1149	256	556			507		
tC, single (s)	7.6	6.5	7.0	7.5	6.5	6.9	4.4			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.4	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	79	97	93	99	99	98	98			98		
cM capacity (veh/h)	215	194	703	210	191	749	931			1068		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	44	52	20	23	327	180	24	340	215
Volume Left	44	0	3	23	0	0	24	0	0
Volume Right	0	47	16	0	0	16	0	0	45
cSH	215	562	489	931	1700	1700	1068	1700	1700
Volume to Capacity	0.21	0.09	0.04	0.02	0.19	0.11	0.02	0.20	0.13
Queue Length 95th (m)	6.0	2.4	1.0	0.6	0.0	0.0	0.6	0.0	0.0
Control Delay (s)	26.0	12.1	12.7	9.0	0.0	0.0	8.4	0.0	0.0
Lane LOS	D	B	B	A			A		
Approach Delay (s)	18.5		12.7	0.4			0.4		
Approach LOS	C		B						

Intersection Summary				
Average Delay	2.0			
Intersection Capacity Utilization	34.7%	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)	85	152	35	151	67	52	8	256	263	94	379	70
Future Volume (vph)	85	152	35	151	67	52	8	256	263	94	379	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00	0.99		1.00	0.98		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		0.99	1.00	
Frt		0.98		1.00	0.93		1.00	0.92		1.00	0.98	
Flt Protected		0.98		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1799		1731	1698		1804	3164		1660	3388	
Flt Permitted		0.85		0.50	1.00		0.44	1.00		0.39	1.00	
Satd. Flow (perm)		1553		908	1698		842	3164		680	3388	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	93	167	38	166	74	57	9	281	289	103	416	77
RTOR Reduction (vph)	0	7	0	0	31	0	0	177	0	0	20	0
Lane Group Flow (vph)	0	291	0	166	100	0	9	393	0	103	473	0
Confl. Peds. (#/hr)	3		11	11		3	1		11	11		1
Confl. Bikes (#/hr)			2			1						1
Heavy Vehicles (%)	4%	1%	0%	4%	0%	9%	0%	4%	3%	8%	4%	2%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio		0.32		0.45	0.45		0.39	0.39		0.39	0.39	
Clearance Time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		496		488	769		325	1223		262	1310	
v/s Ratio Prot				c0.03	0.06			0.12			0.14	
v/s Ratio Perm		c0.19		0.12			0.01			c0.15		
v/c Ratio		0.59		0.34	0.13		0.03	0.32		0.39	0.36	
Uniform Delay, d1		21.4		13.2	11.9		14.3	16.1		16.6	16.4	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		5.0		1.9	0.3		0.2	0.7		4.4	0.8	
Delay (s)		26.4		15.1	12.3		14.4	16.8		21.0	17.2	
Level of Service		C		B	B		B	B		C	B	
Approach Delay (s)		26.4			13.8			16.8			17.8	
Approach LOS		C			B			B			B	

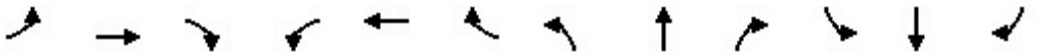
Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	44	115	31	19	63	97	297	19	58	402	33
Future Volume (vph)	75	44	115	31	19	63	97	297	19	58	402	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.93			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1672			1843	1516	1717	3396		1751	3383	
Flt Permitted		0.88			0.78	1.00	0.45	1.00		0.54	1.00	
Satd. Flow (perm)		1490			1476	1516	821	3396		1002	3383	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	82	48	126	34	21	69	107	326	21	64	442	36
RTOR Reduction (vph)	0	44	0	0	0	48	0	6	0	0	8	0
Lane Group Flow (vph)	0	212	0	0	55	21	107	341	0	64	470	0
Confl. Peds. (#/hr)							2		1	1		2
Confl. Bikes (#/hr)						3			3			1
Heavy Vehicles (%)	6%	0%	5%	0%	0%	5%	5%	5%	8%	3%	5%	9%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Effective Green, g (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Actuated g/C Ratio		0.30			0.30	0.30	0.51	0.41		0.51	0.41	
Clearance Time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Grp Cap (vph)		452			448	460	506	1375		583	1370	
v/s Ratio Prot							c0.02	0.10		0.01	c0.14	
v/s Ratio Perm		c0.14			0.04	0.01	0.09			0.04		
v/c Ratio		0.47			0.12	0.05	0.21	0.25		0.11	0.34	
Uniform Delay, d1		22.3			19.9	19.4	10.3	15.5		10.0	16.2	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		3.5			0.6	0.2	1.0	0.4		0.4	0.7	
Delay (s)		25.8			20.4	19.6	11.2	16.0		10.4	16.9	
Level of Service		C			C	B	B	B		B	B	
Approach Delay (s)		25.8			20.0			14.9			16.2	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		

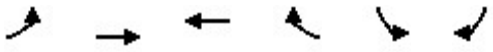
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	40	77	6	24	35	81	9	70	41	100	41	39
Future Volume (vph)	40	77	6	24	35	81	9	70	41	100	41	39
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Hourly flow rate (vph)	65	124	10	39	56	131	15	113	66	161	66	63

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	199	226	194	290
Volume Left (vph)	65	39	15	161
Volume Right (vph)	10	131	66	63
Hadj (s)	0.06	-0.24	-0.09	0.11
Departure Headway (s)	5.7	5.4	5.5	5.6
Degree Utilization, x	0.32	0.34	0.30	0.45
Capacity (veh/h)	567	602	583	603
Control Delay (s)	11.4	11.2	10.9	13.0
Approach Delay (s)	11.4	11.2	10.9	13.0
Approach LOS	B	B	B	B

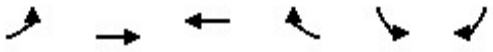
Intersection Summary				
Delay	11.7			
Level of Service	B			
Intersection Capacity Utilization	36.2%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	88	70	3	6	0
Future Volume (Veh/h)	0	88	70	3	6	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	96	76	3	7	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	79				174	78
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	79				174	78
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1519				816	983

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	96	79	7
Volume Left	0	0	7
Volume Right	0	3	0
cSH	1519	1700	816
Volume to Capacity	0.00	0.05	0.01
Queue Length 95th (m)	0.0	0.0	0.2
Control Delay (s)	0.0	0.0	9.4
Lane LOS			A
Approach Delay (s)	0.0	0.0	9.4
Approach LOS			A

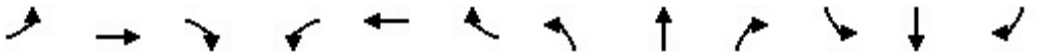
Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	14.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	107	77	5	17	0
Future Volume (Veh/h)	1	107	77	5	17	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	116	84	5	18	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	89				204	86
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	89				204	86
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				98	100
cM capacity (veh/h)	1506				783	972

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	117	89	18
Volume Left	1	0	18
Volume Right	0	5	0
cSH	1506	1700	783
Volume to Capacity	0.00	0.05	0.02
Queue Length 95th (m)	0.0	0.0	0.6
Control Delay (s)	0.1	0.0	9.7
Lane LOS	A		A
Approach Delay (s)	0.1	0.0	9.7
Approach LOS			A

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	16.4%	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 (veh/h)	22	67	8	28	39	3	10	57	14	6	288	17
Future Volume (Veh/h)	22	67	8	28	39	3	10	57	14	6	288	17
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	25	77	9	32	45	3	11	66	16	7	331	20
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	48			86			428	244	82	291	246	46
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	48			86			428	244	82	291	246	46
tC, single (s)	4.2			4.1			7.1	6.6	6.2	7.3	6.5	6.4
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.1	3.3	3.7	4.0	3.5
p0 queue free %	98			98			96	89	98	99	48	98
cM capacity (veh/h)	1528			1523			304	624	984	543	635	979

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	111	80	93	358
Volume Left	25	32	11	7
Volume Right	9	3	16	20
cSH	1528	1523	588	645
Volume to Capacity	0.02	0.02	0.16	0.55
Queue Length 95th (m)	0.4	0.5	4.5	27.3
Control Delay (s)	1.8	3.1	12.3	17.3
Lane LOS	A	A	B	C
Approach Delay (s)	1.8	3.1	12.3	17.3
Approach LOS			B	C

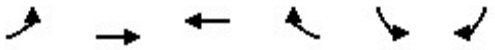
Intersection Summary				
Average Delay	12.1			
Intersection Capacity Utilization	30.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	81	0	0	325
Future Volume (Veh/h)	0	0	81	0	0	325
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	88	0	0	353
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	441	88			88	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	441	88			88	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	574	970			1508	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	88	353
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1508
Volume to Capacity	0.00	0.05	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

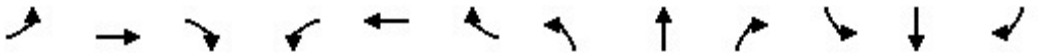
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	20.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	191	388	417	840	782	202
Future Volume (vph)	191	388	417	840	782	202
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1703	1759	1667	1518	1736	1459
Flt Permitted	0.25	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	454	1759	1667	1518	1736	1459
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	205	417	448	903	841	217
RTOR Reduction (vph)	0	0	0	601	0	142
Lane Group Flow (vph)	205	417	448	302	841	75
Confl. Peds. (#/hr)	1			1		
Confl. Bikes (#/hr)						4
Heavy Vehicles (%)	6%	8%	14%	5%	4%	8%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	36.0	36.0	24.0	24.0	24.0	24.0
Effective Green, g (s)	36.0	36.0	24.0	24.0	24.0	24.0
Actuated g/C Ratio	0.50	0.50	0.33	0.33	0.33	0.33
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	365	879	555	506	578	486
v/s Ratio Prot	c0.06	0.24	c0.27		c0.48	
v/s Ratio Perm	0.22			0.20		0.05
v/c Ratio	0.56	0.47	0.81	0.60	1.46	0.15
Uniform Delay, d1	12.0	11.8	21.9	20.0	24.0	16.9
Progression Factor	1.00	1.00	1.00	1.00	1.13	2.41
Incremental Delay, d2	6.1	1.8	11.9	5.1	214.1	0.7
Delay (s)	18.1	13.6	33.8	25.1	241.3	41.3
Level of Service	B	B	C	C	F	D
Approach Delay (s)		15.1	28.0		200.3	
Approach LOS		B	C		F	

Intersection Summary			
HCM 2000 Control Delay	85.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	89.2%	ICU Level of Service	E
Analysis Period (min)	15		

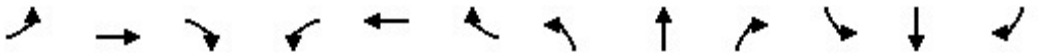
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	358	9	57	404	158	32	167	103	117	27	8
Future Volume (Veh/h)	12	358	9	57	404	158	32	167	103	117	27	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	13	393	10	63	444	174	35	184	113	129	30	9
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	618			403			1105	1168	398	1286	1086	531
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	618			403			1105	1168	398	1286	1086	531
tC, single (s)	4.1			4.2			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			94			78	0	83	0	85	98
cM capacity (veh/h)	972			1109			157	180	649	0	203	552

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	416	681	332	168
Volume Left	13	63	35	129
Volume Right	10	174	113	9
cSH	972	1109	234	0
Volume to Capacity	0.01	0.06	1.42	Err
Queue Length 95th (m)	0.3	1.4	150.9	Err
Control Delay (s)	0.4	1.5	251.7	Err
Lane LOS	A	A	F	F
Approach Delay (s)	0.4	1.5	251.7	Err
Approach LOS			F	F

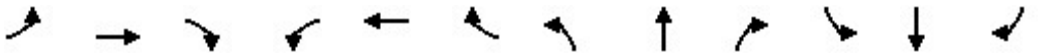
Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	92.4%	ICU Level of Service	F	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	8	82	148	26	89	142	757	85	102	525	27
Future Volume (vph)	27	8	82	148	26	89	142	757	85	102	525	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.91			1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected		0.99			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1660			1807	1555	1797	3458		1805	3479	
Flt Permitted		0.91			0.71	1.00	0.43	1.00		0.17	1.00	
Satd. Flow (perm)		1531			1332	1555	804	3458		317	3479	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	29	9	89	161	28	97	154	823	92	111	571	29
RTOR Reduction (vph)	0	58	0	0	0	63	0	12	0	0	5	0
Lane Group Flow (vph)	0	69	0	0	189	34	154	903	0	111	595	0
Confl. Peds. (#/hr)	5					5	6		4	4		6
Confl. Bikes (#/hr)			2			3			2			4
Heavy Vehicles (%)	0%	0%	2%	1%	0%	2%	0%	2%	7%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Effective Green, g (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Actuated g/C Ratio		0.35			0.35	0.35	0.28	0.28		0.50	0.50	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Grp Cap (vph)		531			462	539	223	960		406	1739	
v/s Ratio Prot								c0.26		0.05	c0.17	
v/s Ratio Perm		0.04			c0.14	0.02	0.19			0.09		
v/c Ratio		0.13			0.41	0.06	0.69	0.94		0.27	0.34	
Uniform Delay, d1		16.1			17.9	15.7	23.2	25.4		11.8	10.9	
Progression Factor		1.00			1.00	1.00	0.90	0.91		1.00	1.00	
Incremental Delay, d2		0.5			2.7	0.2	10.4	12.6		1.7	0.5	
Delay (s)		16.6			20.6	15.9	31.3	35.7		13.5	11.4	
Level of Service		B			C	B	C	D		B	B	
Approach Delay (s)		16.6			19.0			35.1			11.7	
Approach LOS		B			B			D			B	

Intersection Summary			
HCM 2000 Control Delay	24.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		

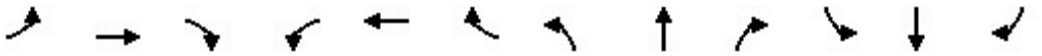
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	5	70	24	3	53	76	986	8	14	664	82
Future Volume (Veh/h)	50	5	70	24	3	53	76	986	8	14	664	82
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	56	6	79	27	3	60	85	1108	9	16	746	92
Pedestrians		3						4			8	
Lane Width (m)		3.6						3.6			3.6	
Walking Speed (m/s)		1.2						1.2			1.2	
Percent Blockage		0						0			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1620	2114	426	1774	2156	566	841			1117		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1620	2114	426	1774	2156	566	841			1117		
tC, single (s)	7.5	6.5	7.0	7.9	6.5	7.0	4.2			4.8		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.0	3.3	2.2			2.5		
p0 queue free %	0	86	86	10	93	87	89			97		
cM capacity (veh/h)	51	44	568	30	42	461	775			469		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	56	85	90	85	739	378	16	497	341
Volume Left	56	0	27	85	0	0	16	0	0
Volume Right	0	79	60	0	0	9	0	0	92
cSH	51	309	82	775	1700	1700	469	1700	1700
Volume to Capacity	1.10	0.28	1.10	0.11	0.43	0.22	0.03	0.29	0.20
Queue Length 95th (m)	39.4	8.8	50.9	2.9	0.0	0.0	0.8	0.0	0.0
Control Delay (s)	288.3	21.0	222.3	10.2	0.0	0.0	12.9	0.0	0.0
Lane LOS	F	C	F	B			B		
Approach Delay (s)	127.2		222.3	0.7			0.2		
Approach LOS	F		F						

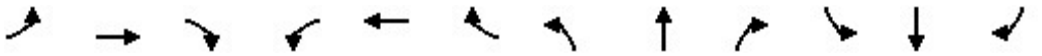
Intersection Summary				
Average Delay	17.1			
Intersection Capacity Utilization	53.1%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	166	31	288	82	84	35	500	497	68	546	148
Future Volume (vph)	76	166	31	288	82	84	35	500	497	68	546	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00	0.99		1.00	0.98		1.00	0.99	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.98		1.00	0.92		1.00	0.93		1.00	0.97	
Flt Protected		0.99		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1818		1783	1723		1804	3230		1801	3408	
Flt Permitted		0.85		0.48	1.00		0.26	1.00		0.14	1.00	
Satd. Flow (perm)		1563		901	1723		491	3230		261	3408	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	86	189	35	327	93	95	40	568	565	77	620	168
RTOR Reduction (vph)	0	6	0	0	49	0	0	240	0	0	33	0
Lane Group Flow (vph)	0	304	0	327	139	0	40	893	0	77	755	0
Confl. Peds. (#/hr)	3		11	11		3	1		11	11		1
Confl. Bikes (#/hr)			2			7			1			4
Heavy Vehicles (%)	0%	1%	5%	1%	0%	2%	0%	2%	1%	0%	2%	2%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio		0.32		0.45	0.45		0.39	0.39		0.39	0.39	
Clearance Time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		500		490	781		189	1248		100	1317	
v/s Ratio Prot				c0.06	0.08			0.28			0.22	
v/s Ratio Perm		0.19		c0.24			0.08			c0.29		
v/c Ratio		0.61		0.67	0.18		0.21	0.72		0.77	0.57	
Uniform Delay, d1		21.5		16.5	12.2		15.4	19.5		20.1	18.1	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		5.4		7.0	0.5		2.5	3.5		42.7	1.8	
Delay (s)		26.9		23.5	12.7		17.9	23.0		62.8	19.9	
Level of Service		C		C	B		B	C		E	B	
Approach Delay (s)		26.9			19.6			22.9			23.8	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	23.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	110.4%	ICU Level of Service	H
Analysis Period (min)	15		

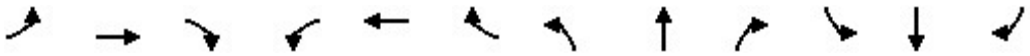
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	52	75	94	59	201	59	556	49	117	595	28
Future Volume (vph)	39	52	75	94	59	201	59	556	49	117	595	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.94			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1751			1842	1576	1803	3494		1786	3481	
Flt Permitted		0.90			0.72	1.00	0.33	1.00		0.35	1.00	
Satd. Flow (perm)		1589			1361	1576	633	3494		649	3481	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	41	55	80	100	63	214	63	591	52	124	633	30
RTOR Reduction (vph)	0	38	0	0	0	149	0	8	0	0	4	0
Lane Group Flow (vph)	0	138	0	0	163	65	63	635	0	124	659	0
Confl. Peds. (#/hr)	1		2	2		1	4		3	3		4
Confl. Bikes (#/hr)						2						1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	2%	0%	1%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Effective Green, g (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Actuated g/C Ratio		0.30			0.30	0.30	0.51	0.41		0.51	0.41	
Clearance Time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Grp Cap (vph)		482			413	478	438	1415		443	1410	
v/s Ratio Prot							0.01	0.18		c0.03	c0.19	
v/s Ratio Perm		0.09			c0.12	0.04	0.06			0.11		
v/c Ratio		0.29			0.39	0.14	0.14	0.45		0.28	0.47	
Uniform Delay, d1		21.0			21.8	20.0	10.2	17.1		10.5	17.2	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.5			2.8	0.6	0.7	1.0		1.6	1.1	
Delay (s)		22.5			24.6	20.6	10.9	18.1		12.1	18.4	
Level of Service		C			C	C	B	B		B	B	
Approach Delay (s)		22.5			22.3			17.5			17.4	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		

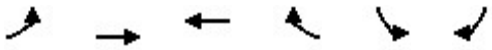
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	24	113	14	31	117	27	8	70	32	41	55	24
Future Volume (vph)	24	113	14	31	117	27	8	70	32	41	55	24
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	26	124	15	34	129	30	9	77	35	45	60	26

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	165	193	121	131
Volume Left (vph)	26	34	9	45
Volume Right (vph)	15	30	35	26
Hadj (s)	-0.02	-0.06	-0.12	-0.01
Departure Headway (s)	4.8	4.7	4.8	4.9
Degree Utilization, x	0.22	0.25	0.16	0.18
Capacity (veh/h)	703	718	682	671
Control Delay (s)	9.1	9.3	8.8	9.0
Approach Delay (s)	9.1	9.3	8.8	9.0
Approach LOS	A	A	A	A

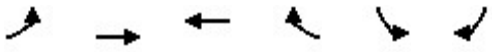
Intersection Summary				
Delay	9.1			
Level of Service	A			
Intersection Capacity Utilization	33.2%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	136	116	8	5	0
Future Volume (Veh/h)	0	136	116	8	5	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	149	127	9	5	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	136				280	132
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	136				280	132
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1448				709	918

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	149	136	5
Volume Left	0	0	5
Volume Right	0	9	0
cSH	1448	1700	709
Volume to Capacity	0.00	0.08	0.01
Queue Length 95th (m)	0.0	0.0	0.2
Control Delay (s)	0.0	0.0	10.1
Lane LOS			B
Approach Delay (s)	0.0	0.0	10.1
Approach LOS			B

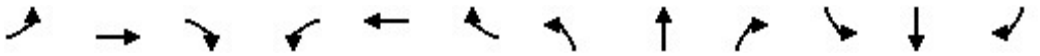
Intersection Summary			
Average Delay		0.2	
Intersection Capacity Utilization		17.2%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	9	142	140	9	10	0
Future Volume (Veh/h)	9	142	140	9	10	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	10	156	154	10	11	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	164				335	159
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	164				335	159
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				98	100
cM capacity (veh/h)	1414				656	886

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	166	164	11
Volume Left	10	0	11
Volume Right	0	10	0
cSH	1414	1700	656
Volume to Capacity	0.01	0.10	0.02
Queue Length 95th (m)	0.2	0.0	0.4
Control Delay (s)	0.5	0.0	10.6
Lane LOS	A		B
Approach Delay (s)	0.5	0.0	10.6
Approach LOS			B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	24.8%	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 (veh/h)	28	89	6	10	80	26	8	304	26	22	138	28
Future Volume (Veh/h)	28	89	6	10	80	26	8	304	26	22	138	28
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	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	30	97	7	11	87	28	9	330	28	24	150	30
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	115			104			388	298	100	476	287	101
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	115			104			388	298	100	476	287	101
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.2	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.0	3.3
p0 queue free %	98			99			98	45	97	91	75	97
cM capacity (veh/h)	1487			1500			441	599	960	264	607	946

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	134	126	367	204
Volume Left	30	11	9	24
Volume Right	7	28	28	30
cSH	1487	1500	611	552
Volume to Capacity	0.02	0.01	0.60	0.37
Queue Length 95th (m)	0.5	0.2	31.9	13.6
Control Delay (s)	1.8	0.7	19.3	15.3
Lane LOS	A	A	C	C
Approach Delay (s)	1.8	0.7	19.3	15.3
Approach LOS			C	C

Intersection Summary				
Average Delay	12.7			
Intersection Capacity Utilization	40.2%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	337	0	0	155
Future Volume (Veh/h)	0	0	337	0	0	155
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	0	370	0	0	170
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	540	370			370	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	540	370			370	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	503	676			1189	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	370	170
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1189
Volume to Capacity	0.00	0.22	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	21.1%	ICU Level of Service	A
Analysis Period (min)	15		

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	3592	3613	3656	3577	3615	3612
Vehs Exited	3608	3602	3668	3593	3640	3622
Starting Vehs	175	170	174	199	183	176
Ending Vehs	159	181	162	183	158	166
Travel Distance (km)	6705	6804	6892	6817	6741	6792
Travel Time (hr)	171.9	174.6	178.8	174.9	172.3	174.5
Total Delay (hr)	36.0	36.8	38.8	37.4	35.7	36.9
Total Stops	5084	5156	5400	5123	5150	5186
Fuel Used (l)	525.5	538.0	542.0	536.1	528.1	533.9

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	3592	3613	3656	3577	3615	3612
Vehs Exited	3608	3602	3668	3593	3640	3622
Starting Vehs	175	170	174	199	183	176
Ending Vehs	159	181	162	183	158	166
Travel Distance (km)	6705	6804	6892	6817	6741	6792
Travel Time (hr)	171.9	174.6	178.8	174.9	172.3	174.5
Total Delay (hr)	36.0	36.8	38.8	37.4	35.7	36.9
Total Stops	5084	5156	5400	5123	5150	5186
Fuel Used (l)	525.5	538.0	542.0	536.1	528.1	533.9

Intersection: 3: Old Barrie Rd E & University Ave

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (m)	26.8	59.8	58.5	60.9	111.8	35.2
Average Queue (m)	12.2	32.8	31.5	31.7	64.9	7.1
95th Queue (m)	22.4	55.4	52.0	53.9	100.8	20.5
Link Distance (m)		579.8	318.4		1089.4	1089.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	106.0			64.0		
Storage Blk Time (%)			0	0		
Queuing Penalty (veh)			1	0		

Intersection: 5: Old Barrie Rd E & Line 15 N

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	13.3	43.4	28.3	70.7
Average Queue (m)	1.1	9.7	13.9	33.3
95th Queue (m)	7.0	27.5	26.1	56.2
Link Distance (m)	288.0	579.8	1006.6	1844.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: University Ave & Diana Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	36.8	21.4	15.2	31.4	42.0	52.3	22.4	32.3	39.9
Average Queue (m)	14.7	8.4	2.9	10.4	19.6	27.9	8.2	12.5	17.0
95th Queue (m)	27.6	18.3	10.1	25.2	35.0	42.6	19.3	26.0	32.2
Link Distance (m)	144.4	117.8	117.8		1089.4	1089.4		535.9	535.9
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				36.0			58.0		
Storage Blk Time (%)				0	1				
Queuing Penalty (veh)				0	0				

Intersection: 12: University Ave & Stone Ridge Blvd/Hunter Valley Rd

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	23.1	17.9	10.4	11.7	4.7	4.2	11.6	3.6	1.7
Average Queue (m)	7.9	7.9	4.1	3.0	0.2	0.1	1.8	0.1	0.1
95th Queue (m)	16.9	15.8	11.4	10.5	2.4	2.3	8.0	1.8	1.2
Link Distance (m)	278.2	278.2	176.5		535.9	535.9		944.3	944.3
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				42.5			90.0		
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 16: University Ave & Monarch Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	61.6	39.2	32.3	10.7	39.2	63.7	47.0	58.2	51.7
Average Queue (m)	32.3	18.3	10.9	1.5	19.3	30.5	19.2	22.6	24.3
95th Queue (m)	53.3	32.5	23.1	6.9	34.6	53.8	38.6	44.3	41.8
Link Distance (m)	173.4	268.3	268.3		944.3	944.3		141.5	141.5
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				47.0			38.0		
Storage Blk Time (%)					0		2	1	
Queuing Penalty (veh)					0		3	1	

Intersection: 19: University Ave & Bass Lake Side Rd E

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	57.8	22.7	23.1	31.9	35.5	44.2	31.3	63.6	48.7
Average Queue (m)	26.6	8.8	7.5	12.3	17.1	20.9	7.7	32.6	17.5
95th Queue (m)	48.7	19.8	15.7	24.7	32.3	37.2	20.7	53.6	35.5
Link Distance (m)	514.5	80.4	80.4		141.5	141.5		174.0	174.0
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				39.0			42.0		
Storage Blk Time (%)				0	0			3	
Queuing Penalty (veh)				0	0			2	

Intersection: 23: Bass Lake Side Rd E & Atlantis Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	23.4	23.5	21.6	26.9
Average Queue (m)	12.1	13.6	11.3	13.9
95th Queue (m)	19.2	21.3	18.4	22.6
Link Distance (m)	314.0	514.5	221.1	203.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: Bass Lake Side Rd E & Old Scotia Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	8.9
Average Queue (m)	1.6
95th Queue (m)	7.3
Link Distance (m)	239.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: Bass Lake Side Rd E & Hepinstall Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	9.2
Average Queue (m)	3.8
95th Queue (m)	11.2
Link Distance (m)	176.0
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 32: Line 15 N & Bass Lake Side Rd E

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	3.4	8.1	21.5	34.3
Average Queue (m)	0.2	0.7	10.7	16.6
95th Queue (m)	2.1	4.4	19.3	25.7
Link Distance (m)	278.4	157.8	607.9	420.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 35: Line 15 N & Stone Ridge Blvd extension

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 9

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	5350	5327	5363	5289	5383	5346
Vehs Exited	5212	5188	5211	5149	5194	5188
Starting Vehs	297	300	332	318	301	307
Ending Vehs	435	439	484	458	490	458
Travel Distance (km)	10065	9928	10046	9793	10098	9986
Travel Time (hr)	425.4	379.5	441.4	476.1	453.3	435.1
Total Delay (hr)	219.8	176.1	236.4	276.0	247.0	231.1
Total Stops	9393	9103	9528	10095	10110	9649
Fuel Used (l)	936.3	891.5	946.3	971.0	965.9	942.2

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	5350	5327	5363	5289	5383	5346
Vehs Exited	5212	5188	5211	5149	5194	5188
Starting Vehs	297	300	332	318	301	307
Ending Vehs	435	439	484	458	490	458
Travel Distance (km)	10065	9928	10046	9793	10098	9986
Travel Time (hr)	425.4	379.5	441.4	476.1	453.3	435.1
Total Delay (hr)	219.8	176.1	236.4	276.0	247.0	231.1
Total Stops	9393	9103	9528	10095	10110	9649
Fuel Used (l)	936.3	891.5	946.3	971.0	965.9	942.2

Intersection: 3: Old Barrie Rd E & University Ave

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (m)	52.2	71.5	294.7	164.0	985.2	939.0
Average Queue (m)	23.7	32.8	175.4	129.2	693.5	514.7
95th Queue (m)	42.3	55.8	375.7	199.2	1060.3	920.0
Link Distance (m)		579.8	318.4		1089.4	1089.4
Upstream Blk Time (%)			12			
Queuing Penalty (veh)			0			
Storage Bay Dist (m)	106.0			64.0		
Storage Blk Time (%)			6	55		
Queuing Penalty (veh)			49	230		

Intersection: 5: Old Barrie Rd E & Line 15 N

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	27.2	39.2	200.6	59.7
Average Queue (m)	2.9	10.1	102.1	25.5
95th Queue (m)	13.7	28.8	216.2	47.9
Link Distance (m)	288.0	579.8	1006.6	1844.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: University Ave & Diana Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	30.0	48.2	22.2	51.7	67.7	71.8	26.5	39.1	41.7
Average Queue (m)	13.1	21.6	9.3	27.3	46.2	50.5	12.7	18.8	24.0
95th Queue (m)	25.3	37.4	17.8	50.2	62.3	65.7	23.3	33.9	38.2
Link Distance (m)	144.4	117.8	117.8		1089.4	1089.4		535.9	535.9
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				36.0			58.0		
Storage Blk Time (%)				2	21				
Queuing Penalty (veh)				7	29				

Intersection: 12: University Ave & Stone Ridge Blvd/Hunter Valley Rd

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	22.2	23.2	32.3	22.2	16.4	23.5	19.7	9.9	14.5
Average Queue (m)	9.4	10.0	13.4	8.2	1.1	1.8	3.1	0.9	1.4
95th Queue (m)	19.4	17.8	25.1	18.4	7.8	10.6	12.4	5.6	7.7
Link Distance (m)	278.2	278.2	176.5		535.9	535.9		944.3	944.3
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				42.5			90.0		
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 16: University Ave & Monarch Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	57.6	67.8	35.3	30.4	91.0	108.9	48.3	88.9	91.2
Average Queue (m)	31.6	31.4	15.9	7.7	41.4	64.8	27.7	47.5	47.7
95th Queue (m)	52.3	54.5	29.5	20.7	71.1	95.4	54.3	97.8	93.8
Link Distance (m)	173.4	268.3	268.3		944.3	944.3		141.5	141.5
Upstream Blk Time (%)								0	0
Queuing Penalty (veh)								0	0
Storage Bay Dist (m)				47.0			38.0		
Storage Blk Time (%)					4		23	7	
Queuing Penalty (veh)					1		64	4	

Intersection: 19: University Ave & Bass Lake Side Rd E

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	52.3	42.8	37.3	32.6	56.6	60.1	34.2	62.3	58.0
Average Queue (m)	20.1	20.7	15.6	8.8	26.1	30.6	13.9	35.6	29.4
95th Queue (m)	40.1	35.6	27.5	21.5	51.0	54.4	26.0	56.0	51.2
Link Distance (m)	514.5	80.4	80.4		141.5	141.5		174.0	174.0
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				39.0			42.0		
Storage Blk Time (%)					4		0	4	
Queuing Penalty (veh)					2		0	5	

Intersection: 23: Bass Lake Side Rd E & Atlantis Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	23.3	20.2	21.9	19.7
Average Queue (m)	13.2	12.9	11.2	10.8
95th Queue (m)	20.6	19.5	17.9	16.4
Link Distance (m)	314.0	514.5	221.1	203.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: Bass Lake Side Rd E & Old Scotia Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	9.0
Average Queue (m)	1.9
95th Queue (m)	7.8
Link Distance (m)	239.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: Bass Lake Side Rd E & Hepinstall Pl

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (m)	10.8	9.2
Average Queue (m)	0.4	2.3
95th Queue (m)	4.4	8.8
Link Distance (m)	883.2	176.0
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 32: Line 15 N & Bass Lake Side Rd E

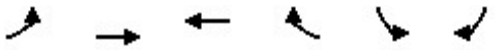
Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	10.3	5.6	39.2	29.2
Average Queue (m)	1.5	0.4	22.1	13.8
95th Queue (m)	6.9	3.2	33.4	23.3
Link Distance (m)	278.4	157.8	607.9	420.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 35: Line 15 N & Stone Ridge Blvd extension

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

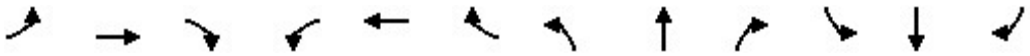
Network Summary

Network wide Queuing Penalty: 393



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	102	419	269	590	488	81
Future Volume (vph)	102	419	269	590	488	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1703	1759	1667	1519	1736	1464
Flt Permitted	0.42	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	749	1759	1667	1519	1736	1464
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	115	471	302	663	548	91
RTOR Reduction (vph)	0	0	0	442	0	61
Lane Group Flow (vph)	115	471	302	221	548	30
Confl. Bikes (#/hr)				1		1
Heavy Vehicles (%)	6%	8%	14%	5%	4%	8%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	36.0	36.0	24.0	24.0	24.0	24.0
Effective Green, g (s)	36.0	36.0	24.0	24.0	24.0	24.0
Actuated g/C Ratio	0.50	0.50	0.33	0.33	0.33	0.33
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	480	879	555	506	578	488
v/s Ratio Prot	0.03	c0.27	0.18		c0.32	
v/s Ratio Perm	0.09			0.15		0.02
v/c Ratio	0.24	0.54	0.54	0.44	0.95	0.06
Uniform Delay, d1	10.1	12.3	19.5	18.7	23.4	16.3
Progression Factor	1.00	1.00	1.00	1.00	1.23	2.34
Incremental Delay, d2	1.2	2.3	3.8	2.7	26.3	0.2
Delay (s)	11.3	14.6	23.3	21.5	55.1	38.4
Level of Service	B	B	C	C	E	D
Approach Delay (s)		14.0	22.0		52.7	
Approach LOS		B	C		D	

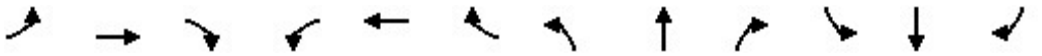
Intersection Summary			
HCM 2000 Control Delay	28.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	61.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	307	46	74	219	57	7	25	55	160	178	13
Future Volume (Veh/h)	6	307	46	74	219	57	7	25	55	160	178	13
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	7	337	51	81	241	63	8	27	60	176	196	14
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	304			388			923	842	362	884	836	272
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	304			388			923	842	362	884	836	272
tC, single (s)	4.1			4.2			8.1	6.6	6.4	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.3			4.4	4.1	3.5	3.5	4.0	3.4
p0 queue free %	99			93			88	90	91	17	30	98
cM capacity (veh/h)	1268			1133			69	272	642	212	281	740

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	395	385	95	386
Volume Left	7	81	8	176
Volume Right	51	63	60	14
cSH	1268	1133	308	249
Volume to Capacity	0.01	0.07	0.31	1.55
Queue Length 95th (m)	0.1	1.8	10.2	186.5
Control Delay (s)	0.2	2.4	21.8	302.1
Lane LOS	A	A	C	F
Approach Delay (s)	0.2	2.4	21.8	302.1
Approach LOS			C	F

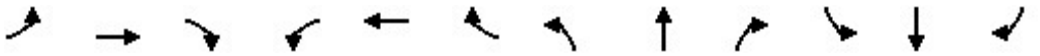
Intersection Summary				
Average Delay	94.9			
Intersection Capacity Utilization	74.0%	ICU Level of Service	D	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	10	106	56	6	27	64	381	88	62	377	24
Future Volume (vph)	42	10	106	56	6	27	64	381	88	62	377	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.91			1.00	0.85	1.00	0.97		1.00	0.99	
Flt Protected		0.99			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1641			1770	1429	1638	3304		1719	3412	
Flt Permitted		0.91			0.70	1.00	0.50	1.00		0.33	1.00	
Satd. Flow (perm)		1519			1289	1429	860	3304		591	3412	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	11	115	61	7	29	70	414	96	67	410	26
RTOR Reduction (vph)	0	75	0	0	0	19	0	28	0	0	7	0
Lane Group Flow (vph)	0	97	0	0	68	10	70	482	0	67	430	0
Confl. Peds. (#/hr)			1	1			2					2
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	4%	0%	3%	3%	0%	13%	10%	5%	9%	5%	5%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Effective Green, g (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Actuated g/C Ratio		0.35			0.35	0.35	0.28	0.28		0.50	0.50	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Grp Cap (vph)		527			447	496	238	917		483	1706	
v/s Ratio Prot								c0.15		0.02	c0.13	
v/s Ratio Perm		c0.06			0.05	0.01	0.08			0.05		
v/c Ratio		0.18			0.15	0.02	0.29	0.53		0.14	0.25	
Uniform Delay, d1		16.4			16.2	15.4	20.4	22.0		9.7	10.3	
Progression Factor		1.00			1.00	1.00	0.87	0.88		1.00	1.00	
Incremental Delay, d2		0.8			0.7	0.1	2.4	1.7		0.6	0.4	
Delay (s)		17.2			16.9	15.5	20.2	21.0		10.3	10.7	
Level of Service		B			B	B	C	C		B	B	
Approach Delay (s)		17.2			16.5			20.9			10.6	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	16.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

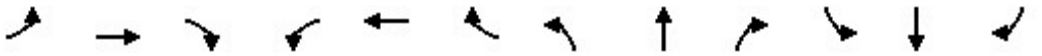
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	6	48	3	1	17	24	503	17	25	521	46
Future Volume (Veh/h)	45	6	48	3	1	17	24	503	17	25	521	46
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	48	6	51	3	1	18	26	535	18	27	554	49
Pedestrians		1									2	
Lane Width (m)		3.6									3.6	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	974	1238	302	981	1254	278	604			553		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	974	1238	302	981	1254	278	604			553		
tC, single (s)	7.6	6.5	7.0	7.5	6.5	6.9	4.4			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.4	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	74	96	92	98	99	98	97			97		
cM capacity (veh/h)	185	167	678	178	164	724	891			1027		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	48	57	22	26	357	196	27	369	234
Volume Left	48	0	3	26	0	0	27	0	0
Volume Right	0	51	18	0	0	18	0	0	49
cSH	185	513	460	891	1700	1700	1027	1700	1700
Volume to Capacity	0.26	0.11	0.05	0.03	0.21	0.12	0.03	0.22	0.14
Queue Length 95th (m)	8.0	3.0	1.2	0.7	0.0	0.0	0.6	0.0	0.0
Control Delay (s)	31.2	12.9	13.2	9.2	0.0	0.0	8.6	0.0	0.0
Lane LOS	D	B	B	A			A		
Approach Delay (s)	21.3		13.2	0.4			0.4		
Approach LOS	C		B						

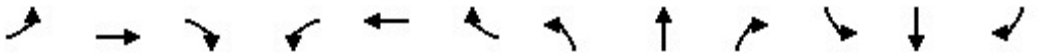
Intersection Summary				
Average Delay	2.2			
Intersection Capacity Utilization	36.6%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	165	38	164	73	56	8	279	286	102	412	76
Future Volume (vph)	92	165	38	164	73	56	8	279	286	102	412	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00	0.99		1.00	0.98		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		0.99	1.00	
Frt		0.98		1.00	0.93		1.00	0.92		1.00	0.98	
Flt Protected		0.98		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1799		1732	1697		1804	3165		1661	3388	
Flt Permitted		0.84		0.48	1.00		0.41	1.00		0.36	1.00	
Satd. Flow (perm)		1540		874	1697		782	3165		622	3388	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	101	181	42	180	80	62	9	307	314	112	453	84
RTOR Reduction (vph)	0	7	0	0	34	0	0	193	0	0	20	0
Lane Group Flow (vph)	0	317	0	180	108	0	9	428	0	112	517	0
Confl. Peds. (#/hr)	3		11	11		3	1		11	11		1
Confl. Bikes (#/hr)			2			1						1
Heavy Vehicles (%)	4%	1%	0%	4%	0%	9%	0%	4%	3%	8%	4%	2%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio		0.32		0.45	0.45		0.39	0.39		0.39	0.39	
Clearance Time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		492		476	769		302	1223		240	1310	
v/s Ratio Prot				c0.04	0.06			0.14			0.15	
v/s Ratio Perm		c0.21		0.14			0.01			c0.18		
v/c Ratio		0.64		0.38	0.14		0.03	0.35		0.47	0.39	
Uniform Delay, d1		21.8		13.4	12.0		14.3	16.3		17.2	16.6	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		6.3		2.3	0.4		0.2	0.8		6.4	0.9	
Delay (s)		28.2		15.7	12.4		14.5	17.1		23.6	17.5	
Level of Service		C		B	B		B	B		C	B	
Approach Delay (s)		28.2			14.2			17.1			18.6	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	100.8%	ICU Level of Service	G
Analysis Period (min)	15		

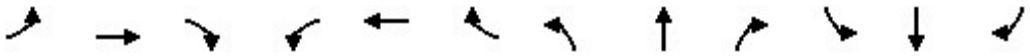
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	48	125	34	21	69	105	324	21	63	437	36
Future Volume (vph)	81	48	125	34	21	69	105	324	21	63	437	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.93			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1673			1843	1516	1717	3396		1751	3382	
Flt Permitted		0.87			0.76	1.00	0.42	1.00		0.53	1.00	
Satd. Flow (perm)		1484			1446	1516	768	3396		971	3382	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	89	53	137	37	23	76	115	356	23	69	480	40
RTOR Reduction (vph)	0	44	0	0	0	53	0	6	0	0	8	0
Lane Group Flow (vph)	0	235	0	0	60	23	115	373	0	69	512	0
Confl. Peds. (#/hr)							2		1	1		2
Confl. Bikes (#/hr)						3			3			1
Heavy Vehicles (%)	6%	0%	5%	0%	0%	5%	5%	5%	8%	3%	5%	9%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Effective Green, g (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Actuated g/C Ratio		0.30			0.30	0.30	0.51	0.41		0.51	0.41	
Clearance Time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Grp Cap (vph)		450			439	460	484	1375		570	1369	
v/s Ratio Prot							c0.02	0.11		0.01	c0.15	
v/s Ratio Perm		c0.16			0.04	0.02	0.10			0.05		
v/c Ratio		0.52			0.14	0.05	0.24	0.27		0.12	0.37	
Uniform Delay, d1		22.8			20.0	19.4	10.4	15.7		10.0	16.5	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		4.3			0.6	0.2	1.2	0.5		0.4	0.8	
Delay (s)		27.1			20.6	19.6	11.5	16.2		10.5	17.3	
Level of Service		C			C	B	B	B		B	B	
Approach Delay (s)		27.1			20.1			15.1			16.5	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		

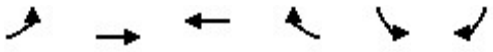
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	43	84	7	27	38	88	10	76	45	109	45	42
Future Volume (vph)	43	84	7	27	38	88	10	76	45	109	45	42
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Hourly flow rate (vph)	69	135	11	44	61	142	16	123	73	176	73	68

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	215	247	212	317
Volume Left (vph)	69	44	16	176
Volume Right (vph)	11	142	73	68
Hadj (s)	0.05	-0.23	-0.09	0.11
Departure Headway (s)	6.0	5.7	5.8	5.8
Degree Utilization, x	0.36	0.39	0.34	0.51
Capacity (veh/h)	529	573	553	580
Control Delay (s)	12.3	12.2	11.8	14.7
Approach Delay (s)	12.3	12.2	11.8	14.7
Approach LOS	B	B	B	B

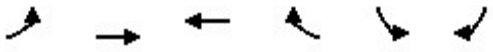
Intersection Summary				
Delay	12.9			
Level of Service	B			
Intersection Capacity Utilization	42.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	95	76	3	7	0
Future Volume (Veh/h)	0	95	76	3	7	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	103	83	3	8	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	86				188	84
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	86				188	84
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1510				802	975

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	103	86	8
Volume Left	0	0	8
Volume Right	0	3	0
cSH	1510	1700	802
Volume to Capacity	0.00	0.05	0.01
Queue Length 95th (m)	0.0	0.0	0.2
Control Delay (s)	0.0	0.0	9.5
Lane LOS			A
Approach Delay (s)	0.0	0.0	9.5
Approach LOS			A

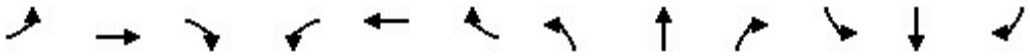
Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	15.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	116	84	6	18	0
Future Volume (Veh/h)	1	116	84	6	18	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	126	91	7	20	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	98				222	94
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	98				222	94
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				97	100
cM capacity (veh/h)	1495				765	962

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	127	98	20
Volume Left	1	0	20
Volume Right	0	7	0
cSH	1495	1700	765
Volume to Capacity	0.00	0.06	0.03
Queue Length 95th (m)	0.0	0.0	0.6
Control Delay (s)	0.1	0.0	9.8
Lane LOS	A		A
Approach Delay (s)	0.1	0.0	9.8
Approach LOS			A

Intersection Summary			
Average Delay		0.8	
Intersection Capacity Utilization		16.9%	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 (veh/h)	24	73	8	31	42	3	11	62	15	7	314	18
Future Volume (Veh/h)	24	73	8	31	42	3	11	62	15	7	314	18
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	28	84	9	36	48	3	13	71	17	8	361	21
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	51			93			468	268	88	318	270	50
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	51			93			468	268	88	318	270	50
tC, single (s)	4.2			4.1			7.1	6.6	6.2	7.3	6.5	6.4
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.1	3.3	3.7	4.0	3.5
p0 queue free %	98			98			95	88	98	98	41	98
cM capacity (veh/h)	1524			1514			257	602	975	513	613	975

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	121	87	101	390
Volume Left	28	36	13	8
Volume Right	9	3	17	21
cSH	1524	1514	543	623
Volume to Capacity	0.02	0.02	0.19	0.63
Queue Length 95th (m)	0.4	0.6	5.4	35.0
Control Delay (s)	1.8	3.2	13.1	20.0
Lane LOS	A	A	B	C
Approach Delay (s)	1.8	3.2	13.1	20.0
Approach LOS			B	C

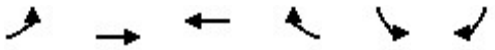
Intersection Summary			
Average Delay	13.8		
Intersection Capacity Utilization	32.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	88	0	0	353
Future Volume (Veh/h)	0	0	88	0	0	353
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	96	0	0	384
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	480	96			96	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	480	96			96	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	545	960			1498	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	96	384
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1498
Volume to Capacity	0.00	0.06	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

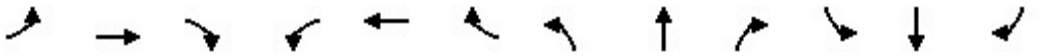
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	21.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	207	422	454	913	850	220
Future Volume (vph)	207	422	454	913	850	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1703	1759	1667	1518	1736	1459
Flt Permitted	0.21	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	377	1759	1667	1518	1736	1459
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	223	454	488	982	914	237
RTOR Reduction (vph)	0	0	0	589	0	143
Lane Group Flow (vph)	223	454	488	393	914	94
Confl. Peds. (#/hr)	1			1		
Confl. Bikes (#/hr)						4
Heavy Vehicles (%)	6%	8%	14%	5%	4%	8%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	36.0	36.0	24.0	24.0	24.0	24.0
Effective Green, g (s)	36.0	36.0	24.0	24.0	24.0	24.0
Actuated g/C Ratio	0.50	0.50	0.33	0.33	0.33	0.33
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	335	879	555	506	578	486
v/s Ratio Prot	c0.07	0.26	c0.29		c0.53	
v/s Ratio Perm	0.26			0.26		0.06
v/c Ratio	0.67	0.52	0.88	0.78	1.58	0.19
Uniform Delay, d1	12.7	12.1	22.6	21.6	24.0	17.1
Progression Factor	1.00	1.00	1.00	1.00	1.13	2.10
Incremental Delay, d2	10.0	2.2	17.8	11.2	269.6	0.9
Delay (s)	22.7	14.3	40.4	32.8	296.7	36.7
Level of Service	C	B	D	C	F	D
Approach Delay (s)		17.1	35.3		243.1	
Approach LOS		B	D		F	

Intersection Summary			
HCM 2000 Control Delay	104.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	95.8%	ICU Level of Service	F
Analysis Period (min)	15		

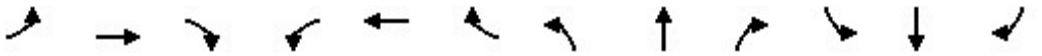
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	389	10	62	440	172	35	182	112	127	29	8
Future Volume (Veh/h)	13	389	10	62	440	172	35	182	112	127	29	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	14	427	11	68	484	189	38	200	123	140	32	9
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	673			438			1200	1270	432	1398	1180	578
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	673			438			1200	1270	432	1398	1180	578
tC, single (s)	4.1			4.2			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			94			71	0	80	0	82	98
cM capacity (veh/h)	927			1076			130	155	621	0	177	519

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	452	741	361	181
Volume Left	14	68	38	140
Volume Right	11	189	123	9
cSH	927	1076	203	0
Volume to Capacity	0.02	0.06	1.78	Err
Queue Length 95th (m)	0.4	1.6	201.1	Err
Control Delay (s)	0.5	1.6	409.8	Err
Lane LOS	A	A	F	F
Approach Delay (s)	0.5	1.6	409.8	Err
Approach LOS			F	F

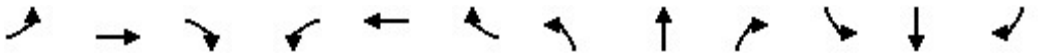
Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	99.6%	ICU Level of Service	F	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	8	90	161	28	97	154	824	92	111	572	29
Future Volume (vph)	29	8	90	161	28	97	154	824	92	111	572	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.90			1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected		0.99			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1659			1807	1555	1797	3458		1805	3478	
Flt Permitted		0.91			0.69	1.00	0.40	1.00		0.17	1.00	
Satd. Flow (perm)		1519			1305	1555	763	3458		317	3478	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	9	98	175	30	105	167	896	100	121	622	32
RTOR Reduction (vph)	0	64	0	0	0	69	0	12	0	0	5	0
Lane Group Flow (vph)	0	75	0	0	205	36	167	984	0	121	649	0
Confl. Peds. (#/hr)	5					5	6		4	4		6
Confl. Bikes (#/hr)			2			3			2			4
Heavy Vehicles (%)	0%	0%	2%	1%	0%	2%	0%	2%	7%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Effective Green, g (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Actuated g/C Ratio		0.35			0.35	0.35	0.28	0.28		0.50	0.50	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Grp Cap (vph)		527			453	539	211	960		406	1739	
v/s Ratio Prot								c0.28		0.05	c0.19	
v/s Ratio Perm		0.05			c0.16	0.02	0.22			0.10		
v/c Ratio		0.14			0.45	0.07	0.79	1.03		0.30	0.37	
Uniform Delay, d1		16.1			18.2	15.7	24.1	26.0		12.5	11.1	
Progression Factor		1.00			1.00	1.00	0.90	0.90		1.00	1.00	
Incremental Delay, d2		0.6			3.2	0.2	14.0	27.3		1.9	0.6	
Delay (s)		16.7			21.4	16.0	35.7	50.8		14.3	11.7	
Level of Service		B			C	B	D	D		B	B	
Approach Delay (s)		16.7			19.6			48.6			12.1	
Approach LOS		B			B			D			B	

Intersection Summary			
HCM 2000 Control Delay	31.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		

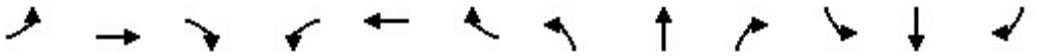
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	6	76	27	3	57	83	1073	8	15	723	90
Future Volume (Veh/h)	55	6	76	27	3	57	83	1073	8	15	723	90
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	62	7	85	30	3	64	93	1206	9	17	812	101
Pedestrians		3						4			8	
Lane Width (m)		3.6						3.6			3.6	
Walking Speed (m/s)		1.2						1.2			1.2	
Percent Blockage		0						0			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1762	2300	464	1929	2346	616	916			1215		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1762	2300	464	1929	2346	616	916			1215		
tC, single (s)	7.5	6.5	7.0	7.9	6.5	7.0	4.2			4.8		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.0	3.3	2.2			2.5		
p0 queue free %	0	79	84	0	90	85	87			96		
cM capacity (veh/h)	37	33	537	20	31	428	726			424		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	62	92	97	93	804	411	17	541	372
Volume Left	62	0	30	93	0	0	17	0	0
Volume Right	0	85	64	0	0	9	0	0	101
cSH	37	247	56	726	1700	1700	424	1700	1700
Volume to Capacity	1.66	0.37	1.73	0.13	0.47	0.24	0.04	0.32	0.22
Queue Length 95th (m)	52.8	13.1	73.0	3.5	0.0	0.0	1.0	0.0	0.0
Control Delay (s)	557.0	28.0	512.6	10.7	0.0	0.0	13.8	0.0	0.0
Lane LOS	F	D	F	B			B		
Approach Delay (s)	241.0		512.6	0.8			0.3		
Approach LOS	F		F						

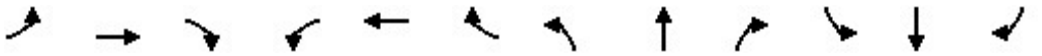
Intersection Summary				
Average Delay	35.4			
Intersection Capacity Utilization	55.8%	ICU Level of Service		B
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	181	34	314	90	91	38	544	541	74	594	161
Future Volume (vph)	83	181	34	314	90	91	38	544	541	74	594	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00	0.99		1.00	0.98		1.00	0.99	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.98		1.00	0.92		1.00	0.93		1.00	0.97	
Flt Protected		0.99		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1818		1783	1724		1804	3230		1802	3408	
Flt Permitted		0.84		0.46	1.00		0.22	1.00		0.14	1.00	
Satd. Flow (perm)		1546		861	1724		423	3230		262	3408	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	94	206	39	357	102	103	43	618	615	84	675	183
RTOR Reduction (vph)	0	6	0	0	49	0	0	240	0	0	33	0
Lane Group Flow (vph)	0	333	0	357	156	0	43	993	0	84	825	0
Confl. Peds. (#/hr)	3		11	11		3	1		11	11		1
Confl. Bikes (#/hr)			2			7			1			4
Heavy Vehicles (%)	0%	1%	5%	1%	0%	2%	0%	2%	1%	0%	2%	2%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio		0.32		0.45	0.45		0.39	0.39		0.39	0.39	
Clearance Time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		494		476	781		163	1248		101	1317	
v/s Ratio Prot				c0.07	0.09			0.31			0.24	
v/s Ratio Perm		0.22		c0.27			0.10			c0.32		
v/c Ratio		0.67		0.75	0.20		0.26	0.80		0.83	0.63	
Uniform Delay, d1		22.1		17.9	12.3		15.7	20.4		20.8	18.6	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		7.2		10.4	0.6		3.9	5.3		52.2	2.3	
Delay (s)		29.3		28.3	12.9		19.6	25.7		72.9	20.9	
Level of Service		C		C	B		B	C		E	C	
Approach Delay (s)		29.3			22.7			25.5			25.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	113.0%	ICU Level of Service	H
Analysis Period (min)	15		

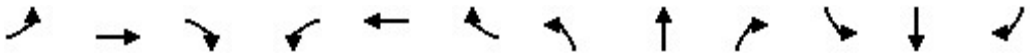
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	56	81	102	64	219	64	605	53	127	647	31
Future Volume (vph)	42	56	81	102	64	219	64	605	53	127	647	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.94			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1752			1842	1576	1804	3494		1786	3480	
Flt Permitted		0.89			0.70	1.00	0.30	1.00		0.31	1.00	
Satd. Flow (perm)		1577			1328	1576	570	3494		587	3480	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	45	60	86	109	68	233	68	644	56	135	688	33
RTOR Reduction (vph)	0	38	0	0	0	162	0	8	0	0	4	0
Lane Group Flow (vph)	0	153	0	0	177	71	68	692	0	135	717	0
Confl. Peds. (#/hr)	1		2	2		1	4		3	3		4
Confl. Bikes (#/hr)						2						1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	2%	0%	1%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Effective Green, g (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Actuated g/C Ratio		0.30			0.30	0.30	0.51	0.41		0.51	0.41	
Clearance Time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Grp Cap (vph)		479			403	478	413	1415		418	1409	
v/s Ratio Prot							0.02	0.20		c0.03	c0.21	
v/s Ratio Perm		0.10			c0.13	0.04	0.07			0.13		
v/c Ratio		0.32			0.44	0.15	0.16	0.49		0.32	0.51	
Uniform Delay, d1		21.2			22.1	20.0	10.3	17.4		10.7	17.6	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.8			3.5	0.7	0.9	1.2		2.0	1.3	
Delay (s)		23.0			25.5	20.7	11.2	18.6		12.7	18.9	
Level of Service		C			C	C	B	B		B	B	
Approach Delay (s)		23.0			22.8			18.0			18.0	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		

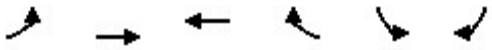
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	27	123	15	34	127	29	8	76	35	45	60	27
Future Volume (vph)	27	123	15	34	127	29	8	76	35	45	60	27
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	30	135	16	37	140	32	9	84	38	49	66	30

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	181	209	131	145
Volume Left (vph)	30	37	9	49
Volume Right (vph)	16	32	38	30
Hadj (s)	-0.02	-0.06	-0.12	-0.01
Departure Headway (s)	4.9	4.8	5.0	5.0
Degree Utilization, x	0.25	0.28	0.18	0.20
Capacity (veh/h)	686	701	661	651
Control Delay (s)	9.4	9.6	9.1	9.3
Approach Delay (s)	9.4	9.6	9.1	9.3
Approach LOS	A	A	A	A

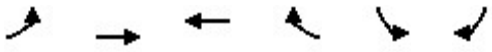
Intersection Summary				
Delay	9.4			
Level of Service	A			
Intersection Capacity Utilization	34.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	148	126	8	6	0
Future Volume (Veh/h)	0	148	126	8	6	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	163	138	9	7	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	147				306	142
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	147				306	142
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1435				686	905

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	163	147	7
Volume Left	0	0	7
Volume Right	0	9	0
cSH	1435	1700	686
Volume to Capacity	0.00	0.09	0.01
Queue Length 95th (m)	0.0	0.0	0.2
Control Delay (s)	0.0	0.0	10.3
Lane LOS			B
Approach Delay (s)	0.0	0.0	10.3
Approach LOS			B

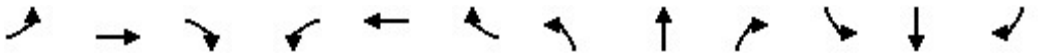
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	17.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	154	153	10	11	0
Future Volume (Veh/h)	10	154	153	10	11	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	11	169	168	11	12	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	179				364	174
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	179				364	174
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				98	100
cM capacity (veh/h)	1397				630	870

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	180	179	12
Volume Left	11	0	12
Volume Right	0	11	0
cSH	1397	1700	630
Volume to Capacity	0.01	0.11	0.02
Queue Length 95th (m)	0.2	0.0	0.5
Control Delay (s)	0.5	0.0	10.8
Lane LOS	A		B
Approach Delay (s)	0.5	0.0	10.8
Approach LOS			B

Intersection Summary			
Average Delay	0.6		
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 (veh/h)	31	97	7	11	87	28	8	331	28	24	150	31
Future Volume (Veh/h)	31	97	7	11	87	28	8	331	28	24	150	31
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	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	105	8	12	95	30	9	360	30	26	163	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)												
pX, platoon unblocked												
vC, conflicting volume	125			113			426	326	109	521	315	110
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	125			113			426	326	109	521	315	110
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.2	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.0	3.3
p0 queue free %	98			99			98	37	97	88	72	96
cM capacity (veh/h)	1474			1489			400	575	950	217	584	935

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	147	137	399	223
Volume Left	34	12	9	26
Volume Right	8	30	30	34
cSH	1474	1489	587	512
Volume to Capacity	0.02	0.01	0.68	0.44
Queue Length 95th (m)	0.6	0.2	41.7	17.5
Control Delay (s)	1.9	0.7	23.1	17.3
Lane LOS	A	A	C	C
Approach Delay (s)	1.9	0.7	23.1	17.3
Approach LOS			C	C

Intersection Summary				
Average Delay	14.9			
Intersection Capacity Utilization	43.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	367	0	0	168
Future Volume (Veh/h)	0	0	367	0	0	168
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	0	403	0	0	185
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	588	403			403	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	588	403			403	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	471	647			1156	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	403	185
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1156
Volume to Capacity	0.00	0.24	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	22.6%	ICU Level of Service	A
Analysis Period (min)	15		

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	3896	3854	3951	4047	3822	3912
Vehs Exited	3915	3830	3916	4037	3826	3904
Starting Vehs	199	165	178	190	187	178
Ending Vehs	180	189	213	200	183	185
Travel Distance (km)	7368	7325	7426	7424	7126	7334
Travel Time (hr)	192.4	192.5	192.4	197.0	183.9	191.6
Total Delay (hr)	42.9	44.3	42.0	46.6	39.7	43.1
Total Stops	5752	5754	5639	5935	5459	5709
Fuel Used (l)	579.8	580.0	585.9	589.4	561.9	579.4

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	3896	3854	3951	4047	3822	3912
Vehs Exited	3915	3830	3916	4037	3826	3904
Starting Vehs	199	165	178	190	187	178
Ending Vehs	180	189	213	200	183	185
Travel Distance (km)	7368	7325	7426	7424	7126	7334
Travel Time (hr)	192.4	192.5	192.4	197.0	183.9	191.6
Total Delay (hr)	42.9	44.3	42.0	46.6	39.7	43.1
Total Stops	5752	5754	5639	5935	5459	5709
Fuel Used (l)	579.8	580.0	585.9	589.4	561.9	579.4

Intersection: 3: Old Barrie Rd E & University Ave

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (m)	29.0	60.4	76.3	82.4	130.8	23.4
Average Queue (m)	13.6	33.7	35.8	37.0	79.7	7.2
95th Queue (m)	24.6	54.3	61.8	65.3	125.4	16.6
Link Distance (m)		579.8	318.4		1089.4	1089.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	106.0			64.0		
Storage Blk Time (%)			1	1		
Queuing Penalty (veh)			3	4		

Intersection: 5: Old Barrie Rd E & Line 15 N

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	15.8	50.2	35.1	88.1
Average Queue (m)	1.4	11.4	14.5	45.6
95th Queue (m)	7.7	32.8	25.9	78.4
Link Distance (m)	288.0	579.8	1006.6	1844.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: University Ave & Diana Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	39.4	22.6	16.4	26.8	39.9	49.0	23.0	27.2	36.3
Average Queue (m)	17.0	9.9	4.1	10.6	20.0	30.3	8.0	14.1	16.7
95th Queue (m)	31.7	20.5	12.3	22.9	35.3	45.7	17.8	25.8	29.8
Link Distance (m)	144.4	117.8	117.8		1089.4	1089.4		535.9	535.9
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				36.0			58.0		
Storage Blk Time (%)					0				
Queuing Penalty (veh)					0				

Intersection: 12: University Ave & Stone Ridge Blvd/Hunter Valley Rd

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	19.1	18.2	10.5	19.9	6.6	6.0	11.4	1.8	8.4
Average Queue (m)	7.7	8.7	4.6	2.5	0.3	0.3	2.0	0.1	0.3
95th Queue (m)	17.0	16.3	11.8	11.0	3.9	4.5	8.3	1.3	3.3
Link Distance (m)	278.2	278.2	176.5		535.9	535.9		944.3	944.3
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				42.5			90.0		
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 16: University Ave & Monarch Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	82.3	38.0	36.4	9.7	48.4	63.9	41.1	50.2	55.7
Average Queue (m)	37.2	19.3	12.4	1.8	20.6	35.0	18.9	22.7	26.8
95th Queue (m)	64.0	33.9	26.1	7.3	38.9	56.2	35.6	42.9	45.5
Link Distance (m)	173.4	268.3	268.3		944.3	944.3		141.5	141.5
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				47.0			38.0		
Storage Blk Time (%)					0		1	1	
Queuing Penalty (veh)					0		3	1	

Intersection: 19: University Ave & Bass Lake Side Rd E

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	65.0	23.9	19.0	28.5	40.0	48.5	38.8	70.2	46.5
Average Queue (m)	30.2	9.0	7.4	12.7	16.3	21.0	8.8	32.6	19.9
95th Queue (m)	53.1	19.0	15.4	23.7	32.7	39.6	23.0	55.2	39.4
Link Distance (m)	514.5	80.4	80.4		141.5	141.5		174.0	174.0
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				39.0			42.0		
Storage Blk Time (%)					0			2	
Queuing Penalty (veh)					0			1	

Intersection: 23: Bass Lake Side Rd E & Atlantis Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	21.1	24.5	23.2	32.7
Average Queue (m)	12.7	13.5	11.8	15.3
95th Queue (m)	20.4	21.4	19.0	25.5
Link Distance (m)	314.0	514.5	221.1	203.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: Bass Lake Side Rd E & Old Scotia Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	9.0
Average Queue (m)	1.9
95th Queue (m)	7.9
Link Distance (m)	239.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: Bass Lake Side Rd E & Hepinstall Pl

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (m)	1.8	10.7
Average Queue (m)	0.1	4.2
95th Queue (m)	1.3	11.8
Link Distance (m)	883.2	176.0
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 32: Line 15 N & Bass Lake Side Rd E

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	4.8	8.6	20.6	31.2
Average Queue (m)	0.4	1.1	11.0	17.3
95th Queue (m)	3.0	5.7	18.9	26.4
Link Distance (m)	278.4	157.8	607.9	420.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 35: Line 15 N & Stone Ridge Blvd extension

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 13

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	5672	5669	5748	5628	5608	5662
Vehs Exited	5435	5402	5529	5387	5403	5431
Starting Vehs	382	321	364	324	347	347
Ending Vehs	619	588	583	565	552	573
Travel Distance (km)	10563	10407	10502	10321	10418	10442
Travel Time (hr)	644.4	584.4	577.7	520.5	563.8	578.2
Total Delay (hr)	429.1	372.3	363.0	309.8	351.4	365.1
Total Stops	10849	10488	10717	10747	10638	10686
Fuel Used (l)	1154.1	1094.3	1094.5	1034.8	1079.7	1091.5

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	5672	5669	5748	5628	5608	5662
Vehs Exited	5435	5402	5529	5387	5403	5431
Starting Vehs	382	321	364	324	347	347
Ending Vehs	619	588	583	565	552	573
Travel Distance (km)	10563	10407	10502	10321	10418	10442
Travel Time (hr)	644.4	584.4	577.7	520.5	563.8	578.2
Total Delay (hr)	429.1	372.3	363.0	309.8	351.4	365.1
Total Stops	10849	10488	10717	10747	10638	10686
Fuel Used (l)	1154.1	1094.3	1094.5	1034.8	1079.7	1091.5

Intersection: 3: Old Barrie Rd E & University Ave

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (m)	52.0	80.1	335.6	164.0	1058.2	1035.2
Average Queue (m)	25.5	34.0	313.0	163.6	812.4	678.1
95th Queue (m)	42.3	59.8	383.3	166.8	1173.9	1082.7
Link Distance (m)		579.8	318.4		1089.4	1089.4
Upstream Blk Time (%)			30		0	0
Queuing Penalty (veh)			0		2	0
Storage Bay Dist (m)	106.0			64.0		
Storage Blk Time (%)			13	75		
Queuing Penalty (veh)			120	339		

Intersection: 5: Old Barrie Rd E & Line 15 N

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	39.5	54.8	413.5	76.7
Average Queue (m)	4.5	13.1	233.4	30.9
95th Queue (m)	21.6	37.2	428.4	61.1
Link Distance (m)	288.0	579.8	1006.6	1844.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: University Ave & Diana Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	33.8	45.9	20.6	51.8	77.0	78.5	30.8	45.2	46.6
Average Queue (m)	14.2	21.3	8.8	26.4	47.7	52.3	13.2	20.8	24.4
95th Queue (m)	26.1	37.2	17.8	48.2	67.7	69.5	24.5	37.7	40.3
Link Distance (m)	144.4	117.8	117.8		1089.4	1089.4		535.9	535.9
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				36.0			58.0		
Storage Blk Time (%)				2	22			0	
Queuing Penalty (veh)				9	35			0	

