

Traffic and Parking Study

2095 Prospect Street
City of Burlington

Welwyn Interests Inc.

GHD | 6705 Millcreek Drive Mississauga Ontario L5N 5M4 Canada

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Executive Summary

GHD was retained to prepare a Traffic Impact Study (TIS) and Parking Study for the proposed residential townhouse infill development located on the north side of Prospect Street east of Brant Street in the City of Burlington. This report determines the site related traffic and the subsequent traffic-related impacts on the adjacent road network during the weekday AM and PM peak hours from the proposed development. These impacts are based on projected future background traffic and road network conditions derived for a 2023 planning horizon year.

Proposed Site Characteristics

The development proposal would replace 8 existing townhouses with 50 new stacked townhouse apartments, which is a net increase of 42 units more than the existing development. The one existing apartment building with 65 residential units will remain unchanged, and the site will ultimately consist of 115 residential units. The proposed vehicular entrance to the site will remain unchanged.

New Site Traffic

The additional units are estimated to generate a total of 26 two-way trips during the AM peak hour consisting of 4 inbound and 22 outbound trips and a total of 30 two-way trips during the PM peak hour consisting of 20 inbound and 10 outbound trips.

The distribution and assignment for the site trips was derived from existing turning movement proportions taken from the intersection turning movement counts at the existing site driveway.

Future 2023 Intersection Operating Characteristics

Based on the findings of the operational analysis for future 2023 traffic conditions during the AM and PM peak hours, the overall impact at the study area intersections as a result of the proposed infill development is minimal, with the development's estimated site traffic expected to have a negligible impact on intersection operations in the surrounding area.

The study area intersections are expected to accommodate the site's estimated generated site traffic without the need for any geometric improvement.

Therefore there is no intersection improvements recommended at the study area intersections in response to the subject development.

Parking Assessment

Parking for the site is proposed at a rate of 0.94 spaces per unit for residents and 0.18 spaces per unit for visitors. Based on data obtained from the property manager and locally collected parking data, these rates are expected to be adequate for the site and are consistent with nearby developments.

Respectfully submitted,

GHD



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1. Introduction

1.1 Retainer and Objective

GHD was retained to prepare a Traffic Impact Study (TIS) and Parking Study for the proposed residential infill development located at 2095 Prospect Street in Burlington to determine the following:

- Establish baseline traffic conditions for the study area and update the existing traffic conditions to derive the future background operating conditions for the study intersections at future 2023 planning horizon.
- Determine the traffic volumes anticipated to be generated by the proposed additional units during the weekday AM and PM peak hours; to assess the impact of this traffic on the study intersections and if needed, to recommend improvements to accommodate the forecasted traffic volumes.
- Review the site plan in the context of operational/geometric issues, and provide recommendations on how to address any deficiencies if any are revealed.
- Complete a parking assessment to recommend a site specific parking standard for residents and visitors for the site.
- Suggest Travel Demand Management (TDM) measures to support active transportation and transit use to reduce the number of auto trips to/from the proposed development.

The subject site is located at the north side of Prospect Street and is approximately 350 m east of the signalized intersection of Prospect Street and Brant Street, in the City of Brampton, as shown in Figure 1.

The study area includes the following Prospect Street intersections:

- Brant Street
- Robinson Street
- Pearson Street
- Joyce Street/George Street
- Drury Lane

1.2 Study Team

The GHD team involved in the preparation of the study are:

- William Maria, P. Eng., Senior Project Manager
- Adam Mildenberger, B.A., Dipl.T., Transportation Planner



Figure 1 Site Location

2. Site Characteristics

2.1 Proposed Development Characteristics

The proposed infill development would replace eight existing townhouse units in two buildings with 50 stacked townhouse units in two separate buildings constructed behind the existing apartment building. The existing site access will remain and provide access for both the existing apartments and proposed townhouses. The proposed site plan is shown in Figure 2.

There is a total provision of 130 parking spaces, consisting of 109 resident spaces and 21 visitor spaces. This is results in a rate of 0.94 resident spaces per unit and 0.18 visitor spaces per unit.

Three accessible parking spaces are provided along the Prospect Street frontage in front of the existing building.

A total of 12 surface level short term bicycle parking spaces are provided.

GHD has undertaken Vehicle Swept Path Analysis for the subject development utilizing a Halton Region Garbage Truck and a Fire Truck. The results of the analysis are presented in Appendix A, which show that the proposed site plan can accommodate the aforementioned design vehicles and their respective turning movements.

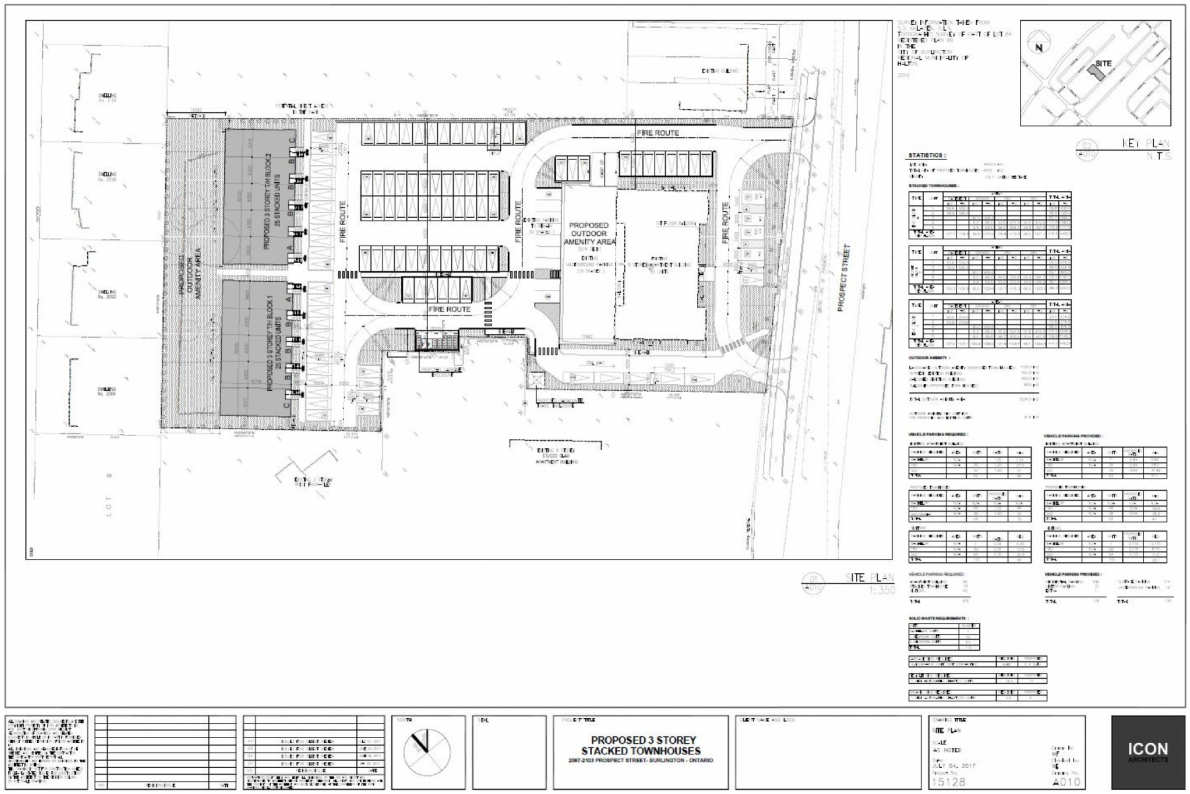


Figure 2 Site Plan

3. Existing Conditions

3.1 Existing Road Network

All roadways within the study area are under the jurisdiction of the City of Burlington.

Brant Street: is a north-south minor arterial with a four-lane urban cross-section and a posted speed limit of 50 km/h. It has a dedicated bicycle lanes with parking prohibited along both sides in the vicinity of the site. There are auxiliary left-turn lanes on Brant Street at the Prospect Street intersection.

Prospect Street is an east-west collector with a two-lane urban cross-section and a posted speed limit of 40 km/h. It has a dedicated westbound bicycle lane and an eastbound travel lane shared with bicycles, with parking prohibited along both sides in the vicinity of the site. There are no auxiliary turning lanes at the existing driveway intersection.

Drury Lane is a north-south collector with a two-lane urban cross-section and a posted speed limit of 40 km/h. Parking is prohibited along the east side of the street in the vicinity of the site. There are no auxiliary turning lanes at the Prospect Street intersection.

Robinson Street, Pearson Street, Joyce Street and **George Street** are north-south local streets with two-lane urban cross-sections and posted speed limits of 40 km/h. All streets intersect Prospect Street with stop control with no auxiliary turning lanes.

3.2 Pedestrian Routes

Prospect Street currently has sidewalks on both sides of the road providing connections to sidewalks on Brant Street.

3.3 Cycling Routes

On-street bicycle lanes are provided on the north side of Prospect Street only within the study area.

3.4 Transit Services

Burlington Transit currently operates daily service as Route #3 (Guelph-Downtown), Route #5 (Francis-Downtown) and Route #51 (Burlington Northeast) on Brant Street, approximately 350 metres (m) from the existing driveway of the site. These routes provide connections to multiple routes on Fairview Street, approximately 290 m to the north. Local transit service is therefore very good.

3.5 Existing Traffic Data

GHD had previously arranged for weekday 7:00 to 9:00 AM and 4:00 to 6:00 PM peak period turning movement counts for the study intersections in September 2015 for an adjacent development. These counts were factored up to the 2017 base year using a 2 percent per annum growth rate for use in the study.

A count at the existing site access was undertaken in October 2017 during the AM and PM peak hours to supplement the 2015 counts.

At time of the survey the site had all apartment units occupied (no vacancy). Figure 3 shows the existing 2017 traffic volumes for weekday AM and PM peak hours at the study area intersections. Detailed turning movement counts are appended.

Existing signal timing plans were obtained from the City of Burlington for use in the analysis.

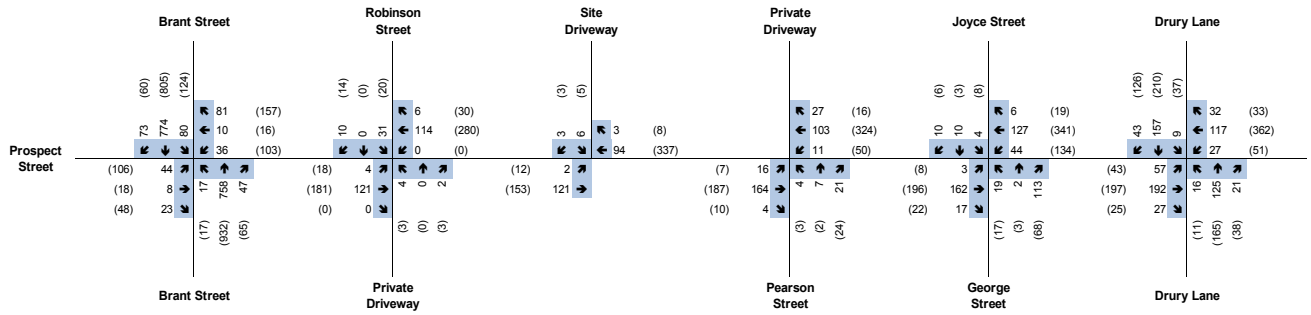


Figure 3 2017 Existing Traffic Volumes

4. Future Background Traffic

4.1 Study Horizon Year

The analyses adopted future background and total traffic conditions for a 2023 planning horizon (5-years post build-out).

4.2 Study Area Transportation Network Improvements

There are no road network improvements planned within the study area that will have an effect on area traffic within the 2023 horizon year.

4.3 Future Background Developments

The adjacent site at 2051-2067, 2069-2085 Prospect Street is planned for redevelopment that replaces 16 existing townhouses with 96 new stacked townhouse apartments, which is a net increase of 80 units more than the existing development. The two existing apartment buildings with 128 residential units will remain unchanged, and the site will ultimately consist of 224 residential units.

Future site traffic from the proposed redevelopment has been included in the estimate future background traffic. The proposed site trips were extracted from the traffic study completed by GHD in 2016. A figure showing illustrating the background site trips is provided in the appendix.

4.4 Future Background Growth

There are no other significant local background developments expected within the 5-year planning horizon, although some other small infill developments along Prospect Street could marginally increase the future background traffic volumes. Future background traffic was therefore derived by adding a very conservative 2 percent annual growth rate to the existing volumes on Prospect Street to 2023 to ensure that the volumes are representative of any higher fluctuation in peak hour traffic volumes.

4.5 Background Traffic Volumes

The 2017 based traffic volumes, future background development traffic and corridor growth were combined to establish the 2023 future total background traffic volumes for the AM and PM peak hours.

The future background volumes for 2023 are presented in Figure 4.

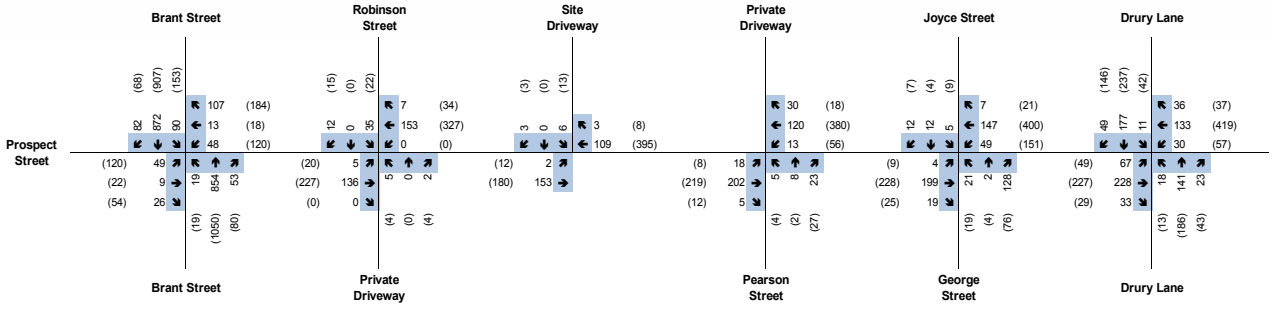


Figure 4 2023 Future Background Traffic Volumes

5. Site Generated Traffic

5.1 Modal Split

As a conservative measure no transit reduction was applied to the estimated site trips in the study analysis.

5.2 Site Trip Generation

Trip generation during the weekday peak hours for the proposed residential development was estimated using the average rates from the Institute of Transportation Engineer's (ITE) 9th Edition Land Use Codes (LUC) #230 for condominium dwellings, as presented in Table 1. The results of the average rates were more conservative than the fitted curve equations.

Table 1 Site Trip Generation

Land Use Code	Units	Parameters	Peak Hour Trip Generation					
			Weekday AM			Weekday PM		
			In	Out	Total	In	Out	Total
Condominium (LUC 230)	42 Units	Trip Rate	0.08	0.52	0.62	0.48	0.24	0.71
		Trip Rate	17%	83%	-	67%	33%	-
		Gross Trips	4	22	26	20	10	30

The subject development is estimated to generate a total of 26 two-way trips during the AM peak hour consisting of 4 inbound and 26 outbound trips and a total of 30 two-way trips during the PM peak hour consisting of 20 inbound and 10 outbound trips.

5.3 Site Trip Distribution and Assignment

The distribution and assignment for the site trips was derived from existing turning movement proportions taken from the intersection turning movement counts at the existing study area intersections.

The estimated site trips generated by the proposed development as assigned to the nearby road network for the weekday AM and PM peak hours are shown in Figure 5.

