Appendix B – Traffic Reports

407 TRANSITWAY – WEST OF HURONTARIO STREET TO EAST OF HIGHWAY 400

MINISTRY OF TRANSPORTATION - CENTRAL REGION

Report

Hurontario Station Traffic Impact Study

Highway 407 Transitway-3

Prepared for the Ministry of Transportation, Ontario
by IBI Group

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1 Introduction

1.1 Project Overview

The Highway 407 Transitway is a rapid transit facility planned within the Greater Toronto and Hamilton Area (GTHA). The Transitway operate on a dedicated, grade-separated right-of-way providing users fast travel speeds and good travel time reliability. The Highway 407 Transitway project supports the Province's Growth Plan by meeting increased travel demands through alternative transportation modes, providing increased mobility for a wide variety of users, and supporting transit-oriented development and associated land uses.

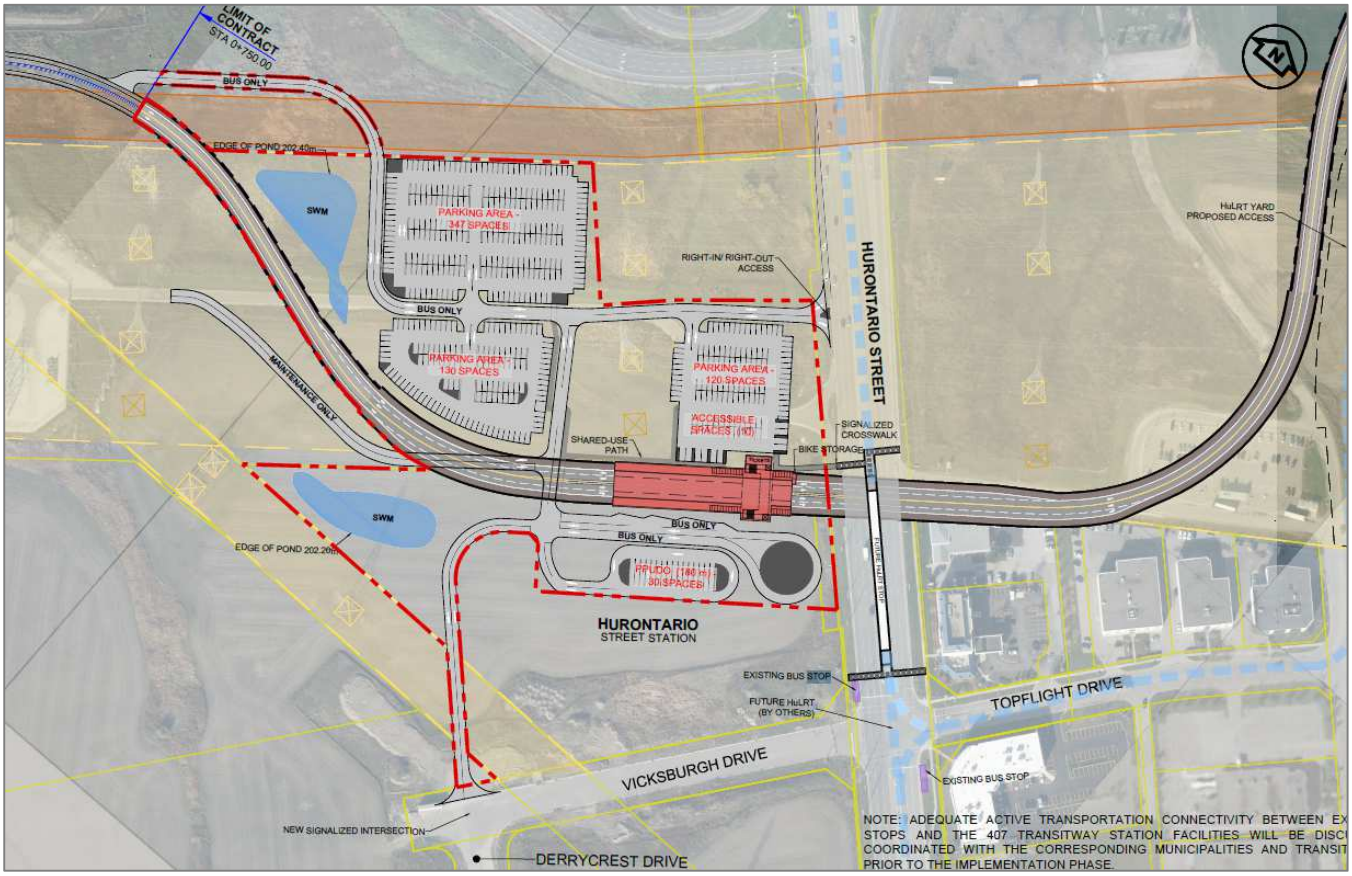
Building upon previous work IBI Group completed for the 'Central' and 'East' sections of the Transitway, the 'Transitway-3' section spans approximately 23 kilometres between Hurontario Street and Highway 400. This section of the Transitway provides opportunities to connect to the GO Rail system at Bramalea Station (Kitchener Line) as well as to a number of other higher order transit systems, supporting development within both the York and Peel Regions.

1.2 Study Area

Hurontario station was recommended given the high forecasted demands for the area, which include a significant amount of transfer boardings in large part due to its integration with the proposed Hurontario LRT. There is also a significant amount of existing and future employment and residential populations located within walking distance of the proposed station and to the north/south along Hurontario Street.

A number of station locations both east and west of Hurontario Street were considered, however locating the station to the east presented conflicts between site traffic and the Hurontario LRT runningway and also impacted cultural heritage. As a result, the station is currently proposed to the west of Hurontario Street, as indicated in Exhibit 1-1.

Exhibit 1-1: Proposed Hurontario Station Layout

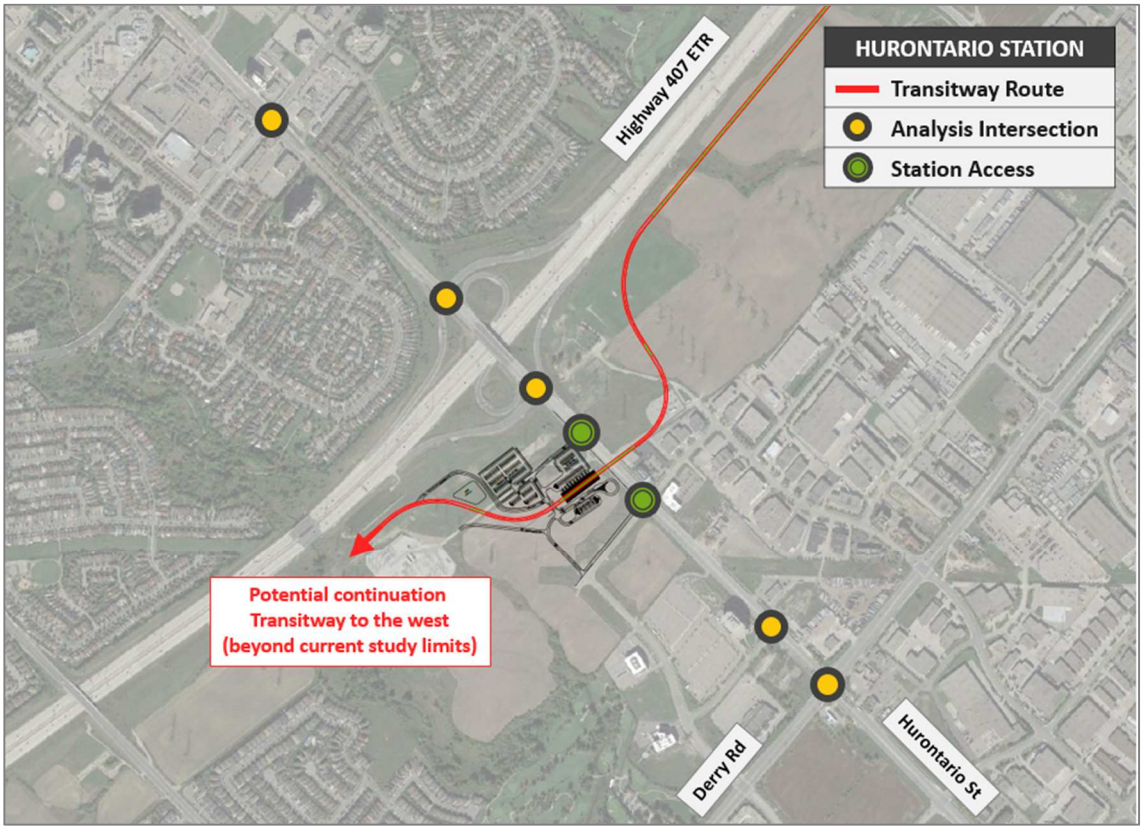


In addition to the future station accesses, the study area includes the following intersections:

- Hurontario Street & Ray Lawson Boulevard / County Court Boulevard
- Hurontario Street & Highway 407 Westbound Off-ramp
- Hurontario Street & Highway 407 Eastbound Off-ramp
- Hurontario Street & Topflight Drive / Derrycrest Drive
- Hurontario Street & Kingsway Drive
- Hurontario Street & Derry Road

The study area is illustrated in Exhibit 1-2. There are a number of constraints in the study area which have led to the proposed station location including adjacency to Highway 407 ramps, the planned Hurontario LRT maintenance and service facility, and a desire to locate the station as close to the Hurontario LRT station as possible.

Exhibit 1-2: Hurontario Station Study Area



1.3 Study Objective

The purpose of this Hurontario Station TIS is to assess existing and future traffic operations in order to identify possible deficiencies in the road network and consider potential improvement options. The study is organized as follows:

- Section 2 provides an overview of the current transportation network and assesses existing traffic conditions;
- Section 3 outlines the process used to estimate peak hour traffic generated at this Transitway station, and how this traffic will be distributed on the road network;
- Section 4 assesses of future traffic conditions by considering background traffic growth in addition to traffic generated from the Transitway station;
- Section 5 evaluates potential improvement options that to address any future network deficiencies that have been identified; and,
- Section 6 provides a summary of traffic operations and recommended improvement measures.

As a rapid transit corridor, transit service will be the primary mode of travel on Hurontario Street, and with a reduction in traffic lanes traffic operations can be expected to become congested. While this study will identify potential mitigation measures for congested movements, planning priorities in the corridor may point to allowing traffic congestion and focusing on transit operations.

1.4 Traffic Analysis Approach

This study documents existing traffic conditions, and assesses anticipated future conditions with consideration of background traffic growth and additional traffic generated from the proposed Transitway. Traffic analysis is conducted using Synchro (version 9) following Highway Capacity Manual (HCM 2000) methodologies of intersection analysis.

All critical traffic movements identified through the Synchro analysis are outlined and discussed, as per the following conditions:

- For signalized intersections,
  - V/C ratios for overall intersections operations, through movements or shared through/turning movements equal 0.80 or above;
  - V/C ratios for exclusive movements equal 0.85 or above; or,
  - Queues for an individual movement are projected to exceed available turning lane storage.
- For unsignalized intersections,
  - Level of service, based on average delay per vehicle or on individual movements is LOS “D” or greater; or,
  - The estimated 95th percentile queue length for an individual movement exceeds the available queue storage.

Level-of-service (LOS) is a measure of performance based on the control delay, defined as follows in Exhibit 1-3.

Exhibit 1-3: Intersection LOS Reference

HCM	CONTROL DELAY PER VEHICLE (S)	
LOS	Signalized	Unsignalized
A	≤10	≤10
B	>10 and ≤20	>10 and ≤15
C	>20 and ≤35	>15 and ≤25
D	>35 and ≤55	>25 and ≤35
E	>55 and ≤80	>35 and ≤50
F	>80	>50

Operational concerns or deficiencies noted in the studied horizon years are identified and addressed through recommendations on potential mitigation measures and/or operational improvements.

1.5 Synchro Model Calibration

The Synchro traffic models were calibrated to better reflect measured field conditions. This was accomplished by adjusting the following parameters detailed below.

Lane Utilization Factor

The “lane utilization factor” (LUF) was altered when calibrating through movements. This parameter is used to dictate the distribution of traffic across the available lanes, with a value of ‘1.0’ representing a uniform distribution across all lanes.

During non-congested periods, there is often more traffic distributed amongst the right-most lanes as compared to the left-most lanes. However, in oversaturated conditions, the distribution

of traffic is typically split more evenly across all lanes, as drivers quickly fill any available gap in traffic.

In the existing models, the LUF was adjusted to a value of '1.0' for all through movements initially identified as having a v/c ratio greater than '1.0'. These adjustments were also carried forward to those same movements in the future models (for the same peak period). Additionally, because the above-mentioned driver behaviour is quite predictable, this adjustment was also made to any "new" critical through movements (having a v/c ratio > '1.0') identified in the future models.

Lost Time Adjustment

Lost Time Adjustment (LTA) was altered in order to calibrate left-turn movements. Adjusting this parameter to a negative value effectively increases the clearance time available for left-turning traffic to clear the intersection during the amber and/or all-red signal phases.

During oversaturated conditions where left-turn queues are excessively long and/or there are limited gaps available in the opposing traffic to make the left-turn (under permissive phasing), drivers are typically more aggressive and willing to turn during the amber/all-red phases.

In the existing models, the LTA was changed for all left-turn movements identified as being well over capacity – defined as having a v/c ratio greater than '1.2' – since these turning volumes were explicitly measured in the field. Values were assigned based on the initial v/c ratio for that movement:

- If the v/c ratio was between 1.2 and 1.5, the LTA was set to '-1'; and,
- If the v/c ratio exceeded 1.5, the LTA was set to '-2'.

All changes to the LTA made in the existing models were carried forward to those same movements in the future models (for the same peak period). However, because this driver behaviour is believed to be less predictable, no additional LTA changes were made to "new" critical left-turn movements (having a v/c ratio > '1.1) identified in the future models, which did not exist in the existing models.

2 Existing Conditions

2.1 Existing Road Network

Hurontario Street is a major north-south arterial road located in the City of Mississauga within the Region of Peel. It connects Port Credit in Mississauga to the town of Orangeville. Within the study area, Hurontario Street has six lanes and a posted speed limit of 70 km/h. Light rail transit (LRT) is currently being planned for Hurontario Street which will connect Brampton Gateway Terminal to Port Credit GO Station in Mississauga. The LRT is expected to be in operation in 2022, and following its implementation there will be one fewer lane in each direction available to general traffic. The future conditions analysis accounts for the reduction in traffic lanes, while the existing conditions analysis maintains the current number of lanes on Hurontario Street.

Highway 407 is a tolled 400-series highway with an eight lane cross section. It connects the City of Burlington to the City of Pickering. 400-series highways have a speed limit of 100 km/h. A full interchange is located at Highway 407 and Hurontario Street.

Ray Lawson Boulevard is a four lane east-west local road that connects Mavis Rd and turns into County Court Boulevard past Hurontario Street on the eastbound approach. Located in the City of Brampton, it serves as a collector road for residential zones. The posted speed limit is 50 km/h.

Topflight Drive is a local east-west two lane road in the City of Mississauga that serves an employment area as well as the Highway 407 Park and Ride facility. Topflight Drive turns into Derrycrest Drive on the westbound approach, and serves sites being rezoned for business employment uses. A speed limit of 50 km/h is assumed.

Kingsway Drive is a local east-west two lane road in the City of Mississauga that serves an employment area. A speed limit of 50 km/h is assumed.

Derry Road is a major east-west regional road in the City of Mississauga within the Region of Peel. It connects the Town of Milton to the Highway 427 border of Mississauga where it becomes Rexdale Boulevard in the City of Toronto. Within the study area, it has a posted speed limit of 70 km/h.

2.2 Traffic Counts & Signal Timing Data

Traffic count data and signal timing information was collected from City of Brampton, City of Mississauga, and Region of Peel. All turning movement counts modelled for the purposes of this study were conducted recently (within the past five years) and so should reflect current traffic patterns within the study area. Exhibit 2-1 provides a summary of dates on which this information was collected/recorded.

Exhibit 2-1: Traffic Count and Signal Timing Data

INTERSECTION	CONTROL TYPE	DATE OF TMC	DATE OF SIGNAL DATA
Hurontario St & Ray Lawson Blvd / County Court Blvd	Signalized	27-Oct-15	17-Aug-17
Hurontario St & Hwy-407 WB Off-Ramp	Signalized	15-Aug-17	26-Jul-17
Hurontario St & Hwy-407 EB Off-Ramp	Signalized	15-Aug-17	26-Jul-17
Hurontario & future north access	RI/RO	N/A	N/A
Hurontario & Kingsway Drive	Signalized	26-May-15	15-Mar-17
Hurontario St & Derrycrest Dr / Topflight Dr (future south access)	Signalized	20-May-15	15-Mar-17
Hurontario St & Derry Rd E	Signalized	27-Nov-14	4-Nov-16

2.3 Existing Transit Network

MiWay (Mississauga Transit), MiExpress (MiWay's branded express service), Brampton Transit (BT), Züm (Brampton Transit's branded express service) and GO Transit operate many routes within the study area on the major arterials. The following services are currently in operation:

- **MiWay Route 19 (Hurontario)** operates along Hurontario St and connects Hurontario & 407 Park and Ride to Port Credit GO Station via City Centre Transit Terminal (Mississauga) at approximately 12 minute headways during peak hours.
- **MiWay Route 53 (Kennedy)** services Kenndy Rd/Central Parkway East between the Hurontario & 407 Park and Ride and Hurontairo St at Central Parkway E on approximately 20 minute headways during peak hours.
- **MiWay Route 42 (Derry)** serves Derry Rd between Meadowvale Town Centre (Mississauga) and Westwood Mall (Mississauga) with 10 minute headways during peak hours.
- **MiExpress Route 103 (Hurontario Express)** serves limited stops along Hurontario St between Port Credit GO Station (Mississauga) and Brampton Gateway Terminal (Brampton) on 10 minute frequencies.
- **BT Route 2 (Main)** connects Hurontario & 407 Park and Ride and Heart Lake Terminal (Brampton) on 20 minute frequencies.
- **BT Route 6 (James Potter)** travels along Derry Rd, Mavis Rd, and James Potter Rd, connecting David Suzuki Secondary School to Hurontario & 407 Park and Ride at 30 minute headways.
- **BT Route 7 (Kennedy)** serves Kennedy Rd between Heart Lake Terminal and Hurontario St at Courtneypark Dr/Derry Rd loop with 7 minute frequencies during peak hours.
- **BT Route 52 (McMurchy)** travels between Downtown Brampton and County Court Blvd loop via McMurchy Ave, with the 52A branch serving the Havelock Dr and Cherrytree Dr loops. Together they operate at approximately 20 minute frequencies.

- **Züm Route 502 (Main)** is an express route that travels between City Centre Transit Terminal (Mississauga) and Sandalwood Park (Brampton) on Hurontario St/Main St at approximately 8 minute intervals during peak hours.
- **GO Route 48 (407 West)** is a regional bus service that travels along Highway 407 between University of Guelph (Guelph) and York University Bus Loop (Toronto). The 48B branch travels only between Meadowvale GO Station (Mississauga) and York University Bus Loop (Toronto). Together, they serve the Hurontario & 407 Park and Ride stop at approximately 30 minute intervals.
- **GO Route 33 (Kitchener)** serves between York Mills (Toronto) and University of Guelph (Guelph) along Highway 407. The 33 A/B/E branches connects York Mills to Brampton GO (Brampton), Mount Pleasant GO (Brampton) and Georgetown GO (Georgetown), respectively. The stop at Hurontario & 407 Park and Ride is served at scheduled times.

Exhibit 2-2 illustrates the transit services within the study area.

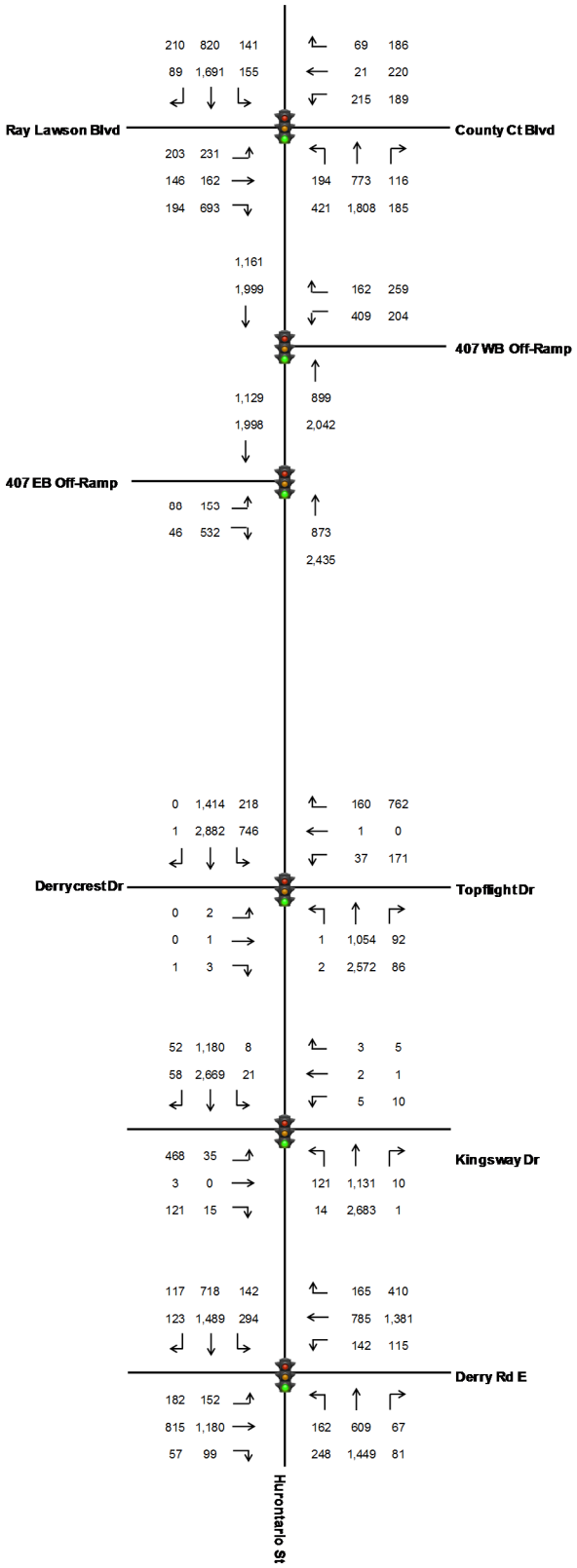
Exhibit 2-2: BT (left) and MiWay (right) in the Study Area

2.4 Existing Traffic Operations

The existing conditions analysis represents traffic operations during base year 2017. An annual compound growth rate of 1.0% was applied to all count volumes obtained in years prior to 2017 in order to bring all counts to a consistent base year.

Existing conditions traffic volumes are illustrated in Exhibit 2-3.

Exhibit 2-3: Existing Volumes in AM (PM) Peak Hours



A summary of critical movements identified during the existing conditions analysis is provided in Exhibit 2-4, with a detailed output of the Synchro analysis provided in the Appendix.

Exhibit 2-4: Existing Critical Movements Summary

INTERSECTION	AM PEAK					PM PEAK				
	LOS	Critical Movements				LOS	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Hurontario St & Derry Rd W/Derry Rd E	D	WBL NBL SBT	F F D	1.05 1.16 0.88	91.5 99.5 204.9	D	EBL WBT NBT SBL	F D D E	1.11 0.86 0.90 0.83	116.1 182.1 201.6 67.8
Hurontario St & Derrycrest Dr/Topflight Dr	E	WBL SBL	E F	0.42 1.81	20.4 278.1	F	WBL WBT NBT SBL	D F E F	0.45 1.53 1.00 1.54	71.9 412.3 338.0 145.2
Kingsway Dr & Hurontario St	C	NBL	F	2.00	72.2	D	EBL NBT	F E	0.98 1.01	226.9 373.6
407 EB Off-Ramp & Hurontario St	C	EBR	E	0.95	241.0	A	(no critical movements)			
Hurontario St & Ray Lawson Blvd/County Ct Blvd	D	EBR NBL SBT	E F D	0.98 1.00 0.93	251.8 95.0 201.9	C	NBL	C	0.85	138.0

The study intersections are currently operating as follows:

- Hurontario St & Derry Rd W/Derry Rd E is operating at LOS D during both peak hours. In the a.m. peak, SBT and EBT movements are both high and there are limited gaps in the traffic, causing the opposing NBL and WBL movements to operate at LOS F. In the p.m. peak, the WBT and NBT volumes are high and similarly implicate the SBL and EBL movements, with the EBL movement operating above capacity at LOS F.
- Hurontario St & Derrycrest Dr/Topflight Dr is operating at LOS E and LOS F during the a.m. peak and p.m. peak hours, respectively. There are high delays for the SBL movement for both peak hours due to high traffic volumes. In the p.m. peak, high right-turning volumes on the shared WBTR movement witness significant delays, with 95th percentile queues exceeding 400 meters.
- Hurontario St & Kingsway Dr is operating satisfactorily in both peak, at LOS C in the a.m. peak hour and LOS D in the p.m. peak hour. However, there are high delays for NBL movement due to lack of a protected phase in the a.m. peak. In the p.m. peak, due to high northbound volumes, NBT movement operates at capacity with LOS E with 95th percentile queues reaching Hurontario St & Derry Rd. There are also high EBL movements that approaches close to capacity and operates at LOS F.
- The intersection between Hurontario St & Highway 407 EB Off-Ramp is operating adequately during both peak hours with LOS C in the a.m. peak and LOS A in the p.m. peak. No critical movements were identified in the p.m. peak hour, when northbound volumes are highest.
- Hurontario St & Ray Lawson Blvd/Country Ct Blvd is operating satisfactorily during both peak hours at LOS D during the a.m. peak and LOS C during the p.m. peak. However, the NBL movement is approaching capacity for both peak hours

due to high volumes. In the a.m. peak, EBR and SBT movement is also approaching capacity.

2.5 Existing Model Calibration

The Existing traffic models were calibrated to better reflect measured field conditions accomplished by adjusting either the Lane Utilization Factor (LUF) or Lost Time Adjustment (LTA) for certain movements.

Adjustments made to the existing traffic models are outlined in Exhibit 2-5.

Exhibit 2-5: Existing Model Calibration Parameters

PERIOD	INTERSECTION	MOVEMENT	ADJUSTED PARAMETER	ADJUSTMENT VALUE
AM Peak	Hurontario & Derrycrest	SBL	LTA	-2 seconds
	Hurontario & Kingsway	NL	LTA	-2 seconds
PM Peak	Hurontario & Derrycrest	WBT	LUF	1.0
		NBT	LUF	1.0
	Hurontario & Kingsway	NBT	LUF	1.0

These adjustments were applied using the methodologies outlined in Section 1.5.

3 Site Traffic & Parking

3.1 Ridership Forecasts

Ridership forecasts were developed using the Greater Golden Horseshoe Model (GGHM), a state-of-practice multi-modal travel demand model that estimates future travel demands within the Greater Golden Horseshoe. The GGHM was developed to forecast peak period demand in support of Growth Plan policies and has the capability of predicting mode shifts resulting from new public transit infrastructure. It can also be used to test network responses to changes in link characteristics such as transit vehicle frequency, operating speed, station location, and parking availability.

Future year forecasts were previously developed for a number of horizon years including 2031, 2041, and 2051. A number of road network improvements and expansions are also included in the future year models, including numerous widenings along the 400-series highways and major arterial roads. Transit infrastructure included in future models represent projects that are currently committed and funded. While is possible that additional projects will be funded over the upcoming years, this method represents a conservative approach. The following is a list of rapid transit projects that were included in the future year models:

- Toronto-York Spadina Subway Extension (TYSSE);
- 407 Transitway Central Section (Jane Street to Kennedy Road);
- VIVA routes and busways;
- Mississauga 403 Transitway;
- Eglinton Crosstown LRT;
- Sheppard LRT;
- Finch West LRT;
- Yonge Subway Extension to Richmond Hill;
- Two-way all-day GO Rail service (Regional Express Rail);
- Scarborough RT Extension;
- Hurontario-Main LRT; and,
- Highway 427 Transitway.

In addition to developing separate scenarios for the horizon years studied, alternative GGHM scenarios were also developed to represent different levels of funding for the Transitway-3 project: one representing an eleven-station structure and a second representing a reduced eight-station structure. It should also be noted that forecasts were developed only for the a.m. peak period, and so adjustment factors will be used to estimate p.m. peak demands.

With input from the MTO, a horizon year of 2031 was selected as the baseline for determining road and intersection requirements as part of this traffic impact study. The ridership forecasts used for the purposes of this study were taken from the 2031 GGHM model showing the reduced eight-station structure. Demands corresponding to the eight-station scenario for year 2031 are outlined in Exhibit 3-1.

Exhibit 3-1: 2031 AM Peak Hour Boardings

STATION	TOTAL BOARDINGS	PARK-AND-RIDE	WALK / TRANSIT	% PARK-AND-RIDE	% WALK / TRANSIT
Pine Valley	210	130	80	62%	38%
Martin Grove	420	170	250	40%	60%
Highway 27	400	170	230	43%	58%
Highway 50	790	260	530	33%	67%
Goreway	320	180	140	56%	44%
Airport	610	120	490	20%	80%
Dixie	1,770	110	1,660	6%	94%
Hurontario	**1,320**	**170**	**1,150**	**13%**	**87%**
Total:	*5,840*	*1,310*	*4,530*	*22%*	*78%*

Note that a ninth station may also be included at Bramalea (between Dixie and Airport), however this station would operate solely as a transit interlining/transfer station and therefore generate no park-and-ride demand.

3.2 Trip Generation

Peak hour trips to and from the station were estimated using the GGHM ridership forecasts presented in Exhibit 3-1. Because walk/transit boardings do not translate into vehicle trips generated, only park-and-ride demands were considered at this stage.

Park-and-ride boardings were equated to inbound vehicle trips at an assumed factor of 10:11, or 1.1 riders per park-and-ride vehicle. However, this only provides an indication of inbound trips to the station, and not of outbound trips leaving the station. Furthermore, the park-and-ride demands were developed only for the a.m. peak hour and not for the p.m. peak hour.

The ITE Trip Generation Manual (9th edition) was used to estimate a.m. peak outbound trips, as well as p.m. peak inbound and outbound trips. Average trip generation rates for bus stations with park-and-ride lots are indicated in Exhibit 3-2.

Exhibit 3-2: ITE Trip Generation Rates for Park-and-Ride Lots

LAND USE (CODE)	UNITS	AM PEAK HOUR		PM PEAK HOUR	
		Trip Rate	Inbound / Outbound	Trip Rate	Inbound / Outbound
Park-and-ride with bus service (090)	/ parking space	0.71	79% / 21%	0.62	25% / 75%

The 2031 GGHM forecasts indicate a demand of 170 park-and-ride boardings at Hurontario Station during the a.m. peak hour. Exhibit 3-3 lists the estimated site traffic generated given the above assumptions.

Exhibit 3-3: Estimated Vehicle Trips Generated by Station

AM PEAK TRIPS		PM PEAK TRIPS	
Inbound	Outbound	Inbound	Outbound
155*	41	43	128

** Calculated based on forecasted 2031 a.m. park-and-ride boardings, at a factor 1.0 inbound vehicles per 1.1 boardings.*

3.3 Trip Distribution

An origin/destination map showing the origin of park-and-ride trips destined to Hurontario Station was extracted from the 2031 GGHM and can be found attached in the Appendix. The model runs correspond to 2031 a.m. conditions for the eight-station Transitway structure, and with the assumption that the 'Central' and 'East' Transitway sections exist. Note that the model does not account for an extension of the Transitway west beyond Hurontario Street (i.e. beyond the 'Transitway-3' limits).

Using this map, inbound trips were tabulated in terms of general direction of origin (i.e. north, south, east or west) and assigned to the study area intersections as a percentage of total inbound trips. Distribution of outbound trips was assumed to the same as inbound trips (e.g. the percentage of inbound trips originating from the north is equal to the percentage of outbound trips destined to the north). Trip distribution percentages were assumed to be equal during both the a.m. and p.m. peak hours.

The resulting trip distribution percentages to and from Hurontario Station are illustrated in Exhibit 3-4. By then applying the trip generation values from Exhibit 3-3 to the trip distribution percentages shown in Exhibit 3-4, the site generated traffic was assigned to study area intersections and is indicated in Exhibit 3-5.

Exhibit 3-4: Trip Distribution in AM and PM Peak Hours

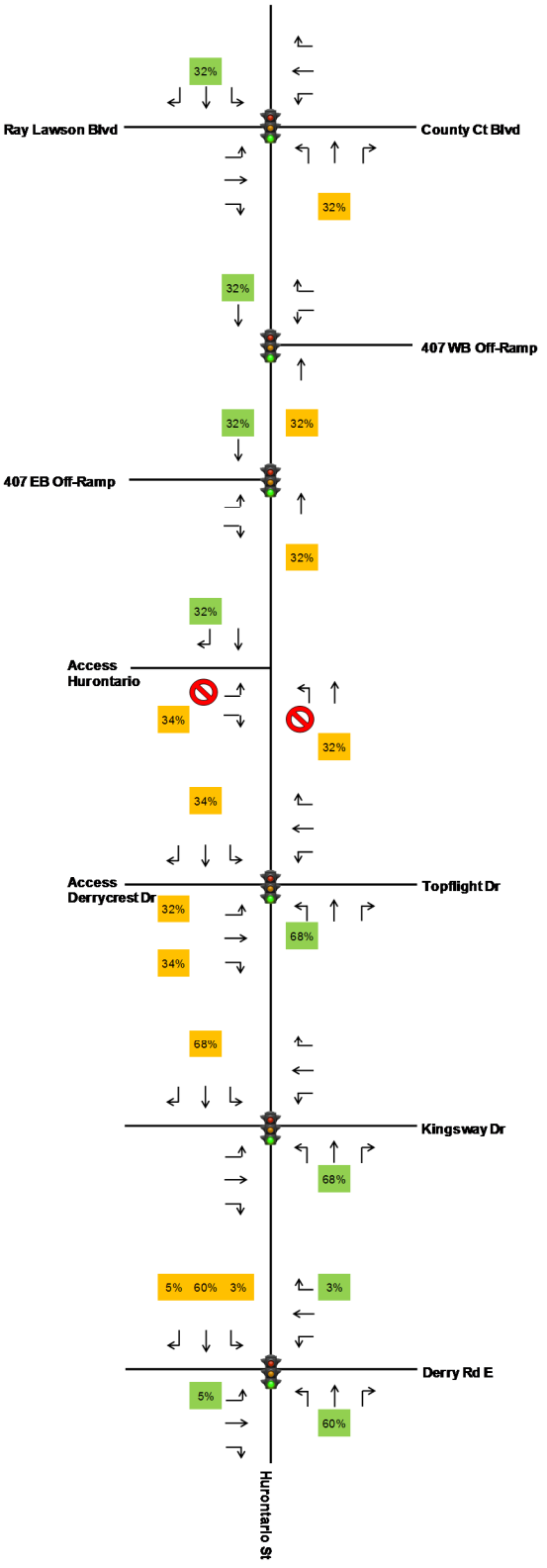
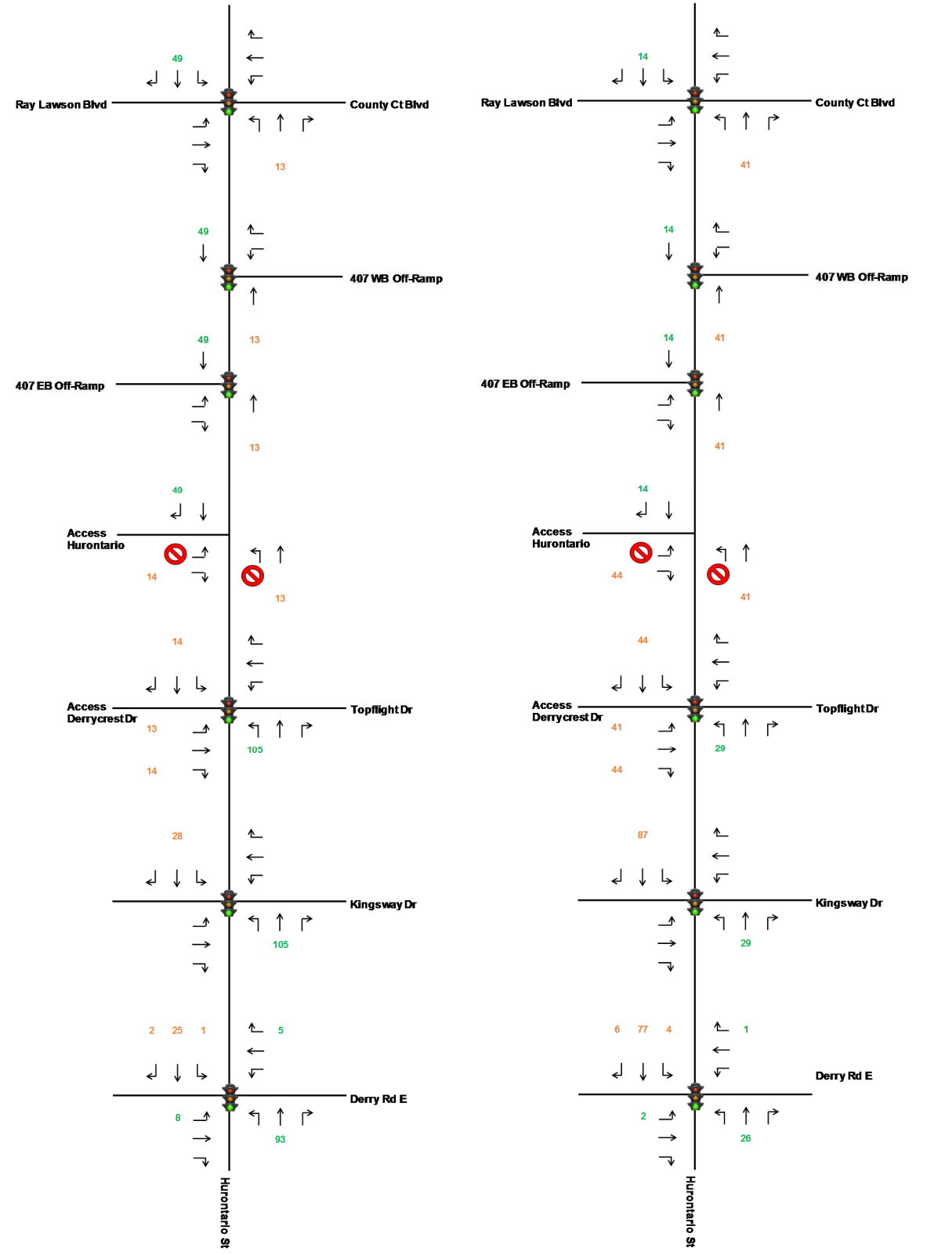


Exhibit 3-5: Site Generated Traffic in AM Peak Hour (left) and PM Peak Hour (right)



3.4 Parking Demands

In order to estimate parking demands at each of the Transitway stations, data from various GO transit stations nearby the study area was analyzed to study the relationship between inbound vehicle trips and average parking lot utilization. Four GO stations were considered, comprising of Brampton, Bramalea, Malton, and Etobicoke North stations.

The average number of inbound vehicle trips made to each of these GO stations during the a.m. peak period (defined as 6:30-9:30 am) were determined using 2011 Transportation Tomorrow Survey (TTS) data. The data was filtered to only include trips made via the auto driver mode, as this corresponds directly to number of inbound passenger vehicles.

Parking data for the GO transit stations was obtained from the *GO Transit Rail Parking and Station Access Plan (2013)* prepared for Metrolinx. The report notes the total capacity and average utilization of each GO station parking lot, which were used to calculate average parking demands. Note that the parking data from this report is dated May-2012, which is similar to the time period covered by the 2011 TTS.

By comparing the number of inbound auto drivers during the a.m. peak period to the average parking lot demand at each station, a representative “parking factor” was determined. These values are indicated in the below Exhibit 3-6.

Exhibit 3-6: Parking Demand Factors for nearby GO Transit Stations

2011 TTS AM PEAK PERIOD *		2012 GO STATION PARKING **			PARKING FACTOR
GO Station	Auto Drivers	Capacity	Utilization	Demand	
Brampton	860	891	101%	900	1.046
Bramalea	1,360	2,381	81%	1,929	1.418
Malton	580	731	95%	694	1.197
Etobicoke North	410	532	97%	516	1.259
Total	*3,210*	*4,535*	*89%*	*4,039*	***1.258***

** AM peak period inbound vehicles estimated using 2011 TTS data, and rounded to the nearest 10.*

*** GO parking data obtained from the "GO Transit Rail Parking and Station Access Plan" (2013), and is dated May-2012.*

This “parking factor” was then applied to the a.m. peak period inbound trips estimated at each Transitway station. Note that park-and-ride forecasts (and congruently, estimated inbound vehicle trips) for the a.m. peak hour can be converted to a.m. peak period forecasts by applying a factor of 2.174, as analysis of the TTS indicated that 46% of 3-hour a.m. peak period trips occur within the single a.m. peak hour.

The resulting estimated parking demands at each Transitway station are provided in Exhibit 3-7. Parking demands are provided for both the 2031 horizon used for the purposes of this traffic study, as well as for the 2051 horizon established to represent “ultimate” conditions.

Exhibit 3-7: Estimated Parking Demands for each Transitway Station

STATION	GGHM INBOUND TRIPS *				PARKING DEMAND ***	
	AM Peak Hour		AM Peak Period **			
	2031	2051	2031	2051	2031	2051
Pine Valley	118	164	257	356	323	448
Martin Grove	155	227	336	494	423	622
Highway 27	155	236	336	514	423	646
Highway 50	236	409	514	889	646	1119
Goreway	164	291	356	632	448	796
Airport	109	191	237	415	298	522
Dixie	100	164	217	356	273	448
Hurontario	**155**	**245**	**336**	**534**	**423**	**671**

** Calculated based on forecasted a.m. park-and-ride boardings, at a factor 1.0 inbound vehicles per 1.1 boardings.*

*** Peak hour trips can be converted to peak period trips at a factor of 2.174.*

**** Parking demands calculated by multiplying estimated a.m. peak period inbound trips by a factor of 1.258.*

4 Future Conditions

4.1 Future Background Operations

Future conditions analysis were undertaken for horizon year 2031. Background conditions for the purposes of this study account for traffic growth plus the Hurontario LRT, which will reduce the number of traffic lanes on Hurontario Street from six lanes to four lanes.

To estimate background traffic growth, the demand model was applied, and further information from the City of Mississauga and Region of Peel population and trip-end growth forecasts were considered. Relevant documents are listed as follows:

- Greater Toronto and Hamilton Area – "Growth Plan for the Greater Golden Horseshoe" (2017);
- City of Mississauga – "Mississauga Official Plan" (2016); "Population, Demographics & Housing" (2013); and "Moving Mississauga" (2011); and,
- Region of Peel – "Long Range Transportation Plan" (2012).

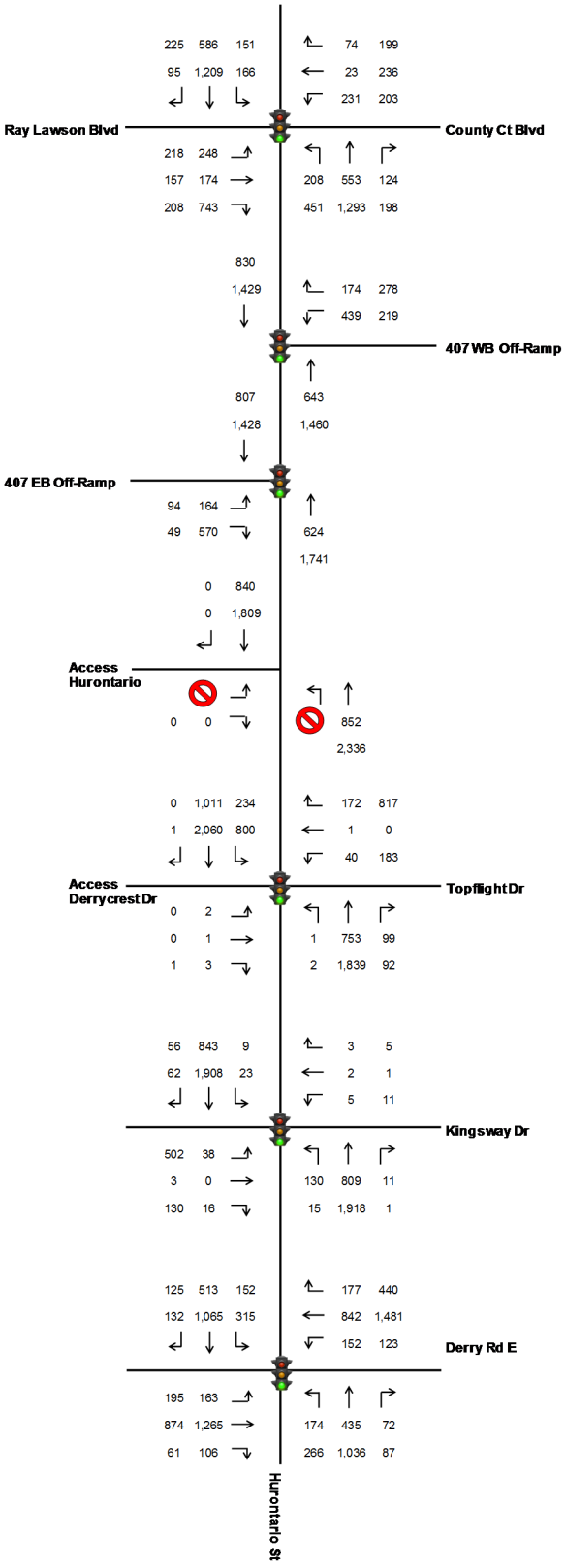
Review of the above documents showed that population growth is estimated to be 0.5% to 0.6% per year between 2011 and 2031, while trip ends from the demand model are forecasted to increase by 0.9% to 1.0% per year during that same period time.

However, major intersections along Hurontario Street are already operating at or above capacity during peak times, suggesting that there is limited remaining capacity available to serve added future demands. While trip ends are forecasted to increase up to 1.0% per year, it is expected that some "peak spreading" will occur – where some motorists alter their departure times to avoid congestion during the peak hours. Rather than growth occurring uniformly throughout the day, this results in less growth during the peak hours and greater growth during off-peak times. Given these considerations, an annual compound growth rate of 0.5% per year was used to represent background growth (unrelated to the implementation of the Transitway) during the a.m. and p.m. peak hours.

The Metrolinx Hurontario Main LRT Project Environmental Planning Report, Appendix A1 Sheet LRT RD NC054 was consulted to determine the future background lane configuration and traffic forecasts. The LRT preliminary design indicates a reduction in through lanes from six to four, and a reconfiguration of turning lanes to provide a southbound right turning lane. The LRT project also included an *EMME Modelling Report* which was consulted to determine the effect of the LRT on background traffic. The report indicated that maximum highway flows at capacity would decrease typically from 2,600vph to 1,900vph in the study area, a 27% reduction. For the purposes of this traffic study, a reduction of 33% was combined with a growth of 7% from above to provide a similar net adjustment. It is noted that forecasts applied are slightly higher than the maximum capacity values in the EMME report and may be slightly conservative.

Future traffic volumes with background growth applied are illustrated in Exhibit 4-1

Exhibit 4-1: Future Background Volumes in AM (PM) Peak Hours



A summary of critical movements identified during the future background conditions analysis is provided in Exhibit 4-2, with a detailed output of the Synchro analysis provided in the Appendix.

Exhibit 4-2: Future Background Critical Movements Summary

INTERSECTION	AM PEAK					PM PEAK				
	LOS	Critical Movements				LOS	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Hurontario St & Derry Rd W/Derry Rd E	E	EBT	E	0.87	181.8	E	EBL	F	0.97	105.0
		WBL	F	0.99	87.9		WBT	E	0.94	212.0
		NBL	F	0.97	94.2		NBT	E	0.99	252.5
		SBT	E	0.99	250.7		SBL	F	0.92	81.8
Hurontario St & Derrycrest Dr/Topflight Dr	D	EBL	E	0.04	3.4	F	WBL	D	0.50	78.6
		EBT	E	0.01	4.1		WBT	F	1.73	462.8
		WBL	E	0.47	24.0		NBT	E	1.00	366.4
		WBT	E	0.13	23.4		SBL	F	1.78	162.0
		SBL	F	1.21	232.7					
Kingsway Dr & Hurontario St	C	NBL	F	1.57	66.3	F	EBL	F	1.01	251.9
							NBT	F	1.13	438.4
407 EB Off-Ramp & Hurontario St	C	EBR	C	0.82	181.2	A	(no critical movements)			
Hurontario St & Ray Lawson Blvd/County Ct Blvd	E	EBR	F	1.05	279.5	D	EBL	F	0.97	87.0
		NBL	F	1.02	101.7		WBL	E	0.83	83.5
		SBT	E	1.00	243.0		NBL	E	0.93	170.5
							NBT	D	0.92	271.3
							SBL	E	0.88	69.5

With background growth added, the study intersections are expected to operate as follows:

- Hurontario St & Derry Rd W/Derry Rd E deteriorates in both peak hours, from LOS D to LOS E. With the added background growth in the a.m. peak, the EBT movements approaches capacity with LOS E. In the p.m. peak, EBL movement shows signs of improvement. However, WBT, NBT, and SBL movements deteriorate further and is expected to operate near capacity.
- Hurontario St & Derrycrest Dr/Topflight Dr improves slightly to LOS D in the a.m. peak hour due to optimizing signal splits. However, with the added growth in the p.m. peak, it continues to operate at capacity with LOS F. The already critical SBL movement is expected to experience slight improvement in the a.m. peak but deteriorates in the p.m. SBL movement continues to operate over the critical threshold. In the p.m. peak, WB approach experiences heavy congestion with traffic reaching entrances and exits of small business around the area.
- Hurontario St & Kingsway Dr continues to operate adequately in the a.m. peak with LOS C. However, NBL movement remains at LOS F due to no protected phasing. In the p.m. peak, the EBL movement further deteriorates and reaches capacity with LOS F. In addition, the already critical NBT movement worsens with 95th percentile queues reaching Hurontario St & Derry Rd.
- The intersection between Hurontario St & Highway 407 EB Off-Ramp is operating well during both peak hours. The intersection operates at LOS C for a.m. peak hour and LOS A for p.m. peak hour which was the case in existing condition analysis.
- Hurontario St & Ray Lawson Blvd/County Ct Blvd with the added growth worsened and operates at LOS E in the a.m. peak and LOS D in the p.m. peak. In the a.m.

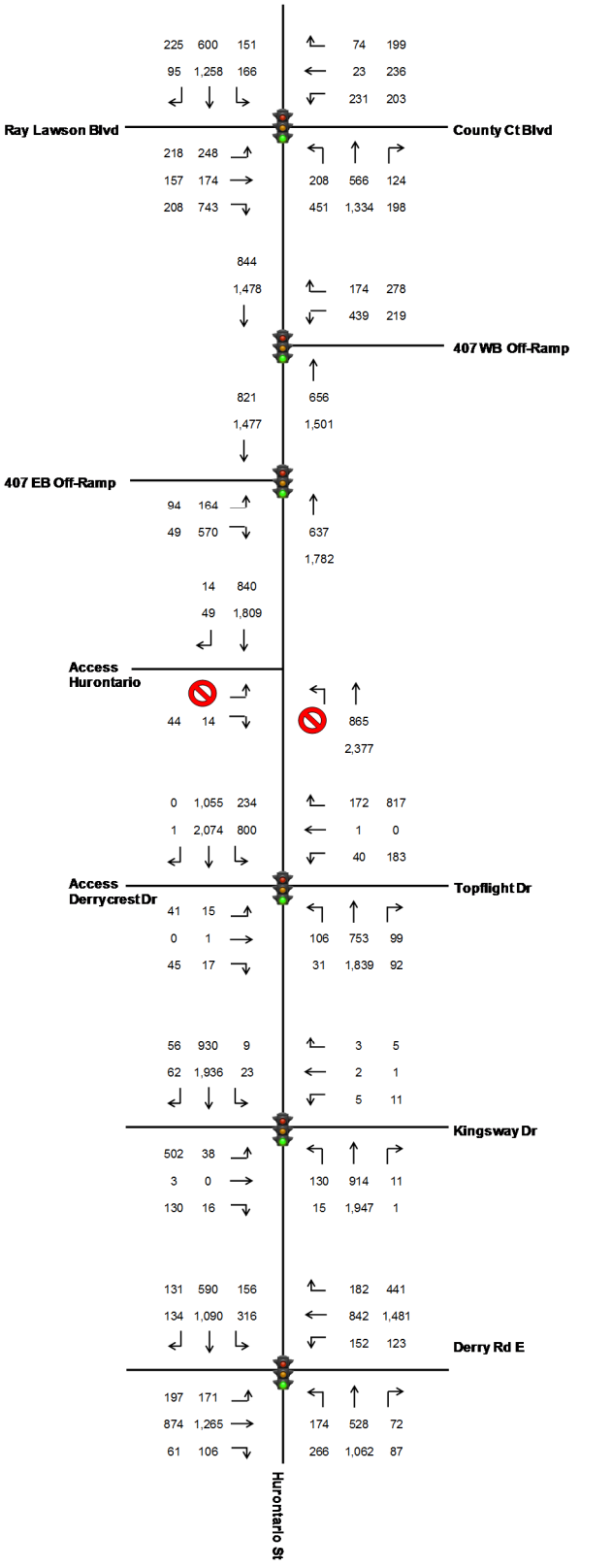
peak, the EBR movement deteriorates from LOS E to LOS F. The already critical movement NBL worsens slightly. Southbound volumes increases and causes SBT movement to operate at capacity with LOS E. In the p.m. peak, all left turn movements operates close to or at capacity due to green-time allocated to through movements. Northbound volumes increased and causes NBT movement to operate close to capacity with LOS D.