Intersection: 12: University Ave & Stone Ridge Blvd/Hunter Valley Rd

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	22.2	22.8	40.7	24.4	15.3	23.7	21.5	14.6	14.5
Average Queue (m)	10.4	10.9	15.0	9.3	1.6	1.5	2.7	0.9	2.0
95th Queue (m)	20.0	18.2	30.9	20.4	9.8	9.9	12.0	7.2	9.3
Link Distance (m)	278.2	278.2	176.5		535.9	535.9		944.3	944.3
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				42.5			90.0		
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 16: University Ave & Monarch Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	71.1	80.6	34.2	45.2	86.2	119.0	52.8	97.6	90.7
Average Queue (m)	36.6	39.6	16.1	8.7	44.1	69.1	37.2	51.2	50.4
95th Queue (m)	60.4	70.3	30.7	24.8	74.2	104.5	63.2	98.5	91.2
Link Distance (m)	173.4	268.3	268.3		944.3	944.3		141.5	141.5
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				47.0			38.0		
Storage Blk Time (%)					5		46	7	
Queuing Penalty (veh)					2		135	5	

Intersection: 19: University Ave & Bass Lake Side Rd E

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	45.0	43.7	36.2	44.3	60.3	61.0	31.0	64.5	56.7
Average Queue (m)	21.0	21.8	16.4	10.2	28.5	30.2	14.6	38.0	29.3
95th Queue (m)	36.5	38.4	28.8	26.1	51.1	52.3	26.1	58.3	48.6
Link Distance (m)	514.5	80.4	80.4		141.5	141.5		174.0	174.0
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				39.0			42.0		
Storage Blk Time (%)				0	3		0	4	
Queuing Penalty (veh)				0	2		0	6	

Intersection: 23: Bass Lake Side Rd E & Atlantis Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	23.0	24.6	23.2	20.9
Average Queue (m)	13.7	13.5	10.8	11.3
95th Queue (m)	20.5	20.8	18.1	17.8
Link Distance (m)	314.0	514.5	221.1	203.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: Bass Lake Side Rd E & Old Scotia Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	9.0
Average Queue (m)	1.5
95th Queue (m)	7.1
Link Distance (m)	239.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: Bass Lake Side Rd E & Hepinstall Pl

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (m)	8.3	9.2
Average Queue (m)	0.3	2.9
95th Queue (m)	3.4	9.7
Link Distance (m)	883.2	176.0
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 32: Line 15 N & Bass Lake Side Rd E

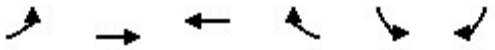
Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	10.3	9.8	40.8	25.4
Average Queue (m)	1.3	0.6	22.0	13.9
95th Queue (m)	6.4	4.7	34.0	21.9
Link Distance (m)	278.4	157.8	607.9	420.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 35: Line 15 N & Stone Ridge Blvd extension

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

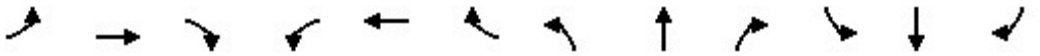
Network Summary

Network wide Queuing Penalty: 655



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	111	456	293	642	530	88
Future Volume (vph)	111	456	293	642	530	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1703	1759	1667	1519	1736	1464
Flt Permitted	0.39	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	693	1759	1667	1519	1736	1464
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	125	512	329	721	596	99
RTOR Reduction (vph)	0	0	0	481	0	66
Lane Group Flow (vph)	125	512	329	240	596	33
Confl. Bikes (#/hr)				1		1
Heavy Vehicles (%)	6%	8%	14%	5%	4%	8%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	36.0	36.0	24.0	24.0	24.0	24.0
Effective Green, g (s)	36.0	36.0	24.0	24.0	24.0	24.0
Actuated g/C Ratio	0.50	0.50	0.33	0.33	0.33	0.33
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	458	879	555	506	578	488
v/s Ratio Prot	0.03	c0.29	0.20		c0.34	
v/s Ratio Perm	0.11			0.16		0.02
v/c Ratio	0.27	0.58	0.59	0.47	1.03	0.07
Uniform Delay, d1	10.3	12.7	19.9	19.0	24.0	16.4
Progression Factor	1.00	1.00	1.00	1.00	1.23	2.37
Incremental Delay, d2	1.5	2.8	4.6	3.2	45.3	0.3
Delay (s)	11.8	15.5	24.5	22.2	74.8	39.1
Level of Service	B	B	C	C	E	D
Approach Delay (s)		14.8	22.9		69.7	
Approach LOS		B	C		E	

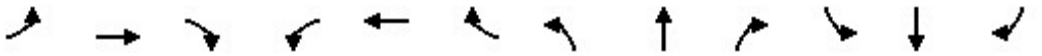
Intersection Summary			
HCM 2000 Control Delay	34.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	334	50	81	238	62	8	27	59	174	194	14
Future Volume (Veh/h)	6	334	50	81	238	62	8	27	59	174	194	14
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	7	367	55	89	262	68	9	30	65	191	213	15
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	330			422			1004	916	394	962	910	296
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	330			422			1004	916	394	962	910	296
tC, single (s)	4.1			4.2			8.1	6.6	6.4	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.3			4.4	4.1	3.5	3.5	4.0	3.4
p0 queue free %	99			92			77	88	89	0	15	98
cM capacity (veh/h)	1241			1101			40	244	615	180	252	718

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	429	419	104	419
Volume Left	7	89	9	191
Volume Right	55	68	65	15
cSH	1241	1101	228	217
Volume to Capacity	0.01	0.08	0.46	1.93
Queue Length 95th (m)	0.1	2.1	17.6	243.1
Control Delay (s)	0.2	2.5	33.4	471.5
Lane LOS	A	A	D	F
Approach Delay (s)	0.2	2.5	33.4	471.5
Approach LOS			D	F

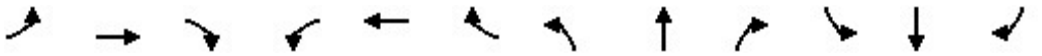
Intersection Summary				
Average Delay	147.4			
Intersection Capacity Utilization	79.1%	ICU Level of Service	D	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	11	116	61	6	29	70	415	96	67	410	26
Future Volume (vph)	46	11	116	61	6	29	70	415	96	67	410	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.91			1.00	0.85	1.00	0.97		1.00	0.99	
Flt Protected		0.99			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1640			1769	1429	1638	3305		1719	3412	
Flt Permitted		0.91			0.68	1.00	0.48	1.00		0.29	1.00	
Satd. Flow (perm)		1514			1258	1429	829	3305		533	3412	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	50	12	126	66	7	32	76	451	104	73	446	28
RTOR Reduction (vph)	0	82	0	0	0	21	0	27	0	0	7	0
Lane Group Flow (vph)	0	106	0	0	73	11	76	528	0	73	468	0
Confl. Peds. (#/hr)			1	1			2					2
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	4%	0%	3%	3%	0%	13%	10%	5%	9%	5%	5%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Effective Green, g (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Actuated g/C Ratio		0.35			0.35	0.35	0.28	0.28		0.50	0.50	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Grp Cap (vph)		525			436	496	230	918		464	1706	
v/s Ratio Prot								c0.16		0.03	c0.14	
v/s Ratio Perm		c0.07			0.06	0.01	0.09			0.05		
v/c Ratio		0.20			0.17	0.02	0.33	0.57		0.16	0.27	
Uniform Delay, d1		16.5			16.3	15.5	20.7	22.3		9.9	10.4	
Progression Factor		1.00			1.00	1.00	0.89	0.90		1.00	1.00	
Incremental Delay, d2		0.9			0.8	0.1	2.8	2.0		0.7	0.4	
Delay (s)		17.4			17.1	15.5	21.3	22.0		10.6	10.8	
Level of Service		B			B	B	C	C		B	B	
Approach Delay (s)		17.4			16.6			21.9			10.8	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

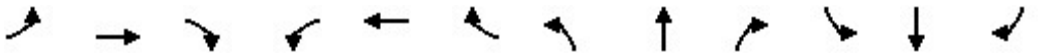
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	6	52	3	2	18	26	547	18	27	567	50
Future Volume (Veh/h)	49	6	52	3	2	18	26	547	18	27	567	50
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	52	6	55	3	2	19	28	582	19	29	603	53
Pedestrians		1									2	
Lane Width (m)		3.6									3.6	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1058	1346	329	1065	1362	302	657			601		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1058	1346	329	1065	1362	302	657			601		
tC, single (s)	7.6	6.5	7.0	7.5	6.5	6.9	4.4			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.4	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	67	96	92	98	99	97	97			97		
cM capacity (veh/h)	158	143	652	152	140	698	849			986		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	52	61	24	28	388	213	29	402	254
Volume Left	52	0	3	28	0	0	29	0	0
Volume Right	0	55	19	0	0	19	0	0	53
cSH	158	483	392	849	1700	1700	986	1700	1700
Volume to Capacity	0.33	0.13	0.06	0.03	0.23	0.13	0.03	0.24	0.15
Queue Length 95th (m)	10.7	3.4	1.6	0.8	0.0	0.0	0.7	0.0	0.0
Control Delay (s)	38.6	13.5	14.8	9.4	0.0	0.0	8.8	0.0	0.0
Lane LOS	E	B	B	A			A		
Approach Delay (s)	25.1		14.8	0.4			0.4		
Approach LOS	D		B						

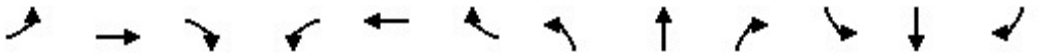
Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	38.5%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	180	41	178	79	61	9	303	311	111	448	82
Future Volume (vph)	101	180	41	178	79	61	9	303	311	111	448	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00	0.99		1.00	0.98		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		0.99	1.00	
Frt		0.98		1.00	0.93		1.00	0.92		1.00	0.98	
Flt Protected		0.98		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1799		1732	1698		1804	3164		1662	3389	
Flt Permitted		0.84		0.46	1.00		0.38	1.00		0.32	1.00	
Satd. Flow (perm)		1530		839	1698		724	3164		564	3389	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	111	198	45	196	87	67	10	333	342	122	492	90
RTOR Reduction (vph)	0	7	0	0	37	0	0	210	0	0	20	0
Lane Group Flow (vph)	0	347	0	196	117	0	10	465	0	122	562	0
Confl. Peds. (#/hr)	3		11	11		3	1		11	11		1
Confl. Bikes (#/hr)			2			1						1
Heavy Vehicles (%)	4%	1%	0%	4%	0%	9%	0%	4%	3%	8%	4%	2%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio		0.32		0.45	0.45		0.39	0.39		0.39	0.39	
Clearance Time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		489		463	769		279	1223		218	1310	
v/s Ratio Prot				c0.04	0.07			0.15			0.17	
v/s Ratio Perm		c0.23		0.15			0.01			c0.22		
v/c Ratio		0.71		0.42	0.15		0.04	0.38		0.56	0.43	
Uniform Delay, d1		22.4		13.7	12.0		14.3	16.5		18.0	16.9	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		8.5		2.8	0.4		0.2	0.9		10.0	1.0	
Delay (s)		30.9		16.6	12.5		14.5	17.4		28.0	17.9	
Level of Service		C		B	B		B	B		C	B	
Approach Delay (s)		30.9			14.8			17.4			19.7	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	100.8%	ICU Level of Service	G
Analysis Period (min)	15		

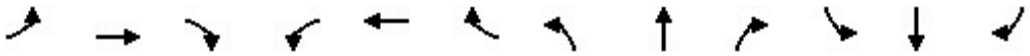
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	52	136	37	23	75	114	352	23	69	476	40
Future Volume (vph)	88	52	136	37	23	75	114	352	23	69	476	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.93			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1673			1843	1516	1718	3396		1751	3381	
Flt Permitted		0.87			0.73	1.00	0.39	1.00		0.50	1.00	
Satd. Flow (perm)		1475			1387	1516	711	3396		928	3381	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	97	57	149	41	25	82	125	387	25	76	523	44
RTOR Reduction (vph)	0	44	0	0	0	57	0	6	0	0	8	0
Lane Group Flow (vph)	0	259	0	0	66	25	125	406	0	76	559	0
Confl. Peds. (#/hr)							2		1	1		2
Confl. Bikes (#/hr)						3			3			1
Heavy Vehicles (%)	6%	0%	5%	0%	0%	5%	5%	5%	8%	3%	5%	9%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Effective Green, g (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Actuated g/C Ratio		0.30			0.30	0.30	0.51	0.41		0.51	0.41	
Clearance Time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Grp Cap (vph)		448			421	460	461	1375		553	1369	
v/s Ratio Prot							c0.03	0.12		0.01	c0.17	
v/s Ratio Perm		c0.18			0.05	0.02	0.11			0.06		
v/c Ratio		0.58			0.16	0.05	0.27	0.30		0.14	0.41	
Uniform Delay, d1		23.2			20.1	19.5	10.5	15.9		10.1	16.8	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		5.4			0.8	0.2	1.4	0.5		0.5	0.9	
Delay (s)		28.6			20.9	19.7	11.9	16.4		10.6	17.7	
Level of Service		C			C	B	B	B		B	B	
Approach Delay (s)		28.6			20.2			15.4			16.8	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	56.7%	ICU Level of Service	B
Analysis Period (min)	15		

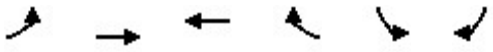
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	47	91	8	29	41	96	11	82	49	119	49	46
Future Volume (vph)	47	91	8	29	41	96	11	82	49	119	49	46
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Hourly flow rate (vph)	76	147	13	47	66	155	18	132	79	192	79	74

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	236	268	229	345
Volume Left (vph)	76	47	18	192
Volume Right (vph)	13	155	79	74
Hadj (s)	0.05	-0.23	-0.09	0.11
Departure Headway (s)	6.3	6.0	6.2	6.1
Degree Utilization, x	0.42	0.45	0.39	0.58
Capacity (veh/h)	503	543	522	553
Control Delay (s)	13.8	13.8	13.1	17.3
Approach Delay (s)	13.8	13.8	13.1	17.3
Approach LOS	B	B	B	C

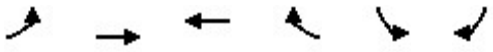
Intersection Summary				
Delay	14.7			
Level of Service	B			
Intersection Capacity Utilization	44.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	104	82	3	8	0
Future Volume (Veh/h)	0	104	82	3	8	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	113	89	3	9	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	92				204	90
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	92				204	90
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1503				785	967

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	113	92	9
Volume Left	0	0	9
Volume Right	0	3	0
cSH	1503	1700	785
Volume to Capacity	0.00	0.05	0.01
Queue Length 95th (m)	0.0	0.0	0.3
Control Delay (s)	0.0	0.0	9.6
Lane LOS			A
Approach Delay (s)	0.0	0.0	9.6
Approach LOS			A

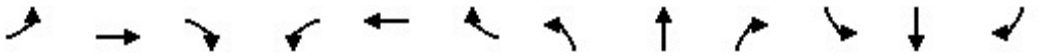
Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	15.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	127	91	6	20	0
Future Volume (Veh/h)	2	127	91	6	20	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	138	99	7	22	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	106				244	102
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	106				244	102
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				97	100
cM capacity (veh/h)	1485				743	953

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	140	106	22
Volume Left	2	0	22
Volume Right	0	7	0
cSH	1485	1700	743
Volume to Capacity	0.00	0.06	0.03
Queue Length 95th (m)	0.0	0.0	0.7
Control Delay (s)	0.1	0.0	10.0
Lane LOS	A		A
Approach Delay (s)	0.1	0.0	10.0
Approach LOS			A

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	18.3%	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 (veh/h)	26	79	9	34	46	3	12	67	17	8	341	20
Future Volume (Veh/h)	26	79	9	34	46	3	12	67	17	8	341	20
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	30	91	10	39	53	3	14	77	20	9	392	23
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	56			101			508	290	96	347	294	54
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	56			101			508	290	96	347	294	54
tC, single (s)	4.2			4.1			7.1	6.6	6.2	7.3	6.5	6.4
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.1	3.3	3.7	4.0	3.5
p0 queue free %	98			97			93	87	98	98	34	98
cM capacity (veh/h)	1517			1504			212	583	966	482	593	969

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	131	95	111	424
Volume Left	30	39	14	9
Volume Right	10	3	20	23
cSH	1517	1504	507	603
Volume to Capacity	0.02	0.03	0.22	0.70
Queue Length 95th (m)	0.5	0.6	6.6	45.4
Control Delay (s)	1.8	3.2	14.1	23.9
Lane LOS	A	A	B	C
Approach Delay (s)	1.8	3.2	14.1	23.9
Approach LOS			B	C

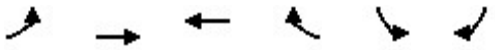
Intersection Summary				
Average Delay	16.1			
Intersection Capacity Utilization	35.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	96	0	0	384
Future Volume (Veh/h)	0	0	96	0	0	384
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	104	0	0	417
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	521	104			104	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	521	104			104	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	516	951			1488	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	104	417
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1488
Volume to Capacity	0.00	0.06	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

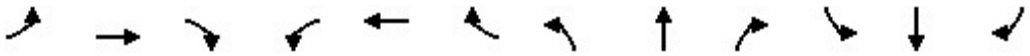
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	23.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	226	459	494	994	925	239
Future Volume (vph)	226	459	494	994	925	239
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1703	1759	1667	1518	1736	1459
Flt Permitted	0.17	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	296	1759	1667	1518	1736	1459
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	243	494	531	1069	995	257
RTOR Reduction (vph)	0	0	0	577	0	142
Lane Group Flow (vph)	243	494	531	492	995	115
Confl. Peds. (#/hr)	1			1		
Confl. Bikes (#/hr)						4
Heavy Vehicles (%)	6%	8%	14%	5%	4%	8%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	36.0	36.0	24.0	24.0	24.0	24.0
Effective Green, g (s)	36.0	36.0	24.0	24.0	24.0	24.0
Actuated g/C Ratio	0.50	0.50	0.33	0.33	0.33	0.33
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	304	879	555	506	578	486
v/s Ratio Prot	c0.09	0.28	0.32		c0.57	
v/s Ratio Perm	0.31			c0.32		0.08
v/c Ratio	0.80	0.56	0.96	0.97	1.72	0.24
Uniform Delay, d1	13.7	12.5	23.5	23.7	24.0	17.4
Progression Factor	1.00	1.00	1.00	1.00	1.13	1.88
Incremental Delay, d2	19.4	2.6	28.9	33.6	331.7	1.1
Delay (s)	33.1	15.1	52.4	57.2	358.7	33.7
Level of Service	C	B	D	E	F	C
Approach Delay (s)		21.0	55.6		292.0	
Approach LOS		C	E		F	

Intersection Summary			
HCM 2000 Control Delay	131.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.27		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	103.1%	ICU Level of Service	G
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)	14	424	11	67	479	187	38	198	122	139	32	9
Future Volume (Veh/h)	14	424	11	67	479	187	38	198	122	139	32	9
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	15	466	12	74	526	205	42	218	134	153	35	10
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	731			478			1306	1381	472	1522	1284	628
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	731			478			1306	1381	472	1522	1284	628
tC, single (s)	4.1			4.2			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			93			60	0	77	0	77	98
cM capacity (veh/h)	883			1039			104	132	590	0	152	486

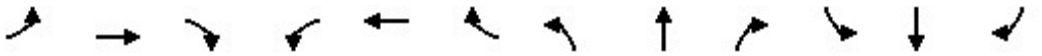
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	493	805	394	198
Volume Left	15	74	42	153
Volume Right	12	205	134	10
cSH	883	1039	172	0
Volume to Capacity	0.02	0.07	2.29	Err
Queue Length 95th (m)	0.4	1.8	258.4	Err
Control Delay (s)	0.5	1.8	640.3	Err
Lane LOS	A	A	F	F
Approach Delay (s)	0.5	1.8	640.3	Err
Approach LOS			F	F

Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	107.3%	ICU Level of Service	G	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	9	98	175	30	105	168	896	101	120	622	32
Future Volume (vph)	32	9	98	175	30	105	168	896	101	120	622	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.90			1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected		0.99			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1659			1807	1555	1798	3458		1805	3478	
Flt Permitted		0.90			0.68	1.00	0.38	1.00		0.17	1.00	
Satd. Flow (perm)		1508			1277	1555	722	3458		317	3478	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	35	10	107	190	33	114	183	974	110	130	676	35
RTOR Reduction (vph)	0	70	0	0	0	74	0	12	0	0	5	0
Lane Group Flow (vph)	0	82	0	0	223	40	183	1072	0	130	706	0
Confl. Peds. (#/hr)	5					5	6		4	4		6
Confl. Bikes (#/hr)			2			3			2			4
Heavy Vehicles (%)	0%	0%	2%	1%	0%	2%	0%	2%	7%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Effective Green, g (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Actuated g/C Ratio		0.35			0.35	0.35	0.28	0.28		0.50	0.50	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Grp Cap (vph)		523			443	539	200	960		406	1739	
v/s Ratio Prot								c0.31		0.05	c0.20	
v/s Ratio Perm		0.05			c0.17	0.03	0.25			0.11		
v/c Ratio		0.16			0.50	0.07	0.92	1.12		0.32	0.41	
Uniform Delay, d1		16.2			18.6	15.7	25.2	26.0		12.7	11.3	
Progression Factor		1.00			1.00	1.00	0.89	0.90		1.00	1.00	
Incremental Delay, d2		0.6			4.0	0.3	20.6	57.7		2.1	0.7	
Delay (s)		16.9			22.6	16.0	43.1	81.0		14.8	12.0	
Level of Service		B			C	B	D	F		B	B	
Approach Delay (s)		16.9			20.4			75.5			12.4	
Approach LOS		B			C			E			B	

Intersection Summary			
HCM 2000 Control Delay	44.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		

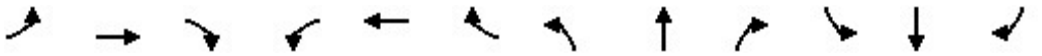
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	6	82	29	3	62	90	1167	9	17	786	98
Future Volume (Veh/h)	59	6	82	29	3	62	90	1167	9	17	786	98
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	66	7	92	33	3	70	101	1311	10	19	883	110
Pedestrians		3						4			8	
Lane Width (m)		3.6						3.6			3.6	
Walking Speed (m/s)		1.2						1.2			1.2	
Percent Blockage		0						0			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1916	2502	504	2097	2552	668	996			1321		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1916	2502	504	2097	2552	668	996			1321		
tC, single (s)	7.5	6.5	7.0	7.9	6.5	7.0	4.2			4.8		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.0	3.3	2.2			2.5		
p0 queue free %	0	70	82	0	86	82	85			95		
cM capacity (veh/h)	26	23	505	13	22	395	677			381		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	66	99	106	101	874	447	19	589	404
Volume Left	66	0	33	101	0	0	19	0	0
Volume Right	0	92	70	0	0	10	0	0	110
cSH	26	206	37	677	1700	1700	381	1700	1700
Volume to Capacity	2.53	0.48	2.86	0.15	0.51	0.26	0.05	0.35	0.24
Queue Length 95th (m)	64.5	18.9	95.5	4.2	0.0	0.0	1.3	0.0	0.0
Control Delay (s)	1011.5	37.6	1067.5	11.3	0.0	0.0	14.9	0.0	0.0
Lane LOS	F	E	F	B			B		
Approach Delay (s)	427.2		1067.5	0.8			0.3		
Approach LOS	F		F						

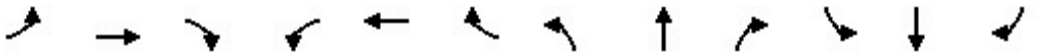
Intersection Summary				
Average Delay	68.4			
Intersection Capacity Utilization	58.8%	ICU Level of Service		B
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	197	37	341	98	99	41	591	588	81	646	175
Future Volume (vph)	90	197	37	341	98	99	41	591	588	81	646	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00	0.99		1.00	0.98		1.00	0.99	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.98		1.00	0.92		1.00	0.93		1.00	0.97	
Flt Protected		0.99		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1818		1784	1723		1804	3230		1803	3407	
Flt Permitted		0.83		0.44	1.00		0.19	1.00		0.14	1.00	
Satd. Flow (perm)		1529		824	1723		356	3230		262	3407	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	102	224	42	388	111	112	47	672	668	92	734	199
RTOR Reduction (vph)	0	6	0	0	49	0	0	239	0	0	33	0
Lane Group Flow (vph)	0	362	0	388	175	0	47	1101	0	92	900	0
Confl. Peds. (#/hr)	3		11	11		3	1		11	11		1
Confl. Bikes (#/hr)			2			7			1			4
Heavy Vehicles (%)	0%	1%	5%	1%	0%	2%	0%	2%	1%	0%	2%	2%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio		0.32		0.45	0.45		0.39	0.39		0.39	0.39	
Clearance Time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		489		463	781		137	1248		101	1317	
v/s Ratio Prot				c0.08	0.10			0.34			0.26	
v/s Ratio Perm		0.24		c0.30			0.13			c0.35		
v/c Ratio		0.74		0.84	0.22		0.34	0.88		0.91	0.68	
Uniform Delay, d1		22.7		19.3	12.5		16.3	21.4		21.8	19.2	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		9.7		16.4	0.7		6.7	9.2		67.7	2.9	
Delay (s)		32.4		35.8	13.1		23.0	30.6		89.5	22.1	
Level of Service		C		D	B		C	C		F	C	
Approach Delay (s)		32.4			27.5			30.3			28.1	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	29.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	115.8%	ICU Level of Service	H
Analysis Period (min)	15		

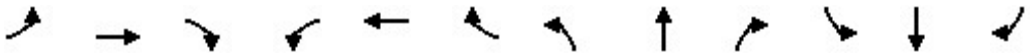
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	61	88	111	70	238	70	658	58	139	704	34
Future Volume (vph)	46	61	88	111	70	238	70	658	58	139	704	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.94			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1752			1842	1576	1804	3494		1786	3480	
Flt Permitted		0.88			0.68	1.00	0.27	1.00		0.28	1.00	
Satd. Flow (perm)		1565			1293	1576	505	3494		523	3480	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	49	65	94	118	74	253	74	700	62	148	749	36
RTOR Reduction (vph)	0	38	0	0	0	176	0	8	0	0	4	0
Lane Group Flow (vph)	0	170	0	0	192	77	74	754	0	148	781	0
Confl. Peds. (#/hr)	1		2	2		1	4		3	3		4
Confl. Bikes (#/hr)						2						1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	2%	0%	1%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Effective Green, g (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Actuated g/C Ratio		0.30			0.30	0.30	0.51	0.41		0.51	0.41	
Clearance Time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Grp Cap (vph)		475			392	478	387	1415		392	1409	
v/s Ratio Prot							0.02	0.22		c0.04	c0.22	
v/s Ratio Perm		0.11			c0.15	0.05	0.08			0.15		
v/c Ratio		0.36			0.49	0.16	0.19	0.53		0.38	0.55	
Uniform Delay, d1		21.5			22.5	20.1	10.5	17.8		10.9	18.0	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.1			4.3	0.7	1.1	1.4		2.8	1.6	
Delay (s)		23.6			26.8	20.8	11.6	19.3		13.7	19.6	
Level of Service		C			C	C	B	B		B	B	
Approach Delay (s)		23.6			23.4			18.6			18.7	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		

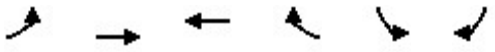
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	29	134	17	37	139	32	9	82	38	49	66	29
Future Volume (vph)	29	134	17	37	139	32	9	82	38	49	66	29
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	32	147	19	41	153	35	10	90	42	54	73	32

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	198	229	142	159
Volume Left (vph)	32	41	10	54
Volume Right (vph)	19	35	42	32
Hadj (s)	-0.03	-0.06	-0.12	-0.01
Departure Headway (s)	5.0	4.9	5.1	5.2
Degree Utilization, x	0.27	0.31	0.20	0.23
Capacity (veh/h)	666	680	639	630
Control Delay (s)	9.9	10.1	9.4	9.7
Approach Delay (s)	9.9	10.1	9.4	9.7
Approach LOS	A	B	A	A

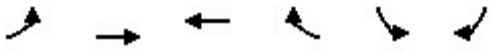
Intersection Summary				
Delay	9.8			
Level of Service	A			
Intersection Capacity Utilization	37.0%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	162	137	9	6	0
Future Volume (Veh/h)	0	162	137	9	6	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	178	151	10	7	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	161				334	156
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	161				334	156
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1418				661	890

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	178	161	7
Volume Left	0	0	7
Volume Right	0	10	0
cSH	1418	1700	661
Volume to Capacity	0.00	0.09	0.01
Queue Length 95th (m)	0.0	0.0	0.3
Control Delay (s)	0.0	0.0	10.5
Lane LOS			B
Approach Delay (s)	0.0	0.0	10.5
Approach LOS			B

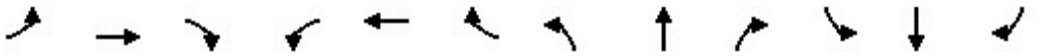
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	18.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	11	168	166	11	12	0
Future Volume (Veh/h)	11	168	166	11	12	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	12	185	182	12	13	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	194				397	188
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	194				397	188
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				98	100
cM capacity (veh/h)	1379				603	854

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	197	194	13
Volume Left	12	0	13
Volume Right	0	12	0
cSH	1379	1700	603
Volume to Capacity	0.01	0.11	0.02
Queue Length 95th (m)	0.2	0.0	0.5
Control Delay (s)	0.5	0.0	11.1
Lane LOS	A		B
Approach Delay (s)	0.5	0.0	11.1
Approach LOS			B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	27.9%	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 (veh/h)	34	105	8	12	94	30	9	360	30	26	163	34
Future Volume (Veh/h)	34	105	8	12	94	30	9	360	30	26	163	34
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	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	37	114	9	13	102	33	10	391	33	28	177	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)												
pX, platoon unblocked												
vC, conflicting volume	135			123			462	354	118	566	342	118
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	135			123			462	354	118	566	342	118
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.2	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.0	3.3
p0 queue free %	97			99			97	29	96	84	69	96
cM capacity (veh/h)	1462			1477			363	554	939	172	562	925

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	160	148	434	242
Volume Left	37	13	10	28
Volume Right	9	33	33	37
cSH	1462	1477	565	468
Volume to Capacity	0.03	0.01	0.77	0.52
Queue Length 95th (m)	0.6	0.2	55.9	23.3
Control Delay (s)	1.9	0.7	29.4	20.6
Lane LOS	A	A	D	C
Approach Delay (s)	1.9	0.7	29.4	20.6
Approach LOS			D	C

Intersection Summary				
Average Delay	18.5			
Intersection Capacity Utilization	46.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	399	0	0	183
Future Volume (Veh/h)	0	0	399	0	0	183
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	0	438	0	0	201
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	639	438			438	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	639	438			438	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	440	619			1122	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	438	201
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1122
Volume to Capacity	0.00	0.26	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	24.3%	ICU Level of Service	A
Analysis Period (min)	15		

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	4350	4242	4150	4392	4253	4273
Vehs Exited	4335	4216	4176	4351	4258	4264
Starting Vehs	223	215	228	222	215	216
Ending Vehs	238	241	202	263	210	228
Travel Distance (km)	8228	7957	7919	8237	7934	8055
Travel Time (hr)	222.1	229.9	209.4	233.1	210.3	221.0
Total Delay (hr)	54.7	68.4	49.2	66.3	49.7	57.7
Total Stops	6626	6678	6270	6722	6169	6489
Fuel Used (l)	656.9	648.8	626.5	669.5	629.6	646.3

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	4350	4242	4150	4392	4253	4273
Vehs Exited	4335	4216	4176	4351	4258	4264
Starting Vehs	223	215	228	222	215	216
Ending Vehs	238	241	202	263	210	228
Travel Distance (km)	8228	7957	7919	8237	7934	8055
Travel Time (hr)	222.1	229.9	209.4	233.1	210.3	221.0
Total Delay (hr)	54.7	68.4	49.2	66.3	49.7	57.7
Total Stops	6626	6678	6270	6722	6169	6489
Fuel Used (l)	656.9	648.8	626.5	669.5	629.6	646.3

Intersection: 3: Old Barrie Rd E & University Ave

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (m)	32.9	75.7	81.8	107.4	219.2	101.0
Average Queue (m)	13.5	37.2	38.9	45.3	119.3	19.7
95th Queue (m)	25.9	60.5	66.4	84.0	253.2	93.4
Link Distance (m)		579.8	318.4		1089.4	1089.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	106.0			64.0		
Storage Blk Time (%)		0	1	3		
Queuing Penalty (veh)		0	5	9		

Intersection: 5: Old Barrie Rd E & Line 15 N

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	15.3	46.1	45.3	128.6
Average Queue (m)	1.5	12.8	15.9	67.5
95th Queue (m)	7.8	33.3	30.7	149.4
Link Distance (m)	288.0	579.8	1006.6	1844.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: University Ave & Diana Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	41.5	22.7	21.6	37.4	48.2	54.3	26.9	31.7	38.7
Average Queue (m)	17.7	10.0	4.7	12.3	25.7	34.2	8.7	15.1	18.5
95th Queue (m)	33.3	20.4	14.5	26.1	43.5	50.3	19.9	29.2	34.5
Link Distance (m)	144.4	117.8	117.8		1089.4	1089.4		535.9	535.9
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				36.0			58.0		
Storage Blk Time (%)				0	2				
Queuing Penalty (veh)				0	1				

Intersection: 12: University Ave & Stone Ridge Blvd/Hunter Valley Rd

Movement	EB	EB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	TR
Maximum Queue (m)	23.3	19.5	10.6	17.3	6.2	11.5	15.7	7.6
Average Queue (m)	9.8	9.3	4.4	3.8	0.3	0.6	2.9	0.7
95th Queue (m)	20.0	17.2	11.8	12.8	3.4	5.8	10.4	5.3
Link Distance (m)	278.2	278.2	176.5		535.9	535.9		944.3
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)				42.5			90.0	
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 16: University Ave & Monarch Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	73.1	43.3	31.2	12.0	46.0	72.3	47.4	66.2	61.9
Average Queue (m)	39.8	19.6	13.1	1.9	24.3	37.0	23.8	26.1	28.5
95th Queue (m)	65.7	36.4	25.5	7.9	42.1	59.5	43.9	49.9	48.8
Link Distance (m)	173.4	268.3	268.3		944.3	944.3		141.5	141.5
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				47.0			38.0		
Storage Blk Time (%)					0		3	2	
Queuing Penalty (veh)					0		7	2	

Intersection: 19: University Ave & Bass Lake Side Rd E

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	73.4	25.0	15.1	39.3	43.2	45.1	32.8	65.5	52.2
Average Queue (m)	34.2	9.7	6.9	15.0	20.4	23.4	9.1	33.8	20.9
95th Queue (m)	59.1	20.7	13.9	29.9	36.9	40.2	22.0	54.4	39.9
Link Distance (m)	514.5	80.4	80.4		141.5	141.5		174.0	174.0
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				39.0			42.0		
Storage Blk Time (%)				0	0			2	
Queuing Penalty (veh)				1	1			2	

Intersection: 23: Bass Lake Side Rd E & Atlantis Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	30.5	26.9	27.4	31.8
Average Queue (m)	13.7	14.4	13.2	16.0
95th Queue (m)	23.6	22.6	21.5	26.3
Link Distance (m)	314.0	514.5	221.1	203.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: Bass Lake Side Rd E & Old Scotia Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	9.0
Average Queue (m)	2.2
95th Queue (m)	8.5
Link Distance (m)	239.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: Bass Lake Side Rd E & Hepinstall Pl

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (m)	3.5	10.5
Average Queue (m)	0.1	4.4
95th Queue (m)	1.8	12.0
Link Distance (m)	883.2	176.0
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 32: Line 15 N & Bass Lake Side Rd E

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	1.7	8.4	26.1	34.1
Average Queue (m)	0.1	0.9	12.4	18.1
95th Queue (m)	1.2	5.0	20.7	28.9
Link Distance (m)	278.4	157.8	607.9	420.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 35: Line 15 N & Stone Ridge Blvd extension

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 28

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	6094	5939	5915	6088	6009	6009
Vehs Exited	5739	5620	5612	5725	5726	5683
Starting Vehs	400	384	387	348	381	374
Ending Vehs	755	703	690	711	664	700
Travel Distance (km)	11003	10934	10793	10900	10878	10901
Travel Time (hr)	755.0	792.7	768.0	732.7	787.4	767.2
Total Delay (hr)	530.3	570.0	548.0	509.9	564.8	544.6
Total Stops	11794	11562	11498	11813	11807	11694
Fuel Used (l)	1272.7	1296.0	1276.4	1245.5	1289.6	1276.0

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	6094	5939	5915	6088	6009	6009
Vehs Exited	5739	5620	5612	5725	5726	5683
Starting Vehs	400	384	387	348	381	374
Ending Vehs	755	703	690	711	664	700
Travel Distance (km)	11003	10934	10793	10900	10878	10901
Travel Time (hr)	755.0	792.7	768.0	732.7	787.4	767.2
Total Delay (hr)	530.3	570.0	548.0	509.9	564.8	544.6
Total Stops	11794	11562	11498	11813	11807	11694
Fuel Used (l)	1272.7	1296.0	1276.4	1245.5	1289.6	1276.0

Intersection: 3: Old Barrie Rd E & University Ave

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (m)	54.8	66.6	336.3	164.0	1093.5	1098.4
Average Queue (m)	27.6	35.2	315.3	163.7	890.3	801.7
95th Queue (m)	45.9	58.3	379.3	166.0	1225.2	1230.1
Link Distance (m)		579.8	318.4		1089.4	1089.4
Upstream Blk Time (%)			31		6	4
Queuing Penalty (veh)			0		29	20
Storage Bay Dist (m)	106.0			64.0		
Storage Blk Time (%)			12	74		
Queuing Penalty (veh)			120	367		

Intersection: 5: Old Barrie Rd E & Line 15 N

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	30.9	53.3	794.2	75.4
Average Queue (m)	2.7	10.6	453.6	37.0
95th Queue (m)	14.6	33.0	769.3	66.3
Link Distance (m)	288.0	579.8	1006.6	1844.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: University Ave & Diana Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	35.4	54.3	25.0	51.8	77.5	76.6	57.0	101.6	103.0
Average Queue (m)	15.1	26.5	9.4	28.4	50.2	54.3	17.4	31.8	35.6
95th Queue (m)	28.6	47.7	19.0	52.6	69.4	71.0	44.8	79.6	83.0
Link Distance (m)	144.4	117.8	117.8		1089.4	1089.4		535.9	535.9
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				36.0			58.0		
Storage Blk Time (%)				4	25			7	
Queuing Penalty (veh)				16	42			9	

Intersection: 12: University Ave & Stone Ridge Blvd/Hunter Valley Rd

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	27.1	24.4	34.2	25.2	25.4	25.8	20.2	18.0	21.8
Average Queue (m)	12.5	10.8	14.9	10.0	2.5	2.4	3.9	1.5	2.4
95th Queue (m)	23.3	19.3	27.8	21.3	12.8	13.8	14.5	8.4	11.2
Link Distance (m)	278.2	278.2	176.5		535.9	535.9		944.3	944.3
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				42.5			90.0		
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 16: University Ave & Monarch Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	77.7	95.7	45.2	44.9	78.6	112.3	52.9	140.2	138.6
Average Queue (m)	40.6	43.8	17.8	9.6	45.7	71.5	43.4	83.0	82.7
95th Queue (m)	67.6	78.2	34.0	27.0	71.2	103.6	64.2	155.2	154.6
Link Distance (m)	173.4	268.3	268.3		944.3	944.3		141.5	141.5
Upstream Blk Time (%)								4	1
Queuing Penalty (veh)								16	5
Storage Bay Dist (m)				47.0			38.0		
Storage Blk Time (%)				0	6		67	7	
Queuing Penalty (veh)				1	3		217	6	

Intersection: 19: University Ave & Bass Lake Side Rd E

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	46.1	49.4	47.3	47.2	58.7	59.5	60.8	88.4	80.9
Average Queue (m)	22.1	23.8	19.4	11.3	30.0	33.2	19.3	45.6	39.1
95th Queue (m)	39.3	41.5	35.7	27.6	53.3	56.2	45.5	78.0	69.3
Link Distance (m)	514.5	80.4	80.4		141.5	141.5		174.0	174.0
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				39.0			42.0		
Storage Blk Time (%)				0	4		0	11	
Queuing Penalty (veh)				0	3		0	16	

Intersection: 23: Bass Lake Side Rd E & Atlantis Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	23.3	25.1	17.5	21.9
Average Queue (m)	14.1	13.4	10.6	11.7
95th Queue (m)	21.5	21.5	15.7	18.0
Link Distance (m)	314.0	514.5	221.1	203.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: Bass Lake Side Rd E & Old Scotia Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	8.8
Average Queue (m)	1.6
95th Queue (m)	7.2
Link Distance (m)	239.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: Bass Lake Side Rd E & Hepinstall Pl

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (m)	9.8	9.2
Average Queue (m)	0.9	2.8
95th Queue (m)	5.6	9.6
Link Distance (m)	883.2	176.0
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 32: Line 15 N & Bass Lake Side Rd E

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	15.3	6.1	43.3	29.2
Average Queue (m)	1.4	0.4	23.7	15.4
95th Queue (m)	7.7	3.3	36.4	24.8
Link Distance (m)	278.4	157.8	607.9	420.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

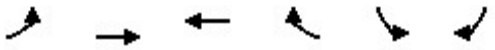
Intersection: 35: Line 15 N & Stone Ridge Blvd extension

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

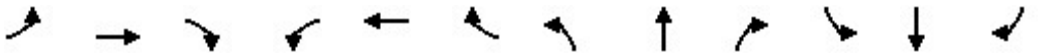
Network wide Queuing Penalty: 868

Synchro Analysis – Do Nothing



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	73	306	197	472	137	368
Future Volume (vph)	73	306	197	472	137	368
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1703	1759	1667	1519	1736	1464
Flt Permitted	0.52	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	924	1759	1667	1519	1736	1464
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	82	344	221	530	154	413
RTOR Reduction (vph)	0	0	0	353	0	275
Lane Group Flow (vph)	82	344	221	177	154	138
Confl. Bikes (#/hr)				1		1
Heavy Vehicles (%)	6%	8%	14%	5%	4%	8%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	36.0	36.0	24.0	24.0	24.0	24.0
Effective Green, g (s)	36.0	36.0	24.0	24.0	24.0	24.0
Actuated g/C Ratio	0.50	0.50	0.33	0.33	0.33	0.33
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	548	879	555	506	578	488
v/s Ratio Prot	0.02	c0.20	0.13		0.09	
v/s Ratio Perm	0.06			0.12		c0.09
v/c Ratio	0.15	0.39	0.40	0.35	0.27	0.28
Uniform Delay, d1	9.6	11.2	18.4	18.1	17.6	17.7
Progression Factor	1.00	1.00	1.00	1.00	1.24	4.52
Incremental Delay, d2	0.6	1.3	2.1	1.9	1.1	1.4
Delay (s)	10.2	12.5	20.6	20.0	22.9	81.3
Level of Service	B	B	C	C	C	F
Approach Delay (s)		12.1	20.2		65.4	
Approach LOS		B	C		E	

Intersection Summary			
HCM 2000 Control Delay	32.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	43.2%	ICU Level of Service	A
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)	4	219	33	53	171	50	5	19	39	122	129	9
Future Volume (Veh/h)	4	219	33	53	171	50	5	19	39	122	129	9
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	4	241	36	58	188	55	5	21	43	134	142	10
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	243			277			680	626	259	652	616	216
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	243			277			680	626	259	652	616	216
tC, single (s)	4.1			4.2			8.1	6.6	6.4	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.3			4.4	4.1	3.5	3.5	4.0	3.4
p0 queue free %	100			95			97	94	94	60	63	99
cM capacity (veh/h)	1335			1247			178	375	736	333	387	798

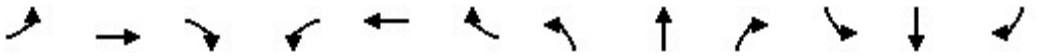
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	281	301	69	286
Volume Left	4	58	5	134
Volume Right	36	55	43	10
cSH	1335	1247	484	366
Volume to Capacity	0.00	0.05	0.14	0.78
Queue Length 95th (m)	0.1	1.2	4.0	52.1
Control Delay (s)	0.1	1.9	13.7	42.4
Lane LOS	A	A	B	E
Approach Delay (s)	0.1	1.9	13.7	42.4
Approach LOS			B	E

Intersection Summary				
Average Delay	14.6			
Intersection Capacity Utilization	59.5%	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)	48	16	94	40	10	21	56	313	63	53	350	26
Future Volume (vph)	48	16	94	40	10	21	56	313	63	53	350	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.92			1.00	0.85	1.00	0.97		1.00	0.99	
Flt Protected		0.99			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1658			1784	1429	1638	3319		1719	3408	
Flt Permitted		0.90			0.75	1.00	0.51	1.00		0.40	1.00	
Satd. Flow (perm)		1522			1386	1429	883	3319		732	3408	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	52	17	102	43	11	23	61	340	68	58	380	28
RTOR Reduction (vph)	0	67	0	0	0	15	0	23	0	0	8	0
Lane Group Flow (vph)	0	104	0	0	54	8	61	385	0	58	401	0
Confl. Peds. (#/hr)			1	1			2					2
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	4%	0%	3%	3%	0%	13%	10%	5%	9%	5%	5%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Effective Green, g (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Actuated g/C Ratio		0.35			0.35	0.35	0.28	0.28		0.50	0.50	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Grp Cap (vph)		528			481	496	245	921		530	1704	
v/s Ratio Prot								c0.12		0.02	c0.12	
v/s Ratio Perm		c0.07			0.04	0.01	0.07			0.04		
v/c Ratio		0.20			0.11	0.02	0.25	0.42		0.11	0.24	
Uniform Delay, d1		16.5			16.0	15.4	20.2	21.2		9.5	10.2	
Progression Factor		1.00			1.00	1.00	0.84	0.86		1.00	1.00	
Incremental Delay, d2		0.8			0.5	0.1	2.0	1.2		0.4	0.3	
Delay (s)		17.3			16.4	15.5	18.9	19.4		9.9	10.5	
Level of Service		B			B	B	B	B		A	B	
Approach Delay (s)		17.3			16.2			19.4			10.4	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

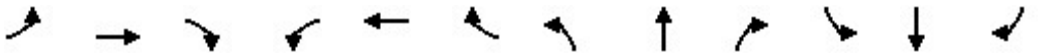
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	4	101	2	1	12	49	389	12	18	403	67
Future Volume (Veh/h)	91	4	101	2	1	12	49	389	12	18	403	67
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	97	4	107	2	1	13	52	414	13	19	429	71
Pedestrians		1									2	
Lane Width (m)		3.6									3.6	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	830	1034	251	886	1064	216	501			427		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	830	1034	251	886	1064	216	501			427		
tC, single (s)	7.6	6.5	7.0	7.5	6.5	6.9	4.4			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.4	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	59	98	85	99	100	98	95			98		
cM capacity (veh/h)	235	218	733	193	209	794	979			1143		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	97	111	16	52	276	151	19	286	214
Volume Left	97	0	2	52	0	0	19	0	0
Volume Right	0	107	13	0	0	13	0	0	71
cSH	235	675	508	979	1700	1700	1143	1700	1700
Volume to Capacity	0.41	0.16	0.03	0.05	0.16	0.09	0.02	0.17	0.13
Queue Length 95th (m)	15.2	4.7	0.8	1.3	0.0	0.0	0.4	0.0	0.0
Control Delay (s)	30.6	11.4	12.3	8.9	0.0	0.0	8.2	0.0	0.0
Lane LOS	D	B	B	A			A		
Approach Delay (s)	20.4		12.3	1.0			0.3		
Approach LOS	C		B						

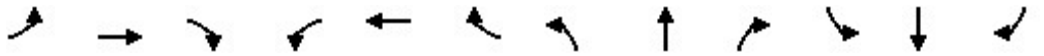
Intersection Summary				
Average Delay	4.1			
Intersection Capacity Utilization	38.3%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	118	41	117	52	40	13	281	204	73	345	71
Future Volume (vph)	98	118	41	117	52	40	13	281	204	73	345	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00	0.99		1.00	0.98		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		0.99	1.00	
Frt		0.98		1.00	0.93		1.00	0.94		1.00	0.97	
Flt Protected		0.98		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1781		1731	1698		1804	3216		1659	3380	
Flt Permitted		0.83		0.53	1.00		0.47	1.00		0.41	1.00	
Satd. Flow (perm)		1509		961	1698		893	3216		724	3380	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	108	130	45	129	57	44	14	309	224	80	379	78
RTOR Reduction (vph)	0	9	0	0	24	0	0	137	0	0	23	0
Lane Group Flow (vph)	0	274	0	129	77	0	14	396	0	80	434	0
Confl. Peds. (#/hr)	3		11	11		3	1		11	11		1
Confl. Bikes (#/hr)			2			1						1
Heavy Vehicles (%)	4%	1%	0%	4%	0%	9%	0%	4%	3%	8%	4%	2%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio		0.32		0.45	0.45		0.39	0.39		0.39	0.39	
Clearance Time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		482		507	769		345	1243		279	1306	
v/s Ratio Prot				c0.02	0.05			0.12			c0.13	
v/s Ratio Perm		c0.18		0.09			0.02			0.11		
v/c Ratio		0.57		0.25	0.10		0.04	0.32		0.29	0.33	
Uniform Delay, d1		21.2		12.8	11.7		14.3	16.1		15.9	16.2	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		4.8		1.2	0.3		0.2	0.7		2.6	0.7	
Delay (s)		26.0		14.0	12.0		14.6	16.8		18.4	16.9	
Level of Service		C		B	B		B	B		B	B	
Approach Delay (s)		26.0			13.1			16.7			17.1	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

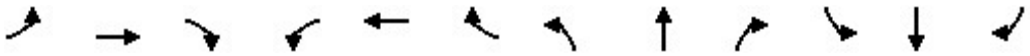
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	34	98	24	15	49	77	343	15	45	372	34
Future Volume (vph)	93	34	98	24	15	49	77	343	15	45	372	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.94			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1674			1843	1516	1717	3410		1751	3377	
Flt Permitted		0.85			0.77	1.00	0.48	1.00		0.52	1.00	
Satd. Flow (perm)		1446			1464	1516	863	3410		955	3377	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	102	37	108	26	16	54	85	377	16	49	409	37
RTOR Reduction (vph)	0	36	0	0	0	38	0	4	0	0	8	0
Lane Group Flow (vph)	0	211	0	0	42	16	85	389	0	49	438	0
Confl. Peds. (#/hr)							2		1	1		2
Confl. Bikes (#/hr)						3			3			1
Heavy Vehicles (%)	6%	0%	5%	0%	0%	5%	5%	5%	8%	3%	5%	9%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Effective Green, g (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Actuated g/C Ratio		0.30			0.30	0.30	0.51	0.41		0.51	0.41	
Clearance Time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Grp Cap (vph)		439			444	460	523	1381		564	1367	
v/s Ratio Prot							c0.02	0.11		0.01	c0.13	
v/s Ratio Perm		c0.15			0.03	0.01	0.07			0.04		
v/c Ratio		0.48			0.09	0.04	0.16	0.28		0.09	0.32	
Uniform Delay, d1		22.4			19.7	19.4	10.1	15.8		9.9	16.1	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		3.8			0.4	0.1	0.7	0.5		0.3	0.6	
Delay (s)		26.2			20.1	19.5	10.8	16.3		10.2	16.7	
Level of Service		C			C	B	B	B		B	B	
Approach Delay (s)		26.2			19.8			15.3			16.0	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	49.7%	ICU Level of Service	A
Analysis Period (min)	15		

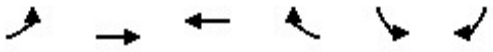
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	31	104	5	19	37	63	7	54	32	78	32	30
Future Volume (vph)	31	104	5	19	37	63	7	54	32	78	32	30
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Hourly flow rate (vph)	50	168	8	31	60	102	11	87	52	126	52	48

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	226	193	150	226
Volume Left (vph)	50	31	11	126
Volume Right (vph)	8	102	52	48
Hadj (s)	0.05	-0.21	-0.09	0.12
Departure Headway (s)	5.3	5.1	5.3	5.4
Degree Utilization, x	0.33	0.27	0.22	0.34
Capacity (veh/h)	630	647	606	618
Control Delay (s)	10.9	10.0	9.8	11.1
Approach Delay (s)	10.9	10.0	9.8	11.1
Approach LOS	B	A	A	B

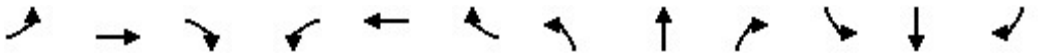
Intersection Summary				
Delay	10.5			
Level of Service	B			
Intersection Capacity Utilization	33.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	70	56	2	5	0
Future Volume (Veh/h)	0	70	56	2	5	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	76	61	2	5	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	63				138	62
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	63				138	62
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1540				855	1003

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	76	63	5
Volume Left	0	0	5
Volume Right	0	2	0
cSH	1540	1700	855
Volume to Capacity	0.00	0.04	0.01
Queue Length 95th (m)	0.0	0.0	0.1
Control Delay (s)	0.0	0.0	9.2
Lane LOS			A
Approach Delay (s)	0.0	0.0	9.2
Approach LOS			A

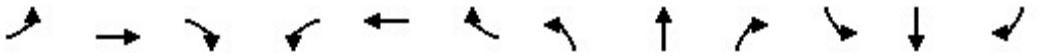
Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	13.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	83	3	10	60	4	2	2	44	13	3	0
Future Volume (Veh/h)	1	83	3	10	60	4	2	2	44	13	3	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	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	90	3	11	65	4	2	2	48	14	3	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	69			93			184	184	92	232	184	67
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	69			93			184	184	92	232	184	67
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	95	98	100	100
cM capacity (veh/h)	1532			1501			770	704	966	682	705	997

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	94	80	52	17
Volume Left	1	11	2	14
Volume Right	3	4	48	0
cSH	1532	1501	943	686
Volume to Capacity	0.00	0.01	0.06	0.02
Queue Length 95th (m)	0.0	0.2	1.4	0.6
Control Delay (s)	0.1	1.1	9.0	10.4
Lane LOS	A	A	A	B
Approach Delay (s)	0.1	1.1	9.0	10.4
Approach LOS			A	B

Intersection Summary				
Average Delay	3.0			
Intersection Capacity Utilization	23.4%	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 (veh/h)	17	53	7	23	30	3	11	56	12	6	228	13
Future Volume (Veh/h)	17	53	7	23	30	3	11	56	12	6	228	13
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	20	61	8	26	34	3	13	64	14	7	262	15
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	37			69			338	194	65	238	196	36
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	37			69			338	194	65	238	196	36
tC, single (s)	4.2			4.1			7.1	6.6	6.2	7.3	6.5	6.4
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.1	3.3	3.7	4.0	3.5
p0 queue free %	99			98			97	90	99	99	62	98
cM capacity (veh/h)	1542			1545			418	670	1005	599	682	993

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	89	63	91	284
Volume Left	20	26	13	7
Volume Right	8	3	14	15
cSH	1542	1545	648	691
Volume to Capacity	0.01	0.02	0.14	0.41
Queue Length 95th (m)	0.3	0.4	3.9	16.1
Control Delay (s)	1.7	3.1	11.5	13.8
Lane LOS	A	A	B	B
Approach Delay (s)	1.7	3.1	11.5	13.8
Approach LOS			B	B

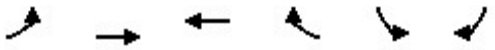
Intersection Summary				
Average Delay	10.1			
Intersection Capacity Utilization	25.8%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	13	67	7	6	253
Future Volume (Veh/h)	10	13	67	7	6	253
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)	11	14	73	8	7	275
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	366	77			81	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	366	77			81	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	99			100	
cM capacity (veh/h)	631	984			1517	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	25	81	282
Volume Left	11	0	7
Volume Right	14	8	0
cSH	789	1700	1517
Volume to Capacity	0.03	0.05	0.00
Queue Length 95th (m)	0.8	0.0	0.1
Control Delay (s)	9.7	0.0	0.2
Lane LOS	A		A
Approach Delay (s)	9.7	0.0	0.2
Approach LOS	A		

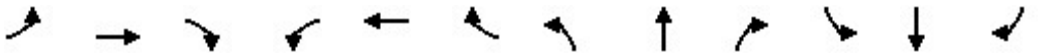
Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	28.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	148	308	331	749	650	168
Future Volume (vph)	148	308	331	749	650	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1703	1759	1667	1518	1736	1459
Flt Permitted	0.36	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	637	1759	1667	1518	1736	1459
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	159	331	356	805	699	181
RTOR Reduction (vph)	0	0	0	537	0	121
Lane Group Flow (vph)	159	331	356	268	699	60
Confl. Peds. (#/hr)	1			1		
Confl. Bikes (#/hr)						4
Heavy Vehicles (%)	6%	8%	14%	5%	4%	8%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	36.0	36.0	24.0	24.0	24.0	24.0
Effective Green, g (s)	36.0	36.0	24.0	24.0	24.0	24.0
Actuated g/C Ratio	0.50	0.50	0.33	0.33	0.33	0.33
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	436	879	555	506	578	486
v/s Ratio Prot	0.04	c0.19	c0.21		c0.40	
v/s Ratio Perm	0.14			0.18		0.04
v/c Ratio	0.36	0.38	0.64	0.53	1.21	0.12
Uniform Delay, d1	10.7	11.1	20.4	19.4	24.0	16.7
Progression Factor	1.00	1.00	1.00	1.00	1.15	2.48
Incremental Delay, d2	2.4	1.2	5.6	3.9	109.4	0.5
Delay (s)	13.1	12.3	26.0	23.4	137.1	41.8
Level of Service	B	B	C	C	F	D
Approach Delay (s)		12.6	24.2		117.5	
Approach LOS		B	C		F	

Intersection Summary			
HCM 2000 Control Delay	54.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	77.5%	ICU Level of Service	D
Analysis Period (min)	15		

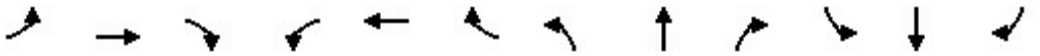
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	277	7	44	323	133	25	131	80	98	23	6
Future Volume (Veh/h)	9	277	7	44	323	133	25	131	80	98	23	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	10	304	8	48	355	146	27	144	88	108	25	7
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	501			312			872	925	308	1012	856	428
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	501			312			872	925	308	1012	856	428
tC, single (s)	4.1			4.2			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			96			89	44	88	0	91	99
cM capacity (veh/h)	1074			1199			243	256	730	102	283	631

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	322	549	259	140
Volume Left	10	48	27	108
Volume Right	8	146	88	7
cSH	1074	1199	326	120
Volume to Capacity	0.01	0.04	0.79	1.16
Queue Length 95th (m)	0.2	1.0	52.2	68.5
Control Delay (s)	0.4	1.1	47.8	201.5
Lane LOS	A	A	E	F
Approach Delay (s)	0.4	1.1	47.8	201.5
Approach LOS			E	F

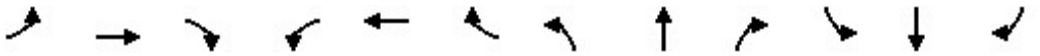
Intersection Summary				
Average Delay	32.6			
Intersection Capacity Utilization	75.8%	ICU Level of Service	D	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	11	74	115	30	78	127	668	66	85	452	35
Future Volume (vph)	31	11	74	115	30	78	127	668	66	85	452	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	0.99	1.00		1.00	1.00	
Frt		0.91			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1677			1813	1555	1796	3467		1805	3466	
Flt Permitted		0.90			0.73	1.00	0.46	1.00		0.17	1.00	
Satd. Flow (perm)		1530			1374	1555	861	3467		317	3466	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	12	80	125	33	85	138	726	72	92	491	38
RTOR Reduction (vph)	0	52	0	0	0	55	0	10	0	0	8	0
Lane Group Flow (vph)	0	74	0	0	158	30	138	788	0	92	521	0
Confl. Peds. (#/hr)	5					5	6		4	4		6
Confl. Bikes (#/hr)			2			3			2			4
Heavy Vehicles (%)	0%	0%	2%	1%	0%	2%	0%	2%	7%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Effective Green, g (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Actuated g/C Ratio		0.35			0.35	0.35	0.28	0.28		0.50	0.50	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Grp Cap (vph)		531			477	539	239	963		406	1733	
v/s Ratio Prot								c0.23		0.04	c0.15	
v/s Ratio Perm		0.05			c0.11	0.02	0.16			0.08		
v/c Ratio		0.14			0.33	0.05	0.58	0.82		0.23	0.30	
Uniform Delay, d1		16.1			17.3	15.6	22.4	24.3		11.0	10.6	
Progression Factor		1.00			1.00	1.00	0.90	0.91		1.00	1.00	
Incremental Delay, d2		0.5			1.9	0.2	6.9	5.5		1.3	0.4	
Delay (s)		16.7			19.2	15.8	27.2	27.6		12.3	11.0	
Level of Service		B			B	B	C	C		B	B	
Approach Delay (s)		16.7			18.0			27.6			11.2	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

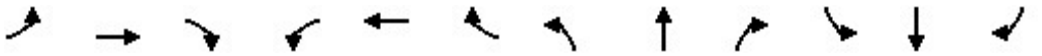
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	4	90	19	2	41	118	806	6	11	543	116
Future Volume (Veh/h)	75	4	90	19	2	41	118	806	6	11	543	116
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	84	4	101	21	2	46	133	906	7	12	610	130
Pedestrians		3						4			8	
Lane Width (m)		3.6						3.6			3.6	
Walking Speed (m/s)		1.2						1.2			1.2	
Percent Blockage		0						0			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1476	1881	377	1612	1942	464	743			913		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1476	1881	377	1612	1942	464	743			913		
tC, single (s)	7.5	6.5	7.0	7.9	6.5	7.0	4.2			4.8		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.0	3.3	2.2			2.5		
p0 queue free %	0	93	83	47	96	91	84			98		
cM capacity (veh/h)	68	59	611	40	54	538	845			577		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	84	105	69	133	604	309	12	407	333
Volume Left	84	0	21	133	0	0	12	0	0
Volume Right	0	101	46	0	0	7	0	0	130
cSH	68	451	107	845	1700	1700	577	1700	1700
Volume to Capacity	1.23	0.23	0.65	0.16	0.36	0.18	0.02	0.24	0.20
Queue Length 95th (m)	53.5	7.1	26.0	4.5	0.0	0.0	0.5	0.0	0.0
Control Delay (s)	289.2	15.4	86.5	10.1	0.0	0.0	11.4	0.0	0.0
Lane LOS	F	C	F	B			B		
Approach Delay (s)	137.1		86.5	1.3			0.2		
Approach LOS	F		F						

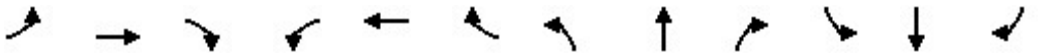
Intersection Summary				
Average Delay	16.2			
Intersection Capacity Utilization	47.3%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	129	32	224	64	65	39	452	386	53	496	143
Future Volume (vph)	77	129	32	224	64	65	39	452	386	53	496	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00	0.99		1.00	0.98		1.00	0.99	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.98		1.00	0.92		1.00	0.93		1.00	0.97	
Flt Protected		0.98		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1807		1782	1723		1804	3253		1799	3401	
Flt Permitted		0.84		0.52	1.00		0.29	1.00		0.18	1.00	
Satd. Flow (perm)		1544		979	1723		555	3253		338	3401	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	88	147	36	255	73	74	44	514	439	60	564	162
RTOR Reduction (vph)	0	7	0	0	40	0	0	207	0	0	36	0
Lane Group Flow (vph)	0	264	0	255	107	0	44	746	0	60	691	0
Confl. Peds. (#/hr)	3		11	11		3	1		11	11		1
Confl. Bikes (#/hr)			2			7			1			4
Heavy Vehicles (%)	0%	1%	5%	1%	0%	2%	0%	2%	1%	0%	2%	2%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio		0.32		0.45	0.45		0.39	0.39		0.39	0.39	
Clearance Time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		494		518	781		214	1257		130	1315	
v/s Ratio Prot				c0.05	0.06			c0.23			0.20	
v/s Ratio Perm		0.17		c0.18			0.08			0.18		
v/c Ratio		0.53		0.49	0.14		0.21	0.59		0.46	0.53	
Uniform Delay, d1		20.9		13.8	11.9		15.3	18.3		17.2	17.7	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		4.1		3.3	0.4		2.2	2.1		11.3	1.5	
Delay (s)		25.0		17.1	12.3		17.5	20.4		28.5	19.2	
Level of Service		C		B	B		B	C		C	B	
Approach Delay (s)		25.0			15.3			20.3			19.9	
Approach LOS		C			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	102.4%	ICU Level of Service	G
Analysis Period (min)	15		

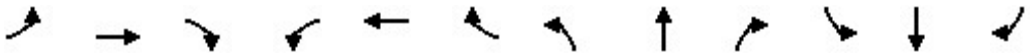
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	40	64	73	46	156	55	505	38	91	556	58
Future Volume (vph)	52	40	64	73	46	156	55	505	38	91	556	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.94			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1755			1842	1576	1803	3500		1785	3454	
Flt Permitted		0.86			0.76	1.00	0.34	1.00		0.39	1.00	
Satd. Flow (perm)		1536			1437	1576	644	3500		727	3454	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	55	43	68	78	49	166	59	537	40	97	591	62
RTOR Reduction (vph)	0	31	0	0	0	116	0	7	0	0	10	0
Lane Group Flow (vph)	0	135	0	0	127	50	59	570	0	97	643	0
Confl. Peds. (#/hr)	1		2	2		1	4		3	3		4
Confl. Bikes (#/hr)						2						1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	2%	0%	1%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Effective Green, g (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Actuated g/C Ratio		0.30			0.30	0.30	0.51	0.41		0.51	0.41	
Clearance Time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Grp Cap (vph)		466			436	478	443	1417		475	1399	
v/s Ratio Prot							0.01	0.16		c0.02	c0.19	
v/s Ratio Perm		0.09			c0.09	0.03	0.05			0.08		
v/c Ratio		0.29			0.29	0.11	0.13	0.40		0.20	0.46	
Uniform Delay, d1		21.0			21.0	19.8	10.1	16.7		10.3	17.2	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.6			1.7	0.4	0.6	0.9		1.0	1.1	
Delay (s)		22.6			22.7	20.2	10.8	17.6		11.2	18.3	
Level of Service		C			C	C	B	B		B	B	
Approach Delay (s)		22.6			21.3			16.9			17.4	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		

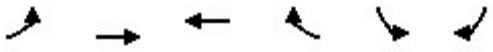
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	19	116	11	24	136	21	6	54	25	32	43	19
Future Volume (vph)	19	116	11	24	136	21	6	54	25	32	43	19
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	21	127	12	26	149	23	7	59	27	35	47	21

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	160	198	93	103
Volume Left (vph)	21	26	7	35
Volume Right (vph)	12	23	27	21
Hadj (s)	-0.02	-0.04	-0.12	-0.01
Departure Headway (s)	4.6	4.5	4.8	4.9
Degree Utilization, x	0.20	0.25	0.12	0.14
Capacity (veh/h)	732	749	694	679
Control Delay (s)	8.8	9.1	8.4	8.6
Approach Delay (s)	8.8	9.1	8.4	8.6
Approach LOS	A	A	A	A

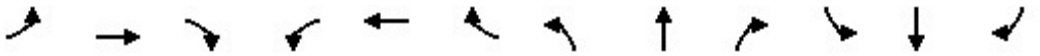
Intersection Summary				
Delay	8.8			
Level of Service	A			
Intersection Capacity Utilization	31.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	110	93	6	4	0
Future Volume (Veh/h)	0	110	93	6	4	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	121	102	7	4	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	109				226	106
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	109				226	106
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1481				762	949

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	121	109	4
Volume Left	0	0	4
Volume Right	0	7	0
cSH	1481	1700	762
Volume to Capacity	0.00	0.06	0.01
Queue Length 95th (m)	0.0	0.0	0.1
Control Delay (s)	0.0	0.0	9.8
Lane LOS			A
Approach Delay (s)	0.0	0.0	9.8
Approach LOS			A