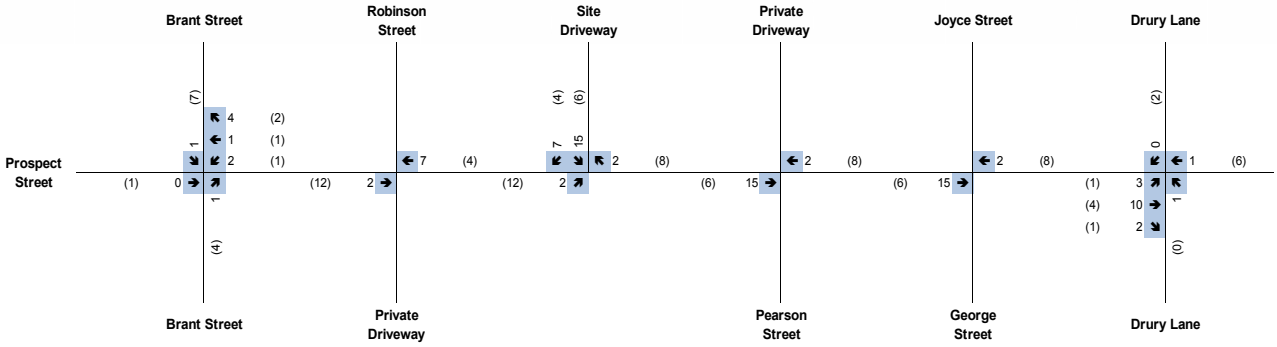


Figure 5 Estimated Site Trips

6. Future Total Traffic

6.1 Future Total Traffic

The future total traffic conditions for the peak study hours in the 2023 planning horizon was derived by combining the projected future background traffic with the corresponding estimate of the additional site generated traffic.

Figure 6 summarize the future total traffic volumes for the 2023 planning horizons, respectively, during the weekday AM and PM peak hours.

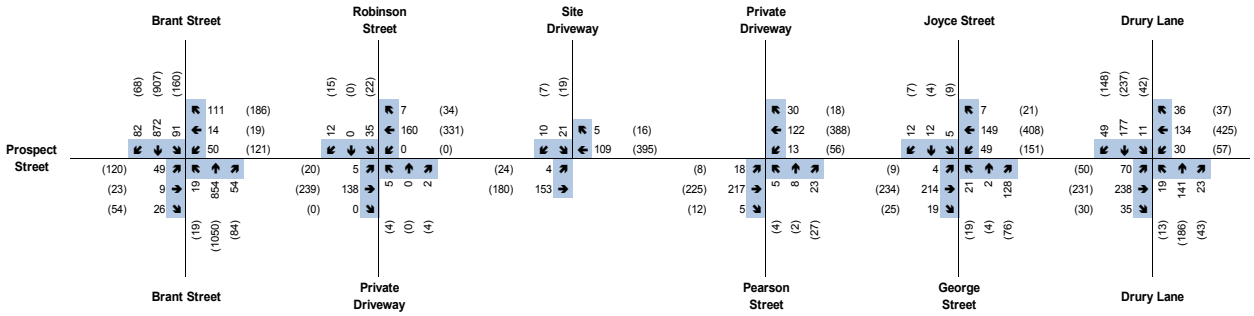


Figure 6 2023 Total Traffic Volumes

6.2 Intersection Capacity Analysis

The capacity analysis identifies how well the intersections are operating and how they are expected to operate in the future. The analysis contained within this report utilized the Highway Capacity Manual (HCM) 2000 techniques within the Synchro Version 8 Software package. The reported intersection volume-to-capacity ratios (v/c) are a measure of the saturation volume for each turning movement, while the levels-of-service (LOS) are a measure of the average delay for each turning movement. Queuing characteristics are reported as the predicted 95th percentile queue for each turning movement.

In accordance with the City's and Region's Traffic Impact Study Guidelines, the analysis includes identification of all intersections and for all movements; v/c ratios, LOS indicators and

95th percentile queue lengths. Critical intersections and movements shall be highlighted (in **bold**). 'Critical' intersections and movements include:

- v/c ratios for overall intersection operations, through movements or shared through/turning movements increased to 0.90 or above.
- v/c ratios for exclusive movements that exceed 1.00.
- 95th percentile queue lengths for individual movements exceed available lane storage.

The following tables summarize the HCM capacity results for the study intersections during the weekday AM and PM hours under existing (2017), future background (2023) and future total (2023) traffic conditions. The detailed calculation sheets are provided in Appendix D.

6.2.1 Brant Street and Prospect Street

Capacity analyses during the weekday AM and PM peak hours are summarized in Table 2.

Table 2 Capacity Analyses of Brant Street and Prospect Street

Traffic Condition	Movement v/c (LOS) 95th Percentile Queue	
	AM Peak Hour	PM Peak Hour
Existing 2017	Overall: 0.35 (B) EBL: 0.19 (C) 16 m EBTR: 0.04 (C) 9 m WBL: 0.15 (C) 14 m WBTR: 0.09 (C) 14 m NBL: 0.07 (A) 1 veh. NBTR: 0.42 (B) 54 m SBL: 0.24 (A) 8 m SBTR: 0.44 (B) 57 m	Overall: 0.51 (B) EBL: 0.51 (C) 32 m EBTR: 0.08 (C) 12 m WBL: 0.36 (C) 29 m WBTR: 0.15 (C) 18 m NBL: 0.07 (A) 1 veh NBTR: 0.53 (B) 69 m SBL: 0.41 (A) 12 m SBTR: 0.46 (B) 58 m
Future Background 2023	Overall: 0.42 (B) EBL: 0.23 (C) 18 m EBTR: 0.04 (C) 9 m WBL: 0.20 (C) 17 m WBTR: 0.12 (C) 16 m NBL: 0.09 (A) 1 veh NBTR: 0.48 (B) 63 m SBL: 0.30 (A) 9 m SBTR: 0.50 (B) 67 m	Overall: 0.61 (B) EBL: 0.66 (D) 44 m EBTR: 0.09 (C) 14 m WBL: 0.43 (C) 34 m WBTR: 0.18 (C) 9 m NBL: 0.09 (A) 1 veh NBTR: 0.60 (B) 82 m SBL: 0.56 (B) 15 m SBTR: 0.53 (B) 68 m
Future Total 2023	Overall: 0.42 (B) EBL: 0.24 (C) 18 m EBTR: 0.04 (C) 9 m WBL: 0.20 (C) 18 m WBTR: 0.12 (C) 16 m NBL: 0.09 (A) 1 veh NBTR: 0.48 (B) 64 m SBL: 0.31 (A) 9 m SBTR: 0.50 (B) 68 m	Overall: 0.62 (B) EBL: 0.67 (D) 44 m EBTR: 0.10 (C) 14 m WBL: 0.43 (C) 34 m WBTR: 0.18 (C) 20 m NBL: 0.09 (A) 1 veh NBTR: 0.60 (B) 83 m SBL: 0.59 (B) 17 m SBTR: 0.53 (B) 68 m

The intersection of Brant Street at Prospect Street currently operates under signalized control with a cycle length of 90 seconds. Under existing conditions the intersection is operating with excellent v/c ratios and LOS of 0.35 LOS B during the AM peak hour and 0.51 LOS B during the PM peak hour. There is sufficient capacity at this intersection to accommodate future increases in traffic volume.

Under the future 2023 background traffic conditions, with the addition of corridor and background traffic the overall v/c ratio increases to 0.42 LOS B during the AM peak hour and to 0.61 LOS B during the PM peak hour.

With the addition of the proposed site traffic, there is a nominal impact to the intersection capacity analysis. The AM peak hour v/c ratio remains unchanged at 0.42 LOS B while the PM peak hour v/c ratio increases from 0.61 to 0.62 LOS B. Motorists are expected to experience no change in delays with the peak hour delays during the AM and PM peak hour, respectively.

No improvements to this intersection have been identified to accommodate the proposed development.

6.2.2 Prospect Street and Robinson Street

Capacity analyses during the weekday AM and PM peak hours are summarized in Table 3.

Table 3 Capacity Analyses of Prospect Street and Robinson Street

Traffic Condition	Movement v/c (LOS) 95th Percentile Queue	
	AM Peak Hour	PM Peak Hour
Existing 2017	EBLTR: 0.00 (A) 1 veh NBLTR: 0.01 (B) 1 veh SBLTR: 0.07 (B) 1 veh	EBLTR: 0.02 (A) 1 veh NBLTR: 0.01 (B) 1 veh SBLTR: 0.08 (B) 1 veh
Future Background 2018	EBLTR: 0.00 (A) 1 veh NBLTR: 0.01 (B) 1 veh SBLTR: 0.09 (B) 1 veh	EBLTR: 0.02 (A) 1 veh NBLTR: 0.02 (B) 1 veh SBLTR: 0.10 (B) 1 veh
Future Total 2023	EBLTR: 0.00 (A) 1 veh NBLTR: 0.01 (B) 1 veh SBLTR: 0.09 (B) 1 veh	EBLTR: 0.02 (A) 1 veh NBLTR: 0.02 (B) 1 veh SBLTR: 0.10 (B) 1 veh

The unsignalized intersection of Robinson Street and Prospect Street is operating with excellent v/c ratios and LOS during both the AM and PM peak hours. Queuing on the north and south approaches is currently one vehicle or less.

Under the future background and future total traffic conditions, the intersection v/c ratio remains relatively unchanged with only the southbound left/through/right-turn v/c ratio increasing from 0.07 to 0.09 during the PM peak hour. Queuing on both the north and south approaches are expected to remain at one vehicle or less.

No improvements to this intersection have been identified to accommodate the proposed development.

6.2.3 Prospect Street and Site Driveway

Capacity analyses during the weekday AM and PM peak hours are summarized in Table 4.

Table 4 Capacity Analyses of Prospect Street and Site Driveway

Traffic Condition	Movement v/c (LOS) 95th Percentile Queue	
	AM Peak Hour	PM Peak Hour
Existing 2017	EBLT: 0.00 (A) 1 veh SBLR: 0.01 (A) 1 veh	EBLT: 0.01 (A) 1 veh SBLR: 0.02 (B) 1 veh
Future Background 2018	EBLT: 0.00 (A) 1 veh SBLR: 0.01 (B) 1 veh	EBLT: 0.01 (A) 1 veh SBLR: 0.04 (B) 1 veh
Future Total 2023	EBLT: 0.00 (A) 1 veh SBLR: 0.05 (B) 1 veh	EBLT: 0.02 (A) 1 veh SBLR: 0.07 (B) 1 veh

The north side site driveway/south side driveway intersection with Prospect Street is expected to continue to have very good operational characteristics with short turning delays during both the weekday AM and PM peak hours. There is no predicted exit queuing from the subject site during either of the peak hours.

Consequently, there are no recommended lane improvements at this intersection.

6.2.4 Prospect Street and Pearson Street

Capacity analyses during the weekday AM and PM peak hours are summarized in Table 5.

Table 5 Capacity Analyses of Prospect Street and Pearson Street

Traffic Condition	Movement v/c (LOS) 95th Percentile Queue	
	AM Peak Hour	PM Peak Hour
Existing 2017	EBLTR: 0.01 (A) 1 veh WBLTR: 0.01 (A) 1 veh NBLTR: 0.06 (B) 1 veh.	EBLTR: 0.01 (A) 1 veh WBLTR: 0.04 (A) 1 veh NBLTR: 0.06 (B) 1 veh
Future Background 2023	EBLTR: 0.02 (A) 1 veh WBLTR: 0.01 (A) 1 veh NBLTR: 0.07 (B) 1 veh	EBLTR: 0.01 (A) 1 veh WBLTR: 0.05 (A) 1 veh NBLTR: 0.07 (B) 1 veh
Future Total 2023	EBLTR: 0.02 (A) 1 veh WBLTR: 0.01 (A) 1 veh NBLTR: 0.08 (B) 1 veh	EBLTR: 0.01 (A) 1 veh WBLTR: 0.05 (A) 1 veh NBLTR: 0.07 (B) 1 veh

The unsignalized intersection of Pearson Street and Prospect Street is operating with excellent v/c ratios and LOS during both the AM and PM peak hours, respectively. Queuing on the stop controlled south approach is currently one vehicle or less.

Under the future background and future total traffic conditions, the intersection v/c ratio remains relatively unchanged with only the northbound left/through/right-turn v/c ratio showing an increase from 0.06 to 0.08 during the AM peak hour and remaining unchanged during the PM peak hour. Delays remain unchanged with a max delay of 12 seconds for the northbound movements during both the AM and PM peak hours. Queuing on the south approach is expected to remain at one vehicle or less.

No improvements to this intersection have been identified to accommodate the proposed development.

6.2.5 Prospect Street and George Street/Joyce Street

Capacity analyses during the weekday AM and PM peak hours are summarized in Table 6.

Table 6 Capacity Analyses of Prospect Street and George Street/Joyce Street

Traffic Condition	Movement v/c (LOS) 95th Percentile Queue	
	AM Peak Hour	PM Peak Hour
Existing 2017	EBLTR: 0.00 (A) 1 veh WBLTR: 0.04 (A) 1 veh NBLTR: 0.21 (B) 1 veh SBLTR: 0.05 (B) 1 veh	EBLTR: 0.01 (A) 1 veh WBLTR: 0.11 (A) 1 veh NBLTR: 0.19 (B) 1 veh SBLTR: 0.07 (C) 1 veh

Table 6 Capacity Analyses of Prospect Street and George Street/Joyce Street

Traffic Condition	Movement v/c (LOS) 95th Percentile Queue	
	AM Peak Hour	PM Peak Hour
Future Background 2023	EBLTR: 0.00 (A) 1 veh WBLTR: 0.04 (A) 1 veh NBLTR: 0.25 (B) 1 veh SBLTR: 0.07 (B) 1 veh	EBLTR: 0.01 (A) 1 veh WBLTR: 0.13 (A) 1 veh NBLTR: 0.26 (C) 1 veh SBLTR: 0.12 (D) 1 veh
Future Total 2023	EBLTR: 0.00 (A) 1 veh WBLTR: 0.04 (A) 1 veh NBLTR: 0.26 (B) 1 veh SBLTR: 0.07 (B) 1 veh	EBLTR: 0.01 (A) 1 veh WBLTR: 0.13 (A) 1 veh NBLTR: 0.27 (C) 1 veh SBLTR: 0.12 (D) 1 veh

The unsignalized intersection of George Street/Joyce Street and Prospect Street is operating with excellent v/c ratios and LOS during both the AM and PM peak hours. Queuing on the north and south approaches is currently one vehicle or less.

Under the future background and future total traffic conditions, the intersection v/c ratio remains relatively unchanged with only the northbound and southbound left/through/right-turn v/c ratios increasing slightly. Delays remain manageable and queuing on both the north and south approaches is expected to remain at one vehicle or less.

No improvements to this intersection have been identified to accommodate the proposed development.

6.2.6 Prospect Street and Drury Lane

Capacity analyses during the weekday AM and PM peak hours are summarized in Table 6.

Table 7 Capacity Analyses of Prospect Street and Drury Lane

Traffic Condition	Movement v/c (LOS) 95th Percentile Queue	
	AM Peak Hour	PM Peak Hour
Existing 2017	Overall: 0.38 (B) EBLTR: 0.36 (A) 30 m WBLTR: 0.23 (A) 18 m NBLTR: 0.32 (B) 25 m SBLTR: 0.40 (B) 31 m	Overall: 0.57 (B) EBLTR: 0.34 (B) 16 m WBLTR: 0.55 (B) 76 m NBLTR: 0.34 (B) 31 m SBLTR: 0.60 (B) 55 m
Future Background 2023	Overall: 0.44 (B) EBLTR: 0.44 (B) 40 m WBLTR: 0.26 (A) 23 m NBLTR: 0.36 (B) 28 m SBLTR: 0.44 (B) 35 m	Overall: 0.66 (B) EBLTR: 0.41 (B) 48 m WBLTR: 0.65 (B) 92 m NBLTR: 0.38 (B) 35 m SBLTR: 0.67 (B) 66 m
Future Total 2023	Overall: 0.46 (B) EBLTR: 0.46 (B) 42 m WBLTR: 0.27 (A) 23 m NBLTR: 0.36 (B) 28 m SBLTR: 0.44 (B) 35 m	Overall: 0.67 (B) EBLTR: 0.42 (B) 50 m WBLTR: 0.66 (B) 94 m NBLTR: 0.38 (B) 35 m SBLTR: 0.67 (B) 65 m

The intersection of Drury Lane at Prospect Street currently operates under signalized control with a cycle length of 70 seconds. Under existing conditions the intersection is operating with excellent v/c ratios and LOS of 0.38 LOS B during the AM peak hour and 0.57 LOS B during the PM peak hour. There is reserve capacity at this intersection to accommodate future increases in traffic volume.

Under the future 2023 background traffic conditions, with the addition of corridor and background traffic the overall v/c ratio increases to 0.44 LOS B during the AM peak hour and to 0.66 LOS B during the PM peak hour. Overall delays to motorists remain low at LOS B in the AM peak and PM peak hours.