4.2 Future Total Operations

Future total volumes were calculated adding the site-generated traffic to the future volumes with background growth applied. This future total scenario accounts for all vehicular traffic that is estimated in year 2031 following implementation of the Transitway.

Future total volumes, which include background growth in addition to the traffic generated by Hurontario Station, are illustrated in Exhibit 4-3.

Exhibit 4-3: Future Total Volumes in AM (PM) Peak Hours



A summary of critical movements identified during the future total conditions analysis is provided in Exhibit 4-4, with a detailed output of the Synchro analysis provided in the Appendix.

Exhibit 4-4: Future Total Critical Movements Summary

INTERSECTION	AM PEAK					PM PEAK				
	LOS	Critical Movements				LOS	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Hurontario St & Derry Rd W/Derry Rd E	E	EBT	E	0.89	183.9	E	EBL	F	1.01	108.4
		WBL	F	0.99	87.6		WBT	E	0.92	200.1
		NBL	F	0.97	93.7		NBL	E	0.94	110.9
		SBL	D	0.90	111.6		NBT	E	0.98	241.0
		SBT	E	0.99	256.2		SBL	F	0.96	86.2
Hurontario St & Derrycrest Dr/Topflight Dr	E	EBL	E	0.29	11.8	F	EBL	F	0.94	41.6
		EBT	E	0.06	9.8		WBL	D	0.52	79.6
		WBL	E	0.47	24.0		WBT	F	1.73	462.8
		WBT	E	0.13	23.3		NBT	E	1.00	366.4
		NBL	F	1.53	65.4		SBL	F	1.78	162.0
		SBL	F	1.43	284.5					
Kingsway Dr & Hurontario St	C	NBL	F	1.66	68.8	F	EBL	F	1.01	251.9
							NBT	F	1.15	448.3
407 EB Off-Ramp & Hurontario St	C	EBR	C	0.83	184.0	A	(no critical movements)			
Hurontario St & Ray Lawson Blvd/County Ct Blvd	E	EBR	F	1.07	286.5	D	EBL	F	0.97	87.0
		NBL	F	1.08	106.0		WBL	E	0.83	83.5
		SBT	E	1.00	250.6		NBL	E	0.94	175.8
							NBT	D	0.95	284.5
							SBL	E	0.88	68.7

With Hurontario demands added to future background growth conditions, the study intersections are expected to operate as follows:

- A significant amount of NBT and SBT traffic is added to Hurontario St & Derry Rd W/Derry Rd E. Overall, the intersection continues to operate at capacity in both peak hours with several movements experiencing long queues and level-of-service F.
- At Hurontario St & Derrycrest Dr/Topflight Dr intersection, a significant amount of NBL traffic is added in the a.m. peak and now operates at LOS F. In both peaks, a small amount of traffic is added to EBL and EBTR movements. These movements worsen but remain at capacity due to limited of storage lane and lack of protected phasing.
- A significant amount of NBT and SBT is added to Hurontario St & Kingsway Dr, and the intersection remains operating in LOS C in the a.m. peak hour and LOS F in the p.m. peak hour. While NBL movement in the a.m. peak along with EBL and NBT movements in the p.m. peak was identified as critical movements in the background conditions analysis, the site traffic added to this intersection causes operations to deteriorate only marginally.
- Limited traffic is added to the NBT and SBT movements at Hurontario St & 407 EB Off-ramp for both peak hours. Overall, the intersection remains operating at LOS C in the a.m. peak hour and LOS A in the p.m. peak hour, as was the case in the background conditions analysis.
- At the intersection of Hurontario St & Ray Lawson Blvd/County Ct Blvd, a small amount of site traffic is added in the NBT and SBT movements. However, the

intersection remains operating at LOS E in the a.m. peak hour and LOS D in the p.m. peak hour.

Two accesses to the park-and-ride lot are proposed: a signalized access located on Derrycrest Drive, and an unsignalized right-in/right-out access located along Hurontario Street. The below Exhibit 4-5 indicates that the Hurontario access will operate well under this proposed configuration, however, Derrycrest Drive access will require further investigation to alleviate high delays and queueing for both NBL and EBL movements.

Exhibit 4-5: Station Access Operations Summary

ACCESS	AM PEAK					PM PEAK				
	LOS	Inbound/Outbound Movement				LOS	Inbound/Outbound Movement			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Hurontario Access (right-in/right-out)	A	SBR (in)	A	0.03	0	A	SBR (in)	A	0.01	0
		EBR (out)	A	0.02	0.4		EBR (out)	A	0.06	1.4
Derrycrest Dr Access (signalized)	F*	SBR (in)	A	0	0	F	SBR (in)	A	0	0
		WBT (in)	A	0.01	1.4		WBT (in)	A	0	0
		NBL (in)	F	1.53	65.4		NBL (in)	C	0.16	12.6
		EBL (out)	E	0.29	11.8		EBL (out)	F	0.96	41.6
		EBTR (out)	D	0.14	9.8		EBTR (out)	A	0.09	1.6

*Mitigation measures are provided in Section 5 of this report

As shown in the table above, Derrycrest Drive operates at capacity with LOS F for both peak hours. This is due to minimal gaps from opposing traffic movements and lack of a protected phasing for both NBL and EBL phases. Proposed adjustments to help alleviate this issue will be discussed further in Section 5.1. Hurontario Access is expected to operate adequately during both a.m. peak and p.m. peak hour.

4.3 Future Model Calibration

The Future Synchro models were calibrated to better reflect measured field conditions accomplished by adjusting either the Lane Utilization Factor (LUF) or Lost Time Adjustment (LTA) for certain movements.

Adjustments made to the existing traffic models are outlined in Exhibit 4-6.

Exhibit 4-6: Future Background Model Calibration Parameters

PERIOD	INTERSECTION	MOVEMENT	ADJUSTED PARAMETER	ADJUSTMENT VALUE
AM Peak	Hurontario & Derry	SBT	LUF	1.0
	Hurontario & Ray Lawson	SBT	LUF	1.0
	Hurontario & Derrycrest	SBL	LTA	-2 seconds
	Hurontario & Kingsway	NBL	LTA	-2 seconds
PM Peak	Hurontario & Derry	NBT	LUF	1.0
	Hurontario & Derrycrest	WBT	LUF	1.0
		NBT	LUF	1.0
	Hurontario & Kingsway	NBT	LUF	1.0

These adjustments were applied using the methodologies outlined in Section 1.5.

5 Potential Improvement Measures

5.1 Hurontario Street & Derrycrest Drive (Access)/Topflight Drive

The below improvement measures were analyzed (given Future Total volumes), with results presented in Exhibit 5-1.

- Dual SBL lane (protected);
- NBL (protected); and,
- Dedicated WBR lane (overlay)

Exhibit 5-1: Analysis of Improvements to Hurontario St & Derrycrest Dr (Access)/Topflight Dr

INTERSECTION	AM PEAK					PM PEAK				
	Avg. v/c	Critical Movements				Avg. v/c	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Hurontario St & Derrycrest Dr (Access)/Topflight Dr (current configuration)	1.46	EBL	E	0.29	11.8	1.79	EBL	F	0.94	41.6
		EBTR	E	0.06	9.8		EBTR	D	0.03	1.6
		WBL	E	0.47	24.0		WBL	D	0.52	79.6
		WBTR	E	0.13	23.3		WBTR	F	1.73	462.8
		NBL	F	1.53	65.4		NBL	C	0.16	12.6
		NBT	A	0.33	53.2		NBT	E	1.00	366.4
		NBR	A	0.09	10.1		NBR	B	0.10	16.5
		SBL	F	1.52	317.5		SBL	F	1.78	162.0
		SBT	A	0.79	197.7		SBT	B	0.53	125.3
		SBR	A	0.00	-		SBR	A	0.00	-
Hurontario St & Derrycrest Dr (Access)/Topflight Dr (with improvements)	0.82	EBL	E	0.17	11.6	1.22	EBL	D	0.18	23.7
		EBTR	E	0.02	8.3		EBTR	D	0.03	-
		WBL	E	0.57	24.1		WBL	F	0.87	96.4
		WBT	E	0.01	2.1		WBT	-	-	-
		WBR	D	0.22	27.5		WBR	F	1.59	361.1
		NBL	E	0.80	50.4		NBL	B	0.11	5.9
		NBT	B	0.39	76.8		NBT	D	0.99	374.2
		NBR	B	0.09	11.9		NBR	B	0.08	13.5
		SBL	A	0.64	31.4		SBL	D	0.39	34.8
		SBT	B	0.84	276.3		SBT	B	0.48	113.5
		SBR	A	0.00	-		SBR	A	0.00	-

The following was observed:

- Implementing dual SBL lanes (protected) reduces a considerable amount of delays experienced by SBL movements.
- Implementing a protected phasing for the single NBL lane will reduce NBL delays significantly.
- Providing a WBR lane with an overlay results in a large improvement in operations of the approach, since WBT volumes are minimal and the majority of traffic is right-turning anyways.
- Average v/c is significantly reduced in both peak hours.

It is noted that the feasibility of implementing the dual southbound left was not considered, especially in light of the proposed LRT. The feasibility will be reviewed during the preliminary design component of the EA.

5.2 Hurontario Street & Kingsway Drive

Implementing a protected northbound left turn was analyzed in Synchro (given Future Total volumes), with results presented in Exhibit 5-2.

Exhibit 5-2: Analysis of Improvements to Hurontario St & Kingsway Dr

INTERSECTION	AM PEAK					PM PEAK				
	Avg. v/c	Critical Movements				Avg. v/c	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Hurontario St & Kingsway Dr (current configuration)	1.57	EBL	D	0.43	19.2	1.08	EBL	F	1.01	251.9
		EBTR	D	0.01	0.4		EBTR	C	0.16	30.3
		WBL	D	0.05	4.6		WBL	C	0.03	7.1
		WBTR	D	0.02	4.0		WBTR	C	0.01	3.6
		NBL	F	1.72	69.7		NBL	C	0.09	8.0
		NBTR	A	0.39	59.4		NBTR	F	1.15	448.3
		SBL	A	0.06	2.4		SBL	D	0.13	4.5
		SBTR	A	0.78	167.4		SBTR	C	0.59	141.5
Hurontario St & Kingsway Dr (with improvements)	0.85	EBL	D	0.42	19.2	1.08	EBL	E	0.96	245.3
		EBTR	D	0.01	-		EBTR	C	0.09	14.6
		WBL	D	0.05	4.6		WBL	C	0.03	6.9
		WBTR	D	0.02	4.0		WBTR	C	0.01	3.5
		NBL	C	0.56	32.2		NBL	C	0.10	6.0
		NBTR	A	0.40	59.4		NBTR	F	1.22	446.9
		SBL	A	0.06	2.4		SBL	D	0.12	4.5
		SBTR	C	0.92	293.2		SBTR	C	0.67	162.6

The following was observed:

- Implementing a protected phasing for the single NBL lane will reduce NBL delays significantly for the a.m. peak hour. However, optimizing signal splits results in less green-time for N-S phases. Operations on these approaches are affected as a result for both peak periods.
- Average v/c is significantly reduced in the a.m. peak but remains the same in the p.m. peak.

5.3 Hurontario Street & Ray Lawson Boulevard/County Ct Boulevard

Implementing a dual northbound left turn was also analyzed in Synchro (given Future Total volumes) at this intersection, with results presented in Exhibit 5-3:

Exhibit 5-3: Analysis of Improvements to Hurontario St & Ray Lawson Blvd/County Ct Blvd

INTERSECTION	AM PEAK					PM PEAK				
	Avg. v/c	Critical Movements				Avg. v/c	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Hurontario St & Ray Lawson Blvd/County Ct Blvd (current configuration)	1.1	EBL	C	0.55	71.9	1	EBL	F	0.97	87.0
		EBT	C	0.13	25.7		EBT	C	0.15	25.2
		EBR	F	1.07	286.5		EBR	C	0.15	17.4
		WBL	D	0.66	91.7		WBL	E	0.83	83.5
		WBTR	C	0.05	9.3		WBTR	D	0.50	55.2
		NBL	F	1.08	106.0		NBL	E	0.94	175.8
		NBTR	C	0.55	104.5		NBTR	D	0.95	284.5
		SBL	C	0.53	39.2		SBL	E	0.88	68.7
		SBTR	E	1.00	250.6		SBTR	D	0.78	138.2
Hurontario St & Ray Lawson Blvd/County Ct Blvd (with improvements)	1.05	EBL	C	0.47	65.1	0.98	EBL	F	0.97	87.0
		EBT	C	0.12	23.4		EBT	C	0.15	25.2
		EBR	F	1.04	298.2		EBR	C	0.15	17.4
		WBL	D	0.62	88.6		WBL	E	0.83	83.5
		WBTR	C	0.05	9.0		WBTR	D	0.50	55.2
		NBL	E	0.89	40.3		NBL	B	0.65	40.1
		NBTR	D	0.65	116.5		NBTR	D	0.95	284.5
		SBL	C	0.59	43.7		SBL	E	0.88	71.7
		SBTR	E	1.01	254.5		SBTR	C	0.56	116.1

The following was observed:

- Implementing dual NBL (protected) reduces NBL delays for both peaks, however causes NBTR operations to deteriorate slightly in the a.m. peak hour.
- Optimization of signal splits in the a.m. peak results in less green-time allocated to N-S phases, and more green-time allocated to E-W phases. Operations on these approaches show slight improvements especially for EBL movement.
- Optimization of signal splits in the p.m. peak results in less green-time allocated to NBL phase, and more green-time allocated to SBTR movement. Operation for SBTR shows significant improvements as a result.
- Average v/c is reduced in both peak hours.

Feasibility constraints with implementing a dual northbound left turn lane were not evaluated, and will be considered during the preliminary design component of this EA and ruled out if necessary.

6 Summary and Recommendations

This report provides an analysis of traffic operations for the proposed Highway 407 Transitway station located on the west side of Hurontario Street south of Highway 407. Future conditions during the a.m. and p.m. peak hours were modelled and analyzed based on a horizon year of 2031. The study accounts for the Hurontario LRT and its associated reduction in traffic lanes.

The study indicates that future 2031 background traffic operations have several movements at or above capacity in both the a.m. and p.m. peak hours. Long queues and station traffic will add to already-congested movements in both peak hours. Conceptual improvements were identified including a dual southbound left turn at Hurontario Street and Derrycrest Drive / Topflight Drive, and a dual northbound left turn at Kingsway Drive and Ray Lawson Boulevard. Both of these improvements would imply road widening; and further investigation into the feasibility is required. Furthermore, as Hurontario Street will transition to a rapid-transit corridor, on which traffic will be considered a secondary mode of travel, the desirability of road widening to accommodate traffic is uncertain and requires consultation with agencies.

Appendix A – Existing (2017) Conditions Synchro Output

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	165	1391	154	853	179	176	735	320	1752
v/c Ratio	0.60	0.80	1.03	0.51	0.28	1.14	0.48	0.78	0.88
Control Delay	36.7	51.4	121.5	42.1	5.7	151.0	44.1	38.1	50.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.8
Total Delay	36.7	51.4	121.5	42.1	5.7	151.0	44.1	38.1	82.5
Queue Length 50th (m)	31.4	146.1	~43.5	79.1	0.0	~48.1	67.5	59.8	184.6
Queue Length 95th (m)	47.8	164.8	#91.5	93.2	16.7	#99.5	81.7	82.9	204.9
Internal Link Dist (m)		357.5		323.5			293.4		163.5
Turn Bay Length (m)	200.0		212.0			130.0		120.0	
Base Capacity (vph)	277	1728	149	1679	638	155	1530	428	2030
Starvation Cap Reductn	0	0	0	0	0	0	0	0	383
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.80	1.03	0.51	0.28	1.14	0.48	0.75	1.06

Intersection Summary

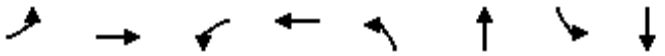
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	152	1180	99	142	785	165	162	609	67	294	1489	123
Future Volume (vph)	152	1180	99	142	785	165	162	609	67	294	1489	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.8		3.0	6.8	6.8	3.0	6.8		3.0	6.8	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1771	4960		1521	4725	1472	1738	4733		1736	4967	
Flt Permitted	0.24	1.00		0.07	1.00	1.00	0.08	1.00		0.26	1.00	
Satd. Flow (perm)	449	4960		113	4725	1472	142	4733		475	4967	
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)	165	1283	108	154	853	179	176	662	73	320	1618	134
RTOR Reduction (vph)	0	6	0	0	0	115	0	8	0	0	6	0
Lane Group Flow (vph)	165	1385	0	154	853	64	176	727	0	320	1746	0
Confl. Peds. (#/hr)	16		58	58		16	39		15	15		39
Heavy Vehicles (%)	3%	4%	4%	20%	11%	8%	5%	7%	26%	5%	4%	4%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	65.7	55.6		68.1	56.8	56.8	61.3	51.5		76.5	63.7	
Effective Green, g (s)	65.7	55.6		68.1	56.8	56.8	61.3	51.5		76.5	63.7	
Actuated g/C Ratio	0.41	0.35		0.43	0.35	0.35	0.38	0.32		0.48	0.40	
Clearance Time (s)	3.0	6.8		3.0	6.8	6.8	3.0	6.8		3.0	6.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	267	1723		147	1677	522	152	1523		400	1977	
v/s Ratio Prot	0.04	0.28		c0.07	0.18		c0.07	0.15		c0.11	0.35	
v/s Ratio Perm	0.21			c0.37		0.04	c0.37			0.27		
v/c Ratio	0.62	0.80		1.05	0.51	0.12	1.16	0.48		0.80	0.88	
Uniform Delay, d1	31.5	47.3		44.9	40.6	34.8	41.3	43.5		28.1	44.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.2	4.1		87.4	1.1	0.5	121.7	0.2		10.9	5.1	
Delay (s)	35.7	51.4		132.3	41.7	35.3	163.1	43.7		39.0	49.8	
Level of Service	D	D		F	D	D	F	D		D	D	
Approach Delay (s)		49.7			52.5			66.8			48.1	
Approach LOS		D			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	52.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	19.6
Intersection Capacity Utilization	119.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

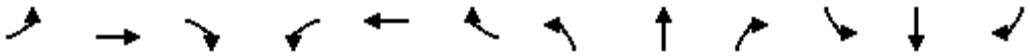


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	2	4	40	175	1	1246	811	3134
v/c Ratio	0.03	0.03	0.42	0.63	0.02	0.38	1.76	0.78
Control Delay	51.0	45.5	65.2	19.8	8.0	8.6	370.4	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.0	45.5	65.2	19.8	8.0	8.6	370.4	8.8
Queue Length 50th (m)	0.4	0.7	9.1	1.8	0.1	40.4	~168.0	116.9
Queue Length 95th (m)	3.1	4.2	20.4	23.1	0.8	53.8	#278.1	159.8
Internal Link Dist (m)		223.1		235.9		432.1		347.9
Turn Bay Length (m)			70.0		41.0		84.0	
Base Capacity (vph)	317	631	483	715	64	3301	460	4030
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	0.01	0.01	0.08	0.24	0.02	0.38	1.76	0.78

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

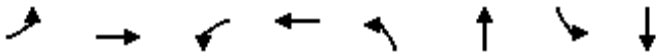
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	1	3	37	1	160	1	1054	92	746	2882	1
Future Volume (vph)	2	1	3	37	1	160	1	1054	92	746	2882	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		8.0	8.0		7.0	7.0		1.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.89		1.00	0.85		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1816	1516		1460	1486		1825	4827		1825	5092	
Flt Permitted	0.40	1.00		0.76	1.00		0.05	1.00		0.19	1.00	
Satd. Flow (perm)	765	1516		1161	1486		94	4827		374	5092	
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)	2	1	3	40	1	174	1	1146	100	811	3133	1
RTOR Reduction (vph)	0	1	0	0	153	0	0	4	0	0	0	0
Lane Group Flow (vph)	2	3	0	40	22	0	1	1242	0	811	3134	0
Confl. Peds. (#/hr)	6					6			1	1		
Heavy Vehicles (%)	0%	50%	0%	25%	0%	8%	0%	7%	9%	0%	3%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		8			4			6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	10.0	10.0		10.0	10.0		82.0	82.0		95.0	95.0	
Effective Green, g (s)	10.0	10.0		10.0	10.0		82.0	82.0		97.0	95.0	
Actuated g/C Ratio	0.08	0.08		0.08	0.08		0.68	0.68		0.81	0.79	
Clearance Time (s)	8.0	8.0		8.0	8.0		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)	63	126		96	123		64	3298		447	4031	
v/s Ratio Prot		0.00			0.01			0.26		c0.18	c0.62	
v/s Ratio Perm	0.00			c0.03			0.01			1.28		
v/c Ratio	0.03	0.02		0.42	0.18		0.02	0.38		1.81	0.78	
Uniform Delay, d1	50.6	50.5		52.2	51.2		6.1	8.1		13.6	6.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.1		2.9	0.7		0.4	0.3		375.2	1.5	
Delay (s)	50.8	50.6		55.1	51.9		6.5	8.4		388.8	8.3	
Level of Service	D	D		E	D		A	A		F	A	
Approach Delay (s)		50.7			52.5			8.4			86.5	
Approach LOS		D			D			A			F	

Intersection Summary			
HCM 2000 Control Delay	67.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	156.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

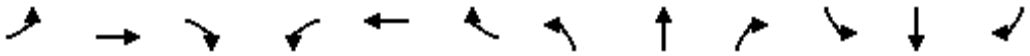


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	38	16	5	5	132	1240	23	2964
v/c Ratio	0.33	0.09	0.04	0.04	1.94	0.31	0.06	0.72
Control Delay	55.4	1.0	46.4	35.2	491.9	5.0	2.4	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	55.4	1.0	46.4	35.2	491.9	5.1	2.4	7.1
Queue Length 50th (m)	7.7	0.0	1.0	0.4	~28.8	22.5	0.7	98.8
Queue Length 95th (m)	18.1	0.2	4.6	4.0	#72.2	45.2	2.2	132.3
Internal Link Dist (m)		288.8		65.4		163.5		432.1
Turn Bay Length (m)	50.0		14.0		30.0		71.0	
Base Capacity (vph)	786	916	786	946	68	3944	433	4135
Starvation Cap Reductn	0	0	0	0	0	1207	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	0.05	0.02	0.01	0.01	1.94	0.45	0.05	0.72

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	35	0	15	5	2	3	121	1131	10	21	2669	58
Future Volume (vph)	35	0	15	5	2	3	121	1131	10	21	2669	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.5	8.5		8.5	8.5		5.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.91		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1813	1633		1825	1729		1789	4989		1738	5024	
Flt Permitted	0.75	1.00		0.75	1.00		0.05	1.00		0.20	1.00	
Satd. Flow (perm)	1440	1633		1435	1729		86	4989		366	5024	
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)	38	0	16	5	2	3	132	1229	11	23	2901	63
RTOR Reduction (vph)	0	15	0	0	3	0	0	0	0	0	1	0
Lane Group Flow (vph)	38	1	0	5	2	0	132	1240	0	23	2963	0
Confl. Peds. (#/hr)	8					8	18		8	8		18
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	5%	0%	5%	4%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	7.3	7.3		7.3	7.3		86.0	86.0		91.4	91.4	
Effective Green, g (s)	7.3	7.3		7.3	7.3		88.0	86.0		91.4	91.4	
Actuated g/C Ratio	0.06	0.06		0.06	0.06		0.77	0.75		0.80	0.80	
Clearance Time (s)	8.5	8.5		8.5	8.5		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)	92	104		91	110		66	3757		321	4020	
v/s Ratio Prot		0.00			0.00			0.25		0.00	c0.59	
v/s Ratio Perm	c0.03			0.00			c1.54			0.06		
v/c Ratio	0.41	0.01		0.05	0.02		2.00	0.33		0.07	0.74	
Uniform Delay, d1	51.4	50.1		50.2	50.1		13.1	4.6		2.4	5.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.0	0.0		0.3	0.1		499.2	0.2		0.1	1.2	
Delay (s)	54.4	50.1		50.5	50.2		512.3	4.9		2.5	6.8	
Level of Service	D	D		D	D		F	A		A	A	
Approach Delay (s)		53.1			50.3			53.7			6.8	
Approach LOS		D			D			D			A	

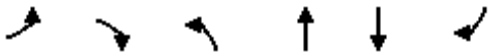
Intersection Summary			
HCM 2000 Control Delay	22.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.89		
Actuated Cycle Length (s)	114.2	Sum of lost time (s)	18.5
Intersection Capacity Utilization	89.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	166	578	949	2172
v/c Ratio	0.13	0.96	0.36	0.80
Control Delay	28.8	67.8	17.9	27.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	28.8	67.8	17.9	27.5
Queue Length 50th (m)	14.7	147.0	49.9	161.1
Queue Length 95th (m)	24.5	#241.0	59.1	179.2
Internal Link Dist (m)	457.7		347.9	320.5
Turn Bay Length (m)		140.0		
Base Capacity (vph)	1293	605	3002	3090
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	0.13	0.96	0.32	0.70

Intersection Summary

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



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	153	532	0	873	1998	0
Future Volume (vph)	153	532	0	873	1998	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	3437	1601		4948	5092	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	3437	1601		4948	5092	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	166	578	0	949	2172	0
RTOR Reduction (vph)	0	3	0	0	0	0
Lane Group Flow (vph)	166	575	0	949	2172	0
Heavy Vehicles (%)	3%	2%	2%	6%	3%	2%
Turn Type	Prot	Prot		NA	NA	
Protected Phases	8	8		2	6	
Permitted Phases						
Actuated Green, G (s)	49.2	49.2		69.5	69.5	
Effective Green, g (s)	49.2	49.2		69.5	69.5	
Actuated g/C Ratio	0.38	0.38		0.53	0.53	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	1293	602		2631	2707	
v/s Ratio Prot	0.05	c0.36		0.19	c0.43	
v/s Ratio Perm						
v/c Ratio	0.13	0.95		0.36	0.80	
Uniform Delay, d1	26.7	39.7		17.7	25.0	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	25.7		0.1	1.8	
Delay (s)	26.7	65.4		17.8	26.8	
Level of Service	C	E		B	C	
Approach Delay (s)	56.8			17.8	26.8	
Approach LOS	E			B	C	

Intersection Summary			
HCM 2000 Control Delay	30.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	130.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	445	176	977	2173
v/c Ratio	0.63	0.39	0.31	0.66
Control Delay	36.0	9.8	7.2	10.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	36.0	9.8	7.2	10.8
Queue Length 50th (m)	32.1	1.8	21.6	66.9
Queue Length 95th (m)	61.7	20.1	37.0	108.3
Internal Link Dist (m)	362.8		320.5	579.4
Turn Bay Length (m)		134.0		
Base Capacity (vph)	1410	749	4819	4961
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	0.32	0.23	0.20	0.44

Intersection Summary

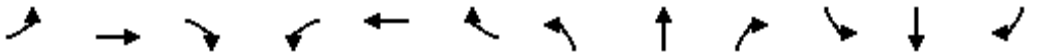
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	409	162	899	0	0	1999
Future Volume (vph)	409	162	899	0	0	1999
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0			6.0
Lane Util. Factor	0.97	1.00	0.91			0.91
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3309	1541	4995			5142
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3309	1541	4995			5142
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	445	176	977	0	0	2173
RTOR Reduction (vph)	0	126	0	0	0	0
Lane Group Flow (vph)	445	50	977	0	0	2173
Heavy Vehicles (%)	7%	6%	5%	2%	2%	2%
Turn Type	Prot	Prot	NA			NA
Protected Phases	4	4	2			6
Permitted Phases						
Actuated Green, G (s)	17.9	17.9	53.3			53.3
Effective Green, g (s)	17.9	17.9	53.3			53.3
Actuated g/C Ratio	0.22	0.22	0.64			0.64
Clearance Time (s)	6.0	6.0	6.0			6.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	711	331	3199			3294
v/s Ratio Prot	c0.13	0.03	0.20			c0.42
v/s Ratio Perm						
v/c Ratio	0.63	0.15	0.31			0.66
Uniform Delay, d1	29.6	26.5	6.7			9.3
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	1.7	0.2	0.1			0.5
Delay (s)	31.3	26.7	6.7			9.8
Level of Service	C	C	A			A
Approach Delay (s)	30.0		6.7			9.8
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	83.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	251	176	753	234	98	211	840	126	168	1838	97
v/c Ratio	0.47	0.12	0.98	0.58	0.09	0.99	0.42	0.19	0.50	0.93	0.15
Control Delay	29.7	25.7	58.4	44.8	10.3	94.1	31.6	5.2	23.4	49.9	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.7	25.7	58.4	44.8	10.3	94.1	31.6	5.2	23.4	49.9	5.6
Queue Length 50th (m)	44.4	15.6	164.4	52.9	2.2	42.6	62.4	0.0	24.3	178.0	0.0
Queue Length 95th (m)	65.0	23.4	#251.8	81.5	8.6	#95.0	74.9	12.8	37.7	#201.9	11.3
Internal Link Dist (m)		362.3			306.8		579.4			324.4	
Turn Bay Length (m)	88.0		90.0	117.0		97.0		72.0	90.0		171.0
Base Capacity (vph)	529	1482	779	413	1060	214	1977	668	351	1982	653
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.12	0.97	0.57	0.09	0.99	0.42	0.19	0.48	0.93	0.15

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)	231	162	693	215	21	69	194	773	116	155	1691	89
Future Volume (vph)	231	162	693	215	21	69	194	773	116	155	1691	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.0	7.0	7.0	7.0		3.0	6.0	6.0	3.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	0.93		1.00	1.00	0.94	1.00	1.00	0.96
Flpb, ped/bikes	0.95	1.00	1.00	0.99	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.89		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1709	3544	1589	1768	2925		1807	4995	1497	1767	5092	1527
Flt Permitted	0.65	1.00	1.00	0.64	1.00		0.07	1.00	1.00	0.26	1.00	1.00
Satd. Flow (perm)	1167	3544	1589	1192	2925		139	4995	1497	487	5092	1527
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)	251	176	753	234	23	75	211	840	126	168	1838	97
RTOR Reduction (vph)	0	0	118	0	50	0	0	0	76	0	0	59
Lane Group Flow (vph)	251	176	635	234	48	0	211	840	50	168	1838	38
Confl. Peds. (#/hr)	72		13	13		72	16		28	28		16
Heavy Vehicles (%)	2%	3%	0%	2%	10%	0%	1%	5%	3%	3%	3%	3%
Turn Type	pm+pt	NA	Perm	Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8			4		5	2		1	6	
Permitted Phases	8		8	4			2		2	6		6
Actuated Green, G (s)	56.7	56.7	56.7	46.7	46.7		66.9	54.9	54.9	65.1	54.0	54.0
Effective Green, g (s)	56.7	56.7	56.7	46.7	46.7		66.9	54.9	54.9	65.1	54.0	54.0
Actuated g/C Ratio	0.41	0.41	0.41	0.34	0.34		0.48	0.40	0.40	0.47	0.39	0.39
Clearance Time (s)	3.0	7.0	7.0	7.0	7.0		3.0	6.0	6.0	3.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	504	1448	649	401	984		211	1977	592	331	1982	594
v/s Ratio Prot	0.03	0.05			0.02		c0.09	0.17		0.04	0.36	
v/s Ratio Perm	0.18		c0.40	0.20			c0.40		0.03	0.20		0.02
v/c Ratio	0.50	0.12	0.98	0.58	0.05		1.00	0.42	0.08	0.51	0.93	0.06
Uniform Delay, d1	30.1	25.5	40.4	38.0	31.0		41.9	30.4	26.2	22.1	40.5	26.5
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.0	29.7	2.2	0.0		62.0	0.7	0.3	1.2	9.1	0.2
Delay (s)	30.9	25.5	70.1	40.1	31.0		103.9	31.1	26.5	23.3	49.5	26.7
Level of Service	C	C	E	D	C		F	C	C	C	D	C
Approach Delay (s)		55.1			37.5			43.7			46.4	
Approach LOS		E			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	47.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	138.7	Sum of lost time (s)	19.0
Intersection Capacity Utilization	105.5%	ICU Level of Service	G
Analysis Period (min)	15		

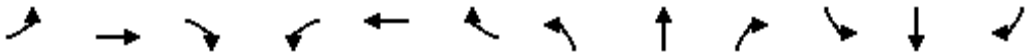
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	198	948	125	1501	446	270	1663	154	907
v/c Ratio	1.11	0.55	0.56	0.86	0.67	0.78	0.90	0.81	0.57
Control Delay	135.6	42.4	36.4	54.5	28.7	39.9	55.3	68.3	44.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	135.6	42.4	36.4	54.5	28.7	39.9	55.3	68.3	44.9
Queue Length 50th (m)	~63.3	89.3	23.5	162.6	67.5	48.7	181.0	31.2	83.3
Queue Length 95th (m)	#116.1	104.2	37.6	182.1	108.0	70.0	201.6	#67.8	103.7
Internal Link Dist (m)		357.5		323.5			293.4		163.5
Turn Bay Length (m)	200.0		212.0			130.0		120.0	
Base Capacity (vph)	179	1717	226	1752	668	397	1865	203	1605
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.11	0.55	0.55	0.86	0.67	0.68	0.89	0.76	0.57

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	182	815	57	115	1381	410	248	1449	81	142	718	117
Future Volume (vph)	182	815	57	115	1381	410	248	1449	81	142	718	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.8		3.0	6.8	6.8	3.0	6.8		3.0	6.8	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1772	4750		1570	5043	1543	1737	4925		1706	4820	
Flt Permitted	0.07	1.00		0.21	1.00	1.00	0.19	1.00		0.08	1.00	
Satd. Flow (perm)	129	4750		345	5043	1543	350	4925		136	4820	
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)	198	886	62	125	1501	446	270	1575	88	154	780	127
RTOR Reduction (vph)	0	5	0	0	0	132	0	4	0	0	13	0
Lane Group Flow (vph)	198	943	0	125	1501	314	270	1659	0	154	894	0
Confl. Peds. (#/hr)	27		60	60		27	12		18	18		12
Heavy Vehicles (%)	3%	9%	7%	16%	4%	2%	5%	4%	32%	7%	7%	1%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	69.6	57.7		65.4	55.6	55.6	75.9	59.6		66.1	52.8	
Effective Green, g (s)	69.6	57.7		65.4	55.6	55.6	75.9	59.6		66.1	52.8	
Actuated g/C Ratio	0.43	0.36		0.41	0.35	0.35	0.47	0.37		0.41	0.33	
Clearance Time (s)	3.0	6.8		3.0	6.8	6.8	3.0	6.8		3.0	6.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	178	1712		216	1752	536	340	1834		186	1590	
v/s Ratio Prot	c0.08	0.20		0.04	0.30		c0.10	c0.34		c0.07	0.19	
v/s Ratio Perm	c0.40			0.20		0.20	0.28			0.27		
v/c Ratio	1.11	0.55		0.58	0.86	0.58	0.79	0.90		0.83	0.56	
Uniform Delay, d1	46.6	40.8		31.4	48.5	42.8	28.7	47.5		40.8	44.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	100.8	1.3		3.7	5.6	4.6	12.0	6.8		25.1	0.5	
Delay (s)	147.4	42.1		35.1	54.1	47.4	40.8	54.3		65.9	44.5	
Level of Service	F	D		D	D	D	D	D		E	D	
Approach Delay (s)		60.3			51.5			52.4			47.6	
Approach LOS		E			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	52.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	19.6
Intersection Capacity Utilization	115.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	1	186	828	2	2889	237	1537
v/c Ratio	0.00	0.45	1.45	0.01	1.00	1.52	0.51
Control Delay	0.0	48.2	246.8	20.0	56.4	294.7	19.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	48.2	246.8	20.0	56.4	294.7	19.6
Queue Length 50th (m)	0.0	47.5	~332.2	0.3	~304.8	~89.1	100.4
Queue Length 95th (m)	0.0	71.9	#412.3	1.9	#338.0	#145.2	112.3
Internal Link Dist (m)	223.1		235.9		432.1		347.9
Turn Bay Length (m)		70.0		41.0		84.0	
Base Capacity (vph)	527	416	570	135	2875	156	3023
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.45	1.45	0.01	1.00	1.52	0.51

Intersection Summary

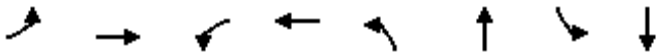
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	0	0	1	171	0	762	2	2572	86	218	1414	0
Future Volume (vph)	0	0	1	171	0	762	2	2572	86	218	1414	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0		8.0	8.0		7.0	7.0		3.0	7.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	*1.00		1.00	0.91	
Frpb, ped/bikes		0.97		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00		0.98	1.00		1.00	1.00		1.00	1.00	
Frt		0.85		1.00	0.85		1.00	1.00		1.00	1.00	
Flt Protected		1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1581		1671	1563		1825	5607		1738	5092	
Flt Permitted		1.00		0.76	1.00		0.14	1.00		0.05	1.00	
Satd. Flow (perm)		1581		1332	1563		264	5607		86	5092	
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)	0	0	1	186	0	828	2	2796	93	237	1537	0
RTOR Reduction (vph)	0	1	0	0	82	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	0	0	186	746	0	2	2887	0	237	1537	0
Confl. Peds. (#/hr)	8		14	14		8	3					3
Heavy Vehicles (%)	0%	0%	0%	7%	0%	2%	0%	2%	11%	5%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		8			4			6		5	2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)		50.0		50.0	50.0		82.0	82.0		95.0	95.0	
Effective Green, g (s)		50.0		50.0	50.0		82.0	82.0		95.0	95.0	
Actuated g/C Ratio		0.31		0.31	0.31		0.51	0.51		0.59	0.59	
Clearance Time (s)		8.0		8.0	8.0		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	
Lane Grp Cap (vph)		494		416	488		135	2873		154	3023	
v/s Ratio Prot		0.00			c0.48			0.51		c0.10	0.30	
v/s Ratio Perm				0.14			0.01			c0.81		
v/c Ratio		0.00		0.45	1.53		0.01	1.00		1.54	0.51	
Uniform Delay, d1		37.8		44.0	55.0		19.2	39.0		53.6	18.9	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.0		0.8	248.3		0.2	17.9		272.3	0.6	
Delay (s)		37.8		44.7	303.3		19.4	56.9		325.9	19.5	
Level of Service		D		D	F		B	E		F	B	
Approach Delay (s)		37.8			255.9			56.9			60.5	
Approach LOS		D			F			E			E	

Intersection Summary			
HCM 2000 Control Delay	93.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.56		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	202.2%	ICU Level of Service	H
Analysis Period (min)	15		

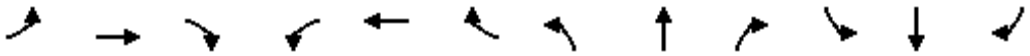
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	509	135	11	6	15	2917	9	1340
v/c Ratio	0.96	0.22	0.03	0.01	0.10	1.00	0.08	0.50
Control Delay	79.5	25.2	31.6	19.2	23.9	53.1	17.6	24.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	39.0	0.0	0.0
Total Delay	79.5	25.2	31.6	19.2	23.9	92.1	17.6	24.4
Queue Length 50th (m)	155.2	20.6	2.2	0.2	2.3	300.2	1.3	98.8
Queue Length 95th (m)	#226.9	37.0	6.7	3.6	8.0	#373.6	4.1	111.8
Internal Link Dist (m)		288.8		65.4		163.5		432.1
Turn Bay Length (m)	50.0		14.0		30.0		71.0	
Base Capacity (vph)	555	645	454	592	154	2925	160	2657
Starvation Cap Reductn	0	0	0	0	0	651	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	0.92	0.21	0.02	0.01	0.10	1.28	0.06	0.50

Intersection Summary

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



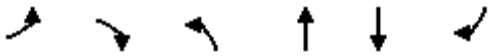
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	468	3	121	10	1	5	14	2683	1	8	1180	52
Future Volume (vph)	468	3	121	10	1	5	14	2683	1	8	1180	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.5	8.5		8.5	8.5		7.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	*1.00		1.00	0.91	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.88		1.00	1.00		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)	1817	1618		1673	1530		1818	5595		1825	4963	
Flt Permitted	0.75	1.00		0.67	1.00		0.15	1.00		0.05	1.00	
Satd. Flow (perm)	1441	1618		1181	1530		296	5595		90	4963	
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)	509	3	132	11	1	5	15	2916	1	9	1283	57
RTOR Reduction (vph)	0	24	0	0	3	0	0	0	0	0	3	0
Lane Group Flow (vph)	509	111	0	11	3	0	15	2917	0	9	1337	0
Confl. Peds. (#/hr)	4		1	1		4	19		30	30		19
Heavy Vehicles (%)	0%	0%	0%	9%	50%	0%	0%	3%	0%	0%	5%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	57.6	57.6		57.6	57.6		82.2	82.2		86.5	86.5	
Effective Green, g (s)	57.6	57.6		57.6	57.6		82.2	82.2		86.5	86.5	
Actuated g/C Ratio	0.36	0.36		0.36	0.36		0.52	0.52		0.54	0.54	
Clearance Time (s)	8.5	8.5		8.5	8.5		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)	520	583		426	552		152	2881		62	2689	
v/s Ratio Prot		0.07			0.00			c0.52		0.00	c0.27	
v/s Ratio Perm	c0.35			0.01			0.05			0.08		
v/c Ratio	0.98	0.19		0.03	0.01		0.10	1.01		0.15	0.50	
Uniform Delay, d1	50.4	35.0		32.9	32.7		19.8	38.7		37.6	22.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	33.6	0.2		0.0	0.0		1.3	19.9		1.1	0.7	
Delay (s)	84.0	35.2		32.9	32.7		21.1	58.6		38.7	23.6	
Level of Service	F	D		C	C		C	E		D	C	
Approach Delay (s)		73.8			32.8			58.4			23.7	
Approach LOS		E			C			E			C	

Intersection Summary			
HCM 2000 Control Delay	50.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	159.6	Sum of lost time (s)	18.5
Intersection Capacity Utilization	97.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	96	50	2647	1227
v/c Ratio	0.30	0.30	0.66	0.32
Control Delay	45.4	18.2	5.8	3.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	45.4	18.2	5.8	3.3
Queue Length 50th (m)	7.9	0.0	61.3	18.3
Queue Length 95th (m)	19.1	11.9	80.8	25.3
Internal Link Dist (m)	457.7		347.9	320.5
Turn Bay Length (m)		140.0		
Base Capacity (vph)	1049	437	4893	4709
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	0.09	0.11	0.54	0.26

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	88	46	0	2435	1129	0
Future Volume (vph)	88	46	0	2435	1129	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	3372	1296		5142	4948	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	3372	1296		5142	4948	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	96	50	0	2647	1227	0
RTOR Reduction (vph)	0	45	0	0	0	0
Lane Group Flow (vph)	96	5	0	2647	1227	0
Heavy Vehicles (%)	5%	26%	2%	2%	6%	2%
Turn Type	Prot	Prot		NA	NA	
Protected Phases	8	8		2	6	
Permitted Phases						
Actuated Green, G (s)	9.0	9.0		73.5	73.5	
Effective Green, g (s)	9.0	9.0		73.5	73.5	
Actuated g/C Ratio	0.10	0.10		0.78	0.78	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	321	123		3999	3848	
v/s Ratio Prot	c0.03	0.00		c0.51	0.25	
v/s Ratio Perm						
v/c Ratio	0.30	0.04		0.66	0.32	
Uniform Delay, d1	39.8	38.8		4.8	3.1	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.1		0.4	0.0	
Delay (s)	40.3	39.0		5.2	3.2	
Level of Service	D	D		A	A	
Approach Delay (s)	39.9			5.2	3.2	
Approach LOS	D			A	A	

Intersection Summary			
HCM 2000 Control Delay	5.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	94.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	222	282	2220	1262
v/c Ratio	0.32	0.74	0.68	0.39
Control Delay	32.7	46.1	12.2	8.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	32.7	46.1	12.2	8.7
Queue Length 50th (m)	16.9	44.3	82.3	35.2
Queue Length 95th (m)	32.9	88.3	120.1	53.5
Internal Link Dist (m)	362.8		320.5	579.4
Turn Bay Length (m)		134.0		
Base Capacity (vph)	1014	551	4822	4775
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	0.22	0.51	0.46	0.26

Intersection Summary

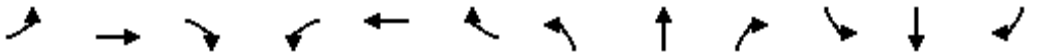
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	204	259	2042	0	0	1161
Future Volume (vph)	204	259	2042	0	0	1161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0			6.0
Lane Util. Factor	0.97	1.00	0.91			0.91
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3026	1617	5142			5092
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3026	1617	5142			5092
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	222	282	2220	0	0	1262
RTOR Reduction (vph)	0	11	0	0	0	0
Lane Group Flow (vph)	222	271	2220	0	0	1262
Heavy Vehicles (%)	17%	1%	2%	2%	2%	3%
Turn Type	Prot	Prot	NA			NA
Protected Phases	4	4	2			6
Permitted Phases						
Actuated Green, G (s)	20.8	20.8	57.6			57.6
Effective Green, g (s)	20.8	20.8	57.6			57.6
Actuated g/C Ratio	0.23	0.23	0.64			0.64
Clearance Time (s)	6.0	6.0	6.0			6.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	696	372	3276			3244
v/s Ratio Prot	0.07	c0.17	c0.43			0.25
v/s Ratio Perm						
v/c Ratio	0.32	0.73	0.68			0.39
Uniform Delay, d1	28.9	32.2	10.5			7.9
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	0.3	7.0	0.6			0.1
Delay (s)	29.2	39.2	11.0			8.0
Level of Service	C	D	B			A
Approach Delay (s)	34.8		11.0			8.0
Approach LOS	C		B			A

Intersection Summary			
HCM 2000 Control Delay	13.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	90.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	221	159	211	205	441	458	1965	201	153	891	228
v/c Ratio	0.78	0.14	0.34	0.75	0.52	0.83	0.82	0.26	0.71	0.54	0.35
Control Delay	47.9	27.3	5.0	58.0	23.9	34.4	30.8	9.0	41.2	33.9	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.9	27.3	5.0	58.0	23.9	34.4	30.8	9.0	41.2	33.9	5.7
Queue Length 50th (m)	35.7	13.1	0.0	42.1	26.2	60.5	134.1	9.0	15.2	58.9	0.0
Queue Length 95th (m)	54.5	20.5	15.0	67.8	40.8	#138.0	185.9	26.8	#52.8	83.5	18.2
Internal Link Dist (m)		362.3			306.8		579.4			324.4	
Turn Bay Length (m)	88.0		90.0	117.0		97.0		72.0	90.0		171.0
Base Capacity (vph)	285	1871	896	522	1473	549	2394	783	220	1637	653
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.08	0.24	0.39	0.30	0.83	0.82	0.26	0.70	0.54	0.35

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)	203	146	194	189	220	186	421	1808	185	141	820	210
Future Volume (vph)	203	146	194	189	220	186	421	1808	185	141	820	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.0	7.0	7.0	7.0		3.0	6.0	6.0	3.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.96	1.00	0.96		1.00	1.00	0.95	1.00	1.00	0.97
Flpb, ped/bikes	0.99	1.00	1.00	0.98	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.93		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1769	3614	1542	1788	3226		1824	5142	1549	1825	5092	1560
Flt Permitted	0.34	1.00	1.00	0.65	1.00		0.20	1.00	1.00	0.11	1.00	1.00
Satd. Flow (perm)	632	3614	1542	1226	3226		381	5142	1549	212	5092	1560
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)	221	159	211	205	239	202	458	1965	201	153	891	228
RTOR Reduction (vph)	0	0	145	0	137	0	0	0	68	0	0	155
Lane Group Flow (vph)	221	159	66	205	304	0	458	1965	133	153	891	73
Confl. Peds. (#/hr)	81		26	26		81	18		31	31		18
Heavy Vehicles (%)	2%	1%	2%	0%	2%	0%	0%	2%	0%	0%	3%	1%
Turn Type	pm+pt	NA	Perm	Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8			4		5	2		1	6	
Permitted Phases	8		8	4			2		2	6		6
Actuated Green, G (s)	35.2	35.2	35.2	25.2	25.2		64.3	52.4	52.4	45.1	36.2	36.2
Effective Green, g (s)	35.2	35.2	35.2	25.2	25.2		64.3	52.4	52.4	45.1	36.2	36.2
Actuated g/C Ratio	0.31	0.31	0.31	0.22	0.22		0.57	0.47	0.47	0.40	0.32	0.32
Clearance Time (s)	3.0	7.0	7.0	7.0	7.0		3.0	6.0	6.0	3.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	268	1130	482	274	722		539	2395	721	212	1638	501
v/s Ratio Prot	c0.05	0.04			0.09		c0.19	0.38		0.06	0.17	
v/s Ratio Perm	c0.21		0.04	0.17			c0.30		0.09	0.23		0.05
v/c Ratio	0.82	0.14	0.14	0.75	0.42		0.85	0.82	0.18	0.72	0.54	0.15
Uniform Delay, d1	34.4	27.8	27.7	40.7	37.4		20.8	26.0	17.6	24.3	31.4	27.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	18.3	0.1	0.1	10.6	0.4		11.9	3.3	0.6	11.5	1.3	0.6
Delay (s)	52.6	27.8	27.9	51.3	37.8		32.8	29.3	18.1	35.7	32.7	27.8
Level of Service	D	C	C	D	D		C	C	B	D	C	C
Approach Delay (s)		37.1			42.1			29.0			32.2	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	32.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	112.5	Sum of lost time (s)	19.0
Intersection Capacity Utilization	101.9%	ICU Level of Service	G
Analysis Period (min)	15		

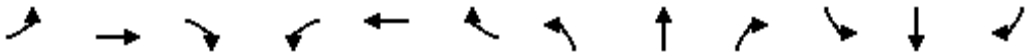
c Critical Lane Group

Appendix B – Future (2031) Background Conditions Synchro Output

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	177	1490	165	915	192	189	551	342	1301
v/c Ratio	0.65	0.87	0.98	0.54	0.29	0.95	0.52	0.81	0.98
Control Delay	38.4	55.6	104.5	42.0	5.4	95.0	45.2	42.3	70.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39.4
Total Delay	38.4	55.6	104.5	42.0	5.4	95.0	45.2	42.3	110.4
Queue Length 50th (m)	32.7	162.1	39.0	84.5	0.0	44.5	73.9	67.6	203.9
Queue Length 95th (m)	49.1	181.8	#87.9	98.9	16.8	#94.2	92.8	#96.7	#250.7
Internal Link Dist (m)		357.5		323.5			293.4		163.5
Turn Bay Length (m)	200.0		212.0			130.0		120.0	
Base Capacity (vph)	272	1710	169	1704	653	198	1058	427	1321
Starvation Cap Reductn	0	0	0	0	0	0	0	0	230
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.87	0.98	0.54	0.29	0.95	0.52	0.80	1.19

Intersection Summary

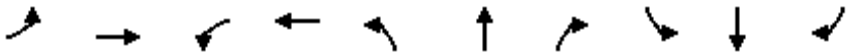
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	163	1265	106	152	842	177	174	435	72	315	1065	132
Future Volume (vph)	163	1265	106	152	842	177	174	435	72	315	1065	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.8		3.0	6.8	6.8	3.0	6.8		3.0	6.8	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	0.95		1.00	*1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1771	4960		1521	4725	1472	1738	3245		1736	3614	
Flt Permitted	0.22	1.00		0.07	1.00	1.00	0.08	1.00		0.31	1.00	
Satd. Flow (perm)	417	4960		111	4725	1472	141	3245		562	3614	
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)	177	1375	115	165	915	192	189	473	78	342	1158	143
RTOR Reduction (vph)	0	6	0	0	0	123	0	8	0	0	6	0
Lane Group Flow (vph)	177	1484	0	165	915	69	189	543	0	342	1295	0
Confl. Peds. (#/hr)	16		58	58		16	39		15	15		39
Heavy Vehicles (%)	3%	4%	4%	20%	11%	8%	5%	7%	26%	5%	4%	4%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	65.7	55.0		71.1	57.7	57.7	65.6	51.8		75.0	58.2	
Effective Green, g (s)	65.7	55.0		71.1	57.7	57.7	65.6	51.8		75.0	58.2	
Actuated g/C Ratio	0.41	0.34		0.44	0.36	0.36	0.41	0.32		0.47	0.36	
Clearance Time (s)	3.0	6.8		3.0	6.8	6.8	3.0	6.8		3.0	6.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	261	1705		167	1703	530	195	1050		411	1314	
v/s Ratio Prot	0.05	0.30		c0.08	0.19		c0.08	0.17		c0.10	c0.36	
v/s Ratio Perm	0.23			c0.36		0.05	0.31			0.28		
v/c Ratio	0.68	0.87		0.99	0.54	0.13	0.97	0.52		0.83	0.99	
Uniform Delay, d1	31.8	49.2		48.1	40.6	34.3	47.5	43.9		30.2	50.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.8	6.4		65.5	1.2	0.5	54.9	0.4		13.4	21.2	
Delay (s)	38.6	55.6		113.5	41.8	34.8	102.3	44.4		43.6	71.6	
Level of Service	D	E		F	D	C	F	D		D	E	
Approach Delay (s)		53.8			50.0			59.2			65.8	
Approach LOS		D			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	57.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	19.6
Intersection Capacity Utilization	121.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	2	4	43	188	1	818	108	870	2239	1
v/c Ratio	0.04	0.03	0.47	0.65	0.01	0.39	0.12	1.18	0.78	0.00
Control Delay	59.0	40.8	77.5	19.1	12.0	14.8	6.5	113.0	9.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
Total Delay	59.0	40.8	77.5	19.1	12.0	14.8	6.5	113.0	9.7	0.0
Queue Length 50th (m)	0.5	0.3	11.4	0.3	0.1	56.6	5.5	~97.4	131.2	0.0
Queue Length 95th (m)	3.4	4.1	24.0	23.4	0.9	76.6	14.5	#232.7	193.4	0.0
Internal Link Dist (m)		223.1		235.9		432.1			347.9	
Turn Bay Length (m)			70.0		41.0		20.0	84.0		
Base Capacity (vph)	167	364	277	497	78	2078	915	737	2878	1306
Starvation Cap Reductn	0	0	0	0	0	0	0	0	178	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.01	0.16	0.38	0.01	0.39	0.12	1.18	0.83	0.00