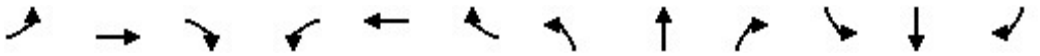
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	15.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	109	5	45	109	7	3	1	28	8	3	0
Future Volume (Veh/h)	7	109	5	45	109	7	3	1	28	8	3	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.92	0.92	0.91	0.91	0.92	0.92	0.92	0.91	0.92	0.91
Hourly flow rate (vph)	8	120	5	49	120	8	3	1	30	9	3	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	128			125			362	364	122	391	363	124
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	128			125			362	364	122	391	363	124
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 %	99			97			99	100	97	98	99	100
cM capacity (veh/h)	1458			1462			574	542	929	533	543	927

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	133	177	34	12
Volume Left	8	49	3	9
Volume Right	5	8	30	0
cSH	1458	1462	863	535
Volume to Capacity	0.01	0.03	0.04	0.02
Queue Length 95th (m)	0.1	0.8	1.0	0.5
Control Delay (s)	0.5	2.3	9.3	11.9
Lane LOS	A	A	A	B
Approach Delay (s)	0.5	2.3	9.3	11.9
Approach LOS			A	B

Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	25.3%	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 (veh/h)	22	70	7	9	63	21	8	241	22	19	115	22
Future Volume (Veh/h)	22	70	7	9	63	21	8	241	22	19	115	22
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	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	24	76	8	10	68	23	9	262	24	21	125	24
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	91			84			314	239	80	382	232	80
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	91			84			314	239	80	382	232	80
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.2	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.0	3.3
p0 queue free %	98			99			98	60	98	94	81	98
cM capacity (veh/h)	1517			1526			526	649	986	373	655	973

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	108	101	295	170
Volume Left	24	10	9	21
Volume Right	8	23	24	24
cSH	1517	1526	663	626
Volume to Capacity	0.02	0.01	0.45	0.27
Queue Length 95th (m)	0.4	0.2	18.3	8.8
Control Delay (s)	1.7	0.8	14.7	12.9
Lane LOS	A	A	B	B
Approach Delay (s)	1.7	0.8	14.7	12.9
Approach LOS			B	B

Intersection Summary				
Average Delay	10.1			
Intersection Capacity Utilization	33.0%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	7	6	264	10	10	121
Future Volume (Veh/h)	7	6	264	10	10	121
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	8	7	290	11	11	133
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	450	296			301	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	450	296			301	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	99			99	
cM capacity (veh/h)	562	744			1260	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	15	301	144
Volume Left	8	0	11
Volume Right	7	11	0
cSH	634	1700	1260
Volume to Capacity	0.02	0.18	0.01
Queue Length 95th (m)	0.6	0.0	0.2
Control Delay (s)	10.8	0.0	0.7
Lane LOS	B		A
Approach Delay (s)	10.8	0.0	0.7
Approach LOS	B		

Intersection Summary			
Average Delay		0.6	
Intersection Capacity Utilization		24.6%	ICU Level of Service A
Analysis Period (min)		15	

Summary of All Intervals

Run Number	1	2	3	Avg
Start Time	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	3243	3336	3199	3261
Vehs Exited	3241	3288	3194	3241
Starting Vehs	150	145	137	143
Ending Vehs	152	193	142	164
Travel Distance (km)	6145	6142	5894	6060
Travel Time (hr)	156.2	156.5	147.6	153.5
Total Delay (hr)	30.9	31.0	28.2	30.0
Total Stops	4832	4864	4571	4756
Fuel Used (l)	487.3	481.8	459.2	476.1

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	Avg
Vehs Entered	3243	3336	3199	3261
Vehs Exited	3241	3288	3194	3241
Starting Vehs	150	145	137	143
Ending Vehs	152	193	142	164
Travel Distance (km)	6145	6142	5894	6060
Travel Time (hr)	156.2	156.5	147.6	153.5
Total Delay (hr)	30.9	31.0	28.2	30.0
Total Stops	4832	4864	4571	4756
Fuel Used (l)	487.3	481.8	459.2	476.1

Intersection: 3: Old Barrie Rd E & University Ave

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (m)	21.8	62.9	69.6	53.8	45.9	63.0
Average Queue (m)	8.1	30.3	26.6	26.1	18.9	30.3
95th Queue (m)	17.9	51.0	52.6	43.6	35.1	52.9
Link Distance (m)		579.8	318.4		1089.4	1089.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	106.0			64.0		
Storage Blk Time (%)			0	0		
Queuing Penalty (veh)			1	0		

Intersection: 5: Old Barrie Rd E & Line 15 N

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	4.9	22.5	24.0	58.3
Average Queue (m)	0.2	4.9	11.2	26.3
95th Queue (m)	2.0	16.3	21.5	44.8
Link Distance (m)	288.0	579.8	1006.6	1844.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: University Ave & Diana Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	35.9	23.8	13.8	28.2	36.5	41.9	23.0	28.3	33.5
Average Queue (m)	16.9	7.9	3.1	11.0	18.0	24.4	6.5	11.3	15.7
95th Queue (m)	30.6	17.8	10.8	24.3	32.7	36.6	17.2	24.0	29.4
Link Distance (m)	144.4	117.8	117.8		1089.4	1089.4		535.9	535.9
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				36.0			58.0		
Storage Blk Time (%)				0	1				
Queuing Penalty (veh)				0	0				

Intersection: 12: University Ave/West Ridge Blvd & Stone Ridge Blvd/Hunter Valley Rd

Movement	EB	EB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	L	T	TR
Maximum Queue (m)	24.3	27.7	11.3	21.7	6.0	8.8	2.2	7.6
Average Queue (m)	12.4	10.8	3.1	4.4	0.2	1.2	0.1	0.3
95th Queue (m)	21.0	19.6	10.2	14.1	2.4	6.1	1.2	3.5
Link Distance (m)	278.2	278.2	176.5		535.9		944.3	944.3
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)				42.5		90.0		
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 16: West Ridge Blvd & Monarch Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	53.2	32.4	28.0	10.3	37.0	65.9	42.9	45.0	47.3
Average Queue (m)	29.5	15.0	10.4	2.4	19.6	30.3	16.8	19.8	22.9
95th Queue (m)	46.8	27.4	22.4	8.9	33.9	50.8	32.5	38.4	41.7
Link Distance (m)	173.4	268.3	268.3		944.3	944.3		141.5	141.5
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				47.0			38.0		
Storage Blk Time (%)							0	0	
Queuing Penalty (veh)							0	0	

Intersection: 19: West Ridge Blvd & Bass Lake Side Rd E

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	63.9	15.4	16.6	27.4	34.2	39.4	16.9	57.0	45.2
Average Queue (m)	27.1	7.5	6.1	11.0	17.9	21.9	5.7	28.9	16.7
95th Queue (m)	48.7	15.9	13.8	23.1	29.9	35.8	15.0	49.1	33.9
Link Distance (m)	514.5	80.4	80.4		141.5	141.5		174.0	174.0
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				39.0			42.0		
Storage Blk Time (%)				0	0			2	
Queuing Penalty (veh)				0	0			1	

Intersection: 23: Bass Lake Side Rd E & Atlantis Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	20.9	22.0	17.7	29.3
Average Queue (m)	11.4	12.2	10.9	12.9
95th Queue (m)	17.7	19.6	17.2	21.8
Link Distance (m)	315.7	514.5	221.1	203.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: Bass Lake Side Rd E & Old Scotia Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	9.0
Average Queue (m)	1.2
95th Queue (m)	6.3
Link Distance (m)	239.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: Bass Lake Side Rd E & Hepinstall Pl

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	3.1	17.6	9.3
Average Queue (m)	0.1	7.3	3.5
95th Queue (m)	1.7	14.6	10.7
Link Distance (m)	315.7	125.7	176.0
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 32: Line 15 N & Bass Lake Side Rd E

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	2.9	8.1	18.5	28.2
Average Queue (m)	0.1	0.4	10.6	14.0
95th Queue (m)	1.6	3.5	17.3	22.4
Link Distance (m)	278.4	157.8	607.9	420.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 35: Line 15 N & Stone Ridge Blvd extension

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	11.2	2.5
Average Queue (m)	5.1	0.1
95th Queue (m)	12.4	1.4
Link Distance (m)	198.7	607.9
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 4

Summary of All Intervals

Run Number	1	2	3	Avg
Start Time	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	4735	4544	4713	4666
Vehs Exited	4648	4455	4653	4584
Starting Vehs	238	206	249	230
Ending Vehs	325	295	309	303
Travel Distance (km)	8903	8359	8692	8651
Travel Time (hr)	291.0	251.9	286.5	276.5
Total Delay (hr)	108.3	81.0	108.5	99.3
Total Stops	7926	7169	7853	7652
Fuel Used (l)	756.1	691.1	737.8	728.3

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	Avg
Vehs Entered	4735	4544	4713	4666
Vehs Exited	4648	4455	4653	4584
Starting Vehs	238	206	249	230
Ending Vehs	325	295	309	303
Travel Distance (km)	8903	8359	8692	8651
Travel Time (hr)	291.0	251.9	286.5	276.5
Total Delay (hr)	108.3	81.0	108.5	99.3
Total Stops	7926	7169	7853	7652
Fuel Used (l)	756.1	691.1	737.8	728.3

Intersection: 3: Old Barrie Rd E & University Ave

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (m)	45.8	59.5	126.0	138.7	638.4	527.1
Average Queue (m)	18.7	27.8	47.5	67.4	380.0	202.8
95th Queue (m)	36.1	47.9	87.3	123.7	670.8	508.4
Link Distance (m)		579.8	318.4		1089.4	1089.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	106.0			64.0		
Storage Blk Time (%)			2	15		
Queuing Penalty (veh)			18	50		

Intersection: 5: Old Barrie Rd E & Line 15 N

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	21.8	31.0	70.6	38.6
Average Queue (m)	2.0	6.2	28.8	17.0
95th Queue (m)	11.2	21.6	55.2	31.5
Link Distance (m)	288.0	579.8	1006.6	1844.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: University Ave & Diana Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	28.6	33.8	23.6	51.6	61.2	59.8	24.7	38.6	46.3
Average Queue (m)	11.5	17.6	9.0	21.4	40.5	44.0	9.3	16.4	20.5
95th Queue (m)	21.9	31.0	18.7	40.1	57.8	57.7	19.8	31.6	36.0
Link Distance (m)	144.4	117.8	117.8		1089.4	1089.4		535.9	535.9
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				36.0			58.0		
Storage Blk Time (%)				0	13				
Queuing Penalty (veh)				1	17				

Intersection: 12: University Ave/West Ridge Blvd & Stone Ridge Blvd/Hunter Valley Rd

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	32.6	22.4	25.0	30.3	13.4	19.7	19.8	10.9	14.5
Average Queue (m)	13.2	10.8	10.9	11.0	0.9	1.2	1.9	0.5	1.7
95th Queue (m)	25.2	17.7	21.1	22.8	6.0	8.7	10.1	4.3	7.7
Link Distance (m)	278.2	278.2	176.5		535.9	535.9		944.3	944.3
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				42.5			90.0		
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 16: West Ridge Blvd & Monarch Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	60.5	53.7	32.0	19.0	66.6	93.4	51.4	57.6	57.0
Average Queue (m)	26.4	26.8	13.2	7.3	30.4	50.2	13.5	28.1	30.5
95th Queue (m)	48.1	46.7	25.8	16.9	53.7	78.8	32.0	50.2	53.1
Link Distance (m)	173.4	268.3	268.3		944.3	944.3		141.5	141.5
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				47.0			38.0		
Storage Blk Time (%)					1		0	4	
Queuing Penalty (veh)					1		1	2	

Intersection: 19: West Ridge Blvd & Bass Lake Side Rd E

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	46.0	39.7	30.2	20.4	54.5	56.2	50.1	60.1	48.5
Average Queue (m)	17.5	16.9	12.1	7.9	24.1	26.4	12.1	32.2	25.6
95th Queue (m)	32.7	31.3	21.6	17.0	47.0	50.4	29.1	53.6	44.4
Link Distance (m)	514.5	80.4	80.4		141.5	141.5		174.0	174.0
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				39.0			42.0		
Storage Blk Time (%)					3			3	
Queuing Penalty (veh)					1			3	

Intersection: 23: Bass Lake Side Rd E & Atlantis Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	20.7	22.5	18.9	18.0
Average Queue (m)	11.6	13.2	9.1	9.5
95th Queue (m)	18.6	19.9	14.9	14.7
Link Distance (m)	315.7	514.5	221.1	203.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: Bass Lake Side Rd E & Old Scotia Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	6.0
Average Queue (m)	0.8
95th Queue (m)	5.0
Link Distance (m)	239.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: Bass Lake Side Rd E & Hepinstall Pl

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	5.6	13.6	12.9	11.4
Average Queue (m)	0.3	2.0	6.1	3.1
95th Queue (m)	2.8	8.6	13.5	10.4
Link Distance (m)	881.3	315.7	125.7	176.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 32: Line 15 N & Bass Lake Side Rd E

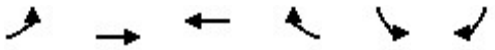
Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	5.9	4.9	33.4	24.0
Average Queue (m)	0.7	0.4	19.5	12.0
95th Queue (m)	4.4	3.3	30.4	19.5
Link Distance (m)	278.4	157.8	607.9	420.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 35: Line 15 N & Stone Ridge Blvd extension

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	11.2	5.7
Average Queue (m)	3.4	0.4
95th Queue (m)	10.7	3.1
Link Distance (m)	198.7	607.9
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

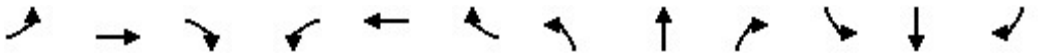
Network Summary

Network wide Queuing Penalty: 94



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	87	371	236	585	221	450
Future Volume (vph)	87	371	236	585	221	450
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1703	1759	1667	1519	1736	1464
Flt Permitted	0.46	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	828	1759	1667	1519	1736	1464
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	98	417	265	657	248	506
RTOR Reduction (vph)	0	0	0	438	0	337
Lane Group Flow (vph)	98	417	265	219	248	169
Confl. Bikes (#/hr)				1		1
Heavy Vehicles (%)	6%	8%	14%	5%	4%	8%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	36.0	36.0	24.0	24.0	24.0	24.0
Effective Green, g (s)	36.0	36.0	24.0	24.0	24.0	24.0
Actuated g/C Ratio	0.50	0.50	0.33	0.33	0.33	0.33
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	511	879	555	506	578	488
v/s Ratio Prot	0.02	c0.24	0.16		c0.14	
v/s Ratio Perm	0.07			0.14		0.12
v/c Ratio	0.19	0.47	0.48	0.43	0.43	0.35
Uniform Delay, d1	9.9	11.8	19.0	18.7	18.7	18.1
Progression Factor	1.00	1.00	1.00	1.00	1.21	4.74
Incremental Delay, d2	0.8	1.8	2.9	2.7	2.2	1.9
Delay (s)	10.7	13.6	22.0	21.4	24.9	87.7
Level of Service	B	B	C	C	C	F
Approach Delay (s)		13.1	21.5		67.0	
Approach LOS		B	C		E	

Intersection Summary			
HCM 2000 Control Delay	35.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	50.3%	ICU Level of Service	A
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)	4	259	39	63	214	66	6	23	46	152	155	11
Future Volume (Veh/h)	4	259	39	63	214	66	6	23	46	152	155	11
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	4	285	43	69	235	73	7	25	51	167	170	12
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	308			328			821	760	306	788	746	272
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	308			328			821	760	306	788	746	272
tC, single (s)	4.1			4.2			8.1	6.6	6.4	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.3			4.4	4.1	3.5	3.5	4.0	3.4
p0 queue free %	100			94			94	92	93	35	47	98
cM capacity (veh/h)	1264			1193			112	309	691	258	322	741

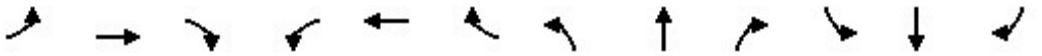
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	332	377	83	349
Volume Left	4	69	7	167
Volume Right	43	73	51	12
cSH	1264	1193	383	293
Volume to Capacity	0.00	0.06	0.22	1.19
Queue Length 95th (m)	0.1	1.5	6.5	123.5
Control Delay (s)	0.1	2.0	17.0	151.7
Lane LOS	A	A	C	F
Approach Delay (s)	0.1	2.0	17.0	151.7
Approach LOS			C	F

Intersection Summary				
Average Delay	48.3			
Intersection Capacity Utilization	68.9%	ICU Level of Service	C	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	27	127	48	13	24	72	391	74	61	471	35
Future Volume (vph)	72	27	127	48	13	24	72	391	74	61	471	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.92			1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected		0.98			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1666			1785	1429	1638	3325		1719	3408	
Flt Permitted		0.88			0.72	1.00	0.45	1.00		0.33	1.00	
Satd. Flow (perm)		1497			1340	1429	770	3325		597	3408	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	78	29	138	52	14	26	78	425	80	66	512	38
RTOR Reduction (vph)	0	65	0	0	0	17	0	22	0	0	8	0
Lane Group Flow (vph)	0	180	0	0	66	9	78	483	0	66	543	0
Confl. Peds. (#/hr)			1	1			2					2
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	4%	0%	3%	3%	0%	13%	10%	5%	9%	5%	5%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Effective Green, g (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Actuated g/C Ratio		0.35			0.35	0.35	0.28	0.28		0.50	0.50	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Grp Cap (vph)		519			465	496	213	923		485	1704	
v/s Ratio Prot								c0.15		0.02	c0.16	
v/s Ratio Perm		c0.12			0.05	0.01	0.10			0.05		
v/c Ratio		0.35			0.14	0.02	0.37	0.52		0.14	0.32	
Uniform Delay, d1		17.4			16.1	15.4	20.9	22.0		9.7	10.7	
Progression Factor		1.00			1.00	1.00	0.88	0.89		1.00	1.00	
Incremental Delay, d2		1.8			0.6	0.1	3.7	1.6		0.6	0.5	
Delay (s)		19.3			16.8	15.5	22.0	21.1		10.3	11.2	
Level of Service		B			B	B	C	C		B	B	
Approach Delay (s)		19.3			16.4			21.2			11.1	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	16.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

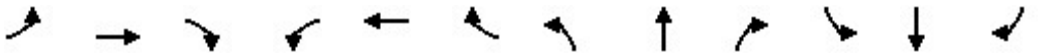
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	156	4	167	3	1	14	74	478	14	21	491	95
Future Volume (Veh/h)	156	4	167	3	1	14	74	478	14	21	491	95
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	166	4	178	3	1	15	79	509	15	22	522	101
Pedestrians		1									2	
Lane Width (m)		3.6									3.6	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1048	1300	312	1160	1342	264	624			524		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1048	1300	312	1160	1342	264	624			524		
tC, single (s)	7.6	6.5	7.0	7.5	6.5	6.9	4.4			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.4	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	0	97	73	97	99	98	91			98		
cM capacity (veh/h)	156	145	668	101	137	739	875			1053		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	166	182	19	79	339	185	22	348	275
Volume Left	166	0	3	79	0	0	22	0	0
Volume Right	0	178	15	0	0	15	0	0	101
cSH	156	619	331	875	1700	1700	1053	1700	1700
Volume to Capacity	1.06	0.29	0.06	0.09	0.20	0.11	0.02	0.20	0.16
Queue Length 95th (m)	68.2	9.8	1.5	2.4	0.0	0.0	0.5	0.0	0.0
Control Delay (s)	148.0	13.2	16.5	9.5	0.0	0.0	8.5	0.0	0.0
Lane LOS	F	B	C	A			A		
Approach Delay (s)	77.5		16.5	1.2			0.3		
Approach LOS	F		C						

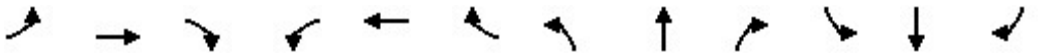
Intersection Summary				
Average Delay	17.5			
Intersection Capacity Utilization	46.0%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	140	59	139	62	48	19	394	241	87	427	94
Future Volume (vph)	144	140	59	139	62	48	19	394	241	87	427	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		0.99	1.00	
Frt		0.98		1.00	0.93		1.00	0.94		1.00	0.97	
Flt Protected		0.98		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1772		1732	1697		1804	3240		1662	3375	
Flt Permitted		0.81		0.49	1.00		0.39	1.00		0.31	1.00	
Satd. Flow (perm)		1463		889	1697		737	3240		541	3375	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	158	154	65	153	68	53	21	433	265	96	469	103
RTOR Reduction (vph)	0	10	0	0	29	0	0	125	0	0	25	0
Lane Group Flow (vph)	0	367	0	153	92	0	21	573	0	96	547	0
Confl. Peds. (#/hr)	3		11	11		3	1		11	11		1
Confl. Bikes (#/hr)			2			1						1
Heavy Vehicles (%)	4%	1%	0%	4%	0%	9%	0%	4%	3%	8%	4%	2%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio		0.32		0.45	0.45		0.39	0.39		0.39	0.39	
Clearance Time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		468		481	769		284	1252		209	1305	
v/s Ratio Prot				c0.03	0.05			0.18			0.16	
v/s Ratio Perm		c0.25		0.11			0.03			c0.18		
v/c Ratio		0.78		0.32	0.12		0.07	0.46		0.46	0.42	
Uniform Delay, d1		23.1		13.5	11.8		14.5	17.1		17.2	16.8	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		12.4		1.7	0.3		0.5	1.2		7.1	1.0	
Delay (s)		35.5		15.2	12.2		15.0	18.4		24.3	17.8	
Level of Service		D		B	B		B	B		C	B	
Approach Delay (s)		35.5			13.9			18.3			18.8	
Approach LOS		D			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	21.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		

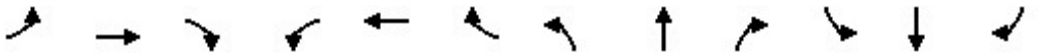
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	104	41	114	28	18	57	90	495	18	53	472	39
Future Volume (vph)	104	41	114	28	18	57	90	495	18	53	472	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.94			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1675			1844	1516	1718	3413		1752	3382	
Flt Permitted		0.85			0.78	1.00	0.40	1.00		0.40	1.00	
Satd. Flow (perm)		1446			1478	1516	717	3413		729	3382	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	114	45	125	31	20	63	99	544	20	58	519	43
RTOR Reduction (vph)	0	36	0	0	0	44	0	4	0	0	8	0
Lane Group Flow (vph)	0	248	0	0	51	19	99	560	0	58	554	0
Confl. Peds. (#/hr)							2		1	1		2
Confl. Bikes (#/hr)						3			3			1
Heavy Vehicles (%)	6%	0%	5%	0%	0%	5%	5%	5%	8%	3%	5%	9%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Effective Green, g (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Actuated g/C Ratio		0.30			0.30	0.30	0.51	0.41		0.51	0.41	
Clearance Time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Grp Cap (vph)		439			449	460	464	1382		472	1369	
v/s Ratio Prot							c0.02	c0.16		0.01	0.16	
v/s Ratio Perm		c0.17			0.03	0.01	0.09			0.05		
v/c Ratio		0.57			0.11	0.04	0.21	0.41		0.12	0.40	
Uniform Delay, d1		23.1			19.8	19.4	10.3	16.7		10.0	16.7	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		5.2			0.5	0.2	1.0	0.9		0.5	0.9	
Delay (s)		28.3			20.3	19.6	11.3	17.6		10.6	17.6	
Level of Service		C			C	B	B	B		B	B	
Approach Delay (s)		28.3			19.9			16.7			17.0	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	54.2%	ICU Level of Service	A
Analysis Period (min)	15		

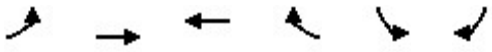
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	36	115	6	22	42	74	8	64	38	92	38	35
Future Volume (vph)	36	115	6	22	42	74	8	64	38	92	38	35
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Hourly flow rate (vph)	58	185	10	35	68	119	13	103	61	148	61	56

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	253	222	177	265
Volume Left (vph)	58	35	13	148
Volume Right (vph)	10	119	61	56
Hadj (s)	0.05	-0.22	-0.09	0.12
Departure Headway (s)	5.6	5.4	5.7	5.7
Degree Utilization, x	0.40	0.33	0.28	0.42
Capacity (veh/h)	590	601	564	585
Control Delay (s)	12.2	11.1	10.8	12.7
Approach Delay (s)	12.2	11.1	10.8	12.7
Approach LOS	B	B	B	B

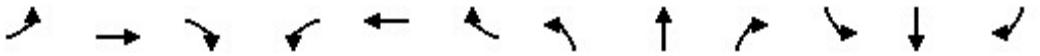
Intersection Summary				
Delay	11.8			
Level of Service	B			
Intersection Capacity Utilization	35.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	83	66	3	6	0
Future Volume (Veh/h)	0	83	66	3	6	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	90	72	3	7	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	75				164	74
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	75				164	74
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1524				827	988

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	90	75	7
Volume Left	0	0	7
Volume Right	0	3	0
cSH	1524	1700	827
Volume to Capacity	0.00	0.04	0.01
Queue Length 95th (m)	0.0	0.0	0.2
Control Delay (s)	0.0	0.0	9.4
Lane LOS			A
Approach Delay (s)	0.0	0.0	9.4
Approach LOS			A

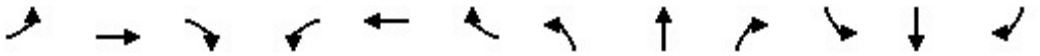
Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	14.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	98	3	10	71	4	2	2	44	15	3	0
Future Volume (Veh/h)	1	98	3	10	71	4	2	2	44	15	3	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	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	107	3	11	77	4	2	2	48	16	3	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	81			110			213	214	108	260	213	79
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	81			110			213	214	108	260	213	79
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	95	98	100	100
cM capacity (veh/h)	1517			1480			737	679	945	652	679	981

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	111	92	52	19
Volume Left	1	11	2	16
Volume Right	3	4	48	0
cSH	1517	1480	921	656
Volume to Capacity	0.00	0.01	0.06	0.03
Queue Length 95th (m)	0.0	0.2	1.4	0.7
Control Delay (s)	0.1	0.9	9.1	10.7
Lane LOS	A	A	A	B
Approach Delay (s)	0.1	0.9	9.1	10.7
Approach LOS			A	B

Intersection Summary				
Average Delay	2.8			
Intersection Capacity Utilization	25.0%	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 (veh/h)	20	63	9	28	35	4	16	76	14	7	273	15
Future Volume (Veh/h)	20	63	9	28	35	4	16	76	14	7	273	15
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	23	72	10	32	40	5	18	87	16	8	314	17
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	45			82			404	232	77	289	234	42
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	45			82			404	232	77	289	234	42
tC, single (s)	4.2			4.1			7.1	6.6	6.2	7.3	6.5	6.4
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.1	3.3	3.7	4.0	3.5
p0 queue free %	98			98			95	86	98	98	51	98
cM capacity (veh/h)	1531			1528			332	634	990	531	646	984

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	105	77	121	339
Volume Left	23	32	18	8
Volume Right	10	5	16	17
cSH	1531	1528	583	654
Volume to Capacity	0.02	0.02	0.21	0.52
Queue Length 95th (m)	0.4	0.5	6.2	24.0
Control Delay (s)	1.7	3.2	12.8	16.3
Lane LOS	A	A	B	C
Approach Delay (s)	1.7	3.2	12.8	16.3
Approach LOS			B	C

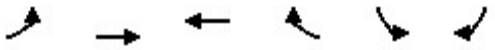
Intersection Summary				
Average Delay	11.7			
Intersection Capacity Utilization	29.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	22	24	82	12	10	299
Future Volume (Veh/h)	22	24	82	12	10	299
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)	24	26	89	13	11	325
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	442	96			102	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	442	96			102	
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	97			99	
cM capacity (veh/h)	568	961			1490	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	50	102	336
Volume Left	24	0	11
Volume Right	26	13	0
cSH	722	1700	1490
Volume to Capacity	0.07	0.06	0.01
Queue Length 95th (m)	1.8	0.0	0.2
Control Delay (s)	10.4	0.0	0.3
Lane LOS	B		A
Approach Delay (s)	10.4	0.0	0.3
Approach LOS	B		

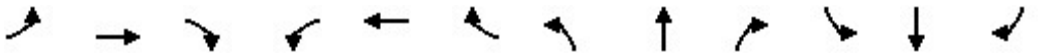
Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	33.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	175	371	402	982	824	212
Future Volume (vph)	175	371	402	982	824	212
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1703	1759	1667	1518	1736	1459
Flt Permitted	0.27	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	486	1759	1667	1518	1736	1459
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	188	399	432	1056	886	228
RTOR Reduction (vph)	0	0	0	609	0	141
Lane Group Flow (vph)	188	399	432	447	886	87
Confl. Peds. (#/hr)	1			1		
Confl. Bikes (#/hr)						4
Heavy Vehicles (%)	6%	8%	14%	5%	4%	8%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	36.0	36.0	24.0	24.0	24.0	24.0
Effective Green, g (s)	36.0	36.0	24.0	24.0	24.0	24.0
Actuated g/C Ratio	0.50	0.50	0.33	0.33	0.33	0.33
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	378	879	555	506	578	486
v/s Ratio Prot	0.06	c0.23	0.26		c0.51	
v/s Ratio Perm	0.19			c0.29		0.06
v/c Ratio	0.50	0.45	0.78	0.88	1.53	0.18
Uniform Delay, d1	11.6	11.6	21.6	22.7	24.0	17.0
Progression Factor	1.00	1.00	1.00	1.00	1.14	2.27
Incremental Delay, d2	4.6	1.7	10.3	19.7	248.1	0.8
Delay (s)	16.2	13.3	31.9	42.4	275.5	39.3
Level of Service	B	B	C	D	F	D
Approach Delay (s)		14.3	39.3		227.2	
Approach LOS		B	D		F	

Intersection Summary			
HCM 2000 Control Delay	100.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	89.8%	ICU Level of Service	E
Analysis Period (min)	15		

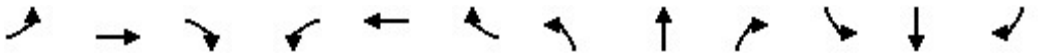
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	328	8	52	392	171	29	158	95	123	29	7
Future Volume (Veh/h)	11	328	8	52	392	171	29	158	95	123	29	7
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	12	360	9	57	431	188	32	174	104	135	32	8
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	619			369			1052	1122	364	1218	1032	525
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	619			369			1052	1122	364	1218	1032	525
tC, single (s)	4.1			4.2			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			95			81	10	85	0	85	99
cM capacity (veh/h)	971			1142			172	193	678	28	220	556

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	381	676	310	175
Volume Left	12	57	32	135
Volume Right	9	188	104	8
cSH	971	1142	250	35
Volume to Capacity	0.01	0.05	1.24	4.93
Queue Length 95th (m)	0.3	1.3	121.2	Err
Control Delay (s)	0.4	1.3	177.5	Err
Lane LOS	A	A	F	F
Approach Delay (s)	0.4	1.3	177.5	Err
Approach LOS			F	F

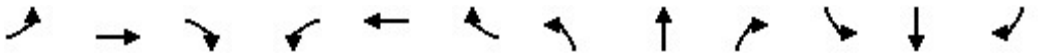
Intersection Summary				
Average Delay	1171.1			
Intersection Capacity Utilization	89.4%	ICU Level of Service	E	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	20	102	136	45	90	171	864	78	100	588	61
Future Volume (vph)	51	20	102	136	45	90	171	864	78	100	588	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.92			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1688			1818	1555	1798	3472		1805	3454	
Flt Permitted		0.87			0.67	1.00	0.38	1.00		0.17	1.00	
Satd. Flow (perm)		1482			1258	1555	726	3472		317	3454	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	55	22	111	148	49	98	186	939	85	109	639	66
RTOR Reduction (vph)	0	72	0	0	0	64	0	9	0	0	11	0
Lane Group Flow (vph)	0	116	0	0	197	34	186	1015	0	109	694	0
Confl. Peds. (#/hr)	5					5	6		4	4		6
Confl. Bikes (#/hr)			2			3			2			4
Heavy Vehicles (%)	0%	0%	2%	1%	0%	2%	0%	2%	7%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Effective Green, g (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Actuated g/C Ratio		0.35			0.35	0.35	0.28	0.28		0.50	0.50	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Grp Cap (vph)		514			436	539	201	964		406	1727	
v/s Ratio Prot								c0.29		0.04	c0.20	
v/s Ratio Perm		0.08			c0.16	0.02	0.26			0.09		
v/c Ratio		0.23			0.45	0.06	0.93	1.05		0.27	0.40	
Uniform Delay, d1		16.6			18.2	15.7	25.3	26.0		12.5	11.3	
Progression Factor		1.00			1.00	1.00	0.90	0.91		1.00	1.00	
Incremental Delay, d2		1.0			3.4	0.2	27.7	35.1		1.6	0.7	
Delay (s)		17.7			21.6	15.9	50.5	58.7		14.1	12.0	
Level of Service		B			C	B	D	E		B	B	
Approach Delay (s)		17.7			19.7			57.5			12.3	
Approach LOS		B			B			E			B	

Intersection Summary			
HCM 2000 Control Delay	35.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		

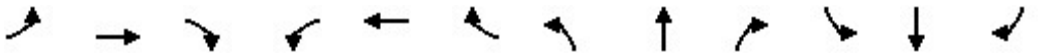
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	132	4	150	22	3	49	201	978	7	13	671	200
Future Volume (Veh/h)	132	4	150	22	3	49	201	978	7	13	671	200
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	148	4	169	25	3	55	226	1099	8	15	754	225
Pedestrians		3						4			8	
Lane Width (m)		3.6						3.6			3.6	
Walking Speed (m/s)		1.2						1.2			1.2	
Percent Blockage		0						0			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1966	2458	496	2137	2567	562	982			1107		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1966	2458	496	2137	2567	562	982			1107		
tC, single (s)	7.5	6.5	7.0	7.9	6.5	7.0	4.2			4.8		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.0	3.3	2.2			2.5		
p0 queue free %	0	80	67	0	82	88	67			97		
cM capacity (veh/h)	21	20	511	9	17	465	685			474		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	148	173	83	226	733	374	15	503	476
Volume Left	148	0	25	226	0	0	15	0	0
Volume Right	0	169	55	0	0	8	0	0	225
cSH	21	326	28	685	1700	1700	474	1700	1700
Volume to Capacity	6.95	0.53	2.99	0.33	0.43	0.22	0.03	0.30	0.28
Queue Length 95th (m)	Err	23.5	80.1	11.5	0.0	0.0	0.8	0.0	0.0
Control Delay (s)	Err	27.8	1193.9	12.8	0.0	0.0	12.8	0.0	0.0
Lane LOS	F	D	F	B			B		
Approach Delay (s)	4625.1		1193.9	2.2			0.2		
Approach LOS	F		F						

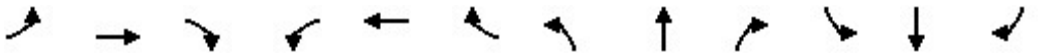
Intersection Summary				
Average Delay	581.1			
Intersection Capacity Utilization	66.7%	ICU Level of Service		C
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	153	47	265	76	77	60	590	457	63	667	205
Future Volume (vph)	116	153	47	265	76	77	60	590	457	63	667	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00	0.99		1.00	0.98		1.00	0.99	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.98		1.00	0.92		1.00	0.93		1.00	0.96	
Flt Protected		0.98		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1799		1783	1723		1804	3268		1801	3394	
Flt Permitted		0.81		0.48	1.00		0.16	1.00		0.14	1.00	
Satd. Flow (perm)		1477		895	1723		307	3268		262	3394	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	132	174	53	301	86	88	68	670	519	72	758	233
RTOR Reduction (vph)	0	8	0	0	48	0	0	186	0	0	39	0
Lane Group Flow (vph)	0	351	0	301	126	0	68	1003	0	72	952	0
Confl. Peds. (#/hr)	3		11	11		3	1		11	11		1
Confl. Bikes (#/hr)			2			7			1			4
Heavy Vehicles (%)	0%	1%	5%	1%	0%	2%	0%	2%	1%	0%	2%	2%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio		0.32		0.45	0.45		0.39	0.39		0.39	0.39	
Clearance Time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		472		488	781		118	1263		101	1312	
v/s Ratio Prot				c0.06	0.07			c0.31			0.28	
v/s Ratio Perm		c0.24		0.22			0.22			0.28		
v/c Ratio		0.74		0.62	0.16		0.58	0.79		0.71	0.73	
Uniform Delay, d1		22.8		16.0	12.1		18.2	20.4		19.5	19.6	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		10.2		5.7	0.4		18.9	5.2		34.8	3.5	
Delay (s)		32.9		21.8	12.5		37.0	25.6		54.3	23.1	
Level of Service		C		C	B		D	C		D	C	
Approach Delay (s)		32.9			18.4			26.2			25.3	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	110.7%	ICU Level of Service	H
Analysis Period (min)	15		

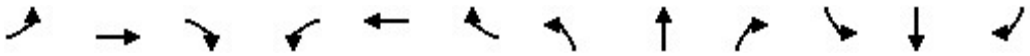
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	48	75	87	55	185	64	678	45	108	774	63
Future Volume (vph)	57	48	75	87	55	185	64	678	45	108	774	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.94			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1754			1842	1576	1804	3504		1786	3465	
Flt Permitted		0.85			0.71	1.00	0.21	1.00		0.27	1.00	
Satd. Flow (perm)		1522			1348	1576	407	3504		516	3465	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	61	51	80	93	59	197	68	721	48	115	823	67
RTOR Reduction (vph)	0	33	0	0	0	137	0	6	0	0	8	0
Lane Group Flow (vph)	0	159	0	0	152	60	68	763	0	115	882	0
Confl. Peds. (#/hr)	1		2	2		1	4		3	3		4
Confl. Bikes (#/hr)						2						1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	2%	0%	1%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Effective Green, g (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Actuated g/C Ratio		0.30			0.30	0.30	0.51	0.41		0.51	0.41	
Clearance Time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Grp Cap (vph)		462			409	478	347	1419		389	1403	
v/s Ratio Prot							0.02	0.22		c0.03	c0.25	
v/s Ratio Perm		0.10			c0.11	0.04	0.08			0.12		
v/c Ratio		0.34			0.37	0.13	0.20	0.54		0.30	0.63	
Uniform Delay, d1		21.4			21.6	19.9	10.8	17.9		10.7	18.8	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.0			2.6	0.5	1.3	1.5		1.9	2.1	
Delay (s)		23.4			24.2	20.4	12.1	19.3		12.7	20.9	
Level of Service		C			C	C	B	B		B	C	
Approach Delay (s)		23.4			22.1			18.7			20.0	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		

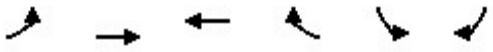
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	22	132	13	28	153	25	7	64	29	38	50	22
Future Volume (vph)	22	132	13	28	153	25	7	64	29	38	50	22
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	24	145	14	31	168	27	8	70	32	42	55	24

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	183	226	110	121
Volume Left (vph)	24	31	8	42
Volume Right (vph)	14	27	32	24
Hadj (s)	-0.02	-0.04	-0.12	-0.01
Departure Headway (s)	4.8	4.7	5.0	5.0
Degree Utilization, x	0.24	0.29	0.15	0.17
Capacity (veh/h)	705	723	661	648
Control Delay (s)	9.3	9.6	8.8	9.1
Approach Delay (s)	9.3	9.6	8.8	9.1
Approach LOS	A	A	A	A

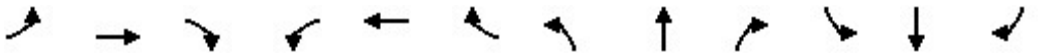
Intersection Summary				
Delay	9.3			
Level of Service	A			
Intersection Capacity Utilization	34.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	130	109	7	4	0
Future Volume (Veh/h)	0	130	109	7	4	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	143	120	8	4	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	128				267	124
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	128				267	124
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1458				722	927

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	143	128	4
Volume Left	0	0	4
Volume Right	0	8	0
cSH	1458	1700	722
Volume to Capacity	0.00	0.08	0.01
Queue Length 95th (m)	0.0	0.0	0.1
Control Delay (s)	0.0	0.0	10.0
Lane LOS			B
Approach Delay (s)	0.0	0.0	10.0
Approach LOS			B

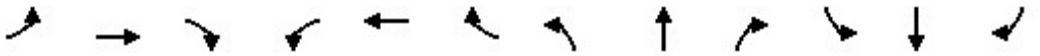
Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	16.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	129	5	45	129	8	3	1	28	10	3	0
Future Volume (Veh/h)	8	129	5	45	129	8	3	1	28	10	3	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.92	0.92	0.91	0.91	0.92	0.92	0.92	0.91	0.92	0.91
Hourly flow rate (vph)	9	142	5	49	142	9	3	1	30	11	3	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	151			147			408	412	144	438	410	146
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	151			147			408	412	144	438	410	146
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 %	99			97			99	100	97	98	99	100
cM capacity (veh/h)	1430			1435			534	509	903	495	510	901

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	156	200	34	14
Volume Left	9	49	3	11
Volume Right	5	9	30	0
cSH	1430	1435	833	498
Volume to Capacity	0.01	0.03	0.04	0.03
Queue Length 95th (m)	0.2	0.8	1.0	0.7
Control Delay (s)	0.5	2.1	9.5	12.4
Lane LOS	A	A	A	B
Approach Delay (s)	0.5	2.1	9.5	12.4
Approach LOS			A	B

Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	30.8%	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 (veh/h)	27	82	11	11	74	25	11	294	26	22	145	27
Future Volume (Veh/h)	27	82	11	11	74	25	11	294	26	22	145	27
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	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	89	12	12	80	27	12	320	28	24	158	29
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	107			101			378	284	95	458	276	94
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	107			101			378	284	95	458	276	94
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.2	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.0	3.3
p0 queue free %	98			99			97	48	97	91	74	97
cM capacity (veh/h)	1497			1504			444	610	967	282	616	955

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	130	119	360	211
Volume Left	29	12	12	24
Volume Right	12	27	28	29
cSH	1497	1504	620	567
Volume to Capacity	0.02	0.01	0.58	0.37
Queue Length 95th (m)	0.5	0.2	29.8	13.7
Control Delay (s)	1.8	0.8	18.5	15.1
Lane LOS	A	A	C	C
Approach Delay (s)	1.8	0.8	18.5	15.1
Approach LOS			C	C

Intersection Summary				
Average Delay	12.4			
Intersection Capacity Utilization	37.8%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	18	16	315	25	23	142
Future Volume (Veh/h)	18	16	315	25	23	142
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	20	18	346	27	25	156
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	566	360			373	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	566	360			373	
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	97			98	
cM capacity (veh/h)	476	685			1185	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	38	373	181
Volume Left	20	0	25
Volume Right	18	27	0
cSH	556	1700	1185
Volume to Capacity	0.07	0.22	0.02
Queue Length 95th (m)	1.8	0.0	0.5
Control Delay (s)	11.9	0.0	1.3
Lane LOS	B		A
Approach Delay (s)	11.9	0.0	1.3
Approach LOS	B		

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	37.0%	ICU Level of Service	A
Analysis Period (min)	15		

Summary of All Intervals

Run Number	1	2	3	Avg
Start Time	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	5595	5613	5614	5601
Vehs Exited	5385	5459	5454	5433
Starting Vehs	337	308	323	313
Ending Vehs	547	462	483	494
Travel Distance (km)	10203	10214	10242	10220
Travel Time (hr)	605.3	559.5	559.7	574.8
Total Delay (hr)	395.7	349.8	349.8	365.1
Total Stops	10659	10560	10350	10522
Fuel Used (l)	1106.8	1070.5	1070.4	1082.6

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	Avg
Vehs Entered	5595	5613	5614	5601
Vehs Exited	5385	5459	5454	5433
Starting Vehs	337	308	323	313
Ending Vehs	547	462	483	494
Travel Distance (km)	10203	10214	10242	10220
Travel Time (hr)	605.3	559.5	559.7	574.8
Total Delay (hr)	395.7	349.8	349.8	365.1
Total Stops	10659	10560	10350	10522
Fuel Used (l)	1106.8	1070.5	1070.4	1082.6

Intersection: 3: Old Barrie Rd E & University Ave

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (m)	45.6	69.5	336.5	164.0	1052.7	1027.4
Average Queue (m)	20.0	33.4	324.5	163.9	726.5	553.0
95th Queue (m)	35.1	55.8	355.5	165.1	1155.6	1013.7
Link Distance (m)		579.8	318.4		1089.4	1089.4
Upstream Blk Time (%)			42		0	
Queuing Penalty (veh)			0		0	
Storage Bay Dist (m)	106.0			64.0		
Storage Blk Time (%)			4	75		
Queuing Penalty (veh)			40	303		

Intersection: 5: Old Barrie Rd E & Line 15 N

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	22.3	41.3	79.3	68.1
Average Queue (m)	2.2	6.6	38.5	23.8
95th Queue (m)	11.0	23.5	68.1	49.7
Link Distance (m)	288.0	579.8	1006.6	1844.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: University Ave & Diana Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	43.3	48.4	27.0	51.8	69.6	72.5	31.4	43.8	44.2
Average Queue (m)	18.2	22.2	10.5	29.5	46.4	50.0	12.8	19.7	24.9
95th Queue (m)	33.8	40.3	21.2	52.5	63.8	67.3	24.2	35.3	39.8
Link Distance (m)	144.4	117.8	117.8		1089.4	1089.4		535.9	535.9
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				36.0			58.0		
Storage Blk Time (%)				3	22				
Queuing Penalty (veh)				14	37				

Intersection: 12: University Ave/West Ridge Blvd & Stone Ridge Blvd/Hunter Valley Rd

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	104.8	50.2	32.6	46.0	10.9	15.3	22.8	15.7	22.1
Average Queue (m)	42.5	16.0	14.0	20.1	0.9	1.5	2.9	0.9	4.0
95th Queue (m)	97.0	35.2	26.6	36.9	5.7	8.6	12.5	6.2	14.0
Link Distance (m)	278.2	278.2	176.5		535.9	535.9		944.3	944.3
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				42.5			90.0		
Storage Blk Time (%)				0					
Queuing Penalty (veh)				2					

Intersection: 16: West Ridge Blvd & Monarch Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	87.2	59.5	32.6	38.6	66.6	98.1	52.8	91.3	96.0
Average Queue (m)	39.5	30.5	14.2	14.4	39.0	56.2	20.9	43.1	47.9
95th Queue (m)	68.6	50.0	26.4	33.2	65.2	89.9	45.7	79.8	80.7
Link Distance (m)	173.4	268.3	268.3		944.3	944.3		141.5	141.5
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				47.0			38.0		
Storage Blk Time (%)					4		4	12	
Queuing Penalty (veh)					2		13	8	

Intersection: 19: West Ridge Blvd & Bass Lake Side Rd E

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	46.5	39.8	29.4	34.1	61.1	57.8	53.2	80.4	70.1
Average Queue (m)	19.7	16.8	14.7	9.9	29.6	32.0	13.6	44.1	40.4
95th Queue (m)	36.7	30.2	25.1	22.7	54.2	56.2	30.4	67.4	64.7
Link Distance (m)	514.5	80.4	80.4		141.5	141.5		174.0	174.0
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				39.0			42.0		
Storage Blk Time (%)					4			7	
Queuing Penalty (veh)					3			8	

Intersection: 23: Bass Lake Side Rd E & Atlantis Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	25.5	21.0	22.0	18.5
Average Queue (m)	12.6	12.6	10.6	10.4
95th Queue (m)	19.6	19.0	16.7	16.5
Link Distance (m)	315.7	514.5	221.1	203.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: Bass Lake Side Rd E & Old Scotia Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	9.0
Average Queue (m)	1.3
95th Queue (m)	6.4
Link Distance (m)	239.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: Bass Lake Side Rd E & Hepinstall Pl

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	7.7	11.4	14.9	9.3
Average Queue (m)	0.3	1.1	6.2	3.6
95th Queue (m)	3.2	6.3	14.0	10.9
Link Distance (m)	881.3	315.7	125.7	176.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 32: Line 15 N & Bass Lake Side Rd E

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	2.9	5.7	35.0	31.5
Average Queue (m)	0.5	0.3	20.2	13.7
95th Queue (m)	3.6	2.8	30.2	23.9
Link Distance (m)	278.4	157.8	607.9	420.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 35: Line 15 N & Stone Ridge Blvd extension

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	11.3	10.7
Average Queue (m)	5.6	1.1
95th Queue (m)	12.8	6.0
Link Distance (m)	198.7	607.9
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 430

Summary of All Intervals

Run Number	1	2	3	Avg
Start Time	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	4099	3995	4093	4060
Vehs Exited	4107	3974	4106	4064
Starting Vehs	186	198	217	192
Ending Vehs	178	219	204	192
Travel Distance (km)	7719	7466	7543	7576
Travel Time (hr)	202.1	191.6	199.1	197.6
Total Delay (hr)	44.1	40.1	44.5	42.9
Total Stops	6298	5945	6174	6140
Fuel Used (l)	620.5	592.6	604.2	605.8

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	Avg
Vehs Entered	4099	3995	4093	4060
Vehs Exited	4107	3974	4106	4064
Starting Vehs	186	198	217	192
Ending Vehs	178	219	204	192
Travel Distance (km)	7719	7466	7543	7576
Travel Time (hr)	202.1	191.6	199.1	197.6
Total Delay (hr)	44.1	40.1	44.5	42.9
Total Stops	6298	5945	6174	6140
Fuel Used (l)	620.5	592.6	604.2	605.8

Intersection: 3: Old Barrie Rd E & University Ave

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (m)	25.5	78.8	56.7	84.5	61.2	88.9
Average Queue (m)	11.6	31.6	31.3	37.8	31.0	43.5
95th Queue (m)	20.6	59.1	51.2	68.4	52.5	72.2
Link Distance (m)		579.8	318.4		1089.4	1089.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	106.0			64.0		
Storage Blk Time (%)			0	2		
Queuing Penalty (veh)			0	5		

Intersection: 5: Old Barrie Rd E & Line 15 N

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	12.6	20.0	30.3	65.6
Average Queue (m)	0.9	5.5	13.5	31.6
95th Queue (m)	6.6	16.1	25.6	52.5
Link Distance (m)	288.0	579.8	1006.6	1844.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: University Ave & Diana Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	44.8	25.8	18.9	30.3	43.0	49.7	25.2	35.3	41.2
Average Queue (m)	21.7	8.5	3.6	12.5	23.9	30.4	7.7	17.4	21.4
95th Queue (m)	38.5	20.4	11.8	25.0	39.3	44.6	19.1	32.5	36.0
Link Distance (m)	144.4	117.8	117.8		1089.4	1089.4		535.9	535.9
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				36.0			58.0		
Storage Blk Time (%)				0	1				
Queuing Penalty (veh)				0	1				

Intersection: 12: University Ave/West Ridge Blvd & Stone Ridge Blvd/Hunter Valley Rd

Movement	EB	EB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	TR	L	T	TR
Maximum Queue (m)	48.5	23.5	11.3	25.0	6.5	13.1	4.2	7.2
Average Queue (m)	18.7	13.5	4.9	8.2	0.3	2.0	0.1	0.6
95th Queue (m)	36.6	21.8	12.0	19.5	2.7	8.6	1.7	4.1
Link Distance (m)	278.2	278.2	176.5		535.9		944.3	944.3
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)				42.5		90.0		
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 16: West Ridge Blvd & Monarch Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	77.0	38.2	29.6	12.5	53.3	62.7	46.4	57.2	64.4
Average Queue (m)	42.3	16.7	9.9	3.9	27.5	37.5	21.0	22.2	28.7
95th Queue (m)	69.7	29.7	21.7	11.2	44.7	58.5	39.2	44.0	50.0
Link Distance (m)	173.4	268.3	268.3		944.3	944.3		141.5	141.5
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				47.0			38.0		
Storage Blk Time (%)					1		2	1	
Queuing Penalty (veh)					0		5	1	

Intersection: 19: West Ridge Blvd & Bass Lake Side Rd E

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	58.9	25.6	18.7	30.2	47.6	58.5	17.0	64.9	51.6
Average Queue (m)	30.3	7.7	6.5	12.5	25.3	30.2	7.6	34.4	22.9
95th Queue (m)	51.5	18.2	14.4	24.3	43.7	50.9	15.3	56.0	42.4
Link Distance (m)	514.5	80.4	80.4		141.5	141.5		174.0	174.0
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				39.0			42.0		
Storage Blk Time (%)				0	1			3	
Queuing Penalty (veh)				0	1			1	

Intersection: 23: Bass Lake Side Rd E & Atlantis Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	20.5	24.7	17.6	26.2
Average Queue (m)	12.1	12.8	10.4	13.5
95th Queue (m)	19.2	20.5	15.5	21.5
Link Distance (m)	315.7	514.5	221.1	203.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: Bass Lake Side Rd E & Old Scotia Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	9.0
Average Queue (m)	2.1
95th Queue (m)	8.2
Link Distance (m)	239.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: Bass Lake Side Rd E & Hepinstall Pl

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	6.1	16.9	9.2
Average Queue (m)	0.5	7.7	4.0
95th Queue (m)	3.9	14.4	11.4
Link Distance (m)	315.7	125.7	176.0
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 32: Line 15 N & Bass Lake Side Rd E

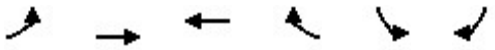
Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	5.5	10.2	24.3	30.1
Average Queue (m)	0.2	0.3	12.8	16.0
95th Queue (m)	2.2	3.6	22.3	25.4
Link Distance (m)	278.4	157.8	607.9	420.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 35: Line 15 N & Stone Ridge Blvd extension

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	17.3	5.7
Average Queue (m)	7.8	0.2
95th Queue (m)	14.2	2.3
Link Distance (m)	198.7	607.9
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

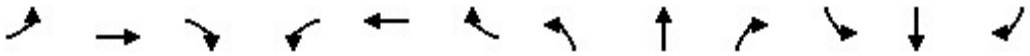
Network wide Queuing Penalty: 16



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	94	408	259	641	254	493
Future Volume (vph)	94	408	259	641	254	493
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1703	1759	1667	1519	1736	1464
Flt Permitted	0.43	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	773	1759	1667	1519	1736	1464
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	106	458	291	720	285	554
RTOR Reduction (vph)	0	0	0	480	0	358
Lane Group Flow (vph)	106	458	291	240	285	196
Confl. Bikes (#/hr)				1		1
Heavy Vehicles (%)	6%	8%	14%	5%	4%	8%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	36.0	36.0	24.0	24.0	24.0	24.0
Effective Green, g (s)	36.0	36.0	24.0	24.0	24.0	24.0
Actuated g/C Ratio	0.50	0.50	0.33	0.33	0.33	0.33
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	489	879	555	506	578	488
v/s Ratio Prot	0.02	c0.26	0.17		c0.16	
v/s Ratio Perm	0.08			0.16		0.13
v/c Ratio	0.22	0.52	0.52	0.47	0.49	0.40
Uniform Delay, d1	10.0	12.2	19.4	19.0	19.1	18.5
Progression Factor	1.00	1.00	1.00	1.00	1.21	4.43
Incremental Delay, d2	1.0	2.2	3.5	3.2	2.9	2.4
Delay (s)	11.0	14.4	22.9	22.2	26.1	84.1
Level of Service	B	B	C	C	C	F
Approach Delay (s)		13.7	22.4		64.4	
Approach LOS		B	C		E	

Intersection Summary			
HCM 2000 Control Delay	35.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	54.2%	ICU Level of Service	A
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)	5	282	43	69	236	74	6	27	50	170	169	12
Future Volume (Veh/h)	5	282	43	69	236	74	6	27	50	170	169	12
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	5	310	47	76	259	81	7	30	55	187	186	13
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	340			357			901	836	334	865	818	300
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	340			357			901	836	334	865	818	300
tC, single (s)	4.1			4.2			8.1	6.6	6.4	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.3			4.4	4.1	3.5	3.5	4.0	3.4
p0 queue free %	100			93			91	89	92	15	36	98
cM capacity (veh/h)	1230			1164			81	277	667	220	290	715

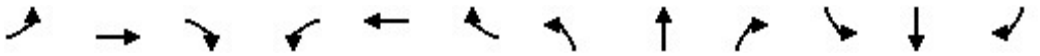
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	362	416	92	386
Volume Left	5	76	7	187
Volume Right	47	81	55	13
cSH	1230	1164	332	256
Volume to Capacity	0.00	0.07	0.28	1.51
Queue Length 95th (m)	0.1	1.7	8.9	181.2
Control Delay (s)	0.1	2.1	20.0	283.8
Lane LOS	A	A	C	F
Approach Delay (s)	0.1	2.1	20.0	283.8
Approach LOS			C	F

Intersection Summary				
Average Delay	89.4			
Intersection Capacity Utilization	74.2%	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)	75	28	135	52	14	27	76	431	81	68	533	36
Future Volume (vph)	75	28	135	52	14	27	76	431	81	68	533	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.92			1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected		0.98			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1665			1785	1429	1638	3325		1719	3411	
Flt Permitted		0.88			0.72	1.00	0.42	1.00		0.29	1.00	
Satd. Flow (perm)		1491			1342	1429	720	3325		532	3411	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	30	147	57	15	29	83	468	88	74	579	39
RTOR Reduction (vph)	0	66	0	0	0	19	0	22	0	0	7	0
Lane Group Flow (vph)	0	193	0	0	72	10	83	534	0	74	611	0
Confl. Peds. (#/hr)			1	1			2					2
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	4%	0%	3%	3%	0%	13%	10%	5%	9%	5%	5%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Effective Green, g (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Actuated g/C Ratio		0.35			0.35	0.35	0.28	0.28		0.50	0.50	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Grp Cap (vph)		517			465	496	200	923		463	1705	
v/s Ratio Prot								c0.16		0.03	c0.18	
v/s Ratio Perm		c0.13			0.05	0.01	0.12			0.05		
v/c Ratio		0.37			0.15	0.02	0.41	0.58		0.16	0.36	
Uniform Delay, d1		17.6			16.2	15.4	21.2	22.4		9.9	11.0	
Progression Factor		1.00			1.00	1.00	0.90	0.90		1.00	1.00	
Incremental Delay, d2		2.1			0.7	0.1	4.7	2.0		0.7	0.6	
Delay (s)		19.7			16.9	15.5	23.7	22.2		10.6	11.6	
Level of Service		B			B	B	C	C		B	B	
Approach Delay (s)		19.7			16.5			22.4			11.5	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

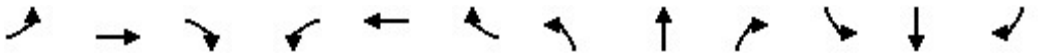
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	188	5	199	3	2	15	85	518	15	23	538	109
Future Volume (Veh/h)	188	5	199	3	2	15	85	518	15	23	538	109
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	200	5	212	3	2	16	90	551	16	24	572	116
Pedestrians		1									2	
Lane Width (m)		3.6									3.6	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1154	1426	345	1288	1476	286	689			567		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1154	1426	345	1288	1476	286	689			567		
tC, single (s)	7.6	6.5	7.0	7.5	6.5	6.9	4.4			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.4	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	0	96	67	96	98	98	89			98		
cM capacity (veh/h)	127	119	636	72	111	716	825			1015		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	200	217	21	90	367	200	24	381	307
Volume Left	200	0	3	90	0	0	24	0	0
Volume Right	0	212	16	0	0	16	0	0	116
cSH	127	578	255	825	1700	1700	1015	1700	1700
Volume to Capacity	1.58	0.38	0.08	0.11	0.22	0.12	0.02	0.22	0.18
Queue Length 95th (m)	115.0	13.9	2.1	2.9	0.0	0.0	0.6	0.0	0.0
Control Delay (s)	356.3	14.9	20.4	9.9	0.0	0.0	8.6	0.0	0.0
Lane LOS	F	B	C	A			A		
Approach Delay (s)	178.7		20.4	1.4			0.3		
Approach LOS	F		C						

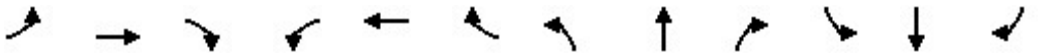
Intersection Summary				
Average Delay	42.1			
Intersection Capacity Utilization	50.2%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	152	67	151	67	52	21	446	262	94	471	102
Future Volume (vph)	155	152	67	151	67	52	21	446	262	94	471	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.98		1.00	0.93		1.00	0.94		1.00	0.97	
Flt Protected		0.98		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1771		1732	1698		1804	3246		1663	3377	
Flt Permitted		0.81		0.47	1.00		0.35	1.00		0.26	1.00	
Satd. Flow (perm)		1457		860	1698		665	3246		462	3377	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	170	167	74	166	74	57	23	490	288	103	518	112
RTOR Reduction (vph)	0	11	0	0	31	0	0	114	0	0	25	0
Lane Group Flow (vph)	0	400	0	166	100	0	23	664	0	103	605	0
Confl. Peds. (#/hr)	3		11	11		3	1		11	11		1
Confl. Bikes (#/hr)			2			1						1
Heavy Vehicles (%)	4%	1%	0%	4%	0%	9%	0%	4%	3%	8%	4%	2%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio		0.32		0.45	0.45		0.39	0.39		0.39	0.39	
Clearance Time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		466		471	769		257	1255		178	1305	
v/s Ratio Prot				c0.03	0.06			0.20			0.18	
v/s Ratio Perm		c0.27		0.13			0.03			c0.22		
v/c Ratio		0.86		0.35	0.13		0.09	0.53		0.58	0.46	
Uniform Delay, d1		23.9		13.8	11.9		14.6	17.7		18.2	17.2	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		18.2		2.1	0.3		0.7	1.6		13.0	1.2	
Delay (s)		42.1		15.9	12.3		15.3	19.3		31.2	18.4	
Level of Service		D		B	B		B	B		C	B	
Approach Delay (s)		42.1			14.3			19.2			20.2	
Approach LOS		D			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	23.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	80.3%	ICU Level of Service	D
Analysis Period (min)	15		

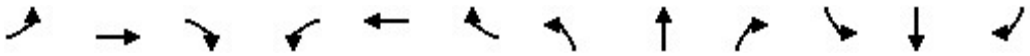
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	121	44	126	30	20	62	99	554	20	58	516	46
Future Volume (vph)	121	44	126	30	20	62	99	554	20	58	516	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.94			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1674			1845	1516	1718	3414		1752	3378	
Flt Permitted		0.84			0.76	1.00	0.36	1.00		0.35	1.00	
Satd. Flow (perm)		1435			1437	1516	652	3414		650	3378	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	133	48	138	33	22	68	109	609	22	64	567	51
RTOR Reduction (vph)	0	35	0	0	0	47	0	3	0	0	8	0
Lane Group Flow (vph)	0	284	0	0	55	21	109	628	0	64	610	0
Confl. Peds. (#/hr)							2		1	1		2
Confl. Bikes (#/hr)						3			3			1
Heavy Vehicles (%)	6%	0%	5%	0%	0%	5%	5%	5%	8%	3%	5%	9%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Effective Green, g (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Actuated g/C Ratio		0.30			0.30	0.30	0.51	0.41		0.51	0.41	
Clearance Time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Grp Cap (vph)		435			436	460	438	1382		440	1368	
v/s Ratio Prot							c0.03	c0.18		0.01	0.18	
v/s Ratio Perm		c0.20			0.04	0.01	0.10			0.06		
v/c Ratio		0.65			0.13	0.04	0.25	0.45		0.15	0.45	
Uniform Delay, d1		23.9			19.9	19.4	10.4	17.1		10.1	17.1	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		7.4			0.6	0.2	1.4	1.1		0.7	1.1	
Delay (s)		31.3			20.5	19.6	11.8	18.2		10.8	18.1	
Level of Service		C			C	B	B	B		B	B	
Approach Delay (s)		31.3			20.0			17.3			17.4	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		

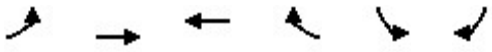
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	40	136	6	24	49	81	9	70	41	101	41	38
Future Volume (vph)	40	136	6	24	49	81	9	70	41	101	41	38
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Hourly flow rate (vph)	65	219	10	39	79	131	15	113	66	163	66	61

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	294	249	194	290
Volume Left (vph)	65	39	15	163
Volume Right (vph)	10	131	66	61
Hadj (s)	0.05	-0.21	-0.09	0.12
Departure Headway (s)	5.9	5.8	6.0	6.0
Degree Utilization, x	0.48	0.40	0.33	0.49
Capacity (veh/h)	559	562	523	548
Control Delay (s)	14.3	12.5	11.9	14.6
Approach Delay (s)	14.3	12.5	11.9	14.6
Approach LOS	B	B	B	B

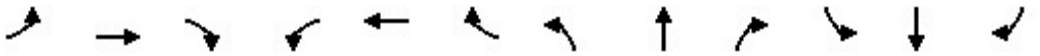
Intersection Summary				
Delay	13.5			
Level of Service	B			
Intersection Capacity Utilization	38.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	90	72	3	6	0
Future Volume (Veh/h)	0	90	72	3	6	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	98	78	3	7	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	81				178	80
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	81				178	80
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1517				812	981

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	98	81	7
Volume Left	0	0	7
Volume Right	0	3	0
cSH	1517	1700	812
Volume to Capacity	0.00	0.05	0.01
Queue Length 95th (m)	0.0	0.0	0.2
Control Delay (s)	0.0	0.0	9.5
Lane LOS			A
Approach Delay (s)	0.0	0.0	9.5
Approach LOS			A

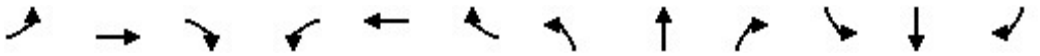
Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	14.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	121	3	10	82	5	2	2	44	17	3	0
Future Volume (Veh/h)	2	121	3	10	82	5	2	2	44	17	3	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	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	132	3	11	89	5	2	2	48	18	3	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	94			135			252	254	134	300	252	92
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	94			135			252	254	134	300	252	92
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	95	97	100	100
cM capacity (veh/h)	1500			1449			694	644	916	612	645	966

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	137	105	52	21
Volume Left	2	11	2	18
Volume Right	3	5	48	0
cSH	1500	1449	890	617
Volume to Capacity	0.00	0.01	0.06	0.03
Queue Length 95th (m)	0.0	0.2	1.5	0.8
Control Delay (s)	0.1	0.8	9.3	11.0
Lane LOS	A	A	A	B
Approach Delay (s)	0.1	0.8	9.3	11.0
Approach LOS			A	B

Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	24.9%	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 (veh/h)	21	68	10	32	40	6	19	87	16	8	297	17
Future Volume (Veh/h)	21	68	10	32	40	6	19	87	16	8	297	17
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	24	78	11	37	46	7	22	100	18	9	341	20
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	53			89			446	258	84	323	260	50
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	53			89			446	258	84	323	260	50
tC, single (s)	4.2			4.1			7.1	6.6	6.2	7.3	6.5	6.4
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.1	3.3	3.7	4.0	3.5
p0 queue free %	98			98			92	84	98	98	45	98
cM capacity (veh/h)	1521			1519			284	610	981	490	622	975

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	113	90	140	370
Volume Left	24	37	22	9
Volume Right	11	7	18	20
cSH	1521	1519	539	630
Volume to Capacity	0.02	0.02	0.26	0.59
Queue Length 95th (m)	0.4	0.6	8.2	30.6
Control Delay (s)	1.7	3.2	14.0	18.5
Lane LOS	A	A	B	C
Approach Delay (s)	1.7	3.2	14.0	18.5
Approach LOS			B	C

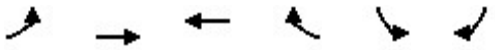
Intersection Summary				
Average Delay	13.0			
Intersection Capacity Utilization	32.2%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	27	29	93	13	11	328
Future Volume (Veh/h)	27	29	93	13	11	328
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)	29	32	101	14	12	357
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	489	108			115	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	489	108			115	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	97			99	
cM capacity (veh/h)	534	946			1474	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	61	115	369
Volume Left	29	0	12
Volume Right	32	14	0
cSH	692	1700	1474
Volume to Capacity	0.09	0.07	0.01
Queue Length 95th (m)	2.3	0.0	0.2
Control Delay (s)	10.7	0.0	0.3
Lane LOS	B		A
Approach Delay (s)	10.7	0.0	0.3
Approach LOS	B		