With the addition of the proposed site traffic, there is a nominal impact to the intersection capacity analysis. The AM peak hour v/c ratio increases to 0.46 LOS B while the PM peak hour v/c ratio increases to 0.67 LOS B. Motorists are expected to experience only a slight change in delays with all movement operating at LOS B or better.

No improvements to this intersection have been identified to accommodate the proposed development.

7. Parking Assessment

The existing site parking demand along with the expected future townhouse parking demand have been examined to derive a single site specific minimum parking rate for both residents and visitors based on the existing and proposed land uses.

The section of the report includes information on the existing parking management and demand on site, TTS data for the City of Burlington and proposed parking management for the redeveloped site.

Site Characteristics

The existing site is comprised of one apartment building with a total of 65 units plus 8 townhouse units. There are currently 95 parking spaces consisting of 79 surface parking spaces and 16 covered parking spaces. A total of seven surface parking spaces are designated as visitor spaces.

The proposed infill development would replace the 16 townhouses with 96 stacked rental townhouses. It also proposes an additional 35 parking spaces resulting in a total parking supply of 130 parking spaces for the proposed 115 total residential units.

Alternative Travel Modes

The site has excellent access to Burlington Transit which currently operates frequent daily service as Route #3 (Guelph-Downtown) and Route #5 (Francis-Downtown) on Brant Street, approximately 265 m from the existing west driveway of the site. These routes provide connections to multiple routes on Fairview Street, approximately 290 m to the north.

The Burlington GO Station is also located approximately 1,200 metres to the north on Fairview Street.

The City of Burlington has also through the Burlington Cycling Master Plan been creating a network of on-road bikeways and multi-use pathways throughout the city, along with supportive policies, practices and programs to encourage more people to cycle. As part of this initiative, bike lanes are currently provided on both Prospect Street and Brant Street providing residents with cohesive, safe and direct paths for getting around the city.

By-Law Parking Requirement

The applicable City of Burlington parking by-law is 1.25 resident spaces per unit for bachelor and one bedroom apartments, and 1.50 spaces per unit for two bedroom apartments and townhouses, respectively. It also requires 0.35 visitor spaces per residential unit.

The by-law requirement is therefore 200 parking spaces for the proposed redevelopment of the site.

As only 130 parking spaces are proposed for the site consisting of 109 resident spaces and 21 visitor spaces, there is a shortfall of 70 parking spaces from the required by-law.

Existing Assignment of Parking Spaces

Parking for the site is currently managed through the use of assigned parking spaces according to lease agreements that are held on file with property management. Currently there are a total of 62 parking spaces leased to existing tenants of the 73 units on site based on the following breakdown:

- 65 unit apartment: 54 parking spaces assigned
- 8 townhouse units: 9 parking spaces assigned

The existing site parking demand is therefore 0.83 spaces per unit for the apartment building and 1.13 spaces per unit for the townhouses or a combined rate of 0.85 spaces per unit for the entire site.

It is expected that with the proposed removal of the townhouse units and improvements to the management of the parking spaces on the site, the number of assigned spaces for the redevelopment will more closely match that of the existing apartment units. A more detailed description of parking management is below.

Parking Management

With the redevelopment of the site, parking for both the existing and proposed redevelopment will be redesigned to provide more compact and formalized parking areas for both residents and visitors.

Each unit with parking will have an assigned, numbered parking space and a sticker on the windshield connecting the vehicle to the space. Any vehicle parked on the site in a resident parking space without a valid sticker will be ticketed. Existing parking fees will be enforced and any new residents requesting parking will be required to pay for each space. Spaces will be assigned based on availability.

As noted before, these measures will ensure that residents are only assigned parking spaces they actually need and that they are able to use the spaces that they have assigned to them. Over time, this is expected to reduce the number of assigned parking spaces.

Review of Transportation Tomorrow Survey Data (TTS)

TTS data for both Zone 4059 where the site is located and for the entire City of Burlington was reviewed to confirm auto ownership for apartment units. Apartment units were selected as the appropriate unit for comparison purposes given the similarities the proposed Townhouse apartment units have with the existing apartment units and the fact that they will be rented to tenants and not available for purchase.

The table below summarizes the 2011 TTS data for apartment units without expansion factors for both Zone 4059 and all of Burlington.

Table 8 2011 Transportation Tomorrow Survey Data for Burlington

	Vehicles per Household					Total
	0	1	2	3	4	
Zone 4059						
Number of Households	14	30	6	1	0	51
	27.5%	58.8%	11.8%	2.0%	0.0%	100.0%
City Wide						
Number of Households	157	552	137	6	1	853
	18.4%	64.7%	16.1%	0.7%	0.1%	100.0%

Within Zone 4059 where the subject property is located, the TTS data shows approximately 28 percent of apartment units having no parking spaces, 60 percent with one parking space and 12 percent with two parking spaces. The survey data showing apartment units with more than two parking spaces is statistically insignificant based on the number of survey data points and was eliminated from the calculations. Utilizing the same breakdown of vehicles per household, the proposed 115 unit development would require a total of 96 parking spaces or 0.83 spaces per unit. The parking rate calculated using TTS data is consistent with the existing assignment of spaces for residents on the site of 0.85 spaces per unit.

City wide, the TTS data shows approximately 19 percent of apartment units having no parking spaces, 65 percent with one parking space and 16 percent with two parking spaces. Again, survey data showing apartment units with more than two parking spaces is statistically insignificant based on the number of survey data points. Utilizing the City wide breakdown of vehicles per household, the proposed 115 unit development would require a total of 113 parking spaces or a rate of 0.98 spaces per unit.

Zone 4059 and to a lesser extend the City wide TTS statistics confirm that the site specific data for the existing subject site is consistent with the vehicles per household within the City of Burlington showing a significant portion of units having a need for either no parking spaces or only one parking space per unit.

Proposed Townhouse Apartment Resident Parking Requirement

Within the context that the local conditions result in a total site parking rate for the site that is significantly below the required minimum parking by-law rates, the proposed townhouse apartment units are generally the same size as the existing apartment units on the site and should also similarly generate a lower parking demand than the current minimum by-law requirement.

Using both the existing parking space assignment of 0.85 parking spaces per unit and the TTS data for Zone 4059, the proposed 115 units would require 98 visitor parking spaces.

However, GHD completed a resident parking demand for the adjacent property in 2016 which resulted in an approved resident parking rate at 2051-2067 and 2069-2077 Prospect Street of 0.94 spaces per unit. Both sites are identical with the same apartment and townhouse unit mix. The recommended resident parking rate is therefore proposed at 0.94 spaces per unit which is greater than the existing parking demand for the site.

The proposed 115 units would therefore require 109 visitor parking spaces.

Proposed Visitor Parking Rates

Due to ongoing construction of the adjacent property, a survey of existing peak peaking demand for visitors at the subject site could not be undertaken as the parking lot is being used to accommodate parking from the neighbouring property. However, based on our review of other municipalities, a typical visitor parking rate would be 0.25 spaces per unit which is less that the current requirement in Burlington of 0.35. However, GHD completed a visitor parking demand for the adjacent property in 2016 which confirmed an observed visitor parking rate significantly lower at 0.12.

The recommended visitor parking rate is therefore proposed the same as what was approved at 2051-2067 and 2069-2077 Prospect Street at 0.18 spaces per unit.

The proposed 115 units would therefore require 21 visitor parking spaces.

Site Parking Recommendations

We therefore make the following recommendation as the total future site minimum parking provisions for the ultimate total of 115 residential units:

- Provide a total of 21 visitor parking spaces for the site: a rate of 0.18 spaces per unit
- Provide a total of 109 resident parking spaces for the site: a rate of 0.94 spaces per unit

The above recommendations result in a total on-site requirement of 130 parking spaces.

8. Travel Demand Management (TDM)

8.1 Travel Demand Management

TDM refers to a variety of strategies to reduce congestion, minimize the number of single-occupant vehicles, encourage non-auto modes of travel, and reduce vehicle dependency to create a sustainable transportation system. TDM strategies have multiple benefits including the following:

- Reduced auto-related emissions to improve air quality
- Decreased traffic congestion to reduce travel time
- Increased travel options for businesses and commuters
- Reduced personal transportation costs and energy consumptions
- Support Provincial smart growth objectives

The combined benefits listed above will assist in creating a more active and liveable community through improvements to overall active transportation standards for the local businesses and surrounding community.

As per the City of Burlington Official Plan section pertaining to Sustainable Design and Compatibility, TDM strategies will be used to encourage increased transit ridership, walking and bicycling in the City. Concerning parking, the Official Plan indicates parking may be permitted on a reduced basis in a combination with cash in lieu of parking and/or the establishment of a TDM plan. An effective TDM plan and implementation strategy is expected to continue to support the already reduced single occupancy automobile use and reduced parking demand on the subject site.

We anticipate this TDM plan can be expected to adequately support the required parking reduction.

8.2 TDM opportunities identification

The City of Burlington is currently updating its Transportation Master Plan (TMP) in order to define a 20-year strategy for the City's transportation network. Due to the current active transportation infrastructure provided in the vicinity of the site, additional physical active transportation infrastructure improvements are not expected in the foreseeable future.

8.3 Existing TDM Initiatives

The City has also developed numerous TDM initiatives that are expected to have a positive impact on reducing single occupancy automobile use, including but not limited to:

- **Carpool Zone**: A free online ride-matching service coordinated by Smart Commute Halton. It is designed to help participants find carpool partners.
- **Carpool Week**: A week dedicated towards increasing the number of people carpooling to work.
- **Smart Commute Week**: A week-long campaign that encourages commuters to try a sustainable mode of transportation and reward those who already do so.

- **Bike Month**: An international initiative to promote the use of bicycles for daily activities and recreation.
- **Transit and Active Transportation Mapping**: Provided online and includes information about carpool lots and features.
- **Annual Bike to Work Day**: Held collaboratively with Smart Commute Halton and other local employers.

8.4 Public Transit

The City of Burlington currently operates Route 3 (Guelph-Downtown), 3x (Guelph-Downtown AM Peak), 5 (Francis-Downtown), and 52 (Burlington Northwest Late Night), within the vicinity of the site along the north-south Brant Street corridor. The simultaneous operation of these four routes provides complete transit service throughout the week, during peak, off-peak, and late night periods.

A northbound nearside transit stop on Brant Street Prospect Street is provided for all four routes, and a southbound nearside transit stop is provided for Routes 3 and 5. This intersection is approximately only 350 m from the subject site, providing easy access by pedestrians residing in the proposed development.

Furthermore, routes 3x and 5 provide direct connectivity to the Burlington GO Station on Fairview Street, providing improved commuter options throughout the Greater Toronto-Hamilton Area (GTHA) to residents of the proposed development.

8.5 TDM Initiatives

Sidewalk Connectivity

The proposed site plan includes high quality pedestrian connections from the proposed residential buildings to the existing sidewalk network on Prospect Street. There are boulevard sidewalks along the north and south sides of Prospect Street, connecting to the sidewalk infrastructure on Brant Street. This direct and fairly short connection (approximately 350 m) provides pedestrians with easy access to the existing transit stops at the intersection of Brant Street and Prospect Street, as well as the variety of commercial, recreational and institutional establishments currently existing on Brant Street in the vicinity of the site.

It is expected a pedestrian could reach the Fairview Street GO Station in approximately 15 minutes from the subject site, via westbound Prospect Street, northbound Brant Street, and eastbound Fairview Street.

Bicycle Infrastructure Connectivity

A dedicated bicycle lane is provided on the north side of Prospect Street, with a signed bicycle route with the use of sharrows on the south side of Prospect Street. This provided cyclists with direct access to the existing dedicated bicycle lanes on both sides of Brant Street.

Proposed TDM Measures

The TDM plan proposes a mix of hard and soft measures to meet the objectives and targets to reduce vehicular demand and encourage passenger, transit, cycling, and walking. Details are reviewed with each of the following TDM measures.

Car-Share Parking Space

The adjacent site to the west is planning on providing an onsite car-share parking space with pavement marking delineation specific to its car-share use and signed for a specific car-share company. The developer is actively pursuing a car-share company to provide this service, but an agreement has not yet been reached at this time.

Unbundled Resident Parking

The developer will provide separate (or unbundled) resident parking to separate the cost of parking from the cost of each residential unit for all new residents on site. This will make visible the hidden cost of driving and encourage residents to make more informed active transportation decisions and may create opportunities for the use of more sustainable modes of transportation.

Cycling Parking

Outdoor bicycle parking will also be provided adjacent to existing and new buildings and will be identified on the Site Plan.

The costs associated with this TDM measure are absorbed by the developer.

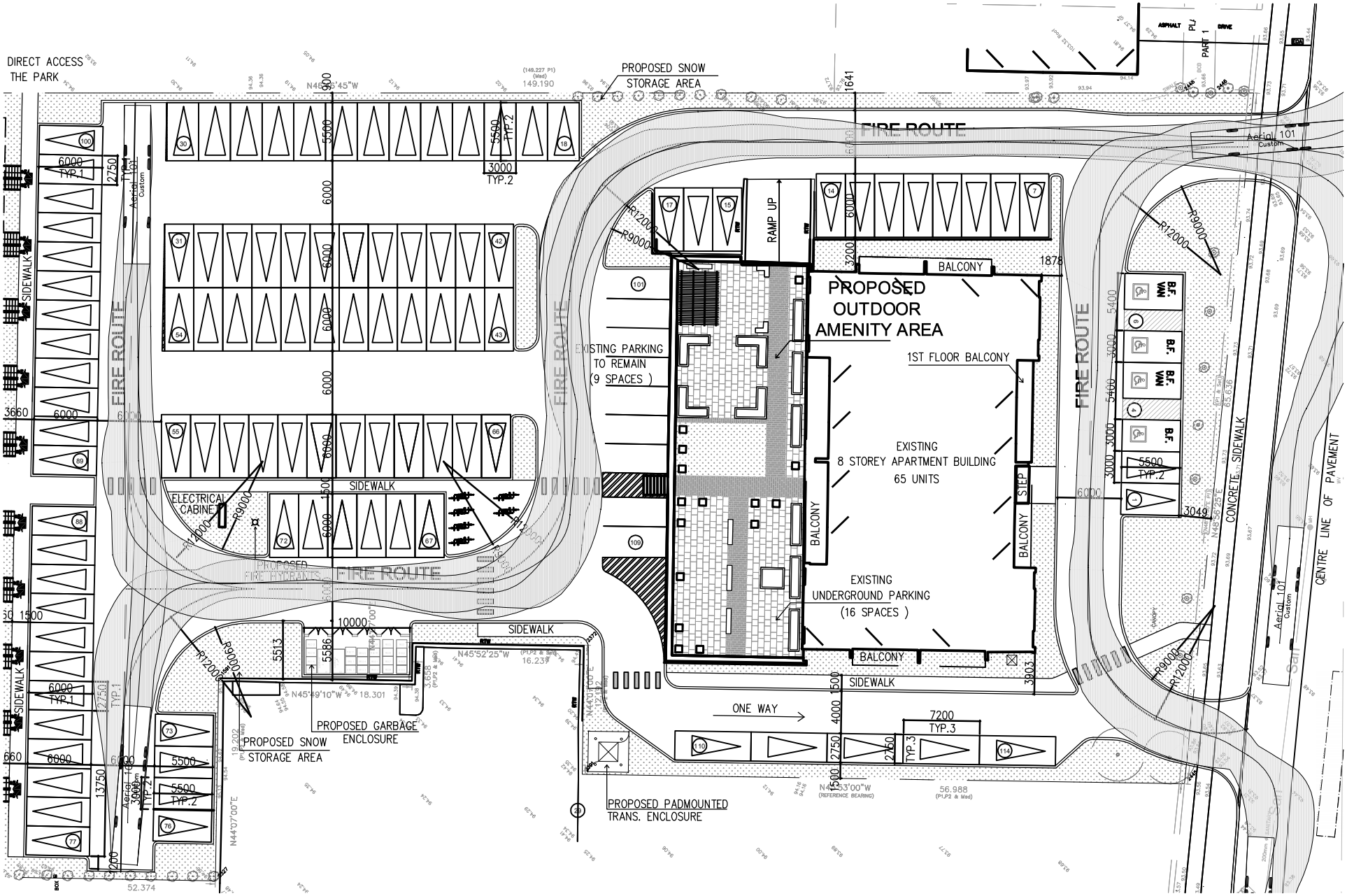
Free/subsidized Transit Passes

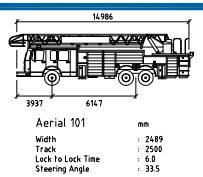
The developer will make available 6 months of free or subsidized transit passes as a new move-in incentive for new residents moving into the new apartments or existing units on site. The subsidy will be available for the first six months, starting the first month the resident move in. The costs associated with this TDM measure are absorbed by the developer.