Intersection Summary

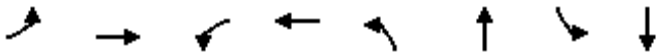
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	2	1	3	40	1	172	1	753	99	800	2060	1
Future Volume (vph)	2	1	3	40	1	172	1	753	99	800	2060	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		8.0	8.0		7.0	7.0	7.0	1.0	7.0	7.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.98		1.00	1.00	0.98	1.00	1.00	1.00
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.89		1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1816	1516		1460	1485		1825	3411	1467	1825	3544	1601
Flt Permitted	0.37	1.00		0.76	1.00		0.07	1.00	1.00	0.30	1.00	1.00
Satd. Flow (perm)	701	1516		1161	1485		129	3411	1467	576	3544	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	1	3	43	1	187	1	818	108	870	2239	1
RTOR Reduction (vph)	0	3	0	0	172	0	0	0	21	0	0	0
Lane Group Flow (vph)	2	1	0	43	16	0	1	818	87	870	2239	1
Confl. Peds. (#/hr)	6					6			1	1		
Heavy Vehicles (%)	0%	50%	0%	25%	0%	8%	0%	7%	9%	0%	3%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		8			4			6		5	2	
Permitted Phases	8			4			6		6	2		2
Actuated Green, G (s)	10.9	10.9		10.9	10.9		84.0	84.0	84.0	112.0	112.0	112.0
Effective Green, g (s)	10.9	10.9		10.9	10.9		84.0	84.0	84.0	114.0	112.0	112.0
Actuated g/C Ratio	0.08	0.08		0.08	0.08		0.61	0.61	0.61	0.83	0.81	0.81
Clearance Time (s)	8.0	8.0		8.0	8.0		7.0	7.0	7.0	3.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	55	119		91	117		78	2077	893	720	2878	1300
v/s Ratio Prot		0.00			0.01			0.24		c0.24	c0.63	
v/s Ratio Perm	0.00			c0.04			0.01		0.06	0.76		0.00
v/c Ratio	0.04	0.01		0.47	0.13		0.01	0.39	0.10	1.21	0.78	0.00
Uniform Delay, d1	58.6	58.5		60.7	59.1		10.6	13.9	11.2	17.3	6.6	2.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.0		3.8	0.5		0.3	0.6	0.2	106.5	2.1	0.0
Delay (s)	58.9	58.6		64.6	59.6		10.9	14.4	11.4	123.9	8.8	2.4
Level of Service	E	E		E	E		B	B	B	F	A	A
Approach Delay (s)		58.7			60.6			14.1			40.9	
Approach LOS		E			E			B			D	

Intersection Summary			
HCM 2000 Control Delay	36.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	137.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	156.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

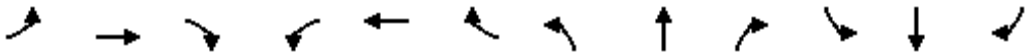


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	41	17	5	5	141	891	25	2141
v/c Ratio	0.35	0.09	0.04	0.03	1.48	0.33	0.05	0.75
Control Delay	55.7	1.1	46.2	35.0	290.3	6.0	2.3	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	55.7	1.1	46.2	35.0	290.3	6.1	2.3	8.6
Queue Length 50th (m)	8.3	0.0	1.0	0.4	~24.7	35.5	0.7	110.6
Queue Length 95th (m)	19.2	0.4	4.6	4.0	#66.3	50.7	2.4	160.9
Internal Link Dist (m)		288.8		65.4		163.5		432.1
Turn Bay Length (m)	50.0		14.0		30.0		71.0	
Base Capacity (vph)	787	917	786	948	95	2678	564	2863
Starvation Cap Reductn	0	0	0	0	0	725	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	0.05	0.02	0.01	0.01	1.48	0.46	0.04	0.75

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



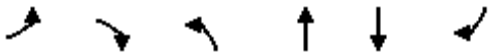
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	0	16	5	2	3	130	809	11	23	1908	62
Future Volume (vph)	38	0	16	5	2	3	130	809	11	23	1908	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.5	8.5		8.5	8.5		5.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.91		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1813	1633		1825	1729		1788	3470		1737	3490	
Flt Permitted	0.75	1.00		0.75	1.00		0.06	1.00		0.30	1.00	
Satd. Flow (perm)	1440	1633		1434	1729		120	3470		541	3490	
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)	41	0	17	5	2	3	141	879	12	25	2074	67
RTOR Reduction (vph)	0	16	0	0	3	0	0	0	0	0	1	0
Lane Group Flow (vph)	41	1	0	5	2	0	141	891	0	25	2140	0
Confl. Peds. (#/hr)	8					8	18		8	8		18
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	5%	0%	5%	4%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	7.5	7.5		7.5	7.5		83.8	83.8		90.4	90.4	
Effective Green, g (s)	7.5	7.5		7.5	7.5		85.8	83.8		90.4	90.4	
Actuated g/C Ratio	0.07	0.07		0.07	0.07		0.76	0.74		0.80	0.80	
Clearance Time (s)	8.5	8.5		8.5	8.5		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)	95	108		94	114		90	2564		469	2782	
v/s Ratio Prot		0.00			0.00			0.26		0.00	c0.61	
v/s Ratio Perm	c0.03			0.00			c1.18			0.04		
v/c Ratio	0.43	0.01		0.05	0.02		1.57	0.35		0.05	0.77	
Uniform Delay, d1	50.9	49.5		49.6	49.5		13.8	5.2		2.6	6.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.1	0.0		0.2	0.1		301.7	0.4		0.0	2.1	
Delay (s)	54.0	49.5		49.9	49.6		315.5	5.6		2.6	8.1	
Level of Service	D	D		D	D		F	A		A	A	
Approach Delay (s)		52.7			49.7			47.9			8.1	
Approach LOS		D			D			D			A	

Intersection Summary			
HCM 2000 Control Delay	21.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.47		
Actuated Cycle Length (s)	113.4	Sum of lost time (s)	18.5
Intersection Capacity Utilization	92.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	178	620	678	1552
v/c Ratio	0.11	0.83	0.33	0.74
Control Delay	16.1	35.1	22.6	29.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	16.1	35.1	22.6	29.7
Queue Length 50th (m)	9.7	101.7	32.7	92.9
Queue Length 95th (m)	18.9	181.2	58.1	153.1
Internal Link Dist (m)	457.7		347.9	320.5
Turn Bay Length (m)		140.0		
Base Capacity (vph)	2521	1176	2896	2980
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	0.07	0.53	0.23	0.52

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	164	570	0	624	1428	0
Future Volume (vph)	164	570	0	624	1428	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	3437	1601		4948	5092	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	3437	1601		4948	5092	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	178	620	0	678	1552	0
RTOR Reduction (vph)	0	3	0	0	0	0
Lane Group Flow (vph)	178	617	0	678	1552	0
Heavy Vehicles (%)	3%	2%	2%	6%	3%	2%
Turn Type	Prot	Prot		NA	NA	
Protected Phases	8	8		2	6	
Permitted Phases						
Actuated Green, G (s)	47.7	47.7		42.0	42.0	
Effective Green, g (s)	47.7	47.7		42.0	42.0	
Actuated g/C Ratio	0.47	0.47		0.41	0.41	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	1612	750		2043	2102	
v/s Ratio Prot	0.05	c0.39		0.14	c0.30	
v/s Ratio Perm						
v/c Ratio	0.11	0.82		0.33	0.74	
Uniform Delay, d1	15.1	23.4		20.3	25.2	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	7.3		0.1	1.4	
Delay (s)	15.1	30.6		20.4	26.6	
Level of Service	B	C		C	C	
Approach Delay (s)	27.2			20.4	26.6	
Approach LOS	C			C	C	

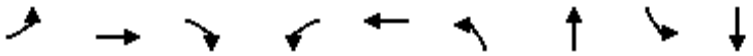
Intersection Summary			
HCM 2000 Control Delay	25.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	101.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	477	189	699	1553
v/c Ratio	0.54	0.34	0.27	0.58
Control Delay	21.6	5.6	8.2	10.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	21.6	5.6	8.2	10.7
Queue Length 50th (m)	21.2	0.0	12.9	35.4
Queue Length 95th (m)	41.5	13.1	23.3	58.9
Internal Link Dist (m)	362.8		320.5	579.4
Turn Bay Length (m)		134.0		
Base Capacity (vph)	2704	1294	4995	5142
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	0.18	0.15	0.14	0.30

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	439	174	643	0	0	1429
Future Volume (vph)	439	174	643	0	0	1429
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0			6.0
Lane Util. Factor	0.97	1.00	0.91			0.91
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3309	1541	4995			5142
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3309	1541	4995			5142
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	477	189	699	0	0	1553
RTOR Reduction (vph)	0	139	0	0	0	0
Lane Group Flow (vph)	477	50	699	0	0	1553
Heavy Vehicles (%)	7%	6%	5%	2%	2%	2%
Turn Type	Prot	Prot	NA			NA
Protected Phases	4	4	2			6
Permitted Phases						
Actuated Green, G (s)	15.2	15.2	29.7			29.7
Effective Green, g (s)	15.2	15.2	29.7			29.7
Actuated g/C Ratio	0.27	0.27	0.52			0.52
Clearance Time (s)	6.0	6.0	6.0			6.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	883	411	2607			2683
v/s Ratio Prot	c0.14	0.03	0.14			c0.30
v/s Ratio Perm						
v/c Ratio	0.54	0.12	0.27			0.58
Uniform Delay, d1	17.9	15.8	7.6			9.3
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	0.7	0.1	0.1			0.3
Delay (s)	18.5	15.9	7.6			9.6
Level of Service	B	B	A			A
Approach Delay (s)	17.8		7.6			9.6
Approach LOS	B		A			A

Intersection Summary			
HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	56.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

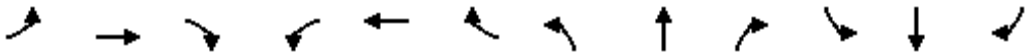


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	270	189	808	251	105	226	736	180	1417
v/c Ratio	0.51	0.13	1.04	0.65	0.10	1.01	0.56	0.52	1.00
Control Delay	31.1	26.3	72.3	49.3	10.6	98.9	34.4	23.5	65.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.1	26.3	72.3	49.3	10.6	98.9	34.4	23.5	65.4
Queue Length 50th (m)	49.0	17.1	~202.0	59.3	2.4	~47.4	81.1	25.8	193.6
Queue Length 95th (m)	71.0	25.4	#279.5	90.7	9.2	#101.7	102.1	39.8	#243.0
Internal Link Dist (m)		362.3			306.8		579.4		324.4
Turn Bay Length (m)	88.0		90.0	117.0		97.0		90.0	
Base Capacity (vph)	528	1442	778	387	1015	224	1324	370	1423
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.13	1.04	0.65	0.10	1.01	0.56	0.49	1.00

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	248	174	743	231	23	74	208	553	124	166	1209	95
Future Volume (vph)	248	174	743	231	23	74	208	553	124	166	1209	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.0	7.0	7.0	7.0		3.0	6.0		3.0	6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	*1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	0.93		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	0.96	1.00	1.00	0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.89		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1709	3544	1588	1768	2925		1807	3357		1768	3680	
Flt Permitted	0.64	1.00	1.00	0.63	1.00		0.07	1.00		0.26	1.00	
Satd. Flow (perm)	1158	3544	1588	1178	2925		139	3357		478	3680	
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)	270	189	808	251	25	80	226	601	135	180	1314	103
RTOR Reduction (vph)	0	0	132	0	54	0	0	13	0	0	4	0
Lane Group Flow (vph)	270	189	676	251	51	0	226	723	0	180	1413	0
Confl. Peds. (#/hr)	72		13	13		72	16		28	28		16
Heavy Vehicles (%)	2%	3%	0%	2%	10%	0%	1%	5%	3%	3%	3%	3%
Turn Type	pm+pt	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8			4		5	2		1	6	
Permitted Phases	8		8	4			2			6		
Actuated Green, G (s)	57.0	57.0	57.0	46.0	46.0		67.7	54.7		66.3	54.0	
Effective Green, g (s)	57.0	57.0	57.0	46.0	46.0		67.7	54.7		66.3	54.0	
Actuated g/C Ratio	0.41	0.41	0.41	0.33	0.33		0.48	0.39		0.47	0.39	
Clearance Time (s)	3.0	7.0	7.0	7.0	7.0		3.0	6.0		3.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	502	1442	646	387	961		222	1311		339	1419	
v/s Ratio Prot	0.03	0.05			0.02		c0.09	0.22		0.05	0.38	
v/s Ratio Perm	0.19		c0.43	0.21			c0.40			0.20		
v/c Ratio	0.54	0.13	1.05	0.65	0.05		1.02	0.55		0.53	1.00	
Uniform Delay, d1	30.9	26.0	41.5	40.1	32.1		43.7	33.1		22.9	42.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.1	0.0	48.3	3.7	0.0		65.1	1.7		1.6	22.9	
Delay (s)	32.0	26.0	89.8	43.8	32.1		108.8	34.8		24.5	65.7	
Level of Service	C	C	F	D	C		F	C		C	E	
Approach Delay (s)		68.0			40.4			52.2			61.1	
Approach LOS		E			D			D			E	

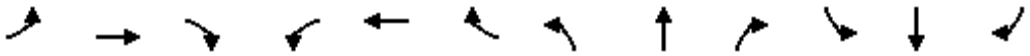
Intersection Summary			
HCM 2000 Control Delay	59.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	113.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	212	1016	134	1610	478	289	1221	165	694
v/c Ratio	0.96	0.60	0.57	0.94	0.73	0.81	0.99	0.90	0.64
Control Delay	93.7	44.0	34.1	63.5	34.1	44.8	73.5	84.8	48.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	93.7	44.0	34.1	63.5	34.1	44.8	73.5	84.8	48.8
Queue Length 50th (m)	51.5	96.7	24.0	182.7	82.3	56.0	202.4	36.8	98.1
Queue Length 95th (m)	#105.0	114.3	37.9	#212.0	127.4	#82.9	#252.5	#81.8	120.4
Internal Link Dist (m)		357.5		323.5			293.4		163.5
Turn Bay Length (m)	200.0		212.0			130.0		120.0	
Base Capacity (vph)	221	1695	256	1705	652	363	1232	183	1079
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.60	0.52	0.94	0.73	0.80	0.99	0.90	0.64

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)	195	874	61	123	1481	440	266	1036	87	152	513	125
Future Volume (vph)	195	874	61	123	1481	440	266	1036	87	152	513	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.8		3.0	6.8	6.8	3.0	6.8		3.0	6.8	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1772	4750		1571	5043	1543	1737	3390		1706	3332	
Flt Permitted	0.07	1.00		0.18	1.00	1.00	0.22	1.00		0.08	1.00	
Satd. Flow (perm)	131	4750		305	5043	1543	396	3390		140	3332	
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)	212	950	66	134	1610	478	289	1126	95	165	558	136
RTOR Reduction (vph)	0	5	0	0	0	130	0	4	0	0	13	0
Lane Group Flow (vph)	212	1011	0	134	1610	348	289	1217	0	165	681	0
Confl. Peds. (#/hr)	27		60	60		27	12		18	18		12
Heavy Vehicles (%)	3%	9%	7%	16%	4%	2%	5%	4%	32%	7%	7%	1%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	72.6	57.0		66.8	54.1	54.1	73.7	58.0		63.9	51.2	
Effective Green, g (s)	72.6	57.0		66.8	54.1	54.1	73.7	58.0		63.9	51.2	
Actuated g/C Ratio	0.45	0.36		0.42	0.34	0.34	0.46	0.36		0.40	0.32	
Clearance Time (s)	3.0	6.8		3.0	6.8	6.8	3.0	6.8		3.0	6.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	219	1692		227	1705	521	345	1228		180	1066	
v/s Ratio Prot	c0.09	0.21		0.05	0.32		c0.10	c0.36		c0.07	0.20	
v/s Ratio Perm	c0.34			0.20		0.23	0.28			0.29		
v/c Ratio	0.97	0.60		0.59	0.94	0.67	0.84	0.99		0.92	0.64	
Uniform Delay, d1	50.0	42.1		31.0	51.5	45.3	30.9	50.7		44.2	46.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	51.1	1.6		4.1	12.1	6.6	16.1	23.5		43.6	1.3	
Delay (s)	101.1	43.7		35.1	63.6	51.9	47.0	74.2		87.7	47.8	
Level of Service	F	D		D	E	D	D	E		F	D	
Approach Delay (s)		53.6			59.3			69.0			55.4	
Approach LOS		D			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	60.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	19.6
Intersection Capacity Utilization	117.9%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	1	199	888	2	1999	100	254	1099
v/c Ratio	0.00	0.50	1.63	0.01	1.00	0.12	1.76	0.51
Control Delay	0.0	51.3	322.6	18.0	56.9	9.3	398.0	19.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	51.3	322.6	18.0	56.9	9.3	398.0	19.0
Queue Length 50th (m)	0.0	52.4	~382.1	0.3	310.3	6.8	~104.6	100.9
Queue Length 95th (m)	0.0	78.6	#462.8	1.8	#366.4	16.5	#162.0	118.2
Internal Link Dist (m)	223.1		235.9		432.1			347.9
Turn Bay Length (m)		70.0		41.0		20.0	84.0	
Base Capacity (vph)	542	399	545	231	2001	807	144	2148
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	0.00	0.50	1.63	0.01	1.00	0.12	1.76	0.51

Intersection Summary

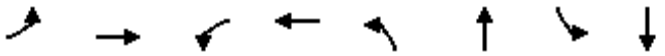
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	0	0	1	183	0	817	2	1839	92	234	1011	0
Future Volume (vph)	0	0	1	183	0	817	2	1839	92	234	1011	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0		8.0	8.0		7.0	7.0	7.0	3.0	7.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	*1.00	1.00	1.00	0.95	
Frpb, ped/bikes		0.97		1.00	0.98		1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00		0.98	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		0.85		1.00	0.85		1.00	1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1581		1671	1563		1824	3767	1471	1738	3544	
Flt Permitted		1.00		0.76	1.00		0.23	1.00	1.00	0.05	1.00	
Satd. Flow (perm)		1581		1332	1563		435	3767	1471	83	3544	
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)	0	0	1	199	0	888	2	1999	100	254	1099	0
RTOR Reduction (vph)	0	1	0	0	77	0	0	0	26	0	0	0
Lane Group Flow (vph)	0	0	0	199	811	0	2	1999	74	254	1099	0
Confl. Peds. (#/hr)	8		14	14		8	3					3
Heavy Vehicles (%)	0%	0%	0%	7%	0%	2%	0%	2%	11%	5%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		8			4			6		5	2	
Permitted Phases	8			4			6		6	2		2
Actuated Green, G (s)		48.0		48.0	48.0		85.0	85.0	85.0	97.0	97.0	
Effective Green, g (s)		48.0		48.0	48.0		85.0	85.0	85.0	97.0	97.0	
Actuated g/C Ratio		0.30		0.30	0.30		0.53	0.53	0.53	0.61	0.61	
Clearance Time (s)		8.0		8.0	8.0		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)		474		399	468		231	2001	781	143	2148	
v/s Ratio Prot		0.00			c0.52			0.53		c0.10	0.31	
v/s Ratio Perm				0.15			0.00		0.05	c0.97		
v/c Ratio		0.00		0.50	1.73		0.01	1.00	0.10	1.78	0.51	
Uniform Delay, d1		39.2		46.1	56.0		17.7	37.5	18.5	53.3	18.0	
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.0		1.0	338.7		0.1	19.9	0.2	376.1	0.9	
Delay (s)		39.2		47.1	394.7		17.7	57.3	18.8	429.3	18.9	
Level of Service		D		D	F		B	E	B	F	B	
Approach Delay (s)		39.2			331.0			55.5			95.9	
Approach LOS		D			F			E			F	

Intersection Summary			
HCM 2000 Control Delay	133.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.79		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	205.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

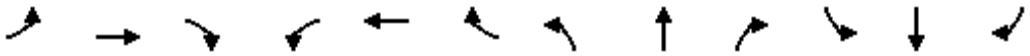


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	546	144	12	6	16	2086	10	977
v/c Ratio	1.00	0.21	0.03	0.01	0.07	1.12	0.09	0.54
Control Delay	87.9	12.4	31.7	19.3	23.9	97.3	17.9	26.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0
Total Delay	87.9	12.4	31.7	19.3	23.9	98.0	17.9	26.4
Queue Length 50th (m)	~173.9	9.4	2.4	0.2	2.5	~364.6	1.4	105.4
Queue Length 95th (m)	#251.9	25.0	7.1	3.6	7.8	#438.4	4.5	124.8
Internal Link Dist (m)		288.8		65.4		163.5		432.1
Turn Bay Length (m)	50.0		14.0		30.0		71.0	
Base Capacity (vph)	545	672	454	494	218	1870	158	1811
Starvation Cap Reductn	0	0	0	0	0	394	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	1.00	0.21	0.03	0.01	0.07	1.41	0.06	0.54

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

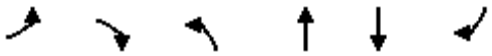


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	502	3	130	11	1	5	15	1918	1	9	843	56
Future Volume (vph)	502	3	130	11	1	5	15	1918	1	9	843	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.5	8.5		8.5	8.5		7.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	*1.00		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.88		1.00	1.00		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)	1816	1618		1723	1300		1813	3730		1825	3443	
Flt Permitted	0.75	1.00		0.66	1.00		0.23	1.00		0.05	1.00	
Satd. Flow (perm)	1441	1618		1200	1300		436	3730		92	3443	
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)	546	3	141	12	1	5	16	2085	1	10	916	61
RTOR Reduction (vph)	0	61	0	0	3	0	0	0	0	0	3	0
Lane Group Flow (vph)	546	83	0	12	3	0	16	2086	0	10	974	0
Confl. Peds. (#/hr)	4		1	1		4	19		30	30		19
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	0%	3%	0%	0%	5%	0%
Bus Blockages (#/hr)	0	0	0	9	50	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	60.5	60.5		60.5	60.5		80.2	80.2		85.8	85.8	
Effective Green, g (s)	60.5	60.5		60.5	60.5		80.2	80.2		85.8	85.8	
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.50	0.50		0.53	0.53	
Clearance Time (s)	8.5	8.5		8.5	8.5		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)	538	605		448	486		216	1848		76	1825	
v/s Ratio Prot		0.05			0.00			c0.56		0.00	c0.28	
v/s Ratio Perm	c0.38			0.01			0.04			0.07		
v/c Ratio	1.01	0.14		0.03	0.01		0.07	1.13		0.13	0.53	
Uniform Delay, d1	50.7	33.4		32.0	31.8		21.4	40.8		37.4	24.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	42.6	0.1		0.0	0.0		0.7	65.5		0.8	1.1	
Delay (s)	93.2	33.5		32.1	31.8		22.0	106.3		38.2	26.0	
Level of Service	F	C		C	C		C	F		D	C	
Approach Delay (s)		80.8			32.0			105.7			26.1	
Approach LOS		F			C			F			C	

Intersection Summary			
HCM 2000 Control Delay	80.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	161.8	Sum of lost time (s)	18.5
Intersection Capacity Utilization	100.4%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	102	53	1892	877
v/c Ratio	0.20	0.22	0.51	0.25
Control Delay	23.8	10.8	5.5	4.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	23.8	10.8	5.5	4.0
Queue Length 50th (m)	4.5	0.0	32.4	11.5
Queue Length 95th (m)	11.9	8.5	44.2	16.8
Internal Link Dist (m)	457.7		347.9	320.5
Turn Bay Length (m)		140.0		
Base Capacity (vph)	1475	596	5142	4948
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	0.07	0.09	0.37	0.18

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	94	49	0	1741	807	0
Future Volume (vph)	94	49	0	1741	807	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	3372	1296		5142	4948	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	3372	1296		5142	4948	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	102	53	0	1892	877	0
RTOR Reduction (vph)	0	47	0	0	0	0
Lane Group Flow (vph)	102	6	0	1892	877	0
Heavy Vehicles (%)	5%	26%	2%	2%	6%	2%
Turn Type	Prot	Prot		NA	NA	
Protected Phases	8	8		2	6	
Permitted Phases						
Actuated Green, G (s)	6.3	6.3		38.5	38.5	
Effective Green, g (s)	6.3	6.3		38.5	38.5	
Actuated g/C Ratio	0.11	0.11		0.68	0.68	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	374	143		3485	3353	
v/s Ratio Prot	c0.03	0.00		c0.37	0.18	
v/s Ratio Perm						
v/c Ratio	0.27	0.04		0.54	0.26	
Uniform Delay, d1	23.1	22.6		4.7	3.6	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.1		0.2	0.0	
Delay (s)	23.5	22.7		4.8	3.6	
Level of Service	C	C		A	A	
Approach Delay (s)	23.2			4.8	3.6	
Approach LOS	C			A	A	

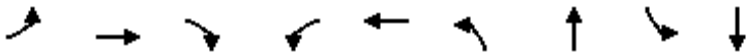
Intersection Summary			
HCM 2000 Control Delay	5.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	56.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	238	302	1587	902
v/c Ratio	0.27	0.62	0.61	0.35
Control Delay	19.0	25.3	12.5	10.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	19.0	25.3	12.5	10.0
Queue Length 50th (m)	10.3	26.6	42.0	20.0
Queue Length 95th (m)	23.0	61.8	75.6	37.9
Internal Link Dist (m)	362.8		320.5	579.4
Turn Bay Length (m)		134.0		
Base Capacity (vph)	2458	1317	4981	4933
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	0.10	0.23	0.32	0.18

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	219	278	1460	0	0	830
Future Volume (vph)	219	278	1460	0	0	830
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0			6.0
Lane Util. Factor	0.97	1.00	0.91			0.91
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3026	1617	5142			5092
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3026	1617	5142			5092
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	238	302	1587	0	0	902
RTOR Reduction (vph)	0	14	0	0	0	0
Lane Group Flow (vph)	238	288	1587	0	0	902
Heavy Vehicles (%)	17%	1%	2%	2%	2%	3%
Turn Type	Prot	Prot	NA			NA
Protected Phases	4	4	2			6
Permitted Phases						
Actuated Green, G (s)	18.3	18.3	31.8			31.8
Effective Green, g (s)	18.3	18.3	31.8			31.8
Actuated g/C Ratio	0.29	0.29	0.51			0.51
Clearance Time (s)	6.0	6.0	6.0			6.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	891	476	2633			2607
v/s Ratio Prot	0.08	c0.18	c0.31			0.18
v/s Ratio Perm						
v/c Ratio	0.27	0.60	0.60			0.35
Uniform Delay, d1	16.8	18.8	10.7			9.0
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	0.2	2.2	0.4			0.1
Delay (s)	16.9	21.0	11.1			9.1
Level of Service	B	C	B			A
Approach Delay (s)	19.2		11.1			9.1
Approach LOS	B		B			A

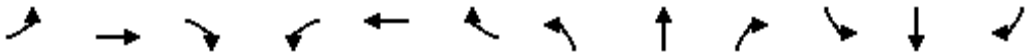
Intersection Summary			
HCM 2000 Control Delay	11.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	62.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	237	171	226	221	473	490	1620	164	882
v/c Ratio	0.92	0.15	0.36	0.83	0.58	0.92	0.93	0.85	0.78
Control Delay	75.6	32.3	5.6	73.3	32.3	54.7	40.7	68.4	43.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.6	32.3	5.6	73.3	32.3	54.7	40.7	68.4	43.9
Queue Length 50th (m)	45.6	16.5	0.0	53.7	38.1	97.6	201.3	24.4	105.1
Queue Length 95th (m)	#87.0	25.2	17.4	83.5	55.1	#170.5	#271.3	#69.5	136.6
Internal Link Dist (m)		362.3			306.8		579.4		324.4
Turn Bay Length (m)	88.0		90.0	117.0		97.0		90.0	
Base Capacity (vph)	257	1297	696	330	986	546	1750	192	1132
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.13	0.32	0.67	0.48	0.90	0.93	0.85	0.78

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)	218	157	208	203	236	199	451	1293	198	151	586	225
Future Volume (vph)	218	157	208	203	236	199	451	1293	198	151	586	225
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.0	7.0	7.0	7.0		3.0	6.0		3.0	6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	0.95		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	0.99	1.00	1.00	0.98	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.93		1.00	0.98		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1772	3614	1537	1784	3211		1825	3490		1825	3378	
Flt Permitted	0.30	1.00	1.00	0.64	1.00		0.13	1.00		0.10	1.00	
Satd. Flow (perm)	551	3614	1537	1209	3211		247	3490		183	3378	
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)	237	171	226	221	257	216	490	1405	215	164	637	245
RTOR Reduction (vph)	0	0	157	0	119	0	0	9	0	0	29	0
Lane Group Flow (vph)	237	171	69	221	354	0	490	1611	0	164	853	0
Confl. Peds. (#/hr)	81		26	26		81	18		31	31		18
Heavy Vehicles (%)	2%	1%	2%	0%	2%	0%	0%	2%	0%	0%	3%	1%
Turn Type	pm+pt	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8			4		5	2		1	6	
Permitted Phases	8		8	4			2			6		
Actuated Green, G (s)	39.3	39.3	39.3	28.3	28.3		76.2	64.2		51.0	42.0	
Effective Green, g (s)	39.3	39.3	39.3	28.3	28.3		76.2	64.2		51.0	42.0	
Actuated g/C Ratio	0.31	0.31	0.31	0.22	0.22		0.59	0.50		0.40	0.33	
Clearance Time (s)	3.0	7.0	7.0	7.0	7.0		3.0	6.0		3.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	244	1105	470	266	707		529	1743		187	1104	
v/s Ratio Prot	c0.06	0.05			0.11		c0.22	0.46		0.06	0.25	
v/s Ratio Perm	c0.24		0.04	0.18			c0.32			0.29		
v/c Ratio	0.97	0.15	0.15	0.83	0.50		0.93	0.92		0.88	0.77	
Uniform Delay, d1	42.4	32.5	32.4	47.8	43.9		34.0	29.9		30.3	39.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	49.3	0.1	0.1	19.3	0.6		22.3	9.8		33.8	5.3	
Delay (s)	91.7	32.6	32.6	67.1	44.5		56.3	39.7		64.1	44.2	
Level of Service	F	C	C	E	D		E	D		E	D	
Approach Delay (s)		54.7			51.7			43.6			47.3	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	47.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	128.5	Sum of lost time (s)	19.0
Intersection Capacity Utilization	108.6%	ICU Level of Service	G
Analysis Period (min)	15		

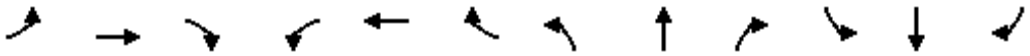
c Critical Lane Group

Appendix C – Future (2031) Total Conditions Synchro Output

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	186	1490	165	915	198	189	652	343	1331
v/c Ratio	0.69	0.89	0.97	0.56	0.31	0.95	0.60	0.88	0.99
Control Delay	41.1	57.8	102.7	43.7	5.7	94.7	46.9	50.5	70.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39.0
Total Delay	41.1	57.8	102.7	43.7	5.7	94.7	46.9	50.5	109.7
Queue Length 50th (m)	35.1	164.1	38.8	86.3	0.0	44.2	90.2	66.7	208.7
Queue Length 95th (m)	52.2	183.9	#87.6	100.9	17.4	#93.7	111.2	#111.6	#256.2
Internal Link Dist (m)		357.5		323.5			293.4		163.5
Turn Bay Length (m)	200.0		212.0			130.0		120.0	
Base Capacity (vph)	272	1673	170	1646	641	198	1084	391	1348
Starvation Cap Reductn	0	0	0	0	0	0	0	0	243
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.89	0.97	0.56	0.31	0.95	0.60	0.88	1.20

Intersection Summary

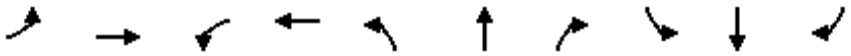
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	171	1265	106	152	842	182	174	528	72	316	1090	134
Future Volume (vph)	171	1265	106	152	842	182	174	528	72	316	1090	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.8		3.0	6.8	6.8	3.0	6.8		3.0	6.8	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	*0.95		1.00	*1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1771	4960		1521	4725	1472	1738	3270		1737	3615	
Flt Permitted	0.22	1.00		0.07	1.00	1.00	0.08	1.00		0.25	1.00	
Satd. Flow (perm)	402	4960		115	4725	1472	139	3270		454	3615	
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)	186	1375	115	165	915	198	189	574	78	343	1185	146
RTOR Reduction (vph)	0	6	0	0	0	129	0	7	0	0	6	0
Lane Group Flow (vph)	186	1484	0	165	915	69	189	645	0	343	1325	0
Confl. Peds. (#/hr)	16		58	58		16	39		15	15		39
Heavy Vehicles (%)	3%	4%	4%	20%	11%	8%	5%	7%	26%	5%	4%	4%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	65.2	53.8		69.2	55.8	55.8	66.5	52.7		76.2	59.4	
Effective Green, g (s)	65.2	53.8		69.2	55.8	55.8	66.5	52.7		76.2	59.4	
Actuated g/C Ratio	0.41	0.34		0.43	0.35	0.35	0.42	0.33		0.48	0.37	
Clearance Time (s)	3.0	6.8		3.0	6.8	6.8	3.0	6.8		3.0	6.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	261	1667		167	1647	513	195	1077		380	1342	
v/s Ratio Prot	0.05	0.30		c0.08	0.19		c0.08	0.20		c0.12	c0.37	
v/s Ratio Perm	0.24			c0.34		0.05	0.32			0.31		
v/c Ratio	0.71	0.89		0.99	0.56	0.13	0.97	0.60		0.90	0.99	
Uniform Delay, d1	32.4	50.3		47.8	42.1	35.6	47.7	44.8		30.2	49.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.9	7.6		65.5	1.4	0.5	54.9	0.9		23.9	21.3	
Delay (s)	41.3	57.9		113.3	43.4	36.1	102.6	45.7		54.0	71.2	
Level of Service	D	E		F	D	D	F	D		D	E	
Approach Delay (s)		56.1			51.3			58.5			67.7	
Approach LOS		E			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	58.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	19.6
Intersection Capacity Utilization	121.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

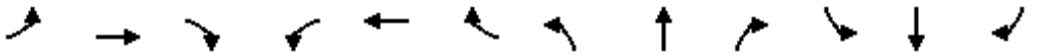


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	16	19	43	188	115	818	108	870	2254	1
v/c Ratio	0.29	0.14	0.47	0.65	1.53	0.33	0.10	1.39	0.79	0.00
Control Delay	71.7	35.6	76.6	18.9	322.2	7.6	3.4	198.5	9.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
Total Delay	71.7	35.6	76.6	18.9	322.2	7.6	3.4	198.5	10.0	0.0
Queue Length 50th (m)	4.1	1.8	11.2	0.3	~22.6	37.4	3.7	~138.4	133.6	0.0
Queue Length 95th (m)	11.8	9.8	24.0	23.3	#65.4	53.2	10.1	#284.5	197.7	0.0
Internal Link Dist (m)		223.1		235.9		432.1			143.0	
Turn Bay Length (m)			70.0		41.0		20.0	84.0		
Base Capacity (vph)	180	422	294	521	75	2459	1073	626	2869	1302
Starvation Cap Reductn	0	0	0	0	0	0	0	0	161	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.05	0.15	0.36	1.53	0.33	0.10	1.39	0.83	0.00

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

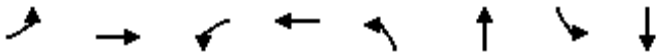
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	1	17	40	1	172	106	753	99	800	2074	1
Future Volume (vph)	15	1	17	40	1	172	106	753	99	800	2074	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		8.0	8.0		7.0	7.0	7.0	1.0	7.0	7.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	*0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.98		1.00	1.00	0.98	1.00	1.00	1.00
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.86		1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1816	1606		1460	1485		1825	3411	1467	1825	3544	1601
Flt Permitted	0.37	1.00		0.75	1.00		0.05	1.00	1.00	0.32	1.00	1.00
Satd. Flow (perm)	701	1606		1145	1485		105	3411	1467	621	3544	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	1	18	43	1	187	115	818	108	870	2254	1
RTOR Reduction (vph)	0	11	0	0	172	0	0	0	15	0	0	0
Lane Group Flow (vph)	16	8	0	43	16	0	115	818	93	870	2254	1
Confl. Peds. (#/hr)	6					6			1	1		
Heavy Vehicles (%)	0%	50%	0%	25%	0%	8%	0%	7%	9%	0%	3%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		8			4			6		5	2	
Permitted Phases	8			4			6		6	2		2
Actuated Green, G (s)	10.9	10.9		10.9	10.9		98.0	98.0	98.0	110.0	110.0	110.0
Effective Green, g (s)	10.9	10.9		10.9	10.9		98.0	98.0	98.0	112.0	110.0	110.0
Actuated g/C Ratio	0.08	0.08		0.08	0.08		0.72	0.72	0.72	0.82	0.81	0.81
Clearance Time (s)	8.0	8.0		8.0	8.0		7.0	7.0	7.0	3.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	56	128		91	119		75	2459	1057	609	2868	1295
v/s Ratio Prot		0.00			0.01			0.24		c0.12	0.64	
v/s Ratio Perm	0.02			c0.04			c1.10		0.06	1.06		0.00
v/c Ratio	0.29	0.06		0.47	0.13		1.53	0.33	0.09	1.43	0.79	0.00
Uniform Delay, d1	58.8	57.8		59.8	58.1		19.0	7.0	5.6	6.1	6.8	2.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.8	0.2		3.8	0.5		296.0	0.4	0.2	202.3	2.3	0.0
Delay (s)	61.6	58.0		63.6	58.6		314.9	7.3	5.8	208.4	9.0	2.5
Level of Service	E	E		E	E		F	A	A	F	A	A
Approach Delay (s)		59.7			59.6			41.1			64.5	
Approach LOS		E			E			D			E	

Intersection Summary			
HCM 2000 Control Delay	58.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.40		
Actuated Cycle Length (s)	135.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	156.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

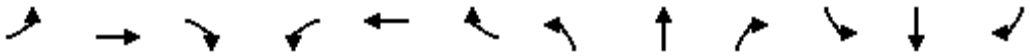


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	41	17	5	5	141	1005	25	2171
v/c Ratio	0.35	0.09	0.04	0.03	1.60	0.38	0.05	0.76
Control Delay	55.7	1.1	46.2	35.0	335.8	6.3	2.4	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	55.7	1.1	46.2	35.0	335.8	6.5	2.4	8.9
Queue Length 50th (m)	8.3	0.0	1.0	0.4	~27.2	42.0	0.7	115.3
Queue Length 95th (m)	19.2	0.4	4.6	4.0	#68.8	59.4	2.4	167.4
Internal Link Dist (m)		288.8		65.4		163.5		432.1
Turn Bay Length (m)	50.0		14.0		30.0		71.0	
Base Capacity (vph)	787	917	786	948	88	2678	512	2863
Starvation Cap Reductn	0	0	0	0	0	691	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	0.05	0.02	0.01	0.01	1.60	0.51	0.05	0.76

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	38	0	16	5	2	3	130	914	11	23	1936	62
Future Volume (vph)	38	0	16	5	2	3	130	914	11	23	1936	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.5	8.5		8.5	8.5		5.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	*0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.91		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1813	1633		1825	1729		1788	3471		1737	3490	
Flt Permitted	0.75	1.00		0.75	1.00		0.06	1.00		0.26	1.00	
Satd. Flow (perm)	1440	1633		1434	1729		113	3471		472	3490	
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)	41	0	17	5	2	3	141	993	12	25	2104	67
RTOR Reduction (vph)	0	16	0	0	3	0	0	0	0	0	1	0
Lane Group Flow (vph)	41	1	0	5	2	0	141	1005	0	25	2170	0
Confl. Peds. (#/hr)	8					8	18		8	8		18
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	5%	0%	5%	4%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	7.5	7.5		7.5	7.5		83.8	83.8		90.4	90.4	
Effective Green, g (s)	7.5	7.5		7.5	7.5		85.8	83.8		90.4	90.4	
Actuated g/C Ratio	0.07	0.07		0.07	0.07		0.76	0.74		0.80	0.80	
Clearance Time (s)	8.5	8.5		8.5	8.5		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)	95	108		94	114		85	2564		416	2782	
v/s Ratio Prot		0.00			0.00			0.29		0.00	c0.62	
v/s Ratio Perm	c0.03			0.00			c1.24			0.05		
v/c Ratio	0.43	0.01		0.05	0.02		1.66	0.39		0.06	0.78	
Uniform Delay, d1	50.9	49.5		49.6	49.5		13.8	5.4		2.7	6.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.1	0.0		0.2	0.1		342.6	0.5		0.1	2.2	
Delay (s)	54.0	49.5		49.9	49.6		356.4	5.9		2.7	8.4	
Level of Service	D	D		D	D		F	A		A	A	
Approach Delay (s)		52.7			49.7			49.0			8.3	
Approach LOS		D			D			D			A	

Intersection Summary			
HCM 2000 Control Delay	22.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.56		
Actuated Cycle Length (s)	113.4	Sum of lost time (s)	18.5
Intersection Capacity Utilization	92.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

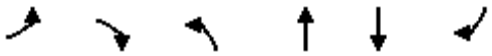
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	1809	49	0	865	0	14
Future Volume (Veh/h)	1809	49	0	865	0	14
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1966	53	0	940	0	15
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised			Raised		
Median storage veh)	1			1		
Upstream signal (m)	205			167		
pX, platoon unblocked			0.75		0.76	0.75
vC, conflicting volume			2019		2279	655
vC1, stage 1 conf vol					1966	
vC2, stage 2 conf vol					313	
vCu, unblocked vol			1172		1288	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	98
cM capacity (veh/h)			441		181	808

Direction, Lane #	SE 1	SE 2	SE 3	SE 4	NW 1	NW 2	NW 3	NE 1
Volume Total	655	655	655	53	313	313	313	15
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	53	0	0	0	15
cSH	1700	1700	1700	1700	1700	1700	1700	808
Volume to Capacity	0.39	0.39	0.39	0.03	0.18	0.18	0.18	0.02
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5
Lane LOS								A
Approach Delay (s)	0.0				0.0			9.5
Approach LOS								A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	45.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	178	620	692	1605
v/c Ratio	0.11	0.84	0.33	0.75
Control Delay	16.9	36.9	22.5	29.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	16.9	36.9	22.5	29.9
Queue Length 50th (m)	10.3	107.5	34.3	100.3
Queue Length 95th (m)	19.2	184.0	58.4	158.0
Internal Link Dist (m)	457.7		181.0	320.5
Turn Bay Length (m)		140.0		
Base Capacity (vph)	2450	1143	2859	2942
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	0.07	0.54	0.24	0.55

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	164	570	0	637	1477	0
Future Volume (vph)	164	570	0	637	1477	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	3437	1601		4948	5092	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	3437	1601		4948	5092	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	178	620	0	692	1605	0
RTOR Reduction (vph)	0	3	0	0	0	0
Lane Group Flow (vph)	178	617	0	692	1605	0
Heavy Vehicles (%)	3%	2%	2%	6%	3%	2%
Turn Type	Prot	Prot		NA	NA	
Protected Phases	8	8		2	6	
Permitted Phases						
Actuated Green, G (s)	48.4	48.4		44.0	44.0	
Effective Green, g (s)	48.4	48.4		44.0	44.0	
Actuated g/C Ratio	0.46	0.46		0.42	0.42	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	1593	742		2085	2146	
v/s Ratio Prot	0.05	c0.39		0.14	c0.32	
v/s Ratio Perm						
v/c Ratio	0.11	0.83		0.33	0.75	
Uniform Delay, d1	15.8	24.4		20.3	25.5	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	7.9		0.1	1.5	
Delay (s)	15.9	32.4		20.4	27.0	
Level of Service	B	C		C	C	
Approach Delay (s)	28.7			20.4	27.0	
Approach LOS	C			C	C	

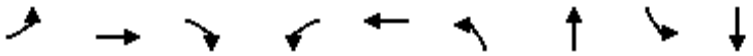
Intersection Summary			
HCM 2000 Control Delay	25.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	104.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	477	189	713	1607
v/c Ratio	0.56	0.35	0.27	0.59
Control Delay	22.7	5.8	8.0	10.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	22.7	5.8	8.0	10.6
Queue Length 50th (m)	22.4	0.0	13.3	37.5
Queue Length 95th (m)	43.5	13.7	23.9	62.0
Internal Link Dist (m)	362.8		320.5	579.4
Turn Bay Length (m)		134.0		
Base Capacity (vph)	2541	1227	4995	5142
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	0.19	0.15	0.14	0.31

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	439	174	656	0	0	1478
Future Volume (vph)	439	174	656	0	0	1478
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0			6.0
Lane Util. Factor	0.97	1.00	0.91			0.91
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3309	1541	4995			5142
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3309	1541	4995			5142
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	477	189	713	0	0	1607
RTOR Reduction (vph)	0	140	0	0	0	0
Lane Group Flow (vph)	477	49	713	0	0	1607
Heavy Vehicles (%)	7%	6%	5%	2%	2%	2%
Turn Type	Prot	Prot	NA			NA
Protected Phases	4	4	2			6
Permitted Phases						
Actuated Green, G (s)	15.4	15.4	31.5			31.5
Effective Green, g (s)	15.4	15.4	31.5			31.5
Actuated g/C Ratio	0.26	0.26	0.53			0.53
Clearance Time (s)	6.0	6.0	6.0			6.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	865	402	2671			2749
v/s Ratio Prot	c0.14	0.03	0.14			c0.31
v/s Ratio Perm						
v/c Ratio	0.55	0.12	0.27			0.58
Uniform Delay, d1	18.8	16.6	7.4			9.3
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	0.8	0.1	0.1			0.3
Delay (s)	19.5	16.7	7.5			9.6
Level of Service	B	B	A			A
Approach Delay (s)	18.7		7.5			9.6
Approach LOS	B		A			A

Intersection Summary			
HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	58.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	270	189	808	251	105	226	750	180	1470
v/c Ratio	0.52	0.13	1.06	0.66	0.11	1.07	0.56	0.51	1.00
Control Delay	32.0	27.0	81.0	51.0	10.8	116.4	34.1	22.8	64.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.0	27.0	81.0	51.0	10.8	116.4	34.1	22.8	64.0
Queue Length 50th (m)	49.7	17.3	~209.0	60.0	2.4	~52.3	82.1	25.4	200.5
Queue Length 95th (m)	71.9	25.7	#286.5	91.7	9.3	#106.0	104.5	39.2	#250.6
Internal Link Dist (m)		362.3			306.8		579.4		324.4
Turn Bay Length (m)	88.0		90.0	117.0		97.0		90.0	
Base Capacity (vph)	519	1417	760	378	994	212	1342	382	1476
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.13	1.06	0.66	0.11	1.07	0.56	0.47	1.00

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	248	174	743	231	23	74	208	566	124	166	1258	95
Future Volume (vph)	248	174	743	231	23	74	208	566	124	166	1258	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.0	7.0	7.0	7.0		3.0	6.0		3.0	6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	*1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	0.93		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	0.96	1.00	1.00	0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.89		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1709	3544	1588	1768	2925		1807	3360		1768	3681	
Flt Permitted	0.64	1.00	1.00	0.63	1.00		0.07	1.00		0.25	1.00	
Satd. Flow (perm)	1157	3544	1588	1178	2925		137	3360		459	3681	
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)	270	189	808	251	25	80	226	615	135	180	1367	103
RTOR Reduction (vph)	0	0	125	0	54	0	0	13	0	0	4	0
Lane Group Flow (vph)	270	189	683	251	51	0	226	737	0	180	1466	0
Confl. Peds. (#/hr)	72		13	13		72	16		28	28		16
Heavy Vehicles (%)	2%	3%	0%	2%	10%	0%	1%	5%	3%	3%	3%	3%
Turn Type	pm+pt	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8			4		5	2		1	6	
Permitted Phases	8		8	4			2			6		
Actuated Green, G (s)	56.0	56.0	56.0	45.0	45.0		67.4	55.4		68.6	56.0	
Effective Green, g (s)	56.0	56.0	56.0	45.0	45.0		67.4	55.4		68.6	56.0	
Actuated g/C Ratio	0.40	0.40	0.40	0.32	0.32		0.48	0.40		0.49	0.40	
Clearance Time (s)	3.0	7.0	7.0	7.0	7.0		3.0	6.0		3.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	494	1417	635	378	940		209	1329		342	1472	
v/s Ratio Prot	0.03	0.05			0.02		c0.09	0.22		c0.05	0.40	
v/s Ratio Perm	0.19		c0.43	0.21			c0.43			0.21		
v/c Ratio	0.55	0.13	1.07	0.66	0.05		1.08	0.55		0.53	1.00	
Uniform Delay, d1	31.7	26.6	42.0	41.0	32.8		43.0	32.8		21.9	41.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	0.0	57.6	4.4	0.0		85.6	1.7		1.5	22.5	
Delay (s)	32.9	26.7	99.6	45.3	32.8		128.6	34.4		23.4	64.4	
Level of Service	C	C	F	D	C		F	C		C	E	
Approach Delay (s)		74.5			41.6			56.2			59.9	
Approach LOS		E			D			E			E	

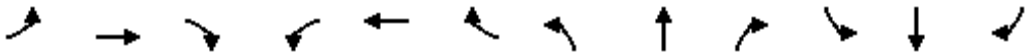
Intersection Summary			
HCM 2000 Control Delay	61.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	114.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	214	1016	134	1610	479	289	1249	170	783
v/c Ratio	1.00	0.59	0.57	0.92	0.72	0.92	0.98	0.94	0.73
Control Delay	103.8	42.8	33.0	58.9	33.4	63.1	69.9	94.0	52.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
Total Delay	103.8	42.8	33.0	58.9	33.4	63.1	69.9	94.0	53.2
Queue Length 50th (m)	52.5	95.5	23.6	179.5	82.8	56.8	195.2	38.3	114.8
Queue Length 95th (m)	#108.4	112.8	37.4	200.1	127.4	#110.9	#241.0	#86.2	138.9
Internal Link Dist (m)		357.5		323.5			293.4		163.5
Turn Bay Length (m)	200.0		212.0			130.0		120.0	
Base Capacity (vph)	215	1732	259	1758	663	314	1281	180	1067
Starvation Cap Reductn	0	0	0	0	0	0	0	0	83
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.00	0.59	0.52	0.92	0.72	0.92	0.98	0.94	0.80

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)	197	874	61	123	1481	441	266	1062	87	156	590	131
Future Volume (vph)	197	874	61	123	1481	441	266	1062	87	156	590	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.8		3.0	6.8	6.8	3.0	6.8		3.0	6.8	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	*1.00		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1772	4750		1571	5043	1543	1738	3571		1706	3338	
Flt Permitted	0.07	1.00		0.19	1.00	1.00	0.17	1.00		0.08	1.00	
Satd. Flow (perm)	128	4750		308	5043	1543	302	3571		142	3338	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	214	950	66	134	1610	479	289	1154	95	170	641	142
RTOR Reduction (vph)	0	4	0	0	0	125	0	4	0	0	12	0
Lane Group Flow (vph)	214	1012	0	134	1610	354	289	1245	0	170	771	0
Confl. Peds. (#/hr)	27		60	60		27	12		18	18		12
Heavy Vehicles (%)	3%	9%	7%	16%	4%	2%	5%	4%	32%	7%	7%	1%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	73.2	58.2		68.4	55.8	55.8	72.6	57.2		63.0	50.6	
Effective Green, g (s)	73.2	58.2		68.4	55.8	55.8	72.6	57.2		63.0	50.6	
Actuated g/C Ratio	0.46	0.36		0.43	0.35	0.35	0.45	0.36		0.39	0.32	
Clearance Time (s)	3.0	6.8		3.0	6.8	6.8	3.0	6.8		3.0	6.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	212	1727		231	1758	538	307	1276		177	1055	
v/s Ratio Prot	c0.09	0.21		0.05	0.32		c0.11	c0.35		0.07	0.23	
v/s Ratio Perm	c0.37			0.20		0.23	0.31			0.30		
v/c Ratio	1.01	0.59		0.58	0.92	0.66	0.94	0.98		0.96	0.73	
Uniform Delay, d1	50.4	41.2		30.0	49.9	44.0	33.3	50.7		45.1	48.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	64.3	1.5		3.7	9.0	6.2	36.0	19.4		55.9	2.6	
Delay (s)	114.7	42.6		33.7	58.9	50.2	69.3	70.2		100.9	51.3	
Level of Service	F	D		C	E	D	E	E		F	D	
Approach Delay (s)		55.2			55.5			70.0			60.1	
Approach LOS		E			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	59.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	19.6
Intersection Capacity Utilization	118.6%	ICU Level of Service	H
Analysis Period (min)	15		