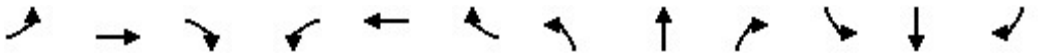
Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	34.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	191	406	442	1086	904	234
Future Volume (vph)	191	406	442	1086	904	234
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1703	1759	1667	1518	1736	1459
Flt Permitted	0.22	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	402	1759	1667	1518	1736	1459
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	205	437	475	1168	972	252
RTOR Reduction (vph)	0	0	0	597	0	143
Lane Group Flow (vph)	205	437	475	571	972	109
Confl. Peds. (#/hr)	1			1		
Confl. Bikes (#/hr)						4
Heavy Vehicles (%)	6%	8%	14%	5%	4%	8%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	36.0	36.0	24.0	24.0	24.0	24.0
Effective Green, g (s)	36.0	36.0	24.0	24.0	24.0	24.0
Actuated g/C Ratio	0.50	0.50	0.33	0.33	0.33	0.33
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	345	879	555	506	578	486
v/s Ratio Prot	c0.07	0.25	0.29		c0.56	
v/s Ratio Perm	0.23			c0.38		0.07
v/c Ratio	0.59	0.50	0.86	1.13	1.68	0.22
Uniform Delay, d1	12.3	12.0	22.4	24.0	24.0	17.3
Progression Factor	1.00	1.00	1.00	1.00	1.14	2.02
Incremental Delay, d2	7.3	2.0	15.5	80.5	313.9	1.0
Delay (s)	19.7	14.0	37.9	104.5	341.3	35.9
Level of Service	B	B	D	F	F	D
Approach Delay (s)		15.8	85.3		278.4	
Approach LOS		B	F		F	

Intersection Summary			
HCM 2000 Control Delay	139.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.29		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	97.3%	ICU Level of Service	F
Analysis Period (min)	15		

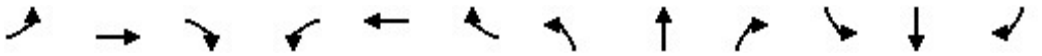
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	357	9	56	428	191	32	173	104	136	32	8
Future Volume (Veh/h)	12	357	9	56	428	191	32	173	104	136	32	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	13	392	10	62	470	210	35	190	114	149	35	9
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	680			402			1148	1227	397	1331	1127	575
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	680			402			1148	1227	397	1331	1127	575
tC, single (s)	4.1			4.2			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			94			75	0	82	0	82	98
cM capacity (veh/h)	922			1110			142	166	650	0	192	521

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	415	742	339	193
Volume Left	13	62	35	149
Volume Right	10	210	114	9
cSH	922	1110	216	0
Volume to Capacity	0.01	0.06	1.57	Err
Queue Length 95th (m)	0.3	1.4	170.3	Err
Control Delay (s)	0.4	1.4	316.3	Err
Lane LOS	A	A	F	F
Approach Delay (s)	0.4	1.4	316.3	Err
Approach LOS			F	F

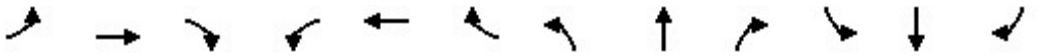
Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	96.8%	ICU Level of Service	F	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	21	108	148	47	100	183	962	85	109	652	63
Future Volume (vph)	53	21	108	148	47	100	183	962	85	109	652	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.92			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1688			1817	1555	1798	3474		1805	3458	
Flt Permitted		0.86			0.65	1.00	0.36	1.00		0.17	1.00	
Satd. Flow (perm)		1471			1234	1555	677	3474		317	3458	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	58	23	117	161	51	109	199	1046	92	118	709	68
RTOR Reduction (vph)	0	72	0	0	0	71	0	9	0	0	10	0
Lane Group Flow (vph)	0	126	0	0	212	38	199	1129	0	118	767	0
Confl. Peds. (#/hr)	5					5	6		4	4		6
Confl. Bikes (#/hr)			2			3			2			4
Heavy Vehicles (%)	0%	0%	2%	1%	0%	2%	0%	2%	7%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Effective Green, g (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Actuated g/C Ratio		0.35			0.35	0.35	0.28	0.28		0.50	0.50	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Grp Cap (vph)		510			428	539	188	965		406	1729	
v/s Ratio Prot								c0.32		0.05	c0.22	
v/s Ratio Perm		0.09			c0.17	0.02	0.29			0.10		
v/c Ratio		0.25			0.50	0.07	1.06	1.17		0.29	0.44	
Uniform Delay, d1		16.8			18.5	15.7	26.0	26.0		12.6	11.6	
Progression Factor		1.00			1.00	1.00	0.90	0.90		1.00	1.00	
Incremental Delay, d2		1.1			4.1	0.3	49.4	79.4		1.8	0.8	
Delay (s)		17.9			22.6	16.0	72.9	102.9		14.4	12.4	
Level of Service		B			C	B	E	F		B	B	
Approach Delay (s)		17.9			20.3			98.5			12.7	
Approach LOS		B			C			F			B	

Intersection Summary			
HCM 2000 Control Delay	55.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	74.2%	ICU Level of Service	D
Analysis Period (min)	15		

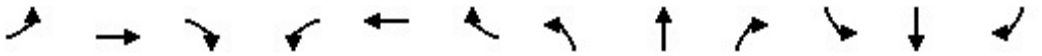
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	154	5	174	24	3	53	238	1067	8	14	730	237
Future Volume (Veh/h)	154	5	174	24	3	53	238	1067	8	14	730	237
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	173	6	196	27	3	60	267	1199	9	16	820	266
Pedestrians		3						4			8	
Lane Width (m)		3.6						3.6			3.6	
Walking Speed (m/s)		1.2						1.2			1.2	
Percent Blockage		0						0			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	2191	2730	550	2382	2858	612	1089			1208		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2191	2730	550	2382	2858	612	1089			1208		
tC, single (s)	7.5	6.5	7.0	7.9	6.5	7.0	4.2			4.8		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.0	3.3	2.2			2.5		
p0 queue free %	0	47	58	0	68	86	57			96		
cM capacity (veh/h)	11	11	471	3	9	431	623			427		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	173	202	90	267	799	409	16	547	539
Volume Left	173	0	27	267	0	0	16	0	0
Volume Right	0	196	60	0	0	9	0	0	266
cSH	11	214	10	623	1700	1700	427	1700	1700
Volume to Capacity	15.71	0.94	8.75	0.43	0.47	0.24	0.04	0.32	0.32
Queue Length 95th (m)	Err	63.8	Err	17.2	0.0	0.0	0.9	0.0	0.0
Control Delay (s)	Err	94.4	Err	15.0	0.0	0.0	13.7	0.0	0.0
Lane LOS	F	F	F	C			B		
Approach Delay (s)	4663.7		Err	2.7			0.2		
Approach LOS	F		F						

Intersection Summary				
Average Delay	872.1			
Intersection Capacity Utilization	73.2%	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)	125	166	52	288	82	84	66	654	497	69	744	224
Future Volume (vph)	125	166	52	288	82	84	66	654	497	69	744	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00	0.99		1.00	0.98		1.00	0.99	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.98		1.00	0.92		1.00	0.94		1.00	0.97	
Flt Protected		0.98		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1798		1784	1723		1805	3271		1802	3396	
Flt Permitted		0.80		0.46	1.00		0.14	1.00		0.14	1.00	
Satd. Flow (perm)		1468		862	1723		262	3271		262	3396	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	142	189	59	327	93	95	75	743	565	78	845	255
RTOR Reduction (vph)	0	9	0	0	43	0	0	183	0	0	38	0
Lane Group Flow (vph)	0	381	0	327	145	0	75	1125	0	78	1062	0
Confl. Peds. (#/hr)	3		11	11		3	1		11	11		1
Confl. Bikes (#/hr)			2			7			1			4
Heavy Vehicles (%)	0%	1%	5%	1%	0%	2%	0%	2%	1%	0%	2%	2%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio		0.32		0.45	0.45		0.39	0.39		0.39	0.39	
Clearance Time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		469		476	781		101	1264		101	1313	
v/s Ratio Prot				c0.06	0.08			c0.34			0.31	
v/s Ratio Perm		c0.26		0.25			0.29			0.30		
v/c Ratio		0.81		0.69	0.19		0.74	0.89		0.77	0.81	
Uniform Delay, d1		23.4		17.3	12.2		19.8	21.5		20.1	20.5	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		14.2		7.9	0.5		38.6	9.6		42.7	5.5	
Delay (s)		37.7		25.2	12.8		58.4	31.1		62.8	26.0	
Level of Service		D		C	B		E	C		E	C	
Approach Delay (s)		37.7			20.6			32.6			28.4	
Approach LOS		D			C			C			C	

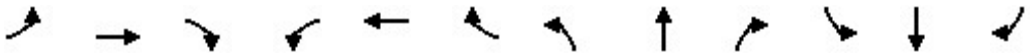
Intersection Summary			
HCM 2000 Control Delay	30.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	114.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	52	82	94	59	201	71	748	49	117	861	77
Future Volume (vph)	67	52	82	94	59	201	71	748	49	117	861	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.94			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1755			1842	1576	1805	3505		1787	3461	
Flt Permitted		0.84			0.68	1.00	0.17	1.00		0.23	1.00	
Satd. Flow (perm)		1495			1298	1576	318	3505		441	3461	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	71	55	87	100	63	214	76	796	52	124	916	82
RTOR Reduction (vph)	0	31	0	0	0	149	0	6	0	0	8	0
Lane Group Flow (vph)	0	182	0	0	163	65	76	842	0	124	990	0
Confl. Peds. (#/hr)	1		2	2		1	4		3	3		4
Confl. Bikes (#/hr)						2						1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	2%	0%	1%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Effective Green, g (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Actuated g/C Ratio		0.30			0.30	0.30	0.51	0.41		0.51	0.41	
Clearance Time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Grp Cap (vph)		454			394	478	311	1419		359	1401	
v/s Ratio Prot							0.02	0.24		c0.03	c0.29	
v/s Ratio Perm		0.12			c0.13	0.04	0.10			0.14		
v/c Ratio		0.40			0.41	0.14	0.24	0.59		0.35	0.71	
Uniform Delay, d1		21.8			21.9	20.0	11.4	18.4		11.1	19.6	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.6			3.2	0.6	1.9	1.8		2.6	3.0	
Delay (s)		24.4			25.1	20.6	13.2	20.2		13.7	22.6	
Level of Service		C			C	C	B	C		B	C	
Approach Delay (s)		24.4			22.5			19.7			21.6	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	21.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		

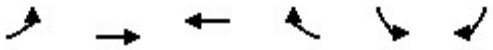
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	24	150	14	30	176	27	8	70	32	41	55	24
Future Volume (vph)	24	150	14	30	176	27	8	70	32	41	55	24
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	26	165	15	33	193	30	9	77	35	45	60	26

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	206	256	121	131
Volume Left (vph)	26	33	9	45
Volume Right (vph)	15	30	35	26
Hadj (s)	-0.02	-0.04	-0.12	-0.01
Departure Headway (s)	4.9	4.8	5.1	5.2
Degree Utilization, x	0.28	0.34	0.17	0.19
Capacity (veh/h)	686	705	632	622
Control Delay (s)	9.8	10.3	9.2	9.4
Approach Delay (s)	9.8	10.3	9.2	9.4
Approach LOS	A	B	A	A

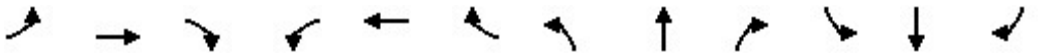
Intersection Summary				
Delay	9.8			
Level of Service	A			
Intersection Capacity Utilization	36.8%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	141	119	8	5	0
Future Volume (Veh/h)	0	141	119	8	5	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	155	131	9	5	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	140				290	136
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	140				290	136
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1443				700	913

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	155	140	5
Volume Left	0	0	5
Volume Right	0	9	0
cSH	1443	1700	700
Volume to Capacity	0.00	0.08	0.01
Queue Length 95th (m)	0.0	0.0	0.2
Control Delay (s)	0.0	0.0	10.2
Lane LOS			B
Approach Delay (s)	0.0	0.0	10.2
Approach LOS			B

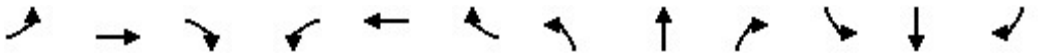
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	17.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	149	5	45	154	9	3	1	28	11	3	0
Future Volume (Veh/h)	9	149	5	45	154	9	3	1	28	11	3	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.92	0.92	0.91	0.91	0.92	0.92	0.92	0.91	0.92	0.91
Hourly flow rate (vph)	10	164	5	49	169	10	3	1	30	12	3	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	179			169			460	464	166	489	461	174
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	179			169			460	464	166	489	461	174
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 %	99			97			99	100	97	97	99	100
cM capacity (veh/h)	1397			1409			493	475	878	457	477	869

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	179	228	34	15
Volume Left	10	49	3	12
Volume Right	5	10	30	0
cSH	1397	1409	802	461
Volume to Capacity	0.01	0.03	0.04	0.03
Queue Length 95th (m)	0.2	0.9	1.1	0.8
Control Delay (s)	0.5	1.9	9.7	13.1
Lane LOS	A	A	A	B
Approach Delay (s)	0.5	1.9	9.7	13.1
Approach LOS			A	B

Intersection Summary				
Average Delay	2.3			
Intersection Capacity Utilization	33.7%	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 (veh/h)	29	89	12	13	80	28	14	320	31	26	160	29
Future Volume (Veh/h)	29	89	12	13	80	28	14	320	31	26	160	29
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	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	32	97	13	14	87	30	15	348	34	28	174	32
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	117			110			416	312	104	506	304	102
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	117			110			416	312	104	506	304	102
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.2	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.0	3.3
p0 queue free %	98			99			96	41	96	88	71	97
cM capacity (veh/h)	1484			1493			402	586	957	234	592	945

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	142	131	397	234
Volume Left	32	14	15	28
Volume Right	13	30	34	32
cSH	1484	1493	595	523
Volume to Capacity	0.02	0.01	0.67	0.45
Queue Length 95th (m)	0.5	0.2	40.0	18.3
Control Delay (s)	1.8	0.9	22.3	17.3
Lane LOS	A	A	C	C
Approach Delay (s)	1.8	0.9	22.3	17.3
Approach LOS			C	C

Intersection Summary				
Average Delay	14.7			
Intersection Capacity Utilization	40.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	21	19	346	30	29	156
Future Volume (Veh/h)	21	19	346	30	29	156
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	23	21	380	33	32	171
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	632	396			413	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	632	396			413	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	97			97	
cM capacity (veh/h)	432	653			1146	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	44	413	203
Volume Left	23	0	32
Volume Right	21	33	0
cSH	515	1700	1146
Volume to Capacity	0.09	0.24	0.03
Queue Length 95th (m)	2.2	0.0	0.7
Control Delay (s)	12.6	0.0	1.5
Lane LOS	B		A
Approach Delay (s)	12.6	0.0	1.5
Approach LOS	B		

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	42.9%	ICU Level of Service	A
Analysis Period (min)	15		

Summary of All Intervals

Run Number	1	2	3	Avg
Start Time	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	4402	4541	4538	4494
Vehs Exited	4418	4529	4559	4504
Starting Vehs	226	212	228	222
Ending Vehs	210	224	207	209
Travel Distance (km)	8272	8581	8682	8512
Travel Time (hr)	218.1	227.0	233.9	226.3
Total Delay (hr)	48.6	52.3	56.4	52.4
Total Stops	6769	7054	7160	6997
Fuel Used (l)	663.1	684.9	695.2	681.1

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	Avg
Vehs Entered	4402	4541	4538	4494
Vehs Exited	4418	4529	4559	4504
Starting Vehs	226	212	228	222
Ending Vehs	210	224	207	209
Travel Distance (km)	8272	8581	8682	8512
Travel Time (hr)	218.1	227.0	233.9	226.3
Total Delay (hr)	48.6	52.3	56.4	52.4
Total Stops	6769	7054	7160	6997
Fuel Used (l)	663.1	684.9	695.2	681.1

Intersection: 3: Old Barrie Rd E & University Ave

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (m)	29.1	68.2	74.7	103.1	62.7	100.7
Average Queue (m)	12.6	38.9	35.1	44.9	33.7	48.6
95th Queue (m)	24.2	60.4	63.8	78.9	54.3	82.2
Link Distance (m)		579.8	318.4		1089.4	1089.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	106.0			64.0		
Storage Blk Time (%)			1	3		
Queuing Penalty (veh)			6	7		

Intersection: 5: Old Barrie Rd E & Line 15 N

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	14.3	41.8	34.8	91.1
Average Queue (m)	1.9	10.8	14.7	46.1
95th Queue (m)	8.9	27.6	28.7	79.0
Link Distance (m)	288.0	579.8	1006.6	1844.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: University Ave & Diana Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	52.0	28.0	17.3	35.3	48.3	53.2	21.0	43.0	48.6
Average Queue (m)	25.4	9.8	4.2	13.6	27.9	35.3	8.3	19.4	23.6
95th Queue (m)	42.5	21.3	12.6	28.7	44.6	50.3	17.6	35.5	41.0
Link Distance (m)	144.4	117.8	117.8		1089.4	1089.4		535.9	535.9
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				36.0			58.0		
Storage Blk Time (%)				0	4				
Queuing Penalty (veh)				1	3				

Intersection: 12: University Ave/West Ridge Blvd & Stone Ridge Blvd/Hunter Valley Rd

Movement	EB	EB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	TR	L	T	TR
Maximum Queue (m)	58.5	33.1	15.8	31.9	2.8	11.1	12.8	6.6
Average Queue (m)	24.1	16.7	5.5	9.4	0.2	2.1	0.6	0.4
95th Queue (m)	45.7	27.5	13.4	23.9	2.0	8.5	5.0	2.8
Link Distance (m)	278.2	278.2	176.5		535.9		944.3	944.3
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)				42.5		90.0		
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 16: West Ridge Blvd & Monarch Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	75.8	43.6	29.6	18.1	63.9	77.9	48.6	69.3	63.7
Average Queue (m)	42.8	18.9	12.2	4.8	32.8	43.7	24.1	29.3	30.8
95th Queue (m)	68.9	34.0	25.3	13.7	55.1	67.5	46.5	62.0	57.4
Link Distance (m)	173.4	268.3	268.3		944.3	944.3		141.5	141.5
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				47.0			38.0		
Storage Blk Time (%)					2		7	4	
Queuing Penalty (veh)					0		17	3	

Intersection: 19: West Ridge Blvd & Bass Lake Side Rd E

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	68.8	23.0	18.6	53.0	71.2	67.9	35.7	65.9	53.8
Average Queue (m)	31.6	8.0	6.8	14.9	30.7	35.8	8.7	35.9	23.6
95th Queue (m)	54.1	19.1	15.6	34.7	56.2	60.7	22.5	57.0	44.0
Link Distance (m)	514.5	80.4	80.4		141.5	141.5		174.0	174.0
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				39.0			42.0		
Storage Blk Time (%)				0	5			3	
Queuing Penalty (veh)				1	5			2	

Intersection: 23: Bass Lake Side Rd E & Atlantis Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	29.4	24.4	19.4	28.6
Average Queue (m)	13.9	13.5	11.0	14.9
95th Queue (m)	22.6	22.8	17.4	24.2
Link Distance (m)	315.7	514.5	221.1	203.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: Bass Lake Side Rd E & Old Scotia Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	9.0
Average Queue (m)	1.5
95th Queue (m)	6.9
Link Distance (m)	239.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: Bass Lake Side Rd E & Hepinstall Pl

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	11.3	16.8	9.3
Average Queue (m)	0.6	6.8	4.8
95th Queue (m)	4.6	14.0	12.3
Link Distance (m)	315.7	125.7	176.0
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 32: Line 15 N & Bass Lake Side Rd E

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	7.5	8.6	26.1	33.4
Average Queue (m)	0.4	1.0	13.2	17.1
95th Queue (m)	3.0	5.3	21.8	26.3
Link Distance (m)	278.4	157.8	607.9	420.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 35: Line 15 N & Stone Ridge Blvd extension

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	16.0	6.0
Average Queue (m)	7.5	0.2
95th Queue (m)	14.5	2.4
Link Distance (m)	198.7	607.9
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 44

Summary of All Intervals

Run Number	1	2	3	Avg
Start Time	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	6065	5982	6104	6051
Vehs Exited	5768	5690	5826	5761
Starting Vehs	384	361	399	377
Ending Vehs	681	653	677	665
Travel Distance (km)	10920	10702	11108	10910
Travel Time (hr)	764.5	878.9	865.0	836.1
Total Delay (hr)	540.7	659.3	638.6	612.9
Total Stops	11698	12096	11835	11882
Fuel Used (l)	1282.6	1368.6	1378.2	1343.1

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	Avg
Vehs Entered	6065	5982	6104	6051
Vehs Exited	5768	5690	5826	5761
Starting Vehs	384	361	399	377
Ending Vehs	681	653	677	665
Travel Distance (km)	10920	10702	11108	10910
Travel Time (hr)	764.5	878.9	865.0	836.1
Total Delay (hr)	540.7	659.3	638.6	612.9
Total Stops	11698	12096	11835	11882
Fuel Used (l)	1282.6	1368.6	1378.2	1343.1

Intersection: 3: Old Barrie Rd E & University Ave

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (m)	39.0	59.4	335.4	164.0	1095.4	1094.8
Average Queue (m)	21.5	32.9	319.9	163.9	920.2	844.0
95th Queue (m)	35.4	54.1	372.6	164.7	1235.9	1253.1
Link Distance (m)		579.8	318.4		1089.4	1089.4
Upstream Blk Time (%)			43		11	7
Queuing Penalty (veh)			0		48	31
Storage Bay Dist (m)	106.0			64.0		
Storage Blk Time (%)			5	75		
Queuing Penalty (veh)			52	330		

Intersection: 5: Old Barrie Rd E & Line 15 N

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	38.5	31.0	126.6	71.9
Average Queue (m)	2.6	6.1	63.1	30.8
95th Queue (m)	16.0	20.5	127.9	62.2
Link Distance (m)	288.0	579.8	1006.6	1844.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: University Ave & Diana Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	40.3	50.6	25.3	51.7	75.9	65.4	74.9	244.0	252.8
Average Queue (m)	20.3	25.0	10.2	29.2	48.1	50.0	19.9	57.9	64.0
95th Queue (m)	35.9	44.9	18.0	53.2	65.5	63.9	55.9	186.0	190.0
Link Distance (m)	144.4	117.8	117.8		1089.4	1089.4		535.9	535.9
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				36.0			58.0		
Storage Blk Time (%)				5	25			16	
Queuing Penalty (veh)				24	46			18	

Intersection: 12: University Ave/West Ridge Blvd & Stone Ridge Blvd/Hunter Valley Rd

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	269.8	114.9	36.0	56.1	51.1	16.2	18.6	13.5	20.1
Average Queue (m)	159.7	21.6	16.4	24.2	2.7	1.7	3.1	1.5	4.4
95th Queue (m)	266.9	81.4	33.7	44.8	20.1	9.5	12.1	7.5	14.2
Link Distance (m)	278.2	278.2	176.5		535.9	535.9		944.3	944.3
Upstream Blk Time (%)	2	0							
Queuing Penalty (veh)	0	0							
Storage Bay Dist (m)				42.5			90.0		
Storage Blk Time (%)				3					
Queuing Penalty (veh)				15					

Intersection: 16: West Ridge Blvd & Monarch Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	82.1	65.6	33.8	51.0	71.8	102.7	52.8	105.4	115.1
Average Queue (m)	46.2	34.8	14.8	16.0	42.9	59.8	31.3	61.2	64.8
95th Queue (m)	74.6	56.0	27.8	35.2	65.5	86.2	58.9	117.0	118.2
Link Distance (m)	173.4	268.3	268.3		944.3	944.3		141.5	141.5
Upstream Blk Time (%)								1	1
Queuing Penalty (veh)								5	5
Storage Bay Dist (m)				47.0			38.0		
Storage Blk Time (%)				1	5		22	19	
Queuing Penalty (veh)				4	3		81	13	

Intersection: 19: West Ridge Blvd & Bass Lake Side Rd E

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	51.2	47.3	39.3	42.8	65.2	63.9	65.7	95.1	92.8
Average Queue (m)	24.4	21.8	16.0	11.1	32.4	35.2	16.5	53.1	50.9
95th Queue (m)	43.1	39.0	28.7	25.0	56.8	59.8	40.9	82.1	77.9
Link Distance (m)	514.5	80.4	80.4		141.5	141.5		174.0	174.0
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				39.0			42.0		
Storage Blk Time (%)					5			14	
Queuing Penalty (veh)					4			17	

Intersection: 23: Bass Lake Side Rd E & Atlantis Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	22.5	27.6	22.2	24.5
Average Queue (m)	14.2	14.8	11.6	11.5
95th Queue (m)	21.3	23.2	18.7	18.4
Link Distance (m)	315.7	514.5	221.1	203.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: Bass Lake Side Rd E & Old Scotia Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	9.0
Average Queue (m)	0.7
95th Queue (m)	4.6
Link Distance (m)	239.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: Bass Lake Side Rd E & Hepinstall Pl

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	8.6	15.5	11.3	9.3
Average Queue (m)	0.3	2.0	5.8	3.1
95th Queue (m)	2.8	9.0	13.0	10.1
Link Distance (m)	881.3	315.7	125.7	176.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 32: Line 15 N & Bass Lake Side Rd E

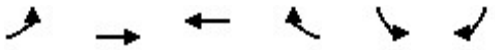
Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	8.6	8.2	42.0	28.4
Average Queue (m)	0.8	0.9	20.8	14.0
95th Queue (m)	4.7	4.9	31.8	22.5
Link Distance (m)	278.4	157.8	607.9	420.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 35: Line 15 N & Stone Ridge Blvd extension

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	13.8	11.2
Average Queue (m)	7.0	1.9
95th Queue (m)	13.7	8.5
Link Distance (m)	198.7	607.9
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

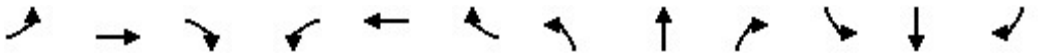
Network Summary

Network wide Queuing Penalty: 696



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	103	442	281	688	260	533
Future Volume (vph)	103	442	281	688	260	533
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1703	1759	1667	1519	1736	1464
Flt Permitted	0.40	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	720	1759	1667	1519	1736	1464
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	116	497	316	773	292	599
RTOR Reduction (vph)	0	0	0	515	0	341
Lane Group Flow (vph)	116	497	316	258	292	258
Confl. Bikes (#/hr)				1		1
Heavy Vehicles (%)	6%	8%	14%	5%	4%	8%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	36.0	36.0	24.0	24.0	24.0	24.0
Effective Green, g (s)	36.0	36.0	24.0	24.0	24.0	24.0
Actuated g/C Ratio	0.50	0.50	0.33	0.33	0.33	0.33
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	469	879	555	506	578	488
v/s Ratio Prot	0.03	c0.28	0.19		0.17	
v/s Ratio Perm	0.10			0.17		c0.18
v/c Ratio	0.25	0.57	0.57	0.51	0.51	0.53
Uniform Delay, d1	10.2	12.5	19.7	19.3	19.2	19.4
Progression Factor	1.00	1.00	1.00	1.00	1.20	3.17
Incremental Delay, d2	1.3	2.6	4.2	3.6	3.0	3.9
Delay (s)	11.4	15.2	23.9	22.9	26.1	65.3
Level of Service	B	B	C	C	C	E
Approach Delay (s)		14.5	23.2		52.5	
Approach LOS		B	C		D	

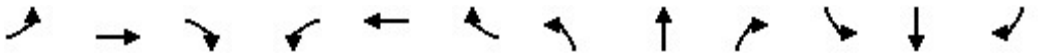
Intersection Summary			
HCM 2000 Control Delay	31.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	307	46	75	253	79	7	29	55	183	183	13
Future Volume (Veh/h)	5	307	46	75	253	79	7	29	55	183	183	13
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	5	337	51	82	278	87	8	32	60	201	201	14
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	365			388			972	902	362	934	884	322
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	365			388			972	902	362	934	884	322
tC, single (s)	4.1			4.2			8.1	6.6	6.4	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.3			4.4	4.1	3.5	3.5	4.0	3.4
p0 queue free %	100			93			85	87	91	0	24	98
cM capacity (veh/h)	1205			1133			55	252	642	191	264	695

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	393	447	100	416
Volume Left	5	82	8	201
Volume Right	51	87	60	14
cSH	1205	1133	273	227
Volume to Capacity	0.00	0.07	0.37	1.83
Queue Length 95th (m)	0.1	1.9	12.9	232.0
Control Delay (s)	0.1	2.2	25.7	427.5
Lane LOS	A	A	D	F
Approach Delay (s)	0.1	2.2	25.7	427.5
Approach LOS			D	F

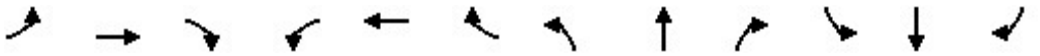
Intersection Summary				
Average Delay	133.8			
Intersection Capacity Utilization	78.7%	ICU Level of Service	D	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	29	143	56	14	30	82	461	88	73	563	38
Future Volume (vph)	78	29	143	56	14	30	82	461	88	73	563	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.92			1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected		0.98			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1665			1783	1429	1639	3323		1719	3411	
Flt Permitted		0.88			0.70	1.00	0.40	1.00		0.27	1.00	
Satd. Flow (perm)		1489			1305	1429	696	3323		482	3411	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	85	32	155	61	15	33	89	501	96	79	612	41
RTOR Reduction (vph)	0	66	0	0	0	22	0	22	0	0	7	0
Lane Group Flow (vph)	0	206	0	0	76	11	89	575	0	79	646	0
Confl. Peds. (#/hr)			1	1			2					2
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	4%	0%	3%	3%	0%	13%	10%	5%	9%	5%	5%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Effective Green, g (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Actuated g/C Ratio		0.35			0.35	0.35	0.28	0.28		0.50	0.50	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Grp Cap (vph)		517			453	496	193	923		447	1705	
v/s Ratio Prot								c0.17		0.03	c0.19	
v/s Ratio Perm		c0.14			0.06	0.01	0.13			0.06		
v/c Ratio		0.40			0.17	0.02	0.46	0.62		0.18	0.38	
Uniform Delay, d1		17.8			16.3	15.5	21.5	22.7		10.1	11.1	
Progression Factor		1.00			1.00	1.00	0.91	0.92		1.00	1.00	
Incremental Delay, d2		2.3			0.8	0.1	5.6	2.3		0.9	0.6	
Delay (s)		20.1			17.1	15.6	25.3	23.1		10.9	11.7	
Level of Service		C			B	B	C	C		B	B	
Approach Delay (s)		20.1			16.6			23.4			11.7	
Approach LOS		C			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		

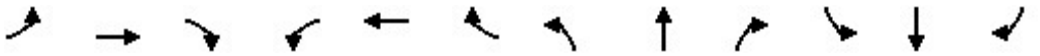
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	192	5	203	3	2	17	87	558	17	25	580	112
Future Volume (Veh/h)	192	5	203	3	2	17	87	558	17	25	580	112
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	204	5	216	3	2	18	93	594	18	27	617	119
Pedestrians		1									2	
Lane Width (m)		3.6									3.6	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1236	1530	369	1370	1580	308	737			612		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1236	1530	369	1370	1580	308	737			612		
tC, single (s)	7.6	6.5	7.0	7.5	6.5	6.9	4.4			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.4	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	0	95	65	95	98	97	88			97		
cM capacity (veh/h)	108	101	613	60	94	693	789			977		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	204	221	23	93	396	216	27	411	325
Volume Left	204	0	3	93	0	0	27	0	0
Volume Right	0	216	18	0	0	18	0	0	119
cSH	108	551	236	789	1700	1700	977	1700	1700
Volume to Capacity	1.89	0.40	0.10	0.12	0.23	0.13	0.03	0.24	0.19
Queue Length 95th (m)	132.7	15.4	2.6	3.2	0.0	0.0	0.7	0.0	0.0
Control Delay (s)	498.0	15.9	21.9	10.2	0.0	0.0	8.8	0.0	0.0
Lane LOS	F	C	C	B			A		
Approach Delay (s)	247.3		21.9	1.3			0.3		
Approach LOS	F		C						

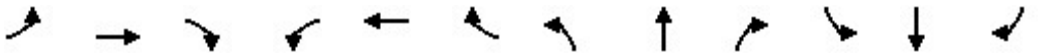
Intersection Summary				
Average Delay	55.7			
Intersection Capacity Utilization	51.7%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	163	166	70	164	73	56	21	469	285	103	504	108
Future Volume (vph)	163	166	70	164	73	56	21	469	285	103	504	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.98		1.00	0.93		1.00	0.94		1.00	0.97	
Flt Protected		0.98		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1772		1733	1697		1804	3241		1664	3377	
Flt Permitted		0.80		0.46	1.00		0.32	1.00		0.24	1.00	
Satd. Flow (perm)		1453		837	1697		615	3241		417	3377	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	179	182	77	180	80	62	23	515	313	113	554	119
RTOR Reduction (vph)	0	10	0	0	34	0	0	122	0	0	25	0
Lane Group Flow (vph)	0	428	0	180	108	0	23	706	0	113	648	0
Confl. Peds. (#/hr)	3		11	11		3	1		11	11		1
Confl. Bikes (#/hr)			2			1						1
Heavy Vehicles (%)	4%	1%	0%	4%	0%	9%	0%	4%	3%	8%	4%	2%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio		0.32		0.45	0.45		0.39	0.39		0.39	0.39	
Clearance Time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		464		463	769		237	1253		161	1305	
v/s Ratio Prot				c0.04	0.06			0.22			0.19	
v/s Ratio Perm		c0.29		0.14			0.04			c0.27		
v/c Ratio		0.92		0.39	0.14		0.10	0.56		0.70	0.50	
Uniform Delay, d1		24.6		14.1	12.0		14.7	18.0		19.4	17.5	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		26.2		2.5	0.4		0.8	1.8		22.5	1.4	
Delay (s)		50.8		16.6	12.4		15.5	19.9		41.9	18.8	
Level of Service		D		B	B		B	B		D	B	
Approach Delay (s)		50.8			14.7			19.8			22.1	
Approach LOS		D			B			B			C	

Intersection Summary					
HCM 2000 Control Delay	25.5	HCM 2000 Level of Service	C		
HCM 2000 Volume to Capacity ratio	0.75				
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	15.0		
Intersection Capacity Utilization	104.7%	ICU Level of Service	G		
Analysis Period (min)	15				

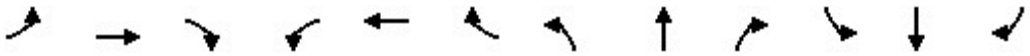
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	127	48	136	33	22	68	107	580	22	63	552	48
Future Volume (vph)	127	48	136	33	22	68	107	580	22	63	552	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.94			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1675			1845	1516	1718	3413		1752	3379	
Flt Permitted		0.84			0.73	1.00	0.34	1.00		0.33	1.00	
Satd. Flow (perm)		1435			1392	1516	606	3413		617	3379	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	140	53	149	36	24	75	118	637	24	69	607	53
RTOR Reduction (vph)	0	36	0	0	0	52	0	4	0	0	8	0
Lane Group Flow (vph)	0	306	0	0	60	23	118	657	0	69	652	0
Confl. Peds. (#/hr)							2		1	1		2
Confl. Bikes (#/hr)						3			3			1
Heavy Vehicles (%)	6%	0%	5%	0%	0%	5%	5%	5%	8%	3%	5%	9%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Effective Green, g (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Actuated g/C Ratio		0.30			0.30	0.30	0.51	0.41		0.51	0.41	
Clearance Time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Grp Cap (vph)		435			422	460	419	1382		427	1368	
v/s Ratio Prot							c0.03	0.19		0.02	c0.19	
v/s Ratio Perm		c0.21			0.04	0.02	0.11			0.07		
v/c Ratio		0.70			0.14	0.05	0.28	0.48		0.16	0.48	
Uniform Delay, d1		24.4			20.0	19.4	10.5	17.3		10.2	17.3	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		9.2			0.7	0.2	1.7	1.2		0.8	1.2	
Delay (s)		33.6			20.7	19.6	12.2	18.5		11.0	18.5	
Level of Service		C			C	B	B	B		B	B	
Approach Delay (s)		33.6			20.1			17.5			17.8	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		

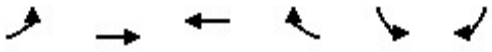
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	43	143	7	27	52	88	10	76	45	109	45	41
Future Volume (vph)	43	143	7	27	52	88	10	76	45	109	45	41
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Hourly flow rate (vph)	69	231	11	44	84	142	16	123	73	176	73	66

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	311	270	212	315
Volume Left (vph)	69	44	16	176
Volume Right (vph)	11	142	73	66
Hadj (s)	0.05	-0.21	-0.09	0.12
Departure Headway (s)	6.3	6.1	6.4	6.3
Degree Utilization, x	0.54	0.46	0.38	0.56
Capacity (veh/h)	523	525	492	517
Control Delay (s)	16.4	14.2	13.2	17.0
Approach Delay (s)	16.4	14.2	13.2	17.0
Approach LOS	C	B	B	C

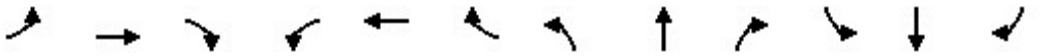
Intersection Summary				
Delay	15.4			
Level of Service	C			
Intersection Capacity Utilization	45.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	98	78	3	7	0
Future Volume (Veh/h)	0	98	78	3	7	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	107	85	3	8	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	88				194	86
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	88				194	86
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1508				795	972

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	107	88	8
Volume Left	0	0	8
Volume Right	0	3	0
cSH	1508	1700	795
Volume to Capacity	0.00	0.05	0.01
Queue Length 95th (m)	0.0	0.0	0.2
Control Delay (s)	0.0	0.0	9.6
Lane LOS			A
Approach Delay (s)	0.0	0.0	9.6
Approach LOS			A

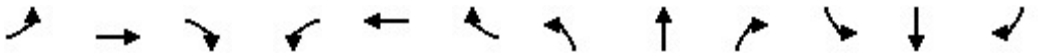
Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	15.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	130	3	10	89	5	2	2	44	18	3	0
Future Volume (Veh/h)	2	130	3	10	89	5	2	2	44	18	3	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	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	141	3	11	97	5	2	2	48	20	3	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	102			144			270	270	142	317	270	100
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	102			144			270	270	142	317	270	100
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	95	97	100	100
cM capacity (veh/h)	1490			1438			676	630	905	596	631	956

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	146	113	52	23
Volume Left	2	11	2	20
Volume Right	3	5	48	0
cSH	1490	1438	879	601
Volume to Capacity	0.00	0.01	0.06	0.04
Queue Length 95th (m)	0.0	0.2	1.5	1.0
Control Delay (s)	0.1	0.8	9.4	11.2
Lane LOS	A	A	A	B
Approach Delay (s)	0.1	0.8	9.4	11.2
Approach LOS			A	B

Intersection Summary				
Average Delay	2.5			
Intersection Capacity Utilization	25.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	74	10	35	43	6	20	92	17	9	322	18
Future Volume (Veh/h)	23	74	10	35	43	6	20	92	17	9	322	18
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	26	85	11	40	49	7	23	106	20	10	370	21
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	56			96			481	278	90	348	280	52
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	56			96			481	278	90	348	280	52
tC, single (s)	4.2			4.1			7.1	6.6	6.2	7.3	6.5	6.4
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.1	3.3	3.7	4.0	3.5
p0 queue free %	98			97			91	82	98	98	39	98
cM capacity (veh/h)	1517			1510			242	593	973	463	604	972

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	122	96	149	401
Volume Left	26	40	23	10
Volume Right	11	7	20	21
cSH	1517	1510	506	611
Volume to Capacity	0.02	0.03	0.29	0.66
Queue Length 95th (m)	0.4	0.7	9.7	38.6
Control Delay (s)	1.7	3.2	15.1	21.4
Lane LOS	A	A	C	C
Approach Delay (s)	1.7	3.2	15.1	21.4
Approach LOS			C	C

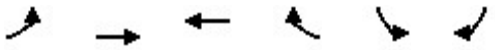
Intersection Summary				
Average Delay	14.8			
Intersection Capacity Utilization	34.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	27	29	100	13	11	356
Future Volume (Veh/h)	27	29	100	13	11	356
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)	29	32	109	14	12	387
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	527	116			123	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	527	116			123	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	97			99	
cM capacity (veh/h)	507	936			1464	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	61	123	399
Volume Left	29	0	12
Volume Right	32	14	0
cSH	668	1700	1464
Volume to Capacity	0.09	0.07	0.01
Queue Length 95th (m)	2.4	0.0	0.2
Control Delay (s)	10.9	0.0	0.3
Lane LOS	B		A
Approach Delay (s)	10.9	0.0	0.3
Approach LOS	B		

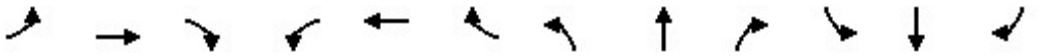
Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	36.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	207	440	479	1160	973	252
Future Volume (vph)	207	440	479	1160	973	252
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1703	1759	1667	1518	1736	1459
Flt Permitted	0.18	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	326	1759	1667	1518	1736	1459
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	223	473	515	1247	1046	271
RTOR Reduction (vph)	0	0	0	585	0	143
Lane Group Flow (vph)	223	473	515	662	1046	128
Confl. Peds. (#/hr)	1			1		
Confl. Bikes (#/hr)						4
Heavy Vehicles (%)	6%	8%	14%	5%	4%	8%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	36.0	36.0	24.0	24.0	24.0	24.0
Effective Green, g (s)	36.0	36.0	24.0	24.0	24.0	24.0
Actuated g/C Ratio	0.50	0.50	0.33	0.33	0.33	0.33
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	316	879	555	506	578	486
v/s Ratio Prot	c0.08	0.27	0.31		c0.60	
v/s Ratio Perm	0.27			c0.44		0.09
v/c Ratio	0.71	0.54	0.93	1.31	1.81	0.26
Uniform Delay, d1	13.2	12.3	23.2	24.0	24.0	17.5
Progression Factor	1.00	1.00	1.00	1.00	1.13	1.85
Incremental Delay, d2	12.5	2.4	24.0	152.2	370.8	1.2
Delay (s)	25.6	14.7	47.2	176.2	398.0	33.7
Level of Service	C	B	D	F	F	C
Approach Delay (s)		18.2	138.5		323.1	
Approach LOS		B	F		F	

Intersection Summary			
HCM 2000 Control Delay	180.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.44		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	103.9%	ICU Level of Service	G
Analysis Period (min)	15		

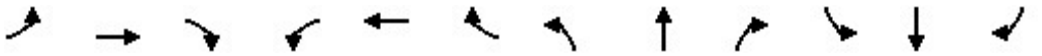
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	388	10	61	463	204	35	188	113	147	35	8
Future Volume (Veh/h)	13	388	10	61	463	204	35	188	113	147	35	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	14	426	11	67	509	224	38	207	124	162	38	9
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	733			437			1242	1326	432	1442	1220	621
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	733			437			1242	1326	432	1442	1220	621
tC, single (s)	4.1			4.2			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			94			67	0	80	0	77	98
cM capacity (veh/h)	881			1076			117	143	622	0	168	491

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	451	800	369	209
Volume Left	14	67	38	162
Volume Right	11	224	124	9
cSH	881	1076	187	0
Volume to Capacity	0.02	0.06	1.97	Err
Queue Length 95th (m)	0.4	1.6	221.5	Err
Control Delay (s)	0.5	1.6	495.9	Err
Lane LOS	A	A	F	F
Approach Delay (s)	0.5	1.6	495.9	Err
Approach LOS			F	F

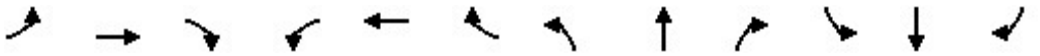
Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	104.0%	ICU Level of Service	G	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	21	116	161	49	108	195	1029	93	118	698	66
Future Volume (vph)	56	21	116	161	49	108	195	1029	93	118	698	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.92			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1686			1816	1555	1799	3473		1805	3458	
Flt Permitted		0.85			0.64	1.00	0.34	1.00		0.17	1.00	
Satd. Flow (perm)		1459			1206	1555	642	3473		317	3458	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	61	23	126	175	53	117	212	1118	101	128	759	72
RTOR Reduction (vph)	0	75	0	0	0	76	0	9	0	0	10	0
Lane Group Flow (vph)	0	135	0	0	228	41	212	1210	0	128	821	0
Confl. Peds. (#/hr)	5					5	6		4	4		6
Confl. Bikes (#/hr)			2			3			2			4
Heavy Vehicles (%)	0%	0%	2%	1%	0%	2%	0%	2%	7%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Effective Green, g (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Actuated g/C Ratio		0.35			0.35	0.35	0.28	0.28		0.50	0.50	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Grp Cap (vph)		506			418	539	178	964		406	1729	
v/s Ratio Prot								c0.35		0.05	c0.24	
v/s Ratio Perm		0.09			c0.19	0.03	0.33			0.11		
v/c Ratio		0.27			0.55	0.08	1.19	1.25		0.32	0.47	
Uniform Delay, d1		16.9			18.9	15.8	26.0	26.0		12.7	11.8	
Progression Factor		1.00			1.00	1.00	0.91	0.91		1.00	1.00	
Incremental Delay, d2		1.3			5.0	0.3	91.3	115.5		2.0	0.9	
Delay (s)		18.2			24.0	16.0	115.0	139.1		14.7	12.7	
Level of Service		B			C	B	F	F		B	B	
Approach Delay (s)		18.2			21.3			135.6			13.0	
Approach LOS		B			C			F			B	

Intersection Summary			
HCM 2000 Control Delay	73.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		

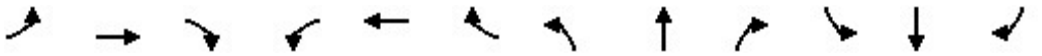
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	159	5	180	27	3	58	245	1154	8	15	788	245
Future Volume (Veh/h)	159	5	180	27	3	58	245	1154	8	15	788	245
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	179	6	202	30	3	65	275	1297	9	17	885	275
Pedestrians		3						4			8	
Lane Width (m)		3.6						3.6			3.6	
Walking Speed (m/s)		1.2						1.2			1.2	
Percent Blockage		0						0			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	2332	2916	587	2537	3048	661	1163			1306		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2332	2916	587	2537	3048	661	1163			1306		
tC, single (s)	7.5	6.5	7.0	7.9	6.5	7.0	4.2			4.8		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.0	3.3	2.2			2.5		
p0 queue free %	0	24	55	0	54	84	53			96		
cM capacity (veh/h)	7	8	445	1	6	400	584			387		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	179	208	98	275	865	441	17	590	570
Volume Left	179	0	30	275	0	0	17	0	0
Volume Right	0	202	65	0	0	9	0	0	275
cSH	7	172	5	584	1700	1700	387	1700	1700
Volume to Capacity	26.37	1.21	21.37	0.47	0.51	0.26	0.04	0.35	0.34
Queue Length 95th (m)	Err	91.1	Err	20.1	0.0	0.0	1.1	0.0	0.0
Control Delay (s)	Err	190.5	Err	16.5	0.0	0.0	14.7	0.0	0.0
Lane LOS	F	F	F	C			B		
Approach Delay (s)	4727.3		Err	2.9			0.2		
Approach LOS	F		F						

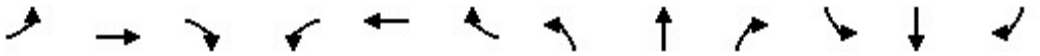
Intersection Summary				
Average Delay	867.8			
Intersection Capacity Utilization	76.1%	ICU Level of Service	D	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	132	181	55	313	90	91	69	698	541	75	792	237
Future Volume (vph)	132	181	55	313	90	91	69	698	541	75	792	237
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00	0.99		1.00	0.98		1.00	0.99	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.98		1.00	0.92		1.00	0.93		1.00	0.97	
Flt Protected		0.98		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1799		1784	1724		1805	3268		1805	3397	
Flt Permitted		0.80		0.44	1.00		0.14	1.00		0.14	1.00	
Satd. Flow (perm)		1461		831	1724		262	3268		262	3397	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	150	206	62	356	102	103	78	793	615	85	900	269
RTOR Reduction (vph)	0	8	0	0	36	0	0	187	0	0	37	0
Lane Group Flow (vph)	0	411	0	356	169	0	78	1221	0	85	1132	0
Confl. Peds. (#/hr)	3		11	11		3	1		11	11		1
Confl. Bikes (#/hr)			2			7			1			4
Heavy Vehicles (%)	0%	1%	5%	1%	0%	2%	0%	2%	1%	0%	2%	2%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio		0.32		0.45	0.45		0.39	0.39		0.39	0.39	
Clearance Time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		467		465	781		101	1263		101	1313	
v/s Ratio Prot				c0.07	0.10			c0.37			0.33	
v/s Ratio Perm		c0.28		0.28			0.30			0.32		
v/c Ratio		0.88		0.77	0.22		0.77	0.97		0.84	0.86	
Uniform Delay, d1		24.1		18.7	12.4		20.1	22.5		20.9	21.2	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		20.5		11.4	0.6		42.7	18.5		53.9	7.6	
Delay (s)		44.6		30.1	13.1		62.8	41.0		74.8	28.8	
Level of Service		D		C	B		E	D		E	C	
Approach Delay (s)		44.6			23.9			42.2			31.9	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	36.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	117.5%	ICU Level of Service	H
Analysis Period (min)	15		

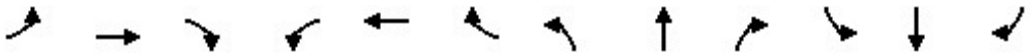
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	56	88	103	65	219	77	797	53	128	914	80
Future Volume (vph)	70	56	88	103	65	219	77	797	53	128	914	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.94			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1755			1842	1576	1805	3505		1787	3462	
Flt Permitted		0.83			0.67	1.00	0.14	1.00		0.21	1.00	
Satd. Flow (perm)		1488			1269	1576	273	3505		391	3462	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	74	60	94	110	69	233	82	848	56	136	972	85
RTOR Reduction (vph)	0	32	0	0	0	162	0	6	0	0	8	0
Lane Group Flow (vph)	0	196	0	0	179	71	82	898	0	136	1049	0
Confl. Peds. (#/hr)	1		2	2		1	4		3	3		4
Confl. Bikes (#/hr)						2						1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	2%	0%	1%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Effective Green, g (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Actuated g/C Ratio		0.30			0.30	0.30	0.51	0.41		0.51	0.41	
Clearance Time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Grp Cap (vph)		452			385	478	293	1419		339	1402	
v/s Ratio Prot							0.03	0.26		c0.04	c0.30	
v/s Ratio Perm		0.13			c0.14	0.04	0.11			0.16		
v/c Ratio		0.43			0.46	0.15	0.28	0.63		0.40	0.75	
Uniform Delay, d1		22.0			22.3	20.0	11.8	18.8		11.4	20.1	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		3.0			4.0	0.7	2.4	2.2		3.5	3.7	
Delay (s)		25.1			26.3	20.7	14.2	21.0		14.9	23.7	
Level of Service		C			C	C	B	C		B	C	
Approach Delay (s)		25.1			23.1			20.4			22.7	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	22.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		

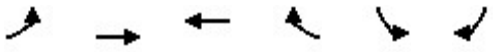
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	27	160	15	33	187	30	8	76	35	45	60	27
Future Volume (vph)	27	160	15	33	187	30	8	76	35	45	60	27
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	30	176	16	36	205	33	9	84	38	49	66	30

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	222	274	131	145
Volume Left (vph)	30	36	9	49
Volume Right (vph)	16	33	38	30
Hadj (s)	-0.02	-0.05	-0.12	-0.01
Departure Headway (s)	5.0	4.9	5.3	5.4
Degree Utilization, x	0.31	0.38	0.19	0.22
Capacity (veh/h)	665	688	603	604
Control Delay (s)	10.3	10.9	9.6	9.9
Approach Delay (s)	10.3	10.9	9.6	9.9
Approach LOS	B	B	A	A

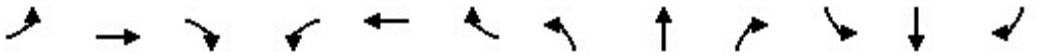
Intersection Summary				
Delay	10.3			
Level of Service	B			
Intersection Capacity Utilization	38.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	153	129	8	5	0
Future Volume (Veh/h)	0	153	129	8	5	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	168	142	9	5	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	151				314	146
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	151				314	146
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1430				678	901

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	168	151	5
Volume Left	0	0	5
Volume Right	0	9	0
cSH	1430	1700	678
Volume to Capacity	0.00	0.09	0.01
Queue Length 95th (m)	0.0	0.0	0.2
Control Delay (s)	0.0	0.0	10.3
Lane LOS			B
Approach Delay (s)	0.0	0.0	10.3
Approach LOS			B

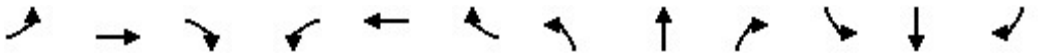
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	18.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	162	5	45	167	10	3	1	28	12	3	0
Future Volume (Veh/h)	10	162	5	45	167	10	3	1	28	12	3	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.92	0.92	0.91	0.91	0.92	0.92	0.92	0.91	0.92	0.91
Hourly flow rate (vph)	11	178	5	49	184	11	3	1	30	13	3	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	195			183			492	496	180	520	492	190
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	195			183			492	496	180	520	492	190
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 %	99			96			99	100	97	97	99	100
cM capacity (veh/h)	1378			1392			469	455	862	435	457	852

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	194	244	34	16
Volume Left	11	49	3	13
Volume Right	5	11	30	0
cSH	1378	1392	784	439
Volume to Capacity	0.01	0.04	0.04	0.04
Queue Length 95th (m)	0.2	0.9	1.1	0.9
Control Delay (s)	0.5	1.8	9.8	13.5
Lane LOS	A	A	A	B
Approach Delay (s)	0.5	1.8	9.8	13.5
Approach LOS			A	B

Intersection Summary				
Average Delay	2.2			
Intersection Capacity Utilization	35.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	97	13	14	87	30	14	347	33	28	172	32
Future Volume (Veh/h)	32	97	13	14	87	30	14	347	33	28	172	32
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	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	35	105	14	15	95	33	15	377	36	30	187	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)												
pX, platoon unblocked												
vC, conflicting volume	128			119			452	340	112	548	330	112
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	128			119			452	340	112	548	330	112
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.2	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.0	3.3
p0 queue free %	98			99			96	33	96	84	67	96
cM capacity (veh/h)	1470			1482			365	564	947	191	571	934

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	154	143	428	252
Volume Left	35	15	15	30
Volume Right	14	33	36	35
cSH	1470	1482	572	482
Volume to Capacity	0.02	0.01	0.75	0.52
Queue Length 95th (m)	0.6	0.2	52.3	23.8
Control Delay (s)	1.9	0.9	27.6	20.3
Lane LOS	A	A	D	C
Approach Delay (s)	1.9	0.9	27.6	20.3
Approach LOS			D	C

Intersection Summary				
Average Delay	17.8			
Intersection Capacity Utilization	43.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	21	19	375	30	29	169
Future Volume (Veh/h)	21	19	375	30	29	169
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	23	21	412	33	32	186
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	678	428			445	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	678	428			445	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	97			97	
cM capacity (veh/h)	405	626			1115	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	44	445	218
Volume Left	23	0	32
Volume Right	21	33	0
cSH	488	1700	1115
Volume to Capacity	0.09	0.26	0.03
Queue Length 95th (m)	2.4	0.0	0.7
Control Delay (s)	13.1	0.0	1.5
Lane LOS	B		A
Approach Delay (s)	13.1	0.0	1.5
Approach LOS	B		

Intersection Summary			
Average Delay		1.3	
Intersection Capacity Utilization		43.5%	ICU Level of Service A
Analysis Period (min)		15	

Summary of All Intervals

Run Number	1	2	3	Avg
Start Time	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	4713	4798	4839	4787
Vehs Exited	4759	4810	4827	4799
Starting Vehs	290	236	228	246
Ending Vehs	244	224	240	235
Travel Distance (km)	8798	9052	8937	8929
Travel Time (hr)	237.2	246.8	242.4	242.1
Total Delay (hr)	57.0	62.0	60.0	59.7
Total Stops	7332	7567	7458	7451
Fuel Used (l)	709.0	730.0	719.0	719.3

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	Avg
Vehs Entered	4713	4798	4839	4787
Vehs Exited	4759	4810	4827	4799
Starting Vehs	290	236	228	246
Ending Vehs	244	224	240	235
Travel Distance (km)	8798	9052	8937	8929
Travel Time (hr)	237.2	246.8	242.4	242.1
Total Delay (hr)	57.0	62.0	60.0	59.7
Total Stops	7332	7567	7458	7451
Fuel Used (l)	709.0	730.0	719.0	719.3

Intersection: 3: Old Barrie Rd E & University Ave

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (m)	31.0	80.0	70.8	92.5	69.6	110.4
Average Queue (m)	14.6	40.9	36.3	48.1	35.0	57.9
95th Queue (m)	26.6	66.6	59.6	79.0	58.7	94.7
Link Distance (m)		579.8	318.4		1089.4	1089.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	106.0			64.0		
Storage Blk Time (%)			1	3		
Queuing Penalty (veh)			4	10		

Intersection: 5: Old Barrie Rd E & Line 15 N

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	21.0	33.2	32.1	136.9
Average Queue (m)	1.6	10.2	15.9	69.5
95th Queue (m)	9.5	24.8	27.0	131.0
Link Distance (m)	288.0	579.8	1006.6	1844.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: University Ave & Diana Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	43.2	20.9	15.5	34.2	49.2	61.0	21.6	39.4	48.1
Average Queue (m)	23.8	9.3	5.1	15.1	27.0	34.4	7.9	20.5	25.5
95th Queue (m)	39.0	18.7	13.2	27.4	43.8	51.5	16.8	35.9	42.0
Link Distance (m)	144.4	117.8	117.8		1089.4	1089.4		535.9	535.9
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				36.0			58.0		
Storage Blk Time (%)				0	2				
Queuing Penalty (veh)				0	2				

Intersection: 12: University Ave/West Ridge Blvd & Stone Ridge Blvd/Hunter Valley Rd

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	60.2	33.0	13.8	26.5	4.6	2.2	9.0	15.5	19.8
Average Queue (m)	26.4	18.1	5.2	9.6	0.2	0.1	2.8	0.5	1.4
95th Queue (m)	47.5	30.3	13.0	21.2	2.6	1.2	9.4	5.3	8.9
Link Distance (m)	278.2	278.2	176.5		535.9	535.9		944.3	944.3
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				42.5			90.0		
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 16: West Ridge Blvd & Monarch Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	118.6	50.9	33.6	17.0	58.4	66.9	52.4	64.4	67.2
Average Queue (m)	55.4	21.1	13.4	4.9	32.5	43.0	23.2	28.9	32.1
95th Queue (m)	97.4	38.1	26.2	13.1	51.9	61.7	43.3	54.7	56.5
Link Distance (m)	173.4	268.3	268.3		944.3	944.3		141.5	141.5
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				47.0			38.0		
Storage Blk Time (%)					1		3	4	
Queuing Penalty (veh)					0		8	4	

Intersection: 19: West Ridge Blvd & Bass Lake Side Rd E

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	67.6	19.4	18.7	45.7	55.7	60.0	25.0	64.2	59.5
Average Queue (m)	35.5	8.7	7.3	14.2	30.7	35.9	8.6	35.7	26.0
95th Queue (m)	57.3	17.5	15.2	30.8	51.6	56.7	19.2	57.3	48.4
Link Distance (m)	514.5	80.4	80.4		141.5	141.5		174.0	174.0
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				39.0			42.0		
Storage Blk Time (%)				0	4			3	
Queuing Penalty (veh)				0	5			2	

Intersection: 23: Bass Lake Side Rd E & Atlantis Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	23.3	26.2	23.4	28.0
Average Queue (m)	13.6	13.9	12.8	15.0
95th Queue (m)	20.8	22.7	21.1	24.6
Link Distance (m)	315.7	514.5	221.1	203.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: Bass Lake Side Rd E & Old Scotia Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	9.0
Average Queue (m)	1.7
95th Queue (m)	7.4
Link Distance (m)	239.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: Bass Lake Side Rd E & Hepinstall Pl

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	2.9	8.1	13.1	11.5
Average Queue (m)	0.1	0.5	7.1	4.4
95th Queue (m)	1.6	4.2	13.2	12.0
Link Distance (m)	881.3	315.7	125.7	176.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 32: Line 15 N & Bass Lake Side Rd E

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	5.7	8.5	25.5	38.4
Average Queue (m)	0.4	1.0	13.0	19.0
95th Queue (m)	3.2	5.4	22.2	30.7
Link Distance (m)	278.4	157.8	607.9	420.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 35: Line 15 N & Stone Ridge Blvd extension

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	20.6	5.3
Average Queue (m)	8.5	0.4
95th Queue (m)	15.2	3.1
Link Distance (m)	198.7	607.9
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 36

Summary of All Intervals

Run Number	1	2	3	Avg
Start Time	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	6354	6350	6244	6316
Vehs Exited	6012	6031	5897	5981
Starting Vehs	396	406	401	400
Ending Vehs	738	725	748	727
Travel Distance (km)	11286	11232	11108	11209
Travel Time (hr)	972.1	998.2	1006.5	992.2
Total Delay (hr)	740.7	768.1	778.5	762.5
Total Stops	12555	13518	12044	12710
Fuel Used (l)	1474.1	1501.4	1494.3	1489.9

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	Avg
Vehs Entered	6354	6350	6244	6316
Vehs Exited	6012	6031	5897	5981
Starting Vehs	396	406	401	400
Ending Vehs	738	725	748	727
Travel Distance (km)	11286	11232	11108	11209
Travel Time (hr)	972.1	998.2	1006.5	992.2
Total Delay (hr)	740.7	768.1	778.5	762.5
Total Stops	12555	13518	12044	12710
Fuel Used (l)	1474.1	1501.4	1494.3	1489.9

Intersection: 3: Old Barrie Rd E & University Ave

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (m)	59.4	69.8	335.4	164.0	1094.3	1104.8
Average Queue (m)	24.2	37.9	326.9	164.0	902.5	808.9
95th Queue (m)	43.1	62.5	348.8	164.4	1268.2	1277.6
Link Distance (m)		579.8	318.4		1089.4	1089.4
Upstream Blk Time (%)			45		13	7
Queuing Penalty (veh)			0		64	33
Storage Bay Dist (m)	106.0			64.0		
Storage Blk Time (%)			4	75		
Queuing Penalty (veh)			44	360		

Intersection: 5: Old Barrie Rd E & Line 15 N

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	26.4	40.4	304.2	93.4
Average Queue (m)	2.6	8.1	189.1	37.0
95th Queue (m)	14.4	25.6	329.5	73.0
Link Distance (m)	288.0	579.8	1006.6	1844.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: University Ave & Diana Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	42.9	59.4	29.1	51.8	72.1	75.0	74.9	244.3	250.3
Average Queue (m)	22.0	28.8	10.7	33.6	50.5	52.1	21.2	51.6	55.1
95th Queue (m)	39.6	50.7	21.0	57.4	68.8	68.6	57.7	156.8	161.4
Link Distance (m)	144.4	117.8	117.8		1089.4	1089.4		535.9	535.9
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				36.0			58.0		
Storage Blk Time (%)				5	28			15	
Queuing Penalty (veh)				24	54			18	

Intersection: 12: University Ave/West Ridge Blvd & Stone Ridge Blvd/Hunter Valley Rd

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	260.4	213.9	87.2	55.5	35.6	23.8	19.4	28.8	33.0
Average Queue (m)	204.9	148.8	31.9	24.1	2.4	1.9	3.1	2.5	6.6
95th Queue (m)	354.3	358.3	73.3	43.5	18.5	11.5	12.5	13.3	21.0
Link Distance (m)	278.2	278.2	176.5		535.9	535.9		944.3	944.3
Upstream Blk Time (%)	48	38							
Queuing Penalty (veh)	0	0							
Storage Bay Dist (m)				42.5			90.0		
Storage Blk Time (%)				2					
Queuing Penalty (veh)				10					

Intersection: 16: West Ridge Blvd & Monarch Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	73.7	83.2	38.3	57.5	80.0	111.6	52.9	134.0	138.9
Average Queue (m)	45.6	38.6	17.6	23.7	41.9	65.7	39.9	84.7	87.5
95th Queue (m)	70.0	66.1	32.7	48.7	67.9	101.4	65.6	159.2	159.2
Link Distance (m)	173.4	268.3	268.3		944.3	944.3		141.5	141.5
Upstream Blk Time (%)								2	3
Queuing Penalty (veh)								14	17
Storage Bay Dist (m)				47.0			38.0		
Storage Blk Time (%)				6	5		57	17	
Queuing Penalty (veh)				22	3		228	13	

Intersection: 19: West Ridge Blvd & Bass Lake Side Rd E

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	59.3	60.3	48.5	21.4	59.0	65.2	53.0	113.9	124.0
Average Queue (m)	28.2	26.6	16.9	10.1	30.5	34.5	21.7	66.2	65.1
95th Queue (m)	51.2	56.6	34.5	19.0	53.7	58.3	54.2	122.1	120.3
Link Distance (m)	514.5	80.4	80.4		141.5	141.5		174.0	174.0
Upstream Blk Time (%)		2	0					1	0
Queuing Penalty (veh)		0	0					0	0
Storage Bay Dist (m)				39.0			42.0		
Storage Blk Time (%)					4			23	
Queuing Penalty (veh)					3			30	

Intersection: 23: Bass Lake Side Rd E & Atlantis Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	29.0	27.0	21.8	22.6
Average Queue (m)	15.5	15.1	11.3	12.0
95th Queue (m)	23.6	23.0	18.4	19.4
Link Distance (m)	315.7	514.5	221.1	203.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: Bass Lake Side Rd E & Old Scotia Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	9.0
Average Queue (m)	1.7
95th Queue (m)	7.2
Link Distance (m)	239.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: Bass Lake Side Rd E & Hepinstall Pl

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	8.4	13.8	14.8	11.4
Average Queue (m)	0.4	1.8	6.3	3.8
95th Queue (m)	3.8	8.6	13.7	11.3
Link Distance (m)	881.3	315.7	125.7	176.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 32: Line 15 N & Bass Lake Side Rd E

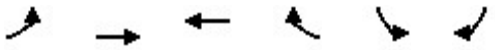
Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	11.3	10.1	44.4	26.3
Average Queue (m)	1.3	0.8	21.9	14.0
95th Queue (m)	6.6	5.0	32.4	21.4
Link Distance (m)	278.4	157.8	607.9	420.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 35: Line 15 N & Stone Ridge Blvd extension

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	13.9	13.6
Average Queue (m)	6.9	2.5
95th Queue (m)	13.8	10.4
Link Distance (m)	198.7	607.9
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

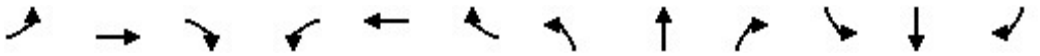
Network Summary

Network wide Queuing Penalty: 938



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	112	479	304	740	267	575
Future Volume (vph)	112	479	304	740	267	575
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1703	1759	1667	1519	1736	1464
Flt Permitted	0.37	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	666	1759	1667	1519	1736	1464
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	126	538	342	831	300	646
RTOR Reduction (vph)	0	0	0	554	0	325
Lane Group Flow (vph)	126	538	342	277	300	321
Confl. Bikes (#/hr)				1		1
Heavy Vehicles (%)	6%	8%	14%	5%	4%	8%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	36.0	36.0	24.0	24.0	24.0	24.0
Effective Green, g (s)	36.0	36.0	24.0	24.0	24.0	24.0
Actuated g/C Ratio	0.50	0.50	0.33	0.33	0.33	0.33
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	448	879	555	506	578	488
v/s Ratio Prot	0.03	c0.31	0.21		0.17	
v/s Ratio Perm	0.11			0.18		c0.22
v/c Ratio	0.28	0.61	0.62	0.55	0.52	0.66
Uniform Delay, d1	10.4	13.0	20.1	19.6	19.3	20.5
Progression Factor	1.00	1.00	1.00	1.00	1.19	2.62
Incremental Delay, d2	1.6	3.2	5.1	4.2	3.1	6.4
Delay (s)	12.0	16.1	25.2	23.8	26.2	60.0
Level of Service	B	B	C	C	C	E
Approach Delay (s)		15.3	24.2		49.3	
Approach LOS		B	C		D	