Information Distribution

The developer will distribute one transit and cycling information package to each existing resident and to each new resident upon move-in. Extra packages will be available in the site office. The contents of the information packages will include information concerning pedestrian trails, cycling, and transit facilities and carpool options, such as community map, City of Burlington transit route map, GO Transit route map and schedules, etc. These materials should also include notification of existing City of Burlington TDM initiatives as previously listed.

Appendix





Welwyn Interests Inc.
2095 Prospect Street
Traffic and Parking Study

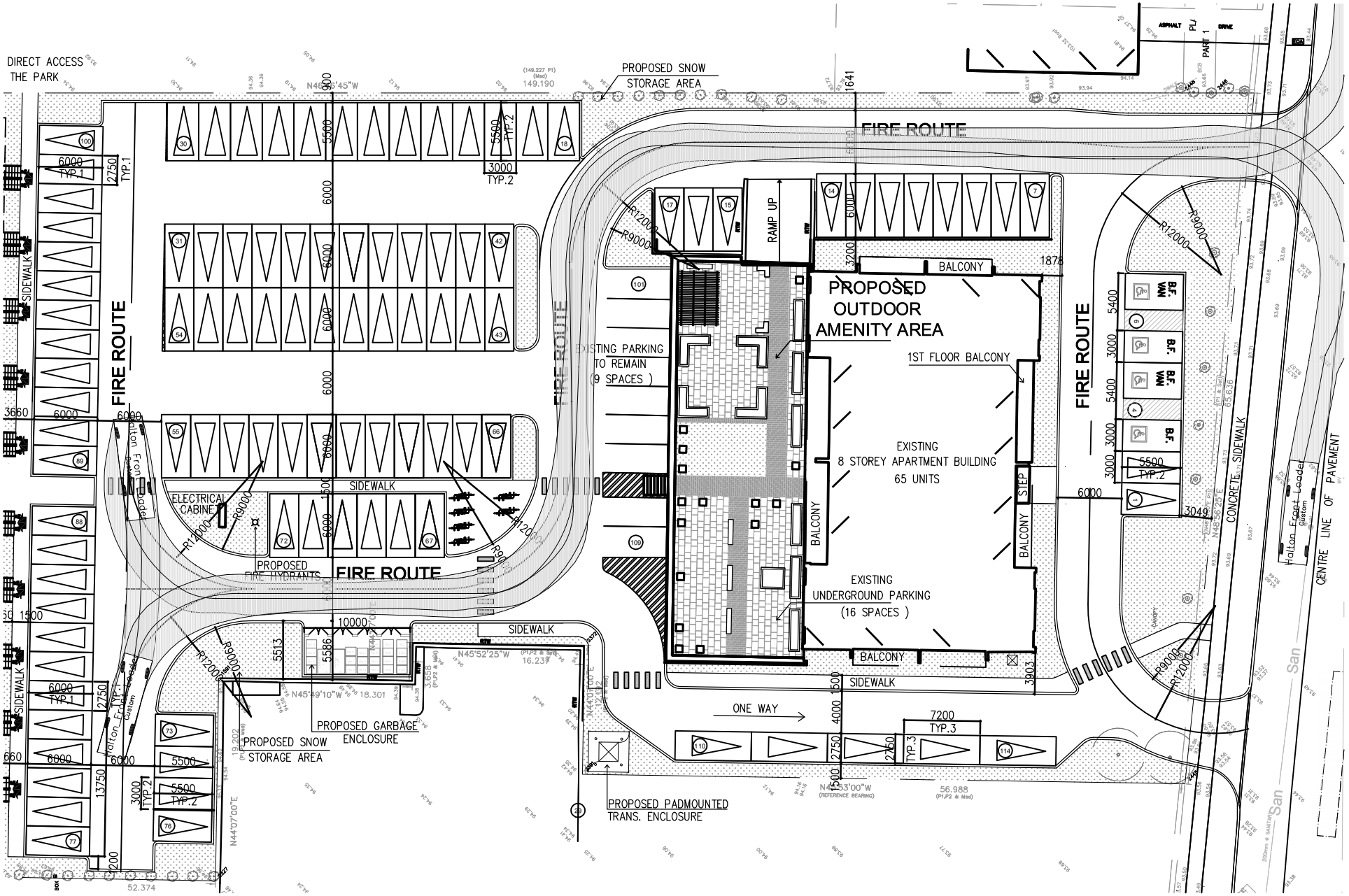
Vehicle Swept Path Analysis
Aerial Fire Truck

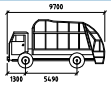
Job Number 11148854
Revision
Date Dec 2017

Figure AT-1

6705 Millcreek Drive, Unit 1, Mississauga Ontario L5N 5M4 T 1 416 213 7121 F 1 416 890 8499 E info@ghdcanada.com W www.ghd.com

Plot Date: 20 December 2017 - 6:33 PM Plotted by: Adam Mildenberger Cad File No: G:\Legacy\SernasTransTech\Projects\2017\2095 Prospect St TIS & Parking\Analysis\2095 Prospect St AutoTurn Analysis_20Dec2017.dwg





Welwyn Interests Inc.
2095 Prospect Street
Traffic and Parking Study

Vehicle Swept Path Analysis
Halton Garbage

Job Number 11148854
Revision
Date Dec 2017

Figure AT-2

6705 Millcreek Drive, Unit 1, Mississauga Ontario L5N 5M4 **T** 1 416 213 7121 **F** 1 416 890 8499 **E** info@ghdcanada.com **W** www.ghd.com

Plot Date: 20 December 2017 - 6:37 PM Plotted by: Adam Mildenberger Cad File No: G:\Legacy\SernasTransTech\Projects\2017\2095 Prospect St TIS & Parking\Analysis\2095 Prospect St AutoTurn Analysis_20Dec2017.dwg

Morning Peak Diagram

Specified Period
From: 6:00:00
To: 9:00:00

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

Municipality: Burlington
Site #: 1729700001
Intersection: Prospect St & 2095 Prospect St
TFR File #: 15
Count date: 24-Oct-17

Weather conditions:

Person(s) who counted:

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

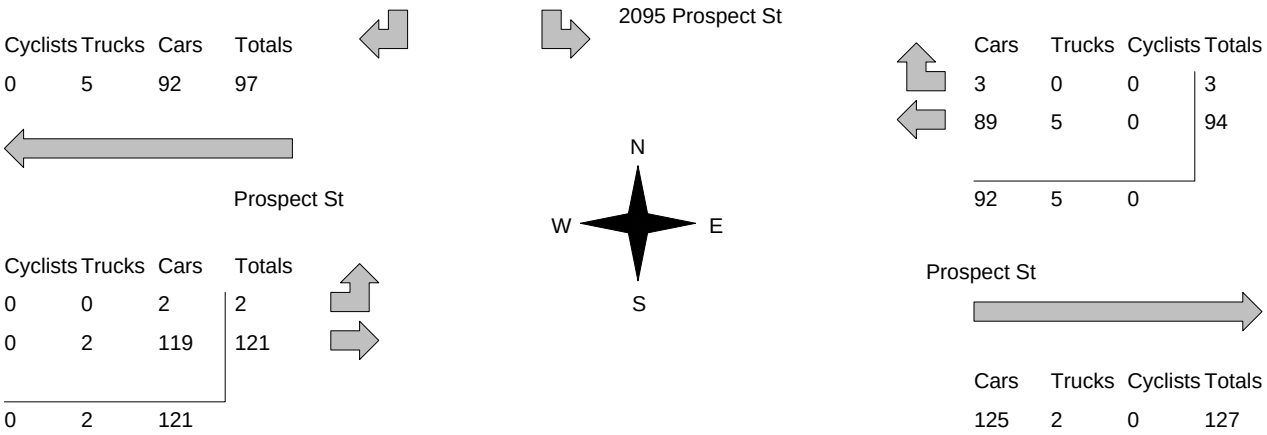
Major Road: Prospect St runs W/E

North Leg Total: 14
North Entering: 9
North Peds: 12
Peds Cross: ⋈

Cyclists	0	0	0
Trucks	0	0	0
Cars	3	6	9
Totals	3	6	

Cyclists	0
Trucks	0
Cars	5
Totals	5

East Leg Total: 224
East Entering: 97
East Peds: 0
Peds Cross: ⧖



Peds Cross: ⧖
West Peds: 0
West Entering: 123
West Leg Total: 220

Comments

Afternoon Peak Diagram

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

One Hour Peak
From: 17:00:00
To: 18:00:00

Municipality: Burlington
Site #: 1729700001
Intersection: Prospect St & 2095 Prospect St
TFR File #: 15
Count date: 24-Oct-17

Weather conditions:

Person(s) who counted:

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

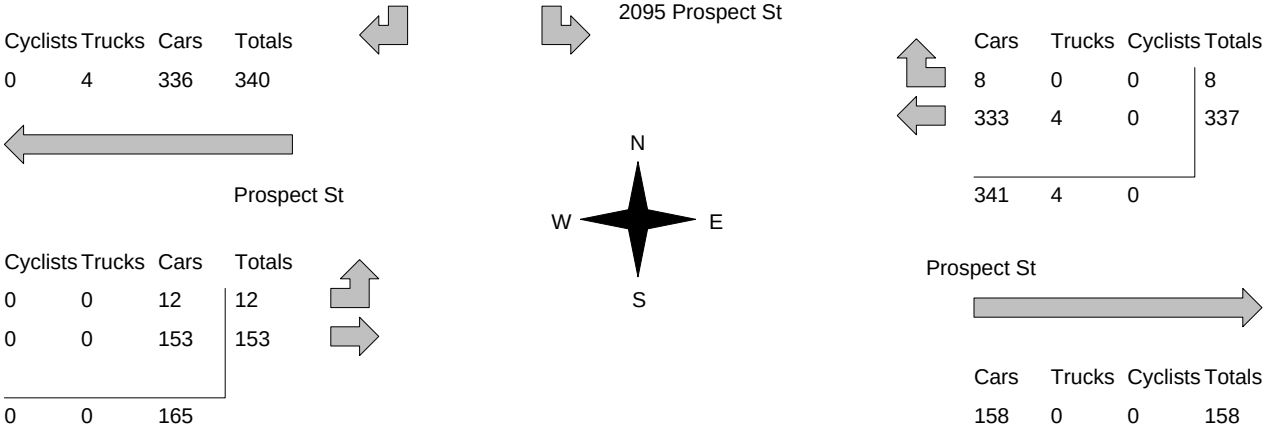
Major Road: Prospect St runs W/E

North Leg Total: 28
North Entering: 8
North Peds: 6
Peds Cross: ⋈

Cyclists	0	0	0
Trucks	0	0	0
Cars	3	5	8
Totals	3	5	

Cyclists	0
Trucks	0
Cars	20
Totals	20

East Leg Total: 503
East Entering: 345
East Peds: 1
Peds Cross: ⧖



Peds Cross: ⧖
West Peds: 0
West Entering: 165
West Leg Total: 505

Comments

Total Count Diagram

Municipality: Burlington
Site #: 1729700001
Intersection: Prospect St & 2095 Prospect St
TFR File #: 15
Count date: 24-Oct-17

Weather conditions:

Person(s) who counted:

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

Major Road: Prospect St runs W/E

North Leg Total: 113
North Entering: 54
North Peds: 40
Peds Cross: ⋈

Cyclists	0	0	0
Trucks	0	0	0
Cars	28	26	54
Totals	28	26	

Cyclists	0
Trucks	0
Cars	59
Totals	59

East Leg Total: 1687
East Entering: 1001
East Peds: 1
Peds Cross: ⧖

2095 Prospect St

Cyclists	Trucks	Cars	Totals
0	14	986	1000

Cars	Trucks	Cyclists	Totals
29	0	0	29
958	14	0	972
987	14	0	

Prospect St

N
W E
S

Cyclists	Trucks	Cars	Totals
0	0	30	30
0	8	652	660
0	8	682	

Prospect St

Cars	Trucks	Cyclists	Totals
678	8	0	686

Peds Cross: ⧖
West Peds: 0
West Entering: 690
West Leg Total: 1690

Comments

Traffic Count Summary

Intersection: Prospect St & 2095 Prospect St | **Count Date:** 24-Oct-17 | **Municipality:** Burlington

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
6:00:00	0	0	0	0	0	0
7:00:00	4	0	5	9	0	9
8:00:00	4	0	9	13	0	13
9:00:00	6	0	3	9	12	9
16:00:00	0	0	0	0	0	0
17:00:00	7	0	5	12	12	12
18:00:00	5	0	3	8	6	8
19:00:00	0	0	3	3	10	3
Totals:	26	0	28	54	40	54

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
6:00:00	0	0	0	0	0
7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	0
9:00:00	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
6:00:00	0	0	0	0	0	1
7:00:00	0	27	4	31	0	65
8:00:00	0	80	1	81	0	156
9:00:00	0	94	3	97	0	220
16:00:00	0	2	0	2	0	7
17:00:00	0	245	9	254	0	411
18:00:00	0	337	8	345	1	510
19:00:00	0	187	4	191	0	320
Totals:	0	972	29	1001	1	1690

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
6:00:00	0	1	0	1	0
7:00:00	4	30	0	34	0
8:00:00	2	73	0	75	0
9:00:00	2	121	0	123	0
16:00:00	0	5	0	5	0
17:00:00	8	149	0	157	0
18:00:00	12	153	0	165	0
19:00:00	2	127	0	129	0
Totals:	30	659	0	689	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	6:00	7:00	8:00	9:00	16:00	17:00	18:00	19:00
Crossing Values:	0	4	4	6	0	7	6	0

Count Date: 24-Oct-17 Site #: 1729700001

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Cyclists - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
6:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30:00	2	2	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45:00	3	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00:00	4	1	0	0	5	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	4	0	0	0	9	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	5	1	0	0	10	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	8	3	0	0	11	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00:00	8	0	0	0	14	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15:00	10	2	0	0	15	1	0	0	0	0	0	0	0	0	0	0	0	0	4	4
8:30:00	11	1	0	0	16	1	0	0	0	0	0	0	0	0	0	0	0	0	4	0
8:45:00	12	1	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	8	4
9:00:00	14	2	0	0	17	1	0	0	0	0	0	0	0	0	0	0	0	0	12	4
9:00:54	14	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0
16:00:00	14	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0
16:15:00	15	1	0	0	18	1	0	0	0	0	0	0	0	0	0	0	0	0	21	9
16:30:00	17	2	0	0	18	0	0	0	0	0	0	0	0	0	0	0	0	0	24	3
16:45:00	20	3	0	0	20	2	0	0	0	0	0	0	0	0	0	0	0	0	24	0
17:00:00	21	1	0	0	22	2	0	0	0	0	0	0	0	0	0	0	0	0	24	0
17:15:00	21	0	0	0	24	2	0	0	0	0	0	0	0	0	0	0	0	0	26	2
17:30:00	22	1	0	0	25	1	0	0	0	0	0	0	0	0	0	0	0	0	28	2
17:45:00	23	1	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	29	1
18:00:00	26	3	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	30	1
18:15:00	26	0	0	0	26	1	0	0	0	0	0	0	0	0	0	0	0	0	32	2
18:30:00	26	0	0	0	28	2	0	0	0	0	0	0	0	0	0	0	0	0	33	1
18:45:00	26	0	0	0	28	0	0	0	0	0	0	0	0	0	0	0	0	0	34	1
19:00:00	26	0	0	0	28	0	0	0	0	0	0	0	0	0	0	0	0	0	40	6
19:00:05	26	0	0	0	28	0	0	0	0	0	0	0	0	0	0	0	0	0	40	0