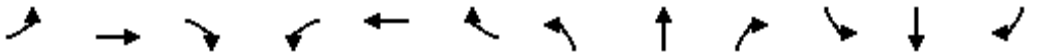
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	45	49	199	888	34	1999	100	254	1147
v/c Ratio	0.96	0.09	0.52	1.63	0.16	1.00	0.12	1.76	0.53
Control Delay	174.5	1.1	52.3	322.6	21.7	56.9	9.3	398.0	19.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	174.5	1.1	52.3	322.6	21.7	56.9	9.3	398.0	19.5
Queue Length 50th (m)	14.1	0.0	52.8	~382.1	5.4	310.3	6.8	~104.6	107.5
Queue Length 95th (m)	#41.6	1.6	79.6	#462.8	12.6	#366.4	16.5	#162.0	125.3
Internal Link Dist (m)		223.1		235.9		432.1			143.0
Turn Bay Length (m)			70.0		41.0		20.0	84.0	
Base Capacity (vph)	47	535	383	545	214	2001	807	144	2148
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.09	0.52	1.63	0.16	1.00	0.12	1.76	0.53

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

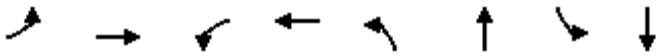
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	0	45	183	0	817	31	1839	92	234	1055	0
Future Volume (vph)	41	0	45	183	0	817	31	1839	92	234	1055	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		8.0	8.0		7.0	7.0	7.0	3.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	*1.00	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	0.97		1.00	0.98		1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		0.98	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85		1.00	0.85		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1825	1581		1673	1563		1824	3767	1471	1738	3544	
Flt Permitted	0.08	1.00		0.73	1.00		0.21	1.00	1.00	0.05	1.00	
Satd. Flow (perm)	160	1581		1277	1563		404	3767	1471	83	3544	
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)	45	0	49	199	0	888	34	1999	100	254	1147	0
RTOR Reduction (vph)	0	34	0	0	77	0	0	0	26	0	0	0
Lane Group Flow (vph)	45	15	0	199	811	0	34	1999	74	254	1147	0
Confl. Peds. (#/hr)	8		14	14		8	3					3
Heavy Vehicles (%)	0%	0%	0%	7%	0%	2%	0%	2%	11%	5%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		8			4			6		5	2	
Permitted Phases	8			4			6		6	2		2
Actuated Green, G (s)	48.0	48.0		48.0	48.0		85.0	85.0	85.0	97.0	97.0	
Effective Green, g (s)	48.0	48.0		48.0	48.0		85.0	85.0	85.0	97.0	97.0	
Actuated g/C Ratio	0.30	0.30		0.30	0.30		0.53	0.53	0.53	0.61	0.61	
Clearance Time (s)	8.0	8.0		8.0	8.0		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	3.0	
Lane Grp Cap (vph)	48	474		383	468		214	2001	781	143	2148	
v/s Ratio Prot		0.01			c0.52			0.53		c0.10	0.32	
v/s Ratio Perm	0.28			0.16			0.08		0.05	c0.97		
v/c Ratio	0.94	0.03		0.52	1.73		0.16	1.00	0.10	1.78	0.53	
Uniform Delay, d1	54.5	39.6		46.4	56.0		19.2	37.5	18.5	53.3	18.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	105.3	0.0		1.2	338.7		1.6	19.9	0.2	376.1	1.0	
Delay (s)	159.8	39.6		47.6	394.7		20.8	57.3	18.8	429.3	19.3	
Level of Service	F	D		D	F		C	E	B	F	B	
Approach Delay (s)		97.2			331.1			55.0			93.6	
Approach LOS		F			F			D			F	

Intersection Summary			
HCM 2000 Control Delay	131.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.79		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	205.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

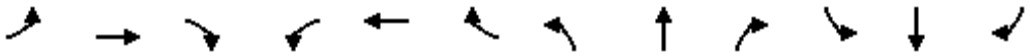


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	546	144	12	6	16	2117	10	1072
v/c Ratio	1.00	0.22	0.03	0.01	0.09	1.13	0.09	0.59
Control Delay	87.9	16.7	31.7	19.3	24.5	103.8	17.9	27.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0
Total Delay	87.9	16.7	31.7	19.3	24.5	104.5	17.9	27.7
Queue Length 50th (m)	~173.9	14.0	2.4	0.2	2.5	~374.8	1.4	120.3
Queue Length 95th (m)	#251.9	30.3	7.1	3.6	8.0	#448.3	4.5	141.5
Internal Link Dist (m)		288.8		65.4		163.5		432.1
Turn Bay Length (m)	50.0		14.0		30.0		71.0	
Base Capacity (vph)	545	659	454	494	184	1870	158	1811
Starvation Cap Reductn	0	0	0	0	0	387	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	1.00	0.22	0.03	0.01	0.09	1.43	0.06	0.59

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	502	3	130	11	1	5	15	1947	1	9	930	56
Future Volume (vph)	502	3	130	11	1	5	15	1947	1	9	930	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.5	8.5		8.5	8.5		7.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	*1.00		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.88		1.00	1.00		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)	1816	1618		1723	1300		1815	3730		1825	3446	
Flt Permitted	0.75	1.00		0.66	1.00		0.19	1.00		0.05	1.00	
Satd. Flow (perm)	1441	1618		1200	1300		369	3730		92	3446	
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)	546	3	141	12	1	5	16	2116	1	10	1011	61
RTOR Reduction (vph)	0	48	0	0	3	0	0	0	0	0	3	0
Lane Group Flow (vph)	546	96	0	12	3	0	16	2117	0	10	1069	0
Confl. Peds. (#/hr)	4		1	1		4	19		30	30		19
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	0%	3%	0%	0%	5%	0%
Bus Blockages (#/hr)	0	0	0	9	50	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	60.5	60.5		60.5	60.5		80.2	80.2		85.8	85.8	
Effective Green, g (s)	60.5	60.5		60.5	60.5		80.2	80.2		85.8	85.8	
Actuated g/C Ratio	0.37	0.37		0.37	0.37		0.50	0.50		0.53	0.53	
Clearance Time (s)	8.5	8.5		8.5	8.5		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)	538	605		448	486		182	1848		76	1827	
v/s Ratio Prot		0.06			0.00			c0.57		0.00	c0.31	
v/s Ratio Perm	c0.38			0.01			0.04			0.07		
v/c Ratio	1.01	0.16		0.03	0.01		0.09	1.15		0.13	0.59	
Uniform Delay, d1	50.7	33.7		32.0	31.8		21.5	40.8		37.4	25.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	42.6	0.1		0.0	0.0		1.0	72.4		0.8	1.4	
Delay (s)	93.2	33.8		32.1	31.8		22.5	113.2		38.2	27.3	
Level of Service	F	C		C	C		C	F		D	C	
Approach Delay (s)		80.8			32.0			112.6			27.4	
Approach LOS		F			C			F			C	

Intersection Summary			
HCM 2000 Control Delay	83.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	161.8	Sum of lost time (s)	18.5
Intersection Capacity Utilization	101.2%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

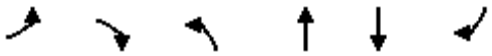
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	840	14	0	2377	0	44
Future Volume (Veh/h)	840	14	0	2377	0	44
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	913	15	0	2584	0	48
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised			Raised		
Median storage veh)	1			1		
Upstream signal (m)	205			167		
pX, platoon unblocked			0.97		0.52	0.97
vC, conflicting volume			928		1774	304
vC1, stage 1 conf vol					913	
vC2, stage 2 conf vol					861	
vCu, unblocked vol			806		0	161
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	94
cM capacity (veh/h)			788		531	827

Direction, Lane #	SE 1	SE 2	SE 3	SE 4	NW 1	NW 2	NW 3	NE 1
Volume Total	304	304	304	15	861	861	861	48
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	15	0	0	0	48
cSH	1700	1700	1700	1700	1700	1700	1700	827
Volume to Capacity	0.18	0.18	0.18	0.01	0.51	0.51	0.51	0.06
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.6
Lane LOS								A
Approach Delay (s)	0.0				0.0			9.6
Approach LOS								A

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	49.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	102	53	1937	892
v/c Ratio	0.21	0.23	0.52	0.25
Control Delay	24.7	11.0	5.4	3.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	24.7	11.0	5.4	3.9
Queue Length 50th (m)	4.7	0.0	33.6	11.7
Queue Length 95th (m)	12.1	8.5	45.8	17.2
Internal Link Dist (m)	457.7		181.0	320.5
Turn Bay Length (m)		140.0		
Base Capacity (vph)	1442	584	5142	4948
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	0.07	0.09	0.38	0.18

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	94	49	0	1782	821	0
Future Volume (vph)	94	49	0	1782	821	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	3372	1296		5142	4948	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	3372	1296		5142	4948	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	102	53	0	1937	892	0
RTOR Reduction (vph)	0	47	0	0	0	0
Lane Group Flow (vph)	102	6	0	1937	892	0
Heavy Vehicles (%)	5%	26%	2%	2%	6%	2%
Turn Type	Prot	Prot		NA	NA	
Protected Phases	8	8		2	6	
Permitted Phases						
Actuated Green, G (s)	6.3	6.3		39.9	39.9	
Effective Green, g (s)	6.3	6.3		39.9	39.9	
Actuated g/C Ratio	0.11	0.11		0.69	0.69	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	365	140		3525	3392	
v/s Ratio Prot	c0.03	0.00		c0.38	0.18	
v/s Ratio Perm						
v/c Ratio	0.28	0.04		0.55	0.26	
Uniform Delay, d1	23.9	23.2		4.6	3.5	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.1		0.2	0.0	
Delay (s)	24.3	23.4		4.8	3.6	
Level of Service	C	C		A	A	
Approach Delay (s)	24.0			4.8	3.6	
Approach LOS	C			A	A	

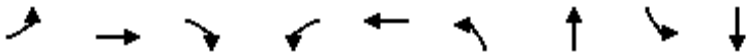
Intersection Summary			
HCM 2000 Control Delay	5.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	58.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	238	302	1632	917
v/c Ratio	0.27	0.63	0.62	0.35
Control Delay	19.8	26.5	12.7	10.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	19.8	26.5	12.7	10.1
Queue Length 50th (m)	10.8	28.1	44.7	20.9
Queue Length 95th (m)	23.8	64.4	80.4	39.5
Internal Link Dist (m)	362.8		320.5	579.4
Turn Bay Length (m)		134.0		
Base Capacity (vph)	2390	1281	4950	4902
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	0.10	0.24	0.33	0.19

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	219	278	1501	0	0	844
Future Volume (vph)	219	278	1501	0	0	844
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0			6.0
Lane Util. Factor	0.97	1.00	0.91			0.91
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3026	1617	5142			5092
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3026	1617	5142			5092
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	238	302	1632	0	0	917
RTOR Reduction (vph)	0	13	0	0	0	0
Lane Group Flow (vph)	238	289	1632	0	0	917
Heavy Vehicles (%)	17%	1%	2%	2%	2%	3%
Turn Type	Prot	Prot	NA			NA
Protected Phases	4	4	2			6
Permitted Phases						
Actuated Green, G (s)	18.9	18.9	33.6			33.6
Effective Green, g (s)	18.9	18.9	33.6			33.6
Actuated g/C Ratio	0.29	0.29	0.52			0.52
Clearance Time (s)	6.0	6.0	6.0			6.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	886	473	2678			2652
v/s Ratio Prot	0.08	c0.18	c0.32			0.18
v/s Ratio Perm						
v/c Ratio	0.27	0.61	0.61			0.35
Uniform Delay, d1	17.5	19.6	10.8			9.0
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	0.2	2.3	0.4			0.1
Delay (s)	17.7	22.0	11.2			9.1
Level of Service	B	C	B			A
Approach Delay (s)	20.1		11.2			9.1
Approach LOS	C		B			A

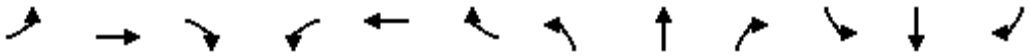
Intersection Summary			
HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	64.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	237	171	226	221	473	490	1665	164	897
v/c Ratio	0.92	0.15	0.36	0.83	0.58	0.93	0.95	0.85	0.79
Control Delay	75.6	32.3	5.6	73.3	32.4	57.5	44.1	67.8	44.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.6	32.3	5.6	73.3	32.4	57.5	44.1	67.8	44.1
Queue Length 50th (m)	45.6	16.5	0.0	53.7	38.2	100.0	212.2	24.0	106.5
Queue Length 95th (m)	#87.0	25.2	17.4	83.5	55.2	#175.8	#284.5	#68.7	138.2
Internal Link Dist (m)		362.3			306.8		579.4		324.4
Turn Bay Length (m)	88.0		90.0	117.0		97.0		90.0	
Base Capacity (vph)	257	1297	696	330	985	529	1751	192	1136
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.13	0.32	0.67	0.48	0.93	0.95	0.85	0.79

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)	218	157	208	203	236	199	451	1334	198	151	600	225
Future Volume (vph)	218	157	208	203	236	199	451	1334	198	151	600	225
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.0	7.0	7.0	7.0		3.0	6.0		3.0	6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	0.95		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	0.99	1.00	1.00	0.98	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.93		1.00	0.98		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1772	3614	1537	1784	3211		1825	3492		1825	3381	
Flt Permitted	0.30	1.00	1.00	0.64	1.00		0.12	1.00		0.10	1.00	
Satd. Flow (perm)	551	3614	1537	1209	3211		235	3492		183	3381	
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)	237	171	226	221	257	216	490	1450	215	164	652	245
RTOR Reduction (vph)	0	0	157	0	118	0	0	8	0	0	28	0
Lane Group Flow (vph)	237	171	69	221	355	0	490	1657	0	164	869	0
Confl. Peds. (#/hr)	81		26	26		81	18		31	31		18
Heavy Vehicles (%)	2%	1%	2%	0%	2%	0%	0%	2%	0%	0%	3%	1%
Turn Type	pm+pt	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8			4		5	2		1	6	
Permitted Phases	8		8	4			2			6		
Actuated Green, G (s)	39.3	39.3	39.3	28.3	28.3		76.2	64.2		51.1	42.1	
Effective Green, g (s)	39.3	39.3	39.3	28.3	28.3		76.2	64.2		51.1	42.1	
Actuated g/C Ratio	0.31	0.31	0.31	0.22	0.22		0.59	0.50		0.40	0.33	
Clearance Time (s)	3.0	7.0	7.0	7.0	7.0		3.0	6.0		3.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	244	1105	470	266	707		524	1744		187	1107	
v/s Ratio Prot	c0.06	0.05			0.11		c0.23	c0.47		0.06	0.26	
v/s Ratio Perm	c0.24		0.04	0.18			0.33			0.29		
v/c Ratio	0.97	0.15	0.15	0.83	0.50		0.94	0.95		0.88	0.78	
Uniform Delay, d1	42.4	32.5	32.4	47.8	43.9		34.8	30.6		30.9	39.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	49.3	0.1	0.1	19.3	0.6		24.1	12.6		33.8	5.6	
Delay (s)	91.7	32.6	32.6	67.1	44.5		58.9	43.2		64.6	44.7	
Level of Service	F	C	C	E	D		E	D		E	D	
Approach Delay (s)		54.7			51.7			46.8			47.8	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	48.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	128.5	Sum of lost time (s)	19.0
Intersection Capacity Utilization	109.7%	ICU Level of Service	H
Analysis Period (min)	15		

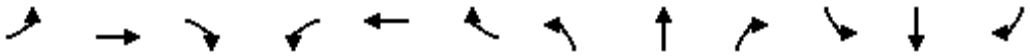
c Critical Lane Group

Appendix D – Future (2031) Total Conditions Improvement Synchro Output

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	186	1490	165	915	198	189	652	343	1331
v/c Ratio	0.69	0.89	0.97	0.56	0.31	0.95	0.60	0.88	0.99
Control Delay	41.1	57.8	102.7	43.7	5.7	94.7	46.9	50.5	70.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39.0
Total Delay	41.1	57.8	102.7	43.7	5.7	94.7	46.9	50.5	109.7
Queue Length 50th (m)	35.1	164.1	38.8	86.3	0.0	44.2	90.2	66.7	208.7
Queue Length 95th (m)	52.2	183.9	#87.6	100.9	17.4	#93.7	111.2	#111.6	#256.2
Internal Link Dist (m)		357.5		323.5			293.4		163.5
Turn Bay Length (m)	200.0		212.0			130.0		120.0	
Base Capacity (vph)	272	1673	170	1646	641	198	1084	391	1348
Starvation Cap Reductn	0	0	0	0	0	0	0	0	243
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.89	0.97	0.56	0.31	0.95	0.60	0.88	1.20

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)	171	1265	106	152	842	182	174	528	72	316	1090	134
Future Volume (vph)	171	1265	106	152	842	182	174	528	72	316	1090	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.8		3.0	6.8	6.8	3.0	6.8		3.0	6.8	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	*0.95		1.00	*1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1771	4960		1521	4725	1472	1738	3270		1737	3615	
Flt Permitted	0.22	1.00		0.07	1.00	1.00	0.08	1.00		0.25	1.00	
Satd. Flow (perm)	402	4960		115	4725	1472	139	3270		454	3615	
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)	186	1375	115	165	915	198	189	574	78	343	1185	146
RTOR Reduction (vph)	0	6	0	0	0	129	0	7	0	0	6	0
Lane Group Flow (vph)	186	1484	0	165	915	69	189	645	0	343	1325	0
Confl. Peds. (#/hr)	16		58	58		16	39		15	15		39
Heavy Vehicles (%)	3%	4%	4%	20%	11%	8%	5%	7%	26%	5%	4%	4%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	65.2	53.8		69.2	55.8	55.8	66.5	52.7		76.2	59.4	
Effective Green, g (s)	65.2	53.8		69.2	55.8	55.8	66.5	52.7		76.2	59.4	
Actuated g/C Ratio	0.41	0.34		0.43	0.35	0.35	0.42	0.33		0.48	0.37	
Clearance Time (s)	3.0	6.8		3.0	6.8	6.8	3.0	6.8		3.0	6.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	261	1667		167	1647	513	195	1077		380	1342	
v/s Ratio Prot	0.05	0.30		c0.08	0.19		c0.08	0.20		c0.12	c0.37	
v/s Ratio Perm	0.24			c0.34		0.05	0.32			0.31		
v/c Ratio	0.71	0.89		0.99	0.56	0.13	0.97	0.60		0.90	0.99	
Uniform Delay, d1	32.4	50.3		47.8	42.1	35.6	47.7	44.8		30.2	49.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.9	7.6		65.5	1.4	0.5	54.9	0.9		23.9	21.3	
Delay (s)	41.3	57.9		113.3	43.4	36.1	102.6	45.7		54.0	71.2	
Level of Service	D	E		F	D	D	F	D		D	E	
Approach Delay (s)		56.1			51.3			58.5			67.7	
Approach LOS		E			D			E			E	

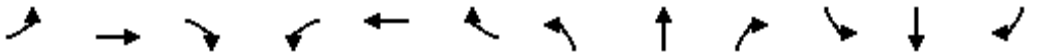
Intersection Summary			
HCM 2000 Control Delay	58.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	19.6
Intersection Capacity Utilization	121.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	16	19	43	1	187	115	818	108	870	2254	1
v/c Ratio	0.14	0.13	0.47	0.01	0.36	0.78	0.38	0.11	0.62	0.83	0.00
Control Delay	61.1	25.7	76.9	57.0	12.2	64.9	14.0	4.7	4.3	15.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
Total Delay	61.1	25.7	76.9	57.0	12.2	64.9	14.0	4.7	4.3	16.1	0.0
Queue Length 50th (m)	4.1	0.3	11.4	0.3	9.2	14.5	56.7	3.4	19.5	200.4	0.0
Queue Length 95th (m)	11.6	8.3	24.1	2.1	27.5	#50.4	76.8	11.9	31.4	276.3	0.0
Internal Link Dist (m)		223.1		235.9			432.1			143.0	
Turn Bay Length (m)			70.0			41.0		20.0	84.0		
Base Capacity (vph)	354	408	281	472	524	148	2133	953	1401	2702	1233
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	94	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.05	0.15	0.00	0.36	0.78	0.38	0.11	0.62	0.86	0.00

Intersection Summary

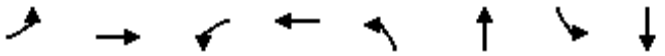
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	1	17	40	1	172	106	753	99	800	2074	1
Future Volume (vph)	15	1	17	40	1	172	106	753	99	800	2074	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		8.0	8.0	3.0	3.0	7.0	7.0	3.0	7.0	7.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	*0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	1.00
Flpb, ped/bikes	0.99	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1811	1606		1460	1921	1504	1825	3411	1479	3540	3544	1601
Flt Permitted	0.76	1.00		0.75	1.00	1.00	0.05	1.00	1.00	0.29	1.00	1.00
Satd. Flow (perm)	1444	1606		1145	1921	1504	91	3411	1479	1097	3544	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	1	18	43	1	187	115	818	108	870	2254	1
RTOR Reduction (vph)	0	17	0	0	0	104	0	0	29	0	0	0
Lane Group Flow (vph)	16	2	0	43	1	83	115	818	79	870	2254	1
Confl. Peds. (#/hr)	6					6			1	1		
Heavy Vehicles (%)	0%	50%	0%	25%	0%	8%	0%	7%	9%	0%	3%	2%
Turn Type	Perm	NA		Perm	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		8			4	5	1	6		5	2	
Permitted Phases	8			4		4	6		6	2		2
Actuated Green, G (s)	9.1	9.1		9.1	9.1	34.2	90.9	84.3	84.3	112.4	102.8	102.8
Effective Green, g (s)	9.1	9.1		9.1	9.1	34.2	90.9	84.3	84.3	112.4	102.8	102.8
Actuated g/C Ratio	0.07	0.07		0.07	0.07	0.25	0.67	0.62	0.62	0.82	0.75	0.75
Clearance Time (s)	8.0	8.0		8.0	8.0	3.0	3.0	7.0	7.0	3.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	96	107		76	128	376	144	2106	913	1352	2669	1205
v/s Ratio Prot		0.00			0.00	0.04	c0.04	0.24		0.12	c0.64	
v/s Ratio Perm	0.01			c0.04		0.01	0.49		0.05	0.41		0.00
v/c Ratio	0.17	0.02		0.57	0.01	0.22	0.80	0.39	0.09	0.64	0.84	0.00
Uniform Delay, d1	60.1	59.5		61.8	59.5	40.6	29.5	13.1	10.5	4.6	11.4	4.2
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.1		9.3	0.0	0.3	25.7	0.5	0.2	2.4	3.5	0.0
Delay (s)	60.9	59.6		71.1	59.5	40.9	55.3	13.7	10.7	7.0	14.9	4.2
Level of Service	E	E		E	E	D	E	B	B	A	B	A
Approach Delay (s)		60.2			46.6			18.0			12.7	
Approach LOS		E			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	136.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	119.2%	ICU Level of Service	H
Analysis Period (min)	15		

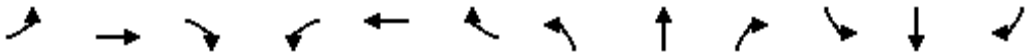
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	41	17	5	5	141	1005	25	2171
v/c Ratio	0.33	0.06	0.04	0.03	0.54	0.38	0.05	0.91
Control Delay	54.0	0.4	46.0	35.0	25.8	6.4	2.7	22.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	54.0	0.4	46.0	35.0	25.8	6.6	2.7	22.8
Queue Length 50th (m)	8.3	0.0	1.0	0.4	11.2	42.0	0.7	197.5
Queue Length 95th (m)	19.2	0.0	4.6	4.0	32.2	59.4	2.4	#293.2
Internal Link Dist (m)		288.8		65.4		163.5		432.1
Turn Bay Length (m)	50.0		14.0		30.0		71.0	
Base Capacity (vph)	838	1010	837	1009	281	2662	544	2392
Starvation Cap Reductn	0	0	0	0	0	690	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	0.05	0.02	0.01	0.00	0.50	0.51	0.05	0.91

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)	38	0	16	5	2	3	130	914	11	23	1936	62
Future Volume (vph)	38	0	16	5	2	3	130	914	11	23	1936	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.5	8.5		8.5	8.5		1.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	*0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.91		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1814	1633		1825	1729		1789	3471		1737	3490	
Flt Permitted	0.75	1.00		0.75	1.00		0.05	1.00		0.29	1.00	
Satd. Flow (perm)	1440	1633		1434	1729		99	3471		522	3490	
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)	41	0	17	5	2	3	141	993	12	25	2104	67
RTOR Reduction (vph)	0	16	0	0	3	0	0	0	0	0	1	0
Lane Group Flow (vph)	41	1	0	5	2	0	141	1005	0	25	2170	0
Confl. Peds. (#/hr)	8					8	18		8	8		18
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	5%	0%	5%	4%	3%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	7.2	7.2		7.2	7.2		84.8	78.4		76.3	72.9	
Effective Green, g (s)	7.2	7.2		7.2	7.2		86.8	78.4		76.3	72.9	
Actuated g/C Ratio	0.07	0.07		0.07	0.07		0.81	0.73		0.71	0.68	
Clearance Time (s)	8.5	8.5		8.5	8.5		3.0	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)	96	109		96	115		251	2531		408	2366	
v/s Ratio Prot		0.00			0.00		c0.06	0.29		0.00	c0.62	
v/s Ratio Perm	c0.03			0.00			0.40			0.04		
v/c Ratio	0.43	0.01		0.05	0.02		0.56	0.40		0.06	0.92	
Uniform Delay, d1	48.2	46.8		47.0	46.9		28.4	5.5		4.6	14.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.0	0.0		0.2	0.1		2.9	0.5		0.1	7.1	
Delay (s)	51.2	46.9		47.2	46.9		31.3	6.0		4.7	21.8	
Level of Service	D	D		D	D		C	A		A	C	
Approach Delay (s)		49.9			47.0			9.1			21.6	
Approach LOS		D			D			A			C	

Intersection Summary			
HCM 2000 Control Delay	18.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	107.5	Sum of lost time (s)	18.5
Intersection Capacity Utilization	92.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

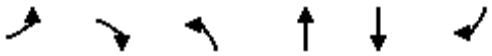
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	1809	49	0	865	0	14
Future Volume (Veh/h)	1809	49	0	865	0	14
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1966	53	0	940	0	15
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised			Raised		
Median storage veh)	1			1		
Upstream signal (m)	205			167		
pX, platoon unblocked			0.75		0.78	0.75
vC, conflicting volume			2019		2279	655
vC1, stage 1 conf vol					1966	
vC2, stage 2 conf vol					313	
vCu, unblocked vol			1172		1070	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	98
cM capacity (veh/h)			441		189	808

Direction, Lane #	SE 1	SE 2	SE 3	SE 4	NW 1	NW 2	NW 3	NE 1
Volume Total	655	655	655	53	313	313	313	15
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	53	0	0	0	15
cSH	1700	1700	1700	1700	1700	1700	1700	808
Volume to Capacity	0.39	0.39	0.39	0.03	0.18	0.18	0.18	0.02
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5
Lane LOS								A
Approach Delay (s)	0.0				0.0			9.5
Approach LOS								A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	45.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	178	620	692	1605
v/c Ratio	0.11	0.84	0.33	0.75
Control Delay	16.9	36.9	22.5	29.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	16.9	36.9	22.5	29.9
Queue Length 50th (m)	10.3	107.5	34.3	100.3
Queue Length 95th (m)	19.2	184.0	58.4	158.0
Internal Link Dist (m)	457.7		181.0	320.5
Turn Bay Length (m)		140.0		
Base Capacity (vph)	2450	1143	2859	2942
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	0.07	0.54	0.24	0.55

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	164	570	0	637	1477	0
Future Volume (vph)	164	570	0	637	1477	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	3437	1601		4948	5092	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	3437	1601		4948	5092	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	178	620	0	692	1605	0
RTOR Reduction (vph)	0	3	0	0	0	0
Lane Group Flow (vph)	178	617	0	692	1605	0
Heavy Vehicles (%)	3%	2%	2%	6%	3%	2%
Turn Type	Prot	Prot		NA	NA	
Protected Phases	8	8		2	6	
Permitted Phases						
Actuated Green, G (s)	48.4	48.4		44.0	44.0	
Effective Green, g (s)	48.4	48.4		44.0	44.0	
Actuated g/C Ratio	0.46	0.46		0.42	0.42	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	1593	742		2085	2146	
v/s Ratio Prot	0.05	c0.39		0.14	c0.32	
v/s Ratio Perm						
v/c Ratio	0.11	0.83		0.33	0.75	
Uniform Delay, d1	15.8	24.4		20.3	25.5	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	7.9		0.1	1.5	
Delay (s)	15.9	32.4		20.4	27.0	
Level of Service	B	C		C	C	
Approach Delay (s)	28.7			20.4	27.0	
Approach LOS	C			C	C	

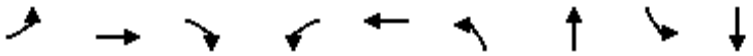
Intersection Summary			
HCM 2000 Control Delay	25.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	104.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	477	189	713	1607
v/c Ratio	0.56	0.35	0.27	0.59
Control Delay	22.7	5.8	8.0	10.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	22.7	5.8	8.0	10.6
Queue Length 50th (m)	22.4	0.0	13.3	37.5
Queue Length 95th (m)	43.5	13.7	23.9	62.0
Internal Link Dist (m)	362.8		320.5	579.4
Turn Bay Length (m)		134.0		
Base Capacity (vph)	2541	1227	4995	5142
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	0.19	0.15	0.14	0.31

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	439	174	656	0	0	1478
Future Volume (vph)	439	174	656	0	0	1478
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0			6.0
Lane Util. Factor	0.97	1.00	0.91			0.91
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3309	1541	4995			5142
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3309	1541	4995			5142
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	477	189	713	0	0	1607
RTOR Reduction (vph)	0	140	0	0	0	0
Lane Group Flow (vph)	477	49	713	0	0	1607
Heavy Vehicles (%)	7%	6%	5%	2%	2%	2%
Turn Type	Prot	Prot	NA			NA
Protected Phases	4	4	2			6
Permitted Phases						
Actuated Green, G (s)	15.4	15.4	31.5			31.5
Effective Green, g (s)	15.4	15.4	31.5			31.5
Actuated g/C Ratio	0.26	0.26	0.53			0.53
Clearance Time (s)	6.0	6.0	6.0			6.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	865	402	2671			2749
v/s Ratio Prot	c0.14	0.03	0.14			c0.31
v/s Ratio Perm						
v/c Ratio	0.55	0.12	0.27			0.58
Uniform Delay, d1	18.8	16.6	7.4			9.3
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	0.8	0.1	0.1			0.3
Delay (s)	19.5	16.7	7.5			9.6
Level of Service	B	B	A			A
Approach Delay (s)	18.7		7.5			9.6
Approach LOS	B		A			A

Intersection Summary			
HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	58.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

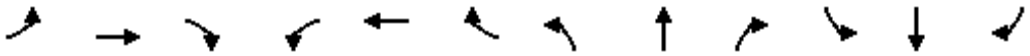


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	270	189	808	251	105	226	750	180	1470
v/c Ratio	0.45	0.12	1.04	0.62	0.10	0.87	0.65	0.58	1.01
Control Delay	25.5	22.6	74.2	46.5	10.2	55.5	41.9	29.0	69.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.5	22.6	74.2	46.5	10.2	55.5	41.9	29.0	69.0
Queue Length 50th (m)	45.0	15.7	~220.7	58.0	2.4	17.6	90.5	28.3	~208.1
Queue Length 95th (m)	65.1	23.4	#298.2	88.6	9.0	#40.3	116.5	43.7	#254.5
Internal Link Dist (m)		362.3			306.8		579.4		324.4
Turn Bay Length (m)	88.0		90.0	117.0		97.0		90.0	
Base Capacity (vph)	596	1594	780	403	1055	261	1151	347	1449
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.12	1.04	0.62	0.10	0.87	0.65	0.52	1.01

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	248	174	743	231	23	74	208	566	124	166	1258	95
Future Volume (vph)	248	174	743	231	23	74	208	566	124	166	1258	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.0	7.0	7.0	7.0		3.0	6.0		3.0	6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	0.95		1.00	*1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	0.93		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	0.96	1.00	1.00	0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.89		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1709	3544	1588	1768	2925		3506	3360		1769	3681	
Flt Permitted	0.65	1.00	1.00	0.63	1.00		0.08	1.00		0.20	1.00	
Satd. Flow (perm)	1161	3544	1588	1178	2925		311	3360		372	3681	
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)	270	189	808	251	25	80	226	615	135	180	1367	103
RTOR Reduction (vph)	0	0	66	0	53	0	0	13	0	0	4	0
Lane Group Flow (vph)	270	189	742	251	52	0	226	737	0	180	1466	0
Confl. Peds. (#/hr)	72		13	13		72	16		28	28		16
Heavy Vehicles (%)	2%	3%	0%	2%	10%	0%	1%	5%	3%	3%	3%	3%
Turn Type	pm+pt	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8			4		5	2		1	6	
Permitted Phases	8		8	4			2			6		
Actuated Green, G (s)	63.0	63.0	63.0	48.0	48.0		53.5	47.5		64.0	55.0	
Effective Green, g (s)	63.0	63.0	63.0	48.0	48.0		53.5	47.5		64.0	55.0	
Actuated g/C Ratio	0.45	0.45	0.45	0.34	0.34		0.38	0.34		0.46	0.39	
Clearance Time (s)	3.0	7.0	7.0	7.0	7.0		3.0	6.0		3.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	569	1594	714	403	1002		255	1140		304	1446	
v/s Ratio Prot	0.04	0.05			0.02		c0.04	0.22		0.06	c0.40	
v/s Ratio Perm	0.17		c0.47	0.21			0.30			0.21		
v/c Ratio	0.47	0.12	1.04	0.62	0.05		0.89	0.65		0.59	1.01	
Uniform Delay, d1	25.6	22.4	38.5	38.4	30.8		35.8	39.2		25.5	42.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.0	44.3	3.0	0.0		28.5	2.8		3.1	27.1	
Delay (s)	26.2	22.4	82.8	41.4	30.8		64.3	42.0		28.6	69.6	
Level of Service	C	C	F	D	C		E	D		C	E	
Approach Delay (s)		61.7			38.3			47.2			65.1	
Approach LOS		E			D			D			E	

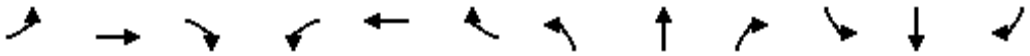
Intersection Summary			
HCM 2000 Control Delay	57.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	114.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	214	1016	134	1610	479	289	1249	170	783
v/c Ratio	1.00	0.59	0.57	0.92	0.72	0.92	0.98	0.94	0.73
Control Delay	103.8	42.8	33.0	58.9	33.4	63.1	69.9	94.0	52.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
Total Delay	103.8	42.8	33.0	58.9	33.4	63.1	69.9	94.0	53.2
Queue Length 50th (m)	52.5	95.5	23.6	179.5	82.8	56.8	195.2	38.3	114.8
Queue Length 95th (m)	#108.4	112.8	37.4	200.1	127.4	#110.9	#241.0	#86.2	138.9
Internal Link Dist (m)		357.5		323.5			293.4		163.5
Turn Bay Length (m)	200.0		212.0			130.0		120.0	
Base Capacity (vph)	215	1732	259	1758	663	314	1281	180	1067
Starvation Cap Reductn	0	0	0	0	0	0	0	0	83
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.00	0.59	0.52	0.92	0.72	0.92	0.98	0.94	0.80

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)	197	874	61	123	1481	441	266	1062	87	156	590	131
Future Volume (vph)	197	874	61	123	1481	441	266	1062	87	156	590	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.8		3.0	6.8	6.8	3.0	6.8		3.0	6.8	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	*1.00		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1772	4750		1571	5043	1543	1738	3571		1706	3338	
Flt Permitted	0.07	1.00		0.19	1.00	1.00	0.17	1.00		0.08	1.00	
Satd. Flow (perm)	128	4750		308	5043	1543	302	3571		142	3338	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	214	950	66	134	1610	479	289	1154	95	170	641	142
RTOR Reduction (vph)	0	4	0	0	0	125	0	4	0	0	12	0
Lane Group Flow (vph)	214	1012	0	134	1610	354	289	1245	0	170	771	0
Confl. Peds. (#/hr)	27		60	60		27	12		18	18		12
Heavy Vehicles (%)	3%	9%	7%	16%	4%	2%	5%	4%	32%	7%	7%	1%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	73.2	58.2		68.4	55.8	55.8	72.6	57.2		63.0	50.6	
Effective Green, g (s)	73.2	58.2		68.4	55.8	55.8	72.6	57.2		63.0	50.6	
Actuated g/C Ratio	0.46	0.36		0.43	0.35	0.35	0.45	0.36		0.39	0.32	
Clearance Time (s)	3.0	6.8		3.0	6.8	6.8	3.0	6.8		3.0	6.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	212	1727		231	1758	538	307	1276		177	1055	
v/s Ratio Prot	c0.09	0.21		0.05	0.32		c0.11	c0.35		0.07	0.23	
v/s Ratio Perm	c0.37			0.20		0.23	0.31			0.30		
v/c Ratio	1.01	0.59		0.58	0.92	0.66	0.94	0.98		0.96	0.73	
Uniform Delay, d1	50.4	41.2		30.0	49.9	44.0	33.3	50.7		45.1	48.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	64.3	1.5		3.7	9.0	6.2	36.0	19.4		55.9	2.6	
Delay (s)	114.7	42.6		33.7	58.9	50.2	69.3	70.2		100.9	51.3	
Level of Service	F	D		C	E	D	E	E		F	D	
Approach Delay (s)		55.2			55.5			70.0			60.1	
Approach LOS		E			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	59.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	19.6
Intersection Capacity Utilization	118.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	45	49	199	888	34	1999	100	254	1147
v/c Ratio	0.17	0.12	0.87	1.44	0.10	0.99	0.12	0.38	0.48
Control Delay	54.7	0.6	94.7	241.2	8.3	53.5	6.6	26.8	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.7	0.6	94.7	241.2	8.3	53.5	6.6	26.8	13.8
Queue Length 50th (m)	11.9	0.0	60.2	~279.2	2.6	~310.3	3.7	20.1	91.3
Queue Length 95th (m)	23.7	0.0	#96.4	#361.1	5.9	#374.2	13.5	34.8	113.5
Internal Link Dist (m)		223.1				432.1			143.0
Turn Bay Length (m)			70.0		41.0		20.0	84.0	
Base Capacity (vph)	306	464	272	617	345	2018	823	660	2395
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.11	0.73	1.44	0.10	0.99	0.12	0.38	0.48

Intersection Summary

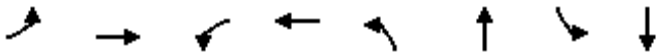
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	41	0	45	183	0	817	31	1839	92	234	1055	0
Future Volume (vph)	41	0	45	183	0	817	31	1839	92	234	1055	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		8.0		3.0	3.0	7.0	7.0	3.0	7.0	
Lane Util. Factor	1.00	1.00		1.00		1.00	1.00	*1.00	1.00	0.97	0.95	
Frpb, ped/bikes	1.00	0.97		1.00		0.99	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.98		1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85		1.00		0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1804	1582		1674		1582	1825	3767	1471	3372	3544	
Flt Permitted	0.76	1.00		0.73		1.00	0.25	1.00	1.00	0.05	1.00	
Satd. Flow (perm)	1438	1582		1278		1582	475	3767	1471	164	3544	
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)	45	0	49	199	0	888	34	1999	100	254	1147	0
RTOR Reduction (vph)	0	40	0	0	0	18	0	0	35	0	0	0
Lane Group Flow (vph)	45	9	0	199	0	870	34	1999	65	254	1147	0
Confl. Peds. (#/hr)	8		14	14		8	3					3
Heavy Vehicles (%)	0%	0%	0%	7%	0%	2%	0%	2%	11%	5%	3%	0%
Turn Type	Perm	NA		Perm		pm+ov	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		8			4	5	1	6		5	2	
Permitted Phases	8			4		4	6		6	2		2
Actuated Green, G (s)	27.9	27.9		27.9		53.9	88.8	83.8	83.8	112.8	104.8	
Effective Green, g (s)	27.9	27.9		27.9		53.9	88.8	83.8	83.8	112.8	104.8	
Actuated g/C Ratio	0.18	0.18		0.18		0.35	0.57	0.54	0.54	0.72	0.67	
Clearance Time (s)	8.0	8.0		8.0		3.0	3.0	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	3.0	
Lane Grp Cap (vph)	257	283		229		547	314	2027	791	654	2385	
v/s Ratio Prot		0.01				c0.27	0.00	c0.53		0.06	0.32	
v/s Ratio Perm	0.03			0.16		0.28	0.06		0.04	0.22		
v/c Ratio	0.18	0.03		0.87		1.59	0.11	0.99	0.08	0.39	0.48	
Uniform Delay, d1	54.1	52.7		62.1		50.9	14.6	35.4	17.4	39.3	12.3	
Progression Factor	1.00	1.00		1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	0.0		27.6		274.6	0.2	17.0	0.2	1.7	0.7	
Delay (s)	54.5	52.8		89.7		325.5	14.8	52.4	17.6	41.1	13.0	
Level of Service	D	D		F		F	B	D	B	D	B	
Approach Delay (s)		53.6			282.3			50.1			18.1	
Approach LOS		D			F			D			B	

Intersection Summary			
HCM 2000 Control Delay	94.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	155.7	Sum of lost time (s)	18.0
Intersection Capacity Utilization	130.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

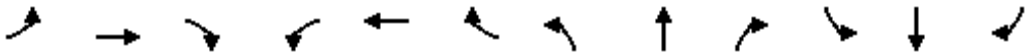


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	546	144	12	6	16	2117	10	1072
v/c Ratio	0.94	0.20	0.02	0.01	0.08	1.20	0.08	0.66
Control Delay	69.8	5.5	29.4	18.3	17.7	132.9	18.2	33.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0
Total Delay	69.8	5.5	29.4	18.3	17.7	133.6	18.2	33.4
Queue Length 50th (m)	149.5	0.5	2.1	0.2	2.3	~367.3	1.4	120.4
Queue Length 95th (m)	#245.3	14.6	6.9	3.5	6.0	#446.9	4.5	162.6
Internal Link Dist (m)		288.8		65.4		163.5		432.1
Turn Bay Length (m)	50.0		14.0		30.0		71.0	
Base Capacity (vph)	578	733	484	524	254	1760	170	1624
Starvation Cap Reductn	0	0	0	0	0	310	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	0.94	0.20	0.02	0.01	0.06	1.46	0.06	0.66

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	502	3	130	11	1	5	15	1947	1	9	930	56
Future Volume (vph)	502	3	130	11	1	5	15	1947	1	9	930	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.5	8.5		8.5	8.5		3.0	7.0		3.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	*1.00		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.88		1.00	1.00		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)	1817	1618		1723	1300		1824	3730		1825	3447	
Flt Permitted	0.75	1.00		0.67	1.00		0.15	1.00		0.06	1.00	
Satd. Flow (perm)	1442	1618		1207	1300		294	3730		108	3447	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	546	3	141	12	1	5	16	2116	1	10	1011	61
RTOR Reduction (vph)	0	85	0	0	3	0	0	0	0	0	3	0
Lane Group Flow (vph)	546	59	0	12	3	0	16	2117	0	10	1069	0
Confl. Peds. (#/hr)	4		1	1		4	19		30	30		19
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	0%	3%	0%	0%	5%	0%
Bus Blockages (#/hr)	0	0	0	9	50	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	60.6	60.6		60.6	60.6		73.8	71.2		73.6	71.1	
Effective Green, g (s)	60.6	60.6		60.6	60.6		73.8	71.2		73.6	71.1	
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.48	0.47		0.48	0.47	
Clearance Time (s)	8.5	8.5		8.5	8.5		3.0	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)	571	641		478	515		168	1738		80	1603	
v/s Ratio Prot		0.04			0.00		0.00	c0.57		c0.00	0.31	
v/s Ratio Perm	c0.38			0.01			0.04			0.06		
v/c Ratio	0.96	0.09		0.03	0.01		0.10	1.22		0.12	0.67	
Uniform Delay, d1	44.8	28.9		28.1	27.9		23.7	40.8		35.4	31.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	26.8	0.1		0.0	0.0		0.2	103.6		0.7	2.2	
Delay (s)	71.6	28.9		28.1	27.9		24.0	144.4		36.2	33.9	
Level of Service	E	C		C	C		C	F		D	C	
Approach Delay (s)		62.7			28.0			143.5			33.9	
Approach LOS		E			C			F			C	

Intersection Summary			
HCM 2000 Control Delay	98.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	152.8	Sum of lost time (s)	18.5
Intersection Capacity Utilization	101.2%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

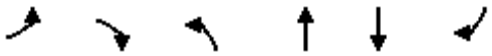
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	840	14	0	2377	0	44
Future Volume (Veh/h)	840	14	0	2377	0	44
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	913	15	0	2584	0	48
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised			Raised		
Median storage veh)	1			1		
Upstream signal (m)	205			167		
pX, platoon unblocked			0.97		0.53	0.97
vC, conflicting volume			928		1774	304
vC1, stage 1 conf vol					913	
vC2, stage 2 conf vol					861	
vCu, unblocked vol			806		0	161
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	94
cM capacity (veh/h)			788		539	827

Direction, Lane #	SE 1	SE 2	SE 3	SE 4	NW 1	NW 2	NW 3	NE 1
Volume Total	304	304	304	15	861	861	861	48
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	15	0	0	0	48
cSH	1700	1700	1700	1700	1700	1700	1700	827
Volume to Capacity	0.18	0.18	0.18	0.01	0.51	0.51	0.51	0.06
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.6
Lane LOS								A
Approach Delay (s)	0.0				0.0			9.6
Approach LOS								A

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	49.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	102	53	1937	892
v/c Ratio	0.21	0.23	0.52	0.25
Control Delay	24.7	11.0	5.4	3.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	24.7	11.0	5.4	3.9
Queue Length 50th (m)	4.7	0.0	33.6	11.7
Queue Length 95th (m)	12.1	8.5	45.8	17.2
Internal Link Dist (m)	457.7		181.0	320.5
Turn Bay Length (m)		140.0		
Base Capacity (vph)	1442	584	5142	4948
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	0.07	0.09	0.38	0.18

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	94	49	0	1782	821	0
Future Volume (vph)	94	49	0	1782	821	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	1.00		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	3372	1296		5142	4948	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	3372	1296		5142	4948	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	102	53	0	1937	892	0
RTOR Reduction (vph)	0	47	0	0	0	0
Lane Group Flow (vph)	102	6	0	1937	892	0
Heavy Vehicles (%)	5%	26%	2%	2%	6%	2%
Turn Type	Prot	Prot		NA	NA	
Protected Phases	8	8		2	6	
Permitted Phases						
Actuated Green, G (s)	6.3	6.3		39.9	39.9	
Effective Green, g (s)	6.3	6.3		39.9	39.9	
Actuated g/C Ratio	0.11	0.11		0.69	0.69	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	365	140		3525	3392	
v/s Ratio Prot	c0.03	0.00		c0.38	0.18	
v/s Ratio Perm						
v/c Ratio	0.28	0.04		0.55	0.26	
Uniform Delay, d1	23.9	23.2		4.6	3.5	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.1		0.2	0.0	
Delay (s)	24.3	23.4		4.8	3.6	
Level of Service	C	C		A	A	
Approach Delay (s)	24.0			4.8	3.6	
Approach LOS	C			A	A	

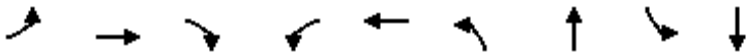
Intersection Summary			
HCM 2000 Control Delay	5.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	58.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	238	302	1632	917
v/c Ratio	0.27	0.63	0.62	0.35
Control Delay	19.8	26.5	12.7	10.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	19.8	26.5	12.7	10.1
Queue Length 50th (m)	10.8	28.1	44.7	20.9
Queue Length 95th (m)	23.8	64.4	80.4	39.5
Internal Link Dist (m)	362.8		320.5	579.4
Turn Bay Length (m)		134.0		
Base Capacity (vph)	2390	1281	4950	4902
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	0.10	0.24	0.33	0.19

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	219	278	1501	0	0	844
Future Volume (vph)	219	278	1501	0	0	844
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0			6.0
Lane Util. Factor	0.97	1.00	0.91			0.91
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3026	1617	5142			5092
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3026	1617	5142			5092
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	238	302	1632	0	0	917
RTOR Reduction (vph)	0	13	0	0	0	0
Lane Group Flow (vph)	238	289	1632	0	0	917
Heavy Vehicles (%)	17%	1%	2%	2%	2%	3%
Turn Type	Prot	Prot	NA			NA
Protected Phases	4	4	2			6
Permitted Phases						
Actuated Green, G (s)	18.9	18.9	33.6			33.6
Effective Green, g (s)	18.9	18.9	33.6			33.6
Actuated g/C Ratio	0.29	0.29	0.52			0.52
Clearance Time (s)	6.0	6.0	6.0			6.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	886	473	2678			2652
v/s Ratio Prot	0.08	c0.18	c0.32			0.18
v/s Ratio Perm						
v/c Ratio	0.27	0.61	0.61			0.35
Uniform Delay, d1	17.5	19.6	10.8			9.0
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	0.2	2.3	0.4			0.1
Delay (s)	17.7	22.0	11.2			9.1
Level of Service	B	C	B			A
Approach Delay (s)	20.1		11.2			9.1
Approach LOS	C		B			A

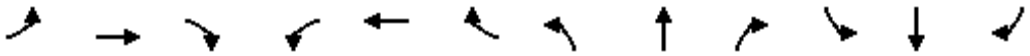
Intersection Summary			
HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	64.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	237	171	226	221	473	490	1665	164	897
v/c Ratio	0.92	0.15	0.36	0.83	0.58	0.64	0.95	0.86	0.56
Control Delay	75.6	32.3	5.6	73.3	32.4	15.9	44.1	66.7	26.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.6	32.3	5.6	73.3	32.4	15.9	44.1	66.7	26.6
Queue Length 50th (m)	45.6	16.5	0.0	53.7	38.2	28.1	212.2	25.3	83.3
Queue Length 95th (m)	#87.0	25.2	17.4	83.5	55.2	40.1	#284.5	#71.7	116.1
Internal Link Dist (m)		362.3			306.8		579.4		324.4
Turn Bay Length (m)	88.0		90.0	117.0		97.0		90.0	
Base Capacity (vph)	257	1297	696	330	985	863	1751	191	1594
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.13	0.32	0.67	0.48	0.57	0.95	0.86	0.56

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)	218	157	208	203	236	199	451	1334	198	151	600	225
Future Volume (vph)	218	157	208	203	236	199	451	1334	198	151	600	225
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.0	7.0	7.0	7.0		3.0	6.0		3.0	6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	0.95		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	0.99	1.00	1.00	0.98	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.93		1.00	0.98		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1772	3614	1537	1784	3211		3536	3492		1825	3381	
Flt Permitted	0.30	1.00	1.00	0.64	1.00		0.21	1.00		0.07	1.00	
Satd. Flow (perm)	551	3614	1537	1209	3211		776	3492		129	3381	
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)	237	171	226	221	257	216	490	1450	215	164	652	245
RTOR Reduction (vph)	0	0	157	0	118	0	0	8	0	0	26	0
Lane Group Flow (vph)	237	171	69	221	355	0	490	1657	0	164	871	0
Confl. Peds. (#/hr)	81		26	26		81	18		31	31		18
Heavy Vehicles (%)	2%	1%	2%	0%	2%	0%	0%	2%	0%	0%	3%	1%
Turn Type	pm+pt	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	3	8			4		5	2		1	6	
Permitted Phases	8		8	4			2			6		
Actuated Green, G (s)	39.3	39.3	39.3	28.3	28.3		76.2	64.2		68.6	59.6	
Effective Green, g (s)	39.3	39.3	39.3	28.3	28.3		76.2	64.2		68.6	59.6	
Actuated g/C Ratio	0.31	0.31	0.31	0.22	0.22		0.59	0.50		0.53	0.46	
Clearance Time (s)	3.0	7.0	7.0	7.0	7.0		3.0	6.0		3.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	244	1105	470	266	707		752	1744		187	1568	
v/s Ratio Prot	c0.06	0.05			0.11		c0.07	c0.47		c0.06	0.26	
v/s Ratio Perm	c0.24		0.04	0.18			0.32			0.41		
v/c Ratio	0.97	0.15	0.15	0.83	0.50		0.65	0.95		0.88	0.56	
Uniform Delay, d1	42.4	32.5	32.4	47.8	43.9		15.4	30.6		34.1	24.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	49.3	0.1	0.1	19.3	0.6		2.0	12.6		33.8	1.4	
Delay (s)	91.7	32.6	32.6	67.1	44.5		17.5	43.2		67.8	26.3	
Level of Service	F	C	C	E	D		B	D		E	C	
Approach Delay (s)		54.7			51.7			37.4			32.7	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	40.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	128.5	Sum of lost time (s)	19.0
Intersection Capacity Utilization	109.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Appendix E – Turning Movement Counts