Intersection Summary			
HCM 2000 Control Delay	30.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	61.6%	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)	5	334	51	81	272	84	7	31	60	197	199	14
Future Volume (Veh/h)	5	334	51	81	272	84	7	31	60	197	199	14
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	5	367	56	89	299	92	8	34	66	216	219	15
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	391			423			1052	974	395	1011	956	345
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	391			423			1052	974	395	1011	956	345
tC, single (s)	4.1			4.2			8.1	6.6	6.4	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.3			4.4	4.1	3.5	3.5	4.0	3.4
p0 queue free %	100			92			67	85	89	0	8	98
cM capacity (veh/h)	1179			1100			24	226	615	163	237	674

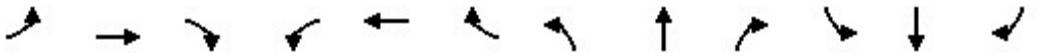
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	428	480	108	450
Volume Left	5	89	8	216
Volume Right	56	92	66	15
cSH	1179	1100	183	198
Volume to Capacity	0.00	0.08	0.59	2.27
Queue Length 95th (m)	0.1	2.1	25.7	289.4
Control Delay (s)	0.1	2.3	49.6	627.2
Lane LOS	A	A	E	F
Approach Delay (s)	0.1	2.3	49.6	627.2
Approach LOS			E	F

Intersection Summary				
Average Delay	197.0			
Intersection Capacity Utilization	83.7%	ICU Level of Service	E	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	30	152	61	14	32	87	495	96	79	597	40
Future Volume (vph)	82	30	152	61	14	32	87	495	96	79	597	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.92			1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected		0.98			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1664			1781	1429	1639	3322		1719	3411	
Flt Permitted		0.88			0.68	1.00	0.39	1.00		0.24	1.00	
Satd. Flow (perm)		1483			1254	1429	670	3322		430	3411	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	89	33	165	66	15	35	95	538	104	86	649	43
RTOR Reduction (vph)	0	68	0	0	0	23	0	22	0	0	7	0
Lane Group Flow (vph)	0	219	0	0	81	12	95	620	0	86	686	0
Confl. Peds. (#/hr)			1	1			2					2
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	4%	0%	3%	3%	0%	13%	10%	5%	9%	5%	5%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Effective Green, g (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Actuated g/C Ratio		0.35			0.35	0.35	0.28	0.28		0.50	0.50	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Grp Cap (vph)		514			435	496	186	922		429	1705	
v/s Ratio Prot								c0.19		0.03	c0.20	
v/s Ratio Perm		c0.15			0.06	0.01	0.14			0.07		
v/c Ratio		0.43			0.19	0.02	0.51	0.67		0.20	0.40	
Uniform Delay, d1		18.0			16.4	15.5	21.9	23.1		10.3	11.3	
Progression Factor		1.00			1.00	1.00	0.92	0.92		1.00	1.00	
Incremental Delay, d2		2.6			0.9	0.1	6.7	2.7		1.0	0.7	
Delay (s)		20.6			17.3	15.6	26.7	23.9		11.3	12.0	
Level of Service		C			B	B	C	C		B	B	
Approach Delay (s)		20.6			16.8			24.2			11.9	
Approach LOS		C			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		

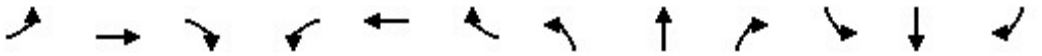
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	196	5	207	4	2	18	89	603	18	27	625	117
Future Volume (Veh/h)	196	5	207	4	2	18	89	603	18	27	625	117
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	209	5	220	4	2	19	95	641	19	29	665	124
Pedestrians		1									2	
Lane Width (m)		3.6									3.6	
Walking Speed (m/s)		1.2									1.2	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1318	1636	396	1454	1688	332	790			660		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1318	1636	396	1454	1688	332	790			660		
tC, single (s)	7.6	6.5	7.0	7.5	6.5	6.9	4.4			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.4	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	0	94	63	92	97	97	87			97		
cM capacity (veh/h)	92	86	589	49	80	669	752			938		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	209	225	25	95	427	233	29	443	346
Volume Left	209	0	4	95	0	0	29	0	0
Volume Right	0	220	19	0	0	19	0	0	124
cSH	92	522	185	752	1700	1700	938	1700	1700
Volume to Capacity	2.26	0.43	0.13	0.13	0.25	0.14	0.03	0.26	0.20
Queue Length 95th (m)	150.1	17.2	3.7	3.5	0.0	0.0	0.8	0.0	0.0
Control Delay (s)	675.3	17.0	27.4	10.5	0.0	0.0	9.0	0.0	0.0
Lane LOS	F	C	D	B			A		
Approach Delay (s)	334.1		27.4	1.3			0.3		
Approach LOS	F		D						

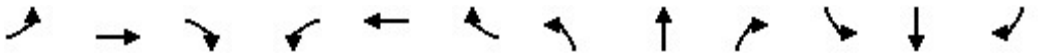
Intersection Summary				
Average Delay	72.3			
Intersection Capacity Utilization	53.5%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	171	180	73	179	79	61	22	493	310	112	540	115
Future Volume (vph)	171	180	73	179	79	61	22	493	310	112	540	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.98		1.00	0.93		1.00	0.94		1.00	0.97	
Flt Protected		0.98		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1774		1733	1698		1804	3236		1665	3378	
Flt Permitted		0.80		0.45	1.00		0.30	1.00		0.21	1.00	
Satd. Flow (perm)		1448		815	1698		564	3236		369	3378	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	188	198	80	197	87	67	24	542	341	123	593	126
RTOR Reduction (vph)	0	10	0	0	37	0	0	132	0	0	24	0
Lane Group Flow (vph)	0	456	0	197	117	0	24	751	0	123	695	0
Confl. Peds. (#/hr)	3		11	11		3	1		11	11		1
Confl. Bikes (#/hr)			2			1						1
Heavy Vehicles (%)	4%	1%	0%	4%	0%	9%	0%	4%	3%	8%	4%	2%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio		0.32		0.45	0.45		0.39	0.39		0.39	0.39	
Clearance Time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		463		455	769		218	1251		142	1306	
v/s Ratio Prot				c0.04	0.07			0.23			0.21	
v/s Ratio Perm		c0.31		0.16			0.04			c0.33		
v/c Ratio		0.98		0.43	0.15		0.11	0.60		0.87	0.53	
Uniform Delay, d1		25.3		14.4	12.0		14.7	18.4		21.2	17.8	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		38.1		3.0	0.4		1.0	2.1		46.4	1.6	
Delay (s)		63.5		17.4	12.5		15.8	20.5		67.6	19.3	
Level of Service		E		B	B		B	C		E	B	
Approach Delay (s)		63.5			15.2			20.4			26.4	
Approach LOS		E			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	29.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	107.6%	ICU Level of Service	G
Analysis Period (min)	15		

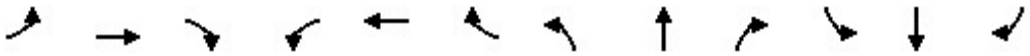
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	134	52	147	36	23	74	117	609	23	69	590	52
Future Volume (vph)	134	52	147	36	23	74	117	609	23	69	590	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.94			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1674			1843	1516	1718	3413		1752	3379	
Flt Permitted		0.84			0.70	1.00	0.31	1.00		0.32	1.00	
Satd. Flow (perm)		1434			1331	1516	559	3413		582	3379	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	147	57	162	40	25	81	129	669	25	76	648	57
RTOR Reduction (vph)	0	36	0	0	0	56	0	4	0	0	8	0
Lane Group Flow (vph)	0	330	0	0	65	25	129	690	0	76	697	0
Confl. Peds. (#/hr)							2		1	1		2
Confl. Bikes (#/hr)						3			3			1
Heavy Vehicles (%)	6%	0%	5%	0%	0%	5%	5%	5%	8%	3%	5%	9%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Effective Green, g (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Actuated g/C Ratio		0.30			0.30	0.30	0.51	0.41		0.51	0.41	
Clearance Time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Grp Cap (vph)		435			404	460	400	1382		413	1368	
v/s Ratio Prot							c0.03	0.20		0.02	c0.21	
v/s Ratio Perm		c0.23			0.05	0.02	0.13			0.07		
v/c Ratio		0.76			0.16	0.05	0.32	0.50		0.18	0.51	
Uniform Delay, d1		24.9			20.1	19.5	10.7	17.5		10.3	17.6	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		11.7			0.9	0.2	2.1	1.3		1.0	1.4	
Delay (s)		36.6			21.0	19.7	12.8	18.8		11.3	19.0	
Level of Service		D			C	B	B	B		B	B	
Approach Delay (s)		36.6			20.3			17.9			18.2	
Approach LOS		D			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	21.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		

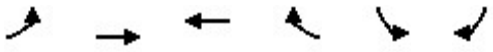
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	47	150	7	29	55	96	11	83	49	119	49	45
Future Volume (vph)	47	150	7	29	55	96	11	83	49	119	49	45
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Hourly flow rate (vph)	76	242	11	47	89	155	18	134	79	192	79	73

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	329	291	231	344
Volume Left (vph)	76	47	18	192
Volume Right (vph)	11	155	79	73
Hadj (s)	0.05	-0.22	-0.09	0.12
Departure Headway (s)	6.6	6.5	6.8	6.7
Degree Utilization, x	0.61	0.53	0.44	0.64
Capacity (veh/h)	496	494	455	494
Control Delay (s)	19.4	16.5	15.0	20.7
Approach Delay (s)	19.4	16.5	15.0	20.7
Approach LOS	C	C	B	C

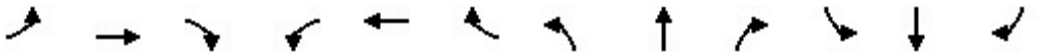
Intersection Summary				
Delay	18.2			
Level of Service	C			
Intersection Capacity Utilization	47.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	106	85	4	7	0
Future Volume (Veh/h)	0	106	85	4	7	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	115	92	4	8	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	96				209	94
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	96				209	94
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1498				779	963

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	115	96	8
Volume Left	0	0	8
Volume Right	0	4	0
cSH	1498	1700	779
Volume to Capacity	0.00	0.06	0.01
Queue Length 95th (m)	0.0	0.0	0.2
Control Delay (s)	0.0	0.0	9.7
Lane LOS			A
Approach Delay (s)	0.0	0.0	9.7
Approach LOS			A

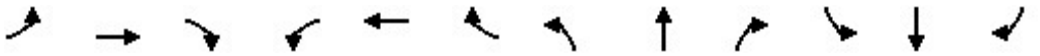
Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	15.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	140	3	10	96	5	2	2	44	20	3	0
Future Volume (Veh/h)	2	140	3	10	96	5	2	2	44	20	3	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	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	152	3	11	104	5	2	2	48	22	3	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	109			155			288	288	154	335	288	106
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	109			155			288	288	154	335	288	106
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	95	96	100	100
cM capacity (veh/h)	1481			1425			658	616	892	580	617	948

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	157	120	52	25
Volume Left	2	11	2	22
Volume Right	3	5	48	0
cSH	1481	1425	866	584
Volume to Capacity	0.00	0.01	0.06	0.04
Queue Length 95th (m)	0.0	0.2	1.5	1.1
Control Delay (s)	0.1	0.7	9.4	11.4
Lane LOS	A	A	A	B
Approach Delay (s)	0.1	0.7	9.4	11.4
Approach LOS			A	B

Intersection Summary				
Average Delay	2.5			
Intersection Capacity Utilization	26.0%	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 (veh/h)	25	80	11	37	47	7	21	98	18	9	350	20
Future Volume (Veh/h)	25	80	11	37	47	7	21	98	18	9	350	20
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	29	92	13	43	54	8	24	113	21	10	402	23
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	62			105			524	304	98	378	307	58
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	62			105			524	304	98	378	307	58
tC, single (s)	4.2			4.1			7.1	6.6	6.2	7.3	6.5	6.4
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.1	3.3	3.7	4.0	3.5
p0 queue free %	98			97			88	80	98	98	31	98
cM capacity (veh/h)	1510			1499			195	571	963	432	581	965

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	134	105	158	435
Volume Left	29	43	24	10
Volume Right	13	8	21	23
cSH	1510	1499	460	589
Volume to Capacity	0.02	0.03	0.34	0.74
Queue Length 95th (m)	0.5	0.7	12.1	50.9
Control Delay (s)	1.7	3.2	16.9	26.4
Lane LOS	A	A	C	D
Approach Delay (s)	1.7	3.2	16.9	26.4
Approach LOS			C	D

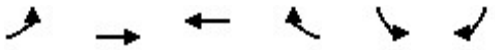
Intersection Summary				
Average Delay	17.7			
Intersection Capacity Utilization	36.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	27	29	108	13	11	387
Future Volume (Veh/h)	27	29	108	13	11	387
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)	29	32	117	14	12	421
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	569	124			131	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	569	124			131	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	97			99	
cM capacity (veh/h)	480	927			1454	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	61	131	433
Volume Left	29	0	12
Volume Right	32	14	0
cSH	642	1700	1454
Volume to Capacity	0.09	0.08	0.01
Queue Length 95th (m)	2.5	0.0	0.2
Control Delay (s)	11.2	0.0	0.3
Lane LOS	B		A
Approach Delay (s)	11.2	0.0	0.3
Approach LOS	B		

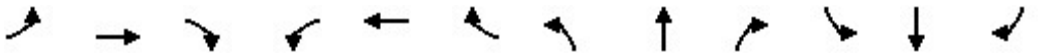
Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	39.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	225	477	518	1240	1047	271
Future Volume (vph)	225	477	518	1240	1047	271
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1703	1759	1667	1518	1736	1459
Flt Permitted	0.14	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	256	1759	1667	1518	1736	1459
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	242	513	557	1333	1126	291
RTOR Reduction (vph)	0	0	0	575	0	142
Lane Group Flow (vph)	242	513	557	758	1126	149
Confl. Peds. (#/hr)	1			1		
Confl. Bikes (#/hr)						4
Heavy Vehicles (%)	6%	8%	14%	5%	4%	8%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	36.0	36.0	24.0	24.0	24.0	24.0
Effective Green, g (s)	36.0	36.0	24.0	24.0	24.0	24.0
Actuated g/C Ratio	0.50	0.50	0.33	0.33	0.33	0.33
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	288	879	555	506	578	486
v/s Ratio Prot	c0.09	0.29	0.33		c0.65	
v/s Ratio Perm	0.33			c0.50		0.10
v/c Ratio	0.84	0.58	1.00	1.50	1.95	0.31
Uniform Delay, d1	14.2	12.7	24.0	24.0	24.0	17.8
Progression Factor	1.00	1.00	1.00	1.00	1.13	1.68
Incremental Delay, d2	24.5	2.8	39.1	234.6	432.5	1.5
Delay (s)	38.7	15.5	63.1	258.6	459.6	31.4
Level of Service	D	B	E	F	F	C
Approach Delay (s)		23.0	201.0		371.6	
Approach LOS		C	F		F	

Intersection Summary			
HCM 2000 Control Delay	227.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.60		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	111.1%	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 (veh/h)	14	422	11	67	502	220	38	204	123	158	37	9
Future Volume (Veh/h)	14	422	11	67	502	220	38	204	123	158	37	9
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	15	464	12	74	552	242	42	224	135	174	41	10
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	794			476			1352	1442	470	1568	1327	673
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	794			476			1352	1442	470	1568	1327	673
tC, single (s)	4.1			4.2			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			93			54	0	77	0	71	98
cM capacity (veh/h)	836			1041			92	121	591	0	143	459

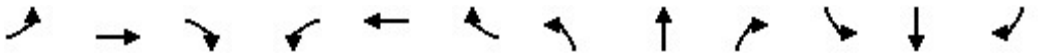
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	491	868	401	225
Volume Left	15	74	42	174
Volume Right	12	242	135	10
cSH	836	1041	158	0
Volume to Capacity	0.02	0.07	2.54	Err
Queue Length 95th (m)	0.4	1.8	277.9	Err
Control Delay (s)	0.5	1.8	757.5	Err
Lane LOS	A	A	F	F
Approach Delay (s)	0.5	1.8	757.5	Err
Approach LOS			F	F

Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	112.1%	ICU Level of Service	H	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	22	123	175	52	117	209	1102	101	128	748	68
Future Volume (vph)	58	22	123	175	52	117	209	1102	101	128	748	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.92			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1684			1816	1555	1799	3472		1805	3460	
Flt Permitted		0.85			0.63	1.00	0.32	1.00		0.17	1.00	
Satd. Flow (perm)		1450			1184	1555	607	3472		317	3460	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	63	24	134	190	57	127	227	1198	110	139	813	74
RTOR Reduction (vph)	0	77	0	0	0	83	0	9	0	0	10	0
Lane Group Flow (vph)	0	144	0	0	247	44	227	1299	0	139	878	0
Confl. Peds. (#/hr)	5					5	6		4	4		6
Confl. Bikes (#/hr)			2			3			2			4
Heavy Vehicles (%)	0%	0%	2%	1%	0%	2%	0%	2%	7%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Effective Green, g (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Actuated g/C Ratio		0.35			0.35	0.35	0.28	0.28		0.50	0.50	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Grp Cap (vph)		503			411	539	168	964		406	1730	
v/s Ratio Prot								c0.37		0.06	c0.25	
v/s Ratio Perm		0.10			c0.21	0.03	0.37			0.11		
v/c Ratio		0.29			0.60	0.08	1.35	1.35		0.34	0.51	
Uniform Delay, d1		17.0			19.4	15.8	26.0	26.0		12.7	12.1	
Progression Factor		1.00			1.00	1.00	0.90	0.90		1.00	1.00	
Incremental Delay, d2		1.4			6.4	0.3	161.7	156.8		2.3	1.1	
Delay (s)		18.5			25.8	16.1	185.1	180.1		15.0	13.1	
Level of Service		B			C	B	F	F		B	B	
Approach Delay (s)		18.5			22.5			180.9			13.4	
Approach LOS		B			C			F			B	

Intersection Summary			
HCM 2000 Control Delay	96.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		

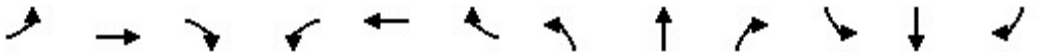
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	164	5	187	29	4	63	252	1248	9	16	852	252
Future Volume (Veh/h)	164	5	187	29	4	63	252	1248	9	16	852	252
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	184	6	210	33	4	71	283	1402	10	18	957	283
Pedestrians		3						4			8	
Lane Width (m)		3.6						3.6			3.6	
Walking Speed (m/s)		1.2						1.2			1.2	
Percent Blockage		0						0			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	2486	3116	627	2704	3252	714	1243			1412		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2486	3116	627	2704	3252	714	1243			1412		
tC, single (s)	7.5	6.5	7.0	7.9	6.5	7.0	4.2			4.8		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.0	3.3	2.2			2.5		
p0 queue free %	0	0	50	0	6	81	48			95		
cM capacity (veh/h)	1	5	419	0	4	369	544			347		

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	184	216	108	283	935	477	18	638	602
Volume Left	184	0	33	283	0	0	18	0	0
Volume Right	0	210	71	0	0	10	0	0	283
cSH	1	132	0	544	1700	1700	347	1700	1700
Volume to Capacity	134.67	1.64	Err	0.52	0.55	0.28	0.05	0.38	0.35
Queue Length 95th (m)	Err	125.7	Err	23.9	0.0	0.0	1.3	0.0	0.0
Control Delay (s)	Err	379.5	Err	18.6	0.0	0.0	15.9	0.0	0.0
Lane LOS	F	F	F	C			C		
Approach Delay (s)	4804.5		Err	3.1			0.2		
Approach LOS	F		F						

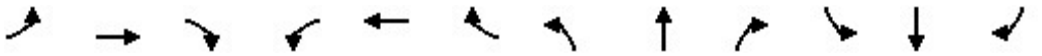
Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	79.3%	ICU Level of Service	D	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	197	58	341	97	99	72	746	588	81	844	251
Future Volume (vph)	139	197	58	341	97	99	72	746	588	81	844	251
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00	0.99		1.00	0.98		1.00	0.99	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.98		1.00	0.92		1.00	0.93		1.00	0.97	
Flt Protected		0.98		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1800		1784	1722		1805	3265		1805	3398	
Flt Permitted		0.79		0.43	1.00		0.14	1.00		0.14	1.00	
Satd. Flow (perm)		1453		803	1722		262	3265		262	3398	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	158	224	66	388	110	112	82	848	668	92	959	285
RTOR Reduction (vph)	0	8	0	0	29	0	0	190	0	0	37	0
Lane Group Flow (vph)	0	440	0	388	194	0	82	1326	0	92	1207	0
Confl. Peds. (#/hr)	3		11	11		3	1		11	11		1
Confl. Bikes (#/hr)			2			7			1			4
Heavy Vehicles (%)	0%	1%	5%	1%	0%	2%	0%	2%	1%	0%	2%	2%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio		0.32		0.45	0.45		0.39	0.39		0.39	0.39	
Clearance Time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		464		455	780		101	1262		101	1313	
v/s Ratio Prot				c0.08	0.11			c0.41			0.36	
v/s Ratio Perm		c0.30		0.31			0.31			0.35		
v/c Ratio		0.95		0.85	0.25		0.81	1.05		0.91	0.92	
Uniform Delay, d1		24.9		20.3	12.6		20.6	23.0		21.8	21.9	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		30.6		18.0	0.8		48.8	39.9		67.7	11.8	
Delay (s)		55.5		38.3	13.4		69.4	62.9		89.5	33.7	
Level of Service		E		D	B		E	E		F	C	
Approach Delay (s)		55.5			29.2			63.2			37.5	
Approach LOS		E			C			E			D	

Intersection Summary			
HCM 2000 Control Delay	48.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	121.7%	ICU Level of Service	H
Analysis Period (min)	15		

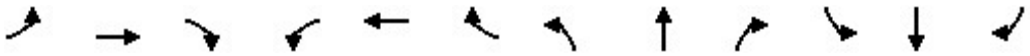
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	61	95	112	70	238	82	850	58	139	971	82
Future Volume (vph)	74	61	95	112	70	238	82	850	58	139	971	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.94			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1755			1842	1576	1805	3503		1787	3463	
Flt Permitted		0.83			0.65	1.00	0.12	1.00		0.18	1.00	
Satd. Flow (perm)		1476			1238	1576	238	3503		340	3463	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	79	65	101	119	74	253	87	904	62	148	1033	87
RTOR Reduction (vph)	0	32	0	0	0	176	0	7	0	0	8	0
Lane Group Flow (vph)	0	213	0	0	193	77	87	959	0	148	1112	0
Confl. Peds. (#/hr)	1		2	2		1	4		3	3		4
Confl. Bikes (#/hr)						2						1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	2%	0%	1%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Effective Green, g (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Actuated g/C Ratio		0.30			0.30	0.30	0.51	0.41		0.51	0.41	
Clearance Time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Grp Cap (vph)		448			376	478	279	1418		318	1402	
v/s Ratio Prot							0.03	0.27		c0.05	c0.32	
v/s Ratio Perm		0.14			c0.16	0.05	0.13			0.19		
v/c Ratio		0.48			0.51	0.16	0.31	0.68		0.47	0.79	
Uniform Delay, d1		22.4			22.7	20.1	12.3	19.3		11.8	20.6	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		3.6			4.9	0.7	2.9	2.6		4.8	4.7	
Delay (s)		26.0			27.6	20.8	15.2	21.9		16.7	25.3	
Level of Service		C			C	C	B	C		B	C	
Approach Delay (s)		26.0			23.8			21.3			24.3	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	23.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		

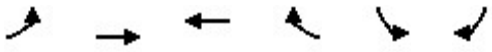
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	29	170	16	36	198	32	9	83	38	49	65	29
Future Volume (vph)	29	170	16	36	198	32	9	83	38	49	65	29
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	32	187	18	40	218	35	10	91	42	54	71	32

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	237	293	143	157
Volume Left (vph)	32	40	10	54
Volume Right (vph)	18	35	42	32
Hadj (s)	-0.02	-0.04	-0.12	-0.01
Departure Headway (s)	5.2	5.1	5.4	5.5
Degree Utilization, x	0.34	0.41	0.22	0.24
Capacity (veh/h)	647	668	585	585
Control Delay (s)	10.8	11.6	9.9	10.3
Approach Delay (s)	10.8	11.6	9.9	10.3
Approach LOS	B	B	A	B

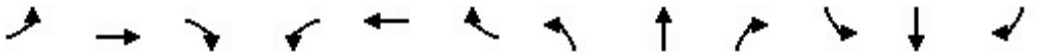
Intersection Summary				
Delay	10.8			
Level of Service	B			
Intersection Capacity Utilization	44.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	166	140	9	5	0
Future Volume (Veh/h)	0	166	140	9	5	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	182	154	10	5	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	164				341	159
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	164				341	159
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1414				655	886

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	182	164	5
Volume Left	0	0	5
Volume Right	0	10	0
cSH	1414	1700	655
Volume to Capacity	0.00	0.10	0.01
Queue Length 95th (m)	0.0	0.0	0.2
Control Delay (s)	0.0	0.0	10.5
Lane LOS			B
Approach Delay (s)	0.0	0.0	10.5
Approach LOS			B

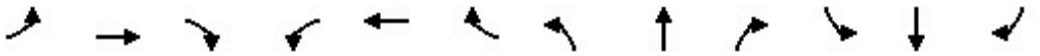
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	18.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	175	5	45	180	11	3	1	28	13	3	0
Future Volume (Veh/h)	11	175	5	45	180	11	3	1	28	13	3	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.92	0.92	0.91	0.91	0.92	0.92	0.92	0.91	0.92	0.91
Hourly flow rate (vph)	12	192	5	49	198	12	3	1	30	14	3	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	210			197			522	526	194	551	523	204
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	210			197			522	526	194	551	523	204
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 %	99			96			99	100	96	97	99	100
cM capacity (veh/h)	1361			1376			447	436	847	414	438	837

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	209	259	34	17
Volume Left	12	49	3	14
Volume Right	5	12	30	0
cSH	1361	1376	765	418
Volume to Capacity	0.01	0.04	0.04	0.04
Queue Length 95th (m)	0.2	0.9	1.1	1.0
Control Delay (s)	0.5	1.7	9.9	14.0
Lane LOS	A	A	A	B
Approach Delay (s)	0.5	1.7	9.9	14.0
Approach LOS			A	B

Intersection Summary				
Average Delay	2.2			
Intersection Capacity Utilization	37.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	106	13	15	95	33	15	376	36	30	185	34
Future Volume (Veh/h)	34	106	13	15	95	33	15	376	36	30	185	34
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	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	37	115	14	16	103	36	16	409	39	33	201	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)												
pX, platoon unblocked												
vC, conflicting volume	139			129			486	367	122	592	356	121
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	139			129			486	367	122	592	356	121
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.2	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.0	3.3
p0 queue free %	97			99			95	25	96	78	64	96
cM capacity (veh/h)	1457			1469			331	543	935	147	551	922

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	166	155	464	271
Volume Left	37	16	16	33
Volume Right	14	36	39	37
cSH	1457	1469	550	430
Volume to Capacity	0.03	0.01	0.84	0.63
Queue Length 95th (m)	0.6	0.3	70.9	33.7
Control Delay (s)	1.8	0.9	37.3	26.5
Lane LOS	A	A	E	D
Approach Delay (s)	1.8	0.9	37.3	26.5
Approach LOS			E	D

Intersection Summary				
Average Delay	23.6			
Intersection Capacity Utilization	46.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	21	19	408	30	29	184
Future Volume (Veh/h)	21	19	408	30	29	184
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	23	21	448	33	32	202
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	730	464			481	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	730	464			481	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	96			97	
cM capacity (veh/h)	378	598			1082	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	44	481	234
Volume Left	23	0	32
Volume Right	21	33	0
cSH	458	1700	1082
Volume to Capacity	0.10	0.28	0.03
Queue Length 95th (m)	2.5	0.0	0.7
Control Delay (s)	13.7	0.0	1.4
Lane LOS	B		A
Approach Delay (s)	13.7	0.0	1.4
Approach LOS	B		

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	44.2%	ICU Level of Service	A
Analysis Period (min)	15		

Summary of All Intervals

Run Number	1	2	3	Avg
Start Time	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	5006	5028	5108	5044
Vehs Exited	5032	5010	5129	5057
Starting Vehs	292	258	268	271
Ending Vehs	266	276	247	256
Travel Distance (km)	9643	9342	9405	9463
Travel Time (hr)	314.2	259.8	266.6	280.2
Total Delay (hr)	117.5	67.8	74.2	86.5
Total Stops	8645	8017	8191	8284
Fuel Used (l)	818.7	761.3	770.6	783.5

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	Avg
Vehs Entered	5006	5028	5108	5044
Vehs Exited	5032	5010	5129	5057
Starting Vehs	292	258	268	271
Ending Vehs	266	276	247	256
Travel Distance (km)	9643	9342	9405	9463
Travel Time (hr)	314.2	259.8	266.6	280.2
Total Delay (hr)	117.5	67.8	74.2	86.5
Total Stops	8645	8017	8191	8284
Fuel Used (l)	818.7	761.3	770.6	783.5

Intersection: 3: Old Barrie Rd E & University Ave

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (m)	32.9	73.3	125.2	139.5	73.8	111.8
Average Queue (m)	13.5	39.2	41.8	62.0	34.5	58.9
95th Queue (m)	25.9	61.3	78.1	119.7	57.5	94.9
Link Distance (m)		579.8	318.4		1089.4	1089.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	106.0			64.0		
Storage Blk Time (%)			1	11		
Queuing Penalty (veh)			7	34		

Intersection: 5: Old Barrie Rd E & Line 15 N

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	9.9	39.0	39.2	245.0
Average Queue (m)	1.1	11.9	15.4	130.8
95th Queue (m)	5.8	28.7	30.3	334.0
Link Distance (m)	288.0	579.8	1006.6	1844.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: University Ave & Diana Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	57.5	27.5	21.3	49.5	47.4	55.1	29.6	43.2	44.4
Average Queue (m)	25.3	10.9	5.7	16.7	31.3	36.4	10.4	22.4	26.3
95th Queue (m)	45.4	22.6	15.4	34.6	46.2	50.8	22.2	38.5	41.2
Link Distance (m)	144.4	117.8	117.8		1089.4	1089.4		535.9	535.9
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				36.0			58.0		
Storage Blk Time (%)				1	5				
Queuing Penalty (veh)				2	4				

Intersection: 12: University Ave/West Ridge Blvd & Stone Ridge Blvd/Hunter Valley Rd

Movement	EB	EB	WB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	L	T	TR
Maximum Queue (m)	109.7	40.5	13.3	26.5	11.3	3.0	10.4
Average Queue (m)	45.5	16.6	4.8	11.8	2.8	0.2	1.3
95th Queue (m)	106.7	29.3	12.2	25.0	9.8	2.1	6.0
Link Distance (m)	278.2	278.2	176.5			944.3	944.3
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)				42.5	90.0		
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 16: West Ridge Blvd & Monarch Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	144.4	52.0	31.7	17.7	66.1	82.8	52.7	104.5	109.2
Average Queue (m)	67.6	21.1	12.5	6.0	35.2	49.9	40.1	71.6	65.0
95th Queue (m)	118.9	39.2	25.4	15.1	55.8	74.9	63.6	156.6	142.2
Link Distance (m)	173.4	268.3	268.3		944.3	944.3		141.5	141.5
Upstream Blk Time (%)								11	1
Queuing Penalty (veh)								43	3
Storage Bay Dist (m)				47.0			38.0		
Storage Blk Time (%)					2		45	4	
Queuing Penalty (veh)					0		121	4	

Intersection: 19: West Ridge Blvd & Bass Lake Side Rd E

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	83.9	28.3	19.1	44.3	61.9	62.1	50.6	95.4	81.2
Average Queue (m)	43.9	9.8	7.7	17.4	32.2	36.4	11.8	50.9	37.6
95th Queue (m)	73.4	20.9	15.4	33.9	55.3	58.2	35.3	89.6	75.8
Link Distance (m)	514.5	80.4	80.4		141.5	141.5		174.0	174.0
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				39.0			42.0		
Storage Blk Time (%)				0	5			20	
Queuing Penalty (veh)				1	6			14	

Intersection: 23: Bass Lake Side Rd E & Atlantis Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	24.5	25.1	24.3	36.2
Average Queue (m)	14.8	14.3	13.2	16.4
95th Queue (m)	21.6	21.7	21.6	27.7
Link Distance (m)	315.7	514.5	221.1	203.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: Bass Lake Side Rd E & Old Scotia Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	9.0
Average Queue (m)	2.0
95th Queue (m)	8.0
Link Distance (m)	239.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: Bass Lake Side Rd E & Hepinstall Pl

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	8.8	11.5	9.3
Average Queue (m)	0.3	6.7	4.4
95th Queue (m)	2.9	13.3	11.8
Link Distance (m)	315.7	125.7	176.0
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 32: Line 15 N & Bass Lake Side Rd E

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	5.3	8.6	26.5	37.6
Average Queue (m)	0.2	0.9	13.5	19.1
95th Queue (m)	2.1	5.2	23.1	30.4
Link Distance (m)	278.4	157.8	607.9	420.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 35: Line 15 N & Stone Ridge Blvd extension

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	15.6	2.8
Average Queue (m)	8.0	0.1
95th Queue (m)	14.5	1.6
Link Distance (m)	198.7	607.9
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 240

Summary of All Intervals

Run Number	1	2	3	Avg
Start Time	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	6741	6724	6655	6709
Vehs Exited	6172	6049	6172	6131
Starting Vehs	484	419	469	454
Ending Vehs	1053	1094	952	1027
Travel Distance (km)	11442	11482	11535	11486
Travel Time (hr)	1253.7	1202.4	1277.3	1244.5
Total Delay (hr)	1019.0	967.6	1041.5	1009.4
Total Stops	13397	13143	13779	13435
Fuel Used (l)	1722.0	1678.1	1749.9	1716.7

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	Avg
Vehs Entered	6741	6724	6655	6709
Vehs Exited	6172	6049	6172	6131
Starting Vehs	484	419	469	454
Ending Vehs	1053	1094	952	1027
Travel Distance (km)	11442	11482	11535	11486
Travel Time (hr)	1253.7	1202.4	1277.3	1244.5
Total Delay (hr)	1019.0	967.6	1041.5	1009.4
Total Stops	13397	13143	13779	13435
Fuel Used (l)	1722.0	1678.1	1749.9	1716.7

Intersection: 3: Old Barrie Rd E & University Ave

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (m)	57.0	74.1	336.2	164.0	1099.4	1100.6
Average Queue (m)	27.5	37.4	322.3	163.8	988.8	941.7
95th Queue (m)	47.2	62.8	357.1	164.7	1253.7	1296.1
Link Distance (m)		579.8	318.4		1089.4	1089.4
Upstream Blk Time (%)			39		23	15
Queuing Penalty (veh)			0		120	80
Storage Bay Dist (m)	106.0			64.0		
Storage Blk Time (%)			6	75		
Queuing Penalty (veh)			76	388		

Intersection: 5: Old Barrie Rd E & Line 15 N

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	30.1	54.1	894.7	102.5
Average Queue (m)	4.5	11.0	492.3	60.4
95th Queue (m)	17.3	32.3	929.2	114.1
Link Distance (m)	288.0	579.8	1006.6	1844.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: University Ave & Diana Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	54.5	87.6	29.5	51.8	72.8	71.9	74.9	473.6	479.0
Average Queue (m)	25.2	38.8	11.6	31.3	49.5	51.6	33.3	173.4	177.6
95th Queue (m)	46.5	78.3	21.7	54.6	66.9	65.7	82.3	494.1	495.6
Link Distance (m)	144.4	117.8	117.8		1089.4	1089.4		535.9	535.9
Upstream Blk Time (%)								6	7
Queuing Penalty (veh)								32	35
Storage Bay Dist (m)				36.0			58.0		
Storage Blk Time (%)				8	24			43	
Queuing Penalty (veh)				43	51			55	

Intersection: 12: University Ave/West Ridge Blvd & Stone Ridge Blvd/Hunter Valley Rd

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	282.9	289.2	168.2	50.0	57.1	39.9	77.7	251.3	253.6
Average Queue (m)	248.1	191.1	81.5	24.0	4.0	3.4	6.1	25.9	30.3
95th Queue (m)	358.0	399.9	183.6	43.3	25.7	21.9	32.9	153.2	161.0
Link Distance (m)	278.2	278.2	176.5		535.9	535.9		944.3	944.3
Upstream Blk Time (%)	69	58	14						
Queuing Penalty (veh)	0	0	0						
Storage Bay Dist (m)				42.5			90.0		
Storage Blk Time (%)				2				7	
Queuing Penalty (veh)				13				1	

Intersection: 16: West Ridge Blvd & Monarch Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	125.4	89.1	38.6	52.6	107.7	123.0	52.9	141.6	150.5
Average Queue (m)	64.5	45.6	16.8	29.0	60.9	76.0	44.9	90.7	94.1
95th Queue (m)	111.9	79.3	30.9	62.2	115.9	124.4	63.6	157.6	161.6
Link Distance (m)	173.4	268.3	268.3		944.3	944.3		141.5	141.5
Upstream Blk Time (%)								6	3
Queuing Penalty (veh)								34	20
Storage Bay Dist (m)				47.0			38.0		
Storage Blk Time (%)				20	7		57	23	
Queuing Penalty (veh)				76	5		240	18	

Intersection: 19: West Ridge Blvd & Bass Lake Side Rd E

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	55.6	59.8	31.5	44.7	70.0	77.4	65.8	150.0	154.4
Average Queue (m)	27.4	27.7	17.6	12.1	33.3	37.7	31.2	79.4	75.9
95th Queue (m)	47.8	49.9	28.0	28.9	59.2	63.4	69.6	146.3	141.1
Link Distance (m)	514.5	80.4	80.4		141.5	141.5		174.0	174.0
Upstream Blk Time (%)		0						4	3
Queuing Penalty (veh)		0						0	0
Storage Bay Dist (m)				39.0			42.0		
Storage Blk Time (%)				0	6		0	32	
Queuing Penalty (veh)				0	5		0	45	

Intersection: 23: Bass Lake Side Rd E & Atlantis Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	25.0	28.2	22.6	22.8
Average Queue (m)	14.6	14.9	11.0	12.1
95th Queue (m)	21.6	23.0	17.4	19.5
Link Distance (m)	315.7	514.5	221.1	203.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: Bass Lake Side Rd E & Old Scotia Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	9.0
Average Queue (m)	1.8
95th Queue (m)	7.7
Link Distance (m)	239.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: Bass Lake Side Rd E & Hepinstall Pl

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	8.8	16.0	17.1	9.2
Average Queue (m)	0.8	2.5	5.5	3.7
95th Queue (m)	5.0	10.0	14.3	10.8
Link Distance (m)	881.3	315.7	125.7	176.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 32: Line 15 N & Bass Lake Side Rd E

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	10.9	8.1	40.9	31.6
Average Queue (m)	1.3	0.6	21.8	16.0
95th Queue (m)	6.8	4.0	35.0	25.8
Link Distance (m)	278.4	157.8	607.9	420.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

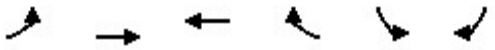
Intersection: 35: Line 15 N & Stone Ridge Blvd extension

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	15.7	17.7
Average Queue (m)	7.2	2.1
95th Queue (m)	14.7	9.7
Link Distance (m)	198.7	607.9
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 1337

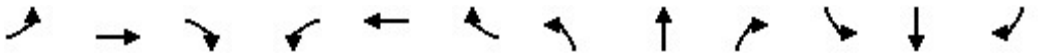
Synchro Analysis – with improvements



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	73	306	197	472	137	368
Future Volume (vph)	73	306	197	472	137	368
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1703	1759	1667	1519	1736	1464
Flt Permitted	0.53	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	950	1759	1667	1519	1736	1464
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	82	344	221	530	154	413
RTOR Reduction (vph)	0	0	0	318	0	256
Lane Group Flow (vph)	82	344	221	212	154	157
Confl. Bikes (#/hr)				1		1
Heavy Vehicles (%)	6%	8%	14%	5%	4%	8%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	50.0	50.0	40.0	40.0	38.0	38.0
Effective Green, g (s)	50.0	50.0	40.0	40.0	38.0	38.0
Actuated g/C Ratio	0.50	0.50	0.40	0.40	0.38	0.38
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	520	879	666	607	659	556
v/s Ratio Prot	0.01	c0.20	0.13		0.09	
v/s Ratio Perm	0.07			0.14		c0.11
v/c Ratio	0.16	0.39	0.33	0.35	0.23	0.28
Uniform Delay, d1	13.4	15.5	20.8	20.9	21.1	21.5
Progression Factor	0.95	0.96	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	1.2	1.3	1.6	0.8	1.3
Delay (s)	13.3	16.2	22.1	22.5	21.9	22.8
Level of Service	B	B	C	C	C	C
Approach Delay (s)		15.7	22.4		22.6	
Approach LOS		B	C		C	

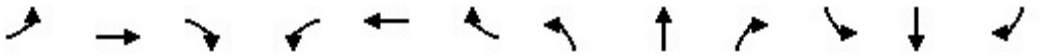
Intersection Summary			
HCM 2000 Control Delay	20.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	43.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	219	33	53	171	50	5	19	39	122	129	9
Future Volume (vph)	4	219	33	53	171	50	5	19	39	122	129	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.98			0.92			1.00	
Flt Protected		1.00			0.99			1.00			0.98	
Satd. Flow (prot)		1717			1636			1416			1830	
Flt Permitted		0.99			0.89			0.98			0.83	
Satd. Flow (perm)		1708			1471			1392			1558	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	4	241	36	58	188	55	5	21	43	134	142	10
RTOR Reduction (vph)	0	13	0	0	19	0	0	21	0	0	2	0
Lane Group Flow (vph)	0	268	0	0	282	0	0	48	0	0	284	0
Heavy Vehicles (%)	0%	8%	14%	9%	15%	6%	100%	7%	21%	0%	1%	13%
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)		14.5			14.5			25.5			25.5	
Effective Green, g (s)		14.5			14.5			25.5			25.5	
Actuated g/C Ratio		0.29			0.29			0.51			0.51	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		495			426			709			794	
v/s Ratio Prot												
v/s Ratio Perm		0.16			c0.19			0.03			c0.18	
v/c Ratio		0.54			0.66			0.07			0.36	
Uniform Delay, d1		15.0			15.6			6.2			7.3	
Progression Factor		1.00			1.29			1.00			1.00	
Incremental Delay, d2		1.2			3.5			0.2			1.3	
Delay (s)		16.2			23.6			6.4			8.6	
Level of Service		B			C			A			A	
Approach Delay (s)		16.2			23.6			6.4			8.6	
Approach LOS		B			C			A			A	

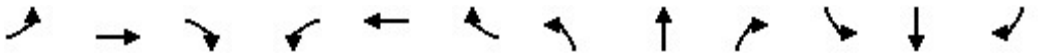
Intersection Summary			
HCM 2000 Control Delay	15.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	16	94	40	10	21	56	313	63	53	350	26
Future Volume (vph)	48	16	94	40	10	21	56	313	63	53	350	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.92			1.00	0.85	1.00	0.97		1.00	0.99	
Flt Protected		0.99			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1658			1784	1429	1638	3319		1719	3408	
Flt Permitted		0.90			0.75	1.00	0.51	1.00		0.40	1.00	
Satd. Flow (perm)		1522			1386	1429	883	3319		732	3408	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	52	17	102	43	11	23	61	340	68	58	380	28
RTOR Reduction (vph)	0	67	0	0	0	15	0	23	0	0	8	0
Lane Group Flow (vph)	0	104	0	0	54	8	61	385	0	58	401	0
Confl. Peds. (#/hr)			1	1			2					2
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	4%	0%	3%	3%	0%	13%	10%	5%	9%	5%	5%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Effective Green, g (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Actuated g/C Ratio		0.35			0.35	0.35	0.28	0.28		0.50	0.50	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Grp Cap (vph)		528			481	496	245	921		530	1704	
v/s Ratio Prot								c0.12		0.02	c0.12	
v/s Ratio Perm		c0.07			0.04	0.01	0.07			0.04		
v/c Ratio		0.20			0.11	0.02	0.25	0.42		0.11	0.24	
Uniform Delay, d1		16.5			16.0	15.4	20.2	21.2		9.5	10.2	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.8			0.5	0.1	2.4	1.4		0.4	0.3	
Delay (s)		17.3			16.4	15.5	22.6	22.6		9.9	10.5	
Level of Service		B			B	B	C	C		A	B	
Approach Delay (s)		17.3			16.2			22.6			10.4	
Approach LOS		B			B			C			B	

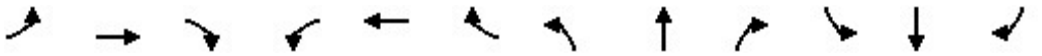
Intersection Summary			
HCM 2000 Control Delay	16.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	4	101	2	1	12	49	389	12	18	403	67
Future Volume (vph)	91	4	101	2	1	12	49	389	12	18	403	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.86			0.89		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1684	1523			1663		1582	3490		1805	3345	
Flt Permitted	0.75	1.00			0.96		0.47	1.00		0.50	1.00	
Satd. Flow (perm)	1325	1523			1600		781	3490		956	3345	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	97	4	107	2	1	13	52	414	13	19	429	71
RTOR Reduction (vph)	0	92	0	0	11	0	0	2	0	0	12	0
Lane Group Flow (vph)	97	19	0	0	5	0	52	425	0	19	488	0
Confl. Peds. (#/hr)	2					2	1					1
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	7%	0%	7%	0%	0%	0%	14%	3%	0%	0%	5%	7%
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)	8.6	8.6			8.6		41.4	41.4		41.4	41.4	
Effective Green, g (s)	8.6	8.6			8.6		41.4	41.4		41.4	41.4	
Actuated g/C Ratio	0.14	0.14			0.14		0.69	0.69		0.69	0.69	
Clearance Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	189	218			229		538	2408		659	2308	
v/s Ratio Prot		0.01						0.12			c0.15	
v/s Ratio Perm	c0.07				0.00		0.07			0.02		
v/c Ratio	0.51	0.09			0.02		0.10	0.18		0.03	0.21	
Uniform Delay, d1	23.8	22.3			22.1		3.1	3.3		2.9	3.4	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.3	0.2			0.0		0.4	0.2		0.1	0.2	
Delay (s)	26.1	22.5			22.1		3.4	3.4		3.0	3.6	
Level of Service	C	C			C		A	A		A	A	
Approach Delay (s)		24.2			22.1			3.4			3.6	
Approach LOS		C			C			A			A	

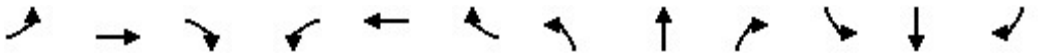
Intersection Summary			
HCM 2000 Control Delay	7.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	56.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	118	41	117	52	40	13	281	204	73	345	71
Future Volume (vph)	98	118	41	117	52	40	13	281	204	73	345	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00	0.99		1.00	0.98		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		0.99	1.00	
Frt		0.98		1.00	0.93		1.00	0.94		1.00	0.97	
Flt Protected		0.98		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1781		1731	1698		1804	3216		1659	3380	
Flt Permitted		0.83		0.53	1.00		0.47	1.00		0.41	1.00	
Satd. Flow (perm)		1509		961	1698		893	3216		724	3380	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	108	130	45	129	57	44	14	309	224	80	379	78
RTOR Reduction (vph)	0	9	0	0	24	0	0	137	0	0	23	0
Lane Group Flow (vph)	0	274	0	129	77	0	14	396	0	80	434	0
Confl. Peds. (#/hr)	3		11	11		3	1		11	11		1
Confl. Bikes (#/hr)			2			1						1
Heavy Vehicles (%)	4%	1%	0%	4%	0%	9%	0%	4%	3%	8%	4%	2%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio		0.32		0.45	0.45		0.39	0.39		0.39	0.39	
Clearance Time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		482		507	769		345	1243		279	1306	
v/s Ratio Prot				c0.02	0.05			0.12			c0.13	
v/s Ratio Perm		c0.18		0.09			0.02			0.11		
v/c Ratio		0.57		0.25	0.10		0.04	0.32		0.29	0.33	
Uniform Delay, d1		21.2		12.8	11.7		14.3	16.1		15.9	16.2	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		4.8		1.2	0.3		0.2	0.7		2.6	0.7	
Delay (s)		26.0		14.0	12.0		14.6	16.8		18.4	16.9	
Level of Service		C		B	B		B	B		B	B	
Approach Delay (s)		26.0			13.1			16.7			17.1	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

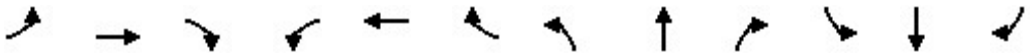
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	34	98	24	15	49	77	343	15	45	372	34
Future Volume (vph)	93	34	98	24	15	49	77	343	15	45	372	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.94			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1674			1843	1516	1717	3410		1751	3377	
Flt Permitted		0.85			0.77	1.00	0.48	1.00		0.52	1.00	
Satd. Flow (perm)		1446			1464	1516	863	3410		955	3377	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	102	37	108	26	16	54	85	377	16	49	409	37
RTOR Reduction (vph)	0	36	0	0	0	38	0	4	0	0	8	0
Lane Group Flow (vph)	0	211	0	0	42	16	85	389	0	49	438	0
Confl. Peds. (#/hr)							2		1	1		2
Confl. Bikes (#/hr)						3			3			1
Heavy Vehicles (%)	6%	0%	5%	0%	0%	5%	5%	5%	8%	3%	5%	9%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Effective Green, g (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Actuated g/C Ratio		0.30			0.30	0.30	0.51	0.41		0.51	0.41	
Clearance Time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Grp Cap (vph)		439			444	460	523	1381		564	1367	
v/s Ratio Prot							c0.02	0.11		0.01	c0.13	
v/s Ratio Perm		c0.15			0.03	0.01	0.07			0.04		
v/c Ratio		0.48			0.09	0.04	0.16	0.28		0.09	0.32	
Uniform Delay, d1		22.4			19.7	19.4	10.1	15.8		9.9	16.1	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		3.8			0.4	0.1	0.7	0.5		0.3	0.6	
Delay (s)		26.2			20.1	19.5	10.8	16.3		10.2	16.7	
Level of Service		C			C	B	B	B		B	B	
Approach Delay (s)		26.2			19.8			15.3			16.0	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	49.7%	ICU Level of Service	A
Analysis Period (min)	15		

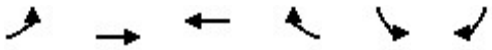
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	31	104	5	19	37	63	7	54	32	78	32	30
Future Volume (vph)	31	104	5	19	37	63	7	54	32	78	32	30
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Hourly flow rate (vph)	50	168	8	31	60	102	11	87	52	126	52	48

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	226	193	150	226
Volume Left (vph)	50	31	11	126
Volume Right (vph)	8	102	52	48
Hadj (s)	0.05	-0.21	-0.09	0.12
Departure Headway (s)	5.3	5.1	5.3	5.4
Degree Utilization, x	0.33	0.27	0.22	0.34
Capacity (veh/h)	630	647	606	618
Control Delay (s)	10.9	10.0	9.8	11.1
Approach Delay (s)	10.9	10.0	9.8	11.1
Approach LOS	B	A	A	B

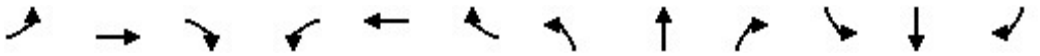
Intersection Summary				
Delay	10.5			
Level of Service	B			
Intersection Capacity Utilization	33.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	70	56	2	5	0
Future Volume (Veh/h)	0	70	56	2	5	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	76	61	2	5	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	63				138	62
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	63				138	62
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1540				855	1003

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	76	63	5
Volume Left	0	0	5
Volume Right	0	2	0
cSH	1540	1700	855
Volume to Capacity	0.00	0.04	0.01
Queue Length 95th (m)	0.0	0.0	0.1
Control Delay (s)	0.0	0.0	9.2
Lane LOS			A
Approach Delay (s)	0.0	0.0	9.2
Approach LOS			A

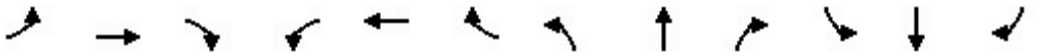
Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	13.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	83	3	10	60	4	2	2	44	13	3	0
Future Volume (Veh/h)	1	83	3	10	60	4	2	2	44	13	3	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	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	90	3	11	65	4	2	2	48	14	3	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	69			93			184	184	92	232	184	67
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	69			93			184	184	92	232	184	67
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	95	98	100	100
cM capacity (veh/h)	1532			1501			770	704	966	682	705	997

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	94	80	52	17
Volume Left	1	11	2	14
Volume Right	3	4	48	0
cSH	1532	1501	943	686
Volume to Capacity	0.00	0.01	0.06	0.02
Queue Length 95th (m)	0.0	0.2	1.4	0.6
Control Delay (s)	0.1	1.1	9.0	10.4
Lane LOS	A	A	A	B
Approach Delay (s)	0.1	1.1	9.0	10.4
Approach LOS			A	B

Intersection Summary				
Average Delay	3.0			
Intersection Capacity Utilization	23.4%	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 (veh/h)	17	53	7	23	30	3	11	56	12	6	228	13
Future Volume (Veh/h)	17	53	7	23	30	3	11	56	12	6	228	13
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	20	61	8	26	34	3	13	64	14	7	262	15
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	37			69			338	194	65	238	196	36
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	37			69			338	194	65	238	196	36
tC, single (s)	4.2			4.1			7.1	6.6	6.2	7.3	6.5	6.4
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.1	3.3	3.7	4.0	3.5
p0 queue free %	99			98			97	90	99	99	62	98
cM capacity (veh/h)	1542			1545			418	670	1005	599	682	993

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	89	63	91	284
Volume Left	20	26	13	7
Volume Right	8	3	14	15
cSH	1542	1545	648	691
Volume to Capacity	0.01	0.02	0.14	0.41
Queue Length 95th (m)	0.3	0.4	3.9	16.1
Control Delay (s)	1.7	3.1	11.5	13.8
Lane LOS	A	A	B	B
Approach Delay (s)	1.7	3.1	11.5	13.8
Approach LOS			B	B

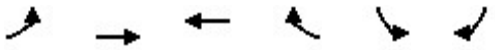
Intersection Summary				
Average Delay	10.1			
Intersection Capacity Utilization	25.8%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	13	67	7	6	253
Future Volume (Veh/h)	10	13	67	7	6	253
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)	11	14	73	8	7	275
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	366	77			81	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	366	77			81	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	99			100	
cM capacity (veh/h)	631	984			1517	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	25	81	282
Volume Left	11	0	7
Volume Right	14	8	0
cSH	789	1700	1517
Volume to Capacity	0.03	0.05	0.00
Queue Length 95th (m)	0.8	0.0	0.1
Control Delay (s)	9.7	0.0	0.2
Lane LOS	A		A
Approach Delay (s)	9.7	0.0	0.2
Approach LOS	A		

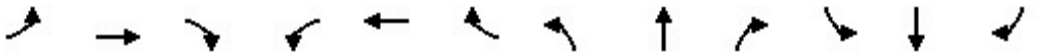
Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	28.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	148	308	331	749	650	168
Future Volume (vph)	148	308	331	749	650	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1703	1759	1667	1518	1736	1461
Flt Permitted	0.29	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	521	1759	1667	1518	1736	1461
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	159	331	356	805	699	181
RTOR Reduction (vph)	0	0	0	572	0	92
Lane Group Flow (vph)	159	331	356	233	699	89
Confl. Peds. (#/hr)	1			1		
Confl. Bikes (#/hr)						4
Heavy Vehicles (%)	6%	8%	14%	5%	4%	8%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	39.0	39.0	29.0	29.0	49.0	49.0
Effective Green, g (s)	39.0	39.0	29.0	29.0	49.0	49.0
Actuated g/C Ratio	0.39	0.39	0.29	0.29	0.49	0.49
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	274	686	483	440	850	715
v/s Ratio Prot	c0.03	0.19	c0.21		c0.40	
v/s Ratio Perm	0.19			0.15		0.06
v/c Ratio	0.58	0.48	0.74	0.53	0.82	0.12
Uniform Delay, d1	22.5	22.9	32.1	29.8	21.8	13.8
Progression Factor	0.98	1.01	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.3	2.3	9.7	4.5	8.8	0.4
Delay (s)	30.3	25.4	41.7	34.3	30.6	14.2
Level of Service	C	C	D	C	C	B
Approach Delay (s)		27.0	36.6		27.2	
Approach LOS		C	D		C	

Intersection Summary			
HCM 2000 Control Delay	31.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	77.5%	ICU Level of Service	D
Analysis Period (min)	15		

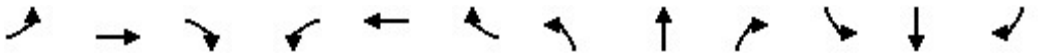
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	277	7	44	323	133	25	131	80	98	23	6
Future Volume (vph)	9	277	7	44	323	133	25	131	80	98	23	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.96			0.95			0.99	
Flt Protected		1.00			1.00			0.99			0.96	
Satd. Flow (prot)		1840			1774			1766			1763	
Flt Permitted		0.98			0.94			0.96			0.69	
Satd. Flow (perm)		1805			1682			1712			1264	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	10	304	8	48	355	146	27	144	88	108	25	7
RTOR Reduction (vph)	0	2	0	0	29	0	0	34	0	0	3	0
Lane Group Flow (vph)	0	320	0	0	520	0	0	225	0	0	137	0
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	2%	33%	11%	2%	2%	0%	2%	3%	4%	0%	0%
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)		19.0			19.0			21.0			21.0	
Effective Green, g (s)		19.0			19.0			21.0			21.0	
Actuated g/C Ratio		0.38			0.38			0.42			0.42	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		685			639			719			530	
v/s Ratio Prot												
v/s Ratio Perm		0.18			c0.31			c0.13			0.11	
v/c Ratio		0.47			0.81			0.31			0.26	
Uniform Delay, d1		11.7			13.9			9.7			9.4	
Progression Factor		1.00			1.75			1.00			1.00	
Incremental Delay, d2		0.5			6.7			1.1			1.2	
Delay (s)		12.2			31.0			10.8			10.6	
Level of Service		B			C			B			B	
Approach Delay (s)		12.2			31.0			10.8			10.6	
Approach LOS		B			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		

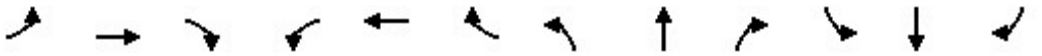
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	11	74	115	30	78	127	668	66	85	452	35
Future Volume (vph)	31	11	74	115	30	78	127	668	66	85	452	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	0.99	1.00		1.00	1.00	
Frt		0.91			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1677			1813	1555	1796	3467		1805	3466	
Flt Permitted		0.90			0.73	1.00	0.46	1.00		0.17	1.00	
Satd. Flow (perm)		1530			1374	1555	861	3467		317	3466	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	12	80	125	33	85	138	726	72	92	491	38
RTOR Reduction (vph)	0	52	0	0	0	55	0	10	0	0	8	0
Lane Group Flow (vph)	0	74	0	0	158	30	138	788	0	92	521	0
Confl. Peds. (#/hr)	5					5	6		4	4		6
Confl. Bikes (#/hr)			2			3			2			4
Heavy Vehicles (%)	0%	0%	2%	1%	0%	2%	0%	2%	7%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Effective Green, g (s)		25.0			25.0	25.0	20.0	20.0		36.0	36.0	
Actuated g/C Ratio		0.35			0.35	0.35	0.28	0.28		0.50	0.50	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Grp Cap (vph)		531			477	539	239	963		406	1733	
v/s Ratio Prot								c0.23		0.04	c0.15	
v/s Ratio Perm		0.05			c0.11	0.02	0.16			0.08		
v/c Ratio		0.14			0.33	0.05	0.58	0.82		0.23	0.30	
Uniform Delay, d1		16.1			17.3	15.6	22.4	24.3		11.0	10.6	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.5			1.9	0.2	9.8	7.7		1.3	0.4	
Delay (s)		16.7			19.2	15.8	32.2	32.0		12.3	11.0	
Level of Service		B			B	B	C	C		B	B	
Approach Delay (s)		16.7			18.0			32.0			11.2	
Approach LOS		B			B			C			B	

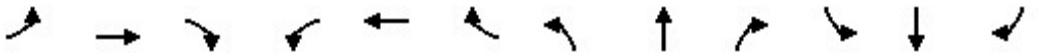
Intersection Summary			
HCM 2000 Control Delay	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	4	90	19	2	41	118	806	6	11	543	116
Future Volume (vph)	75	4	90	19	2	41	118	806	6	11	543	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.98			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.86			0.91		1.00	1.00		1.00	0.97	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1795	1541			1560		1733	3564		1357	3443	
Flt Permitted	0.71	1.00			0.86		0.37	1.00		0.30	1.00	
Satd. Flow (perm)	1346	1541			1366		676	3564		429	3443	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	84	4	101	21	2	46	133	906	7	12	610	130
RTOR Reduction (vph)	0	87	0	0	40	0	0	1	0	0	16	0
Lane Group Flow (vph)	84	18	0	0	29	0	133	912	0	12	724	0
Confl. Peds. (#/hr)	8		4	4		8	3					3
Confl. Bikes (#/hr)			1						2			3
Heavy Vehicles (%)	0%	0%	4%	19%	0%	3%	4%	1%	20%	33%	2%	0%
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)	8.1	8.1			8.1		41.9	41.9		41.9	41.9	
Effective Green, g (s)	8.1	8.1			8.1		41.9	41.9		41.9	41.9	
Actuated g/C Ratio	0.13	0.13			0.13		0.70	0.70		0.70	0.70	
Clearance Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	181	208			184		472	2488		299	2404	
v/s Ratio Prot		0.01						c0.26			0.21	
v/s Ratio Perm	c0.06				0.02		0.20			0.03		
v/c Ratio	0.46	0.08			0.16		0.28	0.37		0.04	0.30	
Uniform Delay, d1	23.9	22.7			22.9		3.4	3.7		2.8	3.5	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.9	0.2			0.4		1.5	0.4		0.3	0.3	
Delay (s)	25.8	22.9			23.3		4.9	4.1		3.1	3.8	
Level of Service	C	C			C		A	A		A	A	
Approach Delay (s)		24.2			23.3			4.2			3.8	
Approach LOS		C			C			A			A	

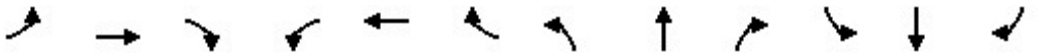
Intersection Summary			
HCM 2000 Control Delay	6.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	129	32	224	64	65	39	452	386	53	496	143
Future Volume (vph)	77	129	32	224	64	65	39	452	386	53	496	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00	0.99		1.00	0.98		1.00	0.99	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.98		1.00	0.92		1.00	0.93		1.00	0.97	
Flt Protected		0.98		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1807		1782	1723		1804	3253		1799	3401	
Flt Permitted		0.84		0.52	1.00		0.29	1.00		0.18	1.00	
Satd. Flow (perm)		1544		979	1723		555	3253		338	3401	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	88	147	36	255	73	74	44	514	439	60	564	162
RTOR Reduction (vph)	0	7	0	0	40	0	0	207	0	0	36	0
Lane Group Flow (vph)	0	264	0	255	107	0	44	746	0	60	691	0
Confl. Peds. (#/hr)	3		11	11		3	1		11	11		1
Confl. Bikes (#/hr)			2			7			1			4
Heavy Vehicles (%)	0%	1%	5%	1%	0%	2%	0%	2%	1%	0%	2%	2%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio		0.32		0.45	0.45		0.39	0.39		0.39	0.39	
Clearance Time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		494		518	781		214	1257		130	1315	
v/s Ratio Prot				c0.05	0.06			c0.23			0.20	
v/s Ratio Perm		0.17		c0.18			0.08			0.18		
v/c Ratio		0.53		0.49	0.14		0.21	0.59		0.46	0.53	
Uniform Delay, d1		20.9		13.8	11.9		15.3	18.3		17.2	17.7	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		4.1		3.3	0.4		2.2	2.1		11.3	1.5	
Delay (s)		25.0		17.1	12.3		17.5	20.4		28.5	19.2	
Level of Service		C		B	B		B	C		C	B	
Approach Delay (s)		25.0			15.3			20.3			19.9	
Approach LOS		C			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	102.4%	ICU Level of Service	G
Analysis Period (min)	15		

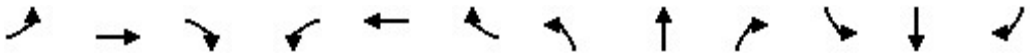
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	40	64	73	46	156	55	505	38	91	556	58
Future Volume (vph)	52	40	64	73	46	156	55	505	38	91	556	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.94			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1755			1842	1576	1803	3500		1785	3454	
Flt Permitted		0.86			0.76	1.00	0.34	1.00		0.39	1.00	
Satd. Flow (perm)		1536			1437	1576	644	3500		727	3454	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	55	43	68	78	49	166	59	537	40	97	591	62
RTOR Reduction (vph)	0	31	0	0	0	116	0	7	0	0	10	0
Lane Group Flow (vph)	0	135	0	0	127	50	59	570	0	97	643	0
Confl. Peds. (#/hr)	1		2	2		1	4		3	3		4
Confl. Bikes (#/hr)						2						1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	2%	0%	1%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Effective Green, g (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Actuated g/C Ratio		0.30			0.30	0.30	0.51	0.41		0.51	0.41	
Clearance Time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Grp Cap (vph)		466			436	478	443	1417		475	1399	
v/s Ratio Prot							0.01	0.16		c0.02	c0.19	
v/s Ratio Perm		0.09			c0.09	0.03	0.05			0.08		
v/c Ratio		0.29			0.29	0.11	0.13	0.40		0.20	0.46	
Uniform Delay, d1		21.0			21.0	19.8	10.1	16.7		10.3	17.2	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.6			1.7	0.4	0.6	0.9		1.0	1.1	
Delay (s)		22.6			22.7	20.2	10.8	17.6		11.2	18.3	
Level of Service		C			C	C	B	B		B	B	
Approach Delay (s)		22.6			21.3			16.9			17.4	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		

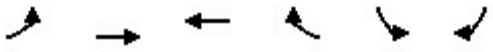
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	19	116	11	24	136	21	6	54	25	32	43	19
Future Volume (vph)	19	116	11	24	136	21	6	54	25	32	43	19
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	21	127	12	26	149	23	7	59	27	35	47	21

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	160	198	93	103
Volume Left (vph)	21	26	7	35
Volume Right (vph)	12	23	27	21
Hadj (s)	-0.02	-0.04	-0.12	-0.01
Departure Headway (s)	4.6	4.5	4.8	4.9
Degree Utilization, x	0.20	0.25	0.12	0.14
Capacity (veh/h)	732	749	694	679
Control Delay (s)	8.8	9.1	8.4	8.6
Approach Delay (s)	8.8	9.1	8.4	8.6
Approach LOS	A	A	A	A

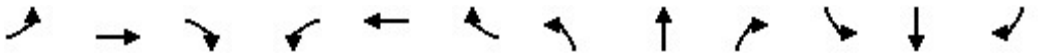
Intersection Summary				
Delay	8.8			
Level of Service	A			
Intersection Capacity Utilization	31.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	110	93	6	4	0
Future Volume (Veh/h)	0	110	93	6	4	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	121	102	7	4	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	109				226	106
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	109				226	106
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1481				762	949

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	121	109	4
Volume Left	0	0	4
Volume Right	0	7	0
cSH	1481	1700	762
Volume to Capacity	0.00	0.06	0.01
Queue Length 95th (m)	0.0	0.0	0.1
Control Delay (s)	0.0	0.0	9.8
Lane LOS			A
Approach Delay (s)	0.0	0.0	9.8
Approach LOS			A

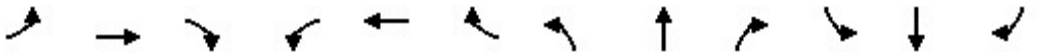
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	15.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	109	5	45	109	7	3	1	28	8	3	0
Future Volume (Veh/h)	7	109	5	45	109	7	3	1	28	8	3	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.92	0.92	0.91	0.91	0.92	0.92	0.92	0.91	0.92	0.91
Hourly flow rate (vph)	8	120	5	49	120	8	3	1	30	9	3	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	128			125			362	364	122	391	363	124
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	128			125			362	364	122	391	363	124
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 %	99			97			99	100	97	98	99	100
cM capacity (veh/h)	1458			1462			574	542	929	533	543	927

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	133	177	34	12
Volume Left	8	49	3	9
Volume Right	5	8	30	0
cSH	1458	1462	863	535
Volume to Capacity	0.01	0.03	0.04	0.02
Queue Length 95th (m)	0.1	0.8	1.0	0.5
Control Delay (s)	0.5	2.3	9.3	11.9
Lane LOS	A	A	A	B
Approach Delay (s)	0.5	2.3	9.3	11.9
Approach LOS			A	B

Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	25.3%	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 (veh/h)	22	70	7	9	63	21	8	241	22	19	115	22
Future Volume (Veh/h)	22	70	7	9	63	21	8	241	22	19	115	22
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	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	24	76	8	10	68	23	9	262	24	21	125	24
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	91			84			314	239	80	382	232	80
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	91			84			314	239	80	382	232	80
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.2	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.0	3.3
p0 queue free %	98			99			98	60	98	94	81	98
cM capacity (veh/h)	1517			1526			526	649	986	373	655	973

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	108	101	295	170
Volume Left	24	10	9	21
Volume Right	8	23	24	24
cSH	1517	1526	663	626
Volume to Capacity	0.02	0.01	0.45	0.27
Queue Length 95th (m)	0.4	0.2	18.3	8.8
Control Delay (s)	1.7	0.8	14.7	12.9
Lane LOS	A	A	B	B
Approach Delay (s)	1.7	0.8	14.7	12.9
Approach LOS			B	B

Intersection Summary				
Average Delay	10.1			
Intersection Capacity Utilization	33.0%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	7	6	264	10	10	121
Future Volume (Veh/h)	7	6	264	10	10	121
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	8	7	290	11	11	133
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	450	296			301	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	450	296			301	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	99			99	
cM capacity (veh/h)	562	744			1260	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	15	301	144
Volume Left	8	0	11
Volume Right	7	11	0
cSH	634	1700	1260
Volume to Capacity	0.02	0.18	0.01
Queue Length 95th (m)	0.6	0.0	0.2
Control Delay (s)	10.8	0.0	0.7
Lane LOS	B		A
Approach Delay (s)	10.8	0.0	0.7
Approach LOS	B		

Intersection Summary			
Average Delay		0.6	
Intersection Capacity Utilization		24.6%	ICU Level of Service A
Analysis Period (min)		15	

Summary of All Intervals

Run Number	1	2	3	Avg
Start Time	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	3092	3252	3255	3199
Vehs Exited	3125	3238	3244	3202
Starting Vehs	188	143	150	159
Ending Vehs	155	157	161	157
Travel Distance (km)	6001	6033	6094	6043
Travel Time (hr)	154.6	156.7	157.8	156.3
Total Delay (hr)	32.4	33.7	33.4	33.2
Total Stops	4817	5006	5012	4945
Fuel Used (l)	475.8	480.4	481.5	479.2

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	Avg
Vehs Entered	3092	3252	3255	3199
Vehs Exited	3125	3238	3244	3202
Starting Vehs	188	143	150	159
Ending Vehs	155	157	161	157
Travel Distance (km)	6001	6033	6094	6043
Travel Time (hr)	154.6	156.7	157.8	156.3
Total Delay (hr)	32.4	33.7	33.4	33.2
Total Stops	4817	5006	5012	4945
Fuel Used (l)	475.8	480.4	481.5	479.2

Intersection: 3: Old Barrie Rd E & University Ave

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (m)	26.6	67.8	66.6	45.6	42.1	58.4
Average Queue (m)	12.6	36.3	27.2	24.3	17.7	26.7
95th Queue (m)	23.6	60.6	49.1	39.6	34.3	50.3
Link Distance (m)		579.8	318.4		1089.4	1089.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	106.0			64.0		
Storage Blk Time (%)			0			
Queuing Penalty (veh)			1			

Intersection: 5: Old Barrie Rd E & Line 15 N

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	66.8	76.9	28.9	49.3
Average Queue (m)	28.5	36.2	7.4	22.4
95th Queue (m)	50.3	59.8	19.7	40.5
Link Distance (m)	288.0	579.8	1006.6	1844.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: University Ave & Diana Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	31.4	22.3	19.5	29.6	41.3	46.3	23.7	31.0	39.3
Average Queue (m)	14.3	7.8	4.1	11.1	20.3	26.8	8.0	12.4	17.4
95th Queue (m)	25.0	18.4	13.1	24.8	35.0	40.7	18.4	25.3	32.1
Link Distance (m)	144.4	117.8	117.8		1089.4	1089.4		535.9	535.9
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				36.0			58.0		
Storage Blk Time (%)				0	1				
Queuing Penalty (veh)				0	0				

Intersection: 12: University Ave/West Ridge Blvd & Stone Ridge Blvd/Hunter Valley Rd

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	36.9	26.6	11.5	26.5	27.0	30.6	13.5	23.8	30.4
Average Queue (m)	16.8	12.7	3.3	8.1	7.8	8.8	2.8	8.0	10.4
95th Queue (m)	31.1	21.7	10.5	20.6	20.6	23.9	10.4	20.1	23.4
Link Distance (m)	278.2	278.2	176.5		535.9	535.9		944.3	944.3
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				42.5			90.0		
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 16: West Ridge Blvd & Monarch Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	75.0	32.0	30.5	10.4	48.3	65.0	39.2	44.9	44.6
Average Queue (m)	29.8	14.9	10.3	2.6	17.2	29.0	15.7	18.6	21.8
95th Queue (m)	52.8	26.8	21.1	9.4	34.4	51.7	32.9	37.6	38.4
Link Distance (m)	173.4	268.3	268.3		944.3	944.3		141.5	141.5
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				47.0			38.0		
Storage Blk Time (%)					0		0	1	
Queuing Penalty (veh)					0		0	1	

Intersection: 19: West Ridge Blvd & Bass Lake Side Rd E

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	54.3	21.2	18.7	36.0	48.0	45.1	17.0	53.8	46.2
Average Queue (m)	26.9	7.1	6.5	11.3	17.6	21.3	5.5	26.6	15.8
95th Queue (m)	45.8	16.8	15.4	27.7	34.6	38.2	14.5	44.8	34.4
Link Distance (m)	514.5	80.4	80.4		141.5	141.5		174.0	174.0
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				39.0			42.0		
Storage Blk Time (%)				0	0			1	
Queuing Penalty (veh)				0	0			1	

Intersection: 23: Bass Lake Side Rd E & Atlantis Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	20.2	22.0	19.5	25.0
Average Queue (m)	12.3	11.5	9.8	12.1
95th Queue (m)	18.5	18.1	16.6	19.7
Link Distance (m)	315.7	514.5	221.1	203.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: Bass Lake Side Rd E & Old Scotia Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	9.0
Average Queue (m)	1.7
95th Queue (m)	7.4
Link Distance (m)	239.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: Bass Lake Side Rd E & Hepinstall Pl

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	6.1	16.1	9.3
Average Queue (m)	0.2	7.5	4.8
95th Queue (m)	2.4	14.1	12.3
Link Distance (m)	315.7	125.7	176.0
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 32: Line 15 N & Bass Lake Side Rd E

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	4.5	5.7	21.2	26.9
Average Queue (m)	0.2	0.3	10.4	14.4
95th Queue (m)	1.8	2.7	18.6	22.7
Link Distance (m)	278.4	157.8	607.9	420.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 35: Line 15 N & Stone Ridge Blvd extension

Movement	WB
Directions Served	LR
Maximum Queue (m)	11.3
Average Queue (m)	4.7
95th Queue (m)	12.1
Link Distance (m)	198.7
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 4

Summary of All Intervals

Run Number	1	2	3	Avg
Start Time	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	4669	4644	4724	4675
Vehs Exited	4678	4619	4754	4683
Starting Vehs	272	231	266	253
Ending Vehs	263	256	236	247
Travel Distance (km)	8881	8645	8945	8824
Travel Time (hr)	247.3	246.7	254.7	249.6
Total Delay (hr)	65.0	69.1	70.7	68.3
Total Stops	7688	7673	7901	7745
Fuel Used (l)	722.5	707.8	732.2	720.8

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	Avg
Vehs Entered	4669	4644	4724	4675
Vehs Exited	4678	4619	4754	4683
Starting Vehs	272	231	266	253
Ending Vehs	263	256	236	247
Travel Distance (km)	8881	8645	8945	8824
Travel Time (hr)	247.3	246.7	254.7	249.6
Total Delay (hr)	65.0	69.1	70.7	68.3
Total Stops	7688	7673	7901	7745
Fuel Used (l)	722.5	707.8	732.2	720.8

Intersection: 3: Old Barrie Rd E & University Ave

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (m)	56.6	76.1	223.9	153.8	155.2	58.6
Average Queue (m)	27.6	40.9	79.6	88.0	78.6	14.0
95th Queue (m)	48.2	63.8	184.7	163.4	136.6	32.7
Link Distance (m)		579.8	318.4		1089.4	1089.4
Upstream Blk Time (%)			0			
Queuing Penalty (veh)			0			
Storage Bay Dist (m)	106.0			64.0		
Storage Blk Time (%)			6	29		
Queuing Penalty (veh)			46	97		

Intersection: 5: Old Barrie Rd E & Line 15 N

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	56.2	151.1	38.2	33.6
Average Queue (m)	28.0	56.1	18.0	14.7
95th Queue (m)	46.3	111.3	30.2	28.1
Link Distance (m)	288.0	579.8	1006.6	1844.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: University Ave & Diana Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	30.7	36.0	29.9	51.8	69.9	68.8	31.4	34.4	42.2
Average Queue (m)	13.1	16.8	9.7	21.2	44.1	48.7	10.5	15.8	20.7
95th Queue (m)	24.9	30.3	21.3	39.7	63.1	65.3	22.5	28.9	36.7
Link Distance (m)	144.4	117.8	117.8		1089.4	1089.4		535.9	535.9
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				36.0			58.0		
Storage Blk Time (%)				0	15				
Queuing Penalty (veh)				1	18				

Intersection: 12: University Ave/West Ridge Blvd & Stone Ridge Blvd/Hunter Valley Rd

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	28.2	17.9	26.6	32.4	51.2	55.1	17.4	45.5	55.4
Average Queue (m)	13.4	10.3	9.8	15.7	18.3	19.8	2.4	15.3	19.6
95th Queue (m)	23.5	17.9	20.1	30.0	40.4	44.5	10.5	32.0	38.1
Link Distance (m)	278.2	278.2	176.5		535.9	535.9		944.3	944.3
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				42.5			90.0		
Storage Blk Time (%)					0				
Queuing Penalty (veh)					1				

Intersection: 16: West Ridge Blvd & Monarch Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	59.0	52.1	30.6	23.3	79.3	100.0	50.7	64.8	74.4
Average Queue (m)	29.9	24.2	12.4	8.1	34.9	54.0	15.8	30.3	35.6
95th Queue (m)	50.8	40.0	24.3	18.7	60.0	85.9	36.6	54.4	64.7
Link Distance (m)	173.4	268.3	268.3		944.3	944.3		141.5	141.5
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				47.0			38.0		
Storage Blk Time (%)					1		3	5	
Queuing Penalty (veh)					0		8	2	

Intersection: 19: West Ridge Blvd & Bass Lake Side Rd E

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	42.5	38.0	24.9	35.8	51.9	52.8	25.5	58.5	59.7
Average Queue (m)	19.7	16.5	12.1	8.2	23.4	26.9	11.1	34.3	28.8
95th Queue (m)	34.9	30.4	20.3	20.6	43.0	47.6	21.0	53.9	50.0
Link Distance (m)	514.5	80.4	80.4		141.5	141.5		174.0	174.0
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				39.0			42.0		
Storage Blk Time (%)					2			3	
Queuing Penalty (veh)					1			2	

Intersection: 23: Bass Lake Side Rd E & Atlantis Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	19.0	26.7	17.6	17.9
Average Queue (m)	12.4	12.7	8.9	10.0
95th Queue (m)	18.8	20.4	14.5	15.3
Link Distance (m)	315.7	514.5	221.1	203.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: Bass Lake Side Rd E & Old Scotia Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	9.0
Average Queue (m)	1.3
95th Queue (m)	6.5
Link Distance (m)	239.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: Bass Lake Side Rd E & Hepinstall Pl

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	11.4	11.2	11.6
Average Queue (m)	1.7	5.8	3.7
95th Queue (m)	7.7	13.0	11.3
Link Distance (m)	315.7	125.7	176.0
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 32: Line 15 N & Bass Lake Side Rd E

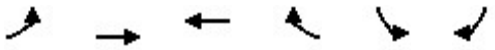
Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	8.4	4.5	33.6	24.2
Average Queue (m)	0.7	0.2	19.0	12.4
95th Queue (m)	4.4	1.8	28.3	19.6
Link Distance (m)	278.4	157.8	607.9	420.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 35: Line 15 N & Stone Ridge Blvd extension

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	9.2	8.4
Average Queue (m)	3.1	0.6
95th Queue (m)	10.2	5.2
Link Distance (m)	198.7	607.9
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 178



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	175	371	402	982	824	212
Future Volume (vph)	175	371	402	982	824	212
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1703	1759	1667	1530	1736	1461
Flt Permitted	0.22	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	395	1759	1667	1530	1736	1461
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	188	399	432	1056	886	228
RTOR Reduction (vph)	0	0	0	37	0	85
Lane Group Flow (vph)	188	399	432	1019	886	143
Confl. Peds. (#/hr)	1			1		
Confl. Bikes (#/hr)						4
Heavy Vehicles (%)	6%	8%	14%	5%	4%	8%
Turn Type	pm+pt	NA	NA	pm+ov	Prot	Perm
Protected Phases	7	4	8	6	6	
Permitted Phases	4			8		6
Actuated Green, G (s)	49.0	49.0	38.0	97.0	59.0	59.0
Effective Green, g (s)	49.0	49.0	38.0	97.0	59.0	59.0
Actuated g/C Ratio	0.41	0.41	0.32	0.81	0.49	0.49
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	237	718	527	1313	853	718
v/s Ratio Prot	c0.05	0.23	0.26	c0.38	c0.51	
v/s Ratio Perm	0.28			0.28		0.10
v/c Ratio	0.79	0.56	0.82	0.78	1.04	0.20
Uniform Delay, d1	30.4	27.2	37.8	5.9	30.5	17.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	23.3	3.1	13.3	4.5	41.3	0.6
Delay (s)	53.7	30.3	51.2	10.5	71.8	17.8
Level of Service	D	C	D	B	E	B
Approach Delay (s)		37.8	22.3		60.7	
Approach LOS		D	C		E	

Intersection Summary			
HCM 2000 Control Delay	38.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	89.8%	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)	11	328	8	52	392	171	29	158	95	123	29	7
Future Volume (vph)	11	328	8	52	392	171	29	158	95	123	29	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.96			0.95			0.99	
Flt Protected		1.00			1.00			0.99			0.96	
Satd. Flow (prot)		1841			1772			1767			1764	
Flt Permitted		0.98			0.94			0.96			0.60	
Satd. Flow (perm)		1798			1670			1701			1096	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	12	360	9	57	431	188	32	174	104	135	32	8
RTOR Reduction (vph)	0	2	0	0	29	0	0	36	0	0	3	0
Lane Group Flow (vph)	0	379	0	0	647	0	0	274	0	0	172	0
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	2%	33%	11%	2%	2%	0%	2%	3%	4%	0%	0%
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)		21.2			21.2			18.8			18.8	
Effective Green, g (s)		21.2			21.2			18.8			18.8	
Actuated g/C Ratio		0.42			0.42			0.38			0.38	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		762			708			639			412	
v/s Ratio Prot												
v/s Ratio Perm		0.21			c0.39			c0.16			0.16	
v/c Ratio		0.50			0.91			0.43			0.42	
Uniform Delay, d1		10.5			13.5			11.6			11.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.5			16.3			2.1			3.1	
Delay (s)		11.0			29.8			13.7			14.6	
Level of Service		B			C			B			B	
Approach Delay (s)		11.0			29.8			13.7			14.6	
Approach LOS		B			C			B			B	

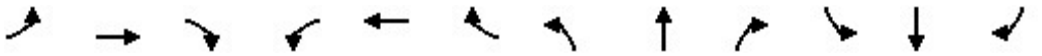
Intersection Summary			
HCM 2000 Control Delay	20.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	91.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	20	102	136	45	90	171	864	78	100	588	61
Future Volume (vph)	51	20	102	136	45	90	171	864	78	100	588	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	0.99	1.00		1.00	1.00	
Frt		0.92			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1688			1818	1552	1796	3472		1805	3454	
Flt Permitted		0.86			0.63	1.00	0.38	1.00		0.17	1.00	
Satd. Flow (perm)		1469			1184	1552	725	3472		318	3454	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	55	22	111	148	49	98	186	939	85	109	639	66
RTOR Reduction (vph)	0	58	0	0	0	70	0	7	0	0	9	0
Lane Group Flow (vph)	0	130	0	0	197	28	186	1017	0	109	696	0
Confl. Peds. (#/hr)	5					5	6		4	4		6
Confl. Bikes (#/hr)			2			3			2			4
Heavy Vehicles (%)	0%	0%	2%	1%	0%	2%	0%	2%	7%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		26.0			26.0	26.0	42.0	42.0		53.0	53.0	
Effective Green, g (s)		26.0			26.0	26.0	42.0	42.0		53.0	53.0	
Actuated g/C Ratio		0.29			0.29	0.29	0.47	0.47		0.59	0.59	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Grp Cap (vph)		424			342	448	338	1620		302	2034	
v/s Ratio Prot								c0.29		0.03	c0.20	
v/s Ratio Perm		0.09			c0.17	0.02	0.26			0.18		
v/c Ratio		0.31			0.58	0.06	0.55	0.63		0.36	0.34	
Uniform Delay, d1		25.0			27.3	23.2	17.2	18.1		10.5	9.5	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.9			6.9	0.3	6.3	1.9		3.3	0.5	
Delay (s)		26.8			34.2	23.4	23.5	20.0		13.8	10.0	
Level of Service		C			C	C	C	B		B	A	
Approach Delay (s)		26.8			30.6			20.5			10.5	
Approach LOS		C			C			C			B	

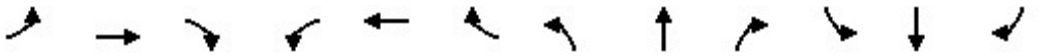
Intersection Summary			
HCM 2000 Control Delay	18.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	132	4	150	22	3	49	201	978	7	13	671	200
Future Volume (vph)	132	4	150	22	3	49	201	978	7	13	671	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.98			0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.99	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85			0.91		1.00	1.00		1.00	0.97	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1795	1536			1562		1734	3565		1357	3413	
Flt Permitted	0.70	1.00			0.87		0.26	1.00		0.22	1.00	
Satd. Flow (perm)	1329	1536			1376		480	3565		314	3413	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	148	4	169	25	3	55	226	1099	8	15	754	225
RTOR Reduction (vph)	0	86	0	0	29	0	0	0	0	0	30	0
Lane Group Flow (vph)	148	87	0	0	54	0	226	1107	0	15	949	0
Confl. Peds. (#/hr)	8		4	4		8	3					3
Confl. Bikes (#/hr)			1						2			3
Heavy Vehicles (%)	0%	0%	4%	19%	0%	3%	4%	1%	20%	33%	2%	0%
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)	12.0	12.0			12.0		38.0	38.0		38.0	38.0	
Effective Green, g (s)	12.0	12.0			12.0		38.0	38.0		38.0	38.0	
Actuated g/C Ratio	0.20	0.20			0.20		0.63	0.63		0.63	0.63	
Clearance Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	265	307			275		304	2257		198	2161	
v/s Ratio Prot		0.06						0.31			0.28	
v/s Ratio Perm	c0.11				0.04		c0.47			0.05		
v/c Ratio	0.56	0.28			0.20		0.74	0.49		0.08	0.44	
Uniform Delay, d1	21.6	20.4			20.0		7.6	5.8		4.2	5.6	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.5	0.5			0.4		15.2	0.8		0.7	0.7	
Delay (s)	24.2	20.9			20.3		22.8	6.6		5.0	6.2	
Level of Service	C	C			C		C	A		A	A	
Approach Delay (s)		22.4			20.3			9.4			6.2	
Approach LOS		C			C			A			A	

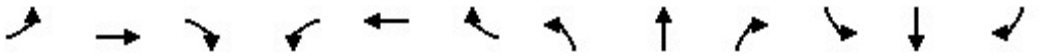
Intersection Summary			
HCM 2000 Control Delay	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	76.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	153	47	265	76	77	60	590	457	63	667	205
Future Volume (vph)	116	153	47	265	76	77	60	590	457	63	667	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00	0.99		1.00	0.98		1.00	0.99	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.98		1.00	0.92		1.00	0.93		1.00	0.96	
Flt Protected		0.98		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1799		1783	1723		1804	3268		1801	3394	
Flt Permitted		0.81		0.48	1.00		0.16	1.00		0.14	1.00	
Satd. Flow (perm)		1477		895	1723		307	3268		262	3394	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	132	174	53	301	86	88	68	670	519	72	758	233
RTOR Reduction (vph)	0	8	0	0	48	0	0	186	0	0	39	0
Lane Group Flow (vph)	0	351	0	301	126	0	68	1003	0	72	952	0
Confl. Peds. (#/hr)	3		11	11		3	1		11	11		1
Confl. Bikes (#/hr)			2			7			1			4
Heavy Vehicles (%)	0%	1%	5%	1%	0%	2%	0%	2%	1%	0%	2%	2%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio		0.32		0.45	0.45		0.39	0.39		0.39	0.39	
Clearance Time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		472		488	781		118	1263		101	1312	
v/s Ratio Prot				c0.06	0.07			c0.31			0.28	
v/s Ratio Perm		c0.24		0.22			0.22			0.28		
v/c Ratio		0.74		0.62	0.16		0.58	0.79		0.71	0.73	
Uniform Delay, d1		22.8		16.0	12.1		18.2	20.4		19.5	19.6	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		10.2		5.7	0.4		18.9	5.2		34.8	3.5	
Delay (s)		32.9		21.8	12.5		37.0	25.6		54.3	23.1	
Level of Service		C		C	B		D	C		D	C	
Approach Delay (s)		32.9			18.4			26.2			25.3	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	110.7%	ICU Level of Service	H
Analysis Period (min)	15		

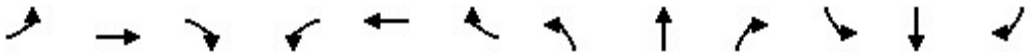
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	48	75	87	55	185	64	678	45	108	774	63
Future Volume (vph)	57	48	75	87	55	185	64	678	45	108	774	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.94			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1754			1842	1576	1804	3504		1786	3465	
Flt Permitted		0.85			0.71	1.00	0.21	1.00		0.27	1.00	
Satd. Flow (perm)		1522			1348	1576	407	3504		516	3465	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	61	51	80	93	59	197	68	721	48	115	823	67
RTOR Reduction (vph)	0	33	0	0	0	137	0	6	0	0	8	0
Lane Group Flow (vph)	0	159	0	0	152	60	68	763	0	115	882	0
Confl. Peds. (#/hr)	1		2	2		1	4		3	3		4
Confl. Bikes (#/hr)						2						1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	2%	0%	1%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Effective Green, g (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Actuated g/C Ratio		0.30			0.30	0.30	0.51	0.41		0.51	0.41	
Clearance Time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Grp Cap (vph)		462			409	478	347	1419		389	1403	
v/s Ratio Prot							0.02	0.22		c0.03	c0.25	
v/s Ratio Perm		0.10			c0.11	0.04	0.08			0.12		
v/c Ratio		0.34			0.37	0.13	0.20	0.54		0.30	0.63	
Uniform Delay, d1		21.4			21.6	19.9	10.8	17.9		10.7	18.8	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.0			2.6	0.5	1.3	1.5		1.9	2.1	
Delay (s)		23.4			24.2	20.4	12.1	19.3		12.7	20.9	
Level of Service		C			C	C	B	B		B	C	
Approach Delay (s)		23.4			22.1			18.7			20.0	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		

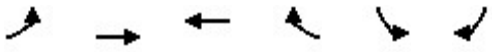
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	22	132	13	28	153	25	7	64	29	38	50	22
Future Volume (vph)	22	132	13	28	153	25	7	64	29	38	50	22
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	24	145	14	31	168	27	8	70	32	42	55	24

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	183	226	110	121
Volume Left (vph)	24	31	8	42
Volume Right (vph)	14	27	32	24
Hadj (s)	-0.02	-0.04	-0.12	-0.01
Departure Headway (s)	4.8	4.7	5.0	5.0
Degree Utilization, x	0.24	0.29	0.15	0.17
Capacity (veh/h)	705	723	661	648
Control Delay (s)	9.3	9.6	8.8	9.1
Approach Delay (s)	9.3	9.6	8.8	9.1
Approach LOS	A	A	A	A

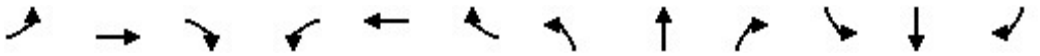
Intersection Summary				
Delay	9.3			
Level of Service	A			
Intersection Capacity Utilization	34.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	130	109	7	4	0
Future Volume (Veh/h)	0	130	109	7	4	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	143	120	8	4	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	128				267	124
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	128				267	124
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1458				722	927

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	143	128	4
Volume Left	0	0	4
Volume Right	0	8	0
cSH	1458	1700	722
Volume to Capacity	0.00	0.08	0.01
Queue Length 95th (m)	0.0	0.0	0.1
Control Delay (s)	0.0	0.0	10.0
Lane LOS			B
Approach Delay (s)	0.0	0.0	10.0
Approach LOS			B

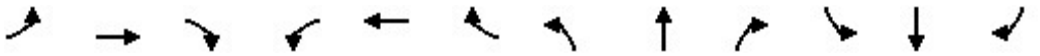
Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	16.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	129	5	45	129	8	3	1	28	10	3	0
Future Volume (Veh/h)	8	129	5	45	129	8	3	1	28	10	3	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.92	0.92	0.91	0.91	0.92	0.92	0.92	0.91	0.92	0.91
Hourly flow rate (vph)	9	142	5	49	142	9	3	1	30	11	3	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	151			147			408	412	144	438	410	146
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	151			147			408	412	144	438	410	146
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 %	99			97			99	100	97	98	99	100
cM capacity (veh/h)	1430			1435			534	509	903	495	510	901

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	156	200	34	14
Volume Left	9	49	3	11
Volume Right	5	9	30	0
cSH	1430	1435	833	498
Volume to Capacity	0.01	0.03	0.04	0.03
Queue Length 95th (m)	0.2	0.8	1.0	0.7
Control Delay (s)	0.5	2.1	9.5	12.4
Lane LOS	A	A	A	B
Approach Delay (s)	0.5	2.1	9.5	12.4
Approach LOS			A	B

Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	30.8%	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 (veh/h)	27	82	11	11	74	25	11	294	26	22	145	27
Future Volume (Veh/h)	27	82	11	11	74	25	11	294	26	22	145	27
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	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	89	12	12	80	27	12	320	28	24	158	29
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	107			101			378	284	95	458	276	94
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	107			101			378	284	95	458	276	94
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.2	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.0	3.3
p0 queue free %	98			99			97	48	97	91	74	97
cM capacity (veh/h)	1497			1504			444	610	967	282	616	955

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	130	119	360	211
Volume Left	29	12	12	24
Volume Right	12	27	28	29
cSH	1497	1504	620	567
Volume to Capacity	0.02	0.01	0.58	0.37
Queue Length 95th (m)	0.5	0.2	29.8	13.7
Control Delay (s)	1.8	0.8	18.5	15.1
Lane LOS	A	A	C	C
Approach Delay (s)	1.8	0.8	18.5	15.1
Approach LOS			C	C

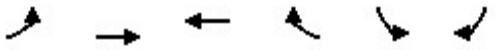
Intersection Summary				
Average Delay	12.4			
Intersection Capacity Utilization	37.8%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	18	16	315	25	23	142
Future Volume (Veh/h)	18	16	315	25	23	142
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	20	18	346	27	25	156
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	566	360			373	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	566	360			373	
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	97			98	
cM capacity (veh/h)	476	685			1185	

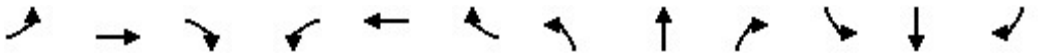
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	38	373	181
Volume Left	20	0	25
Volume Right	18	27	0
cSH	556	1700	1185
Volume to Capacity	0.07	0.22	0.02
Queue Length 95th (m)	1.8	0.0	0.5
Control Delay (s)	11.9	0.0	1.3
Lane LOS	B		A
Approach Delay (s)	11.9	0.0	1.3
Approach LOS	B		

Intersection Summary			
Average Delay		1.2	
Intersection Capacity Utilization		37.0%	ICU Level of Service A
Analysis Period (min)		15	



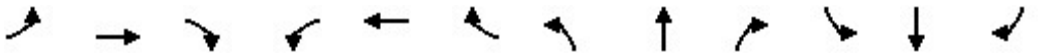
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	87	371	236	585	221	450
Future Volume (vph)	87	371	236	585	221	450
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1703	1759	1667	1531	1736	1464
Flt Permitted	0.42	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	759	1759	1667	1531	1736	1464
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	98	417	265	657	248	506
RTOR Reduction (vph)	0	0	0	119	0	245
Lane Group Flow (vph)	98	417	265	538	248	261
Confl. Bikes (#/hr)				1		1
Heavy Vehicles (%)	6%	8%	14%	5%	4%	8%
Turn Type	pm+pt	NA	NA	pm+ov	Prot	Perm
Protected Phases	7	4	8	6	6	
Permitted Phases	4			8		6
Actuated Green, G (s)	49.0	49.0	38.0	97.0	59.0	59.0
Effective Green, g (s)	49.0	49.0	38.0	97.0	59.0	59.0
Actuated g/C Ratio	0.41	0.41	0.32	0.81	0.49	0.49
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	364	718	527	1314	853	719
v/s Ratio Prot	0.02	c0.24	0.16	c0.20	0.14	
v/s Ratio Perm	0.09			0.15		0.18
v/c Ratio	0.27	0.58	0.50	0.41	0.29	0.36
Uniform Delay, d1	23.0	27.5	33.3	3.3	18.1	18.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8	3.4	3.4	0.9	0.9	1.4
Delay (s)	24.8	30.9	36.7	4.2	19.0	20.3
Level of Service	C	C	D	A	B	C
Approach Delay (s)		29.8	13.6		19.9	
Approach LOS		C	B		B	

Intersection Summary			
HCM 2000 Control Delay	19.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	50.4%	ICU Level of Service	A
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)	4	259	39	63	214	66	6	23	46	152	155	11
Future Volume (vph)	4	259	39	63	214	66	6	23	46	152	155	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.97			0.92			1.00	
Flt Protected		1.00			0.99			1.00			0.98	
Satd. Flow (prot)		1717			1635			1406			1830	
Flt Permitted		0.99			0.88			0.97			0.81	
Satd. Flow (perm)		1708			1448			1370			1518	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	4	285	43	69	235	73	7	25	51	167	170	12
RTOR Reduction (vph)	0	12	0	0	20	0	0	27	0	0	2	0
Lane Group Flow (vph)	0	320	0	0	357	0	0	56	0	0	347	0
Heavy Vehicles (%)	0%	8%	14%	9%	15%	6%	100%	7%	21%	0%	1%	13%
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)		16.2			16.2			23.8			23.8	
Effective Green, g (s)		16.2			16.2			23.8			23.8	
Actuated g/C Ratio		0.32			0.32			0.48			0.48	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		553			469			652			722	
v/s Ratio Prot												
v/s Ratio Perm		0.19			c0.25			0.04			c0.23	
v/c Ratio		0.58			0.76			0.09			0.48	
Uniform Delay, d1		14.1			15.2			7.2			8.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.5			7.2			0.3			2.3	
Delay (s)		15.5			22.4			7.4			11.2	
Level of Service		B			C			A			B	
Approach Delay (s)		15.5			22.4			7.4			11.2	
Approach LOS		B			C			A			B	

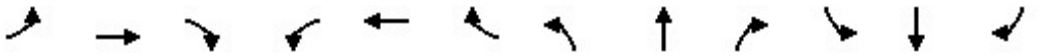
Intersection Summary			
HCM 2000 Control Delay	15.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	27	127	48	13	24	72	391	74	61	471	35
Future Volume (vph)	72	27	127	48	13	24	72	391	74	61	471	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.92			1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected		0.98			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1666			1785	1429	1637	3325		1719	3408	
Flt Permitted		0.88			0.69	1.00	0.45	1.00		0.40	1.00	
Satd. Flow (perm)		1487			1272	1429	769	3325		728	3408	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	78	29	138	52	14	26	78	425	80	66	512	38
RTOR Reduction (vph)	0	52	0	0	0	18	0	17	0	0	6	0
Lane Group Flow (vph)	0	193	0	0	66	8	78	488	0	66	544	0
Confl. Peds. (#/hr)			1	1			2					2
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	4%	0%	3%	3%	0%	13%	10%	5%	9%	5%	5%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		26.0			26.0	26.0	42.0	42.0		53.0	53.0	
Effective Green, g (s)		26.0			26.0	26.0	42.0	42.0		53.0	53.0	
Actuated g/C Ratio		0.29			0.29	0.29	0.47	0.47		0.59	0.59	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Grp Cap (vph)		429			367	412	358	1551		505	2006	
v/s Ratio Prot								c0.15		0.01	c0.16	
v/s Ratio Perm		c0.13			0.05	0.01	0.10			0.07		
v/c Ratio		0.45			0.18	0.02	0.22	0.31		0.13	0.27	
Uniform Delay, d1		26.2			24.0	22.9	14.2	15.0		8.1	9.1	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		3.4			1.1	0.1	1.4	0.5		0.5	0.3	
Delay (s)		29.5			25.1	23.0	15.6	15.5		8.7	9.4	
Level of Service		C			C	C	B	B		A	A	
Approach Delay (s)		29.5			24.5			15.5			9.3	
Approach LOS		C			C			B			A	

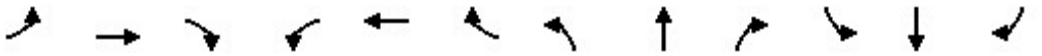
Intersection Summary			
HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	156	4	167	3	1	14	74	478	14	21	491	95
Future Volume (vph)	156	4	167	3	1	14	74	478	14	21	491	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85			0.89		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1684	1517			1666		1583	3491		1805	3332	
Flt Permitted	0.75	1.00			0.95		0.41	1.00		0.46	1.00	
Satd. Flow (perm)	1321	1517			1598		691	3491		870	3332	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	166	4	178	3	1	15	79	509	15	22	522	101
RTOR Reduction (vph)	0	140	0	0	12	0	0	2	0	0	18	0
Lane Group Flow (vph)	166	42	0	0	7	0	79	522	0	22	605	0
Confl. Peds. (#/hr)	2					2	1					1
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	7%	0%	7%	0%	0%	0%	14%	3%	0%	0%	5%	7%
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)	12.9	12.9			12.9		37.1	37.1		37.1	37.1	
Effective Green, g (s)	12.9	12.9			12.9		37.1	37.1		37.1	37.1	
Actuated g/C Ratio	0.22	0.22			0.22		0.62	0.62		0.62	0.62	
Clearance Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	284	326			343		427	2158		537	2060	
v/s Ratio Prot		0.03						0.15			c0.18	
v/s Ratio Perm	c0.13				0.00		0.11			0.03		
v/c Ratio	0.58	0.13			0.02		0.19	0.24		0.04	0.29	
Uniform Delay, d1	21.1	19.0			18.6		4.9	5.1		4.5	5.3	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.1	0.2			0.0		1.0	0.3		0.1	0.4	
Delay (s)	24.2	19.2			18.6		5.9	5.4		4.6	5.7	
Level of Service	C	B			B		A	A		A	A	
Approach Delay (s)		21.6			18.6			5.5			5.7	
Approach LOS		C			B			A			A	

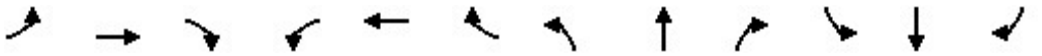
Intersection Summary			
HCM 2000 Control Delay	9.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	140	59	139	62	48	19	394	241	87	427	94
Future Volume (vph)	144	140	59	139	62	48	19	394	241	87	427	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		0.99	1.00	
Frt		0.98		1.00	0.93		1.00	0.94		1.00	0.97	
Flt Protected		0.98		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1772		1732	1697		1804	3240		1662	3375	
Flt Permitted		0.81		0.49	1.00		0.39	1.00		0.31	1.00	
Satd. Flow (perm)		1463		889	1697		737	3240		541	3375	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	158	154	65	153	68	53	21	433	265	96	469	103
RTOR Reduction (vph)	0	10	0	0	29	0	0	125	0	0	25	0
Lane Group Flow (vph)	0	367	0	153	92	0	21	573	0	96	547	0
Confl. Peds. (#/hr)	3		11	11		3	1		11	11		1
Confl. Bikes (#/hr)			2			1						1
Heavy Vehicles (%)	4%	1%	0%	4%	0%	9%	0%	4%	3%	8%	4%	2%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio		0.32		0.45	0.45		0.39	0.39		0.39	0.39	
Clearance Time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		468		481	769		284	1252		209	1305	
v/s Ratio Prot				c0.03	0.05			0.18			0.16	
v/s Ratio Perm		c0.25		0.11			0.03			c0.18		
v/c Ratio		0.78		0.32	0.12		0.07	0.46		0.46	0.42	
Uniform Delay, d1		23.1		13.5	11.8		14.5	17.1		17.2	16.8	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		12.4		1.7	0.3		0.5	1.2		7.1	1.0	
Delay (s)		35.5		15.2	12.2		15.0	18.4		24.3	17.8	
Level of Service		D		B	B		B	B		C	B	
Approach Delay (s)		35.5			13.9			18.3			18.8	
Approach LOS		D			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	21.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		

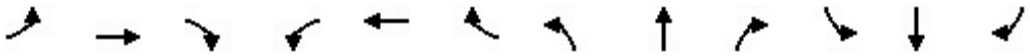
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	104	41	114	28	18	57	90	495	18	53	472	39
Future Volume (vph)	104	41	114	28	18	57	90	495	18	53	472	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.94			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1675			1844	1516	1718	3413		1752	3382	
Flt Permitted		0.85			0.78	1.00	0.40	1.00		0.40	1.00	
Satd. Flow (perm)		1446			1478	1516	717	3413		729	3382	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	114	45	125	31	20	63	99	544	20	58	519	43
RTOR Reduction (vph)	0	36	0	0	0	44	0	4	0	0	8	0
Lane Group Flow (vph)	0	248	0	0	51	19	99	560	0	58	554	0
Confl. Peds. (#/hr)							2		1	1		2
Confl. Bikes (#/hr)						3			3			1
Heavy Vehicles (%)	6%	0%	5%	0%	0%	5%	5%	5%	8%	3%	5%	9%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Effective Green, g (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Actuated g/C Ratio		0.30			0.30	0.30	0.51	0.41		0.51	0.41	
Clearance Time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Grp Cap (vph)		439			449	460	464	1382		472	1369	
v/s Ratio Prot							c0.02	c0.16		0.01	0.16	
v/s Ratio Perm		c0.17			0.03	0.01	0.09			0.05		
v/c Ratio		0.57			0.11	0.04	0.21	0.41		0.12	0.40	
Uniform Delay, d1		23.1			19.8	19.4	10.3	16.7		10.0	16.7	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		5.2			0.5	0.2	1.0	0.9		0.5	0.9	
Delay (s)		28.3			20.3	19.6	11.3	17.6		10.6	17.6	
Level of Service		C			C	B	B	B		B	B	
Approach Delay (s)		28.3			19.9			16.7			17.0	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	54.2%	ICU Level of Service	A
Analysis Period (min)	15		

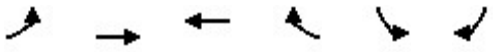
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	36	115	6	22	42	74	8	64	38	92	38	35
Future Volume (vph)	36	115	6	22	42	74	8	64	38	92	38	35
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Hourly flow rate (vph)	58	185	10	35	68	119	13	103	61	148	61	56

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	253	222	177	265
Volume Left (vph)	58	35	13	148
Volume Right (vph)	10	119	61	56
Hadj (s)	0.05	-0.22	-0.09	0.12
Departure Headway (s)	5.6	5.4	5.7	5.7
Degree Utilization, x	0.40	0.33	0.28	0.42
Capacity (veh/h)	590	601	564	585
Control Delay (s)	12.2	11.1	10.8	12.7
Approach Delay (s)	12.2	11.1	10.8	12.7
Approach LOS	B	B	B	B

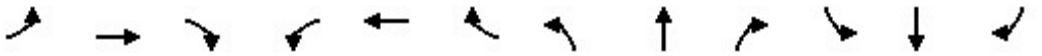
Intersection Summary				
Delay	11.8			
Level of Service	B			
Intersection Capacity Utilization	35.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	83	66	3	6	0
Future Volume (Veh/h)	0	83	66	3	6	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	90	72	3	7	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	75				164	74
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	75				164	74
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1524				827	988

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	90	75	7
Volume Left	0	0	7
Volume Right	0	3	0
cSH	1524	1700	827
Volume to Capacity	0.00	0.04	0.01
Queue Length 95th (m)	0.0	0.0	0.2
Control Delay (s)	0.0	0.0	9.4
Lane LOS			A
Approach Delay (s)	0.0	0.0	9.4
Approach LOS			A

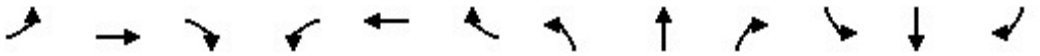
Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	14.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	98	3	10	71	4	2	2	44	15	3	0
Future Volume (Veh/h)	1	98	3	10	71	4	2	2	44	15	3	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	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	107	3	11	77	4	2	2	48	16	3	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	81			110			213	214	108	260	213	79
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	81			110			213	214	108	260	213	79
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	95	98	100	100
cM capacity (veh/h)	1517			1480			737	679	945	652	679	981

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	111	92	52	19
Volume Left	1	11	2	16
Volume Right	3	4	48	0
cSH	1517	1480	921	656
Volume to Capacity	0.00	0.01	0.06	0.03
Queue Length 95th (m)	0.0	0.2	1.4	0.7
Control Delay (s)	0.1	0.9	9.1	10.7
Lane LOS	A	A	A	B
Approach Delay (s)	0.1	0.9	9.1	10.7
Approach LOS			A	B

Intersection Summary				
Average Delay	2.8			
Intersection Capacity Utilization	25.0%	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 (veh/h)	20	63	9	28	35	4	16	76	14	7	273	15
Future Volume (Veh/h)	20	63	9	28	35	4	16	76	14	7	273	15
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	23	72	10	32	40	5	18	87	16	8	314	17
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	45			82			404	232	77	289	234	42
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	45			82			404	232	77	289	234	42
tC, single (s)	4.2			4.1			7.1	6.6	6.2	7.3	6.5	6.4
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.1	3.3	3.7	4.0	3.5
p0 queue free %	98			98			95	86	98	98	51	98
cM capacity (veh/h)	1531			1528			332	634	990	531	646	984

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	105	77	121	339
Volume Left	23	32	18	8
Volume Right	10	5	16	17
cSH	1531	1528	583	654
Volume to Capacity	0.02	0.02	0.21	0.52
Queue Length 95th (m)	0.4	0.5	6.2	24.0
Control Delay (s)	1.7	3.2	12.8	16.3
Lane LOS	A	A	B	C
Approach Delay (s)	1.7	3.2	12.8	16.3
Approach LOS			B	C

Intersection Summary				
Average Delay	11.7			
Intersection Capacity Utilization	29.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	22	24	82	12	10	299
Future Volume (Veh/h)	22	24	82	12	10	299
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)	24	26	89	13	11	325
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	442	96			102	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	442	96			102	
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	97			99	
cM capacity (veh/h)	568	961			1490	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	50	102	336
Volume Left	24	0	11
Volume Right	26	13	0
cSH	722	1700	1490
Volume to Capacity	0.07	0.06	0.01
Queue Length 95th (m)	1.8	0.0	0.2
Control Delay (s)	10.4	0.0	0.3
Lane LOS	B		A
Approach Delay (s)	10.4	0.0	0.3
Approach LOS	B		

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	33.0%	ICU Level of Service	A
Analysis Period (min)	15		

Summary of All Intervals

Run Number	1	2	3	Avg
Start Time	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	3971	4012	4122	4032
Vehs Exited	4007	4038	4161	4071
Starting Vehs	226	210	219	215
Ending Vehs	190	184	180	179
Travel Distance (km)	7560	7420	7636	7539
Travel Time (hr)	201.6	199.3	203.6	201.5
Total Delay (hr)	47.3	46.9	47.5	47.2
Total Stops	5922	6002	6126	6013
Fuel Used (l)	607.4	601.8	615.5	608.2

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	Avg
Vehs Entered	3971	4012	4122	4032
Vehs Exited	4007	4038	4161	4071
Starting Vehs	226	210	219	215
Ending Vehs	190	184	180	179
Travel Distance (km)	7560	7420	7636	7539
Travel Time (hr)	201.6	199.3	203.6	201.5
Total Delay (hr)	47.3	46.9	47.5	47.2
Total Stops	5922	6002	6126	6013
Fuel Used (l)	607.4	601.8	615.5	608.2

Intersection: 3: Old Barrie Rd E & University Ave

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (m)	34.8	103.9	85.5	40.8	71.6	67.8
Average Queue (m)	14.2	51.5	40.5	19.2	33.2	36.7
95th Queue (m)	28.3	90.5	70.8	35.2	58.0	60.6
Link Distance (m)		579.8	318.4		1089.4	1089.4
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	106.0			64.0		
Storage Blk Time (%)		0	2			
Queuing Penalty (veh)		0	13			

Intersection: 5: Old Barrie Rd E & Line 15 N

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	64.8	87.5	25.8	60.4
Average Queue (m)	31.5	37.9	8.1	25.7
95th Queue (m)	53.3	66.0	21.8	47.8
Link Distance (m)	288.0	579.8	1006.6	1844.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: University Ave & Diana Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	69.8	28.2	13.9	26.3	39.2	44.3	27.7	35.4	43.0
Average Queue (m)	30.8	10.1	2.7	11.4	21.5	28.1	7.8	16.0	21.1
95th Queue (m)	57.8	22.2	9.9	23.1	35.3	41.9	18.5	31.7	36.1
Link Distance (m)	144.4	117.8	117.8		1089.4	1089.4		535.9	535.9
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				36.0			58.0		
Storage Blk Time (%)					1				
Queuing Penalty (veh)					0				

Intersection: 12: University Ave/West Ridge Blvd & Stone Ridge Blvd/Hunter Valley Rd

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	66.0	29.9	10.8	35.3	28.4	32.6	11.3	28.8	40.8
Average Queue (m)	26.5	15.9	3.0	12.5	11.1	12.9	2.7	14.2	16.8
95th Queue (m)	46.6	26.3	9.7	26.6	23.8	26.8	9.7	26.6	33.4
Link Distance (m)	278.2	278.2	176.5		535.9	535.9		944.3	944.3
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				42.5			90.0		
Storage Blk Time (%)				1					
Queuing Penalty (veh)				2					

Intersection: 16: West Ridge Blvd & Monarch Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	70.2	38.2	27.4	14.3	48.9	62.2	43.5	59.5	51.0
Average Queue (m)	37.7	16.5	11.6	3.6	24.5	35.2	19.2	25.2	27.3
95th Queue (m)	59.7	29.1	23.2	11.4	41.8	54.7	35.4	48.6	46.1
Link Distance (m)	173.4	268.3	268.3		944.3	944.3		141.5	141.5
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				47.0			38.0		
Storage Blk Time (%)					0		1	2	
Queuing Penalty (veh)					0		2	2	

Intersection: 19: West Ridge Blvd & Bass Lake Side Rd E

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	82.7	23.9	18.0	29.7	52.8	60.7	16.9	49.4	43.0
Average Queue (m)	31.8	8.1	6.9	11.3	26.7	28.5	7.0	32.4	20.2
95th Queue (m)	57.8	18.1	14.9	22.4	46.9	49.1	15.2	49.7	38.3
Link Distance (m)	514.5	80.4	80.4		141.5	141.5		174.0	174.0
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				39.0			42.0		
Storage Blk Time (%)					2			2	
Queuing Penalty (veh)					2			1	

Intersection: 23: Bass Lake Side Rd E & Atlantis Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	32.8	25.4	20.6	27.1
Average Queue (m)	12.9	12.5	10.9	13.9
95th Queue (m)	22.7	20.0	17.4	22.5
Link Distance (m)	315.7	514.5	221.1	203.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: Bass Lake Side Rd E & Old Scotia Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	6.0
Average Queue (m)	0.8
95th Queue (m)	4.9
Link Distance (m)	239.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: Bass Lake Side Rd E & Hepinstall Pl

Movement	NB	SB
Directions Served	LTR	LTR
Maximum Queue (m)	18.4	9.3
Average Queue (m)	7.9	4.6
95th Queue (m)	14.7	12.0
Link Distance (m)	125.7	176.0
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 32: Line 15 N & Bass Lake Side Rd E

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	5.6	8.0	22.2	26.7
Average Queue (m)	0.2	0.4	11.4	15.2
95th Queue (m)	2.5	3.4	19.4	23.3
Link Distance (m)	278.4	157.8	607.9	420.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 35: Line 15 N & Stone Ridge Blvd extension

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	16.0	8.2
Average Queue (m)	7.1	0.3
95th Queue (m)	14.1	2.7
Link Distance (m)	198.7	607.9
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 22

Summary of All Intervals

Run Number	1	2	3	Avg
Start Time	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	5901	5928	6010	5945
Vehs Exited	5822	5843	5973	5880
Starting Vehs	344	294	324	318
Ending Vehs	423	379	361	379
Travel Distance (km)	11146	10982	11156	11095
Travel Time (hr)	363.6	347.4	355.9	355.6
Total Delay (hr)	135.1	122.1	126.8	128.0
Total Stops	10856	10496	10757	10707
Fuel Used (l)	962.4	932.1	949.7	948.0

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	Avg
Vehs Entered	5901	5928	6010	5945
Vehs Exited	5822	5843	5973	5880
Starting Vehs	344	294	324	318
Ending Vehs	423	379	361	379
Travel Distance (km)	11146	10982	11156	11095
Travel Time (hr)	363.6	347.4	355.9	355.6
Total Delay (hr)	135.1	122.1	126.8	128.0
Total Stops	10856	10496	10757	10707
Fuel Used (l)	962.4	932.1	949.7	948.0

Intersection: 3: Old Barrie Rd E & University Ave

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	R
Maximum Queue (m)	88.6	118.0	266.7	144.4	504.0	454.3
Average Queue (m)	38.4	56.9	95.9	46.2	314.6	136.7
95th Queue (m)	71.4	103.3	191.2	94.7	471.0	360.4
Link Distance (m)		579.8	318.4		1089.4	1089.4
Upstream Blk Time (%)			0			
Queuing Penalty (veh)			0			
Storage Bay Dist (m)	106.0			64.0		
Storage Blk Time (%)	0	1	24	1		
Queuing Penalty (veh)	0	1	236	5		

Intersection: 5: Old Barrie Rd E & Line 15 N

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	142.2	366.6	46.2	43.9
Average Queue (m)	49.2	155.3	21.4	21.4
95th Queue (m)	108.0	287.4	36.9	38.7
Link Distance (m)	288.0	579.8	1006.6	1844.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: University Ave & Diana Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	59.4	50.9	25.9	51.8	78.1	73.5	26.7	42.8	47.0
Average Queue (m)	22.2	25.7	10.6	28.6	47.8	51.0	12.7	18.0	23.6
95th Queue (m)	43.4	42.0	20.8	52.2	71.2	71.9	22.7	36.6	42.1
Link Distance (m)	144.4	117.8	117.8		1089.4	1089.4		535.9	535.9
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				36.0			58.0		
Storage Blk Time (%)				2	12				
Queuing Penalty (veh)				10	21				

Intersection: 12: University Ave/West Ridge Blvd & Stone Ridge Blvd/Hunter Valley Rd

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	34.8	35.2	22.4	57.4	84.0	71.4	22.3	53.7	67.2
Average Queue (m)	20.0	14.9	10.4	33.8	29.6	30.4	3.6	22.9	27.2
95th Queue (m)	31.9	26.2	20.0	57.7	65.5	60.7	13.3	44.9	52.8
Link Distance (m)	278.2	278.2	176.5		535.9	535.9		944.3	944.3
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				42.5			90.0		
Storage Blk Time (%)				9	1				
Queuing Penalty (veh)				43	3				

Intersection: 16: West Ridge Blvd & Monarch Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	71.4	62.0	33.9	41.0	99.5	125.7	52.8	78.7	84.7
Average Queue (m)	35.6	29.7	15.1	12.8	46.8	69.2	20.2	41.2	43.2
95th Queue (m)	59.8	49.3	29.1	29.3	80.5	110.0	40.0	72.2	74.1
Link Distance (m)	173.4	268.3	268.3		944.3	944.3		141.5	141.5
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				47.0			38.0		
Storage Blk Time (%)					6		1	12	
Queuing Penalty (veh)					4		2	7	

Intersection: 19: West Ridge Blvd & Bass Lake Side Rd E

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	50.3	36.3	43.8	33.5	62.7	63.4	23.5	63.4	69.9
Average Queue (m)	22.0	18.9	14.7	9.9	31.7	34.9	11.1	43.9	40.1
95th Queue (m)	41.6	33.1	27.9	23.8	57.5	62.5	20.6	62.0	62.2
Link Distance (m)	514.5	80.4	80.4		141.5	141.5		174.0	174.0
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				39.0			42.0		
Storage Blk Time (%)					5			8	
Queuing Penalty (veh)					3			8	

Intersection: 23: Bass Lake Side Rd E & Atlantis Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	19.0	24.8	21.1	19.5
Average Queue (m)	13.2	13.4	10.3	10.8
95th Queue (m)	19.8	20.4	16.9	16.1
Link Distance (m)	315.7	514.5	221.1	203.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: Bass Lake Side Rd E & Old Scotia Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	9.0
Average Queue (m)	1.2
95th Queue (m)	6.2
Link Distance (m)	239.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: Bass Lake Side Rd E & Hepinstall Pl

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	13.1	17.8	15.6	9.3
Average Queue (m)	0.7	1.5	5.8	2.3
95th Queue (m)	5.4	8.4	14.1	8.8
Link Distance (m)	881.3	315.7	125.7	176.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 32: Line 15 N & Bass Lake Side Rd E

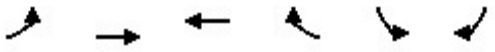
Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	7.9	7.3	56.8	24.4
Average Queue (m)	0.6	0.5	24.2	12.9
95th Queue (m)	4.2	4.2	42.0	20.6
Link Distance (m)	278.4	157.8	607.9	420.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 35: Line 15 N & Stone Ridge Blvd extension

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	13.9	17.3
Average Queue (m)	6.5	1.4
95th Queue (m)	13.7	8.5
Link Distance (m)	198.7	607.9
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

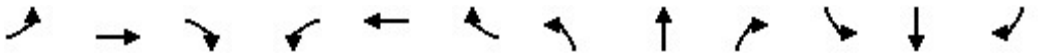
Network Summary

Network wide Queuing Penalty: 343



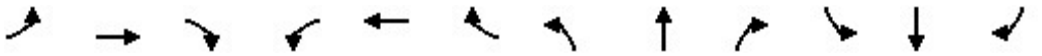
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	94	408	259	641	254	493
Future Volume (vph)	94	408	259	641	254	493
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.97	
Frpb, ped/bikes	1.00	1.00	1.00	0.99	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	0.90	
Flt Protected	0.95	1.00	1.00	1.00	0.98	
Satd. Flow (prot)	1703	1759	1667	1529	3020	
Flt Permitted	0.45	1.00	1.00	1.00	0.98	
Satd. Flow (perm)	805	1759	1667	1529	3020	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	106	458	291	720	285	554
RTOR Reduction (vph)	0	0	0	105	271	0
Lane Group Flow (vph)	106	458	291	615	568	0
Confl. Bikes (#/hr)				1		1
Heavy Vehicles (%)	6%	8%	14%	5%	4%	8%
Turn Type	pm+pt	NA	NA	pm+ov	Prot	
Protected Phases	7	4	8	6	6	
Permitted Phases	4			8		
Actuated Green, G (s)	56.0	56.0	48.0	100.0	52.0	
Effective Green, g (s)	56.0	56.0	48.0	100.0	52.0	
Actuated g/C Ratio	0.47	0.47	0.40	0.83	0.43	
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	
Lane Grp Cap (vph)	405	820	666	1350	1308	
v/s Ratio Prot	0.01	c0.26	0.17	c0.20	0.19	
v/s Ratio Perm	0.11			0.20		
v/c Ratio	0.26	0.56	0.44	0.46	0.43	
Uniform Delay, d1	19.3	23.1	26.2	2.7	23.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.6	2.7	2.1	1.1	1.1	
Delay (s)	20.8	25.8	28.3	3.8	24.8	
Level of Service	C	C	C	A	C	
Approach Delay (s)		24.9	10.8		24.8	
Approach LOS		C	B		C	

Intersection Summary			
HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	55.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	282	43	69	236	74	6	27	50	170	169	12
Future Volume (vph)	5	282	43	69	236	74	6	27	50	170	169	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.97			0.92			1.00	
Flt Protected		1.00			0.99			1.00			0.98	
Satd. Flow (prot)		1717			1635			1421			1830	
Flt Permitted		0.99			0.87			0.97			0.80	
Satd. Flow (perm)		1706			1431			1384			1499	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	5	310	47	76	259	81	7	30	55	187	186	13
RTOR Reduction (vph)	0	12	0	0	19	0	0	30	0	0	2	0
Lane Group Flow (vph)	0	350	0	0	397	0	0	62	0	0	384	0
Heavy Vehicles (%)	0%	8%	14%	9%	15%	6%	100%	7%	21%	0%	1%	13%
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)		17.2			17.2			22.8			22.8	
Effective Green, g (s)		17.2			17.2			22.8			22.8	
Actuated g/C Ratio		0.34			0.34			0.46			0.46	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		586			492			631			683	
v/s Ratio Prot												
v/s Ratio Perm		0.21			c0.28			0.04			c0.26	
v/c Ratio		0.60			0.81			0.10			0.56	
Uniform Delay, d1		13.5			14.9			7.7			9.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.6			9.4			0.3			3.3	
Delay (s)		15.2			24.3			8.1			13.3	
Level of Service		B			C			A			B	
Approach Delay (s)		15.2			24.3			8.1			13.3	
Approach LOS		B			C			A			B	

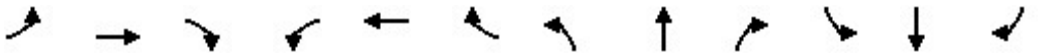
Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	76.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	28	135	52	14	27	76	431	81	68	533	36
Future Volume (vph)	75	28	135	52	14	27	76	431	81	68	533	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.92			1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected		0.98			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1665			1784	1429	1638	3325		1719	3410	
Flt Permitted		0.88			0.66	1.00	0.42	1.00		0.37	1.00	
Satd. Flow (perm)		1481			1218	1429	720	3325		675	3410	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	30	147	57	15	29	83	468	88	74	579	39
RTOR Reduction (vph)	0	53	0	0	0	21	0	17	0	0	5	0
Lane Group Flow (vph)	0	206	0	0	72	8	83	539	0	74	613	0
Confl. Peds. (#/hr)			1	1			2					2
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	4%	0%	3%	3%	0%	13%	10%	5%	9%	5%	5%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		26.0			26.0	26.0	42.0	42.0		53.0	53.0	
Effective Green, g (s)		26.0			26.0	26.0	42.0	42.0		53.0	53.0	
Actuated g/C Ratio		0.29			0.29	0.29	0.47	0.47		0.59	0.59	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Grp Cap (vph)		427			351	412	336	1551		478	2008	
v/s Ratio Prot								c0.16		0.01	c0.18	
v/s Ratio Perm		c0.14			0.06	0.01	0.12			0.08		
v/c Ratio		0.48			0.21	0.02	0.25	0.35		0.15	0.31	
Uniform Delay, d1		26.4			24.2	22.9	14.5	15.3		8.3	9.3	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		3.9			1.3	0.1	1.7	0.6		0.7	0.4	
Delay (s)		30.3			25.5	23.0	16.2	15.9		9.0	9.7	
Level of Service		C			C	C	B	B		A	A	
Approach Delay (s)		30.3			24.8			15.9			9.6	
Approach LOS		C			C			B			A	

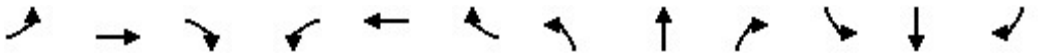
Intersection Summary			
HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	188	5	199	3	2	15	85	518	15	23	538	109
Future Volume (vph)	188	5	199	3	2	15	85	518	15	23	538	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		4.5	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85			0.90		1.00	1.00		1.00	0.97	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1684	1518			1675		1583	3491		1805	3328	
Flt Permitted	0.74	1.00			0.96		0.31	1.00		0.44	1.00	
Satd. Flow (perm)	1318	1518			1617		512	3491		834	3328	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	200	5	212	3	2	16	90	551	16	24	572	116
RTOR Reduction (vph)	0	165	0	0	12	0	0	2	0	0	17	0
Lane Group Flow (vph)	200	52	0	0	9	0	90	565	0	24	671	0
Confl. Peds. (#/hr)	2					2	1					1
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	7%	0%	7%	0%	0%	0%	14%	3%	0%	0%	5%	7%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	16.7	16.7			16.7		48.3	48.3		37.6	37.6	
Effective Green, g (s)	16.7	16.7			16.7		48.3	48.3		37.6	37.6	
Actuated g/C Ratio	0.22	0.22			0.22		0.64	0.64		0.50	0.50	
Clearance Time (s)	5.0	5.0			5.0		4.5	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	293	338			360		418	2248		418	1668	
v/s Ratio Prot		0.03					0.02	c0.16			c0.20	
v/s Ratio Perm	c0.15				0.01		0.12			0.03		
v/c Ratio	0.68	0.15			0.02		0.22	0.25		0.06	0.40	
Uniform Delay, d1	26.7	23.5			22.8		5.7	5.7		9.6	11.7	
Progression Factor	1.00	1.00			1.00		1.00	1.00		0.70	0.72	
Incremental Delay, d2	6.4	0.2			0.0		0.3	0.3		0.2	0.6	
Delay (s)	33.1	23.7			22.8		5.9	5.9		6.9	9.0	
Level of Service	C	C			C		A	A		A	A	
Approach Delay (s)		28.2			22.8			5.9			9.0	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	56.9%	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)	155	152	67	151	67	52	21	446	262	94	471	102
Future Volume (vph)	155	152	67	151	67	52	21	446	262	94	471	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.98		1.00	0.93		1.00	0.94		1.00	0.97	
Flt Protected		0.98		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1771		1732	1698		1804	3246		1663	3377	
Flt Permitted		0.81		0.47	1.00		0.35	1.00		0.26	1.00	
Satd. Flow (perm)		1457		860	1698		665	3246		462	3377	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	170	167	74	166	74	57	23	490	288	103	518	112
RTOR Reduction (vph)	0	11	0	0	31	0	0	114	0	0	25	0
Lane Group Flow (vph)	0	400	0	166	100	0	23	664	0	103	605	0
Confl. Peds. (#/hr)	3		11	11		3	1		11	11		1
Confl. Bikes (#/hr)			2			1						1
Heavy Vehicles (%)	4%	1%	0%	4%	0%	9%	0%	4%	3%	8%	4%	2%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio		0.32		0.45	0.45		0.39	0.39		0.39	0.39	
Clearance Time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		466		471	769		257	1255		178	1305	
v/s Ratio Prot				c0.03	0.06			0.20			0.18	
v/s Ratio Perm		c0.27		0.13			0.03			c0.22		
v/c Ratio		0.86		0.35	0.13		0.09	0.53		0.58	0.46	
Uniform Delay, d1		23.9		13.8	11.9		14.6	17.7		18.2	17.2	
Progression Factor		1.00		1.00	1.00		1.20	1.25		1.00	1.00	
Incremental Delay, d2		18.2		2.1	0.3		0.7	1.6		13.0	1.2	
Delay (s)		42.1		15.9	12.3		18.2	23.7		31.2	18.4	
Level of Service		D		B	B		B	C		C	B	
Approach Delay (s)		42.1			14.3			23.6			20.2	
Approach LOS		D			B			C			C	

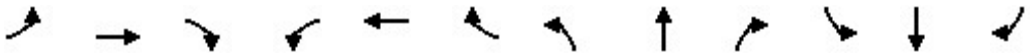
Intersection Summary			
HCM 2000 Control Delay	24.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	80.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	121	44	126	30	20	62	99	554	20	58	516	46
Future Volume (vph)	121	44	126	30	20	62	99	554	20	58	516	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.94			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1674			1845	1516	1718	3414		1752	3378	
Flt Permitted		0.84			0.76	1.00	0.36	1.00		0.35	1.00	
Satd. Flow (perm)		1435			1437	1516	652	3414		650	3378	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	133	48	138	33	22	68	109	609	22	64	567	51
RTOR Reduction (vph)	0	35	0	0	0	47	0	3	0	0	8	0
Lane Group Flow (vph)	0	284	0	0	55	21	109	628	0	64	610	0
Confl. Peds. (#/hr)							2		1	1		2
Confl. Bikes (#/hr)						3			3			1
Heavy Vehicles (%)	6%	0%	5%	0%	0%	5%	5%	5%	8%	3%	5%	9%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Effective Green, g (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Actuated g/C Ratio		0.30			0.30	0.30	0.51	0.41		0.51	0.41	
Clearance Time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Grp Cap (vph)		435			436	460	438	1382		440	1368	
v/s Ratio Prot							c0.03	c0.18		0.01	0.18	
v/s Ratio Perm		c0.20			0.04	0.01	0.10			0.06		
v/c Ratio		0.65			0.13	0.04	0.25	0.45		0.15	0.45	
Uniform Delay, d1		23.9			19.9	19.4	10.4	17.1		10.1	17.1	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		7.4			0.6	0.2	1.4	1.1		0.7	1.1	
Delay (s)		31.3			20.5	19.6	11.8	18.2		10.8	18.1	
Level of Service		C			C	B	B	B		B	B	
Approach Delay (s)		31.3			20.0			17.3			17.4	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		

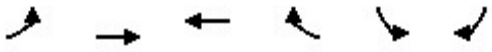
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	40	136	6	24	49	81	9	70	41	101	41	38
Future Volume (vph)	40	136	6	24	49	81	9	70	41	101	41	38
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Hourly flow rate (vph)	65	219	10	39	79	131	15	113	66	163	66	61

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	294	249	194	290
Volume Left (vph)	65	39	15	163
Volume Right (vph)	10	131	66	61
Hadj (s)	0.05	-0.21	-0.09	0.12
Departure Headway (s)	5.9	5.8	6.0	6.0
Degree Utilization, x	0.48	0.40	0.33	0.49
Capacity (veh/h)	559	562	523	548
Control Delay (s)	14.3	12.5	11.9	14.6
Approach Delay (s)	14.3	12.5	11.9	14.6
Approach LOS	B	B	B	B

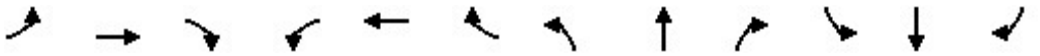
Intersection Summary				
Delay	13.5			
Level of Service	B			
Intersection Capacity Utilization	38.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	90	72	3	6	0
Future Volume (Veh/h)	0	90	72	3	6	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	98	78	3	7	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	81				178	80
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	81				178	80
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1517				812	981

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	98	81	7
Volume Left	0	0	7
Volume Right	0	3	0
cSH	1517	1700	812
Volume to Capacity	0.00	0.05	0.01
Queue Length 95th (m)	0.0	0.0	0.2
Control Delay (s)	0.0	0.0	9.5
Lane LOS			A
Approach Delay (s)	0.0	0.0	9.5
Approach LOS			A

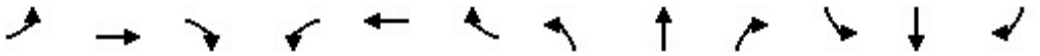
Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	14.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	121	3	10	82	5	2	2	44	17	3	0
Future Volume (Veh/h)	2	121	3	10	82	5	2	2	44	17	3	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	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	132	3	11	89	5	2	2	48	18	3	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	94			135			252	254	134	300	252	92
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	94			135			252	254	134	300	252	92
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	95	97	100	100
cM capacity (veh/h)	1500			1449			694	644	916	612	645	966

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	137	105	52	21
Volume Left	2	11	2	18
Volume Right	3	5	48	0
cSH	1500	1449	890	617
Volume to Capacity	0.00	0.01	0.06	0.03
Queue Length 95th (m)	0.0	0.2	1.5	0.8
Control Delay (s)	0.1	0.8	9.3	11.0
Lane LOS	A	A	A	B
Approach Delay (s)	0.1	0.8	9.3	11.0
Approach LOS			A	B

Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	24.9%	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 (veh/h)	21	68	10	32	40	6	19	87	16	8	297	17
Future Volume (Veh/h)	21	68	10	32	40	6	19	87	16	8	297	17
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	24	78	11	37	46	7	22	100	18	9	341	20
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	53			89			446	258	84	323	260	50
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	53			89			446	258	84	323	260	50
tC, single (s)	4.2			4.1			7.1	6.6	6.2	7.3	6.5	6.4
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.1	3.3	3.7	4.0	3.5
p0 queue free %	98			98			92	84	98	98	45	98
cM capacity (veh/h)	1521			1519			284	610	981	490	622	975

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	113	90	140	370
Volume Left	24	37	22	9
Volume Right	11	7	18	20
cSH	1521	1519	539	630
Volume to Capacity	0.02	0.02	0.26	0.59
Queue Length 95th (m)	0.4	0.6	8.2	30.6
Control Delay (s)	1.7	3.2	14.0	18.5
Lane LOS	A	A	B	C
Approach Delay (s)	1.7	3.2	14.0	18.5
Approach LOS			B	C

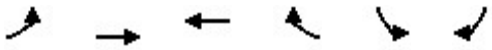
Intersection Summary				
Average Delay	13.0			
Intersection Capacity Utilization	32.2%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	27	29	93	13	11	328
Future Volume (Veh/h)	27	29	93	13	11	328
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)	29	32	101	14	12	357
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	489	108			115	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	489	108			115	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	97			99	
cM capacity (veh/h)	534	946			1474	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	61	115	369
Volume Left	29	0	12
Volume Right	32	14	0
cSH	692	1700	1474
Volume to Capacity	0.09	0.07	0.01
Queue Length 95th (m)	2.3	0.0	0.2
Control Delay (s)	10.7	0.0	0.3
Lane LOS	B		A
Approach Delay (s)	10.7	0.0	0.3
Approach LOS	B		

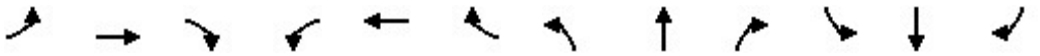
Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	34.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	191	406	442	1086	904	234
Future Volume (vph)	191	406	442	1086	904	234
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.97	
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	0.97	
Flt Protected	0.95	1.00	1.00	1.00	0.96	
Satd. Flow (prot)	1703	1759	1667	1528	3262	
Flt Permitted	0.27	1.00	1.00	1.00	0.96	
Satd. Flow (perm)	477	1759	1667	1528	3262	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	205	437	475	1168	972	252
RTOR Reduction (vph)	0	0	0	34	20	0
Lane Group Flow (vph)	205	437	475	1134	1204	0
Confl. Peds. (#/hr)	1			1		
Confl. Bikes (#/hr)						4
Heavy Vehicles (%)	6%	8%	14%	5%	4%	8%
Turn Type	pm+pt	NA	NA	pm+ov	Prot	
Protected Phases	7	4	8	6	6	
Permitted Phases	4			8		
Actuated Green, G (s)	56.0	56.0	48.0	100.0	52.0	
Effective Green, g (s)	56.0	56.0	48.0	100.0	52.0	
Actuated g/C Ratio	0.47	0.47	0.40	0.83	0.43	
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	
Lane Grp Cap (vph)	263	820	666	1349	1413	
v/s Ratio Prot	c0.03	0.25	0.29	c0.36	0.37	
v/s Ratio Perm	0.34			0.38		
v/c Ratio	0.78	0.53	0.71	0.84	0.85	
Uniform Delay, d1	32.3	22.7	30.2	5.6	30.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	20.1	2.5	6.4	6.5	6.7	
Delay (s)	52.4	25.2	36.6	12.0	37.2	
Level of Service	D	C	D	B	D	
Approach Delay (s)		33.9	19.1		37.2	
Approach LOS		C	B		D	

Intersection Summary			
HCM 2000 Control Delay	28.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	86.3%	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)	12	357	9	56	428	191	32	173	104	136	32	8
Future Volume (vph)	12	357	9	56	428	191	32	173	104	136	32	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.96			0.95			0.99	
Flt Protected		1.00			1.00			0.99			0.96	
Satd. Flow (prot)		1841			1771			1767			1763	
Flt Permitted		0.97			0.94			0.95			0.55	
Satd. Flow (perm)		1793			1663			1694			1012	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	13	392	10	62	470	210	35	190	114	149	35	9
RTOR Reduction (vph)	0	2	0	0	29	0	0	36	0	0	4	0
Lane Group Flow (vph)	0	413	0	0	713	0	0	303	0	0	189	0
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	2%	33%	11%	2%	2%	0%	2%	3%	4%	0%	0%
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)		22.0			22.0			18.0			18.0	
Effective Green, g (s)		22.0			22.0			18.0			18.0	
Actuated g/C Ratio		0.44			0.44			0.36			0.36	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		788			731			609			364	
v/s Ratio Prot												
v/s Ratio Perm		0.23			c0.43			0.18			c0.19	
v/c Ratio		0.52			0.98			0.50			0.52	
Uniform Delay, d1		10.2			13.7			12.5			12.6	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.6			27.1			2.9			5.2	
Delay (s)		10.8			40.9			15.4			17.8	
Level of Service		B			D			B			B	
Approach Delay (s)		10.8			40.9			15.4			17.8	
Approach LOS		B			D			B			B	

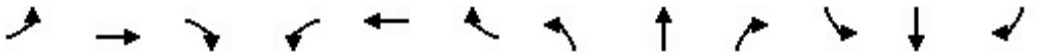
Intersection Summary			
HCM 2000 Control Delay	25.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	99.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	21	108	148	47	100	183	962	85	109	652	63
Future Volume (vph)	53	21	108	148	47	100	183	962	85	109	652	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.92			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1688			1817	1552	1797	3474		1805	3457	
Flt Permitted		0.85			0.61	1.00	0.36	1.00		0.13	1.00	
Satd. Flow (perm)		1458			1158	1552	676	3474		248	3457	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	58	23	117	161	51	109	199	1046	92	118	709	68
RTOR Reduction (vph)	0	58	0	0	0	78	0	7	0	0	8	0
Lane Group Flow (vph)	0	140	0	0	212	31	199	1131	0	118	769	0
Confl. Peds. (#/hr)	5					5	6		4	4		6
Confl. Bikes (#/hr)			2			3			2			4
Heavy Vehicles (%)	0%	0%	2%	1%	0%	2%	0%	2%	7%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		26.0			26.0	26.0	42.0	42.0		53.0	53.0	
Effective Green, g (s)		26.0			26.0	26.0	42.0	42.0		53.0	53.0	
Actuated g/C Ratio		0.29			0.29	0.29	0.47	0.47		0.59	0.59	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Grp Cap (vph)		421			334	448	315	1621		267	2035	
v/s Ratio Prot								c0.33		0.03	c0.22	
v/s Ratio Perm		0.10			c0.18	0.02	0.29			0.23		
v/c Ratio		0.33			0.63	0.07	0.63	0.70		0.44	0.38	
Uniform Delay, d1		25.2			27.9	23.2	18.2	19.0		11.7	9.8	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.1			8.9	0.3	9.3	2.5		5.2	0.5	
Delay (s)		27.3			36.7	23.5	27.4	21.5		16.9	10.3	
Level of Service		C			D	C	C	C		B	B	
Approach Delay (s)		27.3			32.3			22.4			11.2	
Approach LOS		C			C			C			B	

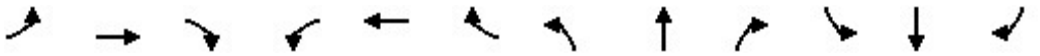
Intersection Summary			
HCM 2000 Control Delay	20.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	74.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	154	5	174	24	3	53	238	1067	8	14	730	237
Future Volume (vph)	154	5	174	24	3	53	238	1067	8	14	730	237
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		4.5	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.98			0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.99	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85			0.91		1.00	1.00		1.00	0.96	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1793	1537			1560		1735	3565		1357	3403	
Flt Permitted	0.76	1.00			0.86		0.14	1.00		0.23	1.00	
Satd. Flow (perm)	1442	1537			1363		257	3565		333	3403	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	173	6	196	27	3	60	267	1199	9	16	820	266
RTOR Reduction (vph)	0	159	0	0	47	0	0	1	0	0	34	0
Lane Group Flow (vph)	173	43	0	0	43	0	267	1207	0	16	1052	0
Confl. Peds. (#/hr)	8		4	4		8	3					3
Confl. Bikes (#/hr)			1						2			3
Heavy Vehicles (%)	0%	0%	4%	19%	0%	3%	4%	1%	20%	33%	2%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	14.3	14.3			14.3		50.7	50.7		34.7	34.7	
Effective Green, g (s)	14.3	14.3			14.3		50.7	50.7		34.7	34.7	
Actuated g/C Ratio	0.19	0.19			0.19		0.68	0.68		0.46	0.46	
Clearance Time (s)	5.0	5.0			5.0		4.5	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	274	293			259		400	2409		154	1574	
v/s Ratio Prot		0.03					c0.10	0.34			0.31	
v/s Ratio Perm	c0.12				0.03		c0.35			0.05		
v/c Ratio	0.63	0.15			0.17		0.67	0.50		0.10	0.67	
Uniform Delay, d1	27.9	25.3			25.4		10.2	6.0		11.4	15.7	
Progression Factor	1.00	1.00			1.00		1.00	1.00		0.66	0.67	
Incremental Delay, d2	4.7	0.2			0.3		4.2	0.7		0.8	1.4	
Delay (s)	32.6	25.5			25.7		14.4	6.7		8.3	11.9	
Level of Service	C	C			C		B	A		A	B	
Approach Delay (s)		28.8			25.7			8.1			11.9	
Approach LOS		C			C			A			B	

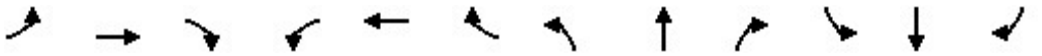
Intersection Summary			
HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	166	52	288	82	84	66	654	497	69	744	224
Future Volume (vph)	125	166	52	288	82	84	66	654	497	69	744	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00		1.00	0.99		1.00	0.98		1.00	0.99	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.98		1.00	0.92		1.00	0.94		1.00	0.97	
Flt Protected		0.98		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1798		1784	1723		1805	3271		1802	3396	
Flt Permitted		0.80		0.46	1.00		0.14	1.00		0.14	1.00	
Satd. Flow (perm)		1468		862	1723		262	3271		262	3396	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	142	189	59	327	93	95	75	743	565	78	845	255
RTOR Reduction (vph)	0	9	0	0	43	0	0	183	0	0	38	0
Lane Group Flow (vph)	0	381	0	327	145	0	75	1125	0	78	1062	0
Confl. Peds. (#/hr)	3		11	11		3	1		11	11		1
Confl. Bikes (#/hr)			2			7			1			4
Heavy Vehicles (%)	0%	1%	5%	1%	0%	2%	0%	2%	1%	0%	2%	2%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)		24.0		34.0	34.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio		0.32		0.45	0.45		0.39	0.39		0.39	0.39	
Clearance Time (s)		6.0		3.0	6.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		469		476	781		101	1264		101	1313	
v/s Ratio Prot				c0.06	0.08			c0.34			0.31	
v/s Ratio Perm		c0.26		0.25			0.29			0.30		
v/c Ratio		0.81		0.69	0.19		0.74	0.89		0.77	0.81	
Uniform Delay, d1		23.4		17.3	12.2		19.8	21.5		20.1	20.5	
Progression Factor		1.00		1.00	1.00		1.08	1.11		1.00	1.00	
Incremental Delay, d2		14.2		7.9	0.5		35.3	8.7		42.7	5.5	
Delay (s)		37.7		25.2	12.8		56.6	32.7		62.8	26.0	
Level of Service		D		C	B		E	C		E	C	
Approach Delay (s)		37.7			20.6			34.0			28.4	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	30.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	114.5%	ICU Level of Service	H
Analysis Period (min)	15		

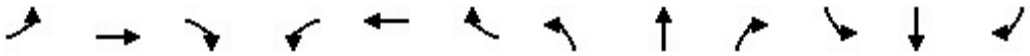
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	52	82	94	59	201	71	748	49	117	861	77
Future Volume (vph)	67	52	82	94	59	201	71	748	49	117	861	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.94			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1755			1842	1576	1805	3505		1787	3461	
Flt Permitted		0.84			0.68	1.00	0.17	1.00		0.23	1.00	
Satd. Flow (perm)		1495			1298	1576	318	3505		441	3461	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	71	55	87	100	63	214	76	796	52	124	916	82
RTOR Reduction (vph)	0	31	0	0	0	149	0	6	0	0	8	0
Lane Group Flow (vph)	0	182	0	0	163	65	76	842	0	124	990	0
Confl. Peds. (#/hr)	1		2	2		1	4		3	3		4
Confl. Bikes (#/hr)						2						1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	2%	0%	1%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Effective Green, g (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Actuated g/C Ratio		0.30			0.30	0.30	0.51	0.41		0.51	0.41	
Clearance Time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Grp Cap (vph)		454			394	478	311	1419		359	1401	
v/s Ratio Prot							0.02	0.24		c0.03	c0.29	
v/s Ratio Perm		0.12			c0.13	0.04	0.10			0.14		
v/c Ratio		0.40			0.41	0.14	0.24	0.59		0.35	0.71	
Uniform Delay, d1		21.8			21.9	20.0	11.4	18.4		11.1	19.6	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.6			3.2	0.6	1.9	1.8		2.6	3.0	
Delay (s)		24.4			25.1	20.6	13.2	20.2		13.7	22.6	
Level of Service		C			C	C	B	C		B	C	
Approach Delay (s)		24.4			22.5			19.7			21.6	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	21.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		

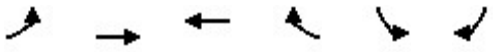
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	24	150	14	30	176	27	8	70	32	41	55	24
Future Volume (vph)	24	150	14	30	176	27	8	70	32	41	55	24
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	26	165	15	33	193	30	9	77	35	45	60	26

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	206	256	121	131
Volume Left (vph)	26	33	9	45
Volume Right (vph)	15	30	35	26
Hadj (s)	-0.02	-0.04	-0.12	-0.01
Departure Headway (s)	4.9	4.8	5.1	5.2
Degree Utilization, x	0.28	0.34	0.17	0.19
Capacity (veh/h)	686	705	632	622
Control Delay (s)	9.8	10.3	9.2	9.4
Approach Delay (s)	9.8	10.3	9.2	9.4
Approach LOS	A	B	A	A

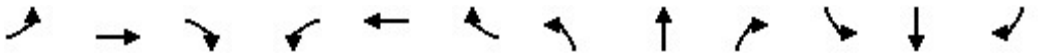
Intersection Summary				
Delay	9.8			
Level of Service	A			
Intersection Capacity Utilization	36.8%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	141	119	8	5	0
Future Volume (Veh/h)	0	141	119	8	5	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	155	131	9	5	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	140				290	136
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	140				290	136
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1443				700	913

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	155	140	5
Volume Left	0	0	5
Volume Right	0	9	0
cSH	1443	1700	700
Volume to Capacity	0.00	0.08	0.01
Queue Length 95th (m)	0.0	0.0	0.2
Control Delay (s)	0.0	0.0	10.2
Lane LOS			B
Approach Delay (s)	0.0	0.0	10.2
Approach LOS			B

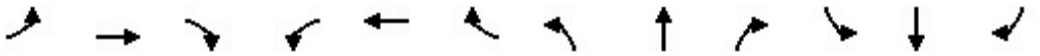
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	17.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	149	5	45	154	9	3	1	28	11	3	0
Future Volume (Veh/h)	9	149	5	45	154	9	3	1	28	11	3	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.92	0.92	0.91	0.91	0.92	0.92	0.92	0.91	0.92	0.91
Hourly flow rate (vph)	10	164	5	49	169	10	3	1	30	12	3	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	179			169			460	464	166	489	461	174
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	179			169			460	464	166	489	461	174
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 %	99			97			99	100	97	97	99	100
cM capacity (veh/h)	1397			1409			493	475	878	457	477	869

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	179	228	34	15
Volume Left	10	49	3	12
Volume Right	5	10	30	0
cSH	1397	1409	802	461
Volume to Capacity	0.01	0.03	0.04	0.03
Queue Length 95th (m)	0.2	0.9	1.1	0.8
Control Delay (s)	0.5	1.9	9.7	13.1
Lane LOS	A	A	A	B
Approach Delay (s)	0.5	1.9	9.7	13.1
Approach LOS			A	B

Intersection Summary				
Average Delay	2.3			
Intersection Capacity Utilization	33.7%	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 (veh/h)	29	89	12	13	80	28	14	320	31	26	160	29
Future Volume (Veh/h)	29	89	12	13	80	28	14	320	31	26	160	29
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	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	32	97	13	14	87	30	15	348	34	28	174	32
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	117			110			416	312	104	506	304	102
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	117			110			416	312	104	506	304	102
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.2	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.0	3.3
p0 queue free %	98			99			96	41	96	88	71	97
cM capacity (veh/h)	1484			1493			402	586	957	234	592	945

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	142	131	397	234
Volume Left	32	14	15	28
Volume Right	13	30	34	32
cSH	1484	1493	595	523
Volume to Capacity	0.02	0.01	0.67	0.45
Queue Length 95th (m)	0.5	0.2	40.0	18.3
Control Delay (s)	1.8	0.9	22.3	17.3
Lane LOS	A	A	C	C
Approach Delay (s)	1.8	0.9	22.3	17.3
Approach LOS			C	C

Intersection Summary				
Average Delay	14.7			
Intersection Capacity Utilization	40.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	21	19	346	30	29	156
Future Volume (Veh/h)	21	19	346	30	29	156
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	23	21	380	33	32	171
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	632	396			413	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	632	396			413	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	97			97	
cM capacity (veh/h)	432	653			1146	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	44	413	203
Volume Left	23	0	32
Volume Right	21	33	0
cSH	515	1700	1146
Volume to Capacity	0.09	0.24	0.03
Queue Length 95th (m)	2.2	0.0	0.7
Control Delay (s)	12.6	0.0	1.5
Lane LOS	B		A
Approach Delay (s)	12.6	0.0	1.5
Approach LOS	B		

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	42.9%	ICU Level of Service	A
Analysis Period (min)	15		

Summary of All Intervals

Run Number	1	2	3	Avg
Start Time	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	4388	4456	4485	4443
Vehs Exited	4423	4416	4472	4435
Starting Vehs	237	207	218	215
Ending Vehs	202	247	231	228
Travel Distance (km)	8280	8189	8451	8307
Travel Time (hr)	225.6	223.2	231.4	226.7
Total Delay (hr)	56.0	55.7	58.8	56.8
Total Stops	6914	6882	7057	6951
Fuel Used (l)	672.1	662.4	685.2	673.2

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	Avg
Vehs Entered	4388	4456	4485	4443
Vehs Exited	4423	4416	4472	4435
Starting Vehs	237	207	218	215
Ending Vehs	202	247	231	228
Travel Distance (km)	8280	8189	8451	8307
Travel Time (hr)	225.6	223.2	231.4	226.7
Total Delay (hr)	56.0	55.7	58.8	56.8
Total Stops	6914	6882	7057	6951
Fuel Used (l)	672.1	662.4	685.2	673.2

Intersection: 3: Old Barrie Rd E & University Ave

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	LR
Maximum Queue (m)	44.2	111.5	93.6	38.7	55.5	137.2
Average Queue (m)	14.6	57.3	41.6	17.4	31.1	68.4
95th Queue (m)	30.5	101.2	75.0	31.3	48.9	112.4
Link Distance (m)		581.6	316.6		1089.3	1089.3
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	106.0			64.0		
Storage Blk Time (%)		1	3			
Queuing Penalty (veh)		1	17			

Intersection: 5: Old Barrie Rd E & Line 15 N

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	67.2	89.7	29.9	57.7
Average Queue (m)	34.8	49.5	9.9	29.3
95th Queue (m)	57.8	82.7	23.1	47.6
Link Distance (m)	288.0	581.6	1006.6	1844.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: University Ave & Diana Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	58.3	25.4	15.8	35.2	51.0	54.5	20.6	44.9	50.9
Average Queue (m)	26.6	10.3	4.2	13.6	25.8	33.2	7.9	18.0	23.0
95th Queue (m)	49.7	21.3	12.4	29.0	43.8	49.1	17.5	35.9	42.8
Link Distance (m)	144.4	117.8	117.8		1089.3	1089.3		535.9	535.9
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				36.0			58.0		
Storage Blk Time (%)				0	1				
Queuing Penalty (veh)				0	1				

Intersection: 12: University Ave/West Ridge Blvd & Stone Ridge Blvd/Hunter Valley Rd

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	68.5	33.8	13.0	29.6	44.2	48.2	13.2	35.1	34.5
Average Queue (m)	32.1	17.1	3.6	13.6	15.2	18.0	3.5	14.3	16.6
95th Queue (m)	57.9	28.4	11.1	25.1	34.5	37.3	11.2	27.7	30.8
Link Distance (m)	278.2	278.2	176.5		535.9	535.9		944.3	944.3
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				42.5			90.0		
Storage Blk Time (%)					0				
Queuing Penalty (veh)					0				

Intersection: 16: West Ridge Blvd & Monarch Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	85.7	38.2	24.0	25.2	69.8	85.0	50.6	65.8	73.2
Average Queue (m)	48.0	17.4	10.2	5.8	35.2	47.8	22.3	27.1	31.6
95th Queue (m)	81.2	31.0	22.8	16.5	58.6	76.5	41.8	56.0	58.2
Link Distance (m)	173.4	268.3	268.3		944.3	944.3		141.5	141.5
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				47.0			38.0		
Storage Blk Time (%)					2		4	3	
Queuing Penalty (veh)					0		10	3	

Intersection: 19: West Ridge Blvd & Bass Lake Side Rd E

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	68.8	19.0	16.1	45.6	64.8	66.6	23.2	79.4	65.3
Average Queue (m)	35.6	6.7	6.4	13.7	28.7	32.5	8.5	38.4	26.0
95th Queue (m)	62.9	16.0	14.3	30.0	52.0	56.0	19.0	61.3	48.3
Link Distance (m)	514.5	80.4	80.4		141.5	141.5		174.0	174.0
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				39.0			42.0		
Storage Blk Time (%)				0	3			4	
Queuing Penalty (veh)				0	3			2	

Intersection: 23: Bass Lake Side Rd E & Atlantis Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	26.8	24.0	25.3	27.9
Average Queue (m)	14.1	13.3	11.8	15.0
95th Queue (m)	21.9	20.8	20.1	24.3
Link Distance (m)	315.7	514.5	221.1	203.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: Bass Lake Side Rd E & Old Scotia Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	8.9
Average Queue (m)	1.2
95th Queue (m)	6.0
Link Distance (m)	239.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: Bass Lake Side Rd E & Hepinstall Pl

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	3.1	9.0	19.0	11.4
Average Queue (m)	0.1	0.5	7.8	4.0
95th Queue (m)	1.7	3.9	14.3	11.8
Link Distance (m)	881.3	315.7	125.7	176.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 32: Line 15 N & Bass Lake Side Rd E

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	5.3	10.6	22.1	29.0
Average Queue (m)	0.2	1.1	12.4	16.1
95th Queue (m)	2.1	6.0	19.9	24.9
Link Distance (m)	278.4	157.8	607.9	420.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 35: Line 15 N & Stone Ridge Blvd extension

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	21.2	5.7
Average Queue (m)	9.6	0.2
95th Queue (m)	17.4	2.3
Link Distance (m)	198.7	607.9
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 38

Summary of All Intervals

Run Number	1	2	3	Avg
Start Time	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	6522	6551	6535	6538
Vehs Exited	6479	6519	6520	6507
Starting Vehs	386	366	381	364
Ending Vehs	429	398	396	405
Travel Distance (km)	12245	12215	12153	12204
Travel Time (hr)	382.4	406.9	386.0	391.8
Total Delay (hr)	131.8	156.5	136.5	141.6
Total Stops	11319	11871	11785	11655
Fuel Used (l)	1040.3	1060.6	1038.2	1046.4

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	Avg
Vehs Entered	6522	6551	6535	6538
Vehs Exited	6479	6519	6520	6507
Starting Vehs	386	366	381	364
Ending Vehs	429	398	396	405
Travel Distance (km)	12245	12215	12153	12204
Travel Time (hr)	382.4	406.9	386.0	391.8
Total Delay (hr)	131.8	156.5	136.5	141.6
Total Stops	11319	11871	11785	11655
Fuel Used (l)	1040.3	1060.6	1038.2	1046.4

Intersection: 3: Old Barrie Rd E & University Ave

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	LR
Maximum Queue (m)	138.2	150.8	138.4	112.5	135.1	138.3
Average Queue (m)	69.2	68.2	75.2	42.1	83.9	91.0
95th Queue (m)	165.8	149.3	117.3	78.0	117.9	124.2
Link Distance (m)		581.6	316.6		1089.3	1089.3
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	106.0			64.0		
Storage Blk Time (%)	24	1	15	1		
Queuing Penalty (veh)	99	1	166	5		

Intersection: 5: Old Barrie Rd E & Line 15 N

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	150.7	336.3	58.8	51.6
Average Queue (m)	50.7	192.2	26.7	22.4
95th Queue (m)	119.9	326.7	44.4	39.6
Link Distance (m)	288.0	581.6	1006.6	1844.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: University Ave & Diana Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	52.3	56.0	27.4	51.8	81.4	84.5	31.8	52.8	59.1
Average Queue (m)	23.1	29.0	10.1	30.1	51.0	54.9	14.9	23.5	27.9
95th Queue (m)	40.4	47.7	21.2	53.2	74.8	74.3	26.9	47.6	52.9
Link Distance (m)	144.4	117.8	117.8		1089.3	1089.3		535.9	535.9
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				36.0			58.0		
Storage Blk Time (%)				2	16			0	
Queuing Penalty (veh)				8	29			0	

Intersection: 12: University Ave/West Ridge Blvd & Stone Ridge Blvd/Hunter Valley Rd

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	62.4	43.8	26.6	57.3	105.2	94.6	19.0	66.8	65.0
Average Queue (m)	26.4	17.3	11.9	32.7	33.5	35.2	2.4	28.5	35.3
95th Queue (m)	46.2	32.3	23.1	57.3	76.5	78.4	10.7	52.5	58.6
Link Distance (m)	278.2	278.2	176.5		535.9	535.9		944.3	944.3
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				42.5			90.0		
Storage Blk Time (%)				2	3				
Queuing Penalty (veh)				10	8				

Intersection: 16: West Ridge Blvd & Monarch Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	84.8	70.0	33.5	61.7	130.8	150.9	52.9	148.2	154.1
Average Queue (m)	43.7	34.6	16.1	25.8	58.1	80.1	43.6	87.2	88.6
95th Queue (m)	74.6	57.5	29.7	52.8	106.7	129.9	63.1	159.3	164.4
Link Distance (m)	173.4	268.3	268.3		944.3	944.3		141.5	141.5
Upstream Blk Time (%)								2	3
Queuing Penalty (veh)								10	14
Storage Bay Dist (m)				47.0			38.0		
Storage Blk Time (%)				6	9		64	12	
Queuing Penalty (veh)				19	6		239	8	

Intersection: 19: West Ridge Blvd & Bass Lake Side Rd E

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	50.1	50.8	34.2	42.7	68.0	70.2	65.8	96.3	101.1
Average Queue (m)	24.9	23.3	16.3	12.4	36.2	39.8	18.0	51.0	49.9
95th Queue (m)	44.2	42.4	28.9	31.2	63.9	66.8	43.3	81.1	84.6
Link Distance (m)	514.5	80.4	80.4		141.5	141.5		174.0	174.0
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				39.0			42.0		
Storage Blk Time (%)					8			14	
Queuing Penalty (veh)					5			17	

Intersection: 23: Bass Lake Side Rd E & Atlantis Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	21.1	26.8	21.3	19.6
Average Queue (m)	13.3	15.3	10.3	11.4
95th Queue (m)	20.2	23.0	16.7	18.0
Link Distance (m)	315.7	514.5	221.1	203.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: Bass Lake Side Rd E & Old Scotia Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	9.0
Average Queue (m)	1.6
95th Queue (m)	7.3
Link Distance (m)	239.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: Bass Lake Side Rd E & Hepinstall Pl

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	13.5	16.2	15.8	9.2
Average Queue (m)	0.5	2.7	6.4	3.2
95th Queue (m)	4.9	11.3	13.9	10.3
Link Distance (m)	881.3	315.7	125.7	176.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 32: Line 15 N & Bass Lake Side Rd E

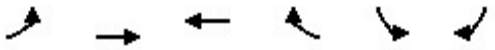
Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	10.9	5.5	44.5	28.5
Average Queue (m)	0.9	0.5	24.6	15.1
95th Queue (m)	5.6	3.5	37.4	23.8
Link Distance (m)	278.4	157.8	607.9	420.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 35: Line 15 N & Stone Ridge Blvd extension

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	14.1	17.7
Average Queue (m)	7.1	2.5
95th Queue (m)	15.0	10.5
Link Distance (m)	198.7	607.9
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 643

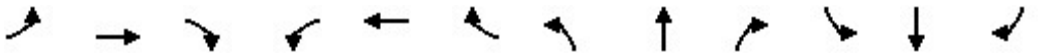


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	103	442	281	688	260	533
Future Volume (vph)	103	442	281	688	260	533
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.97	
Frpb, ped/bikes	1.00	1.00	1.00	0.99	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	0.90	
Flt Protected	0.95	1.00	1.00	1.00	0.98	
Satd. Flow (prot)	1703	1759	1667	1529	3014	
Flt Permitted	0.42	1.00	1.00	1.00	0.98	
Satd. Flow (perm)	758	1759	1667	1529	3014	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	116	497	316	773	292	599
RTOR Reduction (vph)	0	0	0	96	253	0
Lane Group Flow (vph)	116	497	316	677	638	0
Confl. Bikes (#/hr)				1		1
Heavy Vehicles (%)	6%	8%	14%	5%	4%	8%
Turn Type	pm+pt	NA	NA	pm+ov	Prot	
Protected Phases	7	4	8	6	6	
Permitted Phases	4			8		
Actuated Green, G (s)	56.0	56.0	48.0	100.0	52.0	
Effective Green, g (s)	56.0	56.0	48.0	100.0	52.0	
Actuated g/C Ratio	0.47	0.47	0.40	0.83	0.43	
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	
Lane Grp Cap (vph)	385	820	666	1350	1306	
v/s Ratio Prot	0.01	c0.28	0.19	c0.22	0.21	
v/s Ratio Perm	0.13			0.23		
v/c Ratio	0.30	0.61	0.47	0.50	0.49	
Uniform Delay, d1	20.3	23.8	26.7	2.9	24.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.0	3.3	2.4	1.3	1.3	
Delay (s)	22.3	27.1	29.1	4.2	25.8	
Level of Service	C	C	C	A	C	
Approach Delay (s)		26.2	11.4		25.8	
Approach LOS		C	B		C	

Intersection Summary			
HCM 2000 Control Delay	19.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	58.1%	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)	5	307	46	75	253	79	7	29	55	183	183	13
Future Volume (vph)	5	307	46	75	253	79	7	29	55	183	183	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.97			0.92			1.00	
Flt Protected		1.00			0.99			1.00			0.98	
Satd. Flow (prot)		1717			1635			1416			1830	
Flt Permitted		0.99			0.83			0.97			0.80	
Satd. Flow (perm)		1709			1365			1377			1492	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	5	337	51	82	278	87	8	32	60	201	201	14
RTOR Reduction (vph)	0	10	0	0	16	0	0	31	0	0	1	0
Lane Group Flow (vph)	0	383	0	0	431	0	0	69	0	0	415	0
Heavy Vehicles (%)	0%	8%	14%	9%	15%	6%	100%	7%	21%	0%	1%	13%
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)		36.1			36.1			43.9			43.9	
Effective Green, g (s)		36.1			36.1			43.9			43.9	
Actuated g/C Ratio		0.40			0.40			0.49			0.49	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		685			547			671			727	
v/s Ratio Prot												
v/s Ratio Perm		0.22			c0.32			0.05			c0.28	
v/c Ratio		0.56			0.79			0.10			0.57	
Uniform Delay, d1		20.8			23.6			12.4			16.4	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.0			7.4			0.3			3.2	
Delay (s)		21.8			31.0			12.7			19.6	
Level of Service		C			C			B			B	
Approach Delay (s)		21.8			31.0			12.7			19.6	
Approach LOS		C			C			B			B	

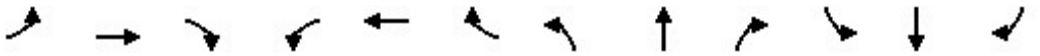
Intersection Summary			
HCM 2000 Control Delay	23.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	29	143	56	14	30	82	461	88	73	563	38
Future Volume (vph)	78	29	143	56	14	30	82	461	88	73	563	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.92			1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected		0.98			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1665			1783	1429	1638	3324		1719	3411	
Flt Permitted		0.87			0.63	1.00	0.40	1.00		0.35	1.00	
Satd. Flow (perm)		1479			1169	1429	696	3324		635	3411	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	85	32	155	61	15	33	89	501	96	79	612	41
RTOR Reduction (vph)	0	53	0	0	0	23	0	18	0	0	5	0
Lane Group Flow (vph)	0	219	0	0	76	10	89	579	0	79	648	0
Confl. Peds. (#/hr)			1	1			2					2
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	4%	0%	3%	3%	0%	13%	10%	5%	9%	5%	5%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		26.0			26.0	26.0	42.0	42.0		53.0	53.0	
Effective Green, g (s)		26.0			26.0	26.0	42.0	42.0		53.0	53.0	
Actuated g/C Ratio		0.29			0.29	0.29	0.47	0.47		0.59	0.59	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Grp Cap (vph)		427			337	412	324	1551		458	2008	
v/s Ratio Prot								c0.17		0.01	c0.19	
v/s Ratio Perm		c0.15			0.07	0.01	0.13			0.09		
v/c Ratio		0.51			0.23	0.02	0.27	0.37		0.17	0.32	
Uniform Delay, d1		26.7			24.3	22.9	14.7	15.5		8.4	9.4	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		4.3			1.5	0.1	2.1	0.7		0.8	0.4	
Delay (s)		31.0			25.9	23.0	16.8	16.2		9.2	9.8	
Level of Service		C			C	C	B	B		A	A	
Approach Delay (s)		31.0			25.0			16.3			9.7	
Approach LOS		C			C			B			A	

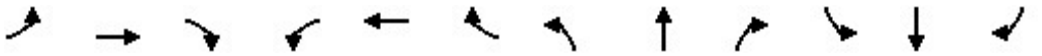
Intersection Summary			
HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	192	5	203	3	2	17	87	558	17	25	580	112
Future Volume (vph)	192	5	203	3	2	17	87	558	17	25	580	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		4.5	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85			0.89		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1684	1518			1670		1583	3490		1805	3332	
Flt Permitted	0.74	1.00			0.96		0.28	1.00		0.42	1.00	
Satd. Flow (perm)	1316	1518			1617		475	3490		798	3332	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	204	5	216	3	2	18	93	594	18	27	617	119
RTOR Reduction (vph)	0	167	0	0	14	0	0	2	0	0	17	0
Lane Group Flow (vph)	204	54	0	0	9	0	93	610	0	27	719	0
Confl. Peds. (#/hr)	2					2	1					1
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	7%	0%	7%	0%	0%	0%	14%	3%	0%	0%	5%	7%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	16.9	16.9			16.9		48.1	48.1		37.4	37.4	
Effective Green, g (s)	16.9	16.9			16.9		48.1	48.1		37.4	37.4	
Actuated g/C Ratio	0.23	0.23			0.23		0.64	0.64		0.50	0.50	
Clearance Time (s)	5.0	5.0			5.0		4.5	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	296	342			364		396	2238		397	1661	
v/s Ratio Prot		0.04					0.02	c0.17			c0.22	
v/s Ratio Perm	c0.16				0.01		0.13			0.03		
v/c Ratio	0.69	0.16			0.02		0.23	0.27		0.07	0.43	
Uniform Delay, d1	26.6	23.3			22.6		5.9	5.8		9.8	12.0	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.5	0.2			0.0		0.3	0.3		0.3	0.8	
Delay (s)	33.2	23.5			22.7		6.2	6.1		10.1	12.8	
Level of Service	C	C			C		A	A		B	B	
Approach Delay (s)		28.2			22.7			6.2			12.7	
Approach LOS		C			C			A			B	

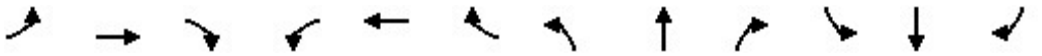
Intersection Summary			
HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	58.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	163	166	70	164	73	56	21	469	285	103	504	108
Future Volume (vph)	163	166	70	164	73	56	21	469	285	103	504	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		3.0	6.0		4.5	6.0		4.5	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.98		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.93		1.00	0.94		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1730	1787		1730	1696		1805	3229		1670	3377	
Flt Permitted	0.67	1.00		0.38	1.00		0.31	1.00		0.23	1.00	
Satd. Flow (perm)	1214	1787		690	1696		584	3229		402	3377	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	179	182	77	180	80	62	23	515	313	113	554	119
RTOR Reduction (vph)	0	13	0	0	23	0	0	76	0	0	15	0
Lane Group Flow (vph)	179	246	0	180	119	0	23	752	0	113	658	0
Confl. Peds. (#/hr)	3		11	11		3	1		11	11		1
Confl. Bikes (#/hr)			2			1						1
Heavy Vehicles (%)	4%	1%	0%	4%	0%	9%	0%	4%	3%	8%	4%	2%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	30.0	30.0		49.0	49.0		54.5	50.0		54.5	50.0	
Effective Green, g (s)	30.0	30.0		49.0	49.0		54.5	50.0		54.5	50.0	
Actuated g/C Ratio	0.25	0.25		0.41	0.41		0.45	0.42		0.45	0.42	
Clearance Time (s)	6.0	6.0		3.0	6.0		4.5	6.0		4.5	6.0	
Lane Grp Cap (vph)	303	446		420	692		311	1345		230	1407	
v/s Ratio Prot		0.14		c0.06	0.07		0.00	c0.23		c0.02	0.19	
v/s Ratio Perm	c0.15			0.12			0.03			0.20		
v/c Ratio	0.59	0.55		0.43	0.17		0.07	0.56		0.49	0.47	
Uniform Delay, d1	39.6	39.2		24.2	22.6		18.6	26.6		21.1	25.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.2	4.9		3.2	0.5		0.5	1.7		7.3	1.1	
Delay (s)	47.8	44.0		27.4	23.1		19.1	28.3		28.5	26.5	
Level of Service	D	D		C	C		B	C		C	C	
Approach Delay (s)		45.6			25.5			28.0			26.8	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	30.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	79.3%	ICU Level of Service	D
Analysis Period (min)	15		

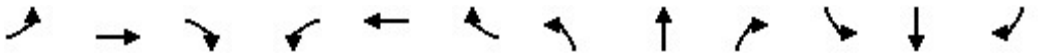
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	127	48	136	33	22	68	107	580	22	63	552	48
Future Volume (vph)	127	48	136	33	22	68	107	580	22	63	552	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.94			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1675			1845	1516	1718	3413		1752	3379	
Flt Permitted		0.84			0.73	1.00	0.34	1.00		0.33	1.00	
Satd. Flow (perm)		1435			1392	1516	606	3413		617	3379	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	140	53	149	36	24	75	118	637	24	69	607	53
RTOR Reduction (vph)	0	36	0	0	0	52	0	4	0	0	8	0
Lane Group Flow (vph)	0	306	0	0	60	23	118	657	0	69	652	0
Confl. Peds. (#/hr)							2		1	1		2
Confl. Bikes (#/hr)						3			3			1
Heavy Vehicles (%)	6%	0%	5%	0%	0%	5%	5%	5%	8%	3%	5%	9%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Effective Green, g (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Actuated g/C Ratio		0.30			0.30	0.30	0.51	0.41		0.51	0.41	
Clearance Time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Grp Cap (vph)		435			422	460	419	1382		427	1368	
v/s Ratio Prot							c0.03	0.19		0.02	c0.19	
v/s Ratio Perm		c0.21			0.04	0.02	0.11			0.07		
v/c Ratio		0.70			0.14	0.05	0.28	0.48		0.16	0.48	
Uniform Delay, d1		24.4			20.0	19.4	10.5	17.3		10.2	17.3	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		9.2			0.7	0.2	1.7	1.2		0.8	1.2	
Delay (s)		33.6			20.7	19.6	12.2	18.5		11.0	18.5	
Level of Service		C			C	B	B	B		B	B	
Approach Delay (s)		33.6			20.1			17.5			17.8	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		

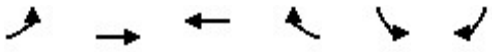
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	43	143	7	27	52	88	10	76	45	109	45	41
Future Volume (vph)	43	143	7	27	52	88	10	76	45	109	45	41
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Hourly flow rate (vph)	69	231	11	44	84	142	16	123	73	176	73	66

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	311	270	212	315
Volume Left (vph)	69	44	16	176
Volume Right (vph)	11	142	73	66
Hadj (s)	0.05	-0.21	-0.09	0.12
Departure Headway (s)	6.3	6.1	6.4	6.3
Degree Utilization, x	0.54	0.46	0.38	0.56
Capacity (veh/h)	523	525	492	517
Control Delay (s)	16.4	14.2	13.2	17.0
Approach Delay (s)	16.4	14.2	13.2	17.0
Approach LOS	C	B	B	C

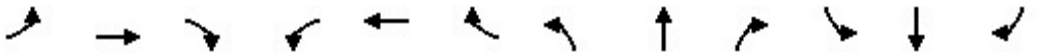
Intersection Summary				
Delay	15.4			
Level of Service	C			
Intersection Capacity Utilization	45.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	98	78	3	7	0
Future Volume (Veh/h)	0	98	78	3	7	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	107	85	3	8	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	88				194	86
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	88				194	86
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1508				795	972

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	107	88	8
Volume Left	0	0	8
Volume Right	0	3	0
cSH	1508	1700	795
Volume to Capacity	0.00	0.05	0.01
Queue Length 95th (m)	0.0	0.0	0.2
Control Delay (s)	0.0	0.0	9.6
Lane LOS			A
Approach Delay (s)	0.0	0.0	9.6
Approach LOS			A

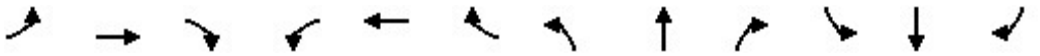
Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	15.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	130	3	10	89	5	2	2	44	18	3	0
Future Volume (Veh/h)	2	130	3	10	89	5	2	2	44	18	3	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	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	141	3	11	97	5	2	2	48	20	3	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	102			144			270	270	142	317	270	100
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	102			144			270	270	142	317	270	100
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	95	97	100	100
cM capacity (veh/h)	1490			1438			676	630	905	596	631	956

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	146	113	52	23
Volume Left	2	11	2	20
Volume Right	3	5	48	0
cSH	1490	1438	879	601
Volume to Capacity	0.00	0.01	0.06	0.04
Queue Length 95th (m)	0.0	0.2	1.5	1.0
Control Delay (s)	0.1	0.8	9.4	11.2
Lane LOS	A	A	A	B
Approach Delay (s)	0.1	0.8	9.4	11.2
Approach LOS			A	B

Intersection Summary				
Average Delay	2.5			
Intersection Capacity Utilization	25.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	74	10	35	43	6	20	92	17	9	322	18
Future Volume (Veh/h)	23	74	10	35	43	6	20	92	17	9	322	18
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	26	85	11	40	49	7	23	106	20	10	370	21
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	56			96			481	278	90	348	280	52
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	56			96			481	278	90	348	280	52
tC, single (s)	4.2			4.1			7.1	6.6	6.2	7.3	6.5	6.4
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.1	3.3	3.7	4.0	3.5
p0 queue free %	98			97			91	82	98	98	39	98
cM capacity (veh/h)	1517			1510			242	593	973	463	604	972

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	122	96	149	401
Volume Left	26	40	23	10
Volume Right	11	7	20	21
cSH	1517	1510	506	611
Volume to Capacity	0.02	0.03	0.29	0.66
Queue Length 95th (m)	0.4	0.7	9.7	38.6
Control Delay (s)	1.7	3.2	15.1	21.4
Lane LOS	A	A	C	C
Approach Delay (s)	1.7	3.2	15.1	21.4
Approach LOS			C	C

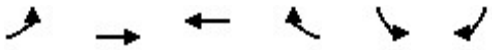
Intersection Summary				
Average Delay	14.8			
Intersection Capacity Utilization	34.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	27	29	100	13	11	356
Future Volume (Veh/h)	27	29	100	13	11	356
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)	29	32	109	14	12	387
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	527	116			123	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	527	116			123	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	97			99	
cM capacity (veh/h)	507	936			1464	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	61	123	399
Volume Left	29	0	12
Volume Right	32	14	0
cSH	668	1700	1464
Volume to Capacity	0.09	0.07	0.01
Queue Length 95th (m)	2.4	0.0	0.2
Control Delay (s)	10.9	0.0	0.3
Lane LOS	B		A
Approach Delay (s)	10.9	0.0	0.3
Approach LOS	B		

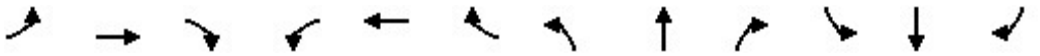
Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	36.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	207	440	479	1160	973	252
Future Volume (vph)	207	440	479	1160	973	252
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.97	
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	0.97	
Flt Protected	0.95	1.00	1.00	1.00	0.96	
Satd. Flow (prot)	1703	1759	1667	1528	3262	
Flt Permitted	0.21	1.00	1.00	1.00	0.96	
Satd. Flow (perm)	379	1759	1667	1528	3262	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	223	473	515	1247	1046	271
RTOR Reduction (vph)	0	0	0	36	20	0
Lane Group Flow (vph)	223	473	515	1211	1297	0
Confl. Peds. (#/hr)	1			1		
Confl. Bikes (#/hr)						4
Heavy Vehicles (%)	6%	8%	14%	5%	4%	8%
Turn Type	pm+pt	NA	NA	pm+ov	Prot	
Protected Phases	7	4	8	6	6	
Permitted Phases	4			8		
Actuated Green, G (s)	58.0	58.0	46.0	96.0	50.0	
Effective Green, g (s)	58.0	58.0	46.0	96.0	50.0	
Actuated g/C Ratio	0.48	0.48	0.38	0.80	0.42	
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	
Lane Grp Cap (vph)	271	850	639	1298	1359	
v/s Ratio Prot	c0.05	0.27	0.31	c0.39	0.40	
v/s Ratio Perm	0.34			0.40		
v/c Ratio	0.82	0.56	0.81	0.93	0.95	
Uniform Delay, d1	25.6	21.9	33.0	9.5	33.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	23.8	2.6	10.4	13.3	15.7	
Delay (s)	49.4	24.5	43.5	22.8	49.6	
Level of Service	D	C	D	C	D	
Approach Delay (s)		32.5	28.8		49.6	
Approach LOS		C	C		D	

Intersection Summary			
HCM 2000 Control Delay	36.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	91.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	388	10	61	463	204	35	188	113	147	35	8
Future Volume (vph)	13	388	10	61	463	204	35	188	113	147	35	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.96			0.95			0.99	
Flt Protected		1.00			1.00			0.99			0.96	
Satd. Flow (prot)		1840			1772			1767			1764	
Flt Permitted		0.97			0.93			0.95			0.42	
Satd. Flow (perm)		1792			1651			1686			777	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	14	426	11	67	509	224	38	207	124	162	38	9
RTOR Reduction (vph)	0	1	0	0	18	0	0	19	0	0	1	0
Lane Group Flow (vph)	0	450	0	0	782	0	0	350	0	0	208	0
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	2%	33%	11%	2%	2%	0%	2%	3%	4%	0%	0%
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)		50.9			50.9			29.1			29.1	
Effective Green, g (s)		50.9			50.9			29.1			29.1	
Actuated g/C Ratio		0.57			0.57			0.32			0.32	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1013			933			545			251	
v/s Ratio Prot												
v/s Ratio Perm		0.25			c0.47			0.21			c0.27	
v/c Ratio		0.44			0.84			0.64			0.83	
Uniform Delay, d1		11.3			16.2			26.0			28.1	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.3			6.7			5.7			25.8	
Delay (s)		11.7			22.8			31.7			53.9	
Level of Service		B			C			C			D	
Approach Delay (s)		11.7			22.8			31.7			53.9	
Approach LOS		B			C			C			D	

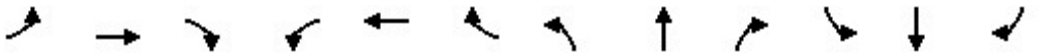
Intersection Summary			
HCM 2000 Control Delay	25.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	106.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	21	116	161	49	108	195	1029	93	118	698	66
Future Volume (vph)	56	21	116	161	49	108	195	1029	93	118	698	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.92			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1685			1816	1552	1797	3472		1805	3457	
Flt Permitted		0.82			0.60	1.00	0.34	1.00		0.11	1.00	
Satd. Flow (perm)		1401			1128	1552	641	3472		204	3457	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	61	23	126	175	53	117	212	1118	101	128	759	72
RTOR Reduction (vph)	0	60	0	0	0	83	0	7	0	0	8	0
Lane Group Flow (vph)	0	150	0	0	228	34	212	1212	0	128	823	0
Confl. Peds. (#/hr)	5					5	6		4	4		6
Confl. Bikes (#/hr)			2			3			2			4
Heavy Vehicles (%)	0%	0%	2%	1%	0%	2%	0%	2%	7%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		26.0			26.0	26.0	42.0	42.0		53.0	53.0	
Effective Green, g (s)		26.0			26.0	26.0	42.0	42.0		53.0	53.0	
Actuated g/C Ratio		0.29			0.29	0.29	0.47	0.47		0.59	0.59	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Grp Cap (vph)		404			325	448	299	1620		244	2035	
v/s Ratio Prot								c0.35		c0.04	0.24	
v/s Ratio Perm		0.11			c0.20	0.02	0.33			0.27		
v/c Ratio		0.37			0.70	0.08	0.71	0.75		0.52	0.40	
Uniform Delay, d1		25.5			28.5	23.3	19.1	19.7		12.9	10.0	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.6			12.0	0.3	13.3	3.2		7.9	0.6	
Delay (s)		28.1			40.5	23.6	32.4	22.9		20.8	10.6	
Level of Service		C			D	C	C	C		C	B	
Approach Delay (s)		28.1			34.8			24.3			11.9	
Approach LOS		C			C			C			B	

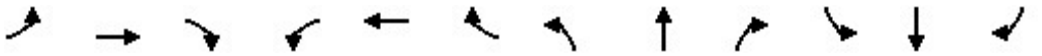
Intersection Summary			
HCM 2000 Control Delay	21.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	159	5	180	27	3	58	245	1154	8	15	788	245
Future Volume (vph)	159	5	180	27	3	58	245	1154	8	15	788	245
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		4.5	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.98			0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.99	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85			0.91		1.00	1.00		1.00	0.96	
Flt Protected	0.95	1.00			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1794	1537			1559		1736	3565		1357	3407	
Flt Permitted	0.74	1.00			0.85		0.11	1.00		0.21	1.00	
Satd. Flow (perm)	1405	1537			1341		208	3565		301	3407	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	179	6	202	30	3	65	275	1297	9	17	885	275
RTOR Reduction (vph)	0	162	0	0	36	0	0	0	0	0	33	0
Lane Group Flow (vph)	179	46	0	0	62	0	275	1306	0	17	1127	0
Confl. Peds. (#/hr)	8		4	4		8	3					3
Confl. Bikes (#/hr)			1						2			3
Heavy Vehicles (%)	0%	0%	4%	19%	0%	3%	4%	1%	20%	33%	2%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	14.7	14.7			14.7		50.3	50.3		34.0	34.0	
Effective Green, g (s)	14.7	14.7			14.7		50.3	50.3		34.0	34.0	
Actuated g/C Ratio	0.20	0.20			0.20		0.67	0.67		0.45	0.45	
Clearance Time (s)	5.0	5.0			5.0		4.5	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	275	301			262		379	2390		136	1544	
v/s Ratio Prot		0.03					c0.11	0.37			0.33	
v/s Ratio Perm	c0.13				0.05		c0.37			0.06		
v/c Ratio	0.65	0.15			0.24		0.73	0.55		0.12	0.73	
Uniform Delay, d1	27.8	25.0			25.4		15.0	6.4		11.9	16.8	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.4	0.2			0.5		6.8	0.9		1.9	3.1	
Delay (s)	33.2	25.2			25.9		21.8	7.3		13.8	19.8	
Level of Service	C	C			C		C	A		B	B	
Approach Delay (s)		28.9			25.9			9.8			19.7	
Approach LOS		C			C			A			B	

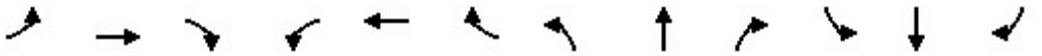
Intersection Summary			
HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	132	181	55	313	90	91	69	698	541	75	792	237
Future Volume (vph)	132	181	55	313	90	91	69	698	541	75	792	237
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		3.0	6.0		4.5	6.0		4.5	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.98		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.92		1.00	0.93		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1800	1786		1782	1722		1805	3254		1805	3397	
Flt Permitted	0.63	1.00		0.36	1.00		0.10	1.00		0.08	1.00	
Satd. Flow (perm)	1192	1786		681	1722		181	3254		152	3397	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	150	206	62	356	102	103	78	793	615	85	900	269
RTOR Reduction (vph)	0	9	0	0	30	0	0	117	0	0	23	0
Lane Group Flow (vph)	150	260	0	356	175	0	78	1291	0	85	1146	0
Confl. Peds. (#/hr)	3		11	11		3	1		11	11		1
Confl. Bikes (#/hr)			2			7			1			4
Heavy Vehicles (%)	0%	1%	5%	1%	0%	2%	0%	2%	1%	0%	2%	2%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	30.0	30.0		49.0	49.0		54.5	50.0		54.5	50.0	
Effective Green, g (s)	30.0	30.0		49.0	49.0		54.5	50.0		54.5	50.0	
Actuated g/C Ratio	0.25	0.25		0.41	0.41		0.45	0.42		0.45	0.42	
Clearance Time (s)	6.0	6.0		3.0	6.0		4.5	6.0		4.5	6.0	
Lane Grp Cap (vph)	298	446		424	703		143	1355		131	1415	
v/s Ratio Prot		0.15		c0.11	0.10		0.02	c0.40		c0.02	0.34	
v/s Ratio Perm	0.13			c0.23			0.23			0.27		
v/c Ratio	0.50	0.58		0.84	0.25		0.55	0.95		0.65	0.81	
Uniform Delay, d1	38.6	39.5		28.4	23.4		23.3	33.9		27.1	30.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.0	5.5		17.8	0.8		14.1	15.5		22.3	5.1	
Delay (s)	44.6	45.0		46.2	24.2		37.4	49.4		49.4	35.9	
Level of Service	D	D		D	C		D	D		D	D	
Approach Delay (s)		44.8			38.2			48.8			36.8	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	42.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.5
Intersection Capacity Utilization	95.7%	ICU Level of Service	F
Analysis Period (min)	15		

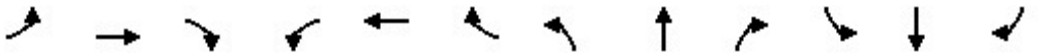
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	56	88	103	65	219	77	797	53	128	914	80
Future Volume (vph)	70	56	88	103	65	219	77	797	53	128	914	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.94			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1755			1842	1576	1805	3505		1787	3462	
Flt Permitted		0.83			0.67	1.00	0.14	1.00		0.21	1.00	
Satd. Flow (perm)		1488			1269	1576	273	3505		391	3462	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	74	60	94	110	69	233	82	848	56	136	972	85
RTOR Reduction (vph)	0	32	0	0	0	162	0	6	0	0	8	0
Lane Group Flow (vph)	0	196	0	0	179	71	82	898	0	136	1049	0
Confl. Peds. (#/hr)	1		2	2		1	4		3	3		4
Confl. Bikes (#/hr)						2						1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	2%	0%	1%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Effective Green, g (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Actuated g/C Ratio		0.30			0.30	0.30	0.51	0.41		0.51	0.41	
Clearance Time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Grp Cap (vph)		452			385	478	293	1419		339	1402	
v/s Ratio Prot							0.03	0.26		c0.04	c0.30	
v/s Ratio Perm		0.13			c0.14	0.04	0.11			0.16		
v/c Ratio		0.43			0.46	0.15	0.28	0.63		0.40	0.75	
Uniform Delay, d1		22.0			22.3	20.0	11.8	18.8		11.4	20.1	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		3.0			4.0	0.7	2.4	2.2		3.5	3.7	
Delay (s)		25.1			26.3	20.7	14.2	21.0		14.9	23.7	
Level of Service		C			C	C	B	C		B	C	
Approach Delay (s)		25.1			23.1			20.4			22.7	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	22.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		

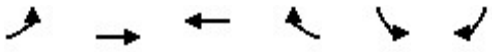
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	27	160	15	33	187	30	8	76	35	45	60	27
Future Volume (vph)	27	160	15	33	187	30	8	76	35	45	60	27
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	30	176	16	36	205	33	9	84	38	49	66	30

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	222	274	131	145
Volume Left (vph)	30	36	9	49
Volume Right (vph)	16	33	38	30
Hadj (s)	-0.02	-0.05	-0.12	-0.01
Departure Headway (s)	5.0	4.9	5.3	5.4
Degree Utilization, x	0.31	0.38	0.19	0.22
Capacity (veh/h)	665	688	603	604
Control Delay (s)	10.3	10.9	9.6	9.9
Approach Delay (s)	10.3	10.9	9.6	9.9
Approach LOS	B	B	A	A

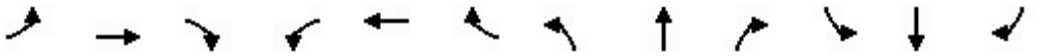
Intersection Summary				
Delay	10.3			
Level of Service	B			
Intersection Capacity Utilization	38.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	153	129	8	5	0
Future Volume (Veh/h)	0	153	129	8	5	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	168	142	9	5	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	151				314	146
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	151				314	146
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1430				678	901

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	168	151	5
Volume Left	0	0	5
Volume Right	0	9	0
cSH	1430	1700	678
Volume to Capacity	0.00	0.09	0.01
Queue Length 95th (m)	0.0	0.0	0.2
Control Delay (s)	0.0	0.0	10.3
Lane LOS			B
Approach Delay (s)	0.0	0.0	10.3
Approach LOS			B

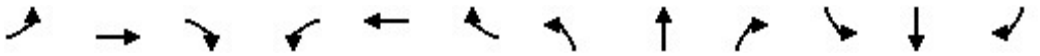
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	18.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	162	5	45	167	10	3	1	28	12	3	0
Future Volume (Veh/h)	10	162	5	45	167	10	3	1	28	12	3	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.92	0.92	0.91	0.91	0.92	0.92	0.92	0.91	0.92	0.91
Hourly flow rate (vph)	11	178	5	49	184	11	3	1	30	13	3	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	195			183			492	496	180	520	492	190
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	195			183			492	496	180	520	492	190
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 %	99			96			99	100	97	97	99	100
cM capacity (veh/h)	1378			1392			469	455	862	435	457	852

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	194	244	34	16
Volume Left	11	49	3	13
Volume Right	5	11	30	0
cSH	1378	1392	784	439
Volume to Capacity	0.01	0.04	0.04	0.04
Queue Length 95th (m)	0.2	0.9	1.1	0.9
Control Delay (s)	0.5	1.8	9.8	13.5
Lane LOS	A	A	A	B
Approach Delay (s)	0.5	1.8	9.8	13.5
Approach LOS			A	B

Intersection Summary				
Average Delay	2.2			
Intersection Capacity Utilization	35.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	97	13	14	87	30	14	347	33	28	172	32
Future Volume (Veh/h)	32	97	13	14	87	30	14	347	33	28	172	32
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	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	35	105	14	15	95	33	15	377	36	30	187	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)												
pX, platoon unblocked												
vC, conflicting volume	128			119			452	340	112	548	330	112
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	128			119			452	340	112	548	330	112
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.2	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.0	3.3
p0 queue free %	98			99			96	33	96	84	67	96
cM capacity (veh/h)	1470			1482			365	564	947	191	571	934

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	154	143	428	252
Volume Left	35	15	15	30
Volume Right	14	33	36	35
cSH	1470	1482	572	482
Volume to Capacity	0.02	0.01	0.75	0.52
Queue Length 95th (m)	0.6	0.2	52.3	23.8
Control Delay (s)	1.9	0.9	27.6	20.3
Lane LOS	A	A	D	C
Approach Delay (s)	1.9	0.9	27.6	20.3
Approach LOS			D	C

Intersection Summary				
Average Delay	17.8			
Intersection Capacity Utilization	43.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	21	19	375	30	29	169
Future Volume (Veh/h)	21	19	375	30	29	169
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	23	21	412	33	32	186
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	678	428			445	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	678	428			445	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	97			97	
cM capacity (veh/h)	405	626			1115	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	44	445	218
Volume Left	23	0	32
Volume Right	21	33	0
cSH	488	1700	1115
Volume to Capacity	0.09	0.26	0.03
Queue Length 95th (m)	2.4	0.0	0.7
Control Delay (s)	13.1	0.0	1.5
Lane LOS	B		A
Approach Delay (s)	13.1	0.0	1.5
Approach LOS	B		

Intersection Summary			
Average Delay		1.3	
Intersection Capacity Utilization		43.5%	ICU Level of Service A
Analysis Period (min)		15	

Summary of All Intervals

Run Number	1	2	3	Avg
Start Time	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	4784	4803	4905	4831
Vehs Exited	4720	4789	4859	4790
Starting Vehs	245	244	229	235
Ending Vehs	309	258	275	279
Travel Distance (km)	8854	9014	9025	8964
Travel Time (hr)	250.4	255.7	258.4	254.8
Total Delay (hr)	69.0	71.3	73.6	71.3
Total Stops	7497	7609	7797	7633
Fuel Used (l)	726.9	739.5	746.0	737.5

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	Avg
Vehs Entered	4784	4803	4905	4831
Vehs Exited	4720	4789	4859	4790
Starting Vehs	245	244	229	235
Ending Vehs	309	258	275	279
Travel Distance (km)	8854	9014	9025	8964
Travel Time (hr)	250.4	255.7	258.4	254.8
Total Delay (hr)	69.0	71.3	73.6	71.3
Total Stops	7497	7609	7797	7633
Fuel Used (l)	726.9	739.5	746.0	737.5

Intersection: 3: Old Barrie Rd E & University Ave

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	LR
Maximum Queue (m)	42.5	118.0	94.8	45.8	75.6	137.6
Average Queue (m)	16.8	57.5	45.9	20.2	35.6	78.2
95th Queue (m)	33.5	99.1	78.9	36.8	60.6	121.3
Link Distance (m)		581.6	316.6		1089.3	1089.3
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	106.0			64.0		
Storage Blk Time (%)		0	3			
Queuing Penalty (veh)		0	22			

Intersection: 5: Old Barrie Rd E & Line 15 N

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	101.4	140.0	41.9	84.7
Average Queue (m)	47.2	69.6	15.1	45.1
95th Queue (m)	83.7	117.2	35.7	76.3
Link Distance (m)	288.0	581.6	1006.6	1844.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: University Ave & Diana Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	65.8	30.4	18.4	46.5	53.6	67.0	23.1	52.6	52.0
Average Queue (m)	30.6	11.2	5.1	15.7	27.1	33.0	9.4	20.9	25.5
95th Queue (m)	55.0	24.3	13.5	32.9	46.4	53.7	18.7	40.5	45.4
Link Distance (m)	144.4	117.8	117.8		1089.3	1089.3		535.9	535.9
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				36.0			58.0		
Storage Blk Time (%)				1	2			0	
Queuing Penalty (veh)				2	2			0	

Intersection: 12: University Ave/West Ridge Blvd & Stone Ridge Blvd/Hunter Valley Rd

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	63.9	46.3	13.9	45.5	49.2	48.6	17.7	61.4	63.8
Average Queue (m)	35.1	20.6	3.6	13.1	17.2	18.6	4.3	26.4	29.9
95th Queue (m)	57.6	36.8	11.2	27.9	38.4	38.5	12.5	50.6	57.7
Link Distance (m)	278.2	278.2	176.5		535.9	535.9		944.3	944.3
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				42.5			90.0		
Storage Blk Time (%)				0	0				
Queuing Penalty (veh)				1	0				

Intersection: 16: West Ridge Blvd & Monarch Dr

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	74.8	81.6	63.3	34.1	14.7	82.6	98.6	52.7	85.9	78.4
Average Queue (m)	30.7	42.0	26.4	15.4	4.5	50.0	63.6	23.9	49.2	52.0
95th Queue (m)	55.9	73.5	48.1	31.0	13.2	78.9	91.5	49.7	72.5	71.9
Link Distance (m)	173.4	173.4	268.3	268.3		944.3	944.3		141.5	141.5
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)					47.0			38.0		
Storage Blk Time (%)						8		2	14	
Queuing Penalty (veh)						2		6	14	

Intersection: 19: West Ridge Blvd & Bass Lake Side Rd E

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	88.4	21.6	18.7	53.6	60.8	65.5	35.4	65.8	89.4
Average Queue (m)	37.5	9.4	7.0	16.6	32.4	35.7	9.6	38.4	28.3
95th Queue (m)	63.9	19.6	15.7	38.8	56.5	60.0	23.4	58.4	60.3
Link Distance (m)	514.5	80.4	80.4		141.5	141.5		174.0	174.0
Upstream Blk Time (%)									0
Queuing Penalty (veh)									0
Storage Bay Dist (m)				39.0			42.0		
Storage Blk Time (%)				0	5			6	
Queuing Penalty (veh)				1	5			4	

Intersection: 23: Bass Lake Side Rd E & Atlantis Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	26.4	30.3	26.3	24.7
Average Queue (m)	14.8	13.6	12.6	14.2
95th Queue (m)	22.7	23.0	21.6	21.9
Link Distance (m)	315.7	514.5	221.1	203.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: Bass Lake Side Rd E & Old Scotia Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	11.2
Average Queue (m)	2.8
95th Queue (m)	9.8
Link Distance (m)	239.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: Bass Lake Side Rd E & Hepinstall Pl

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	9.1	20.4	11.5
Average Queue (m)	0.3	7.4	4.6
95th Queue (m)	3.0	14.4	12.4
Link Distance (m)	315.7	125.7	176.0
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 32: Line 15 N & Bass Lake Side Rd E

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	6.5	8.6	27.1	38.5
Average Queue (m)	0.3	0.9	13.2	17.7
95th Queue (m)	4.0	5.1	22.6	28.8
Link Distance (m)	278.4	157.8	607.9	420.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 35: Line 15 N & Stone Ridge Blvd extension

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	17.6	2.9
Average Queue (m)	8.4	0.1
95th Queue (m)	15.4	1.6
Link Distance (m)	198.7	607.9
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 59

Summary of All Intervals

Run Number	1	2	3	Avg
Start Time	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	6921	7062	7121	7037
Vehs Exited	6940	6988	7080	7004
Starting Vehs	412	382	390	391
Ending Vehs	393	456	431	425
Travel Distance (km)	13201	13186	13294	13227
Travel Time (hr)	447.6	463.8	457.7	456.4
Total Delay (hr)	177.0	192.9	184.5	184.8
Total Stops	12653	12615	12693	12654
Fuel Used (l)	1157.8	1169.1	1169.9	1165.6

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	Avg
Vehs Entered	6921	7062	7121	7037
Vehs Exited	6940	6988	7080	7004
Starting Vehs	412	382	390	391
Ending Vehs	393	456	431	425
Travel Distance (km)	13201	13186	13294	13227
Travel Time (hr)	447.6	463.8	457.7	456.4
Total Delay (hr)	177.0	192.9	184.5	184.8
Total Stops	12653	12615	12693	12654
Fuel Used (l)	1157.8	1169.1	1169.9	1165.6

Intersection: 3: Old Barrie Rd E & University Ave

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	R	L	LR
Maximum Queue (m)	90.6	104.7	177.0	123.3	172.4	189.8
Average Queue (m)	44.2	56.2	90.8	64.0	114.7	122.2
95th Queue (m)	79.5	96.9	146.8	114.6	169.5	173.6
Link Distance (m)		581.6	316.6		1089.3	1089.3
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	106.0			64.0		
Storage Blk Time (%)	0	0	21	5		
Queuing Penalty (veh)	0	1	248	26		