Count Date: 24-Oct-17 Site #: 1729700001

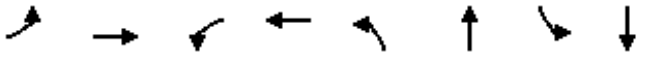
Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Cyclists - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
6:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15:00	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30:00	0	0	9	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45:00	0	0	13	4	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00:00	0	0	27	14	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	41	14	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	56	15	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	0	0	82	26	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00:00	0	0	107	25	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15:00	0	0	127	20	7	2	0	0	3	3	0	0	0	0	0	0	0	0	0	0
8:30:00	0	0	147	20	7	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
8:45:00	0	0	169	22	8	1	0	0	4	1	0	0	0	0	0	0	0	0	0	0
9:00:00	0	0	196	27	8	0	0	0	5	1	0	0	0	0	0	0	0	0	0	0
9:00:54	0	0	198	2	8	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
16:00:00	0	0	198	0	8	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
16:15:00	0	0	249	51	9	1	0	0	7	2	0	0	0	0	0	0	0	0	0	0
16:30:00	0	0	307	58	13	4	0	0	7	0	0	0	0	0	0	0	0	0	0	0
16:45:00	0	0	386	79	15	2	0	0	8	1	0	0	0	0	0	0	0	0	0	0
17:00:00	0	0	439	53	17	2	0	0	9	1	0	0	0	0	0	0	0	0	0	0
17:15:00	0	0	541	102	20	3	0	0	11	2	0	0	0	0	0	0	0	0	1	1
17:30:00	0	0	628	87	21	1	0	0	12	1	0	0	0	0	0	0	0	0	1	0
17:45:00	0	0	703	75	23	2	0	0	13	1	0	0	0	0	0	0	0	0	1	0
18:00:00	0	0	772	69	25	2	0	0	13	0	0	0	0	0	0	0	0	0	1	0
18:15:00	0	0	827	55	25	0	0	0	14	1	0	0	0	0	0	0	0	0	1	0
18:30:00	0	0	871	44	27	2	0	0	14	0	0	0	0	0	0	0	0	0	1	0
18:45:00	0	0	908	37	29	2	0	0	14	0	0	0	0	0	0	0	0	0	1	0
19:00:00	0	0	958	50	29	0	0	0	14	0	0	0	0	0	0	0	0	0	1	0
19:00:05	0	0	958	0	29	0	0	0	14	0	0	0	0	0	0	0	0	0	1	0

Count Date: 24-Oct-17 Site #: 1729700001

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Cyclists - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
6:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00:54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:00:05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

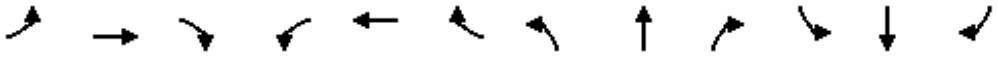
Count Date: 24-Oct-17 Site #: 1729700001

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Cyclists - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
6:00:00	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15:00	1	1	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30:00	3	2	12	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45:00	4	1	21	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00:00	4	0	31	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	4	0	41	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	5	1	61	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	6	1	75	14	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
8:00:00	6	0	102	27	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0
8:15:00	7	1	126	24	0	0	0	0	3	1	0	0	0	0	0	0	0	0	0	0
8:30:00	7	0	157	31	0	0	0	0	4	1	0	0	0	0	0	0	0	0	0	0
8:45:00	8	1	181	24	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0
9:00:00	8	0	221	40	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0
9:00:54	8	0	225	4	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0
16:00:00	8	0	226	1	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0
16:15:00	11	3	256	30	0	0	0	0	5	1	0	0	0	0	0	0	0	0	0	0
16:30:00	13	2	295	39	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
16:45:00	15	2	326	31	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
17:00:00	16	1	372	46	0	0	0	0	7	2	0	0	0	0	0	0	0	0	0	0
17:15:00	17	1	409	37	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0
17:30:00	22	5	449	40	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0
17:45:00	25	3	484	35	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0
18:00:00	28	3	525	41	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0
18:15:00	28	0	558	33	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0
18:30:00	29	1	585	27	0	0	0	0	8	1	0	0	0	0	0	0	0	0	0	0
18:45:00	29	0	619	34	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0
19:00:00	30	1	651	32	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0
19:00:05	30	0	652	1	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0



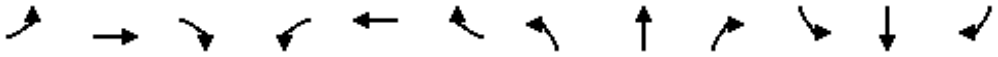
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	47	34	39	98	18	866	86	910
v/c Ratio	0.19	0.09	0.14	0.24	0.07	0.42	0.21	0.44
Control Delay	30.8	14.9	30.0	10.1	9.2	10.6	5.8	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.8	14.9	30.0	10.1	9.2	10.6	5.8	10.7
Queue Length 50th (m)	6.5	1.2	5.4	1.5	1.2	39.0	4.0	41.3
Queue Length 95th (m)	16.0	8.6	13.8	13.6	4.4	53.6	8.1	56.6
Internal Link Dist (m)		146.8		81.0		202.6		200.0
Turn Bay Length (m)	40.0		15.0		20.0		20.0	
Base Capacity (vph)	254	386	270	409	264	2059	440	2072
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.09	0.14	0.24	0.07	0.42	0.20	0.44

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	8	23	36	10	81	17	758	47	80	774	73
Future Volume (vph)	44	8	23	36	10	81	17	758	47	80	774	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		0.99	1.00		1.00	1.00	
Frt	1.00	0.89		1.00	0.87		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1577	1660		1581	1548		1636	3462		1725	3481	
Flt Permitted	0.69	1.00		0.73	1.00		0.26	1.00		0.27	1.00	
Satd. Flow (perm)	1152	1660		1223	1548		446	3462		492	3481	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	47	9	25	39	11	87	18	815	51	86	832	78
RTOR Reduction (vph)	0	20	0	0	68	0	0	5	0	0	7	0
Lane Group Flow (vph)	47	14	0	39	30	0	18	861	0	86	903	0
Confl. Peds. (#/hr)	4		8	8		4	19		21	21		19
Heavy Vehicles (%)	10%	0%	0%	9%	10%	4%	6%	3%	4%	1%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	16.0	16.0		16.0	16.0		48.1	48.1		53.7	48.1	
Effective Green, g (s)	19.0	19.0		19.0	19.0		51.1	51.1		51.7	51.1	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.59	0.59		0.60	0.59	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	252	363		268	339		262	2040		358	2051	
v/s Ratio Prot		0.01			0.02			0.25		c0.01	c0.26	
v/s Ratio Perm	c0.04			0.03			0.04			0.13		
v/c Ratio	0.19	0.04		0.15	0.09		0.07	0.42		0.24	0.44	
Uniform Delay, d1	27.6	26.7		27.3	27.0		7.6	9.7		7.9	9.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.0		0.3	0.1		0.5	0.6		0.3	0.7	
Delay (s)	27.9	26.7		27.6	27.1		8.1	10.4		8.2	10.6	
Level of Service	C	C		C	C		A	B		A	B	
Approach Delay (s)		27.4			27.2			10.3			10.4	
Approach LOS		C			C			B			B	

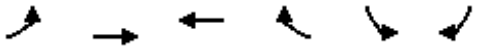
Intersection Summary			
HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	86.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	121	0	0	114	6	4	0	2	31	0	10
Future Volume (Veh/h)	4	121	0	0	114	6	4	0	2	31	0	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	5	141	0	0	133	7	5	0	2	36	0	12
Pedestrians		1						7			12	
Lane Width (m)		3.6						3.6			3.6	
Walking Speed (m/s)		1.2						1.2			1.2	
Percent Blockage		0						1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		105										
pX, platoon unblocked												
vC, conflicting volume	152			148			308	310	148	302	306	150
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	152			148			308	310	148	302	306	150
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			99	100	100	94	100	99
cM capacity (veh/h)	1427			1438			627	596	899	637	599	893

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	146	140	7	48
Volume Left	5	0	5	36
Volume Right	0	7	2	12
cSH	1427	1438	686	686
Volume to Capacity	0.00	0.00	0.01	0.07
Queue Length 95th (m)	0.1	0.0	0.2	1.7
Control Delay (s)	0.3	0.0	10.3	10.6
Lane LOS	A		B	B
Approach Delay (s)	0.3	0.0	10.3	10.6
Approach LOS			B	B

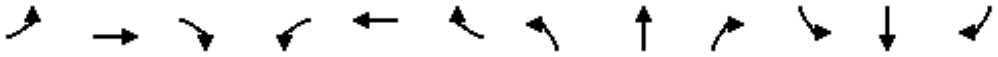
Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	20.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	121	94	3	6	3
Future Volume (Veh/h)	2	121	94	3	6	3
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	132	102	3	7	3
Pedestrians		2	1		26	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		0	0		2	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		268				
pX, platoon unblocked						
vC, conflicting volume	131				266	132
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	131				266	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)	1435				710	902

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	134	105	10
Volume Left	2	0	7
Volume Right	0	3	3
cSH	1435	1700	758
Volume to Capacity	0.00	0.06	0.01
Queue Length 95th (m)	0.0	0.0	0.3
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

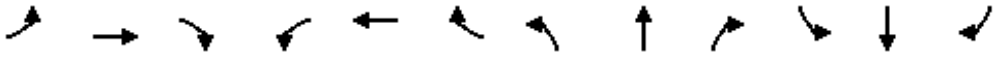
Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	20.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	164	4	11	103	27	4	7	21	0	0	0
Future Volume (Veh/h)	16	164	4	11	103	27	4	7	21	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	19	198	5	13	124	33	5	8	25	0	0	0
Pedestrians		2			26			9			19	
Lane Width (m)		3.6			3.6			3.6			0.0	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			2			1			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	176			212			416	450	236	479	436	162
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	176			212			416	450	236	479	436	162
tC, single (s)	4.1			4.1			7.3	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.7	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			99	98	97	100	100	100
cM capacity (veh/h)	1412			1360			492	492	785	457	502	887

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	222	170	38
Volume Left	19	13	5
Volume Right	5	33	25
cSH	1412	1360	652
Volume to Capacity	0.01	0.01	0.06
Queue Length 95th (m)	0.3	0.2	1.4
Control Delay (s)	0.8	0.7	10.9
Lane LOS	A	A	B
Approach Delay (s)	0.8	0.7	10.9
Approach LOS			B

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	30.5%	ICU Level of Service	A	
Analysis Period (min)	15			



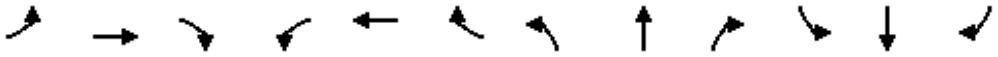
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	162	17	44	127	6	19	2	113	4	10	10
Future Volume (Veh/h)	3	162	17	44	127	6	19	2	113	4	10	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	3	186	20	51	146	7	22	2	130	5	11	11
Pedestrians					2			3			14	
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)					107							
pX, platoon unblocked												
vC, conflicting volume	167			209			473	474	201	600	480	164
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	167			209			473	474	201	600	480	164
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			96			95	100	85	98	98	99
cM capacity (veh/h)	1407			1358			459	466	841	331	462	876

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	209	204	154	27
Volume Left	3	51	22	5
Volume Right	20	7	130	11
cSH	1407	1358	745	525
Volume to Capacity	0.00	0.04	0.21	0.05
Queue Length 95th (m)	0.0	0.9	5.9	1.2
Control Delay (s)	0.1	2.2	11.1	12.2
Lane LOS	A	A	B	B
Approach Delay (s)	0.1	2.2	11.1	12.2
Approach LOS			B	B

Intersection Summary				
Average Delay	4.2			
Intersection Capacity Utilization	41.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	329	209	193	249
v/c Ratio	0.37	0.24	0.33	0.41
Control Delay	9.1	7.4	15.5	16.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	9.1	7.4	15.5	16.1
Queue Length 50th (m)	17.6	9.4	13.9	17.9
Queue Length 95th (m)	29.4	17.6	25.1	31.1
Internal Link Dist (m)	83.2	137.1	235.2	108.6
Turn Bay Length (m)				
Base Capacity (vph)	896	888	936	964
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.37	0.24	0.21	0.26

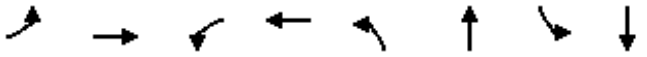
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	192	27	27	117	32	16	125	21	9	157	43
Future Volume (vph)	57	192	27	27	117	32	16	125	21	9	157	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			0.99			1.00			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.99			0.98			0.98			0.97	
Flt Protected		0.99			0.99			1.00			1.00	
Satd. Flow (prot)		1830			1766			1810			1811	
Flt Permitted		0.90			0.93			0.96			0.99	
Satd. Flow (perm)		1673			1650			1744			1789	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	68	229	32	32	139	38	19	149	25	11	187	51
RTOR Reduction (vph)	0	5	0	0	10	0	0	9	0	0	16	0
Lane Group Flow (vph)	0	324	0	0	199	0	0	184	0	0	233	0
Confl. Peds. (#/hr)	17		7	7		17	4		11	11		4
Heavy Vehicles (%)	0%	1%	0%	4%	3%	3%	0%	1%	10%	0%	1%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		30.0			30.0			18.1			18.1	
Effective Green, g (s)		31.0			31.0			19.1			19.1	
Actuated g/C Ratio		0.53			0.53			0.33			0.33	
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)		892			880			573			588	
v/s Ratio Prot												
v/s Ratio Perm		c0.19			0.12			0.11			c0.13	
v/c Ratio		0.36			0.23			0.32			0.40	
Uniform Delay, d1		7.8			7.2			14.6			15.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.1			0.6			0.3			0.4	
Delay (s)		9.0			7.8			15.0			15.5	
Level of Service		A			A			B			B	
Approach Delay (s)		9.0			7.8			15.0			15.5	
Approach LOS		A			A			B			B	

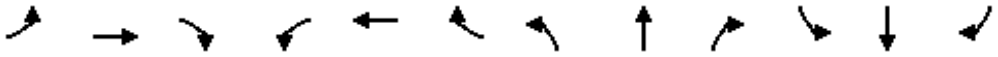
Intersection Summary			
HCM 2000 Control Delay	11.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	58.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	43.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



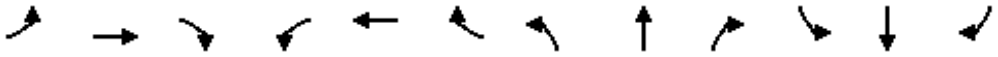
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	109	68	106	178	18	1028	128	892
v/c Ratio	0.51	0.16	0.36	0.37	0.07	0.53	0.39	0.47
Control Delay	38.3	12.9	31.7	8.5	10.1	13.1	8.3	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.3	12.9	31.7	8.5	10.1	13.1	8.3	12.3
Queue Length 50th (m)	15.3	2.4	14.3	2.0	1.3	50.2	6.1	41.4
Queue Length 95th (m)	32.0	12.2	29.0	17.5	4.5	68.7	11.4	57.6
Internal Link Dist (m)		146.8		81.0		202.6		200.0
Turn Bay Length (m)	40.0		15.0		20.0		20.0	
Base Capacity (vph)	213	415	293	481	256	1949	362	1912
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.16	0.36	0.37	0.07	0.53	0.35	0.47