Hurontario Street & Highway 407 WB off-ramp

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

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

Municipality: Brampton
Site #: 0000005701
Intersection: Hurontario Street & Highway 407 W
TFR File #: 1
Count date: 15-Aug-2017

Weather conditions:
Cloudy / Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Hurontario Street runs N/S

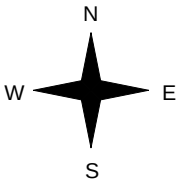
North Leg Total: 3060
North Entering: 1999
North Peds: 0
Peds Cross: ⋈

Heavys	23	0	23
Trucks	15	0	15
Cars	1961	0	1961
Totals	1999	0	

Heavys	21	
Trucks	30	
Cars	1010	
Totals	1061	

East Leg Total: 571
East Entering: 571
East Peds: 5
Peds Cross: ⋈

	Cars	Trucks	Heavys	Totals
	152	9	1	162
	382	19	8	409
	534	28	9	



Cars	Trucks	Heavys	Totals
0	0	0	0

Cars	858	0	858
Trucks	21	0	21
Heavys	20	0	20
Totals	899	0	

Cars	2343
Trucks	34
Heavys	31
Totals	2408

Peds Cross: ⋈
South Peds: 0
South Entering: 899
South Leg Total: 3307

Comments

Hurontario Street & Highway 407 WB off-ramp

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 12:00:00
To: 13:00:00

Municipality: Brampton
Site #: 0000005701
Intersection: Hurontario Street & Highway 407 W
TFR File #: 1
Count date: 15-Aug-2017

Weather conditions:
Cloudy / Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Hurontario Street runs N/S

North Leg Total: 2262
North Entering: 1147
North Peds: 0
Peds Cross: ⋈

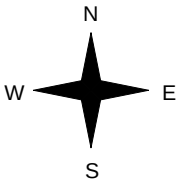
Heavys	17	0	17
Trucks	16	0	16
Cars	1114	0	1114
Totals	1147	0	

Heavys	20
Trucks	17
Cars	1078
Totals	1115

East Leg Total: 251
East Entering: 251
East Peds: 2
Peds Cross: ⋈

Hurontario Street

	Cars	Trucks	Heavys	Totals
	116	3	0	119
	110	14	8	132
	226	17	8	



Highway 407 WB off-ramp

Cars	Trucks	Heavys	Totals
0	0	0	0

Hurontario Street

Cars	1224
Trucks	30
Heavys	25
Totals	1279

Cars	962	0	962
Trucks	14	0	14
Heavys	20	0	20
Totals	996	0	

Peds Cross: ⋈
South Peds: 0
South Entering: 996
South Leg Total: 2275

Comments

Hurontario Street & Highway 407 WB off-ramp

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

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

Municipality: Brampton
Site #: 0000005701
Intersection: Hurontario Street & Highway 407 W
TFR File #: 1
Count date: 15-Aug-2017

Weather conditions:
Cloudy / Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Hurontario Street runs N/S

North Leg Total: 3462
North Entering: 1161
North Peds: 0
Peds Cross: ⋈

Heavys	25	0	25
Trucks	11	0	11
Cars	1125	0	1125
Totals	1161	0	

Heavys	20
Trucks	19
Cars	2262
Totals	2301

East Leg Total: 463
East Entering: 463
East Peds: 5
Peds Cross: ⧖

Hurontario Street

	Cars	Trucks	Heavys	Totals
	256	3	0	259
	169	17	18	204
	425	20	18	

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Highway 407 WB off-ramp

Cars	Trucks	Heavys	Totals
0	0	0	0

Hurontario Street

Cars	1294
Trucks	28
Heavys	43
Totals	1365

Cars	2006	0	2006
Trucks	16	0	16
Heavys	20	0	20
Totals	2042	0	

Peds Cross: ⋈
South Peds: 0
South Entering: 2042
South Leg Total: 3407

Comments

Hurontario Street & Highway 407 WB off-ramp

Total Count Diagram

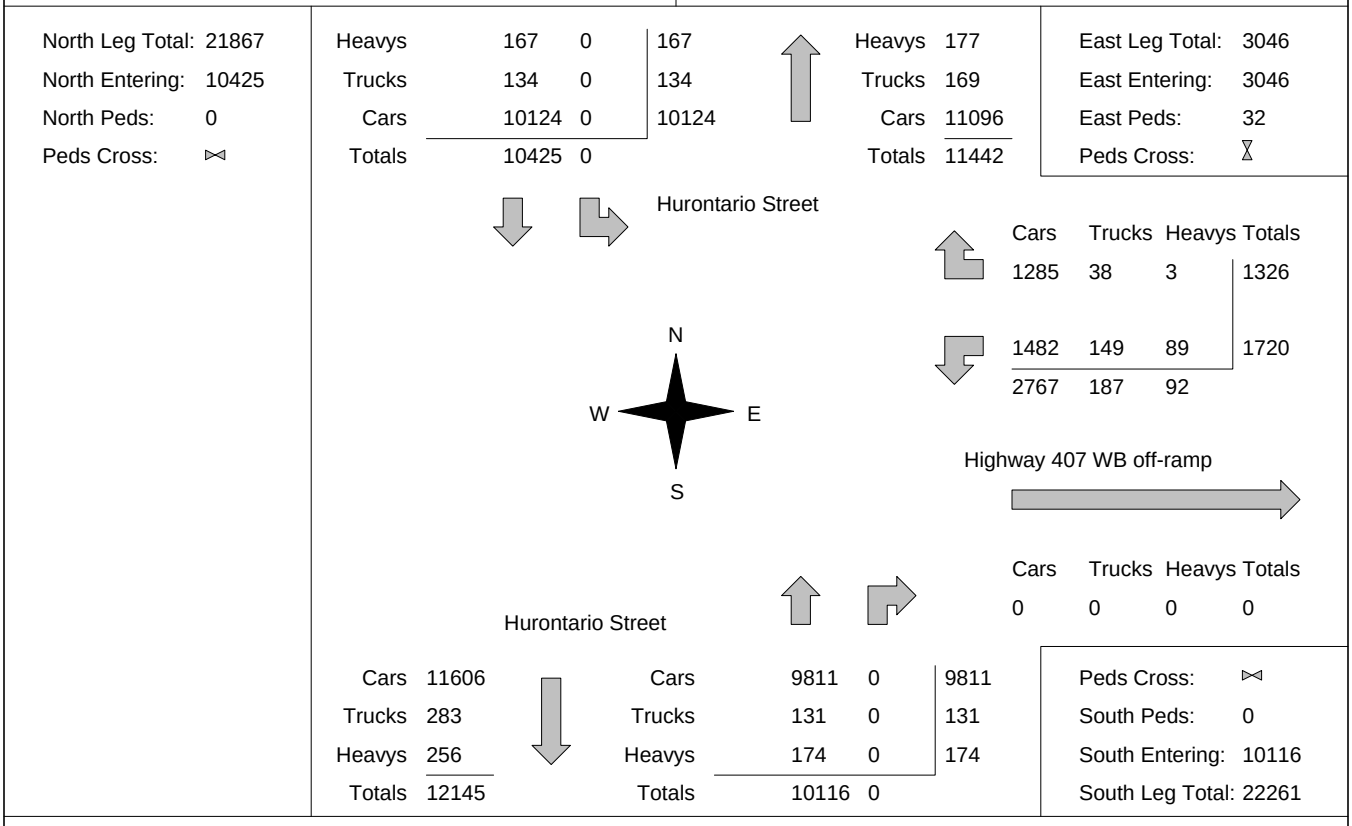
Municipality: Brampton
Site #: 0000005701
Intersection: Hurontario Street & Highway 407 W
TFR File #: 1
Count date: 15-Aug-2017

Weather conditions:
Cloudy / Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Hurontario Street runs N/S



Comments

Hurontario Street & Highway 407 WB off-ramp
Traffic Count Summary

Intersection: Hurontario Street & Highway 407 W | **Count Date:** 15-Aug-2017 | **Municipality:** Brampton

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	0	2046	0	2046	0	2676
9:00:00	0	1813	0	1813	0	2750
11:00:00	0	0	0	0	0	0
12:00:00	0	1065	0	1065	0	1887
13:00:00	0	1147	0	1147	0	2143
14:00:00	0	1138	0	1138	0	2090
15:00:00	0	0	0	0	0	0
16:00:00	0	1097	0	1097	0	2808
17:00:00	0	1113	0	1113	0	3168
18:00:00	0	1006	0	1006	0	3019
Totals:	0	10425	0	10425	0	20541

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	630	0	630	0
9:00:00	0	937	0	937	0
11:00:00	0	0	0	0	0
12:00:00	0	822	0	822	0
13:00:00	0	996	0	996	0
14:00:00	0	952	0	952	0
15:00:00	0	0	0	0	0
16:00:00	0	1711	0	1711	0
17:00:00	0	2055	0	2055	0
18:00:00	0	2013	0	2013	0
Totals:	0	10116	0	10116	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	263	0	83	346	7	346
9:00:00	454	0	178	632	3	632
11:00:00	0	0	0	0	0	0
12:00:00	167	0	119	286	10	286
13:00:00	132	0	119	251	2	251
14:00:00	125	0	148	273	2	273
15:00:00	0	0	0	0	0	0
16:00:00	161	0	196	357	2	357
17:00:00	191	0	247	438	4	438
18:00:00	227	0	236	463	2	463
Totals:	1720	0	1326	3046	32	3046

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	0
9:00:00	0	0	0	0	0
11:00:00	0	0	0	0	0
12:00:00	0	0	0	0	0
13:00:00	0	0	0	0	0
14:00:00	0	0	0	0	0
15:00:00	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
Totals:	0	0	0	0	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	263	454	167	132	125	161	191	227

Hurontario Street & Highway 407 EB off-ramp

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

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

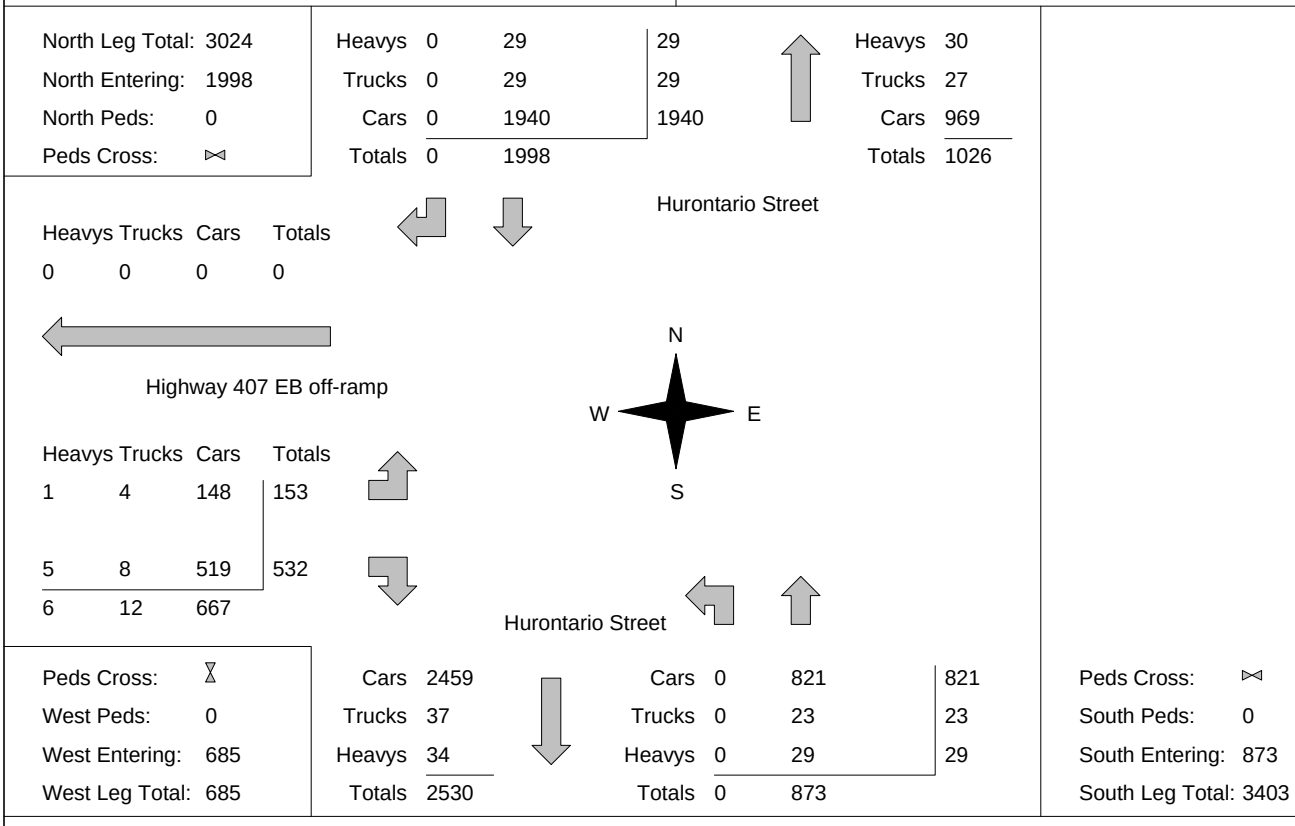
Municipality: Brampton
Site #: 0000005702
Intersection: Hurontario Street & Highway 407 EB
TFR File #: 1
Count date: 15-Aug-2017

Weather conditions:
Cloudy / Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Hurontario Street runs N/S



Comments

Hurontario Street & Highway 407 EB off-ramp

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 12:00:00
To: 13:00:00

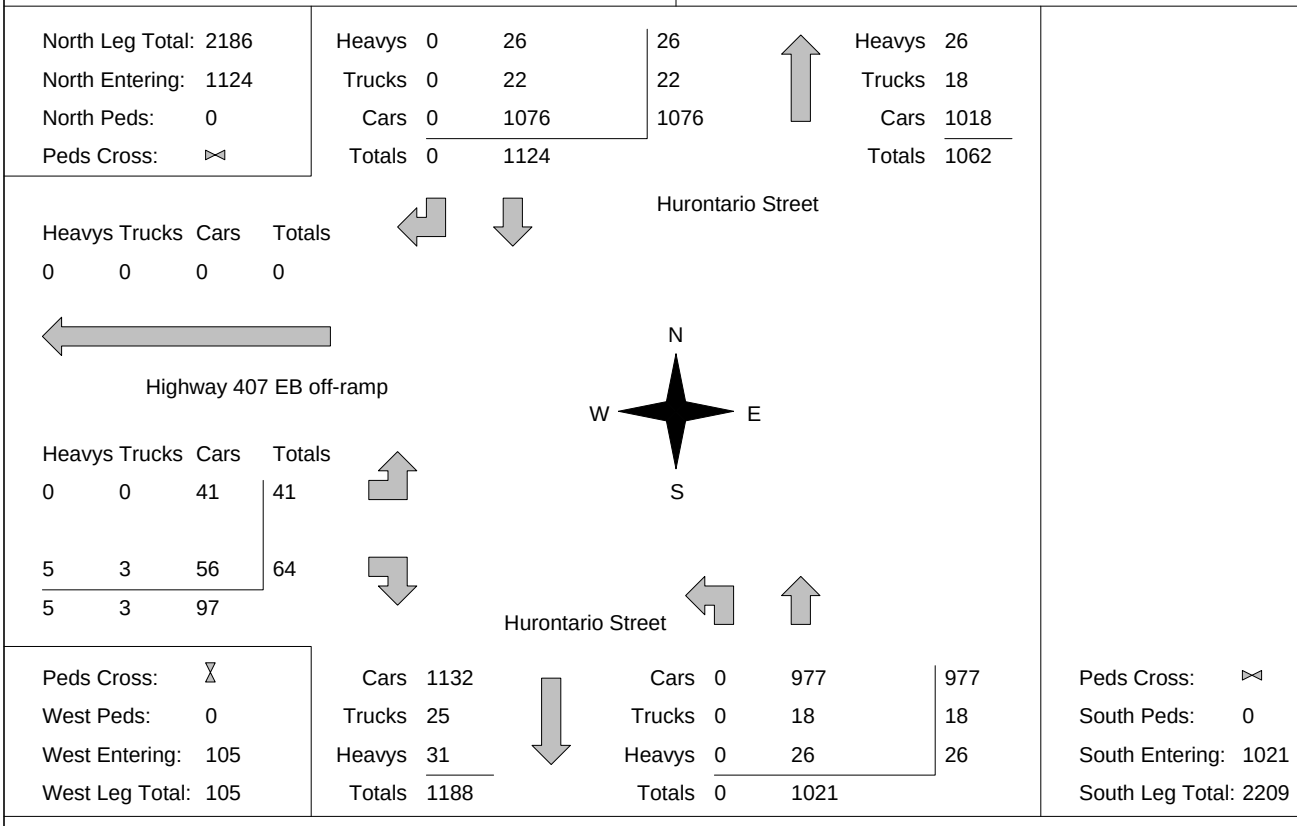
Municipality: Brampton
Site #: 0000005702
Intersection: Hurontario Street & Highway 407 EB
TFR File #: 1
Count date: 15-Aug-2017

Weather conditions:
Cloudy / Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Hurontario Street runs N/S



Comments

Hurontario Street & Highway 407 EB off-ramp

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

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

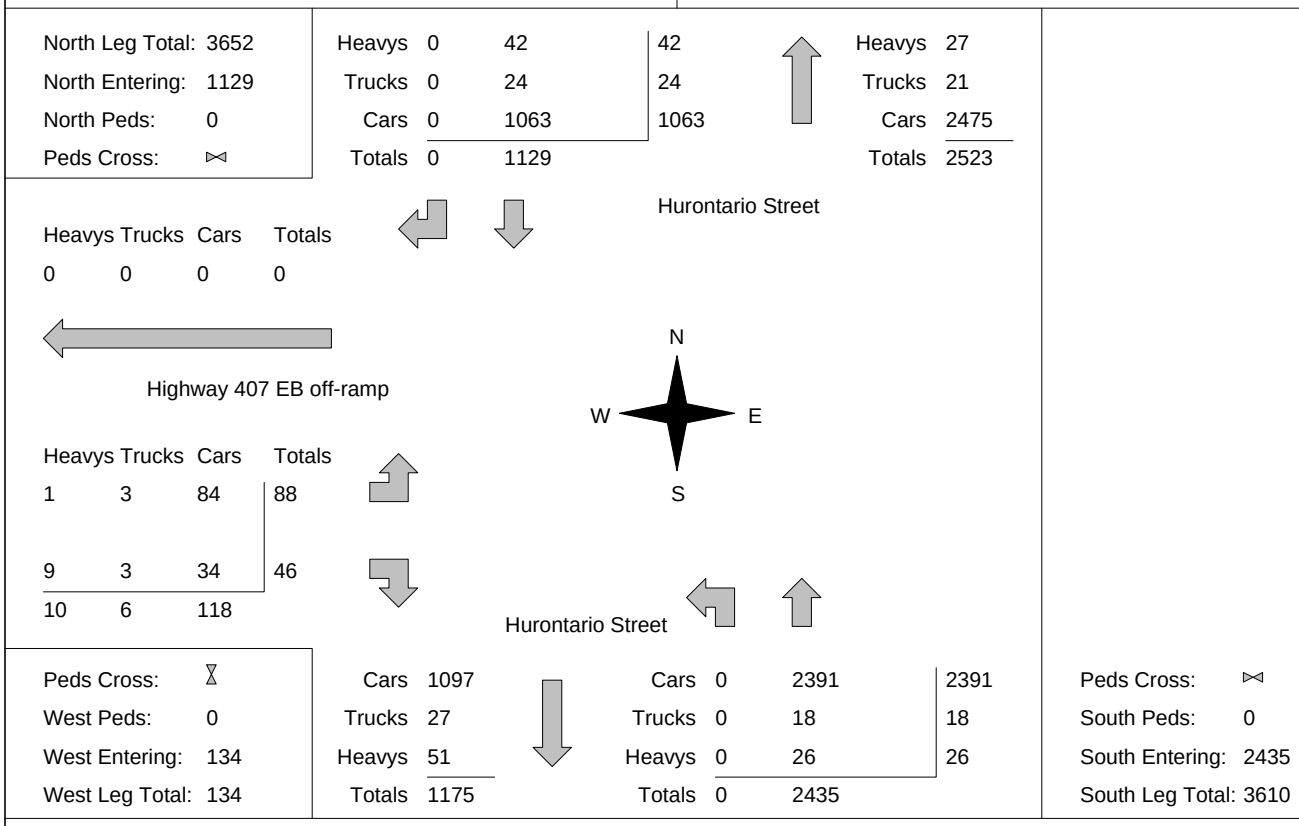
Municipality: Brampton
Site #: 0000005702
Intersection: Hurontario Street & Highway 407 EB
TFR File #: 1
Count date: 15-Aug-2017

Weather conditions:
Cloudy / Clear

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Hurontario Street runs N/S



Comments

Hurontario Street & Highway 407 EB off-ramp

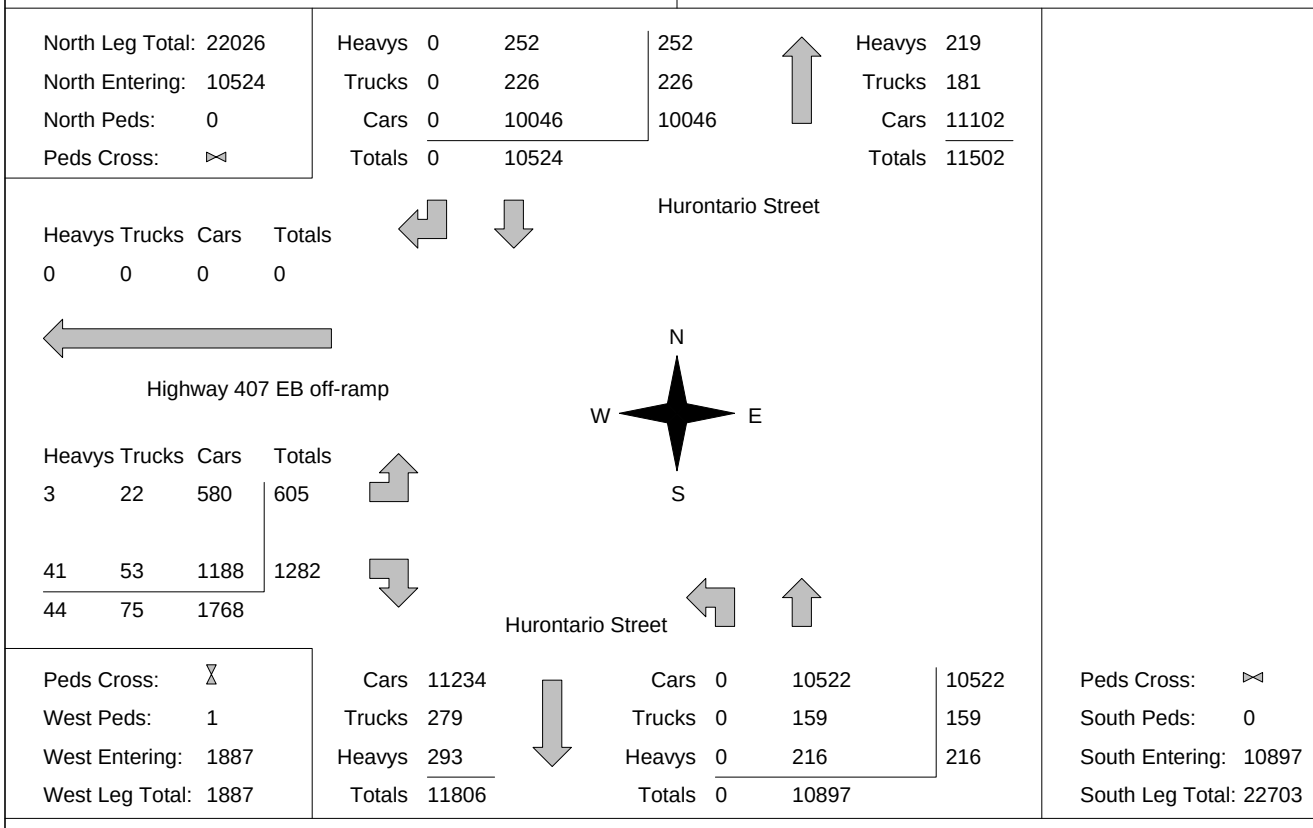
Total Count Diagram

Municipality: Brampton
Site #: 0000005702
Intersection: Hurontario Street & Highway 407 EB
TFR File #: 1
Count date: 15-Aug-2017

Weather conditions: Cloudy / Clear
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Hurontario Street runs N/S



Comments

Hurontario Street & Highway 407 EB off-ramp
Traffic Count Summary

Intersection: Hurontario Street & Highway 407 E | **Count Date:** 15-Aug-2017 | **Municipality:** Brampton

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	0	2014	0	2014	0	2575
9:00:00	0	1998	0	1998	0	2871
11:00:00	0	0	0	0	0	0
12:00:00	0	1082	0	1082	0	1902
13:00:00	0	1124	0	1124	0	2145
14:00:00	0	1098	0	1098	0	2096
15:00:00	0	0	0	0	0	0
16:00:00	0	1061	0	1061	0	2955
17:00:00	0	1088	0	1088	0	3457
18:00:00	0	1059	0	1059	0	3420
Totals:	0	10524	0	10524	0	21421

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	561	0	561	0
9:00:00	0	873	0	873	0
11:00:00	0	0	0	0	0
12:00:00	0	820	0	820	0
13:00:00	0	1021	0	1021	0
14:00:00	0	998	0	998	0
15:00:00	0	0	0	0	0
16:00:00	0	1894	0	1894	0
17:00:00	0	2369	0	2369	0
18:00:00	0	2361	0	2361	0
Totals:	0	10897	0	10897	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	0	0	0	0	0	442
9:00:00	0	0	0	0	0	685
11:00:00	0	0	0	0	0	0
12:00:00	0	0	0	0	0	124
13:00:00	0	0	0	0	0	105
14:00:00	0	0	0	0	0	111
15:00:00	0	0	0	0	0	0
16:00:00	0	0	0	0	0	124
17:00:00	0	0	0	0	0	132
18:00:00	0	0	0	0	0	164
Totals:	0	0	0	0	0	1887

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	86	0	356	442	1
9:00:00	153	0	532	685	0
11:00:00	0	0	0	0	0
12:00:00	44	0	80	124	0
13:00:00	41	0	64	105	0
14:00:00	38	0	73	111	0
15:00:00	0	0	0	0	0
16:00:00	64	0	60	124	0
17:00:00	87	0	45	132	0
18:00:00	92	0	72	164	0
Totals:	605	0	1282	1887	1

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	86	153	44	41	38	64	87	92

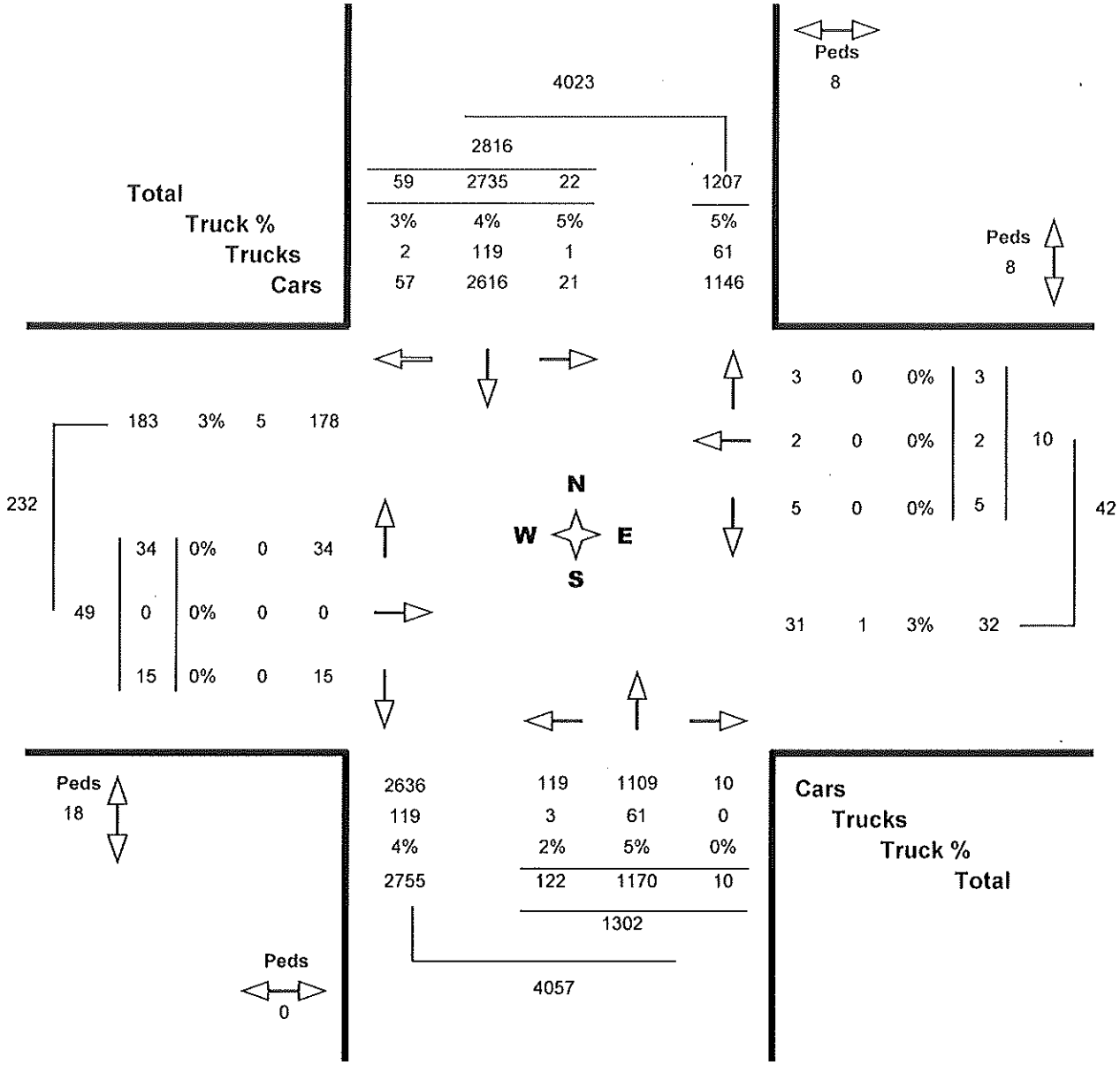
Turning Movements Report - AM Period

Location..... HURONTARIO ST @ KINGSWAY DR

Municipality..... Mississauga **GeoID.....** 345400

Count Date..... Tuesday, 26 May, 2015 **Peak Hour.....** 08:00 AM — 09:00 AM

Road 1 KINGSWAY DR **Road 2** HURONTARIO ST



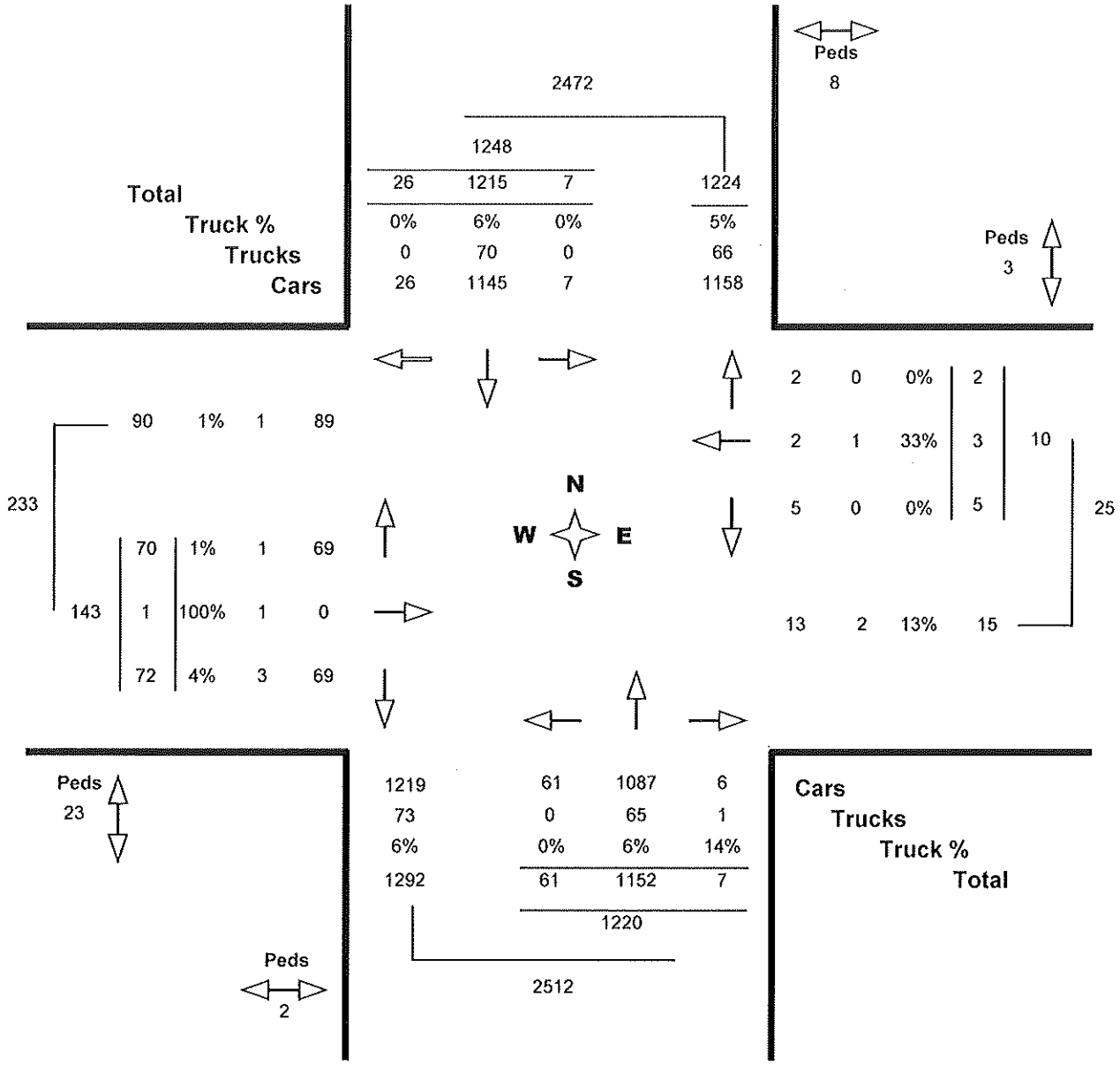
Turning Movements Report - MD Period

Location..... HURONTARIO ST @ KINGSWAY DR

Municipality..... Mississauga **GeoID.....** 345400

Count Date..... Tuesday, 26 May, 2015 **Peak Hour.....** 12:00 PM — 01:00 PM

Road 1 KINGSWAY DR **Road 2** HURONTARIO ST



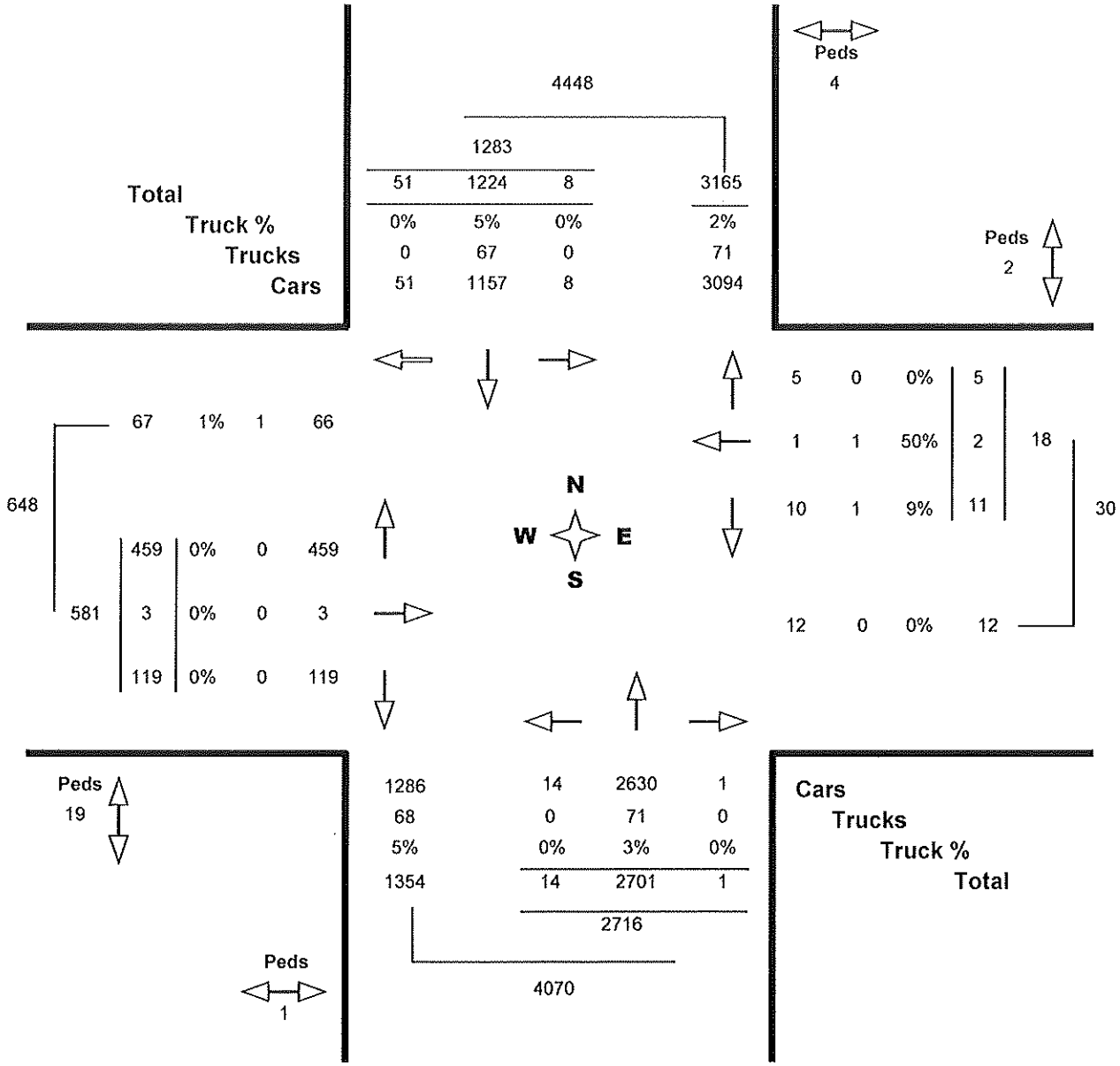
Turning Movements Report - PM Period

Location..... HURONTARIO ST @ KINGSWAY DR

Municipality..... Mississauga **GeoID.....** 345400

Count Date..... Tuesday, 26 May, 2015 **Peak Hour.....** 04:15 PM — 05:15 PM

Road 1 KINGSWAY DR **Road 2** HURONTARIO ST



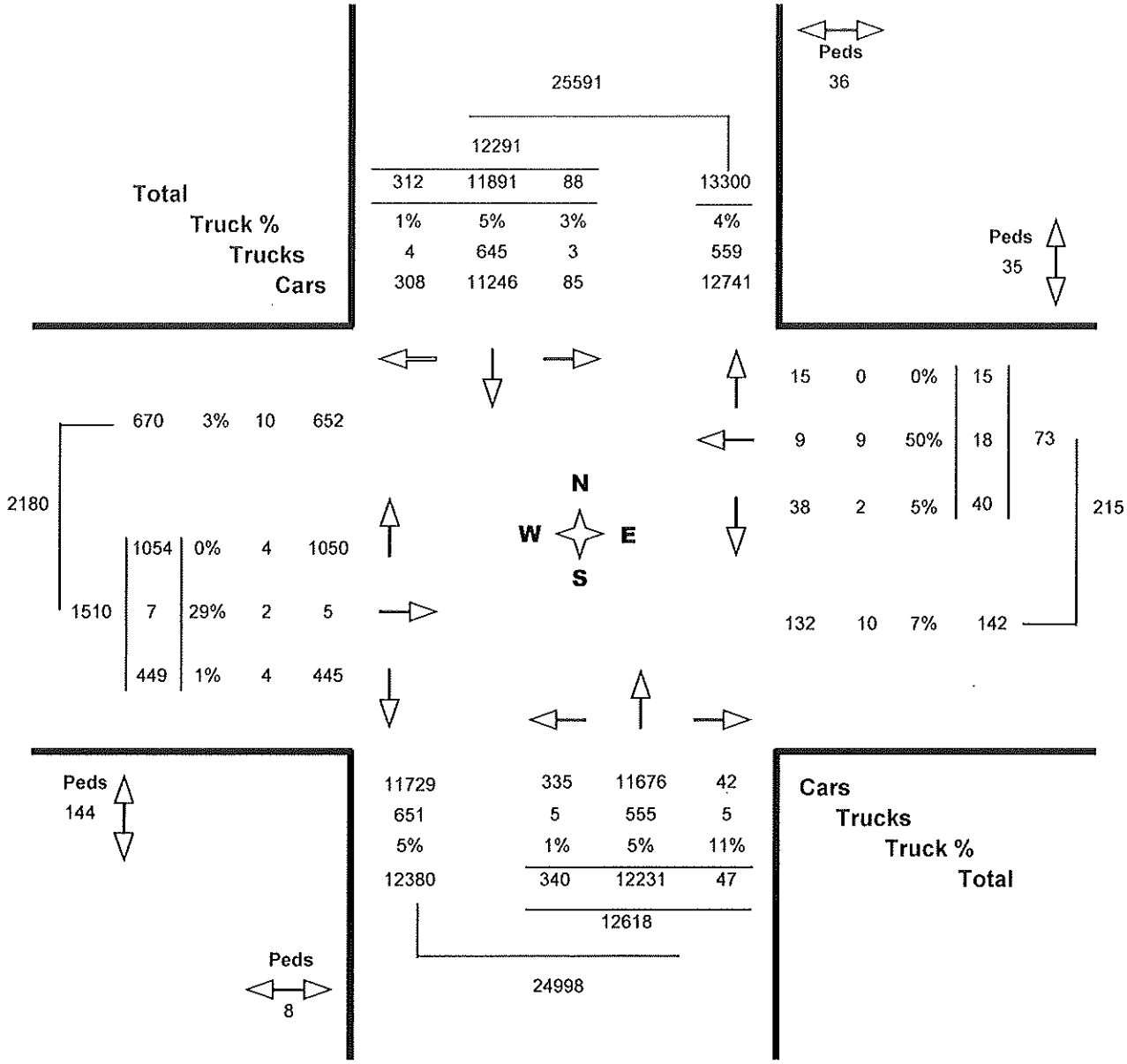
Turning Movements Count - Full Study Report

Location..... HURONTARIO ST @ KINGSWAY DR

Municipality..... Mississauga

GeoID..... 345400 **Count Date.....** Tuesday, 26 May, 2015

Road 1 KINGSWAY DR **Road 2** HURONTARIO ST



Turning Movement Count - Details Report

Location..... HURONTARIO ST @ KINGSWAY DR

Municipality..... Mississauga

Road 1 KINGSWAY DR **Road 2** HURONTARIO ST

Count Date..... Tuesday, May 26, 2015

		North Approach					South Approach					East Approach					West Approach				
Time Period		LT	TH	RT	Heavy	TOT	LT	TH	RT	Heavy	TOT	LT	TH	RT	Heavy	TOT	LT	TH	RT	Heavy	TOT
07:00	07:15	2	495	13	52	510	2	129	0	52	131	0	0	0	0	0	3	0	3	0	6
07:15	07:30	2	567	15	29	584	8	126	2	27	136	0	0	0	0	0	3	0	2	2	5
07:30	07:45	0	665	18	40	683	11	182	1	40	194	0	0	0	1	0	3	1	6	1	10
07:45	08:00	1	612	8	36	621	13	193	0	36	206	0	0	0	0	0	3	0	0	0	3
08:00	08:15	2	631	25	37	658	20	233	1	37	254	0	0	0	0	0	3	0	2	0	5
08:15	08:30	2	738	14	37	754	37	273	2	35	312	3	1	0	1	4	11	0	4	3	15
08:30	08:45	2	647	10	38	659	34	349	4	38	387	1	0	1	0	2	9	0	4	0	13
08:45	09:00	16	719	10	71	745	31	315	3	73	349	1	1	2	0	4	11	0	5	2	16
11:00	11:15	3	246	2	32	251	12	255	2	31	269	4	0	0	0	4	7	0	8	1	15
11:15	11:30	0	245	1	46	246	3	238	2	45	243	0	0	0	0	0	3	0	5	1	8
11:30	11:45	11	263	7	39	281	6	199	1	37	206	2	0	0	2	2	11	0	16	0	27
11:45	12:00	4	261	3	31	268	11	277	1	31	289	3	0	0	0	3	11	0	11	0	22
12:00	12:15	0	308	10	28	318	13	321	4	31	338	3	0	1	1	4	24	0	19	2	43
12:15	12:30	0	270	1	40	271	7	290	0	40	297	2	3	0	2	5	14	1	9	2	24
12:30	12:45	1	348	5	36	354	15	273	0	35	288	0	0	0	0	0	13	0	20	1	33
12:45	13:00	6	289	10	32	305	26	268	3	33	297	0	0	1	0	1	19	0	24	1	43
13:00	13:15	2	264	8	37	274	13	332	1	39	346	0	2	0	0	2	16	0	15	2	31
13:15	13:30	1	226	7	30	234	8	241	3	30	252	1	0	0	1	1	7	0	4	1	11
13:30	13:45	3	277	5	40	285	5	309	1	41	315	0	1	0	1	1	8	0	9	2	17
13:45	14:00	2	278	4	34	284	15	281	3	35	299	2	0	0	1	2	4	0	9	0	13
15:00	15:15	5	378	5	37	388	7	419	0	37	426	0	1	1	0	2	8	0	11	0	19
15:15	15:30	0	254	11	43	265	13	496	0	43	509	1	0	0	0	1	22	0	14	0	36
15:30	15:45	2	242	8	40	252	4	463	3	40	470	1	2	1	2	4	27	0	30	2	57
15:45	16:00	2	279	11	47	292	1	488	2	47	491	0	2	1	1	3	35	0	27	1	62
16:00	16:15	5	315	10	48	330	8	631	0	48	639	0	3	0	3	3	71	0	32	3	103
16:15	16:30	1	282	12	50	295	7	684	0	50	691	3	0	1	0	4	58	0	16	0	74
16:30	16:45	3	287	9	33	299	2	690	0	33	692	2	1	2	1	5	141	1	55	1	197
16:45	17:00	4	342	18	31	364	3	632	0	32	635	4	1	2	1	7	138	1	30	0	169
17:00	17:15	0	313	12	24	325	2	695	1	24	698	2	0	0	0	2	122	1	18	0	141
17:15	17:30	5	289	14	22	308	0	620	3	25	623	4	0	0	3	4	78	1	17	0	96
17:30	17:45	1	279	11	38	291	2	663	0	38	665	1	0	1	0	2	82	0	16	0	98
17:45	18:00	0	282	15	33	297	1	666	4	33	671	0	0	1	0	1	89	1	8	0	98
Total	.....	88	11891	312	1211	12291	340	12231	47	1216	12618	40	18	15	21	73	1054	7	449	28	1510