Intersection: 5: Old Barrie Rd E & Line 15 N

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	174.1	266.2	88.1	122.9
Average Queue (m)	56.7	122.9	45.6	56.5
95th Queue (m)	127.6	220.2	77.6	105.2
Link Distance (m)	288.0	581.6	1006.6	1844.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: University Ave & Diana Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	50.4	63.1	33.7	51.8	91.2	91.3	34.7	59.4	73.4
Average Queue (m)	24.9	30.1	11.2	34.6	59.8	61.7	13.1	24.3	31.5
95th Queue (m)	43.7	52.1	22.0	58.4	82.7	84.2	26.7	52.4	58.8
Link Distance (m)	144.4	117.8	117.8		1089.3	1089.3		535.9	535.9
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				36.0			58.0		
Storage Blk Time (%)				4	21			0	
Queuing Penalty (veh)				22	42			0	

Intersection: 12: University Ave/West Ridge Blvd & Stone Ridge Blvd/Hunter Valley Rd

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	47.5	43.4	42.8	57.2	104.1	111.7	17.4	93.2	98.8
Average Queue (m)	25.8	18.8	13.9	32.9	39.5	42.0	3.9	49.6	56.6
95th Queue (m)	42.8	33.0	27.9	54.2	83.3	85.2	13.2	84.3	94.2
Link Distance (m)	278.2	278.2	176.5		535.9	535.9		944.3	944.3
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				42.5			90.0		
Storage Blk Time (%)				3	4			0	
Queuing Penalty (veh)				15	10			0	

Intersection: 16: West Ridge Blvd & Monarch Dr

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	51.2	79.9	146.3	52.3	61.8	163.8	207.2	52.8	119.3	119.7
Average Queue (m)	25.0	39.5	65.4	21.6	20.7	98.9	123.4	19.4	77.7	79.9
95th Queue (m)	44.8	69.6	121.7	41.2	56.0	145.4	176.5	46.7	105.4	108.9
Link Distance (m)	173.4	173.4	268.3	268.3		944.3	944.3		141.5	141.5
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)					47.0			38.0		
Storage Blk Time (%)						29		0	27	
Queuing Penalty (veh)						20		0	20	

Intersection: 19: West Ridge Blvd & Bass Lake Side Rd E

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	55.1	54.3	52.7	53.7	91.6	89.6	65.4	86.1	86.6
Average Queue (m)	26.4	23.9	18.9	13.9	46.0	50.5	17.1	50.2	51.1
95th Queue (m)	45.8	43.7	37.1	33.0	78.7	79.4	38.3	74.8	75.7
Link Distance (m)	514.5	80.4	80.4		141.5	141.5		174.0	174.0
Upstream Blk Time (%)		0							
Queuing Penalty (veh)		0							
Storage Bay Dist (m)				39.0			42.0		
Storage Blk Time (%)				0	11		0	10	
Queuing Penalty (veh)				0	8		0	13	

Intersection: 23: Bass Lake Side Rd E & Atlantis Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	25.5	25.2	24.4	27.1
Average Queue (m)	14.1	15.8	11.6	12.2
95th Queue (m)	21.3	23.0	19.6	20.3
Link Distance (m)	315.7	514.5	221.1	203.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: Bass Lake Side Rd E & Old Scotia Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	9.0
Average Queue (m)	1.3
95th Queue (m)	6.5
Link Distance (m)	239.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: Bass Lake Side Rd E & Hepinstall Pl

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	8.5	11.7	15.9	9.2
Average Queue (m)	0.9	2.6	5.6	4.4
95th Queue (m)	6.0	10.1	13.4	11.9
Link Distance (m)	881.3	315.7	125.7	176.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 32: Line 15 N & Bass Lake Side Rd E

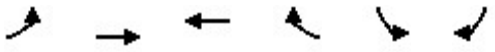
Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	8.8	5.5	55.0	24.6
Average Queue (m)	2.0	0.5	29.0	14.9
95th Queue (m)	7.8	3.6	46.3	22.9
Link Distance (m)	278.4	157.8	607.9	420.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 35: Line 15 N & Stone Ridge Blvd extension

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	13.4	16.0
Average Queue (m)	7.1	2.6
95th Queue (m)	14.1	10.1
Link Distance (m)	198.7	607.9
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

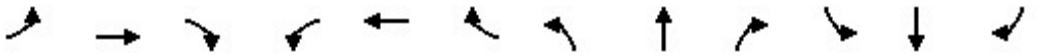
Network Summary

Network wide Queuing Penalty: 424



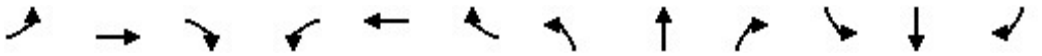
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	112	479	304	740	267	575
Future Volume (vph)	112	479	304	740	267	575
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00	0.95	1.00	0.97	
Frpb, ped/bikes	1.00	1.00	1.00	0.99	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	0.90	
Flt Protected	0.95	1.00	1.00	1.00	0.98	
Satd. Flow (prot)	1703	1759	3167	1530	3008	
Flt Permitted	0.48	1.00	1.00	1.00	0.98	
Satd. Flow (perm)	852	1759	3167	1530	3008	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	126	538	342	831	300	646
RTOR Reduction (vph)	0	0	0	88	204	0
Lane Group Flow (vph)	126	538	342	743	742	0
Confl. Bikes (#/hr)				1		1
Heavy Vehicles (%)	6%	8%	14%	5%	4%	8%
Turn Type	pm+pt	NA	NA	pm+ov	Prot	
Protected Phases	7	4	8	6	6	
Permitted Phases	4			8		
Actuated Green, G (s)	52.0	52.0	45.0	101.0	56.0	
Effective Green, g (s)	52.0	52.0	45.0	101.0	56.0	
Actuated g/C Ratio	0.43	0.43	0.38	0.84	0.47	
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	
Lane Grp Cap (vph)	390	762	1187	1364	1403	
v/s Ratio Prot	0.01	c0.31	0.11	c0.25	0.25	
v/s Ratio Perm	0.13			0.23		
v/c Ratio	0.32	0.71	0.29	0.55	0.53	
Uniform Delay, d1	23.1	27.8	26.3	2.8	22.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.2	5.4	0.6	1.6	1.4	
Delay (s)	25.3	33.2	26.9	4.3	24.1	
Level of Service	C	C	C	A	C	
Approach Delay (s)		31.7	10.9		24.1	
Approach LOS		C	B		C	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	334	51	81	272	84	7	31	60	197	199	14
Future Volume (vph)	5	334	51	81	272	84	7	31	60	197	199	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0		5.0			5.0	
Lane Util. Factor		1.00			1.00	1.00		1.00			1.00	
Frt		0.98			1.00	0.85		0.92			1.00	
Flt Protected		1.00			0.99	1.00		1.00			0.98	
Satd. Flow (prot)		1716			1653	1524		1418			1830	
Flt Permitted		1.00			0.73	1.00		0.97			0.79	
Satd. Flow (perm)		1710			1220	1524		1380			1487	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	5	367	56	89	299	92	8	34	66	216	219	15
RTOR Reduction (vph)	0	9	0	0	0	58	0	32	0	0	1	0
Lane Group Flow (vph)	0	419	0	0	388	34	0	76	0	0	449	0
Heavy Vehicles (%)	0%	8%	14%	9%	15%	6%	100%	7%	21%	0%	1%	13%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		33.6			33.6	33.6		46.4			46.4	
Effective Green, g (s)		33.6			33.6	33.6		46.4			46.4	
Actuated g/C Ratio		0.37			0.37	0.37		0.52			0.52	
Clearance Time (s)		5.0			5.0	5.0		5.0			5.0	
Vehicle Extension (s)		3.0			3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)		638			455	568		711			766	
v/s Ratio Prot												
v/s Ratio Perm		0.24			c0.32	0.02		0.06			c0.30	
v/c Ratio		0.66			0.85	0.06		0.11			0.59	
Uniform Delay, d1		23.4			25.9	18.1		11.2			15.1	
Progression Factor		1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2		2.4			14.3	0.0		0.3			3.3	
Delay (s)		25.8			40.2	18.1		11.5			18.4	
Level of Service		C			D	B		B			B	
Approach Delay (s)		25.8			36.0			11.5			18.4	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	25.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	81.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



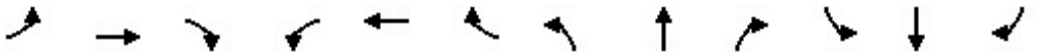
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	30	152	61	14	32	87	495	96	79	597	40
Future Volume (vph)	82	30	152	61	14	32	87	495	96	79	597	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.92			1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected		0.98			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1663			1781	1429	1638	3323		1719	3411	
Flt Permitted		0.87			0.60	1.00	0.39	1.00		0.33	1.00	
Satd. Flow (perm)		1474			1113	1429	670	3323		592	3411	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	89	33	165	66	15	35	95	538	104	86	649	43
RTOR Reduction (vph)	0	54	0	0	0	25	0	18	0	0	5	0
Lane Group Flow (vph)	0	233	0	0	81	10	95	624	0	86	687	0
Confl. Peds. (#/hr)			1	1			2					2
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	4%	0%	3%	3%	0%	13%	10%	5%	9%	5%	5%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		26.0			26.0	26.0	42.0	42.0		53.0	53.0	
Effective Green, g (s)		26.0			26.0	26.0	42.0	42.0		53.0	53.0	
Actuated g/C Ratio		0.29			0.29	0.29	0.47	0.47		0.59	0.59	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Grp Cap (vph)		425			321	412	312	1550		436	2008	
v/s Ratio Prot								c0.19		0.02	c0.20	
v/s Ratio Perm		c0.16			0.07	0.01	0.14			0.10		
v/c Ratio		0.55			0.25	0.02	0.30	0.40		0.20	0.34	
Uniform Delay, d1		27.0			24.5	22.9	14.9	15.8		8.5	9.5	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		5.0			1.9	0.1	2.5	0.8		1.0	0.5	
Delay (s)		32.1			26.4	23.0	17.4	16.5		9.5	10.0	
Level of Service		C			C	C	B	B		A	A	
Approach Delay (s)		32.1			25.4			16.7			9.9	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

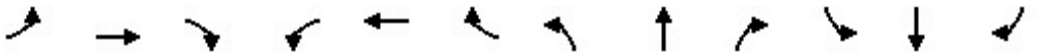
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	196	5	207	4	2	18	89	603	18	27	625	117
Future Volume (vph)	196	5	207	4	2	18	89	603	18	27	625	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		4.5	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85			0.90		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1684	1517			1674		1583	3491		1805	3335	
Flt Permitted	0.74	1.00			0.95		0.26	1.00		0.40	1.00	
Satd. Flow (perm)	1313	1517			1605		435	3491		762	3335	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	209	5	220	4	2	19	95	641	19	29	665	124
RTOR Reduction (vph)	0	170	0	0	15	0	0	2	0	0	16	0
Lane Group Flow (vph)	209	55	0	0	10	0	95	658	0	29	773	0
Confl. Peds. (#/hr)	2					2	1					1
Confl. Bikes (#/hr)									1			1
Heavy Vehicles (%)	7%	0%	7%	0%	0%	0%	14%	3%	0%	0%	5%	7%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	17.1	17.1			17.1		47.9	47.9		37.1	37.1	
Effective Green, g (s)	17.1	17.1			17.1		47.9	47.9		37.1	37.1	
Actuated g/C Ratio	0.23	0.23			0.23		0.64	0.64		0.49	0.49	
Clearance Time (s)	5.0	5.0			5.0		4.5	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	299	345			365		374	2229		376	1649	
v/s Ratio Prot		0.04					0.02	c0.19			c0.23	
v/s Ratio Perm	c0.16				0.01		0.14			0.04		
v/c Ratio	0.70	0.16			0.03		0.25	0.30		0.08	0.47	
Uniform Delay, d1	26.6	23.2			22.5		6.1	6.0		10.0	12.5	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.0	0.2			0.0		0.4	0.3		0.4	1.0	
Delay (s)	33.6	23.4			22.5		6.5	6.4		10.4	13.4	
Level of Service	C	C			C		A	A		B	B	
Approach Delay (s)		28.3			22.5			6.4			13.3	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	59.8%	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 (vph)	171	180	73	179	79	61	22	493	310	112	540	115
Future Volume (vph)	171	180	73	179	79	61	22	493	310	112	540	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0		3.0	6.0		4.5	6.0	6.0	4.5	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00	0.96	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.96		1.00	0.93		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1733	1791		1731	1697		1805	3471	1503	1667	3378	
Flt Permitted	0.58	1.00		0.34	1.00		0.35	1.00	1.00	0.35	1.00	
Satd. Flow (perm)	1064	1791		623	1697		665	3471	1503	618	3378	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	188	198	80	197	87	67	24	542	341	123	593	126
RTOR Reduction (vph)	0	15	0	0	32	0	0	0	203	0	15	0
Lane Group Flow (vph)	188	263	0	197	122	0	24	542	138	123	704	0
Confl. Peds. (#/hr)	3		11	11		3	1		11	11		1
Confl. Bikes (#/hr)			2			1						1
Heavy Vehicles (%)	4%	1%	0%	4%	0%	9%	0%	4%	3%	8%	4%	2%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	32.1	19.7		32.2	19.0		42.2	40.4	40.4	52.1	45.8	
Effective Green, g (s)	32.1	19.7		32.2	19.0		42.2	40.4	40.4	52.1	45.8	
Actuated g/C Ratio	0.32	0.20		0.32	0.19		0.42	0.40	0.40	0.52	0.46	
Clearance Time (s)	4.5	6.0		3.0	6.0		4.5	6.0	6.0	4.5	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	424	352		346	322		301	1402	607	397	1547	
v/s Ratio Prot	0.05	c0.15		c0.07	0.07		0.00	0.16		c0.02	c0.21	
v/s Ratio Perm	0.09			0.11			0.03		0.09	0.14		
v/c Ratio	0.44	0.75		0.57	0.38		0.08	0.39	0.23	0.31	0.45	
Uniform Delay, d1	25.9	37.8		26.3	35.4		17.0	21.0	19.6	12.9	18.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.7	8.4		2.1	0.8		0.1	0.8	0.9	0.4	0.2	
Delay (s)	26.6	46.2		28.5	36.1		17.1	21.9	20.4	13.4	18.8	
Level of Service	C	D		C	D		B	C	C	B	B	
Approach Delay (s)		38.3			31.8			21.2			18.0	
Approach LOS		D			C			C			B	

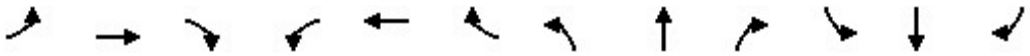
Intersection Summary			
HCM 2000 Control Delay	24.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	134	52	147	36	23	74	117	609	23	69	590	52
Future Volume (vph)	134	52	147	36	23	74	117	609	23	69	590	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00			1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.94			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1674			1843	1516	1718	3413		1752	3379	
Flt Permitted		0.84			0.70	1.00	0.31	1.00		0.32	1.00	
Satd. Flow (perm)		1434			1331	1516	559	3413		582	3379	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	147	57	162	40	25	81	129	669	25	76	648	57
RTOR Reduction (vph)	0	36	0	0	0	56	0	4	0	0	8	0
Lane Group Flow (vph)	0	330	0	0	65	25	129	690	0	76	697	0
Confl. Peds. (#/hr)							2		1	1		2
Confl. Bikes (#/hr)						3			3			1
Heavy Vehicles (%)	6%	0%	5%	0%	0%	5%	5%	5%	8%	3%	5%	9%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Effective Green, g (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Actuated g/C Ratio		0.30			0.30	0.30	0.51	0.41		0.51	0.41	
Clearance Time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Grp Cap (vph)		435			404	460	400	1382		413	1368	
v/s Ratio Prot							c0.03	0.20		0.02	c0.21	
v/s Ratio Perm		c0.23			0.05	0.02	0.13			0.07		
v/c Ratio		0.76			0.16	0.05	0.32	0.50		0.18	0.51	
Uniform Delay, d1		24.9			20.1	19.5	10.7	17.5		10.3	17.6	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		11.7			0.9	0.2	2.1	1.3		1.0	1.4	
Delay (s)		36.6			21.0	19.7	12.8	18.8		11.3	19.0	
Level of Service		D			C	B	B	B		B	B	
Approach Delay (s)		36.6			20.3			17.9			18.2	
Approach LOS		D			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	21.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		

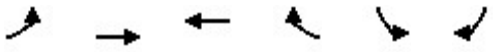
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	47	150	7	29	55	96	11	83	49	119	49	45
Future Volume (vph)	47	150	7	29	55	96	11	83	49	119	49	45
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Hourly flow rate (vph)	76	242	11	47	89	155	18	134	79	192	79	73

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	329	291	231	344
Volume Left (vph)	76	47	18	192
Volume Right (vph)	11	155	79	73
Hadj (s)	0.05	-0.22	-0.09	0.12
Departure Headway (s)	6.6	6.5	6.8	6.7
Degree Utilization, x	0.61	0.53	0.44	0.64
Capacity (veh/h)	496	494	455	494
Control Delay (s)	19.4	16.5	15.0	20.7
Approach Delay (s)	19.4	16.5	15.0	20.7
Approach LOS	C	C	B	C

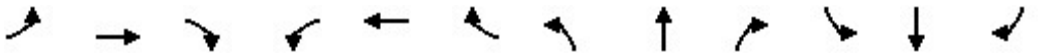
Intersection Summary				
Delay	18.2			
Level of Service	C			
Intersection Capacity Utilization	47.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	106	85	4	7	0
Future Volume (Veh/h)	0	106	85	4	7	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	115	92	4	8	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	96				209	94
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	96				209	94
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1498				779	963

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	115	96	8
Volume Left	0	0	8
Volume Right	0	4	0
cSH	1498	1700	779
Volume to Capacity	0.00	0.06	0.01
Queue Length 95th (m)	0.0	0.0	0.2
Control Delay (s)	0.0	0.0	9.7
Lane LOS			A
Approach Delay (s)	0.0	0.0	9.7
Approach LOS			A

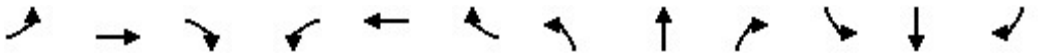
Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	15.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	140	3	10	96	5	2	2	44	20	3	0
Future Volume (Veh/h)	2	140	3	10	96	5	2	2	44	20	3	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	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	152	3	11	104	5	2	2	48	22	3	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	109			155			288	288	154	335	288	106
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	109			155			288	288	154	335	288	106
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	95	96	100	100
cM capacity (veh/h)	1481			1425			658	616	892	580	617	948

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	157	120	52	25
Volume Left	2	11	2	22
Volume Right	3	5	48	0
cSH	1481	1425	866	584
Volume to Capacity	0.00	0.01	0.06	0.04
Queue Length 95th (m)	0.0	0.2	1.5	1.1
Control Delay (s)	0.1	0.7	9.4	11.4
Lane LOS	A	A	A	B
Approach Delay (s)	0.1	0.7	9.4	11.4
Approach LOS			A	B

Intersection Summary				
Average Delay	2.5			
Intersection Capacity Utilization	26.0%	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 (veh/h)	25	80	11	37	47	7	21	98	18	9	350	20
Future Volume (Veh/h)	25	80	11	37	47	7	21	98	18	9	350	20
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	29	92	13	43	54	8	24	113	21	10	402	23
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	62			105			524	304	98	378	307	58
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	62			105			524	304	98	378	307	58
tC, single (s)	4.2			4.1			7.1	6.6	6.2	7.3	6.5	6.4
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.1	3.3	3.7	4.0	3.5
p0 queue free %	98			97			88	80	98	98	31	98
cM capacity (veh/h)	1510			1499			195	571	963	432	581	965

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	134	105	158	435
Volume Left	29	43	24	10
Volume Right	13	8	21	23
cSH	1510	1499	460	589
Volume to Capacity	0.02	0.03	0.34	0.74
Queue Length 95th (m)	0.5	0.7	12.1	50.9
Control Delay (s)	1.7	3.2	16.9	26.4
Lane LOS	A	A	C	D
Approach Delay (s)	1.7	3.2	16.9	26.4
Approach LOS			C	D

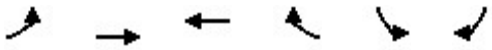
Intersection Summary				
Average Delay	17.7			
Intersection Capacity Utilization	36.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	27	29	108	13	11	387
Future Volume (Veh/h)	27	29	108	13	11	387
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)	29	32	117	14	12	421
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	569	124			131	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	569	124			131	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	97			99	
cM capacity (veh/h)	480	927			1454	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	61	131	433
Volume Left	29	0	12
Volume Right	32	14	0
cSH	642	1700	1454
Volume to Capacity	0.09	0.08	0.01
Queue Length 95th (m)	2.5	0.0	0.2
Control Delay (s)	11.2	0.0	0.3
Lane LOS	B		A
Approach Delay (s)	11.2	0.0	0.3
Approach LOS	B		

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	39.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	225	477	518	1240	1047	271
Future Volume (vph)	225	477	518	1240	1047	271
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	1.00	0.95	1.00	0.97	
Frpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	0.97	
Flt Protected	0.95	1.00	1.00	1.00	0.96	
Satd. Flow (prot)	1703	1759	3167	1529	3262	
Flt Permitted	0.33	1.00	1.00	1.00	0.96	
Satd. Flow (perm)	590	1759	3167	1529	3262	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	242	513	557	1333	1126	291
RTOR Reduction (vph)	0	0	0	27	20	0
Lane Group Flow (vph)	242	513	557	1306	1397	0
Confl. Peds. (#/hr)	1			1		
Confl. Bikes (#/hr)						4
Heavy Vehicles (%)	6%	8%	14%	5%	4%	8%
Turn Type	pm+pt	NA	NA	pm+ov	Prot	
Protected Phases	7	4	8	6	6	
Permitted Phases	4			8		
Actuated Green, G (s)	52.0	52.0	45.0	101.0	56.0	
Effective Green, g (s)	52.0	52.0	45.0	101.0	56.0	
Actuated g/C Ratio	0.43	0.43	0.38	0.84	0.47	
Clearance Time (s)	4.0	6.0	6.0	6.0	6.0	
Lane Grp Cap (vph)	283	762	1187	1363	1522	
v/s Ratio Prot	0.02	c0.29	0.18	c0.45	0.43	
v/s Ratio Perm	0.35			0.41		
v/c Ratio	0.86	0.67	0.47	0.96	0.92	
Uniform Delay, d1	33.8	27.2	28.4	7.8	29.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	26.6	4.7	1.3	16.2	10.3	
Delay (s)	60.4	31.9	29.8	24.0	40.2	
Level of Service	E	C	C	C	D	
Approach Delay (s)		41.1	25.7		40.2	
Approach LOS		D	C		D	

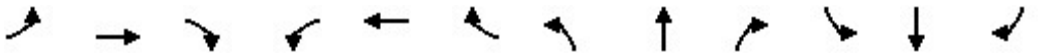
Intersection Summary			
HCM 2000 Control Delay	33.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	97.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	422	11	67	502	220	38	204	123	158	37	9
Future Volume (vph)	14	422	11	67	502	220	38	204	123	158	37	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0		5.0			5.0	
Lane Util. Factor		1.00			1.00	1.00		1.00			1.00	
Frpb, ped/bikes		1.00			1.00	1.00		1.00			1.00	
Flpb, ped/bikes		1.00			1.00	1.00		1.00			1.00	
Frt		1.00			1.00	0.85		0.95			0.99	
Flt Protected		1.00			0.99	1.00		0.99			0.96	
Satd. Flow (prot)		1840			1833	1583		1767			1764	
Flt Permitted		0.98			0.89	1.00		0.95			0.46	
Satd. Flow (perm)		1801			1643	1583		1683			841	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	15	464	12	74	552	242	42	224	135	174	41	10
RTOR Reduction (vph)	0	1	0	0	0	126	0	17	0	0	2	0
Lane Group Flow (vph)	0	490	0	0	626	116	0	384	0	0	223	0
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	2%	33%	11%	2%	2%	0%	2%	3%	4%	0%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		43.3			43.3	43.3		36.7			36.7	
Effective Green, g (s)		43.3			43.3	43.3		36.7			36.7	
Actuated g/C Ratio		0.48			0.48	0.48		0.41			0.41	
Clearance Time (s)		5.0			5.0	5.0		5.0			5.0	
Vehicle Extension (s)		3.0			3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)		866			790	761		686			342	
v/s Ratio Prot												
v/s Ratio Perm		0.27			c0.38	0.07		0.23			c0.27	
v/c Ratio		0.57			0.79	0.15		0.56			0.65	
Uniform Delay, d1		16.6			19.6	13.1		20.4			21.5	
Progression Factor		1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2		0.9			5.5	0.1		3.3			9.3	
Delay (s)		17.5			25.1	13.2		23.7			30.8	
Level of Service		B			C	B		C			C	
Approach Delay (s)		17.5			21.7			23.7			30.8	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	101.2%	ICU Level of Service	G
Analysis Period (min)	15		

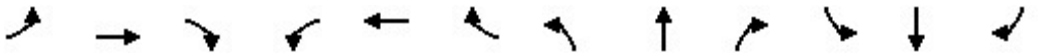
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	22	123	175	52	117	209	1102	101	128	748	68
Future Volume (vph)	58	22	123	175	52	117	209	1102	101	128	748	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.92			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1684			1816	1552	1798	3471		1805	3459	
Flt Permitted		0.78			0.59	1.00	0.32	1.00		0.09	1.00	
Satd. Flow (perm)		1334			1104	1552	607	3471		165	3459	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	63	24	134	190	57	127	227	1198	110	139	813	74
RTOR Reduction (vph)	0	62	0	0	0	90	0	7	0	0	7	0
Lane Group Flow (vph)	0	159	0	0	247	37	227	1301	0	139	880	0
Confl. Peds. (#/hr)	5					5	6		4	4		6
Confl. Bikes (#/hr)			2			3			2			4
Heavy Vehicles (%)	0%	0%	2%	1%	0%	2%	0%	2%	7%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		26.0			26.0	26.0	42.0	42.0		53.0	53.0	
Effective Green, g (s)		26.0			26.0	26.0	42.0	42.0		53.0	53.0	
Actuated g/C Ratio		0.29			0.29	0.29	0.47	0.47		0.59	0.59	
Clearance Time (s)		5.0			5.0	5.0	6.0	6.0		4.0	6.0	
Lane Grp Cap (vph)		385			318	448	283	1619		224	2036	
v/s Ratio Prot								c0.37		c0.05	0.25	
v/s Ratio Perm		0.12			c0.22	0.02	0.37			0.32		
v/c Ratio		0.41			0.78	0.08	0.80	0.80		0.62	0.43	
Uniform Delay, d1		25.8			29.3	23.3	20.5	20.5		14.7	10.2	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		3.3			16.9	0.4	20.9	4.3		12.3	0.7	
Delay (s)		29.1			46.2	23.7	41.3	24.8		26.9	10.9	
Level of Service		C			D	C	D	C		C	B	
Approach Delay (s)		29.1			38.5			27.3			13.0	
Approach LOS		C			D			C			B	

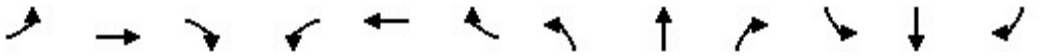
Intersection Summary			
HCM 2000 Control Delay	24.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



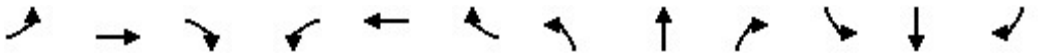
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	164	5	187	29	4	63	252	1248	9	16	852	252
Future Volume (vph)	164	5	187	29	4	63	252	1248	9	16	852	252
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		4.5	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.98			0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.99	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85			0.91		1.00	1.00		1.00	0.97	
Flt Protected	0.95	1.00			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1794	1537			1561		1736	3565		1357	3412	
Flt Permitted	0.72	1.00			0.83		0.11	1.00		0.19	1.00	
Satd. Flow (perm)	1362	1537			1310		194	3565		271	3412	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	184	6	210	33	4	71	283	1402	10	18	957	283
RTOR Reduction (vph)	0	167	0	0	27	0	0	0	0	0	31	0
Lane Group Flow (vph)	184	49	0	0	81	0	283	1412	0	18	1209	0
Confl. Peds. (#/hr)	8		4	4		8	3					3
Confl. Bikes (#/hr)			1						2			3
Heavy Vehicles (%)	0%	0%	4%	19%	0%	3%	4%	1%	20%	33%	2%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	15.2	15.2			15.2		49.8	49.8		33.2	33.2	
Effective Green, g (s)	15.2	15.2			15.2		49.8	49.8		33.2	33.2	
Actuated g/C Ratio	0.20	0.20			0.20		0.66	0.66		0.44	0.44	
Clearance Time (s)	5.0	5.0			5.0		4.5	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	276	311			265		377	2367		119	1510	
v/s Ratio Prot		0.03					c0.12	0.40			0.35	
v/s Ratio Perm	c0.14				0.06		c0.38			0.07		
v/c Ratio	0.67	0.16			0.31		0.75	0.60		0.15	0.80	
Uniform Delay, d1	27.6	24.6			25.4		17.0	7.0		12.5	18.0	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.0	0.2			0.7		8.2	1.1		2.7	4.6	
Delay (s)	33.5	24.9			26.1		25.2	8.1		15.2	22.6	
Level of Service	C	C			C		C	A		B	C	
Approach Delay (s)		28.8			26.1			11.0			22.5	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	86.6%	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)	139	197	58	341	97	99	72	746	588	81	844	251
Future Volume (vph)	139	197	58	341	97	99	72	746	588	81	844	251
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0		3.0	6.0		4.5	6.0	6.0	4.5	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00	0.96	1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.97		1.00	0.92		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1802	1789		1784	1719		1805	3539	1531	1804	3397	
Flt Permitted	0.62	1.00		0.27	1.00		0.11	1.00	1.00	0.20	1.00	
Satd. Flow (perm)	1175	1789		502	1719		201	3539	1531	386	3397	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	158	224	66	388	110	112	82	848	668	92	959	285
RTOR Reduction (vph)	0	11	0	0	38	0	0	0	349	0	26	0
Lane Group Flow (vph)	158	279	0	388	185	0	82	848	319	92	1218	0
Confl. Peds. (#/hr)	3		11	11		3	1		11	11		1
Confl. Bikes (#/hr)			2			7			1			4
Heavy Vehicles (%)	0%	1%	5%	1%	0%	2%	0%	2%	1%	0%	2%	2%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	31.4	19.9		41.3	25.3		41.7	37.9	37.9	42.7	38.4	
Effective Green, g (s)	31.4	19.9		41.3	25.3		41.7	37.9	37.9	42.7	38.4	
Actuated g/C Ratio	0.31	0.20		0.41	0.25		0.42	0.38	0.38	0.43	0.38	
Clearance Time (s)	4.5	6.0		3.0	6.0		4.5	6.0	6.0	4.5	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	441	356		443	434		144	1341	580	225	1304	
v/s Ratio Prot	0.04	0.16		c0.16	0.11		c0.02	0.24		0.02	c0.36	
v/s Ratio Perm	0.07			c0.20			0.22		0.21	0.16		
v/c Ratio	0.36	0.78		0.88	0.43		0.57	0.63	0.55	0.41	0.93	
Uniform Delay, d1	25.8	38.0		23.2	31.3		22.4	25.4	24.4	18.6	29.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	10.7		17.3	0.7		5.1	2.3	3.7	1.2	12.2	
Delay (s)	26.3	48.7		40.5	31.9		27.5	27.6	28.1	19.8	41.8	
Level of Service	C	D		D	C		C	C	C	B	D	
Approach Delay (s)		40.8			37.4			27.8			40.3	
Approach LOS		D			D			C			D	

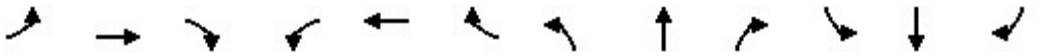
Intersection Summary			
HCM 2000 Control Delay	34.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	87.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	61	95	112	70	238	82	850	58	139	971	82
Future Volume (vph)	74	61	95	112	70	238	82	850	58	139	971	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.94			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1755			1842	1576	1805	3503		1787	3463	
Flt Permitted		0.83			0.65	1.00	0.12	1.00		0.18	1.00	
Satd. Flow (perm)		1476			1238	1576	238	3503		340	3463	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	79	65	101	119	74	253	87	904	62	148	1033	87
RTOR Reduction (vph)	0	32	0	0	0	176	0	7	0	0	8	0
Lane Group Flow (vph)	0	213	0	0	193	77	87	959	0	148	1112	0
Confl. Peds. (#/hr)	1		2	2		1	4		3	3		4
Confl. Bikes (#/hr)						2						1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	2%	0%	1%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Effective Green, g (s)		24.0			24.0	24.0	40.0	32.0		40.0	32.0	
Actuated g/C Ratio		0.30			0.30	0.30	0.51	0.41		0.51	0.41	
Clearance Time (s)		6.0			6.0	6.0	3.0	6.0		3.0	6.0	
Lane Grp Cap (vph)		448			376	478	279	1418		318	1402	
v/s Ratio Prot							0.03	0.27		c0.05	c0.32	
v/s Ratio Perm		0.14			c0.16	0.05	0.13			0.19		
v/c Ratio		0.48			0.51	0.16	0.31	0.68		0.47	0.79	
Uniform Delay, d1		22.4			22.7	20.1	12.3	19.3		11.8	20.6	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		3.6			4.9	0.7	2.9	2.6		4.8	4.7	
Delay (s)		26.0			27.6	20.8	15.2	21.9		16.7	25.3	
Level of Service		C			C	C	B	C		B	C	
Approach Delay (s)		26.0			23.8			21.3			24.3	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	23.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		

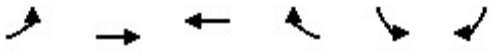
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	29	170	16	36	198	32	9	83	38	49	65	29
Future Volume (vph)	29	170	16	36	198	32	9	83	38	49	65	29
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	32	187	18	40	218	35	10	91	42	54	71	32

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	237	293	143	157
Volume Left (vph)	32	40	10	54
Volume Right (vph)	18	35	42	32
Hadj (s)	-0.02	-0.04	-0.12	-0.01
Departure Headway (s)	5.2	5.1	5.4	5.5
Degree Utilization, x	0.34	0.41	0.22	0.24
Capacity (veh/h)	647	668	585	585
Control Delay (s)	10.8	11.6	9.9	10.3
Approach Delay (s)	10.8	11.6	9.9	10.3
Approach LOS	B	B	A	B

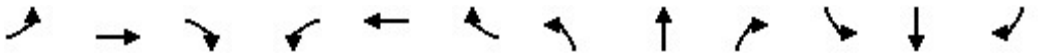
Intersection Summary				
Delay	10.8			
Level of Service	B			
Intersection Capacity Utilization	44.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	166	140	9	5	0
Future Volume (Veh/h)	0	166	140	9	5	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	182	154	10	5	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	164				341	159
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	164				341	159
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1414				655	886

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	182	164	5
Volume Left	0	0	5
Volume Right	0	10	0
cSH	1414	1700	655
Volume to Capacity	0.00	0.10	0.01
Queue Length 95th (m)	0.0	0.0	0.2
Control Delay (s)	0.0	0.0	10.5
Lane LOS			B
Approach Delay (s)	0.0	0.0	10.5
Approach LOS			B

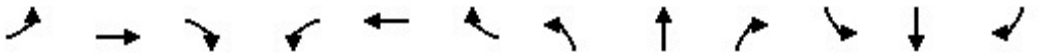
Intersection Summary			
Average Delay		0.2	
Intersection Capacity Utilization		18.7%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	175	5	45	180	11	3	1	28	13	3	0
Future Volume (Veh/h)	11	175	5	45	180	11	3	1	28	13	3	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.92	0.92	0.91	0.91	0.92	0.92	0.92	0.91	0.92	0.91
Hourly flow rate (vph)	12	192	5	49	198	12	3	1	30	14	3	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	210			197			522	526	194	551	523	204
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	210			197			522	526	194	551	523	204
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 %	99			96			99	100	96	97	99	100
cM capacity (veh/h)	1361			1376			447	436	847	414	438	837

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	209	259	34	17
Volume Left	12	49	3	14
Volume Right	5	12	30	0
cSH	1361	1376	765	418
Volume to Capacity	0.01	0.04	0.04	0.04
Queue Length 95th (m)	0.2	0.9	1.1	1.0
Control Delay (s)	0.5	1.7	9.9	14.0
Lane LOS	A	A	A	B
Approach Delay (s)	0.5	1.7	9.9	14.0
Approach LOS			A	B

Intersection Summary				
Average Delay	2.2			
Intersection Capacity Utilization	37.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	106	13	15	95	33	15	376	36	30	185	34
Future Volume (Veh/h)	34	106	13	15	95	33	15	376	36	30	185	34
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	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	37	115	14	16	103	36	16	409	39	33	201	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)												
pX, platoon unblocked												
vC, conflicting volume	139			129			486	367	122	592	356	121
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	139			129			486	367	122	592	356	121
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.2	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.0	3.3
p0 queue free %	97			99			95	25	96	78	64	96
cM capacity (veh/h)	1457			1469			331	543	935	147	551	922

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	166	155	464	271
Volume Left	37	16	16	33
Volume Right	14	36	39	37
cSH	1457	1469	550	430
Volume to Capacity	0.03	0.01	0.84	0.63
Queue Length 95th (m)	0.6	0.3	70.9	33.7
Control Delay (s)	1.8	0.9	37.3	26.5
Lane LOS	A	A	E	D
Approach Delay (s)	1.8	0.9	37.3	26.5
Approach LOS			E	D

Intersection Summary				
Average Delay	23.6			
Intersection Capacity Utilization	46.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	21	19	408	30	29	184
Future Volume (Veh/h)	21	19	408	30	29	184
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	23	21	448	33	32	202
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	730	464			481	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	730	464			481	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	96			97	
cM capacity (veh/h)	378	598			1082	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	44	481	234
Volume Left	23	0	32
Volume Right	21	33	0
cSH	458	1700	1082
Volume to Capacity	0.10	0.28	0.03
Queue Length 95th (m)	2.5	0.0	0.7
Control Delay (s)	13.7	0.0	1.4
Lane LOS	B		A
Approach Delay (s)	13.7	0.0	1.4
Approach LOS	B		

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	44.2%	ICU Level of Service	A
Analysis Period (min)	15		

Summary of All Intervals

Run Number	1	2	3	Avg
Start Time	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	5106	5029	5132	5089
Vehs Exited	5141	5028	5135	5103
Starting Vehs	292	257	278	278
Ending Vehs	257	258	275	260
Travel Distance (km)	9721	9528	9507	9585
Travel Time (hr)	271.9	267.2	266.9	268.7
Total Delay (hr)	74.1	72.3	72.6	73.0
Total Stops	8039	7928	7951	7978
Fuel Used (l)	801.2	784.5	779.4	788.4

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	Avg
Vehs Entered	5106	5029	5132	5089
Vehs Exited	5141	5028	5135	5103
Starting Vehs	292	257	278	278
Ending Vehs	257	258	275	260
Travel Distance (km)	9721	9528	9507	9585
Travel Time (hr)	271.9	267.2	266.9	268.7
Total Delay (hr)	74.1	72.3	72.6	73.0
Total Stops	8039	7928	7951	7978
Fuel Used (l)	801.2	784.5	779.4	788.4

Intersection: 3: Old Barrie Rd E & University Ave

Movement	EB	EB	WB	WB	WB	SB	SB
Directions Served	L	T	T	T	R	L	LR
Maximum Queue (m)	47.4	123.7	56.0	47.1	51.4	69.2	141.2
Average Queue (m)	18.2	65.4	31.6	20.0	20.7	32.6	74.6
95th Queue (m)	35.0	109.3	51.6	42.1	39.5	57.3	116.0
Link Distance (m)		581.8	316.4	316.4		1085.7	1085.7
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)	106.0				64.0		
Storage Blk Time (%)		1			0		
Queuing Penalty (veh)		1			0		

Intersection: 5: Old Barrie Rd E & Line 15 N

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	LT	R	LTR	LTR
Maximum Queue (m)	99.7	109.1	23.6	50.3	94.4
Average Queue (m)	50.2	58.6	9.1	15.2	44.1
95th Queue (m)	86.7	97.4	18.7	34.5	78.3
Link Distance (m)	288.0	581.8	581.8	1006.6	1840.7
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 8: University Ave & Diana Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	68.9	27.4	20.0	33.8	59.8	59.9	32.9	60.2	64.6
Average Queue (m)	29.1	12.2	4.9	14.1	29.3	35.6	11.0	22.1	26.7
95th Queue (m)	53.0	22.7	14.0	26.4	48.8	55.4	23.7	44.3	47.5
Link Distance (m)	144.4	117.8	117.8		1085.7	1085.7		535.9	535.9
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				36.0			58.0		
Storage Blk Time (%)				0	3			0	
Queuing Penalty (veh)				1	2			0	

Intersection: 12: University Ave/West Ridge Blvd & Stone Ridge Blvd/Hunter Valley Rd

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	65.5	40.6	16.0	31.3	62.0	62.8	12.9	61.4	59.4
Average Queue (m)	36.6	18.9	4.8	12.5	20.3	21.7	4.6	23.6	27.8
95th Queue (m)	58.7	32.5	13.1	24.9	44.8	47.3	12.2	49.3	51.6
Link Distance (m)	278.2	278.2	176.5		535.9	535.9		944.3	944.3
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				42.5			90.0		
Storage Blk Time (%)				0	1				
Queuing Penalty (veh)				0	1				

Intersection: 16: West Ridge Blvd & Monarch Dr

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	56.5	82.4	64.1	61.6	48.1	80.6	99.0	52.8	67.0	67.2
Average Queue (m)	26.7	46.0	31.9	24.6	4.7	46.4	63.3	18.9	36.3	40.2
95th Queue (m)	45.8	74.7	53.0	47.4	20.9	76.1	92.3	40.4	65.7	65.3
Link Distance (m)	173.4	173.4	268.3	268.3		944.3	944.3		141.5	141.5
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)					47.0			38.0		
Storage Blk Time (%)						6		0	8	
Queuing Penalty (veh)						1		1	9	

Intersection: 19: West Ridge Blvd & Bass Lake Side Rd E

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	81.7	25.6	23.2	53.6	79.5	76.8	23.1	65.1	52.8
Average Queue (m)	41.8	9.2	7.8	17.5	34.9	39.9	8.9	36.9	27.5
95th Queue (m)	70.6	20.3	17.6	37.5	61.1	64.8	18.6	55.7	46.2
Link Distance (m)	514.5	80.4	80.4		141.5	141.5		174.0	174.0
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				39.0			42.0		
Storage Blk Time (%)				0	6			3	
Queuing Penalty (veh)				0	7			2	

Intersection: 23: Bass Lake Side Rd E & Atlantis Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	27.8	24.9	23.2	31.3
Average Queue (m)	14.6	14.8	12.3	16.5
95th Queue (m)	22.9	22.5	20.0	26.5
Link Distance (m)	315.7	514.5	221.1	203.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: Bass Lake Side Rd E & Old Scotia Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	9.0
Average Queue (m)	2.0
95th Queue (m)	8.0
Link Distance (m)	239.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: Bass Lake Side Rd E & Hepinstall Pl

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	9.0	12.8	11.4
Average Queue (m)	0.6	7.0	5.8
95th Queue (m)	4.3	13.8	13.2
Link Distance (m)	315.7	125.7	176.0
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 32: Line 15 N & Bass Lake Side Rd E

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	4.0	8.6	32.6	48.3
Average Queue (m)	0.2	1.2	14.4	20.4
95th Queue (m)	2.7	5.9	24.1	35.1
Link Distance (m)	278.4	157.8	607.9	420.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 35: Line 15 N & Stone Ridge Blvd extension

Movement	WB
Directions Served	LR
Maximum Queue (m)	17.9
Average Queue (m)	8.0
95th Queue (m)	15.6
Link Distance (m)	198.7
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 27

Summary of All Intervals

Run Number	1	2	3	Avg
Start Time	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	7527	7498	7488	7501
Vehs Exited	7436	7453	7467	7452
Starting Vehs	392	406	434	404
Ending Vehs	483	451	455	460
Travel Distance (km)	13913	14022	13993	13976
Travel Time (hr)	448.9	456.1	450.8	451.9
Total Delay (hr)	162.5	168.3	163.6	164.8
Total Stops	13827	14267	14199	14098
Fuel Used (l)	1208.7	1218.4	1214.4	1213.8

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	Avg
Vehs Entered	7527	7498	7488	7501
Vehs Exited	7436	7453	7467	7452
Starting Vehs	392	406	434	404
Ending Vehs	483	451	455	460
Travel Distance (km)	13913	14022	13993	13976
Travel Time (hr)	448.9	456.1	450.8	451.9
Total Delay (hr)	162.5	168.3	163.6	164.8
Total Stops	13827	14267	14199	14098
Fuel Used (l)	1208.7	1218.4	1214.4	1213.8

Intersection: 3: Old Barrie Rd E & University Ave

Movement	EB	EB	WB	WB	WB	SB	SB
Directions Served	L	T	T	T	R	L	LR
Maximum Queue (m)	119.4	140.1	323.4	330.3	164.0	156.6	166.0
Average Queue (m)	54.5	70.2	100.5	161.5	126.1	98.7	109.0
95th Queue (m)	102.2	122.3	257.4	352.9	207.8	144.8	152.5
Link Distance (m)		581.8	316.4	316.4		1085.7	1085.7
Upstream Blk Time (%)			1	4			
Queuing Penalty (veh)			0	0			
Storage Bay Dist (m)	106.0				64.0		
Storage Blk Time (%)	2	2		1	20		
Queuing Penalty (veh)	8	6		12	51		

Intersection: 5: Old Barrie Rd E & Line 15 N

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	LT	R	LTR	LTR
Maximum Queue (m)	172.1	174.8	97.7	90.1	83.8
Average Queue (m)	65.1	91.6	18.6	43.6	37.5
95th Queue (m)	136.6	166.8	54.4	73.3	73.8
Link Distance (m)	288.0	581.8	581.8	1006.6	1840.7
Upstream Blk Time (%)	0				
Queuing Penalty (veh)	0				
Storage Bay Dist (m)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 8: University Ave & Diana Dr

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	71.7	61.6	37.2	51.8	96.7	93.6	37.0	65.9	66.7
Average Queue (m)	26.8	32.2	13.4	37.3	65.7	67.7	17.8	27.1	31.9
95th Queue (m)	53.0	53.4	26.7	62.7	88.8	87.0	32.2	55.0	60.7
Link Distance (m)	144.4	117.8	117.8		1085.7	1085.7		535.9	535.9
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				36.0			58.0		
Storage Blk Time (%)				6	24			0	
Queuing Penalty (veh)				30	50			1	

Intersection: 12: University Ave/West Ridge Blvd & Stone Ridge Blvd/Hunter Valley Rd

Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	T	TR	L	T	TR
Maximum Queue (m)	45.2	42.3	43.1	57.3	103.6	95.5	30.0	102.2	112.1
Average Queue (m)	27.1	17.7	14.8	37.1	42.9	42.7	7.0	57.0	68.6
95th Queue (m)	41.5	32.8	30.9	58.7	87.2	83.9	20.2	90.4	103.5
Link Distance (m)	278.2	278.2	176.5		535.9	535.9		944.3	944.3
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				42.5			90.0		
Storage Blk Time (%)				5	6			1	
Queuing Penalty (veh)				29	14			0	

Intersection: 16: West Ridge Blvd & Monarch Dr

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (m)	48.7	121.8	126.9	55.3	61.9	154.4	179.1	52.9	123.9	139.6
Average Queue (m)	21.3	56.0	71.3	25.7	29.7	95.7	118.7	25.5	84.5	90.6
95th Queue (m)	38.1	101.7	116.6	48.0	69.6	133.3	159.3	56.7	118.8	128.5
Link Distance (m)	173.4	173.4	268.3	268.3		944.3	944.3		141.5	141.5
Upstream Blk Time (%)									0	0
Queuing Penalty (veh)									0	1
Storage Bay Dist (m)					47.0			38.0		
Storage Blk Time (%)					1	27		1	29	
Queuing Penalty (veh)					2	20		2	23	

Intersection: 19: West Ridge Blvd & Bass Lake Side Rd E

Movement	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	TR	L	T	TR
Maximum Queue (m)	57.6	47.2	40.6	53.9	98.0	92.0	65.8	108.5	106.7
Average Queue (m)	26.6	25.3	19.7	17.3	51.7	54.1	25.9	64.2	60.5
95th Queue (m)	47.6	41.4	34.4	44.3	87.1	86.0	61.5	97.1	94.4
Link Distance (m)	514.5	80.4	80.4		141.5	141.5		174.0	174.0
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (m)				39.0			42.0		
Storage Blk Time (%)					13		0	20	
Queuing Penalty (veh)					11		1	27	

Intersection: 23: Bass Lake Side Rd E & Atlantis Dr

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	33.8	23.7	18.2	20.2
Average Queue (m)	15.6	14.9	10.7	12.8
95th Queue (m)	24.6	21.7	16.6	19.3
Link Distance (m)	315.7	514.5	221.1	203.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 30: Bass Lake Side Rd E & Old Scotia Pl

Movement	SB
Directions Served	LR
Maximum Queue (m)	9.0
Average Queue (m)	1.8
95th Queue (m)	7.7
Link Distance (m)	239.8
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 31: Bass Lake Side Rd E & Hepinstall Pl

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	11.0	15.8	9.1	11.7
Average Queue (m)	0.7	2.8	6.1	3.0
95th Queue (m)	5.0	11.1	12.9	10.3
Link Distance (m)	881.3	315.7	125.7	176.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 32: Line 15 N & Bass Lake Side Rd E

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	13.2	12.7	61.5	45.8
Average Queue (m)	1.3	1.1	31.3	17.3
95th Queue (m)	7.0	6.3	50.4	31.6
Link Distance (m)	278.4	157.8	607.9	420.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 35: Line 15 N & Stone Ridge Blvd extension

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	17.3	13.6
Average Queue (m)	7.0	2.9
95th Queue (m)	13.9	11.2
Link Distance (m)	198.7	607.9
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 288

Appendix F – Transportation Tomorrow Survey (TTS) – Excerpts

AM Peak Trip Distribution

Row: 2006 GTA zone of origin - gta06_orig	
Column: Planning district of destination - pd_dest	
Filters:	
(2006 GTA zone of origin - gta06_orig In 8685	
and	
Start time of trip - start_time In 0630-1030)	
Trip 2016	
Table:	
	8685
Brock	28
Newmarket	13
Caledon	28
Mississauga	51
Barrie	270
Innisfil	32
Muskoka	16
Tay	8
Oro-Medonte	60
Severn	224
Ramara	65
Mono	28

Mon Jun 27 2022 18:27:21 GMT-0400 (Eastern Daylight Time) - Run Time: 2607ms		
Cross Tabulation Query Form - Trip - 2016 v1.1		
Row: 2006 GTA zone of origin - gta06_orig		
Column: 2006 GTA zone of destination - gta06_dest		
Filters:		
(2006 GTA zone of origin - gta06_orig In 8685		
and		
Start time of trip - start_time In 0630-1030)		
and		
2006 GTA zone of destination - gta06_dest In 8681 - 8685,		
Trip 2016		
ROW : gta06_orig		
COLUMN : gta06_dest		
gta06_orig	gta06_dest	total
8685	8681	161
8685	8682	240
8685	8683	145
8685	8684	361

	Origin/destination	Study area	Trip Direction	Volume (%)
	Brock	28	S	2%
	Newmarket	13	S	1%
	Caledon	28	S	2%
	Mississauga	51	S	3%
	Barrie	270	S	16%

	Innisfil	32	S	2%
	Muskoka	16	N	1%
	Tay	8	W	0%
	Oro-Medonte	60	W	3%
	Severn	224	N	13%
	Ramara	65	E	4%
	Mono	28	S	2%
City of Orillia	8681	161	E	9%
	8682	240	E	14%
	8683	145	E	8%
	8684	361	E	21%

PM Peak Trip Distribution

Mon Jun 27 2022 18:46:56 GMT-0400 (Eastern Daylight Time) - Run Time: 2818ms	
Cross Tabulation Query Form - Trip - 2016 v1.1	
Row: 2006 GTA zone of destination - gta06_dest	
Column: Planning district of origin - pd_orig	
Filters:	
(2006 GTA zone of destination - gta06_dest In 8685	
and	
Start time of trip - start_time In 1530-1930)	
Trip 2016	
Table:	
	8685
Brock	55
Uxbridge	12
Newmarket	13
Caledon	28
Brampton	34
Barrie	200
New Tecumseth	32
Springwater	35
Kawartha Lakes	200
Muskoka	35
Midland	38
Oro-Medonte	181
Severn	144
Ramara	277
Orillia	1975

Mon Jun 27 2022 18:45:15 GMT-0400 (Eastern Daylight Time) - Run Time: 2777ms		
Cross Tabulation Query Form - Trip - 2016 v1.1		
Row: 2006 GTA zone of destination - gta06_dest		
Column: 2006 GTA zone of origin - gta06_orig		
Filters:		
(2006 GTA zone of origin - gta06_orig In 8681-8684		
and		
Start time of trip - start_time In 1530-1930		
and		
2006 GTA zone of destination - gta06_dest In 8685)		
Trip 2016		
ROW : gta06_dest		
COLUMN : gta06_orig		
gta06_dest	gta06_orig	total
8685	8681	322
8685	8682	263
8685	8683	157
8685	8684	709

	Origin/destination	Study area	Trip Direction	Volume (%)
	Brock	55	S	2%
	Uxbridge	12	S	0%
	Newmarket	13	S	0%
	Caledon	28	S	1%
	Brampton	34	S	1%
	Barrie	200	S	7%
	New Tecumseth	32	S	1%
	Springwater	35	S	1%
	Kawartha Lakes	200	E	7%
	Muskoka	35	N	1%
	Midland	38	W	1%
	Oro-Medonte	181	W	7%
	Severn	144	N	5%
	Ramara	277	E	10%
City of Orillia	8681	322	E	12%
	8682	263	E	10%
	8683	157	E	6%
	8684	709	E	26%

Appendix G – Signal Warrant Analysis

Results Sheet

Input Sheet | Analysis Sheet | Proposed Collision | GO TO Justification:

Intersection: Stone Ridge Blvd & West Ridge Blvd Count Date: 2032

Summary Results

Justification			Compliance		Signal Justified? YES	Signal Justified? NO
1. Minimum Vehicular Volume	A	Total Volume	93	%	☐	☑
	B	Crossing Volume	100	%		
2. Delay to Cross Traffic	A	Main Road	85	%	☐	☑
	B	Crossing Road	100	%		
3. Combination	A	Justificaton 1	93	%	☑	☐
	B	Justification 2	85	%		
4. 4-Hr Volume			100	%	☑	☐
5. Collision Experience			0	%	☐	☑
6. Pedestrians	A	Volume	Justification not met		☐	☑
	B	Delay	Justification not met			

Input Sheet | Analysis Sheet | Proposed Collision

What are the intersecting roadways? Stone Ridge Boulevard & West Ridge Boulevard GO TO Justification:

What is the direction of the Main Road street? North-South When was the data collected? 2032

Justification 1 - 4: Volume Warrants

a.- Number of lanes on the Main Road? 2 or more

b.- Number of lanes on the Minor Road? 1

c.- How many approaches? 4

d.- What is the operating environment? Urban Population >= 10,000 AND Speed < 70 km/hr

		Southbound			Westbound			Northbound			Eastbound		
		LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
AM	7:00:00	14	89	9	14	89	9	4	68	8	14	89	9
	8:00:00	17	272	18	17	272	18	49	230	12	17	272	18
	9:00:00	18	342	60	18	342	60	43	334	9	18	342	60
	10:00:00	11	403	67	11	403	67	28	389	2	11	403	67
PM	16:00:00	18	419	91	18	419	91	81	607	6	18	419	91
	17:00:00	11	530	116	11	530	116	118	798	3	11	530	116
	18:00:00	16	543	81	16	543	81	99	806	3	16	543	81
	19:00:00	14	448	91	14	448	91	69	555	3	14	448	91

Results Sheet

Input Sheet | Analysis Sheet | Proposed Collision | GO TO Justification:

Intersection: Line 15 North & Old Barrie Road East Count Date: 2032

Summary Results

Justification			Compliance		Signal Justified? YES	Signal Justified? NO
1. Minimum Vehicular Volume	A	Total Volume	94	%	☐	☑
	B	Crossing Volume	98	%		
2. Delay to Cross Traffic	A	Main Road	87	%	☐	☑
	B	Crossing Road	100	%		
3. Combination	A	Justificaton 1	94	%	☑	☐
	B	Justification 2	87	%		
4. 4-Hr Volume			100	%	☑	☐
5. Collision Experience			73	%	☐	☑
6. Pedestrians	A	Volume	Justification not met		☐	☑
	B	Delay	Justification not met			

Input Sheet | Analysis Sheet | Proposed Collision

What are the intersecting roadways? Line 15 North & Old Barrie Road East GO TO Justification:

What is the direction of the Main Road street? East-West When was the data collected? 2032

Justification 1 - 4: Volume Warrants

a.- Number of lanes on the Main Road? 1

b.- Number of lanes on the Minor Road? 1

c.- How many approaches? 4

d.- What is the operating environment? Urban Population >= 10,000 AND Speed < 70 km/hr

		Southbound			Westbound			Northbound			Eastbound		
		LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
AM	7:00:00	33	98	4	15	67	19	1	5	4	0	89	9
	8:00:00	99	129	9	53	158	50	5	7	26	0	272	18
	9:00:00	122	123	6	32	171	47	4	19	39	1	342	60
	10:00:00	88	51	4	21	159	44	4	7	18	4	403	67
PM	16:00:00	122	13	6	18	419	91	13	70	80	18	419	91
	17:00:00	139	25	6	11	530	116	25	192	158	11	530	116
	18:00:00	175	23	14	16	543	81	11	131	143	16	543	81
	19:00:00	101	22	8	14	448	91	3	34	53	14	448	91

Appendix H – Trip Generated By Proposed Development

Phase 1 (2032)	Magnitude	Units	Rate	AM PEAK ENT	AM PEAK EXT	Total
Single Detached Units	107	trips per units	0.74	20	60	80
Phase 1 (2032)	**Magnitude**	**Units**	**Rate**	**PM PEAK ENT**	**PM PEAK EXT**	**TOTAL**
Single Detached Units	107	trips per units	0.99	66	40	106
Phase 2(2032)	**Magnitude**	**Units**	**Rate**	**AM PEAK ENT**	**AM PEAK EXT**	**Total**
Single Detached Units	86	trips per units	0.74	16	48	64
Medium-Density Units	151	trips per units	0.36	14	41	55
Townhouse	6	trips per units	0.46	1	2	3
Elementary school	900	trips/students	0.67	324	279	603
Phase 2(2032)	**Magnitude**	**Units**	**Rate**	**PM PEAK ENT**	**PM PEAK EXT**	**Total**
Single Detached Units	86	trips per units	0.99	53	32	85
Medium-Density Units	151	trips per units	0.44	41	26	67
Townhouse	6	trips per units	0.56	2	1	3
Elementary school	900	trips/students	0.17	72	81	153
Phase 3(2032)	**Magnitude**	**Units**	**Rate**	**AM PEAK ENT**	**AM PEAK EXT**	**Total**
Single Detached Units	37	trips per units	0.74	7	21	28
Medium-Density Units	101	trips per units	0.36	9	27	36
Phase 3(2032)	**Magnitude**	**Units**	**Rate**	**PM PEAK ENT**	**PM PEAK EXT**	**Total**
Single Detached Units	37	trips per units	0.99	23	14	37
Medium-Density Units	101	trips per units	0.44	27	17	44
Phase 4(2032)	**Magnitude**	**Units**	**Rate**	**AM PEAK ENT**	**AM PEAK EXT**	**Total**
Single Detached Units	57	trips per units	0.74	11	32	43
Townhouse	6	trips per units	0.46	1	2	3
Phase 4(2032)	**Magnitude**	**Units**	**Rate**	**PM PEAK ENT**	**PM PEAK EXT**	**Total**
Single Detached Units	57	trips per units	0.99	35	21	56
Townhouse	6	trips per units	0.56	2	1	3
Phase 5(2042)	**Magnitude**	**Units**	**Rate**	**AM PEAK ENT**	**AM PEAK EXT**	**Total**
Single Detached Units	55	trips per units	0.74	10	31	41
High-Density Units	240	trips per units	0.31	17	58	75
Commercial Block	55.97233	trips/1000 Sq ft. GLA	0.94	32	20	52
Phase 5(2042)	**Magnitude**	**Units**	**Rate**	**PM PEAK ENT**	**PM PEAK EXT**	**Total**
Single Detached Units	55	trips per units	0.99	34	20	54
High-Density Units	240	trips per units	0.36	53	34	87
Commercial Block	55.97233	trips/1000 Sq ft. GLA	3.81	102	111	213
Phase 6(2042)	**Magnitude**	**Units**	**Rate**	**AM PEAK ENT**	**AM PEAK EXT**	**Total**
Single Detached Units	198	trips per units	0.74	38	111	149
Townhouse	31	trips per units	0.46	3	11	14
Phase 6(2042)	**Magnitude**	**Units**	**Rate**	**PM PEAK ENT**	**PM PEAK EXT**	**Total**
Single Detached Units	198	trips per units	0.99	123	73	196
Townhouse	31	trips per units	0.56	11	7	18
Phase 7(2042)	**Magnitude**	**Units**	**Rate**	**AM PEAK ENT**	**AM PEAK EXT**	**Total**
Single Detached Units	24	trips per units	0.74	5	13	18
Phase 7(2042)	**Magnitude**	**Units**	**Rate**	**PM PEAK ENT**	**PM PEAK EXT**	**Total**
Single Detached Units	24	trips per units	0.99	15	9	24
Phase 7(2047)	**Magnitude**	**Units**	**Rate**	**AM PEAK ENT**	**AM PEAK EXT**	**Total**
Single Detached Units	94	trips per units	0.74	18	53	71
Townhouse	111	trips per units	0.46	12	39	51
Medium-Density Units	22	trips per units	0.36	2	6	8
Phase 7(2047)	**Magnitude**	**Units**	**Rate**	**PM PEAK ENT**	**PM PEAK EXT**	**Total**
Single Detached Units	94	trips per units	0.99	58	35	93
Townhouse	111	trips per units	0.46	39	23	62
Medium-Density Units	22	trips per units	0.44	6	4	10

Appendix I – Proposed Development Activity Map

Residential

1 144 Elgin Street
2 228 James Street East
3 19 Orchard Point Road
4 75 Barrie Road
5 4501 Uhthoff Line
6 399 Barrie Road
7 Stone Ridge Subdivision (Phase 10)
8 39 & 41 Orchard Point Road
9 600 Sundial Drive – Phase 2
10 12 Fittons Road East
11 North Lake Village
12 625, 643 Atherley Road, 642 Driftwood Road
13 679 Atherley Road
14 Trailside Subdivision
15 Stone Ridge Subdivision (Phase 9)

Commercial/Industrial

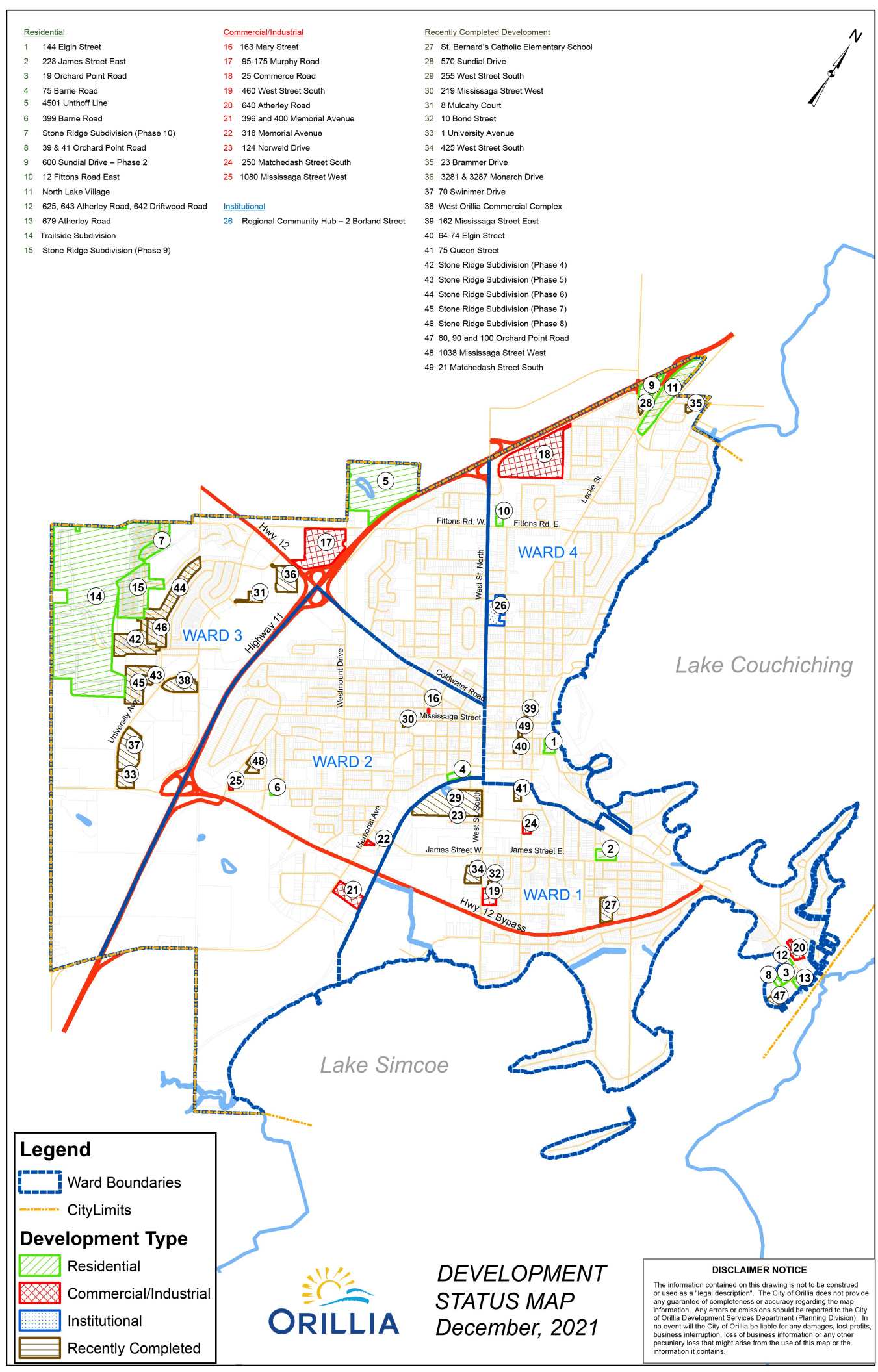
16 163 Mary Street
17 95-175 Murphy Road
18 25 Commerce Road
19 460 West Street South
20 640 Atherley Road
21 396 and 400 Memorial Avenue
22 318 Memorial Avenue
23 124 Norweld Drive
24 250 Matchedash Street South
25 1080 Mississaga Street West

Institutional

26 Regional Community Hub – 2 Borland Street

Recently Completed Development

27 St. Bernard's Catholic Elementary School
28 570 Sundial Drive
29 255 West Street South
30 219 Mississaga Street West
31 8 Mulcahy Court
32 10 Bond Street
33 1 University Avenue
34 425 West Street South
35 23 Brammer Drive
36 3281 & 3287 Monarch Drive
37 70 Swinimer Drive
38 West Orillia Commercial Complex
39 162 Mississaga Street East
40 64-74 Elgin Street
41 75 Queen Street
42 Stone Ridge Subdivision (Phase 4)
43 Stone Ridge Subdivision (Phase 5)
44 Stone Ridge Subdivision (Phase 6)
45 Stone Ridge Subdivision (Phase 7)
46 Stone Ridge Subdivision (Phase 8)
47 80, 90 and 100 Orchard Point Road
48 1038 Mississaga Street West
49 21 Matchedash Street South



Legend

Ward Boundaries
CityLimits

Development Type

Residential
Commercial/Industrial
Institutional
Recently Completed

ORILLIA

DEVELOPMENT STATUS MAP December, 2021

DISCLAIMER NOTICE

The information contained on this drawing is not to be construed or used as a "legal description". The City of Orillia does not provide any guarantee of completeness or accuracy regarding the map information. Any errors or omissions should be reported to the City of Orillia Development Services Department (Planning Division). In no event will the City of Orillia be liable for any damages, lost profits, business interruption, loss of business information or any other pecuniary loss that might arise from the use of this map or the information it contains.