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	18	48	103	16	157	17	932	65	124	805	60
Future Volume (vph)	106	18	48	103	16	157	17	932	65	124	805	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.98		1.00	0.97		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.89		1.00	0.86		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1654	1663		1722	1569		1738	3531		1726	3461	
Flt Permitted	0.54	1.00		0.71	1.00		0.25	1.00		0.20	1.00	
Satd. Flow (perm)	941	1663		1292	1569		466	3531		360	3461	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	109	19	49	106	16	162	18	961	67	128	830	62
RTOR Reduction (vph)	0	38	0	0	125	0	0	6	0	0	6	0
Lane Group Flow (vph)	109	30	0	106	53	0	18	1022	0	128	886	0
Confl. Peds. (#/hr)	13		9	9		13	13		20	20		13
Heavy Vehicles (%)	4%	0%	0%	0%	7%	1%	0%	1%	0%	1%	2%	16%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	16.0	16.0		16.0	16.0		43.0	43.0		50.5	43.0	
Effective Green, g (s)	19.0	19.0		19.0	19.0		46.0	46.0		48.5	46.0	
Actuated g/C Ratio	0.23	0.23		0.23	0.23		0.55	0.55		0.58	0.55	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	214	378		293	357		256	1945		315	1906	
v/s Ratio Prot		0.02			0.03			c0.29		c0.03	0.26	
v/s Ratio Perm	c0.12			0.08			0.04			0.20		
v/c Ratio	0.51	0.08		0.36	0.15		0.07	0.53		0.41	0.46	
Uniform Delay, d1	28.2	25.4		27.1	25.8		8.8	11.9		9.1	11.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.9	0.1		0.8	0.2		0.5	1.0		0.9	0.8	
Delay (s)	30.1	25.5		27.9	26.0		9.3	12.9		10.0	12.1	
Level of Service	C	C		C	C		A	B		A	B	
Approach Delay (s)		28.3			26.7			12.8			11.9	
Approach LOS		C			C			B			B	

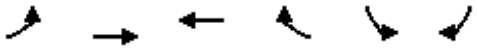
Intersection Summary			
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	83.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	181	0	0	280	30	3	0	3	20	0	14
Future Volume (Veh/h)	18	181	0	0	280	30	3	0	3	20	0	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)	20	199	0	0	308	33	3	0	3	22	0	15
Pedestrians								16			22	
Lane Width (m)								3.6			3.6	
Walking Speed (m/s)								1.2			1.2	
Percent Blockage								1			2	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		105										
pX, platoon unblocked				0.99			0.99	0.99	0.99	0.99	0.99	
vC, conflicting volume	363			215			594	618	215	588	602	346
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	363			200			584	608	200	578	591	346
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 %	98			100			99	100	100	95	100	98
cM capacity (veh/h)	1185			1350			392	389	825	401	397	688

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	219	341	6	37
Volume Left	20	0	3	22
Volume Right	0	33	3	15
cSH	1185	1350	531	482
Volume to Capacity	0.02	0.00	0.01	0.08
Queue Length 95th (m)	0.4	0.0	0.3	1.9
Control Delay (s)	0.9	0.0	11.9	13.1
Lane LOS	A		B	B
Approach Delay (s)	0.9	0.0	11.9	13.1
Approach LOS			B	B

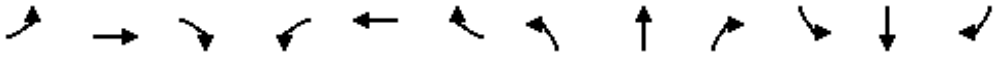
Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	34.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	153	337	8	5	3
Future Volume (Veh/h)	12	153	337	8	5	3
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)	13	166	366	9	5	3
Pedestrians			2		14	
Lane Width (m)			3.6		3.6	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		1	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		268				
pX, platoon unblocked						
vC, conflicting volume	389				578	384
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	389				578	384
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)	1167				469	660

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	179	375	8
Volume Left	13	0	5
Volume Right	0	9	3
cSH	1167	1700	526
Volume to Capacity	0.01	0.22	0.02
Queue Length 95th (m)	0.3	0.0	0.4
Control Delay (s)	0.7	0.0	11.9
Lane LOS	A		B
Approach Delay (s)	0.7	0.0	11.9
Approach LOS			B

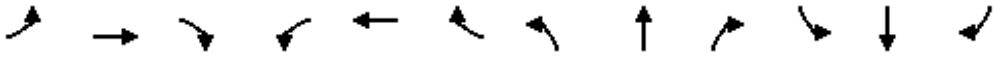
Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	28.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	187	10	50	324	16	3	2	24	0	0	0
Future Volume (Veh/h)	7	187	10	50	324	16	3	2	24	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	8	217	12	58	377	19	3	2	28	0	0	0
Pedestrians		1			18			8			8	
Lane Width (m)		3.6			3.6			3.6			0.0	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			2			1			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	404			237			750	767	249	796	764	396
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	404			237			750	767	249	796	764	396
tC, single (s)	4.1			4.1			7.4	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.8	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			96			99	99	96	100	100	100
cM capacity (veh/h)	1166			1333			277	316	768	278	317	658

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	237	454	33
Volume Left	8	58	3
Volume Right	12	19	28
cSH	1166	1333	615
Volume to Capacity	0.01	0.04	0.05
Queue Length 95th (m)	0.2	1.0	1.3
Control Delay (s)	0.3	1.4	11.2
Lane LOS	A	A	B
Approach Delay (s)	0.3	1.4	11.2
Approach LOS			B

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	51.5%	ICU Level of Service	A
Analysis Period (min)	15		



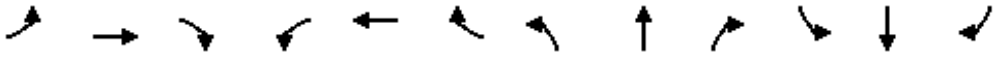
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	196	22	134	341	19	17	3	68	8	3	6
Future Volume (Veh/h)	8	196	22	134	341	19	17	3	68	8	3	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	213	24	146	371	21	18	3	74	9	3	7
Pedestrians		1			1			10			9	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			0			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					107							
pX, platoon unblocked	0.85						0.85	0.85		0.85	0.85	0.85
vC, conflicting volume	401			247			936	946	236	1002	948	392
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	213			247			840	851	236	917	853	202
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			89			92	99	91	95	99	99
cM capacity (veh/h)	1160			1285			214	221	796	174	221	715

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	246	538	95	19
Volume Left	9	146	18	9
Volume Right	24	21	74	7
cSH	1160	1285	498	253
Volume to Capacity	0.01	0.11	0.19	0.08
Queue Length 95th (m)	0.2	2.9	5.3	1.8
Control Delay (s)	0.4	3.1	13.9	20.4
Lane LOS	A	A	B	C
Approach Delay (s)	0.4	3.1	13.9	20.4
Approach LOS			B	C

Intersection Summary				
Average Delay	3.9			
Intersection Capacity Utilization	55.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	288	484	232	405
v/c Ratio	0.35	0.55	0.36	0.62
Control Delay	11.4	14.4	14.4	18.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	11.4	14.4	14.4	18.5
Queue Length 50th (m)	15.6	30.8	16.8	32.0
Queue Length 95th (m)	40.8	75.3	30.7	55.1
Internal Link Dist (m)	83.2	137.1	235.2	108.6
Turn Bay Length (m)				
Base Capacity (vph)	830	878	897	885
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.35	0.55	0.26	0.46

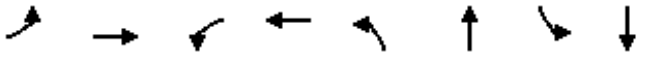
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	197	25	51	362	33	11	165	38	37	210	126
Future Volume (vph)	43	197	25	51	362	33	11	165	38	37	210	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.99			0.99			0.98			0.95	
Flt Protected		0.99			0.99			1.00			1.00	
Satd. Flow (prot)		1833			1840			1800			1786	
Flt Permitted		0.89			0.94			0.97			0.95	
Satd. Flow (perm)		1636			1734			1758			1708	
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)	47	214	27	55	393	36	12	179	41	40	228	137
RTOR Reduction (vph)	0	5	0	0	3	0	0	13	0	0	30	0
Lane Group Flow (vph)	0	283	0	0	481	0	0	219	0	0	375	0
Confl. Peds. (#/hr)	9		10	10		9	5		6	6		5
Heavy Vehicles (%)	2%	1%	0%	4%	1%	0%	0%	1%	8%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		30.2			30.2			21.5			21.5	
Effective Green, g (s)		31.2			31.2			22.5			22.5	
Actuated g/C Ratio		0.51			0.51			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)		827			876			641			622	
v/s Ratio Prot												
v/s Ratio Perm		0.17			c0.28			0.12			c0.22	
v/c Ratio		0.34			0.55			0.34			0.60	
Uniform Delay, d1		9.1			10.4			14.2			16.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.1			2.5			0.3			1.7	
Delay (s)		10.2			12.9			14.5			17.6	
Level of Service		B			B			B			B	
Approach Delay (s)		10.2			12.9			14.5			17.6	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	61.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

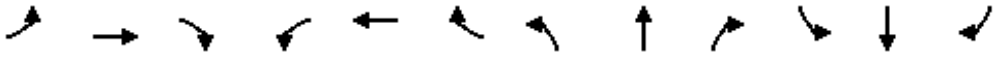


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	53	38	52	129	20	975	97	1026
v/c Ratio	0.23	0.10	0.19	0.30	0.09	0.47	0.27	0.50
Control Delay	32.1	14.7	31.0	9.7	9.9	11.3	6.4	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.1	14.7	31.0	9.7	9.9	11.3	6.4	11.5
Queue Length 50th (m)	7.4	1.3	7.2	1.9	1.4	46.2	4.6	49.2
Queue Length 95th (m)	17.8	9.1	17.1	15.7	4.9	63.1	8.9	67.0
Internal Link Dist (m)		146.8		81.0		202.6		200.0
Turn Bay Length (m)	40.0		15.0		20.0		20.0	
Base Capacity (vph)	230	387	268	430	221	2054	398	2068
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.10	0.19	0.30	0.09	0.47	0.24	0.50

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	9	26	48	13	107	19	854	53	90	872	82
Future Volume (vph)	49	9	26	48	13	107	19	854	53	90	872	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.89		1.00	0.87		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1578	1659		1581	1547		1638	3463		1726	3481	
Flt Permitted	0.63	1.00		0.73	1.00		0.22	1.00		0.23	1.00	
Satd. Flow (perm)	1047	1659		1219	1547		375	3463		417	3481	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	53	10	28	52	14	115	20	918	57	97	938	88
RTOR Reduction (vph)	0	22	0	0	90	0	0	5	0	0	7	0
Lane Group Flow (vph)	53	16	0	52	39	0	20	970	0	97	1019	0
Confl. Peds. (#/hr)	4		8	8		4	19		21	21		19
Heavy Vehicles (%)	10%	0%	0%	9%	10%	4%	6%	3%	4%	1%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	16.0	16.0		16.0	16.0		48.1	48.1		53.9	48.1	
Effective Green, g (s)	19.0	19.0		19.0	19.0		51.1	51.1		51.9	51.1	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.59	0.59		0.60	0.59	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	228	362		266	338		220	2036		321	2046	
v/s Ratio Prot		0.01			0.03			0.28		c0.02	c0.29	
v/s Ratio Perm	c0.05			0.04			0.05			0.16		
v/c Ratio	0.23	0.04		0.20	0.12		0.09	0.48		0.30	0.50	
Uniform Delay, d1	27.9	26.8		27.7	27.2		7.8	10.2		8.2	10.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.1		0.4	0.2		0.8	0.8		0.5	0.9	
Delay (s)	28.5	26.8		28.1	27.4		8.6	11.0		8.7	11.3	
Level of Service	C	C		C	C		A	B		A	B	
Approach Delay (s)		27.8			27.6			11.0			11.1	
Approach LOS		C			C			B			B	

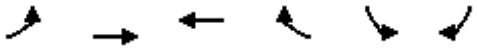
Intersection Summary			
HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	86.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	136	0	0	153	7	5	0	2	35	0	12
Future Volume (Veh/h)	5	136	0	0	153	7	5	0	2	35	0	12
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	6	158	0	0	178	8	6	0	2	41	0	14
Pedestrians		1						7			12	
Lane Width (m)		3.6						3.6			3.6	
Walking Speed (m/s)		1.2						1.2			1.2	
Percent Blockage		0						1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		105										
pX, platoon unblocked												
vC, conflicting volume	198			165			374	375	165	366	371	195
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	198			165			374	375	165	366	371	195
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			99	100	100	93	100	98
cM capacity (veh/h)	1373			1417			564	548	880	578	551	842

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	164	186	8	55
Volume Left	6	0	6	41
Volume Right	0	8	2	14
cSH	1373	1417	620	628
Volume to Capacity	0.00	0.00	0.01	0.09
Queue Length 95th (m)	0.1	0.0	0.3	2.2
Control Delay (s)	0.3	0.0	10.9	11.3
Lane LOS	A		B	B
Approach Delay (s)	0.3	0.0	10.9	11.3
Approach LOS			B	B

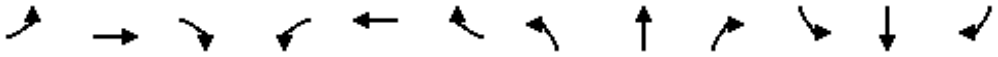
Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	22.0%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	153	109	3	6	3
Future Volume (Veh/h)	2	153	109	3	6	3
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	166	118	3	7	3
Pedestrians		2	1		26	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		0	0		2	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		268				
pX, platoon unblocked						
vC, conflicting volume	147				316	148
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	147				316	148
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)	1416				664	884

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	168	121	10
Volume Left	2	0	7
Volume Right	0	3	3
cSH	1416	1700	718
Volume to Capacity	0.00	0.07	0.01
Queue Length 95th (m)	0.0	0.0	0.3
Control Delay (s)	0.1	0.0	10.1
Lane LOS	A		B
Approach Delay (s)	0.1	0.0	10.1
Approach LOS			B

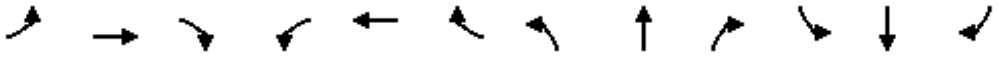
Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	20.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	202	5	13	120	30	5	8	23	0	0	0
Future Volume (Veh/h)	18	202	5	13	120	30	5	8	23	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	22	243	6	16	145	36	6	10	28	0	0	0
Pedestrians		2			26			9			19	
Lane Width (m)		3.6			3.6			3.6			0.0	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			2			1			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	200			258			496	531	281	563	516	184
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	200			258			496	531	281	563	516	184
tC, single (s)	4.1			4.1			7.3	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.7	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			99	98	96	100	100	100
cM capacity (veh/h)	1384			1309			433	441	741	396	449	862

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	271	197	44
Volume Left	22	16	6
Volume Right	6	36	28
cSH	1384	1309	592
Volume to Capacity	0.02	0.01	0.07
Queue Length 95th (m)	0.4	0.3	1.8
Control Delay (s)	0.8	0.7	11.6
Lane LOS	A	A	B
Approach Delay (s)	0.8	0.7	11.6
Approach LOS			B

Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	33.4%	ICU Level of Service	A	
Analysis Period (min)	15			



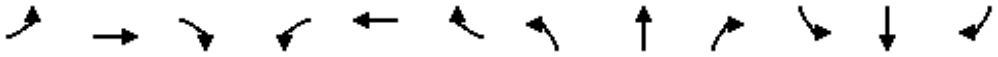
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	199	19	49	147	7	21	2	128	5	12	12
Future Volume (Veh/h)	4	199	19	49	147	7	21	2	128	5	12	12
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	5	229	22	56	169	8	24	2	147	6	14	14
Pedestrians					2			3			14	
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)					107							
pX, platoon unblocked												
vC, conflicting volume	191			254			559	556	245	699	563	187
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	191			254			559	556	245	699	563	187
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			96			94	100	82	98	97	98
cM capacity (veh/h)	1379			1308			396	416	795	273	412	850

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	256	233	173	34
Volume Left	5	56	24	6
Volume Right	22	8	147	14
cSH	1379	1308	691	469
Volume to Capacity	0.00	0.04	0.25	0.07
Queue Length 95th (m)	0.1	1.0	7.5	1.8
Control Delay (s)	0.2	2.2	11.9	13.3
Lane LOS	A	A	B	B
Approach Delay (s)	0.2	2.2	11.9	13.3
Approach LOS			B	B

Intersection Summary				
Average Delay	4.4			
Intersection Capacity Utilization	45.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	390	237	216	282
v/c Ratio	0.44	0.27	0.37	0.46
Control Delay	10.5	8.2	15.9	16.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	10.5	8.2	15.9	16.8
Queue Length 50th (m)	22.0	11.1	16.0	21.1
Queue Length 95th (m)	40.1	22.3	27.9	35.1
Internal Link Dist (m)	83.2	137.1	235.2	108.6
Turn Bay Length (m)				
Base Capacity (vph)	877	870	925	954
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.44	0.27	0.23	0.30