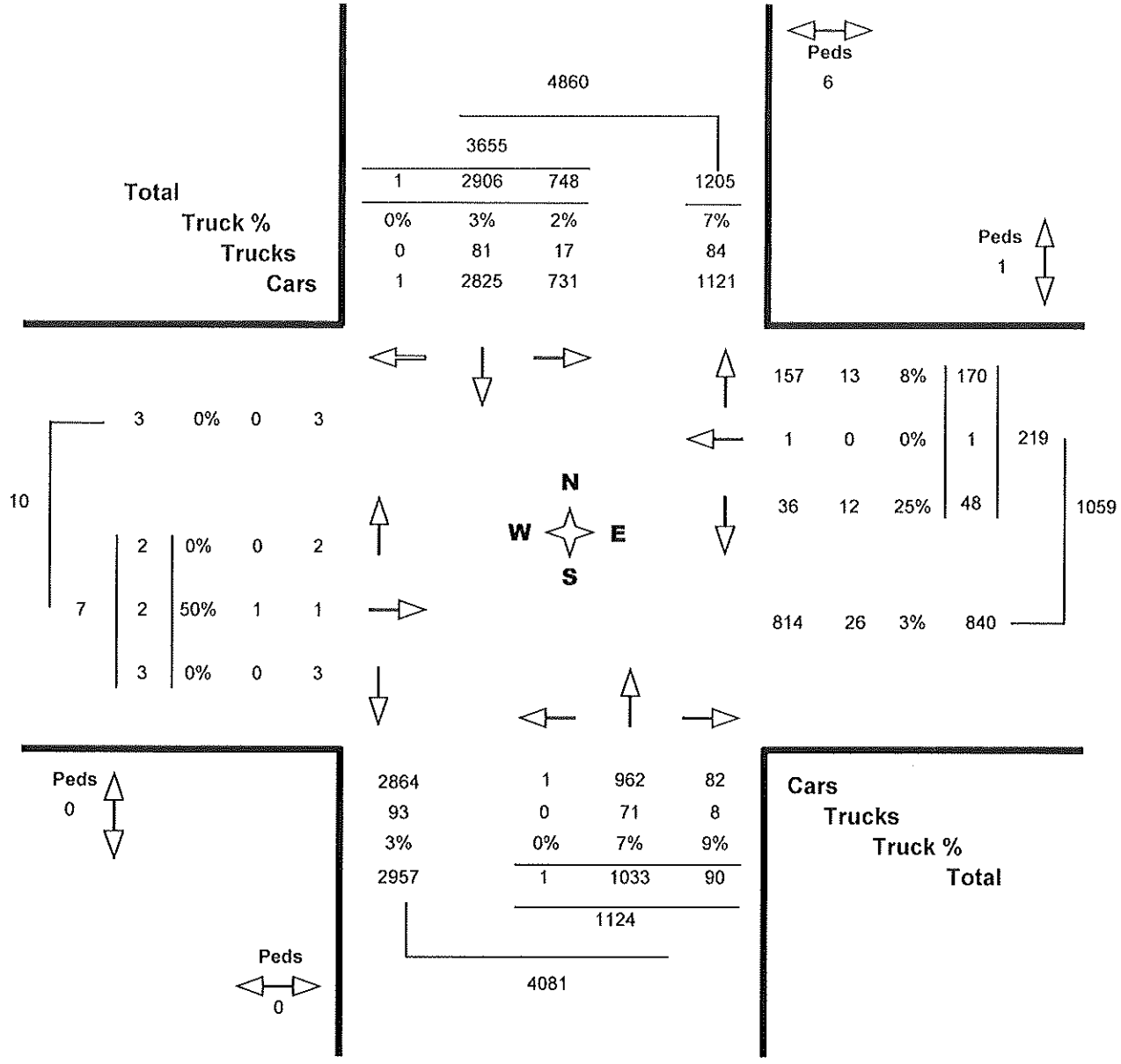
Turning Movements Report - AM Period

Location..... HURONTARIO ST / VICKSBURGH DR @ TOPFLIGHT DR

Municipality..... Mississauga **GeoID.....** 345234

Count Date..... Wednesday, 20 May, 2015 **Peak Hour.....** 07:45 AM — 08:45 AM

Road 1 TOPFLIGHT DR **Road 2** HURONTARIO ST / VICKSBURGH DR



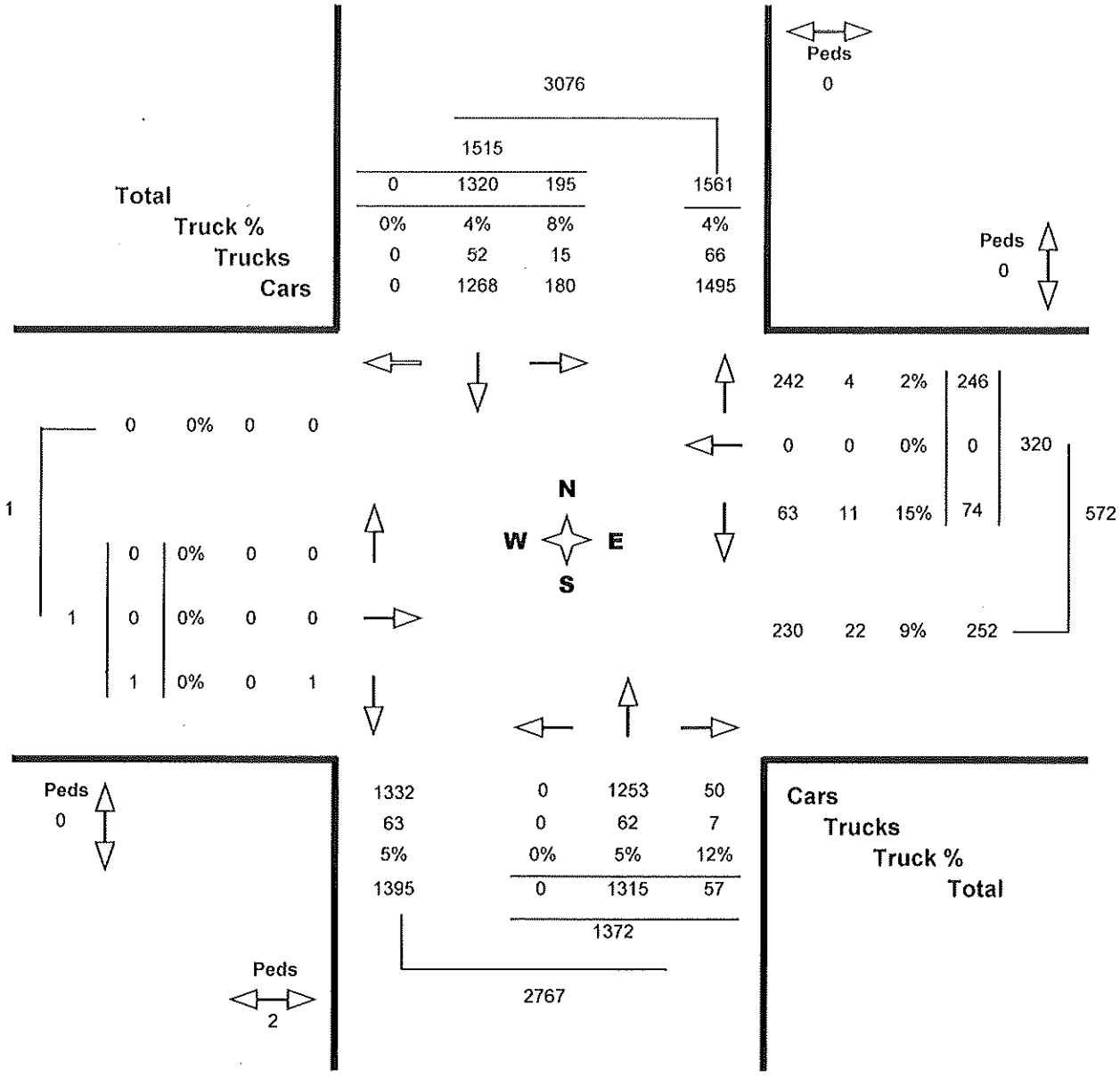
Turning Movements Report - MD Period

Location..... HURONTARIO ST / VICKSBURGH DR @ TOPFLIGHT DR

Municipality..... Mississauga **GeoID.....** 345234

Count Date..... Wednesday, 20 May, 2015 **Peak Hour.....** 12:30 PM — 01:30 PM

Road 1 TOPFLIGHT DR **Road 2** HURONTARIO ST / VICKSBURGH DR



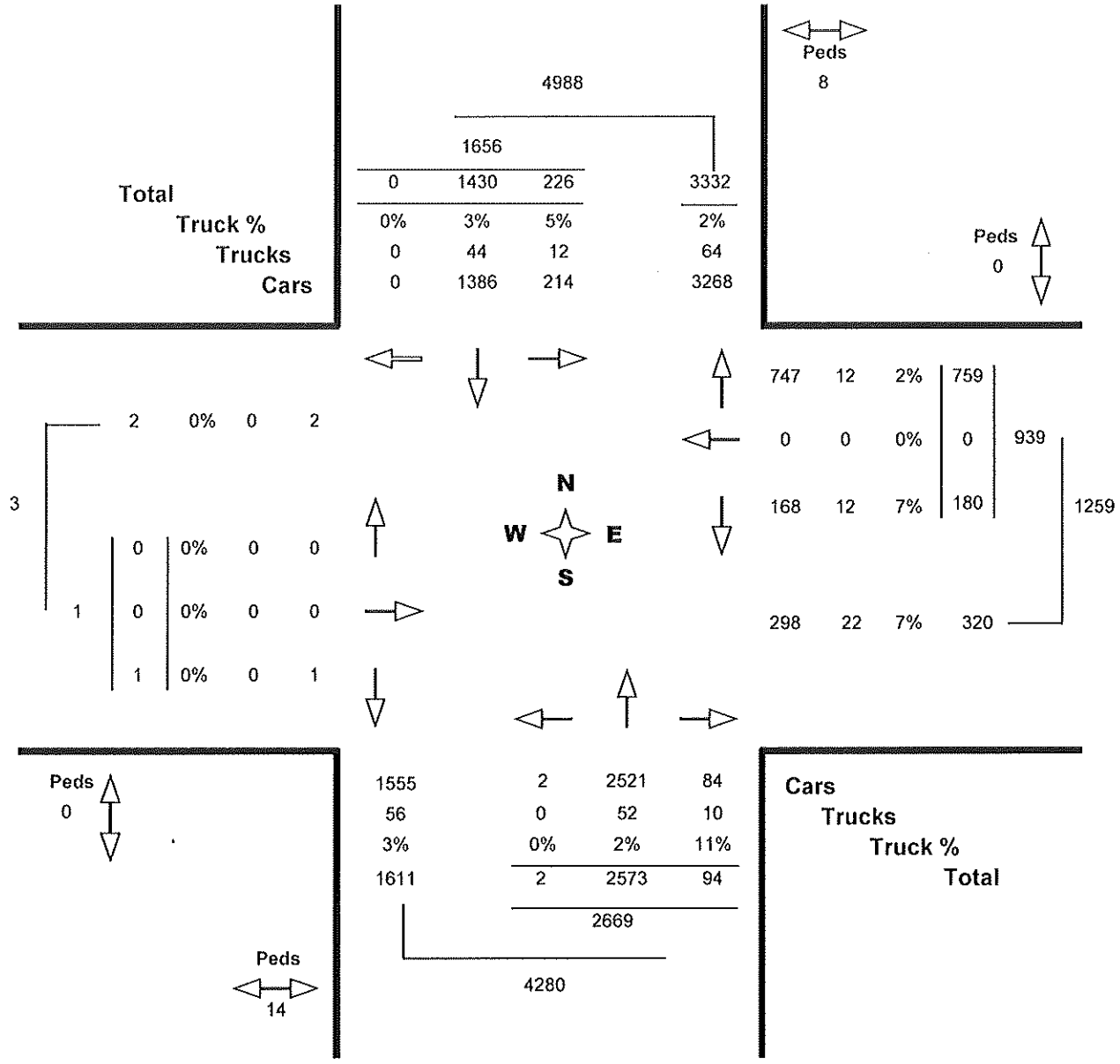
Turning Movements Report - PM Period

Location..... HURONTARIO ST / VICKSBURGH DR @ TOPFLIGHT DR

Municipality..... Mississauga **GeoID.....** 345234

Count Date..... Wednesday, 20 May, 2015 **Peak Hour.....** 04:45 PM — 05:45 PM

Road 1 TOPFLIGHT DR **Road 2** HURONTARIO ST / VICKSBURGH DR



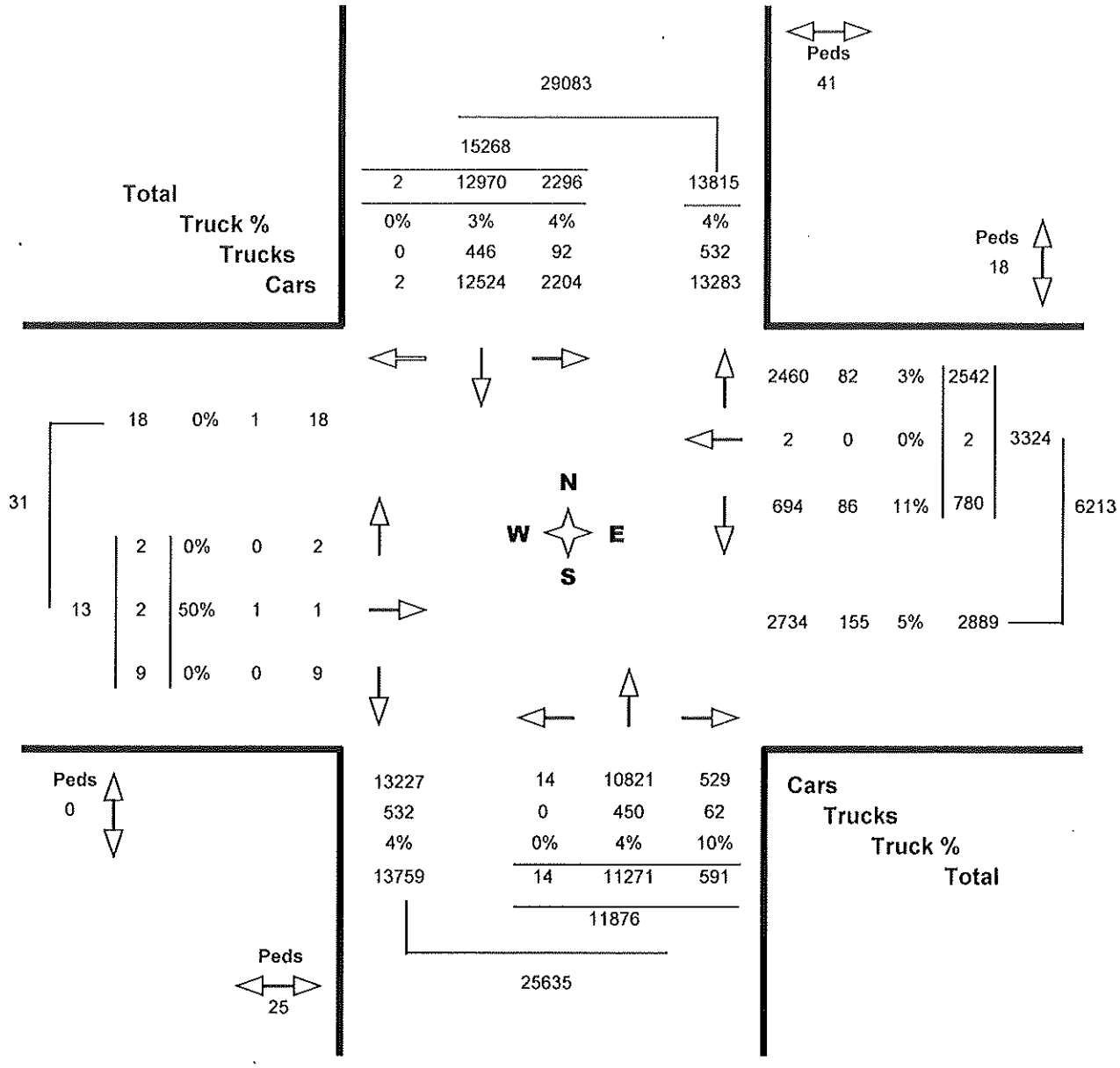
Turning Movements Count - Full Study Report

Location..... HURONTARIO ST / VICKSBURGH DR @ TOPFLIGHT DR

Municipality..... Mississauga

GeoID..... 345234 **Count Date.....** Wednesday, 20 May, 2015

Road 1 TOPFLIGHT DR **Road 2** HURONTARIO ST / VICKSBURGH DR



Turning Movement Count - Details Report

Location..... HURONTARIO ST / VICKSBURGH DR @ TOPFLIGHT DR

Municipality..... Mississauga

Road 1 TOPFLIGHT DR **Road 2** HURONTARIO ST / VICKSBURGH DR

Count Date..... Wednesday, May 20, 2015

		North Approach					South Approach					East Approach					West Approach				
Time Period		LT	TH	RT	Heavy	TOT	LT	TH	RT	Heavy	TOT	LT	TH	RT	Heavy	TOT	LT	TH	RT	Heavy	TOT
07:00	07:15	84	574	0	32	658	0	145	5	35	150	14	0	20	9	34	0	0	0	0	0
07:15	07:30	83	634	0	27	717	0	147	10	23	157	5	0	25	8	30	0	0	0	0	0
07:30	07:45	139	702	0	48	841	2	169	17	45	188	9	0	33	11	42	0	0	1	0	1
07:45	08:00	209	772	1	42	982	1	217	20	41	238	12	0	26	15	38	0	0	2	0	2
08:00	08:15	190	718	0	46	908	0	285	15	39	300	12	0	45	12	57	0	2	1	1	3
08:15	08:30	174	696	0	50	870	0	237	32	48	269	8	0	49	14	57	0	0	0	0	0
08:30	08:45	175	720	0	44	895	0	294	23	44	317	16	1	50	10	67	2	0	0	0	2
08:45	09:00	175	673	0	39	848	0	308	28	39	336	17	0	54	12	71	0	0	0	0	0
11:00	11:15	20	226	0	19	246	1	195	8	20	204	19	1	33	9	53	0	0	1	0	1
11:15	11:30	21	236	0	18	257	0	205	5	17	210	15	0	33	5	48	0	0	0	0	0
11:30	11:45	24	231	0	27	255	7	222	13	25	242	14	0	63	12	77	0	0	0	0	0
11:45	12:00	38	256	1	28	295	0	245	12	29	257	31	0	50	7	81	0	0	1	0	1
12:00	12:15	40	295	0	37	335	0	302	7	37	309	32	0	51	12	83	0	0	0	0	0
12:15	12:30	42	301	0	40	343	0	313	12	35	325	33	0	49	9	82	0	0	0	0	0
12:30	12:45	55	310	0	24	365	0	322	16	27	338	18	0	61	7	79	0	0	0	0	0
12:45	13:00	54	338	0	40	392	0	335	15	35	350	23	0	57	9	80	0	0	0	0	0
13:00	13:15	42	339	0	35	381	0	323	11	41	334	17	0	65	10	82	0	0	1	0	1
13:15	13:30	44	333	0	34	377	0	335	15	29	350	16	0	63	11	79	0	0	0	0	0
13:30	13:45	47	300	0	41	347	0	329	19	39	348	19	0	61	12	80	0	0	0	0	0
13:45	14:00	49	320	0	31	369	0	322	16	31	338	31	0	61	8	92	0	0	0	0	0
15:00	15:15	50	332	0	43	382	0	343	20	39	363	26	0	66	8	92	0	0	0	0	0
15:15	15:30	44	331	0	38	375	0	379	33	40	412	19	0	60	10	79	0	0	0	0	0
15:30	15:45	56	302	0	27	358	1	356	31	30	388	29	0	73	7	102	0	0	1	0	1
15:45	16:00	52	310	0	22	362	0	384	28	21	412	36	0	71	15	107	0	0	0	0	0
16:00	16:15	41	346	0	31	387	0	436	24	29	460	47	0	98	14	145	0	0	0	0	0
16:15	16:30	50	334	0	31	384	0	451	21	31	472	25	0	83	6	108	0	0	0	0	0
16:30	16:45	38	307	0	34	345	0	511	33	37	544	35	0	215	11	250	0	0	0	0	0
16:45	17:00	55	359	0	20	414	1	632	22	19	655	34	0	169	7	203	0	0	1	0	1
17:00	17:15	61	356	0	28	417	0	646	30	27	676	44	0	165	11	209	0	0	0	0	0
17:15	17:30	68	356	0	41	424	0	664	21	38	685	36	0	200	15	236	0	0	0	0	0
17:30	17:45	42	359	0	31	401	1	631	21	34	653	66	0	225	13	291	0	0	0	0	0
17:45	18:00	34	304	0	22	338	0	588	8	20	596	22	0	168	4	190	0	0	0	0	0
Total	.....	2296	12970	2	1070	15268	14	11271	591	1044	11876	780	2	2542	323	3324	2	2	9	1	13

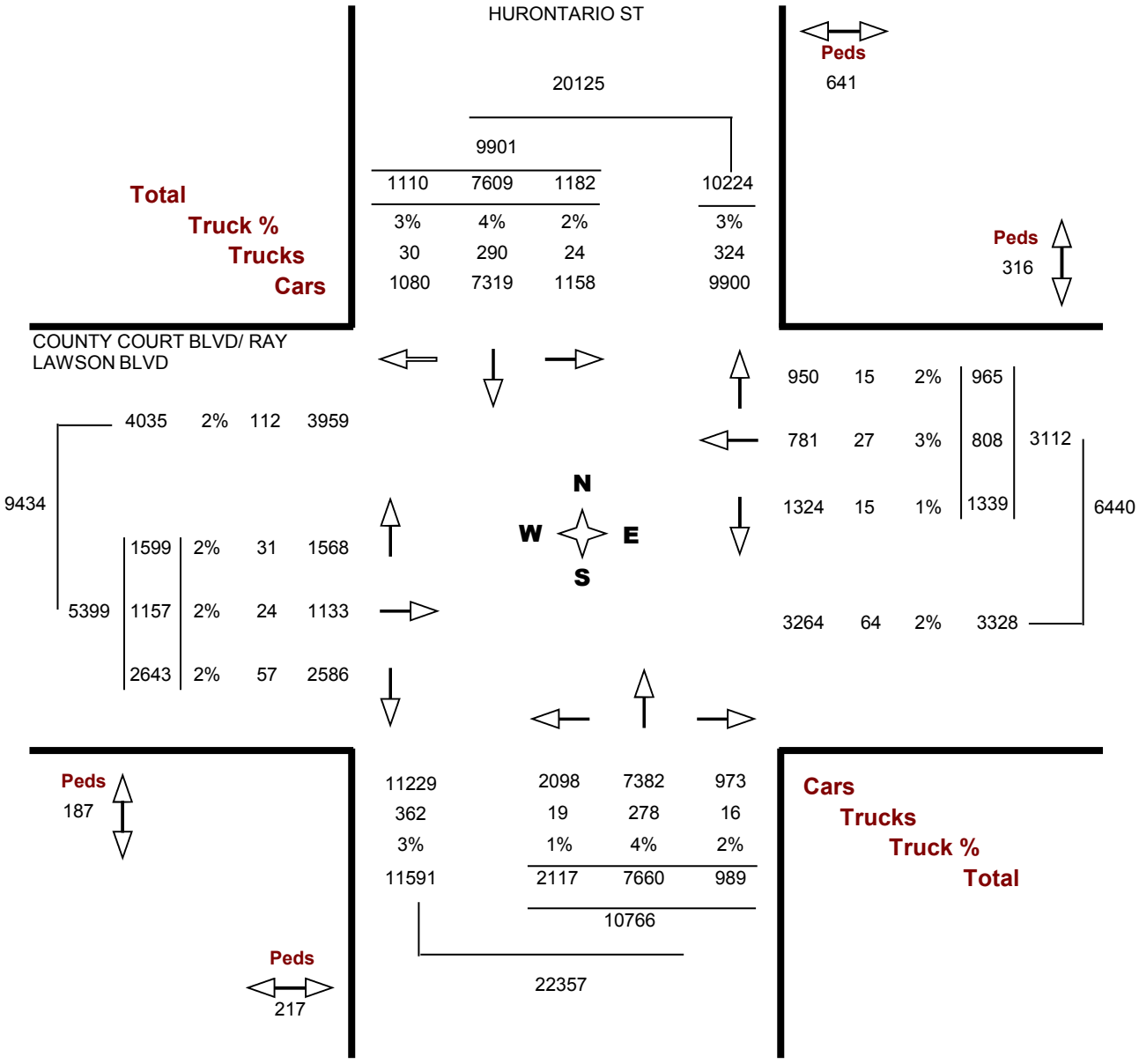
Turning Movements Count - Full Study Report

Location..... COUNTY COURT BLVD/ RAY LAWSON BLVD @ HURONTARIO ST

Municipality..... Brampton

GeoID..... 8402

Count Date..... Tuesday, 27 October, 2015



Turning Movements Report - AM Period

Location..... COUNTY COURT BLVD/ RAY LAWSON BLVD @ HURONTARIO ST

GeoID..... 8402

Municipality. Brampton

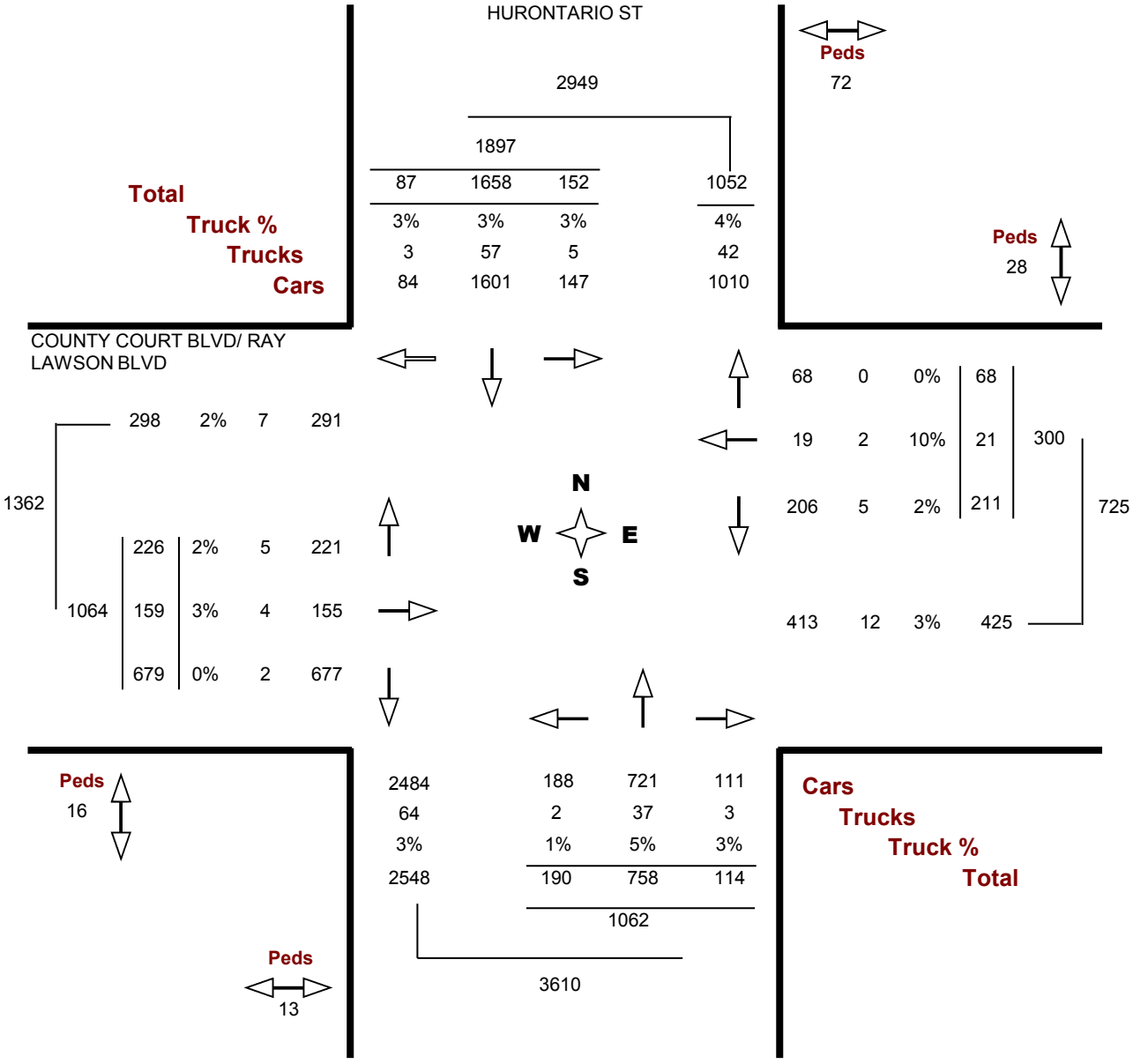
Count Date. Tuesday, 27 October, 2015

Traffic Cont. Traffic signal

Count Time. 07:00 AM — 09:00 AM

Major Dir..... None

Peak Hour.. 07:45 AM — 08:45 AM



Turning Movements Report - MD Period

Location..... COUNTY COURT BLVD/ RAY LAWSON BLVD @ HURONTARIO ST

GeoID..... 8402

Municipality. Brampton

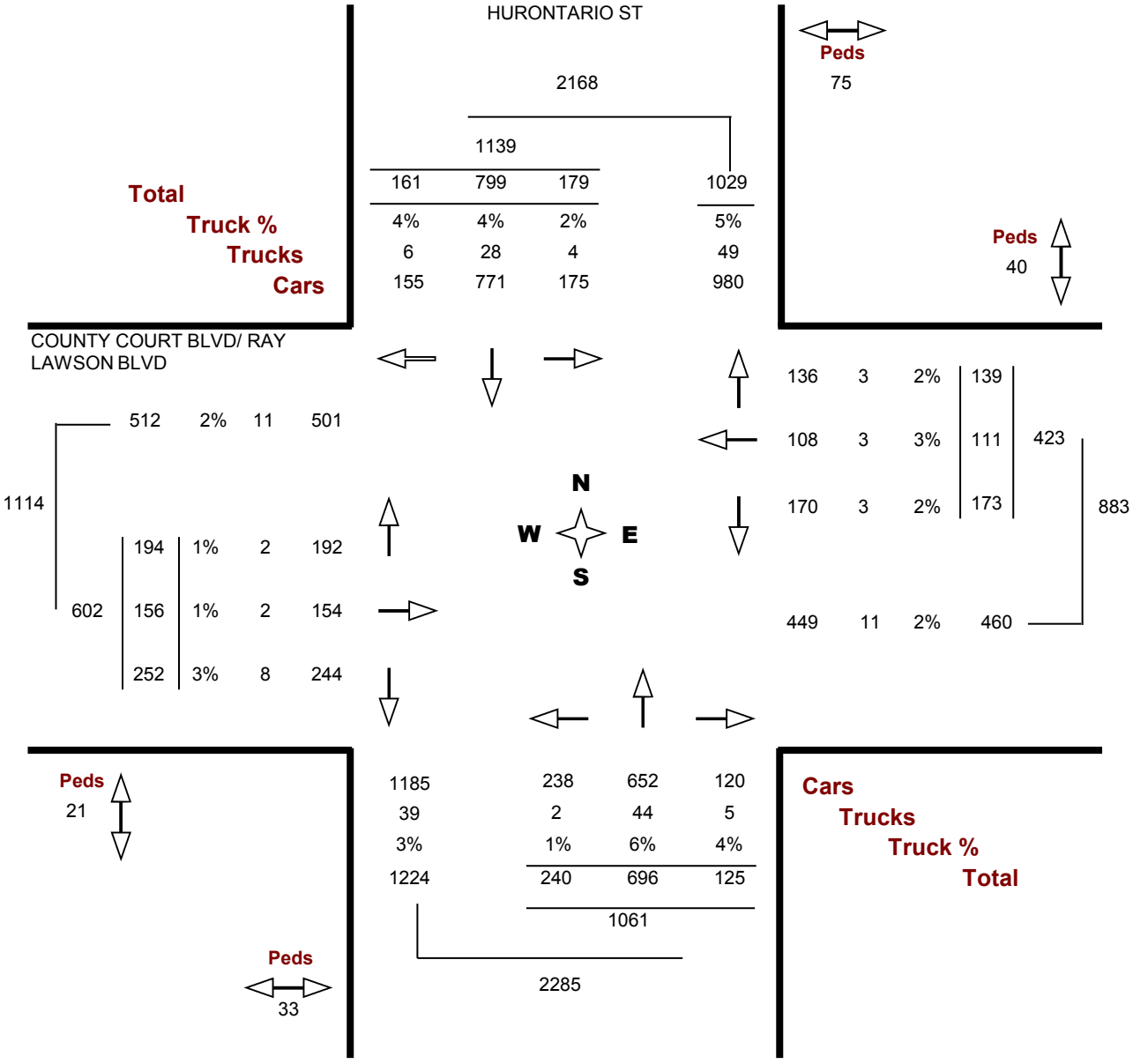
Count Date. Tuesday, 27 October, 2015

Traffic Cont. Traffic signal

Count Time. 11:00 AM — 02:00 PM

Major Dir..... None

Peak Hour.. 12:15 PM — 01:15 PM



Turning Movements Report - PM Period

Location..... COUNTY COURT BLVD/ RAY LAWSON BLVD @ HURONTARIO ST

GeoID..... 8402

Municipality. Brampton

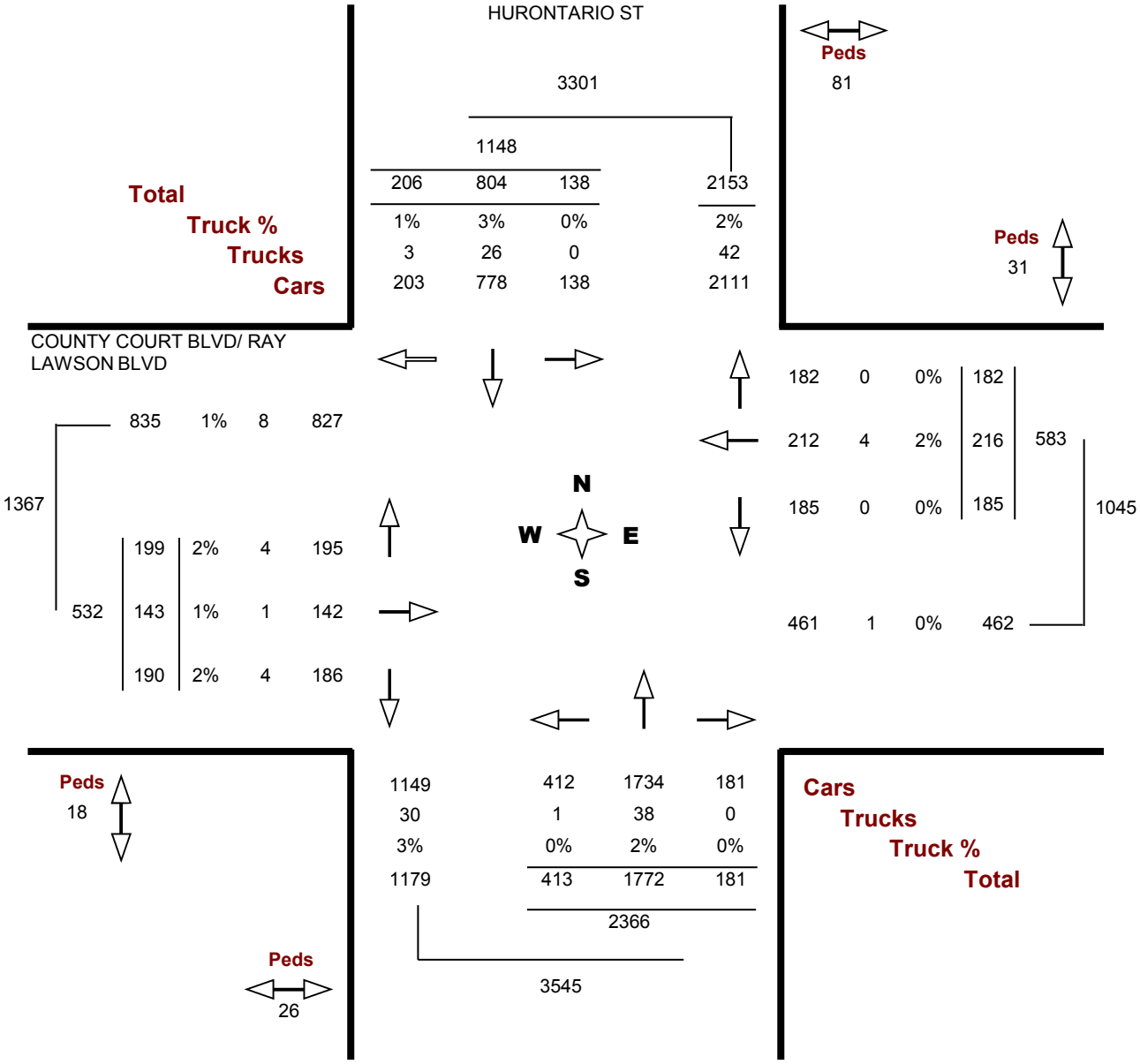
Count Date. Tuesday, 27 October, 2015

Traffic Cont. Traffic signal

Count Time. 03:00 PM — 06:00 PM

Major Dir..... None

Peak Hour.. 04:45 PM — 05:45 PM



Horizon Data Services 250 Cochrane Dr Unit 6, Markham ON L3R 8E5 Ph: 416.840.6619 Fax: 416.840.5297 counts@HDSL.ca

Count Station: 00510831 **Derry Road at Hurontario Street** Traffic Control: **Signalized**

Municipality: Mississauga Weather: **Overcast** Intersection Type: **Cross**

Count Date: **Thursday, November 27, 2014** Class/Mode: **Cyclist Auto Trucks +Peds** Major St: **EastWest**

Period		SOUTHbound Hurontario St					WESTbound Derry Rd					NORTHbound Hurontario St					EASTbound Derry Rd					TOTAL
From	To	Left	Through	Right	Peds	Total	Left	Through	Right	Peds	Total	Left	Through	Right	Peds	Total	Left	Through	Right	Peds	Total	
700	715	70	275	10	2	**357**	18	96	31	2	**147**	32	70	12	13	**127**	24	347	25	6	**402**	**1033**
715	730	88	332	27	4	**451**	28	143	29	2	**202**	32	99	11	14	**156**	18	256	12	-	**286**	**1095**
730	745	76	396	24	14	**510**	29	146	39	11	**225**	44	113	11	15	**183**	29	320	12	14	**375**	**1293**
745	800	72	374	33	6	**485**	35	182	31	8	**256**	48	129	12	22	**211**	27	318	24	10	**379**	**1331**
800	815	77	374	17	4	**472**	38	158	32	2	**230**	31	151	20	10	**212**	29	222	19	5	**275**	**1189**
815	830	61	344	25	5	**435**	38	212	50	4	**304**	37	178	14	16	**245**	41	308	24	8	**381**	**1365**
830	845	75	353	44	1	**473**	27	210	47	1	**285**	41	133	19	10	**203**	51	297	29	16	**393**	**1354**
845	900	68	318	30	4	**420**	35	183	45	1	**264**	41	147	20	15	**223**	55	253	19	13	**340**	**1247**
1100	1115	54	146	15	-	**215**	12	87	36	-	**135**	29	126	13	10	**178**	16	135	23	5	**179**	**707**
1115	1130	63	182	18	1	**264**	22	90	55	3	**170**	26	145	23	3	**197**	24	138	22	6	**190**	**821**
1130	1145	65	155	15	-	**235**	17	115	36	-	**168**	19	149	29	10	**207**	33	153	14	4	**204**	**814**
1145	1200	57	164	16	3	**240**	19	131	44	-	**194**	21	141	28	7	**197**	27	149	14	1	**191**	**822**
1200	1215	71	149	21	2	**243**	34	117	60	4	**215**	46	151	22	4	**223**	23	120	22	8	**173**	**854**
1215	1230	65	136	19	-	**220**	26	129	48	5	**208**	34	150	22	15	**221**	18	164	20	8	**210**	**859**
1230	1245	74	158	11	3	**246**	29	109	46	2	**186**	37	135	25	3	**200**	33	128	18	11	**190**	**822**
1245	1300	53	181	10	5	**249**	15	116	50	6	**187**	40	174	16	18	**248**	19	144	18	9	**190**	**874**
1300	1315	72	133	16	1	**222**	31	129	43	2	**205**	42	168	27	6	**243**	28	134	8	5	**175**	**845**
1315	1330	62	164	14	6	**246**	28	128	50	5	**211**	28	185	27	4	**244**	34	147	10	3	**194**	**895**
1330	1345	59	152	14	2	**227**	26	137	52	4	**219**	31	177	26	10	**244**	21	143	22	11	**197**	**887**
1345	1400	69	160	16	3	**248**	24	160	44	1	**229**	31	168	21	9	**229**	17	157	11	16	**201**	**907**
1500	1515	55	152	19	3	**229**	23	221	75	5	**324**	40	249	30	9	**328**	35	206	16	9	**266**	**1147**
1515	1530	58	169	19	8	**254**	31	220	73	9	**333**	50	244	23	4	**321**	39	154	19	3	**215**	**1123**
1530	1545	51	168	14	4	**237**	33	281	100	5	**419**	40	271	19	13	**343**	41	185	15	5	**246**	**1245**
1545	1600	39	208	23	5	**275**	35	354	87	3	**479**	61	366	18	11	**456**	42	159	17	6	**224**	**1434**
1600	1615	37	158	22	5	**222**	23	321	110	4	**458**	55	323	26	22	**426**	18	161	19	3	**201**	**1307**
1615	1630	37	176	23	8	**244**	32	365	105	6	**508**	70	359	18	10	**457**	44	197	18	1	**260**	**1469**
1630	1645	35	173	31	7	**246**	24	318	101	1	**444**	49	354	21	19	**443**	32	206	9	8	**255**	**1388**
1645	1700	30	184	38	5	**257**	30	348	98	7	**483**	73	344	16	13	**446**	48	223	19	2	**292**	**1478**
1700	1715	36	164	22	7	**229**	26	309	94	4	**433**	49	349	24	18	**440**	53	165	9	1	**228**	**1330**
1715	1730	27	104	30	4	**165**	27	346	124	3	**500**	17	261	19	10	**307**	45	213	10	-	**268**	**1240**
1730	1745	50	110	17	12	**189**	16	296	94	9	**415**	22	257	11	2	**292**	35	184	3	2	**224**	**1120**
1745	1800	46	105	26	9	**186**	22	321	91	6	**440**	6	216	13	1	**236**	45	188	2	1	**236**	**1098**
TOTAL		1852	6517	679	143	**9191**	853	6478	2020	125	**9476**	1222	6482	636	346	**8686**	1044	6274	522	200	**8040**	**35393**
PHF	**AMpeak**	**0.93**	**0.97**	**0.68**	**0.67**	**0.96**	**0.91**	**0.90**	**0.80**	**0.47**	**0.88**	**0.82**	**0.83**	**0.81**	**0.66**	**0.89**	**0.73**	**0.90**	**0.83**	**0.61**	**0.91**	**0.96**
PHF	**PMpeak**	**0.93**	**0.95**	**0.75**	**0.84**	**0.95**	**0.88**	**0.92**	**0.95**	**0.64**	**0.92**	**0.83**	**0.98**	**0.82**	**0.79**	**0.98**	**0.83**	**0.89**	**0.72**	**0.38**	**0.89**	**0.96**

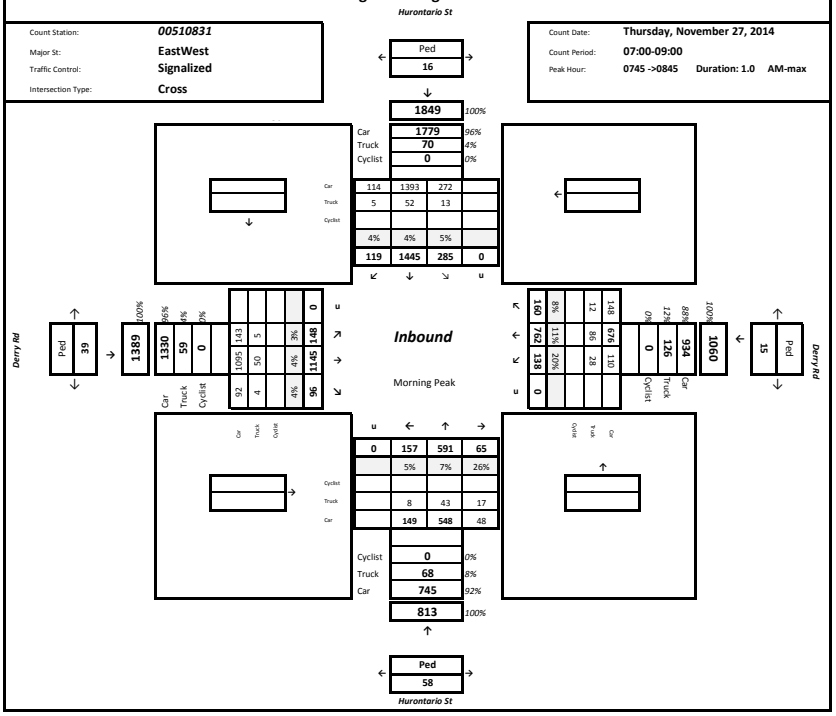
Horizon Data Services *250 Cochrane Dr Unit 6, Markham ON L3R 8E5* *Ph: 416.840.6619 Fax: 416.840.5297* counts@HDSL.CA

Derry Road at Hurontario Street - Mississauga

Morning Peak Diagram

Count Station:	*00510831*
Major St:	EastWest
Traffic Control:	Signalized
Intersection Type:	Cross

Count Date:	Thursday, November 27, 2014
Count Period:	07:00-09:00
Peak Hour:	0745 ->0845 Duration: 1.0 AM-max



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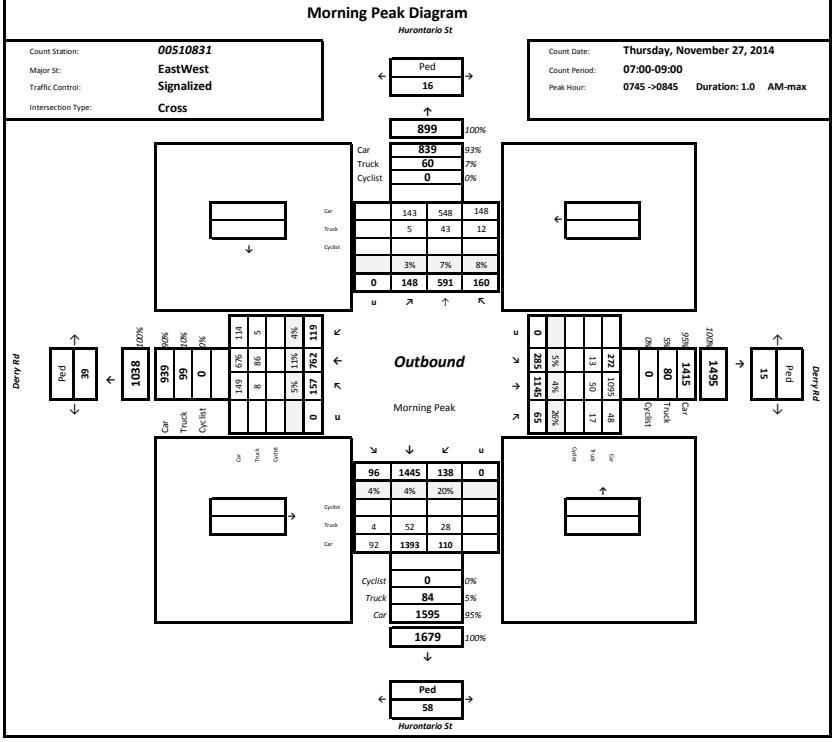
Derry Road at Hurontario Street - Mississauga

Morning Peak Diagram

Count Station:	*00510831*
Major St:	EastWest
Traffic Control:	Signalized
Intersection Type:	Cross

Count Date:	Thursday, November 27, 2014
Count Period:	07:00-09:00
Peak Hour:	0745 ->0845 Duration: 1.0 AM-max



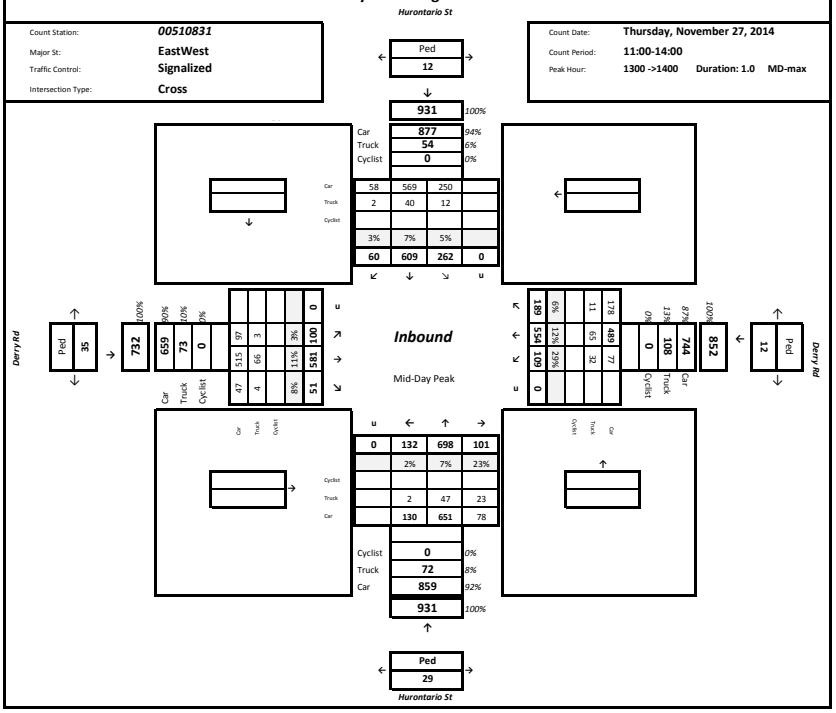
Horizon Data Services *250 Cochrane Dr Unit 6, Markham ON L3R 8E5* *Ph: 416.840.6619 Fax: 416.840.5297* counts@HDSL.CA

Derry Road at Hurontario Street - Mississauga

Mid-Day Peak Diagram

Count Station:	*00510831*
Major St:	EastWest
Traffic Control:	Signalized
Intersection Type:	Cross

Count Date:	Thursday, November 27, 2014
Count Period:	11:00-14:00
Peak Hour:	1300 ->1400 Duration: 1.0 MD-max



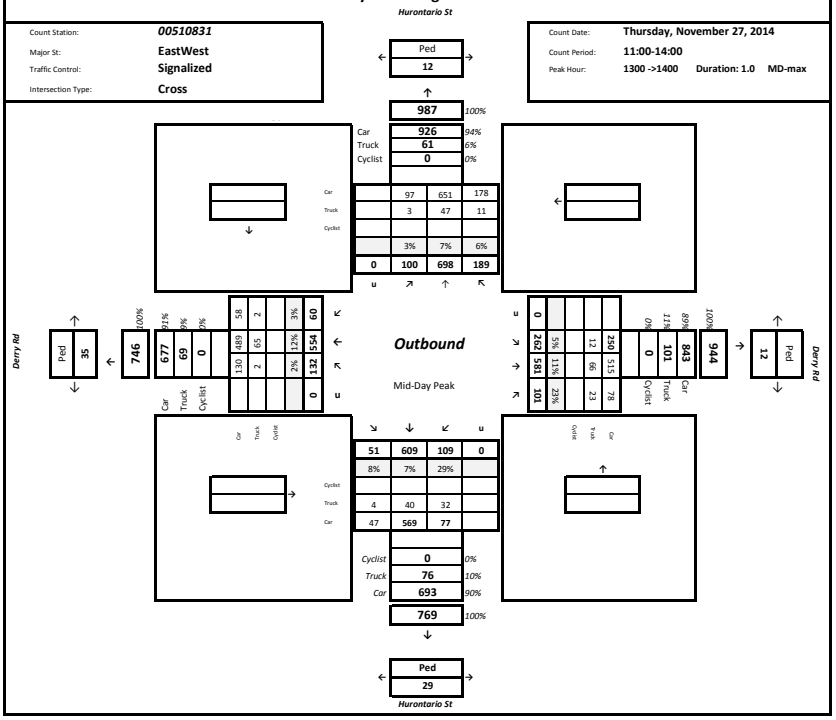
Horizon Data Services *250 Cochrane Dr Unit 6, Markham ON L3R 8E5* *Ph: 416.840.6619 Fax: 416.840.5297* counts@HDSL.CA

Derry Road at Hurontario Street - Mississauga

Mid-Day Peak Diagram

Count Station:	*00510831*
Major St:	EastWest
Traffic Control:	Signalized
Intersection Type:	Cross

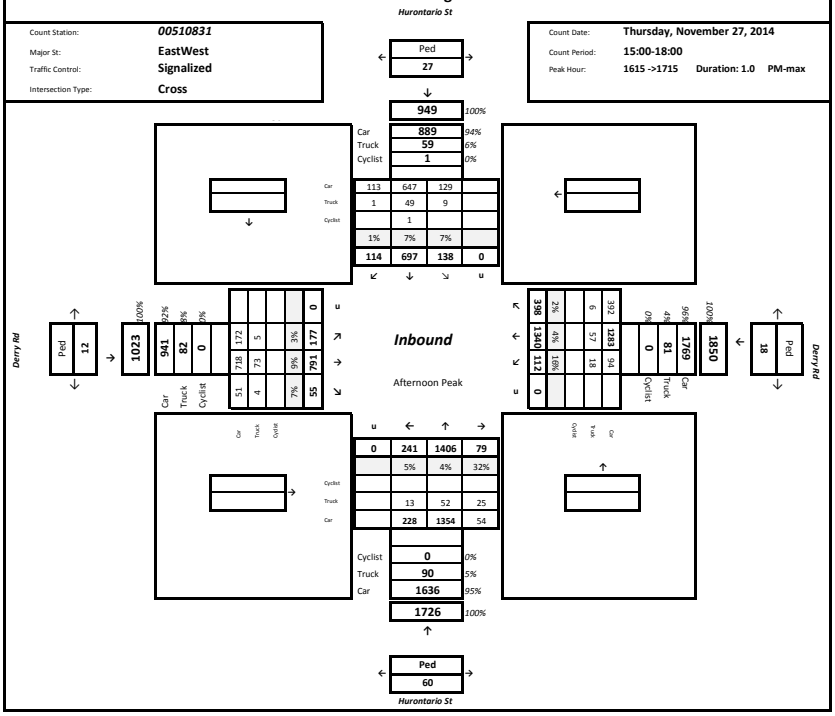
Count Date:	Thursday, November 27, 2014
Count Period:	11:00-14:00
Peak Hour:	1300 ->1400 Duration: 1.0 MD-max



Horizon Data Services *250 Cochrane Dr Unit 6, Markham ON L3R 8E5* *Ph: 416.840.6619 Fax: 416.840.5297* counts@HDSL.CA

Derry Road at Hurontario Street - Mississauga

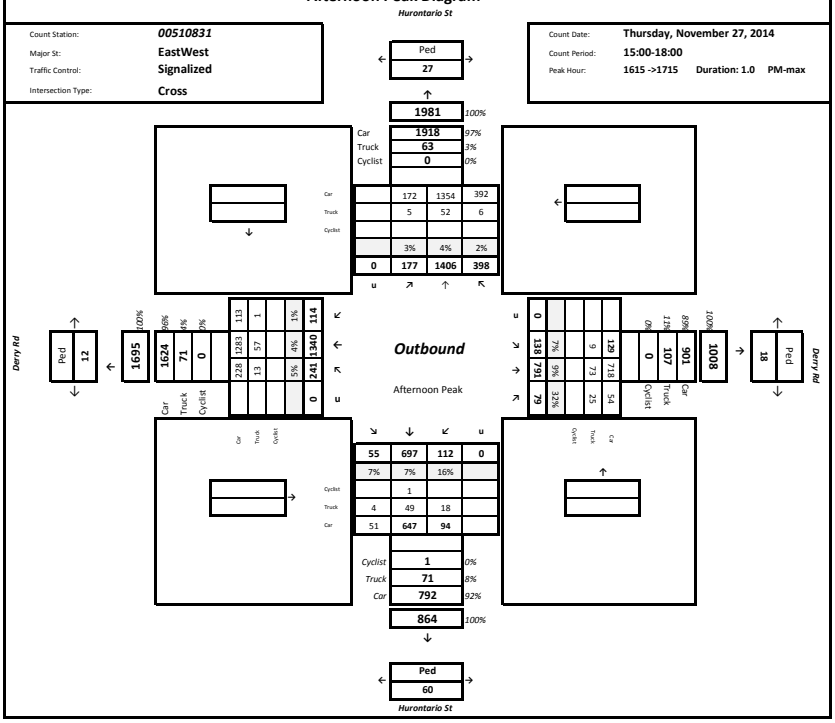
Afternoon Peak Diagram



Horizon Data Services *250 Cochrane Dr Unit 6, Markham ON L3R 8E5* *Ph: 416.840.6619 Fax: 416.840.5297* counts@HDSL.CA

Derry Road at Hurontario Street - Mississauga

Afternoon Peak Diagram



Horizon Data Services *250 Cochrane Dr Unit 6, Markham ON L3R 8E5* *Ph: 416.840.6619 Fax: 416.840.5297* counts@HDSL.CA

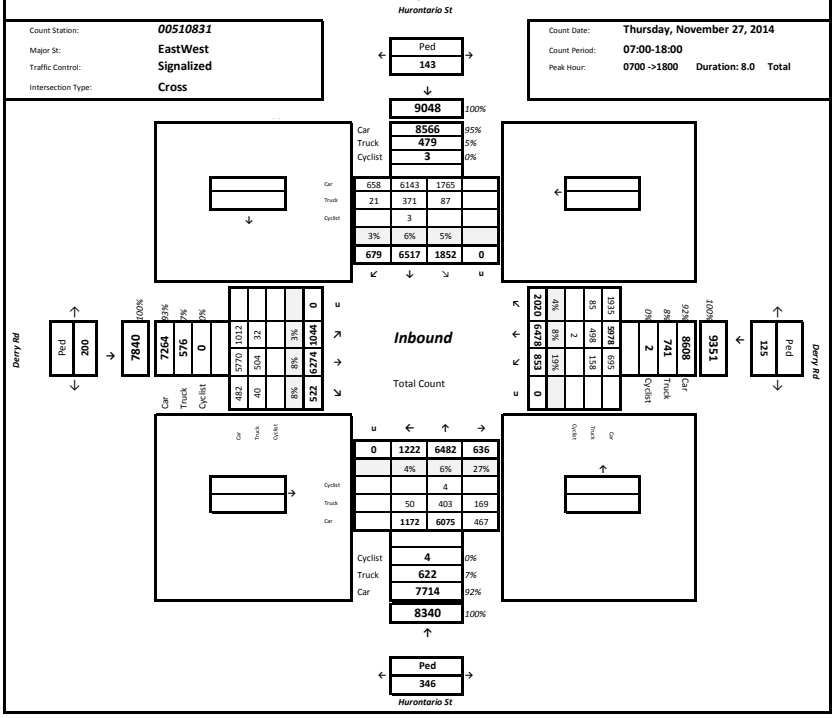
Derry Road at Hurontario Street - Mississauga

Total Count Diagram

Hurontario St

Count Station:	*00510831*
Major St:	EastWest
Traffic Control:	Signalized
Intersection Type:	Cross

Count Date:	Thursday, November 27, 2014
Count Period:	07:00-18:00
Peak Hour:	0700 ->1800 Duration: 8.0 Total



Horizon Data Services *250 Cochrane Dr Unit 6, Markham ON L3R 8E5* *Ph: 416.840.6619 Fax: 416.840.5297* counts@HDSL.CA

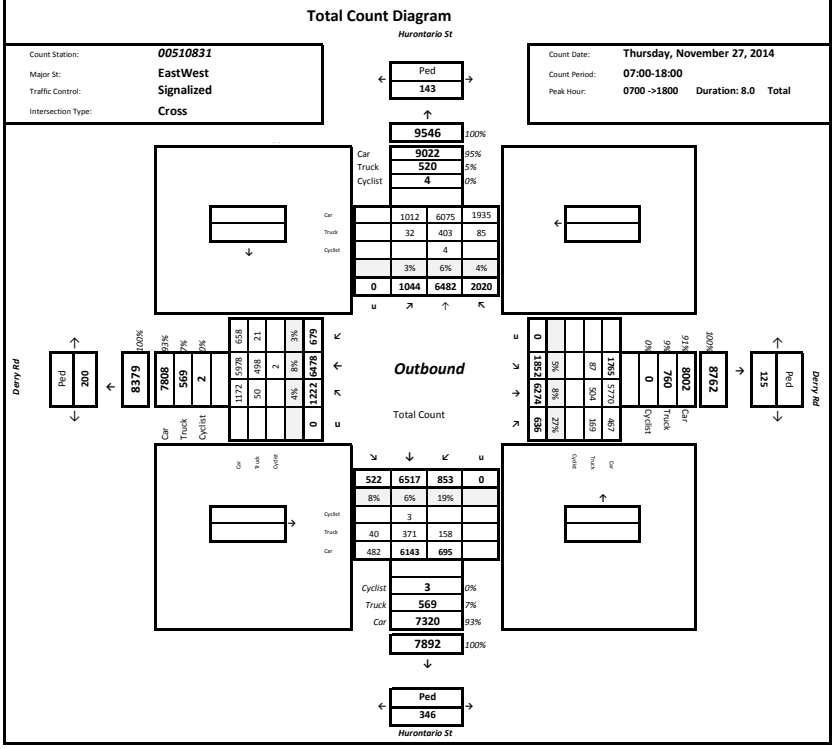
Derry Road at Hurontario Street - Mississauga

Total Count Diagram

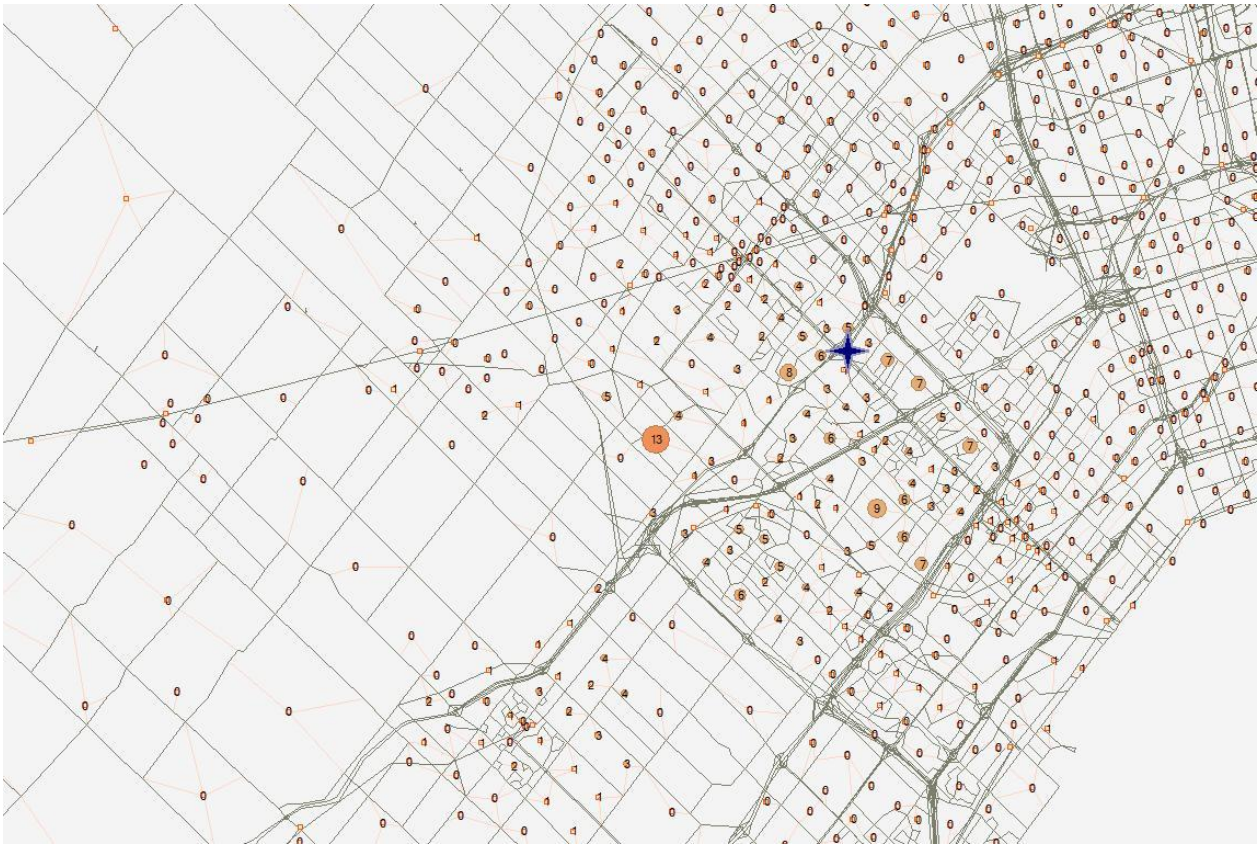
Hurontario St

Count Station:	*00510831*
Major St:	EastWest
Traffic Control:	Signalized
Intersection Type:	Cross

Count Date:	Thursday, November 27, 2014
Count Period:	07:00-18:00
Peak Hour:	0700 ->1800 Duration: 8.0 Total



Appendix F – EMME Origin/Destination Ouputs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Report

Dixie Station
Traffic Impact Study

Highway 407 Transitway-3

Prepared for the Ministry of Transportation, Ontario
by IBI Group

July 27, 2018

Document Control Page

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1 Introduction

1.1 Project Overview

The Highway 407 Transitway is a rapid transit facility planned within the Greater Toronto and Hamilton Area (GTHA). The Transitway operate on a dedicated, grade-separated right-of-way providing users fast travel speeds and good travel time reliability. The Highway 407 Transitway project supports the Province's Growth Plan by meeting increased travel demands through alternative transportation modes, providing increased mobility for a wide variety of users, and supporting transit-oriented development and associated land uses.