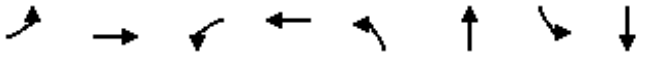
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	228	33	30	133	36	18	141	23	11	177	49
Future Volume (vph)	67	228	33	30	133	36	18	141	23	11	177	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			0.99			1.00			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.99			0.98			0.98			0.97	
Flt Protected		0.99			0.99			1.00			1.00	
Satd. Flow (prot)		1830			1766			1813			1811	
Flt Permitted		0.89			0.92			0.96			0.98	
Satd. Flow (perm)		1653			1630			1740			1785	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	80	271	39	36	158	43	21	168	27	13	211	58
RTOR Reduction (vph)	0	5	0	0	9	0	0	9	0	0	16	0
Lane Group Flow (vph)	0	385	0	0	228	0	0	207	0	0	266	0
Confl. Peds. (#/hr)	17		7	7		17	4		11	11		4
Heavy Vehicles (%)	0%	1%	0%	4%	3%	3%	0%	1%	10%	0%	1%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		30.0			30.0			18.7			18.7	
Effective Green, g (s)		31.0			31.0			19.7			19.7	
Actuated g/C Ratio		0.53			0.53			0.34			0.34	
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)		872			860			583			599	
v/s Ratio Prot												
v/s Ratio Perm		c0.23			0.14			0.12			c0.15	
v/c Ratio		0.44			0.26			0.36			0.44	
Uniform Delay, d1		8.5			7.6			14.7			15.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.6			0.8			0.4			0.5	
Delay (s)		10.1			8.3			15.1			15.8	
Level of Service		B			A			B			B	
Approach Delay (s)		10.1			8.3			15.1			15.8	
Approach LOS		B			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	58.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	48.9%	ICU Level of Service	A
Analysis Period (min)	15		

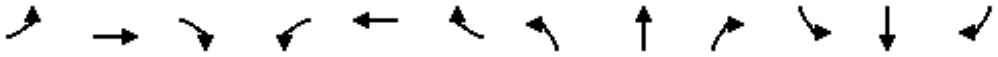
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	124	79	124	209	20	1164	158	1005
v/c Ratio	0.66	0.19	0.43	0.42	0.09	0.60	0.54	0.53
Control Delay	49.2	12.8	33.6	8.6	10.8	14.4	12.6	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.2	12.8	33.6	8.6	10.8	14.4	12.6	13.3
Queue Length 50th (m)	18.2	2.9	17.2	2.4	1.4	61.3	7.7	49.9
Queue Length 95th (m)	#43.2	13.7	33.5	19.2	5.0	81.8	14.7	67.3
Internal Link Dist (m)		146.8		81.0		202.6		200.0
Turn Bay Length (m)	40.0		15.0		20.0		20.0	
Base Capacity (vph)	187	420	289	502	212	1937	316	1902
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.19	0.43	0.42	0.09	0.60	0.50	0.53

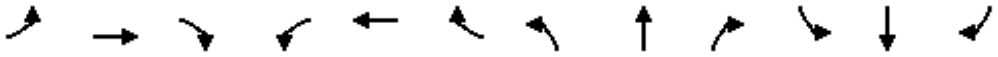
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	22	54	120	18	184	19	1050	80	153	907	68
Future Volume (vph)	120	22	54	120	18	184	19	1050	80	153	907	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.98		1.00	0.97		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.89		1.00	0.86		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1656	1667		1723	1569		1739	3528		1727	3460	
Flt Permitted	0.48	1.00		0.71	1.00		0.21	1.00		0.15	1.00	
Satd. Flow (perm)	832	1667		1280	1569		388	3528		278	3460	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	124	23	56	124	19	190	20	1082	82	158	935	70
RTOR Reduction (vph)	0	43	0	0	147	0	0	6	0	0	6	0
Lane Group Flow (vph)	124	36	0	124	62	0	20	1158	0	158	999	0
Confl. Peds. (#/hr)	13		9	9		13	13		20	20		13
Heavy Vehicles (%)	4%	0%	0%	0%	7%	1%	0%	1%	0%	1%	2%	16%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	16.0	16.0		16.0	16.0		43.0	43.0		51.0	43.0	
Effective Green, g (s)	19.0	19.0		19.0	19.0		46.0	46.0		49.0	46.0	
Actuated g/C Ratio	0.23	0.23		0.23	0.23		0.55	0.55		0.58	0.55	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	188	377		289	354		212	1932		282	1894	
v/s Ratio Prot		0.02			0.04			c0.33		c0.05	0.29	
v/s Ratio Perm	c0.15			0.10			0.05			0.28		
v/c Ratio	0.66	0.09		0.43	0.18		0.09	0.60		0.56	0.53	
Uniform Delay, d1	29.6	25.7		27.9	26.2		9.1	12.8		10.3	12.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.1	0.1		1.0	0.2		0.9	1.4		2.5	1.1	
Delay (s)	37.7	25.8		28.9	26.4		9.9	14.2		12.8	13.1	
Level of Service	D	C		C	C		A	B		B	B	
Approach Delay (s)		33.0			27.3			14.1			13.1	
Approach LOS		C			C			B			B	

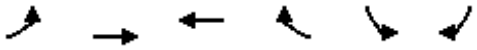
Intersection Summary			
HCM 2000 Control Delay	16.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	84.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	227	0	0	327	34	4	0	4	22	0	15
Future Volume (Veh/h)	20	227	0	0	327	34	4	0	4	22	0	15
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)	22	249	0	0	359	37	4	0	4	24	0	16
Pedestrians								16			22	
Lane Width (m)								3.6			3.6	
Walking Speed (m/s)								1.2			1.2	
Percent Blockage								1			2	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		105										
pX, platoon unblocked				0.97			0.97	0.97	0.97	0.97	0.97	
vC, conflicting volume	418			265			702	727	265	696	708	400
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	418			229			680	705	229	673	686	400
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 %	98			100			99	100	99	93	100	98
cM capacity (veh/h)	1131			1295			331	336	781	339	344	643

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	271	396	8	40
Volume Left	22	0	4	24
Volume Right	0	37	4	16
cSH	1131	1295	465	418
Volume to Capacity	0.02	0.00	0.02	0.10
Queue Length 95th (m)	0.5	0.0	0.4	2.4
Control Delay (s)	0.8	0.0	12.9	14.5
Lane LOS	A		B	B
Approach Delay (s)	0.8	0.0	12.9	14.5
Approach LOS			B	B

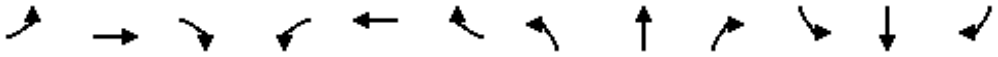
Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	38.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	180	395	8	13	3
Future Volume (Veh/h)	12	180	395	8	13	3
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)	13	196	429	9	14	3
Pedestrians			2		14	
Lane Width (m)			3.6		3.6	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		1	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		268				
pX, platoon unblocked						
vC, conflicting volume	452				672	448
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	452				672	448
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				97	100
cM capacity (veh/h)	1106				414	608

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	209	438	17
Volume Left	13	0	14
Volume Right	0	9	3
cSH	1106	1700	439
Volume to Capacity	0.01	0.26	0.04
Queue Length 95th (m)	0.3	0.0	0.9
Control Delay (s)	0.6	0.0	13.5
Lane LOS	A		B
Approach Delay (s)	0.6	0.0	13.5
Approach LOS			B

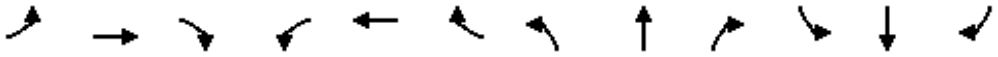
Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	31.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	219	12	56	380	18	4	2	27	0	0	0
Future Volume (Veh/h)	8	219	12	56	380	18	4	2	27	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	9	255	14	65	442	21	5	2	31	0	0	0
Pedestrians		1			18			8			8	
Lane Width (m)		3.6			3.6			3.6			0.0	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			2			1			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	471			277			872	889	288	920	886	462
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	471			277			872	889	288	920	886	462
tC, single (s)	4.1			4.1			7.4	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.8	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			95			98	99	96	100	100	100
cM capacity (veh/h)	1101			1289			226	266	730	226	267	604

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	278	528	38
Volume Left	9	65	5
Volume Right	14	21	31
cSH	1101	1289	527
Volume to Capacity	0.01	0.05	0.07
Queue Length 95th (m)	0.2	1.2	1.8
Control Delay (s)	0.3	1.5	12.4
Lane LOS	A	A	B
Approach Delay (s)	0.3	1.5	12.4
Approach LOS			B

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	57.0%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	228	25	151	400	21	19	4	76	9	4	7
Future Volume (Veh/h)	9	228	25	151	400	21	19	4	76	9	4	7
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)	10	248	27	164	435	23	21	4	83	10	4	8
Pedestrians		1			1			10			9	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			0			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					107							
pX, platoon unblocked	0.81						0.81	0.81		0.81	0.81	0.81
vC, conflicting volume	467			285			1077	1086	272	1151	1088	456
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	218			285			975	987	272	1067	989	205
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			87			87	98	89	92	98	99
cM capacity (veh/h)	1090			1244			159	170	759	124	170	672

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	285	622	108	22
Volume Left	10	164	21	10
Volume Right	27	23	83	8
cSH	1090	1244	408	190
Volume to Capacity	0.01	0.13	0.26	0.12
Queue Length 95th (m)	0.2	3.5	8.0	2.9
Control Delay (s)	0.4	3.3	17.0	26.4
Lane LOS	A	A	C	D
Approach Delay (s)	0.4	3.3	17.0	26.4
Approach LOS			C	D

Intersection Summary				
Average Delay	4.4			
Intersection Capacity Utilization	61.4%	ICU Level of Service	B	
Analysis Period (min)	15			

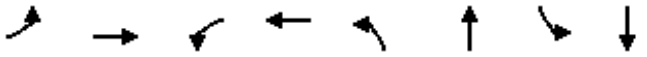
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	332	557	263	463
v/c Ratio	0.42	0.65	0.39	0.69
Control Delay	13.1	17.7	14.6	20.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	13.1	17.7	14.6	20.3
Queue Length 50th (m)	21.9	44.0	19.7	39.0
Queue Length 95th (m)	48.2	92.1	35.1	66.1
Internal Link Dist (m)	83.2	137.1	235.2	108.6
Turn Bay Length (m)				
Base Capacity (vph)	799	851	872	860
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.42	0.65	0.30	0.54

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	227	29	57	419	37	13	186	43	42	237	146
Future Volume (vph)	49	227	29	57	419	37	13	186	43	42	237	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.99			0.99			0.98			0.95	
Flt Protected		0.99			0.99			1.00			1.00	
Satd. Flow (prot)		1833			1841			1799			1784	
Flt Permitted		0.87			0.93			0.97			0.95	
Satd. Flow (perm)		1613			1722			1750			1697	
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)	53	247	32	62	455	40	14	202	47	46	258	159
RTOR Reduction (vph)	0	5	0	0	4	0	0	12	0	0	30	0
Lane Group Flow (vph)	0	327	0	0	553	0	0	251	0	0	433	0
Confl. Peds. (#/hr)	9		10	10		9	5		6	6		5
Heavy Vehicles (%)	2%	1%	0%	4%	1%	0%	0%	1%	8%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		30.2			30.2			23.0			23.0	
Effective Green, g (s)		31.2			31.2			24.0			24.0	
Actuated g/C Ratio		0.49			0.49			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)		796			850			664			644	
v/s Ratio Prot												
v/s Ratio Perm		0.20			c0.32			0.14			c0.26	
v/c Ratio		0.41			0.65			0.38			0.67	
Uniform Delay, d1		10.2			11.9			14.2			16.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.6			3.9			0.4			2.8	
Delay (s)		11.7			15.8			14.6			19.1	
Level of Service		B			B			B			B	
Approach Delay (s)		11.7			15.8			14.6			19.1	
Approach LOS		B			B			B			B	

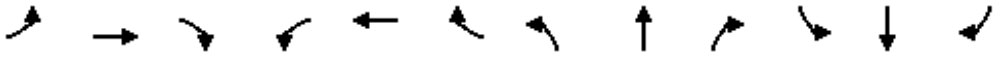
Intersection Summary			
HCM 2000 Control Delay	15.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	63.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



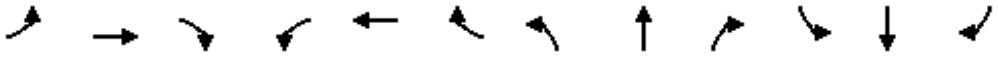
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	53	37	54	134	20	976	98	1026
v/c Ratio	0.23	0.10	0.20	0.31	0.09	0.48	0.27	0.50
Control Delay	32.2	14.8	31.2	9.7	9.9	11.3	6.4	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.2	14.8	31.2	9.7	9.9	11.3	6.4	11.5
Queue Length 50th (m)	7.4	1.4	7.5	2.0	1.4	46.3	4.6	49.2
Queue Length 95th (m)	17.8	8.9	17.8	16.3	4.9	63.3	9.0	67.3
Internal Link Dist (m)		146.8		81.0		202.6		200.0
Turn Bay Length (m)	40.0		15.0		20.0		20.0	
Base Capacity (vph)	227	387	268	434	221	2054	396	2067
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.10	0.20	0.31	0.09	0.48	0.25	0.50

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	9	25	50	14	111	19	854	54	91	872	82
Future Volume (vph)	49	9	25	50	14	111	19	854	54	91	872	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.89		1.00	0.87		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1578	1661		1581	1548		1638	3462		1726	3481	
Flt Permitted	0.62	1.00		0.73	1.00		0.22	1.00		0.23	1.00	
Satd. Flow (perm)	1029	1661		1220	1548		375	3462		417	3481	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	53	10	27	54	15	119	20	918	58	98	938	88
RTOR Reduction (vph)	0	21	0	0	93	0	0	5	0	0	7	0
Lane Group Flow (vph)	53	16	0	54	41	0	20	971	0	98	1019	0
Confl. Peds. (#/hr)	4		8	8		4	19		21	21		19
Heavy Vehicles (%)	10%	0%	0%	9%	10%	4%	6%	3%	4%	1%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	16.0	16.0		16.0	16.0		48.1	48.1		53.9	48.1	
Effective Green, g (s)	19.0	19.0		19.0	19.0		51.1	51.1		51.9	51.1	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.59	0.59		0.60	0.59	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	224	363		266	338		220	2035		321	2046	
v/s Ratio Prot		0.01			0.03			0.28		c0.02	c0.29	
v/s Ratio Perm	c0.05			0.04			0.05			0.17		
v/c Ratio	0.24	0.04		0.20	0.12		0.09	0.48		0.31	0.50	
Uniform Delay, d1	28.0	26.8		27.8	27.3		7.8	10.3		8.2	10.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.0		0.4	0.2		0.8	0.8		0.5	0.9	
Delay (s)	28.5	26.8		28.1	27.4		8.6	11.1		8.8	11.3	
Level of Service	C	C		C	C		A	B		A	B	
Approach Delay (s)		27.8			27.6			11.0			11.1	
Approach LOS		C			C			B			B	

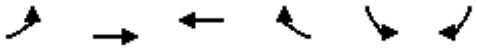
Intersection Summary			
HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	86.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	138	0	0	160	7	5	0	2	35	0	12
Future Volume (Veh/h)	5	138	0	0	160	7	5	0	2	35	0	12
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	6	160	0	0	186	8	6	0	2	41	0	14
Pedestrians		1						7			12	
Lane Width (m)		3.6						3.6			3.6	
Walking Speed (m/s)		1.2						1.2			1.2	
Percent Blockage		0						1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		105										
pX, platoon unblocked												
vC, conflicting volume	206			167			384	385	167	376	381	203
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	206			167			384	385	167	376	381	203
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			99	100	100	93	100	98
cM capacity (veh/h)	1364			1415			556	541	877	569	544	834