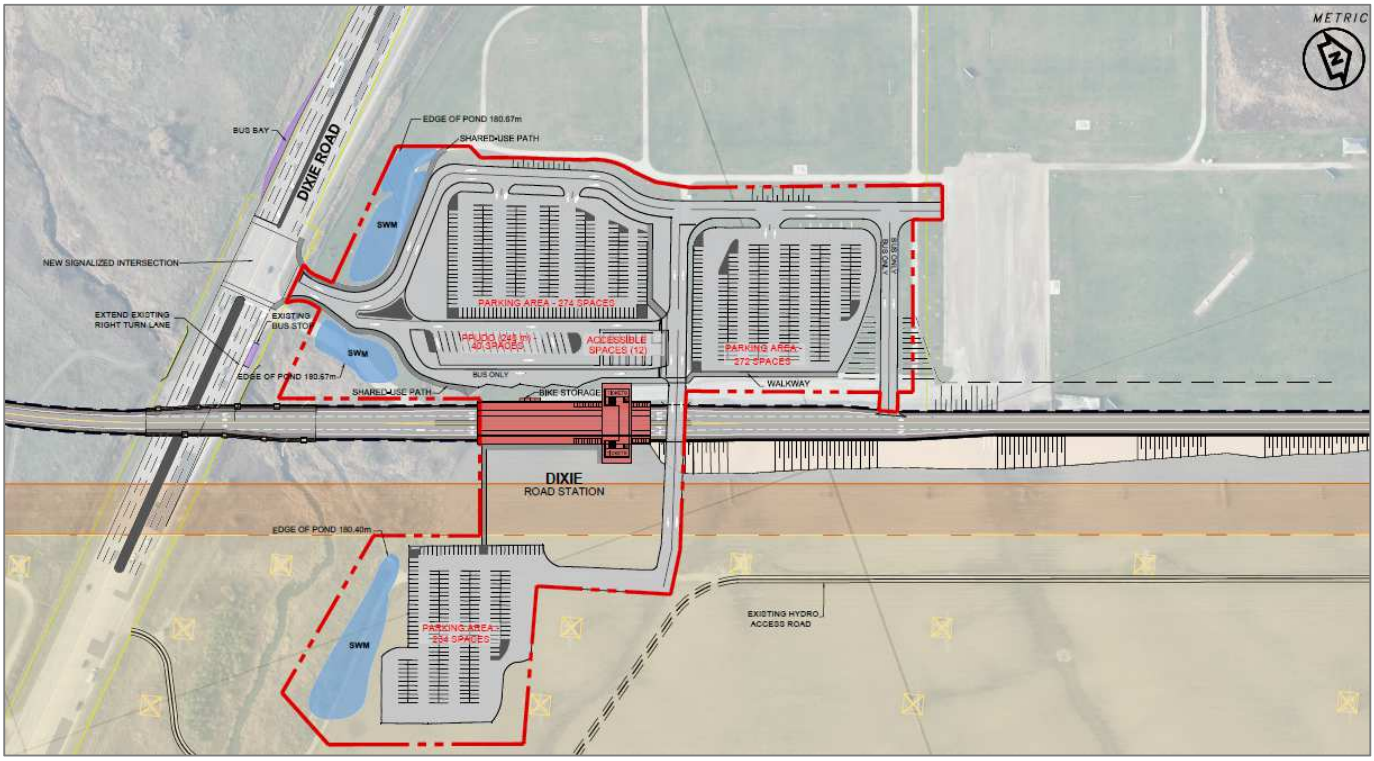
Building upon previous work IBI Group completed for the 'Central' and 'East' sections of the Transitway, the 'Transitway-3' section spans approximately 23 kilometres between Hurontario Street and Highway 400. This section of the Transitway provides opportunities to connect to the GO Rail system at Bramalea Station (Kitchener Line) as well as to a number of other higher order transit systems, supporting development within both the York and Peel Regions.

1.2 Study Area

Dixie Station was recommended given the moderately high transit demands forecasted for the area, the potential for the station to integrate well with local transit, and given the available land that can be used to accommodate support facilities around the station. No major developments are located along Dixie Road south of Highway 407 ETR, however a number of soccer/cricket fields are located to the east of the roadway.

A tributary of Etobicoke Creek West Branch cuts through the land west of Dixie Road, and so the station is proposed to be located on the east side. Mitigating impacts to the soccer/cricket fields will be critical in order to prevent significant social/community impact. The proposed station layout is indicated in Exhibit 1-1.

Exhibit 1-1: Proposed Dixie Station Layout

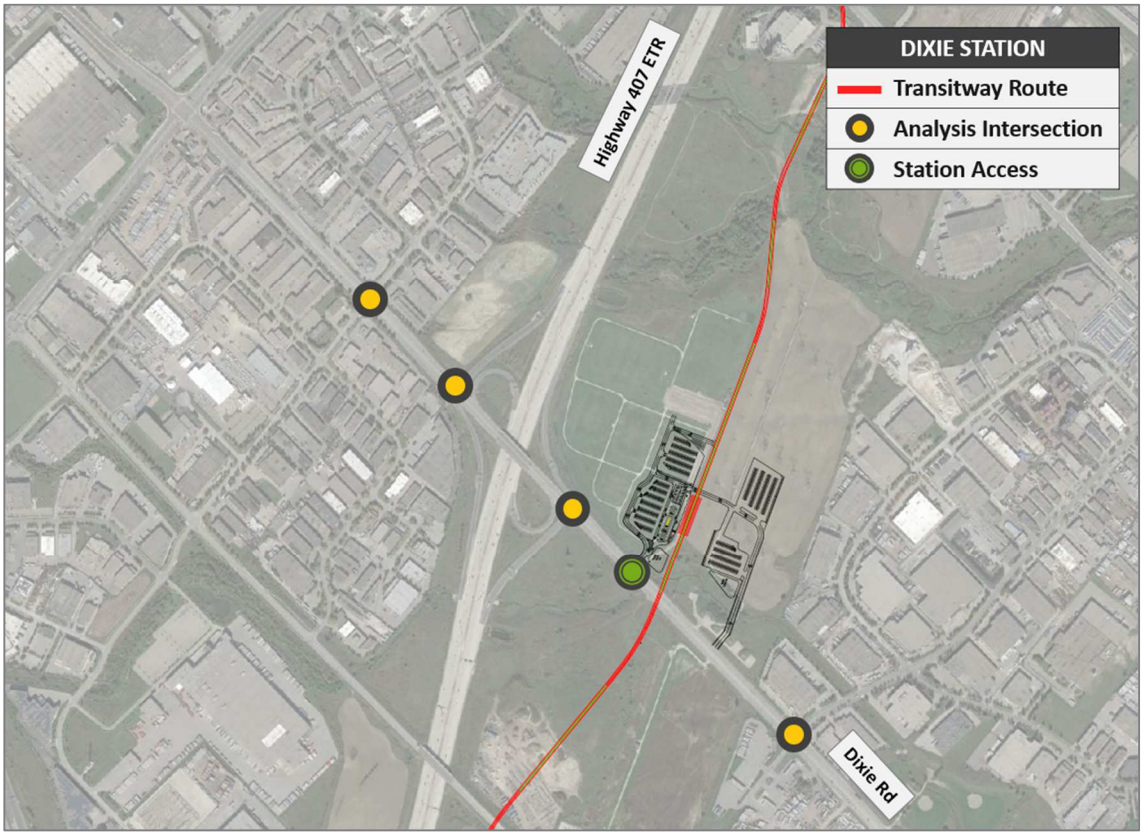


In addition to the future station accesses, the study area includes the following intersections:

- Dixie Road at Advance Boulevard;
- Dixie Road at Highway 407 Westbound Off-ramp;
- Dixie Road at Highway 407 Eastbound Off-ramp; and
- Dixie Road at Drew Road.

The study area is illustrated in Exhibit 1-2.

Exhibit 1-2: Dixie Station Study Area



1.3 Study Objective

The purpose of this Dixie Station TIS is to assess existing and future traffic operations in order to identify possible deficiencies in the road network and consider potential improvement options. The study is organized as follows:

- Section 2 provides an overview of the current transportation network and assesses existing traffic conditions;
- Section 3 outlines the process used to estimate peak hour traffic generated at this Transitway station, and how this traffic will be distributed on the road network;
- Section 4 assesses of future traffic conditions by considering background traffic growth in addition to traffic generated from the Transitway station;
- Section 5 evaluates potential improvement options that to address any future network deficiencies that have been identified; and,
- Section 6 provides a summary of traffic operations and recommended improvement measures.

1.4 Traffic Analysis Approach

This study documents existing traffic conditions, and assesses anticipated future conditions with consideration of background traffic growth and additional traffic generated from the proposed Transitway. Traffic analysis is conducted using Synchro (version 9) following Highway Capacity Manual (HCM 2000) methodologies of intersection analysis.

All critical traffic movements identified through the Synchro analysis are outlined and discussed, as per the following conditions:

- For signalized intersections,
  - V/C ratios for overall intersections operations, through movements or shared through/turning movements equal 0.80 or above;
  - V/C ratios for exclusive movements equal 0.85 or above; or,
  - Queues for an individual movement are projected to exceed available turning lane storage.
- For unsignalized intersections,
  - Level of service, based on average delay per vehicle or on individual movements is LOS "D" or greater; or,
  - The estimated 95th percentile queue length for an individual movement exceeds the available queue storage.

Level-of-service (LOS) is a measure of performance based on the control delay, defined as follows in Exhibit 1-3.

Exhibit 1-3: Intersection LOS Reference

HCM	CONTROL DELAY PER VEHICLE (S)	
LOS	Signalized	Unsignalized
A	≤10	≤10
B	>10 and ≤20	>10 and ≤15
C	>20 and ≤35	>15 and ≤25
D	>35 and ≤55	>25 and ≤35
E	>55 and ≤80	>35 and ≤50
F	>80	>50

Operational concerns or deficiencies noted in the studied horizon years are identified and addressed through recommendations on potential mitigation measures and/or operational improvements.

1.5 Synchro Model Calibration

The Synchro traffic models were calibrated to better reflect measured field conditions. This was accomplished by adjusting the following parameters detailed below.

Lane Utilization Factor

The "lane utilization factor" (LUF) was altered when calibrating through movements. This parameter is used to dictate the distribution of traffic across the available lanes, with a value of '1.0' representing a uniform distribution across all lanes.

During non-congested periods, there is often more traffic distributed amongst the right-most lanes as compared to the left-most lanes. However, in oversaturated conditions, the distribution of traffic is typically split more evenly across all lanes, as drivers quickly fill any available gap in traffic.

In the existing models, the LUF was adjusted to a value of '1.0' for all through movements initially identified as having a v/c ratio greater than '1.0'. These adjustments were also carried forward to those same movements in the future models (for the same peak period). Additionally, because the above-mentioned driver behaviour is quite predictable, this adjustment was also

made to any “new” critical through movements (having a v/c ratio > ‘1.0’) identified in the future models.

Lost Time Adjustment

Lost Time Adjustment (LTA) was altered in order to calibrate left-turn movements. Adjusting this parameter to a negative value effectively increases the clearance time available for left-turning traffic to clear the intersection during the amber and/or all-red signal phases.

During oversaturated conditions where left-turn queues are excessively long and/or there are limited gaps available in the opposing traffic to make the left-turn (under permissive phasing), drivers are typically more aggressive and willing to turn during the amber/all-red phases.

In the existing models, the LTA was changed for all left-turn movements identified as being well over capacity – defined as having a v/c ratio greater than ‘1.2’ – since these turning volumes were explicitly measured in the field. Values were assigned based on the initial v/c ratio for that movement:

- If the v/c ratio was between 1.2 and 1.5, the LTA was set to ‘-1’; and,
- If the v/c ratio exceeded 1.5, the LTA was set to ‘-2’.

All changes to the LTA made in the existing models were carried forward to those same movements in the future models (for the same peak period). However, because this driver behaviour is believed to be less predictable, no additional LTA changes were made to “new” critical left-turn movements (having a v/c ratio > ‘1.1) identified in the future models, which did not exist in the existing models.

2 Existing Conditions

2.1 Existing Road Network

Dixie Road is a major north-south arterial road in the Region of Peel. It has six lanes and connects Lakeshore Road E in the City of Mississauga to beyond the northern City of Brampton border. Within the study area, Dixie Road has a posted speed limit of 70 km/h and serves the interchange onto Highway 407.

Highway 407 is a tolled 400-series highway with an eight lane cross section. It connects the City of Burlington to the City of Pickering. 400-series highways have a speed limit of 100 km/h. A full interchange is located at Highway 407 and Dixie Road.

Advance Boulevard is a two lane east-west local road in the City of Brampton within the Region of Peel. It primarily serves an employment area. Advance Boulevard is assumed to have a speed limit of 50 km/h.

Drew Road is a two lane east-west local road in the City of Mississauga within the Region of Peel. It primarily serves an employment area. Drew Road has a posted speed limit of 50 km/h.

2.2 Traffic Counts & Signal Timing Data

Traffic count data and signal timing information was collected from City of Brampton, City of Mississauga, and Region of Peel. All turning movement counts modelled for the purposes of this study were conducted recently (within the past five years) and so should reflect current traffic patterns within the study area. Exhibit 2-1 provides a summary of dates on which this information was collected/recorded.

Exhibit 2-1: Traffic Count and Signal Timing Data

INTERSECTION	CONTROL TYPE	DATE OF TMC	DATE OF SIGNAL DATA
Dixie Rd & Advance Blvd	Signalized	28-Oct-14	11-Feb-15
Dixie Rd & Hwy-407 WB Off-Ramp	Signalized	16-Feb-17	18-Dec-12
Dixie Rd & Hwy-407 EB Off-Ramp	Signalized	16-Feb-17	18-Dec-12
Dixie Rd & future north access	RI/RO	N/A	N/A
Dixie Rd & future south access	Signalized	N/A	N/A
Dixie Rd & Drew Rd	Signalized	5-Apr-16	14-Sep-16

2.3 Existing Transit Network

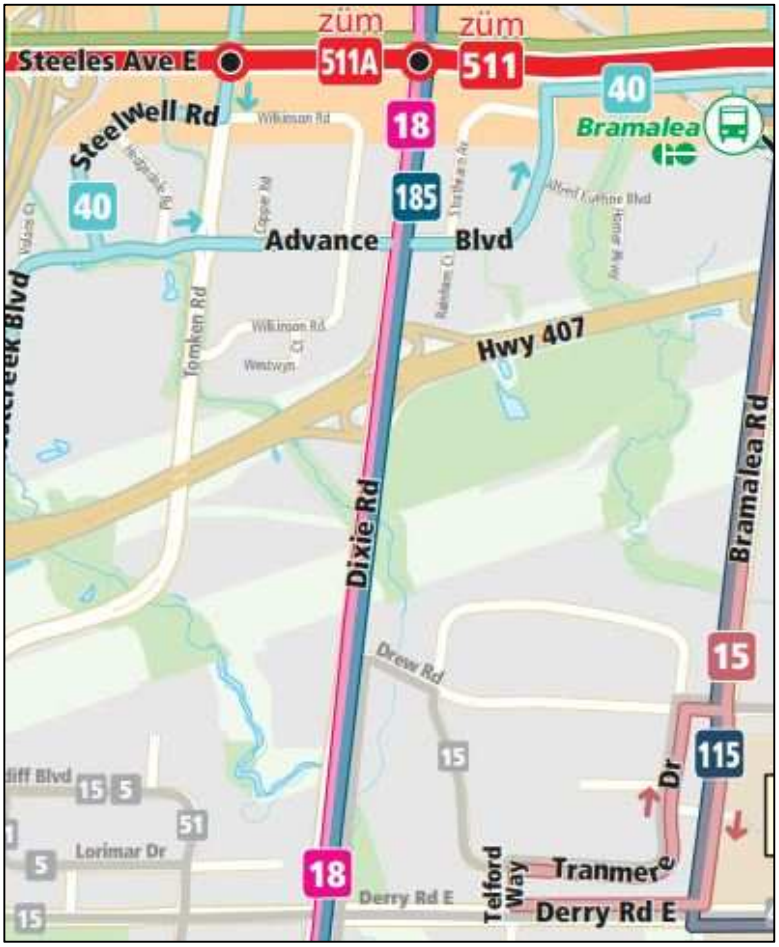
MiWay (Mississauga Transit) and Brampton Transit (BT) operate routes within the study area. The following services are currently in operation:

- **MiWay/BT Route 185 (Dixie Express)** runs during peak hours along Dixie Road and connects Mississauga Transitway's Dixie Station to Bramalea Terminal in Brampton at 15 minute headways;
- **MiWay Route 15 (Drew)** runs during peak hours along Drew Road and connects Tomken Road to Westwood Mall in Malton at approximately 25 minute headways;

- **BT Route 18 (Dixie)** runs along Dixie Road and connects Meyersid Drive in Mississauga to Courtneyside Drive in Brampton via Bramalea Terminal at 10 minute frequencies; and
- **BT Route 40 (Central Industrial)** runs in a counter-clockwise loop between Orenda Road, West Drive, Advance Boulevard, and Steeles Ave E, serving key destinations of DHL Warehouse and Bramalea GO Station at approximately 30 minute headways.

Exhibit 2-2 illustrates the transit services within the study area.

Exhibit 2-2: MiWay and BT in the Study Area

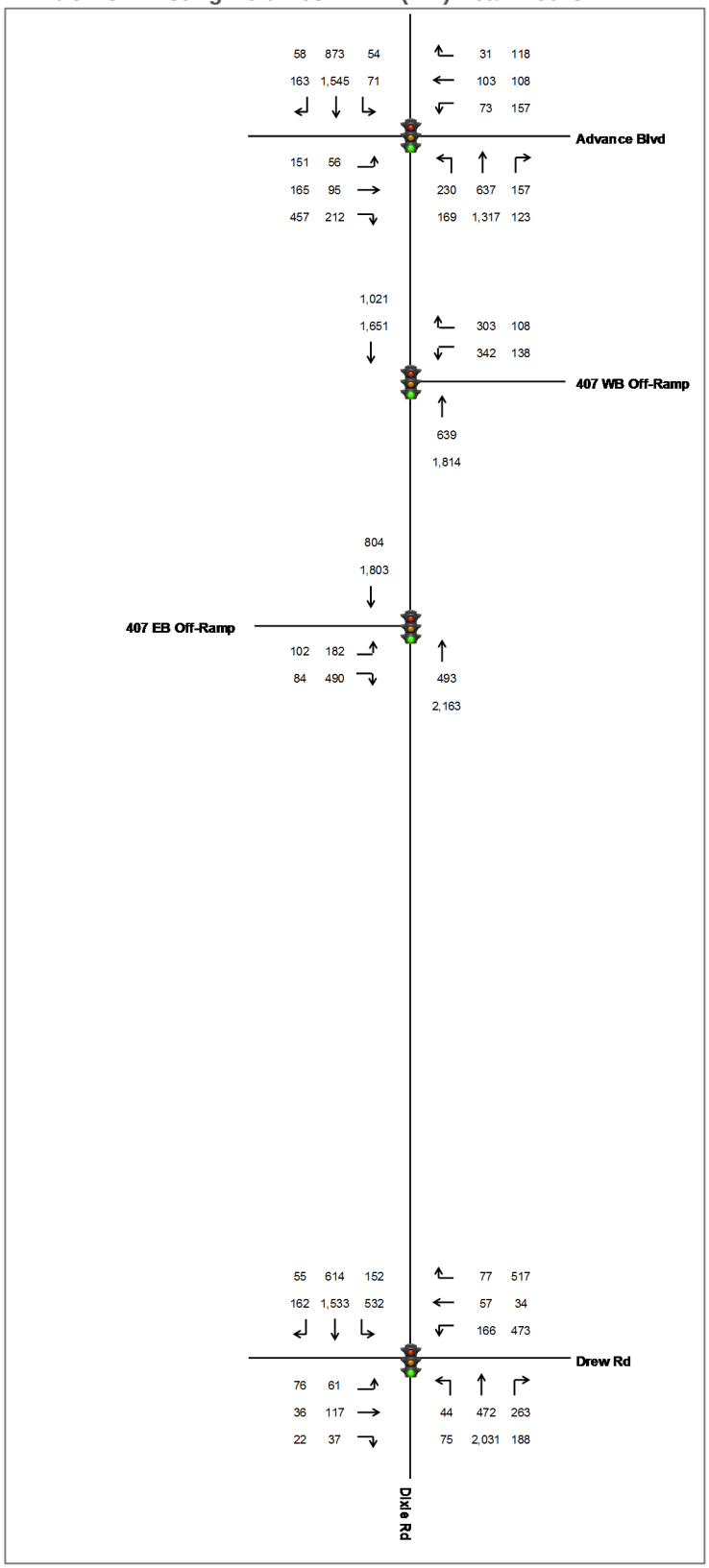


2.4 Existing Traffic Operations

The existing conditions analysis represents traffic operations during base year 2017. An annual compound growth rate of 1.0% was applied to all count volumes obtained in years prior to 2017 in order to bring all counts to a consistent base year.

Existing conditions traffic volumes are illustrated in Exhibit 2-3.

Exhibit 2-3: Existing Volumes in AM (PM) Peak Hours



A summary of critical movements identified during the existing conditions analysis is provided in Exhibit 2-4, with a detailed output of the Synchro analysis provided in the Appendix.

Exhibit 2-4: Existing Critical Movements Summary

INTERSECTION	AM PEAK					PM PEAK				
	LOS	Critical Movements				LOS	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Dixie Rd & Advance Blvd	C	EBL	E	0.36	24.4	C	EBR	E	0.92	138.9
		EBT	E	0.60	42.5					
		EBR	E	0.15	23.8					
		WBL	E	0.48	30.5					
		WBT	E	0.61	45.5					
		WBR	E	0.02	-					
Dixie Rd & 407 WB Off-Ramp	B	WBL	E	0.78	71.8	A	WBL	E	0.59	31.0
							WBR	E	0.39	30.0
Dixie Rd & 407 EB Off-Ramp	C	EBL	E	0.67	67.0	A	EBL	E	0.48	24.1
		EBR	E	0.82	94.0		EBR	E	0.05	14.8
Dixie Rd & Drew Rd	C	EBT	E	0.69	59.2	D	EBL	E	0.72	21.5
		WBL	F	0.85	43.7		WBL	E	0.86	107.0
							WBT	E	0.88	147.7
							NBT	E	0.99	228.1

The study intersections are currently operating as follows:

- Dixie Road & Advance Boulevard is operating satisfactorily at LOS C during both peak hours. Movements on the minor approaches experience delays, particularly in the a.m. peak hour, as a result of them having limited green-time. Priority green-time allocation is given to the major approaches.
- The intersections between Airport Road and each of the Highway 407 off-ramps are operating well during both peak hours.
- Dixie Road & Drew Road is operating satisfactorily during both peak hours, at LOS C during the a.m. peak and LOS D during the p.m. peak. However, the NBT movement is operating at capacity in the p.m. peak hour and has limited room for growth barring improvements.

2.5 Existing Model Calibration

The Existing traffic models were calibrated to better reflect measured field conditions accomplished by adjusting either the Lane Utilization Factor (LUF) or Lost Time Adjustment (LTA) for certain movements. Adjustments made to the existing traffic models are outlined in Exhibit 2-5. These adjustments were applied using the methodologies outlined in Section 1.5.

Exhibit 2-5: Existing Model Calibration Parameters

PERIOD	INTERSECTION	MOVEMENT	ADJUSTED PARAMETER	ADJUSTMENT VALUE
AM Peak	(no adjustments)	-	-	-
PM Peak	Dixie & Drew	NBT	LUF	1.0

These adjustments were applied using the methodologies outlined in Section 1.5.

3 Site Traffic & Parking

3.1 Ridership Forecasts

Ridership forecasts were developed using the Greater Golden Horseshoe Model (GGHM), a state-of-practice multi-modal travel demand model that estimates future travel demands within the Greater Golden Horseshoe. The GGHM was developed to forecast peak period demand in support of Growth Plan policies and has the capability of predicting mode shifts resulting from new public transit infrastructure. It can also be used to test network responses to changes in link characteristics such as transit vehicle frequency, operating speed, station location, and parking availability.

Future year forecasts were previously developed for a number of horizon years including 2031, 2041, and 2051. A number of road network improvements and expansions are also included in the future year models, including numerous widenings along the 400-series highways and major arterial roads. Transit infrastructure included in future models represent projects that are currently committed and funded. While is possible that additional projects will be funded over the upcoming years, this method represents a conservative approach. The following is a list of rapid transit projects that were included in the future year models:

- Toronto-York Spadina Subway Extension (TYSSE);
- 407 Transitway Central Section (Jane Street to Kennedy Road);
- VIVA routes and busways;
- Mississauga 403 Transitway;
- Eglinton Crosstown LRT;
- Sheppard LRT;
- Finch West LRT;
- Yonge Subway Extension to Richmond Hill;
- Two-way all-day GO Rail service (Regional Express Rail);
- Scarborough RT Extension;
- Hurontario-Main LRT; and,
- Highway 427 Transitway.

In addition to developing separate scenarios for the horizon years studied, alternative GGHM scenarios were also developed to represent different levels of funding for the Transitway-3 project: one representing an eleven-station structure and a second representing a reduced eight-station structure. It should also be noted that forecasts were developed only for the a.m. peak period, and so adjustment factors will be used to estimate p.m. peak demands.

With input from the MTO, a horizon year of 2031 was selected as the baseline for determining road and intersection requirements as part of this traffic impact study. The ridership forecasts used for the purposes of this study were taken from the 2031 GGHM showing the reduced eight-station structure. Demands corresponding to the eight-station scenario for year 2031 are outlined in Exhibit 3-1.

Exhibit 3-1: 2031 AM Peak Hour Boardings

STATION	TOTAL BOARDINGS	PARK-AND-RIDE	WALK / TRANSIT	% PARK-AND-RIDE	% WALK / TRANSIT
Pine Valley	210	130	80	62%	38%
Martin Grove	420	170	250	40%	60%
Highway 27	400	170	230	43%	58%
Highway 50	790	260	530	33%	67%
Goreway	320	180	140	56%	44%
Airport	610	120	490	20%	80%
Dixie	**1,770**	**110**	**1,660**	**6%**	**94%**
Hurontario	1,320	170	1,150	13%	87%
Total:	210	130	80	62%	38%

Note that a ninth station may also be included at Bramalea (between Dixie and Airport), however this station would operate solely as a transit interlining/transfer station and therefore generate no park-and-ride demand.

3.2 Trip Generation

Peak hour trips to and from the station were estimated using the GGHM ridership forecasts presented in Exhibit 3-1. Because walk/transit boardings do not translate into vehicle trips generated, only park-and-ride demands were considered at this stage.

Park-and-ride boardings were equated to inbound vehicle trips at an assumed factor of 10:11, or 1.1 riders per park-and-ride vehicle. However, this only provides an indication of inbound trips to the station, and not of outbound trips leaving the station. Furthermore, the park-and-ride demands were developed only for the a.m. peak hour and not for the p.m. peak hour.

The ITE Trip Generation Manual (9th edition) was used to estimate a.m. peak outbound trips, as well as p.m. peak inbound and outbound trips. Average trip generation rates for bus stations with park-and-ride lots are indicated in Exhibit 3-2.

Exhibit 3-2: ITE Trip Generation Rates for Park-and-Ride Lots

LAND USE (CODE)	UNITS	AM PEAK HOUR		PM PEAK HOUR	
		Trip Rate	Inbound / Outbound	Trip Rate	Inbound / Outbound
Park-and-ride with bus service (090)	/ parking space	0.71	79% / 21%	0.62	25% / 75%

The 2031 GGHM forecasts indicate a demand of 110 park-and-ride boardings at Dixie Station during the a.m. peak hour. Exhibit 3-3 lists the estimated site traffic generated given the above assumptions.

Exhibit 3-3: Estimated Vehicle Trips Generated by Dixie Station

AM PEAK TRIPS		PM PEAK TRIPS	
Inbound	Outbound	Inbound	Outbound
100*	27	28	83

** Calculated based on forecasted 2031 a.m. park-and-ride boardings, at a factor 1.0 inbound vehicles per 1.1 boardings.*

3.3 Trip Distribution

An origin/destination map showing the origin of park-and-ride trips destined to Dixie Station was extracted from the 2031 GGHM and can be found attached in the Appendix. The model runs correspond to 2031 a.m. conditions for the eight-station Transitway structure, and with the assumption that the 'Central' and 'East' Transitway sections exist. Note that the model does not account for an extension of the Transitway west beyond Hurontario Street (i.e. beyond the 'Transitway-3' limits).

Using this map, inbound trips were tabulated in terms of general direction of origin (i.e. north, south, east or west) and assigned to the study area intersections as a percentage of total inbound trips. Distribution of outbound trips was assumed to the same as inbound trips (e.g. the percentage of inbound trips originating from the north is equal to the percentage of outbound trips destined to the north). Trip distribution percentages were assumed to be equal during both the a.m. and p.m. peak hours.

The resulting trip distribution percentages to and from Dixie Station are illustrated in Exhibit 3-4. By then applying the trip generation values from The 2031 GGHM forecasts indicate a demand of 110 park-and-ride boardings at Dixie Station during the a.m. peak hour. Exhibit 3-3 lists the estimated site traffic generated given the above assumptions.

Exhibit 3-3 to the trip distribution percentages shown in Exhibit 3-4, the site generated traffic was assigned to study area intersections and is indicated in Exhibit 3-5.

Exhibit 3-4: Trip Distribution in AM and PM Peak Hours

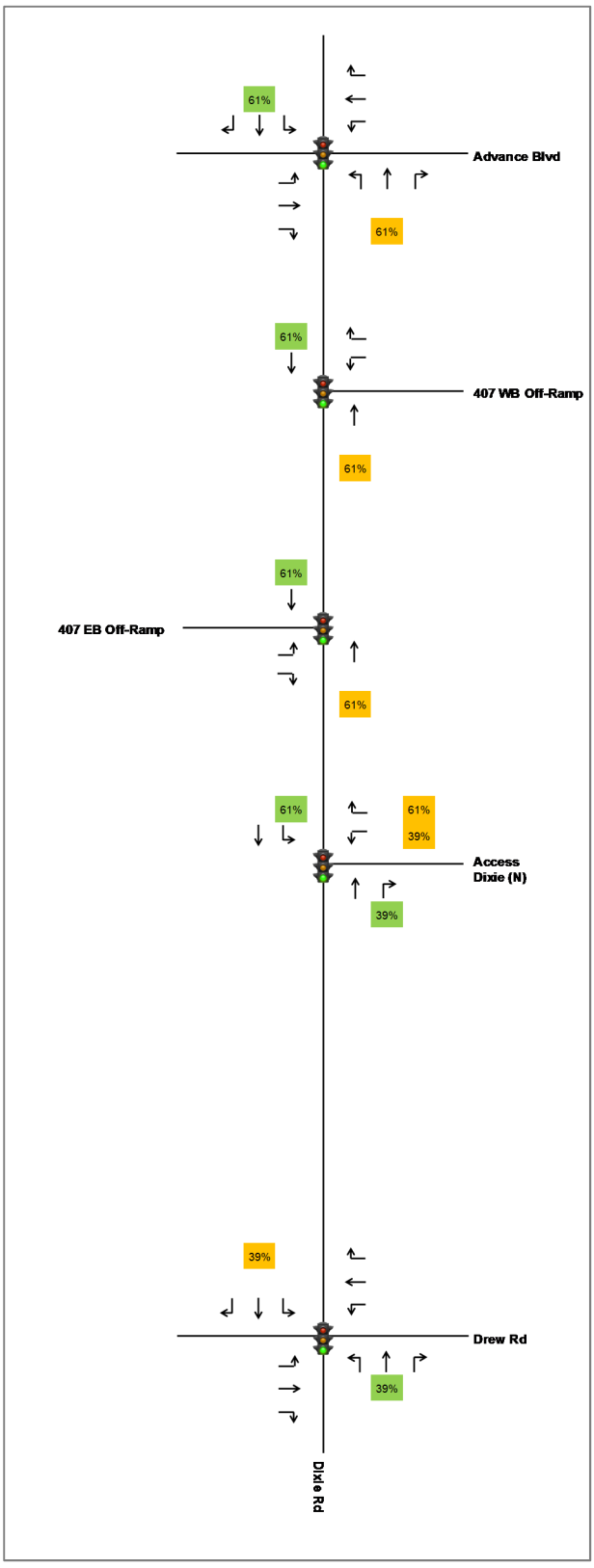
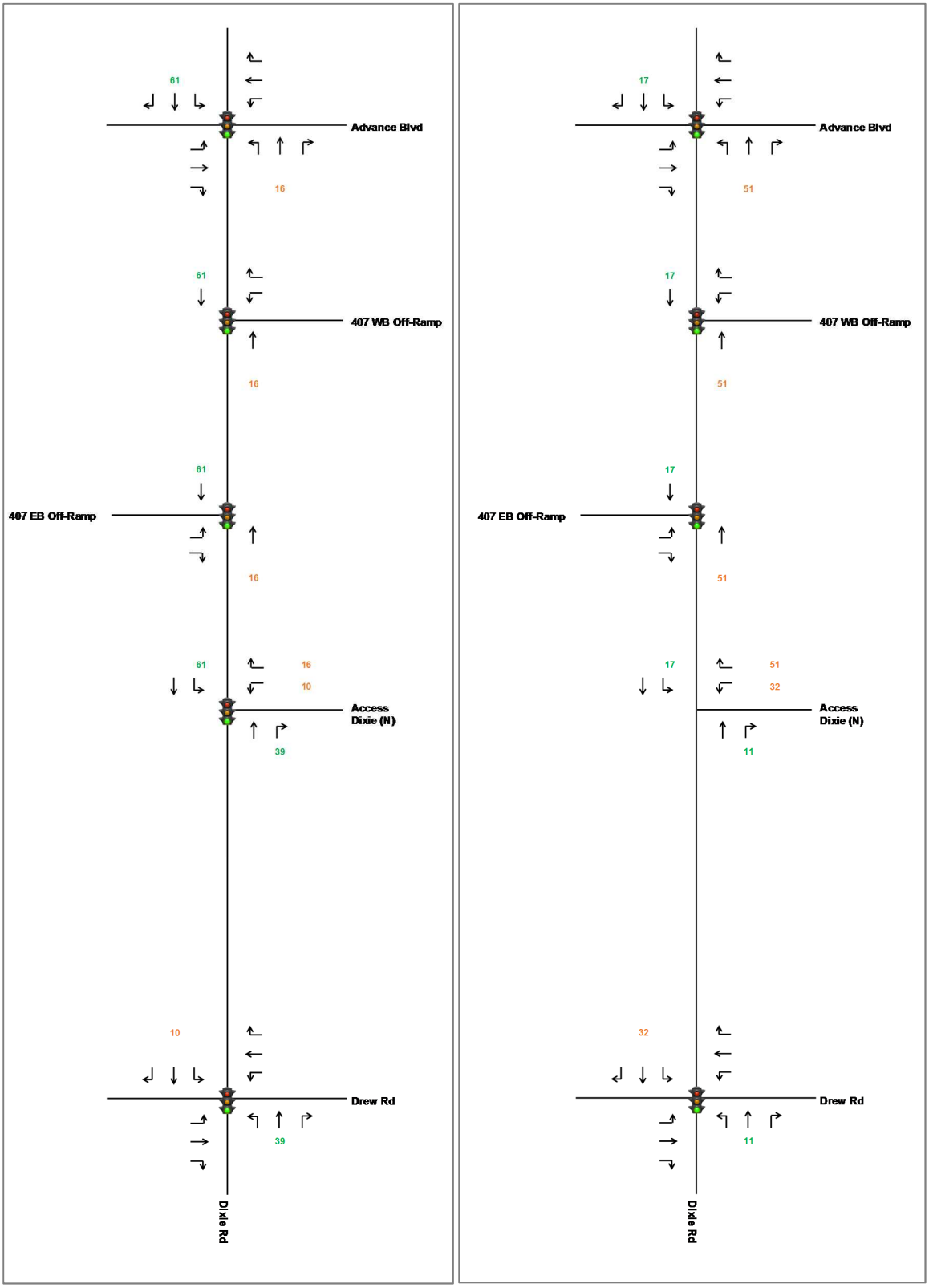


Exhibit 3-5: Site Generated Traffic in AM Peak Hour (left) and PM Peak Hour (right)



3.4 Parking Demands

In order to estimate parking demands at each of the Transitway stations, data from various GO transit stations nearby the study area was analyzed to study the relationship between inbound vehicle trips and average parking lot utilization. Four GO stations were considered, comprising of Brampton, Bramalea, Malton, and Etobicoke North stations.

The average number of inbound vehicle trips made to each of these GO stations during the a.m. peak period (defined as 6:30-9:30 am) were determined using 2011 Transportation Tomorrow Survey (TTS) data. The data was filtered to only include trips made via the auto driver mode, as this corresponds directly to number of inbound passenger vehicles.

Parking data for the GO transit stations was obtained from the *GO Transit Rail Parking and Station Access Plan (2013)* prepared for Metrolinx. The report notes the total capacity and average utilization of each GO station parking lot, which were used to calculate average parking demands. Note that the parking data from this report is dated May-2012, which is similar to the time period covered by the 2011 TTS.

By comparing the number of inbound auto drivers during the a.m. peak period to the average parking lot demand at each station, a representative “parking factor” was determined. These values are indicated in the below Exhibit 3-6.

Exhibit 3-6: Parking Demand Factors for nearby GO Transit Stations

2011 TTS AM PEAK PERIOD *		2012 GO STATION PARKING **			PARKING FACTOR
GO Station	Auto Drivers	Capacity	Utilization	Demand	
Brampton	860	891	101%	900	1.046
Bramalea	1,360	2,381	81%	1,929	1.418
Malton	580	731	95%	694	1.197
Etobicoke North	410	532	97%	516	1.259
Total	*3,210*	*4,535*	*89%*	*4,039*	***1.258***

** AM peak period inbound vehicles estimated using 2011 TTS data, and rounded to the nearest 10.*

*** GO parking data obtained from the "GO Transit Rail Parking and Station Access Plan" (2013), and is dated May-2012.*

This “parking factor” was then applied to the a.m. peak period inbound trips estimated at each Transitway station. Note that park-and-ride forecasts (and congruently, estimated inbound vehicle trips) for the a.m. peak hour can be converted to a.m. peak period forecasts by applying a factor of 2.174, as analysis of the TTS indicated that 46% of 3-hour a.m. peak period trips occur within the single a.m. peak hour.

The resulting estimated parking demands at each Transitway station are provided in Exhibit 3-7. Parking demands are provided for both the 2031 horizon used for the purposes of this traffic study, as well as for the 2051 horizon established to represent “ultimate” conditions.

Exhibit 3-7: Estimated Parking Demands for each Transitway Station

STATION	GGHM INBOUND TRIPS *				PARKING DEMAND ***	
	AM Peak Hour		AM Peak Period **			
	2031	2051	2031	2051	2031	2051
Pine Valley	118	164	257	356	323	448
Martin Grove	155	227	336	494	423	622
Highway 27	155	236	336	514	423	646
Highway 50	236	409	514	889	646	1119
Goreway	164	291	356	632	448	796
Airport	109	191	237	415	298	522
Dixie	**100**	**164**	**217**	**356**	**273**	**448**
Hurontario	155	245	336	534	423	671

** Calculated based on forecasted a.m. park-and-ride boardings, at a factor 1.0 inbound vehicles per 1.1 boardings.*

*** Peak hour trips can be converted to peak period trips at a factor of 2.174.*

**** Parking demands calculated by multiplying estimated a.m. peak period inbound trips by a factor of 1.258.*

4 Future Conditions

4.1 Future Background Operations

Future conditions analysis were undertaken for horizon year 2031. The City of Mississauga and Region of Peel population and trip-end growth forecasts were considered in the preparation of the traffic growth forecast. Relevant documents are listed as follows:

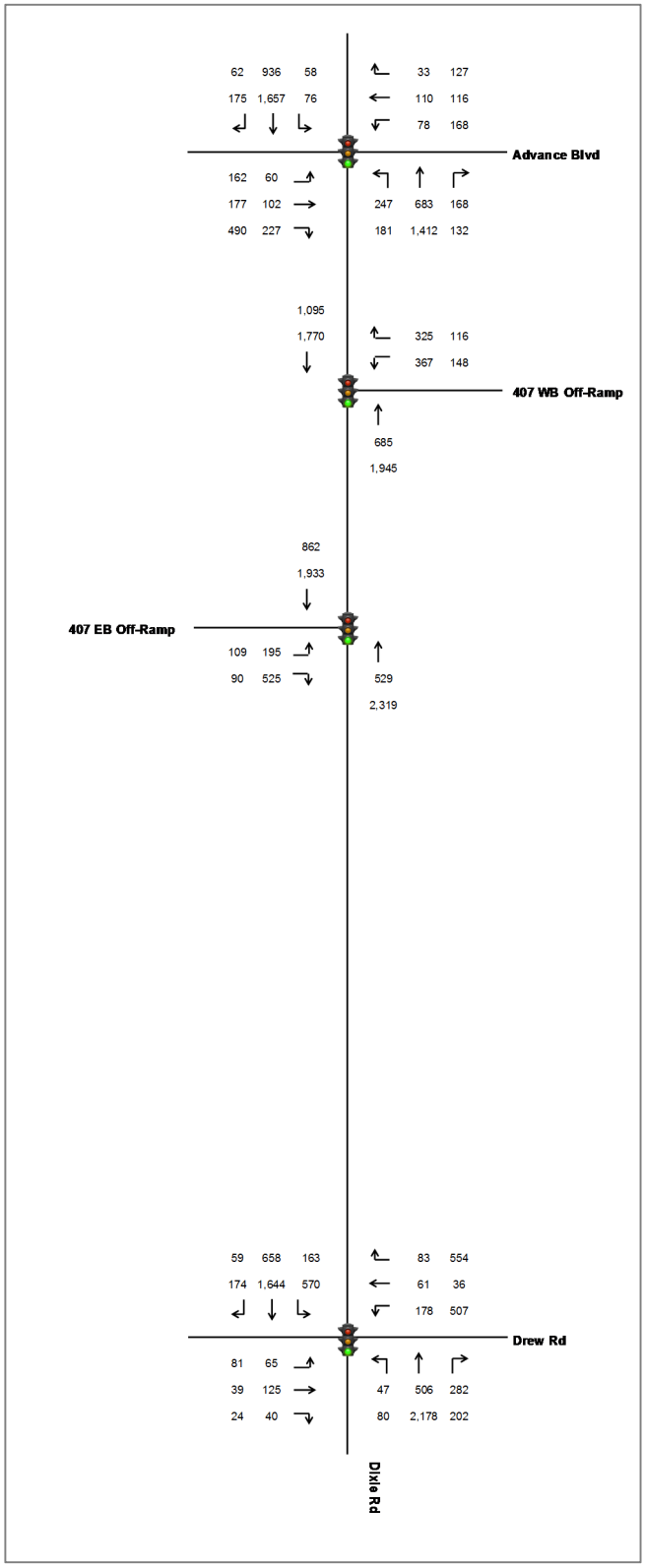
- Greater Toronto and Hamilton Area – *Growth Plan for the Greater Golden Horseshoe (2017);*
- City of Mississauga – *Mississauga Official Plan (2016), Population, Demographics & Housing (2013), Moving Mississauga (2011);* and,
- Region of Peel – *Long Range Transportation Plan (2012).*

Review of the above documents showed that population growth is estimated to be 0.5% to 0.6% per year between 2011 and 2031, while trip ends are forecasted to increase by 0.9% to 1.0% per year during that same period time.

However, many major intersections nearby the Transitway are already operating at or above capacity during peak times, suggesting that there is limited remaining capacity available to serve added future demands. While trip ends are forecasted to increase up to 1.0% per year, it is expected that some “peak spreading” will occur – where some motorists alter their departure times to avoid congestion during the peak hours. Rather than growth occurring uniformly throughout the day, this results in less growth during the peak hours and greater growth during off-peak times.

Given the above, an annual compound growth rate of 0.5% per year was used to represent background growth (unrelated to the implementation of the Transitway) during the a.m. and p.m. peak hours. Future traffic volumes with background growth applied are illustrated in Exhibit 4-1.

Exhibit 4-1: Future Background Volumes in AM (PM) Peak Hours



A summary of critical movements identified during the future background conditions analysis is provided in Exhibit 4-2, with a detailed output of the Synchro analysis provided in the Appendix.