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	166	194	8	55
Volume Left	6	0	6	41
Volume Right	0	8	2	14
cSH	1364	1415	612	619
Volume to Capacity	0.00	0.00	0.01	0.09
Queue Length 95th (m)	0.1	0.0	0.3	2.2
Control Delay (s)	0.3	0.0	11.0	11.4
Lane LOS	A		B	B
Approach Delay (s)	0.3	0.0	11.0	11.4
Approach LOS			B	B

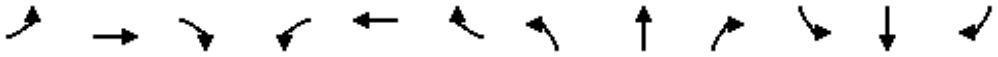
Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	22.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	153	109	5	21	10
Future Volume (Veh/h)	4	153	109	5	21	10
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)	4	166	118	5	23	11
Pedestrians		2	1		26	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		0	0		2	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		268				
pX, platoon unblocked						
vC, conflicting volume	149				322	148
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	149				322	148
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	99
cM capacity (veh/h)	1413				659	882

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	170	123	34
Volume Left	4	0	23
Volume Right	0	5	11
cSH	1413	1700	718
Volume to Capacity	0.00	0.07	0.05
Queue Length 95th (m)	0.1	0.0	1.1
Control Delay (s)	0.2	0.0	10.3
Lane LOS	A		B
Approach Delay (s)	0.2	0.0	10.3
Approach LOS			B

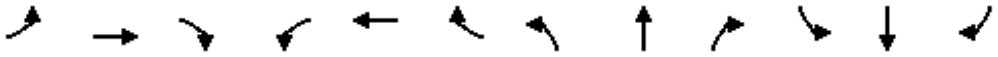
Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	21.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	217	5	13	122	30	5	8	23	0	0	0
Future Volume (Veh/h)	18	217	5	13	122	30	5	8	23	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	22	261	6	16	147	36	6	10	28	0	0	0
Pedestrians		2			26			9			19	
Lane Width (m)		3.6			3.6			3.6			0.0	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			2			1			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	202			276			516	551	299	583	536	186
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	202			276			516	551	299	583	536	186
tC, single (s)	4.1			4.1			7.3	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.7	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			99	98	96	100	100	100
cM capacity (veh/h)	1382			1289			419	429	724	384	438	860

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	289	199	44
Volume Left	22	16	6
Volume Right	6	36	28
cSH	1382	1289	577
Volume to Capacity	0.02	0.01	0.08
Queue Length 95th (m)	0.4	0.3	1.9
Control Delay (s)	0.7	0.7	11.8
Lane LOS	A	A	B
Approach Delay (s)	0.7	0.7	11.8
Approach LOS			B

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	34.2%	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)	4	214	19	49	149	7	21	2	128	5	12	12
Future Volume (Veh/h)	4	214	19	49	149	7	21	2	128	5	12	12
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)	5	246	22	56	171	8	24	2	147	6	14	14
Pedestrians					2			3			14	
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)					107							
pX, platoon unblocked												
vC, conflicting volume	193			271			578	575	262	718	582	189
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	193			271			578	575	262	718	582	189
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			96			94	100	81	98	97	98
cM capacity (veh/h)	1376			1289			384	405	778	264	402	848

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	273	235	173	34
Volume Left	5	56	24	6
Volume Right	22	8	147	14
cSH	1376	1289	675	459
Volume to Capacity	0.00	0.04	0.26	0.07
Queue Length 95th (m)	0.1	1.0	7.7	1.8
Control Delay (s)	0.2	2.2	12.2	13.5
Lane LOS	A	A	B	B
Approach Delay (s)	0.2	2.2	12.2	13.5
Approach LOS			B	B

Intersection Summary				
Average Delay	4.4			
Intersection Capacity Utilization	46.5%	ICU Level of Service	A	
Analysis Period (min)	15			

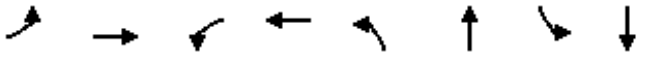
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	408	239	218	282
v/c Ratio	0.47	0.28	0.37	0.46
Control Delay	10.8	8.2	16.0	16.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	10.8	8.2	16.0	16.8
Queue Length 50th (m)	23.3	11.2	16.2	21.1
Queue Length 95th (m)	42.2	22.6	28.1	35.1
Internal Link Dist (m)	83.2	137.1	235.2	108.6
Turn Bay Length (m)				
Base Capacity (vph)	877	868	920	954
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.47	0.28	0.24	0.30

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	238	35	30	134	36	19	141	23	11	177	49
Future Volume (vph)	70	238	35	30	134	36	19	141	23	11	177	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			0.99			1.00			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.99			0.98			0.98			0.97	
Flt Protected		0.99			0.99			0.99			1.00	
Satd. Flow (prot)		1829			1767			1813			1811	
Flt Permitted		0.89			0.91			0.95			0.98	
Satd. Flow (perm)		1651			1627			1732			1785	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	83	283	42	36	160	43	23	168	27	13	211	58
RTOR Reduction (vph)	0	5	0	0	9	0	0	9	0	0	16	0
Lane Group Flow (vph)	0	403	0	0	230	0	0	209	0	0	266	0
Confl. Peds. (#/hr)	17		7	7		17	4		11	11		4
Heavy Vehicles (%)	0%	1%	0%	4%	3%	3%	0%	1%	10%	0%	1%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		30.0			30.0			18.7			18.7	
Effective Green, g (s)		31.0			31.0			19.7			19.7	
Actuated g/C Ratio		0.53			0.53			0.34			0.34	
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)		871			859			581			599	
v/s Ratio Prot												
v/s Ratio Perm		c0.24			0.14			0.12			c0.15	
v/c Ratio		0.46			0.27			0.36			0.44	
Uniform Delay, d1		8.6			7.6			14.7			15.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.8			0.8			0.4			0.5	
Delay (s)		10.4			8.4			15.1			15.8	
Level of Service		B			A			B			B	
Approach Delay (s)		10.4			8.4			15.1			15.8	
Approach LOS		B			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	58.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	50.5%	ICU Level of Service	A
Analysis Period (min)	15		

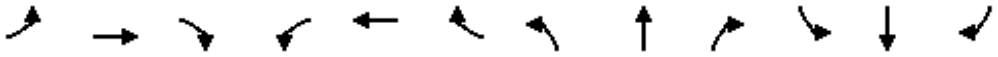
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	124	80	125	212	20	1169	165	1005
v/c Ratio	0.67	0.19	0.43	0.42	0.09	0.60	0.56	0.53
Control Delay	50.1	13.0	33.7	8.7	10.9	14.4	13.8	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.1	13.0	33.7	8.7	10.9	14.4	13.8	13.3
Queue Length 50th (m)	18.3	3.1	17.4	2.5	1.4	61.8	8.1	50.0
Queue Length 95th (m)	#43.6	13.8	33.8	19.3	5.0	82.2	16.4	67.3
Internal Link Dist (m)		146.8		81.0		202.6		200.0
Turn Bay Length (m)	40.0		15.0		20.0		20.0	
Base Capacity (vph)	185	420	288	503	212	1937	314	1901
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.19	0.43	0.42	0.09	0.60	0.53	0.53

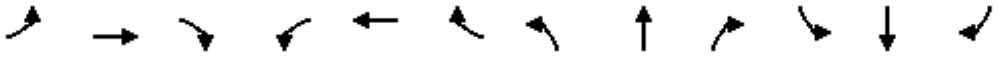
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	23	54	121	19	186	19	1050	84	160	907	68
Future Volume (vph)	120	23	54	121	19	186	19	1050	84	160	907	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6	3.3	3.6	3.6
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.98		1.00	0.97		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.90		1.00	0.86		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1656	1670		1723	1570		1739	3525		1727	3460	
Flt Permitted	0.47	1.00		0.70	1.00		0.21	1.00		0.15	1.00	
Satd. Flow (perm)	822	1670		1278	1570		388	3525		275	3460	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	124	24	56	125	20	192	20	1082	87	165	935	70
RTOR Reduction (vph)	0	43	0	0	149	0	0	7	0	0	6	0
Lane Group Flow (vph)	124	37	0	125	63	0	20	1162	0	165	999	0
Confl. Peds. (#/hr)	13		9	9		13	13		20	20		13
Heavy Vehicles (%)	4%	0%	0%	0%	7%	1%	0%	1%	0%	1%	2%	16%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			4			2		1	2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	16.0	16.0		16.0	16.0		43.0	43.0		51.0	43.0	
Effective Green, g (s)	19.0	19.0		19.0	19.0		46.0	46.0		49.0	46.0	
Actuated g/C Ratio	0.23	0.23		0.23	0.23		0.55	0.55		0.58	0.55	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	185	377		289	355		212	1930		281	1894	
v/s Ratio Prot		0.02			0.04			c0.33		c0.05	0.29	
v/s Ratio Perm	c0.15			0.10			0.05			0.29		
v/c Ratio	0.67	0.10		0.43	0.18		0.09	0.60		0.59	0.53	
Uniform Delay, d1	29.6	25.7		27.9	26.2		9.1	12.8		10.4	12.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.2	0.1		1.0	0.2		0.9	1.4		3.1	1.1	
Delay (s)	38.8	25.8		28.9	26.5		9.9	14.2		13.5	13.1	
Level of Service	D	C		C	C		A	B		B	B	
Approach Delay (s)		33.7			27.4			14.2			13.2	
Approach LOS		C			C			B			B	

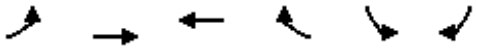
Intersection Summary			
HCM 2000 Control Delay	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	84.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	239	0	0	331	34	4	0	4	22	0	15
Future Volume (Veh/h)	20	239	0	0	331	34	4	0	4	22	0	15
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)	22	263	0	0	364	37	4	0	4	24	0	16
Pedestrians								16			22	
Lane Width (m)								3.6			3.6	
Walking Speed (m/s)								1.2			1.2	
Percent Blockage								1			2	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		105										
pX, platoon unblocked				0.97			0.97	0.97	0.97	0.97	0.97	
vC, conflicting volume	423			279			722	746	279	716	728	404
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	423			239			696	721	239	690	702	404
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 %	98			100			99	100	99	93	100	97
cM capacity (veh/h)	1126			1280			321	327	769	329	335	639

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	285	401	8	40
Volume Left	22	0	4	24
Volume Right	0	37	4	16
cSH	1126	1280	453	408
Volume to Capacity	0.02	0.00	0.02	0.10
Queue Length 95th (m)	0.5	0.0	0.4	2.5
Control Delay (s)	0.8	0.0	13.1	14.8
Lane LOS	A		B	B
Approach Delay (s)	0.8	0.0	13.1	14.8
Approach LOS			B	B

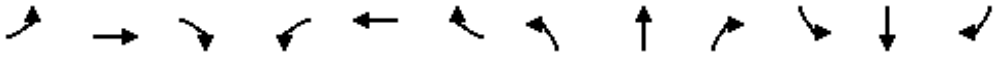
Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	39.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	24	180	395	16	19	7
Future Volume (Veh/h)	24	180	395	16	19	7
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)	26	196	429	17	21	8
Pedestrians			2		14	
Lane Width (m)			3.6		0.0	
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)		268				
pX, platoon unblocked						
vC, conflicting volume	460				702	452
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	460				702	452
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				95	99
cM capacity (veh/h)	1112				397	612

Direction, Lane #	EB 1	WB 1
Volume Total	222	446
Volume Left	26	0
Volume Right	0	17
cSH	1112	1700
Volume to Capacity	0.02	0.26
Queue Length 95th (m)	0.5	0.0
Control Delay (s)	1.2	0.0
Lane LOS	A	
Approach Delay (s)	1.2	0.0
Approach LOS		

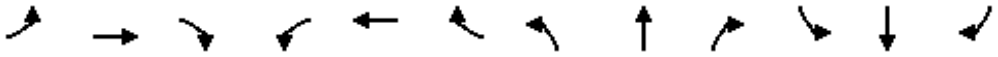
Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	Err%	ICU Level of Service	H	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	225	12	56	388	18	4	2	27	0	0	0
Future Volume (Veh/h)	8	225	12	56	388	18	4	2	27	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	9	262	14	65	451	21	5	2	31	0	0	0
Pedestrians		1			18			8			8	
Lane Width (m)		3.6			3.6			3.6			0.0	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			2			1			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	480			284			888	905	295	936	902	470
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	480			284			888	905	295	936	902	470
tC, single (s)	4.1			4.1			7.4	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.8	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			95			98	99	96	100	100	100
cM capacity (veh/h)	1093			1281			221	260	724	220	262	597

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	285	537	38
Volume Left	9	65	5
Volume Right	14	21	31
cSH	1093	1281	519
Volume to Capacity	0.01	0.05	0.07
Queue Length 95th (m)	0.2	1.2	1.8
Control Delay (s)	0.3	1.5	12.5
Lane LOS	A	A	B
Approach Delay (s)	0.3	1.5	12.5
Approach LOS			B

Intersection Summary				
Average Delay	1.6			
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 (veh/h)	9	234	25	151	408	21	19	4	76	9	4	7
Future Volume (Veh/h)	9	234	25	151	408	21	19	4	76	9	4	7
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)	10	254	27	164	443	23	21	4	83	10	4	8
Pedestrians		1			1			10			9	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			0			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					107							
pX, platoon unblocked	0.80						0.80	0.80		0.80	0.80	0.80
vC, conflicting volume	475			291			1091	1100	278	1165	1102	464
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	220			291			989	1001	278	1082	1004	207
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			87			86	98	89	92	98	99
cM capacity (veh/h)	1082			1238			154	166	753	120	165	666

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	291	630	108	22
Volume Left	10	164	21	10
Volume Right	27	23	83	8
cSH	1082	1238	400	185
Volume to Capacity	0.01	0.13	0.27	0.12
Queue Length 95th (m)	0.2	3.5	8.2	3.0
Control Delay (s)	0.4	3.3	17.3	27.1
Lane LOS	A	A	C	D
Approach Delay (s)	0.4	3.3	17.3	27.1
Approach LOS			C	D

Intersection Summary				
Average Delay	4.4			
Intersection Capacity Utilization	62.2%	ICU Level of Service	B	
Analysis Period (min)	15			

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	338	564	263	465
v/c Ratio	0.42	0.66	0.39	0.69
Control Delay	13.2	18.1	14.6	20.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	13.2	18.1	14.6	20.3
Queue Length 50th (m)	22.4	45.1	19.7	39.1
Queue Length 95th (m)	49.3	93.9	35.1	66.4
Internal Link Dist (m)	83.2	137.1	235.2	108.6
Turn Bay Length (m)				
Base Capacity (vph)	800	851	872	860
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.42	0.66	0.30	0.54

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	231	30	57	425	37	13	186	43	42	237	148
Future Volume (vph)	50	231	30	57	425	37	13	186	43	42	237	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.99			0.99			0.98			0.95	
Flt Protected		0.99			0.99			1.00			1.00	
Satd. Flow (prot)		1832			1842			1799			1783	
Flt Permitted		0.87			0.93			0.97			0.95	
Satd. Flow (perm)		1614			1722			1750			1697	
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)	54	251	33	62	462	40	14	202	47	46	258	161
RTOR Reduction (vph)	0	5	0	0	4	0	0	12	0	0	30	0
Lane Group Flow (vph)	0	333	0	0	560	0	0	251	0	0	435	0
Confl. Peds. (#/hr)	9		10	10		9	5		6	6		5
Heavy Vehicles (%)	2%	1%	0%	4%	1%	0%	0%	1%	8%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		30.2			30.2			23.1			23.1	
Effective Green, g (s)		31.2			31.2			24.1			24.1	
Actuated g/C Ratio		0.49			0.49			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)		795			848			666			646	
v/s Ratio Prot												
v/s Ratio Perm		0.21			c0.33			0.14			c0.26	
v/c Ratio		0.42			0.66			0.38			0.67	
Uniform Delay, d1		10.3			12.1			14.2			16.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.6			4.0			0.4			2.8	
Delay (s)		11.9			16.1			14.5			19.1	
Level of Service		B			B			B			B	
Approach Delay (s)		11.9			16.1			14.5			19.1	
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	0.67		
Actuated Cycle Length (s)	63.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group