Exhibit 4-2: Future Background Critical Movements Summary

INTERSECTION	AM PEAK					PM PEAK				
	LOS	Critical Movements				LOS	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Dixie Rd & Advance Blvd	C	EBL	E	0.40	26.2	C	EBR	E	0.93	159.3
		EBT	E	0.58	44.5					
		EBR	E	0.16	24.5					
		WBL	E	0.50	32.5					
		WBT	E	0.56	47.2					
		WBR	E	0.02	0.3					
Dixie Rd & 407 WB Off-Ramp	B	WBL	E	0.78	76.1	A	WBL	E	0.61	33.2
							WBR	E	0.44	32.8
Dixie Rd & 407 EB Off-Ramp	B	EBR	E	0.81	99.1	A	EBL	E	0.50	25.7
							EBR	E	0.05	15.0
Dixie Rd & Drew Rd	C	EBT	E	0.71	62.6	E	EBL	E	0.69	22.6
		WBL	F	0.89	47.2		WBL	E	0.87	118.0
		NBL	F	0.70	38.1		WBT	E	0.91	190.2
							NBT	F	1.12	250.4
							SBL	F	0.92	86.4

With background growth added, the study intersections are expected to operate as follows:

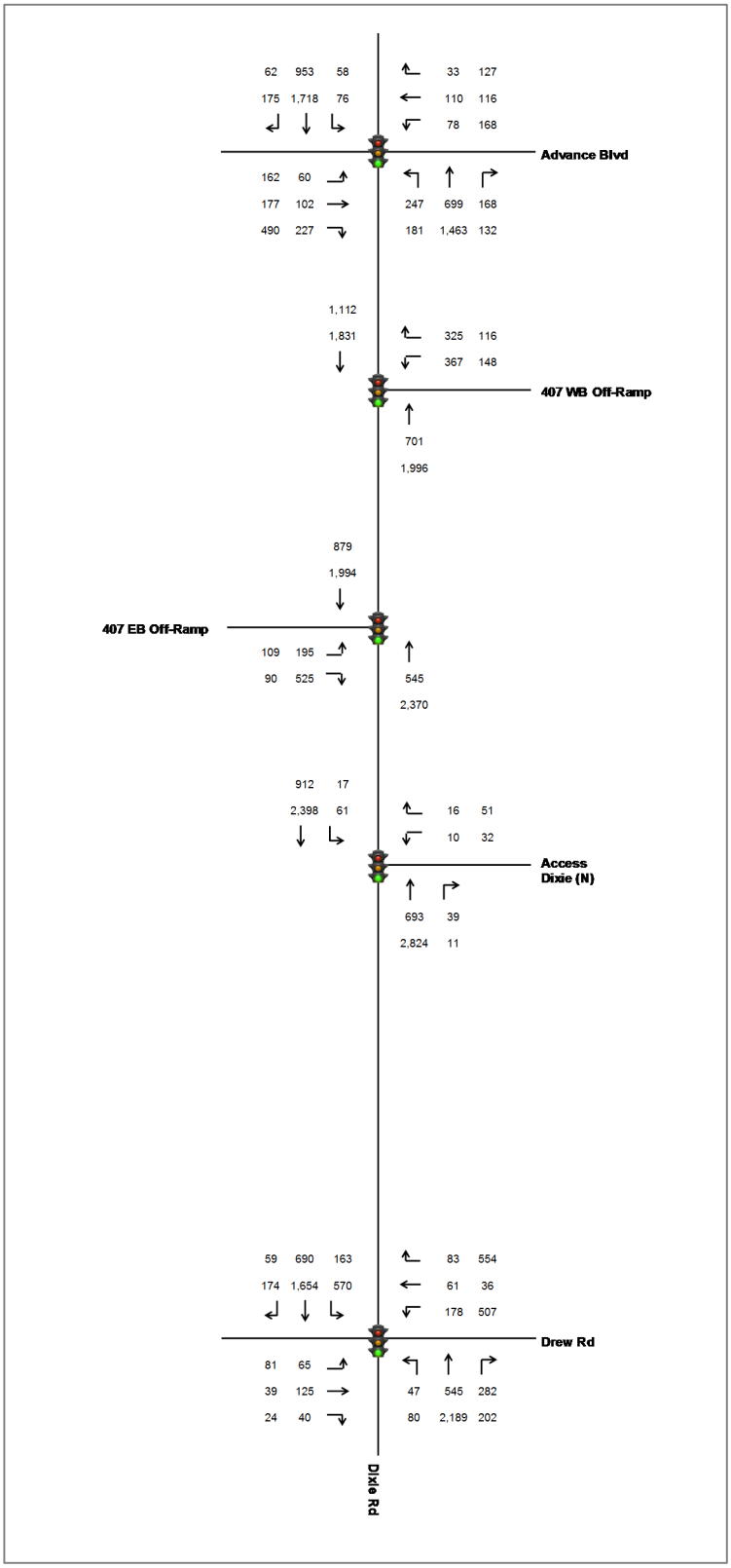
- Dixie Road & Advance Boulevard continue to operate operating satisfactorily at LOS C during both peak hours. Movements on the minor approaches still experience delays, particularly in the a.m. peak hour, as a result of them having limited green-time.
- The intersections between Airport Road and each of the Highway 407 off-ramps continue to operate well during both peak hours.
- Dixie Road & Drew Road continues to operate at LOS C in the a.m. peak hour, but deteriorates from LOS C to LOS E in the p.m. peak. Conditions at the already critical NBT movement worsen and the movement now operates above capacity, also causing further delays to the opposing SBL movement. Volumes on the westbound approach also begin to approach capacity, and similarly present delays to the opposing EBL movement.

4.2 Future Total Operations

Future total volumes were calculated adding the site-generated traffic to the future volumes with background growth applied. This future total scenario accounts for all vehicular traffic that is estimated in year 2031 following implementation of the Transitway.

Future total volumes, which include background growth in addition to the traffic generated by Dixie station, are illustrated in Exhibit 4-3.

Exhibit 4-3: Future Total Volumes in AM (PM) Peak Hours



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A summary of critical movements identified during the future total conditions analysis is provided in Exhibit 4-4, with a detailed output of the Synchro analysis provided in the Appendix.

Exhibit 4-4: Future Total Critical Movements Summary

INTERSECTION	AM PEAK					PM PEAK				
	LOS	Critical Movements				LOS	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Dixie Rd & Advance Blvd	C	EBL	E	0.40	26.2	C	EBR	E	0.94	162.8
		EBT	E	0.58	44.5					
		EBR	E	0.16	24.5					
		WBL	E	0.50	32.5					
		WBT	E	0.56	47.2					
		WBR	E	0.02	0.3					
Dixie Rd & 407 WB Off	C	WBL	E	0.78	76.1	A	WBL	E	0.61	33.2
							WBR	E	0.45	33.5
Dixie Rd & 407 EB Off	B	EBR	E	0.81	99.5	A	EBL	E	0.50	25.7
							EBR	E	0.05	15.0
Dixie Rd & Drew Rd	C	EBT	E	0.71	62.6	E	EBL	E	0.69	22.6
		WBL	F	0.89	47.2		WBL	E	0.87	118.0
		NBL	F	0.73	38.7		WBT	E	0.91	190.2
							NBT	F	1.13	252.5
							SBL	F	0.92	86.4

With Dixie demands added to future background growth conditions, the study intersections are expected to operate as follows:

- NBT and SBT traffic is added to Dixie Road & Advance Boulevard, however the intersection continues to operate at LOS C during both peak hours. Movements on the minor approaches still experience delays, particularly in the a.m. peak hour, as a result of them having limited green-time. Traffic is not added to the EBR movement, which operates near capacity during the p.m. peak hour.
- The intersections between Airport Road and each of the Highway 407 off-ramps continue to operate well during both peak hours.
- NBT and SBT traffic is added to Dixie Road & Drew Road, however the intersection remains operating at the same LOS as the background conditions analysis. However, the NBT movement was already operating above capacity, so the addition of site traffic causes this movement to further deteriorate slightly in the p.m. peak. No other critical movements are affected by site traffic.

One full-moves signalized access to the park-and-ride lot is proposed, which will connect to Dixie Road. A second right-in/right-out access along Dixie Road was also considered, however parking demands did not necessarily warrant a second access and modelling outputs showed that a single signalized intersection will operate sufficiently – as indicated in Exhibit 4 5.

Exhibit 4-5: Station Access Operations Summary

ACCESS	AM Peak					PM Peak				
	LOS	Inbound/Outbound Movement				LOS	Inbound/Outbound Movement			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Dixie Rd access (signalized)	A	SBL (in)	A	0.09	3.1	A	SBL (in)	A	0.11	1.8
		NBR (in)	A	0.03	2.9		NBR (in)	A	0.01	2.4
		WBL (out)	C	0.07	5.5		WBL (out)	D	0.07	17
		WBR (out)	B	0.11	5.4		WBR (out)	B	0.07	11.9

As shown, the signalized access is expected to operate satisfactorily during both the a.m. peak and p.m. peak hour. No individual movements are expected to exceed critical thresholds. While some delays are incurred to outbound left-turning traffic, the v/c for this movement is very low and excessive queuing is not anticipated.

4.3 Future Model Calibration

The Future Synchro models were calibrated to better reflect measured field conditions accomplished by adjusting either the Lane Utilization Factor (LUF) or Lost Time Adjustment (LTA) for certain movements.

Adjustments made to the existing traffic models are outlined in Exhibit 4-6.

Exhibit 4-6: Future Background Model Calibration Parameters

PERIOD	INTERSECTION	MOVEMENT	ADJUSTED PARAMETER	ADJUSTMENT VALUE
AM Peak	(no adjustments)	-	-	-
PM Peak	Dixie & Drew	NBT	LUF	1.0

These adjustments were applied using the methodologies outlined in Section 1.5.

5 Potential Improvement Measures

5.1 Dixie Road & Drew Road

The below improvement measures were analyzed in Synchro (given Future Total volumes), with results presented in Exhibit 5-1:

- Dual SBL lanes (protected).

Exhibit 5-1: Analysis of Improvements to Dixie Rd & Drew Rd

INTERSECTION	AM PEAK					PM PEAK				
	Avg. v/c	Critical Movements				Avg. v/c	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Dixie Rd & Drew Rd (current configuration)	0.81	EBL	D	0.36	24.5	1.02	EBL	E	0.69	22.6
		EBTR	E	0.71	62.6		EBTR	D	0.20	21.2
		WBL	F	0.89	47.2		WBL	E	0.87	118.0
		WBTR	D	0.46	44.5		WBTR	E	0.91	190.2
		NBL	F	0.73	38.7		NBL	D	0.45	33.9
		NBT	C	0.37	56.9		NBT	F	1.13	252.5
		NBR	C	0.20	21.5		NBR	C	0.16	16.3
		SBL	C	0.80	121.7		SBL	F	0.92	86.4
		SBT	B	0.53	112.0		SBT	C	0.34	54.8
		SBR	B	0.17	23.2		SBR	C	0.05	0.5
Dixie Rd & Drew Rd (with improvements)	0.61	EBL	F	0.80	44.2	0.99	EBL	E	0.69	22.6
		EBTR	E	0.74	62.6		EBTR	D	0.20	21.2
		WBL	F	0.82	44.7		WBL	E	0.87	118.0
		WBTR	E	0.54	45.3		WBTR	E	0.91	190.2
		NBL	D	0.51	31.3		NBL	D	0.43	33.9
		NBT	B	0.26	44.9		NBT	F	1.08	252.5
		NBR	B	0.20	16.3		NBR	C	0.16	16.2
		SBL	B	0.50	46.9		SBL	F	0.77	47.4
		SBT	B	0.53	113.8		SBT	C	0.34	54.8
		SBR	B	0.17	23.6		SBR	C	0.05	0.5

The following was observed:

- Implementing dual SBL lanes (protected) reduces SBL delays.
- In the a.m. peak, a shorter required signal phase for the SBL movement allows additional green-time to be allocated to the NBT/SBT phase.
- Average v/c is reduced in both peak hours.

Implementing dual SBL lanes would improve operations at this intersection, however would present major hydro conflicts (corridors located along the east and west boulevards).

Because the SBL movement is not affected by site traffic, this improvement does not fall within the scope/responsibility of the Transitway-3 project.

6 Summary and Recommendations

This report provides an analysis of traffic operations for the proposed Highway 407 Transitway station located on Dixie Road. Future conditions during the a.m. and p.m. peak hours were modelled and analyzed based on a horizon year of 2031.

The study indicates that future 2031 background traffic operations have several movements nearing or at capacity at Dixie Road & Advance Boulevard, at Dixie Road & 407 WB Off-Ramp, at Dixie Road & 407 EB Off-Ramp, and at Dixie Road & Drew Road.

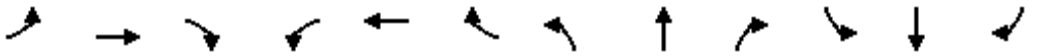
Site traffic for this station is originating from / destined to both the north and south. While this site traffic is added to already high southbound volumes in the a.m. peak and northbound volumes in the p.m. peak, no significant deterioration of any movement is observed when comparing to background growth conditions. One full-moves signalized access off Dixie Road is proposed, and while a second right-in/right-out access was considered, the traffic model indicated that the single signalized intersection will operate sufficiently.

Appendix A – Existing (2017) Conditions Synchro Output

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	61	154	166	134	44	472	263	532	1533	162
v/c Ratio	0.32	0.74	0.85	0.51	0.51	0.26	0.35	0.74	0.48	0.18
Control Delay	44.8	73.3	98.2	39.1	59.2	28.7	5.1	18.2	13.0	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.8	73.3	98.2	39.1	59.2	28.7	5.1	18.2	13.0	6.2
Queue Length 50th (m)	13.2	38.6	23.8	21.6	8.9	30.9	0.0	63.5	71.9	8.4
Queue Length 95th (m)	23.6	59.2	#43.7	40.8	#32.2	47.2	19.6	103.4	97.4	20.3
Internal Link Dist (m)		223.1		240.5		258.6			570.2	
Turn Bay Length (m)	40.0		83.0		121.0		150.0	183.0		24.0
Base Capacity (vph)	189	395	196	402	87	1782	747	732	3207	922
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.39	0.85	0.33	0.51	0.26	0.35	0.73	0.48	0.18

Intersection Summary

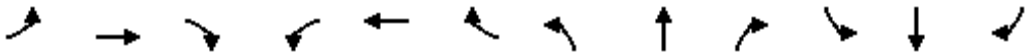
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	117	37	166	57	77	44	472	263	532	1533	162
Future Volume (vph)	61	117	37	166	57	77	44	472	263	532	1533	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.8		4.5	7.8		6.6	6.6	6.6	4.5	6.6	6.6
Lane Util. Factor	1.00	1.00		0.97	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00	0.96	1.00	1.00	0.96
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.96		1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1232	1464		2902	1260		1255	4196	1404	1749	4856	1360
Flt Permitted	0.67	1.00		0.95	1.00		0.16	1.00	1.00	0.42	1.00	1.00
Satd. Flow (perm)	871	1464		2902	1260		207	4196	1404	779	4856	1360
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	61	117	37	166	57	77	44	472	263	532	1533	162
RTOR Reduction (vph)	0	9	0	0	40	0	0	0	153	0	0	25
Lane Group Flow (vph)	61	145	0	166	94	0	44	472	110	532	1533	137
Confl. Peds. (#/hr)	12		7	7		12	9		7	7		9
Heavy Vehicles (%)	47%	10%	76%	22%	43%	33%	45%	25%	12%	4%	8%	15%
Turn Type	pm+pt	NA		Prot	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4						2		2	6		6
Actuated Green, G (s)	24.7	20.1		9.5	25.0		58.5	58.5	58.5	91.5	91.5	91.5
Effective Green, g (s)	24.7	20.1		9.5	25.0		58.5	58.5	58.5	91.5	91.5	91.5
Actuated g/C Ratio	0.18	0.14		0.07	0.18		0.42	0.42	0.42	0.65	0.65	0.65
Clearance Time (s)	4.5	7.8		4.5	7.8		6.6	6.6	6.6	4.5	6.6	6.6
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	165	210		196	225		86	1753	586	706	3173	888
v/s Ratio Prot	0.01	c0.10		c0.06	0.07			0.11		c0.15	0.32	
v/s Ratio Perm	0.05						0.21		0.08	c0.34		0.10
v/c Ratio	0.37	0.69		0.85	0.42		0.51	0.27	0.19	0.75	0.48	0.15
Uniform Delay, d1	50.0	57.0		64.5	51.0		30.2	26.7	25.7	12.5	12.3	9.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.4	9.0		27.1	1.3		20.1	0.4	0.7	4.6	0.5	0.4
Delay (s)	51.4	66.0		91.7	52.3		50.3	27.1	26.4	17.0	12.8	9.7
Level of Service	D	E		F	D		D	C	C	B	B	A
Approach Delay (s)		61.9			74.1			28.2			13.6	
Approach LOS		E			E			C			B	

Intersection Summary			
HCM 2000 Control Delay	24.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.4
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	56	95	212	73	103	31	230	637	157	71	1545	163
v/c Ratio	0.29	0.59	0.65	0.39	0.61	0.14	0.65	0.18	0.14	0.16	0.52	0.17
Control Delay	49.9	75.1	16.8	53.3	74.9	1.4	23.2	5.8	1.2	17.0	18.9	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.9	75.1	16.8	53.3	74.9	1.4	23.2	5.8	1.2	17.0	18.9	2.9
Queue Length 50th (m)	13.1	25.6	0.0	17.3	27.8	0.0	21.0	17.8	0.0	8.8	91.3	0.0
Queue Length 95th (m)	24.4	42.5	23.8	30.5	45.5	0.0	50.5	25.7	6.4	20.8	126.2	11.3
Internal Link Dist (m)		276.1			164.4			182.1			186.2	
Turn Bay Length (m)	90.0		106.0	106.0		64.0	140.0		150.0	112.0		114.0
Base Capacity (vph)	190	409	507	189	435	450	364	3446	1096	439	2985	957
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.23	0.42	0.39	0.24	0.07	0.63	0.18	0.14	0.16	0.52	0.17

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	95	212	73	103	31	230	637	157	71	1545	163
Future Volume (vph)	56	95	212	73	103	31	230	637	157	71	1545	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.4	7.4	3.0	7.4	7.4	3.0	6.2	6.2	6.2	6.2	6.2
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.93
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1421	1656	1408	1389	1762	1603	1722	4601	1411	1752	4995	1492
Flt Permitted	0.68	1.00	1.00	0.70	1.00	1.00	0.11	1.00	1.00	0.40	1.00	1.00
Satd. Flow (perm)	1011	1656	1408	1017	1762	1603	206	4601	1411	736	4995	1492
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	56	95	212	73	103	31	230	637	157	71	1545	163
RTOR Reduction (vph)	0	0	192	0	0	28	0	0	40	0	0	66
Lane Group Flow (vph)	56	95	20	73	103	3	230	637	117	71	1545	97
Confl. Peds. (#/hr)	5		4	4		5	14		1	1		14
Heavy Vehicles (%)	28%	16%	14%	31%	9%	0%	6%	14%	13%	4%	5%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	3	8		7	4		1	6			2	
Permitted Phases	8		8	4		4	6		6	2		2
Actuated Green, G (s)	19.1	13.5	13.5	19.1	13.5	13.5	104.3	104.3	104.3	83.1	83.1	83.1
Effective Green, g (s)	19.1	13.5	13.5	19.1	13.5	13.5	104.3	104.3	104.3	83.1	83.1	83.1
Actuated g/C Ratio	0.14	0.10	0.10	0.14	0.10	0.10	0.74	0.74	0.74	0.59	0.59	0.59
Clearance Time (s)	3.0	7.4	7.4	3.0	7.4	7.4	3.0	6.2	6.2	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	154	159	135	153	169	154	350	3427	1051	436	2964	885
v/s Ratio Prot	0.01	0.06		c0.02	c0.06		c0.09	0.14			0.31	
v/s Ratio Perm	0.03		0.01	0.05		0.00	c0.40		0.08	0.10		0.06
v/c Ratio	0.36	0.60	0.15	0.48	0.61	0.02	0.66	0.19	0.11	0.16	0.52	0.11
Uniform Delay, d1	54.3	60.6	58.0	55.1	60.7	57.3	17.1	5.3	5.0	12.8	16.7	12.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.5	5.9	0.5	2.3	6.1	0.1	4.4	0.1	0.2	0.8	0.7	0.2
Delay (s)	55.8	66.6	58.5	57.5	66.8	57.3	21.5	5.4	5.2	13.6	17.4	12.6
Level of Service	E	E	E	E	E	E	C	A	A	B	B	B
Approach Delay (s)		60.2			62.1			9.0			16.8	
Approach LOS		E			E			A			B	

Intersection Summary			
HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.6
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↑↑↑	↱		↑↑↑
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						194
pX, platoon unblocked						
vC, conflicting volume	0	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	1023	1084			1622	

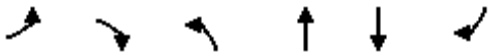
Direction, Lane #	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3
Volume Total	0	0	0	0	0	0	0
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS							
Approach Delay (s)	0.0				0.0		
Approach LOS							

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

Intersection Sign configuration not allowed in HCM analysis.

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	427	245	493	1803
v/c Ratio	0.68	0.84	0.16	0.52
Control Delay	54.6	71.5	7.0	10.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	54.6	71.5	7.0	10.2
Queue Length 50th (m)	53.5	64.6	14.6	75.6
Queue Length 95th (m)	67.0	94.0	22.3	102.3
Internal Link Dist (m)	348.1		170.6	102.6
Turn Bay Length (m)		277.0		
Base Capacity (vph)	787	365	3038	3456
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	0.54	0.67	0.16	0.52

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	182	490	0	493	1803	0
Future Volume (vph)	182	490	0	493	1803	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6		6.6	6.6	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	0.91	0.85		1.00	1.00	
Flt Protected	0.98	1.00		1.00	1.00	
Satd. Flow (prot)	3211	1443		4230	4812	
Flt Permitted	0.98	1.00		1.00	1.00	
Satd. Flow (perm)	3211	1443		4230	4812	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	182	490	0	493	1803	0
RTOR Reduction (vph)	23	23	0	0	0	0
Lane Group Flow (vph)	404	222	0	493	1803	0
Heavy Vehicles (%)	5%	3%	0%	24%	9%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			6	2	
Permitted Phases		4				
Actuated Green, G (s)	26.2	26.2		100.6	100.6	
Effective Green, g (s)	26.2	26.2		100.6	100.6	
Actuated g/C Ratio	0.19	0.19		0.72	0.72	
Clearance Time (s)	6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	600	270		3039	3457	
v/s Ratio Prot	0.13			0.12	c0.37	
v/s Ratio Perm		c0.15				
v/c Ratio	0.67	0.82		0.16	0.52	
Uniform Delay, d1	52.9	54.7		6.3	8.9	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.0	18.0		0.1	0.6	
Delay (s)	55.9	72.7		6.4	9.4	
Level of Service	E	E		A	A	
Approach Delay (s)	62.0			6.4	9.4	
Approach LOS	E			A	A	

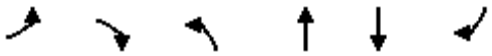
Intersection Summary			
HCM 2000 Control Delay	20.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	442	203	639	1651
v/c Ratio	0.79	0.49	0.19	0.47
Control Delay	61.7	10.1	6.3	8.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	61.7	10.1	6.3	8.4
Queue Length 50th (m)	57.6	0.0	17.7	60.0
Queue Length 95th (m)	71.8	22.6	26.8	83.2
Internal Link Dist (m)	415.5		77.0	85.3
Turn Bay Length (m)		193.0		
Base Capacity (vph)	770	494	3321	3535
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	0.57	0.41	0.19	0.47

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	342	303	639	0	0	1651
Future Volume (vph)	342	303	639	0	0	1651
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.6			6.6
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.97	0.85	1.00			1.00
Flt Protected	0.96	1.00	1.00			1.00
Satd. Flow (prot)	3090	1402	4521			4812
Flt Permitted	0.96	1.00	1.00			1.00
Satd. Flow (perm)	3090	1402	4521			4812
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	342	303	639	0	0	1651
RTOR Reduction (vph)	22	167	0	0	0	0
Lane Group Flow (vph)	420	36	639	0	0	1651
Heavy Vehicles (%)	14%	6%	16%	0%	0%	9%
Turn Type	Prot	Perm	NA			NA
Protected Phases	4		6			2
Permitted Phases		4				
Actuated Green, G (s)	24.5	24.5	102.9			102.9
Effective Green, g (s)	24.5	24.5	102.9			102.9
Actuated g/C Ratio	0.18	0.18	0.74			0.74
Clearance Time (s)	6.0	6.0	6.6			6.6
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	540	245	3322			3536
v/s Ratio Prot	c0.14		0.14			c0.34
v/s Ratio Perm		0.03				
v/c Ratio	0.78	0.15	0.19			0.47
Uniform Delay, d1	55.1	48.9	5.7			7.5
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	6.9	0.3	0.1			0.4
Delay (s)	62.1	49.2	5.9			7.9
Level of Service	E	D	A			A
Approach Delay (s)	58.0		5.9			7.9
Approach LOS	E		A			A

Intersection Summary			
HCM 2000 Control Delay	18.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.6
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				126	294	
pX, platoon unblocked						
vC, conflicting volume	0	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	1023	1084	1622			

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	0	0	0	0	0	0
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS						
Approach Delay (s)	0.0			0.0		
Approach LOS						

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

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			319			101
pX, platoon unblocked						
vC, conflicting volume	0	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	1023	1084			1622	

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	0	0	0	0	0	0
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS						
Approach Delay (s)	0.0			0.0		
Approach LOS						

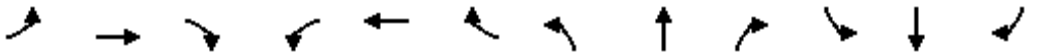
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	76	58	473	551	75	2031	188	152	614	55
v/c Ratio	0.68	0.25	0.86	0.93	0.36	0.96	0.31	0.75	0.27	0.09
Control Delay	60.0	31.6	73.2	53.7	38.7	53.7	5.5	52.9	20.5	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.0	31.6	73.2	53.7	38.7	53.7	5.5	52.9	20.5	0.3
Queue Length 50th (m)	12.8	8.4	~72.7	104.8	15.4	~202.2	0.0	26.6	35.0	0.0
Queue Length 95th (m)	21.5	19.9	#107.0	147.7	31.0	#228.1	15.9	#76.7	48.5	0.0
Internal Link Dist (m)		223.1		240.5		258.6			570.2	
Turn Bay Length (m)	40.0		83.0		121.0		150.0	183.0		24.0
Base Capacity (vph)	111	309	547	679	210	2121	609	203	2250	628
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.19	0.86	0.81	0.36	0.96	0.31	0.75	0.27	0.09

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

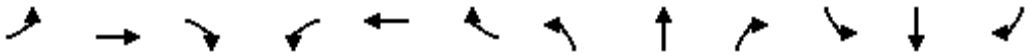
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	36	22	473	34	517	75	2031	188	152	614	55
Future Volume (vph)	76	36	22	473	34	517	75	2031	188	152	614	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.8		4.5	7.8		6.6	6.6	6.6	4.5	6.6	6.6
Lane Util. Factor	1.00	1.00		0.97	1.00		1.00	*1.00	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.98		1.00	1.00	0.96	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.94		1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1425	1112		3106	1521		1255	5437	1268	1573	4334	1111
Flt Permitted	0.18	1.00		0.95	1.00		0.41	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	276	1112		3106	1521		539	5437	1268	115	4334	1111
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	76	36	22	473	34	517	75	2031	188	152	614	55
RTOR Reduction (vph)	0	17	0	0	125	0	0	0	117	0	0	27
Lane Group Flow (vph)	76	41	0	473	426	0	75	2031	71	152	614	28
Confl. Peds. (#/hr)	7		1	1		7	3		7	7		3
Heavy Vehicles (%)	28%	53%	77%	14%	30%	5%	45%	6%	24%	16%	21%	43%
Turn Type	pm+pt	NA		Prot	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4						2		2	6		6
Actuated Green, G (s)	30.8	25.3		24.7	44.5		53.0	53.0	53.0	71.1	71.1	71.1
Effective Green, g (s)	30.8	25.3		24.7	44.5		53.0	53.0	53.0	71.1	71.1	71.1
Actuated g/C Ratio	0.22	0.18		0.18	0.32		0.38	0.38	0.38	0.51	0.51	0.51
Clearance Time (s)	4.5	7.8		4.5	7.8		6.6	6.6	6.6	4.5	6.6	6.6
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	105	200		547	483		204	2058	480	200	2201	564
v/s Ratio Prot	0.03	0.04		c0.15	c0.28			c0.37		c0.07	0.14	
v/s Ratio Perm	0.13						0.14		0.06	0.31		0.03
v/c Ratio	0.72	0.20		0.86	0.88		0.37	0.99	0.15	0.76	0.28	0.05
Uniform Delay, d1	47.3	48.8		56.0	45.3		31.4	43.2	28.6	37.1	19.8	17.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	21.7	0.5		13.4	17.1		5.0	17.0	0.7	15.5	0.3	0.2
Delay (s)	69.1	49.3		69.4	62.3		36.4	60.1	29.3	52.7	20.1	17.6
Level of Service	E	D		E	E		D	E	C	D	C	B
Approach Delay (s)		60.5			65.6			56.8			25.9	
Approach LOS		E			E			E			C	

Intersection Summary			
HCM 2000 Control Delay	53.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.4
Intersection Capacity Utilization	105.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	151	165	457	157	108	118	169	1317	122	54	873	58
v/c Ratio	0.32	0.40	0.94	0.41	0.26	0.27	0.62	0.47	0.15	0.34	0.32	0.06
Control Delay	31.4	46.1	59.4	33.7	42.8	11.4	33.2	18.2	2.9	24.5	16.1	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.4	46.1	59.4	33.7	42.8	11.4	33.2	18.2	2.9	24.5	16.1	3.4
Queue Length 50th (m)	26.8	36.3	78.0	28.3	22.9	3.2	30.5	76.8	0.0	7.8	45.5	0.0
Queue Length 95th (m)	43.0	57.2	#138.9	45.3	38.9	18.4	61.8	89.0	8.9	19.2	54.6	6.2
Internal Link Dist (m)		276.1			164.4			182.1			186.2	
Turn Bay Length (m)	90.0		106.0	106.0		64.0	140.0		150.0	112.0		114.0
Base Capacity (vph)	469	451	518	380	460	474	271	2794	791	160	2743	902
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.37	0.88	0.41	0.23	0.25	0.62	0.47	0.15	0.34	0.32	0.06

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)	151	165	457	157	108	118	169	1317	122	54	873	58
Future Volume (vph)	151	165	457	157	108	118	169	1317	122	54	873	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.4	7.4	3.0	7.4	7.4	6.2	6.2	6.2	6.2	6.2	6.2
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.96	1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1766	1762	1522	1594	1795	1557	1579	4902	1296	1686	4812	1537
Flt Permitted	0.69	1.00	1.00	0.59	1.00	1.00	0.29	1.00	1.00	0.16	1.00	1.00
Satd. Flow (perm)	1278	1762	1522	986	1795	1557	477	4902	1296	281	4812	1537
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	151	165	457	157	108	118	169	1317	122	54	873	58
RTOR Reduction (vph)	0	0	132	0	0	78	0	0	52	0	0	25
Lane Group Flow (vph)	151	165	325	157	108	40	169	1317	70	54	873	33
Confl. Peds. (#/hr)	5		8	8		5	6		6	6		6
Heavy Vehicles (%)	3%	9%	5%	14%	7%	3%	15%	7%	21%	8%	9%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	3	8		7	4			6			2	
Permitted Phases	8		8	4		4	6		6	2		2
Actuated Green, G (s)	41.3	31.4	31.4	41.5	31.5	31.5	77.0	77.0	77.0	77.0	77.0	77.0
Effective Green, g (s)	41.3	31.4	31.4	41.5	31.5	31.5	77.0	77.0	77.0	77.0	77.0	77.0
Actuated g/C Ratio	0.31	0.23	0.23	0.31	0.23	0.23	0.57	0.57	0.57	0.57	0.57	0.57
Clearance Time (s)	3.0	7.4	7.4	3.0	7.4	7.4	6.2	6.2	6.2	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	426	409	354	348	418	363	272	2795	739	160	2744	876
v/s Ratio Prot	0.03	0.09		c0.03	0.06			0.27			0.18	
v/s Ratio Perm	0.08		c0.21	0.11		0.03	c0.35		0.05	0.19		0.02
v/c Ratio	0.35	0.40	0.92	0.45	0.26	0.11	0.62	0.47	0.09	0.34	0.32	0.04
Uniform Delay, d1	35.6	43.9	50.5	36.0	42.2	40.7	19.3	17.0	13.2	15.4	15.2	12.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.7	27.8	0.9	0.3	0.1	10.2	0.6	0.3	5.6	0.3	0.1
Delay (s)	36.1	44.5	78.4	36.9	42.6	40.9	29.5	17.6	13.4	21.1	15.5	12.8
Level of Service	D	D	E	D	D	D	C	B	B	C	B	B
Approach Delay (s)		62.9			39.7			18.5			15.7	
Approach LOS		E			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	29.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↑↑↑	↱		↑↑↑
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						194
pX, platoon unblocked						
vC, conflicting volume	0	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	1023	1084			1622	

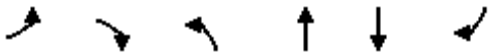
Direction, Lane #	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3
Volume Total	0	0	0	0	0	0	0
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS							
Approach Delay (s)	0.0				0.0		
Approach LOS							

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

Intersection Sign configuration not allowed in HCM analysis.

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	128	58	2163	804
v/c Ratio	0.52	0.41	0.54	0.22
Control Delay	56.5	22.3	4.5	2.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	56.5	22.3	4.5	2.8
Queue Length 50th (m)	14.1	0.0	52.7	13.4
Queue Length 95th (m)	24.1	14.8	70.5	19.4
Internal Link Dist (m)	348.1		170.6	102.6
Turn Bay Length (m)		277.0		
Base Capacity (vph)	625	288	4038	3661
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	0.20	0.20	0.54	0.22

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	102	84	0	2163	804	0
Future Volume (vph)	102	84	0	2163	804	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6		6.6	6.6	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	0.97	0.85		1.00	1.00	
Flt Protected	0.96	1.00		1.00	1.00	
Satd. Flow (prot)	2890	1152		4902	4445	
Flt Permitted	0.96	1.00		1.00	1.00	
Satd. Flow (perm)	2890	1152		4902	4445	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	102	84	0	2163	804	0
RTOR Reduction (vph)	20	53	0	0	0	0
Lane Group Flow (vph)	108	5	0	2163	804	0
Heavy Vehicles (%)	18%	29%	0%	7%	18%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			6	2	
Permitted Phases		4				
Actuated Green, G (s)	10.6	10.6		111.2	111.2	
Effective Green, g (s)	10.6	10.6		111.2	111.2	
Actuated g/C Ratio	0.08	0.08		0.82	0.82	
Clearance Time (s)	6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	226	90		4037	3661	
v/s Ratio Prot	c0.04			c0.44	0.18	
v/s Ratio Perm		0.00				
v/c Ratio	0.48	0.05		0.54	0.22	
Uniform Delay, d1	59.5	57.5		3.8	2.6	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.6	0.2		0.5	0.1	
Delay (s)	61.1	57.8		4.3	2.7	
Level of Service	E	E		A	A	
Approach Delay (s)	60.1			4.3	2.7	
Approach LOS	E			A	A	

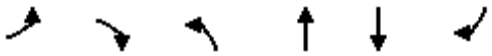
Intersection Summary			
HCM 2000 Control Delay	7.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	169	77	1814	1021
v/c Ratio	0.62	0.51	0.46	0.27
Control Delay	61.4	46.5	4.7	3.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	61.4	46.5	4.7	3.6
Queue Length 50th (m)	20.1	12.5	45.0	20.2
Queue Length 95th (m)	31.0	30.0	62.0	29.1
Internal Link Dist (m)	415.5		77.0	85.3
Turn Bay Length (m)		193.0		
Base Capacity (vph)	579	297	3916	3811
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	0.29	0.26	0.46	0.27

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	138	108	1814	0	0	1021
Future Volume (vph)	138	108	1814	0	0	1021
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6	6.6			6.6
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.97	0.85	1.00			1.00
Flt Protected	0.96	1.00	1.00			1.00
Satd. Flow (prot)	2685	1292	4856			4725
Flt Permitted	0.96	1.00	1.00			1.00
Satd. Flow (perm)	2685	1292	4856			4725
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	138	108	1814	0	0	1021
RTOR Reduction (vph)	17	29	0	0	0	0
Lane Group Flow (vph)	152	48	1814	0	0	1021
Heavy Vehicles (%)	33%	15%	8%	0%	0%	11%
Turn Type	Prot	Perm	NA			NA
Protected Phases	4		6			2
Permitted Phases		4				
Actuated Green, G (s)	12.9	12.9	108.9			108.9
Effective Green, g (s)	12.9	12.9	108.9			108.9
Actuated g/C Ratio	0.10	0.10	0.81			0.81
Clearance Time (s)	6.6	6.6	6.6			6.6
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	256	123	3917			3811
v/s Ratio Prot	c0.06		c0.37			0.22
v/s Ratio Perm		0.04				
v/c Ratio	0.59	0.39	0.46			0.27
Uniform Delay, d1	58.5	57.4	4.0			3.2
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	3.7	2.0	0.4			0.2
Delay (s)	62.2	59.4	4.4			3.4
Level of Service	E	E	A			A
Approach Delay (s)	61.3		4.4			3.4
Approach LOS	E		A			A

Intersection Summary			
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	44.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				126	294	
pX, platoon unblocked						
vC, conflicting volume	0	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	1023	1084	1622			

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	0	0	0	0	0	0
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS						
Approach Delay (s)	0.0			0.0		
Approach LOS						

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

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			319			101
pX, platoon unblocked						
vC, conflicting volume	0	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	1023	1084			1622	

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	0	0	0	0	0	0
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS						
Approach Delay (s)	0.0			0.0		
Approach LOS						

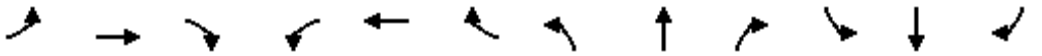
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	44.1%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix B – Future (2031) Background Conditions Synchro Output

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	65	165	178	144	47	506	282	570	1644	174
v/c Ratio	0.31	0.75	0.89	0.54	0.69	0.32	0.40	0.78	0.52	0.19
Control Delay	42.4	73.3	103.4	41.9	90.1	33.7	5.7	20.9	14.2	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.4	73.3	103.4	41.9	90.1	33.7	5.7	20.9	14.2	6.9
Queue Length 50th (m)	14.0	41.6	25.6	24.5	11.1	36.9	0.0	72.6	82.3	10.0
Queue Length 95th (m)	24.5	62.6	#47.2	44.5	#38.1	52.1	21.2	117.7	110.9	23.2
Internal Link Dist (m)		223.1		240.5		258.6			570.2	
Turn Bay Length (m)	40.0		83.0		121.0		150.0	183.0		24.0
Base Capacity (vph)	208	394	201	390	68	1562	699	733	3163	911
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.42	0.89	0.37	0.69	0.32	0.40	0.78	0.52	0.19

Intersection Summary

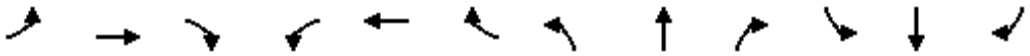
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	125	40	178	61	83	47	506	282	570	1644	174
Future Volume (vph)	65	125	40	178	61	83	47	506	282	570	1644	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.8		4.5	7.8		6.6	6.6	6.6	4.5	6.6	6.6
Lane Util. Factor	1.00	1.00		0.97	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00	0.96	1.00	1.00	0.96
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.96		1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1233	1462		2902	1260		1256	4196	1404	1750	4856	1360
Flt Permitted	0.67	1.00		0.95	1.00		0.14	1.00	1.00	0.39	1.00	1.00
Satd. Flow (perm)	863	1462		2902	1260		184	4196	1404	718	4856	1360
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	65	125	40	178	61	83	47	506	282	570	1644	174
RTOR Reduction (vph)	0	9	0	0	40	0	0	0	179	0	0	26
Lane Group Flow (vph)	65	156	0	178	104	0	47	506	103	570	1644	148
Confl. Peds. (#/hr)	12		7	7		12	9		7	7		9
Heavy Vehicles (%)	47%	10%	76%	22%	43%	33%	45%	25%	12%	4%	8%	15%
Turn Type	pm+pt	NA		Prot	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4						2		2	6		6
Actuated Green, G (s)	26.9	21.1		9.7	25.0		51.2	51.2	51.2	90.3	90.3	90.3
Effective Green, g (s)	26.9	21.1		9.7	25.0		51.2	51.2	51.2	90.3	90.3	90.3
Actuated g/C Ratio	0.19	0.15		0.07	0.18		0.37	0.37	0.37	0.64	0.64	0.64
Clearance Time (s)	4.5	7.8		4.5	7.8		6.6	6.6	6.6	4.5	6.6	6.6
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	181	220		201	225		67	1534	513	718	3132	877
v/s Ratio Prot	0.01	c0.11		c0.06	c0.08			0.12		c0.20	0.34	
v/s Ratio Perm	0.05						0.26		0.07	c0.32		0.11
v/c Ratio	0.36	0.71		0.89	0.46		0.70	0.33	0.20	0.79	0.52	0.17
Uniform Delay, d1	48.2	56.5		64.6	51.5		37.9	32.0	30.4	13.8	13.3	9.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	9.9		33.8	1.5		46.8	0.6	0.9	6.0	0.6	0.4
Delay (s)	49.5	66.5		98.4	53.0		84.7	32.6	31.3	19.8	14.0	10.3
Level of Service	D	E		F	D		F	C	C	B	B	B
Approach Delay (s)		61.7			78.1			35.1			15.1	
Approach LOS		E			E			D			B	

Intersection Summary			
HCM 2000 Control Delay	27.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.4
Intersection Capacity Utilization	94.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	60	102	227	78	110	33	247	683	168	76	1657	175
v/c Ratio	0.32	0.61	0.66	0.44	0.55	0.13	0.72	0.20	0.15	0.18	0.57	0.19
Control Delay	51.9	74.6	16.1	56.7	69.4	1.2	33.8	5.9	1.2	18.0	20.5	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.9	74.6	16.1	56.7	69.4	1.2	33.8	5.9	1.2	18.0	20.5	3.0
Queue Length 50th (m)	14.2	27.5	0.0	18.8	29.7	0.0	32.9	18.4	0.0	9.4	99.4	0.0
Queue Length 95th (m)	26.2	44.5	24.5	32.5	47.2	0.3	62.2	27.3	6.4	23.4	145.1	12.3
Internal Link Dist (m)		276.1			164.4			182.1			186.2	
Turn Bay Length (m)	90.0		106.0	106.0		64.0	140.0		150.0	112.0		114.0
Base Capacity (vph)	187	404	515	178	430	446	405	3423	1093	411	2922	945
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.25	0.44	0.44	0.26	0.07	0.61	0.20	0.15	0.18	0.57	0.19

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	102	227	78	110	33	247	683	168	76	1657	175
Future Volume (vph)	60	102	227	78	110	33	247	683	168	76	1657	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.4	7.4	3.0	7.4	7.4	3.0	6.2	6.2	6.2	6.2	6.2
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.93
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1421	1656	1408	1390	1762	1603	1722	4601	1411	1752	4995	1492
Flt Permitted	0.69	1.00	1.00	0.64	1.00	1.00	0.09	1.00	1.00	0.38	1.00	1.00
Satd. Flow (perm)	1026	1656	1408	939	1762	1603	170	4601	1411	702	4995	1492
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	60	102	227	78	110	33	247	683	168	76	1657	175
RTOR Reduction (vph)	0	0	203	0	0	29	0	0	44	0	0	73
Lane Group Flow (vph)	60	102	24	78	110	4	247	683	124	76	1657	102
Confl. Peds. (#/hr)	5		4	4		5	14		1	1		14
Heavy Vehicles (%)	28%	16%	14%	31%	9%	0%	6%	14%	13%	4%	5%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	3	8		7	4		1	6			2	
Permitted Phases	8		8	4		4	6		6	2		2
Actuated Green, G (s)	18.8	14.8	14.8	20.8	15.8	15.8	103.6	103.6	103.6	81.3	81.3	81.3
Effective Green, g (s)	18.8	14.8	14.8	20.8	15.8	15.8	103.6	103.6	103.6	81.3	81.3	81.3
Actuated g/C Ratio	0.13	0.11	0.11	0.15	0.11	0.11	0.74	0.74	0.74	0.58	0.58	0.58
Clearance Time (s)	3.0	7.4	7.4	3.0	7.4	7.4	3.0	6.2	6.2	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	149	175	148	155	198	180	339	3404	1044	407	2900	866
v/s Ratio Prot	0.01	0.06		c0.02	c0.06		c0.10	0.15			0.33	
v/s Ratio Perm	0.04		0.02	0.06		0.00	c0.44		0.09	0.11		0.07
v/c Ratio	0.40	0.58	0.16	0.50	0.56	0.02	0.73	0.20	0.12	0.19	0.57	0.12
Uniform Delay, d1	54.8	59.7	57.0	54.2	58.8	55.2	27.4	5.6	5.2	13.8	18.4	13.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8	4.9	0.5	2.6	3.4	0.0	7.6	0.1	0.2	1.0	0.8	0.3
Delay (s)	56.6	64.5	57.5	56.7	62.1	55.3	35.0	5.7	5.4	14.8	19.2	13.5
Level of Service	E	E	E	E	E	E	C	A	A	B	B	B
Approach Delay (s)		59.2			59.2			12.2			18.5	
Approach LOS		E			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	23.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.6
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↑↑↑	↱		↑↑↑
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						194
pX, platoon unblocked						
vC, conflicting volume	0	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	1023	1084			1622	

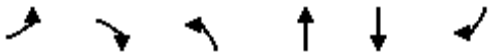
Direction, Lane #	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3
Volume Total	0	0	0	0	0	0	0
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS							
Approach Delay (s)	0.0				0.0		
Approach LOS							

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

Intersection Sign configuration not allowed in HCM analysis.

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	458	262	529	1933
v/c Ratio	0.65	0.81	0.18	0.58
Control Delay	52.1	68.2	8.7	13.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	52.1	68.2	8.7	13.2
Queue Length 50th (m)	58.2	72.8	17.8	95.3
Queue Length 95th (m)	69.2	99.1	28.3	134.5
Internal Link Dist (m)	348.1		170.6	102.6
Turn Bay Length (m)		277.0		
Base Capacity (vph)	1026	465	2911	3312
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	0.45	0.56	0.18	0.58

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	195	525	0	529	1933	0
Future Volume (vph)	195	525	0	529	1933	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6		6.6	6.6	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	0.91	0.85		1.00	1.00	
Flt Protected	0.98	1.00		1.00	1.00	
Satd. Flow (prot)	3211	1443		4230	4812	
Flt Permitted	0.98	1.00		1.00	1.00	
Satd. Flow (perm)	3211	1443		4230	4812	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	195	525	0	529	1933	0
RTOR Reduction (vph)	9	9	0	0	0	0
Lane Group Flow (vph)	449	253	0	529	1933	0
Heavy Vehicles (%)	5%	3%	0%	24%	9%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			6	2	
Permitted Phases		4				
Actuated Green, G (s)	30.4	30.4		96.4	96.4	
Effective Green, g (s)	30.4	30.4		96.4	96.4	
Actuated g/C Ratio	0.22	0.22		0.69	0.69	
Clearance Time (s)	6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	697	313		2912	3313	
v/s Ratio Prot	0.14			0.13	c0.40	
v/s Ratio Perm		c0.18				
v/c Ratio	0.64	0.81		0.18	0.58	
Uniform Delay, d1	49.9	52.0		7.8	11.3	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.0	14.1		0.1	0.8	
Delay (s)	51.9	66.1		7.9	12.1	
Level of Service	D	E		A	B	
Approach Delay (s)	57.1			7.9	12.1	
Approach LOS	E			A	B	

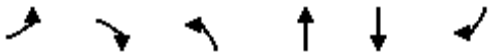
Intersection Summary			
HCM 2000 Control Delay	21.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	49.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	474	218	685	1770
v/c Ratio	0.79	0.50	0.21	0.51
Control Delay	60.8	9.5	6.9	9.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	60.8	9.5	6.9	9.6
Queue Length 50th (m)	61.8	0.0	20.2	70.2
Queue Length 95th (m)	76.1	22.8	30.3	96.9
Internal Link Dist (m)	415.5		77.0	85.3
Turn Bay Length (m)		193.0		
Base Capacity (vph)	902	556	3270	3481
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	0.53	0.39	0.21	0.51

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	367	325	685	0	0	1770
Future Volume (vph)	367	325	685	0	0	1770
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.6			6.6
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.97	0.85	1.00			1.00
Flt Protected	0.96	1.00	1.00			1.00
Satd. Flow (prot)	3090	1402	4521			4812
Flt Permitted	0.96	1.00	1.00			1.00
Satd. Flow (perm)	3090	1402	4521			4812
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	367	325	685	0	0	1770
RTOR Reduction (vph)	23	177	0	0	0	0
Lane Group Flow (vph)	451	41	685	0	0	1770
Heavy Vehicles (%)	14%	6%	16%	0%	0%	9%
Turn Type	Prot	Perm	NA			NA
Protected Phases	4		6			2
Permitted Phases		4				
Actuated Green, G (s)	26.1	26.1	101.3			101.3
Effective Green, g (s)	26.1	26.1	101.3			101.3
Actuated g/C Ratio	0.19	0.19	0.72			0.72
Clearance Time (s)	6.0	6.0	6.6			6.6
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	576	261	3271			3481
v/s Ratio Prot	c0.15		0.15			c0.37
v/s Ratio Perm		0.03				
v/c Ratio	0.78	0.16	0.21			0.51
Uniform Delay, d1	54.3	47.7	6.3			8.5
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	6.9	0.3	0.1			0.5
Delay (s)	61.1	48.0	6.4			9.0
Level of Service	E	D	A			A
Approach Delay (s)	57.0		6.4			9.0
Approach LOS	E		A			A

Intersection Summary			
HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.6
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				126	294	
pX, platoon unblocked						
vC, conflicting volume	0	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	1023	1084	1622			

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	0	0	0	0	0	0
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS						
Approach Delay (s)	0.0			0.0		
Approach LOS						

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

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			319			101
pX, platoon unblocked						
vC, conflicting volume	0	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0			0	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	1023	1084			1622	

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	0	0	0	0	0	0
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS						
Approach Delay (s)	0.0			0.0		
Approach LOS						

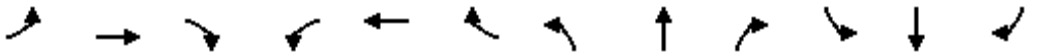
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	81	63	507	590	80	2178	202	163	658	59
v/c Ratio	0.66	0.25	0.87	0.95	0.42	1.09	0.34	0.90	0.31	0.10
Control Delay	54.0	30.3	71.9	57.3	41.6	90.1	5.4	77.2	23.2	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.0	30.3	71.9	57.3	41.6	90.1	5.4	77.2	23.2	0.4
Queue Length 50th (m)	12.4	8.7	~82.7	118.8	16.5	~225.2	0.0	~40.4	42.1	0.0
Queue Length 95th (m)	22.6	21.2	#118.0	#190.2	33.5	#250.4	16.3	#86.4	52.1	0.5
Internal Link Dist (m)		223.1		240.5		258.6			764.8	
Turn Bay Length (m)	40.0		83.0		121.0		150.0	183.0		24.0
Base Capacity (vph)	123	310	584	664	189	2003	594	181	2098	593
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.20	0.87	0.89	0.42	1.09	0.34	0.90	0.31	0.10

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

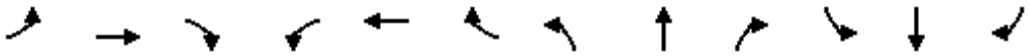
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	39	24	507	36	554	80	2178	202	163	658	59
Future Volume (vph)	81	39	24	507	36	554	80	2178	202	163	658	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.8		4.5	7.8		6.6	6.6	6.6	4.5	6.6	6.6
Lane Util. Factor	1.00	1.00		0.97	1.00		1.00	*1.00	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.98		1.00	1.00	0.96	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.94		1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1425	1112		3106	1521		1255	5437	1268	1573	4334	1111
Flt Permitted	0.20	1.00		0.95	1.00		0.39	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	303	1112		3106	1521		516	5437	1268	122	4334	1111
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	81	39	24	507	36	554	80	2178	202	163	658	59
RTOR Reduction (vph)	0	18	0	0	103	0	0	0	130	0	0	31
Lane Group Flow (vph)	81	45	0	507	487	0	80	2178	72	163	658	28
Confl. Peds. (#/hr)	7		1	1		7	3		7	7		3
Heavy Vehicles (%)	28%	53%	77%	14%	30%	5%	45%	6%	24%	16%	21%	43%
Turn Type	pm+pt	NA		Prot	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4						2		2	6		6
Actuated Green, G (s)	34.0	28.5		26.4	49.4		50.0	50.0	50.0	66.2	66.2	66.2
Effective Green, g (s)	34.0	28.5		26.4	49.4		50.0	50.0	50.0	66.2	66.2	66.2
Actuated g/C Ratio	0.24	0.20		0.19	0.35		0.36	0.36	0.36	0.47	0.47	0.47
Clearance Time (s)	4.5	7.8		4.5	7.8		6.6	6.6	6.6	4.5	6.6	6.6
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	117	226		585	536		184	1941	452	178	2049	525
v/s Ratio Prot	0.03	0.04		c0.16	c0.32			c0.40		c0.08	0.15	
v/s Ratio Perm	0.14						0.16		0.06	0.36		0.03
v/c Ratio	0.69	0.20		0.87	0.91		0.43	1.12	0.16	0.92	0.32	0.05
Uniform Delay, d1	45.4	46.3		55.1	43.2		34.2	45.0	30.7	40.0	22.9	20.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	16.2	0.4		12.8	19.2		7.3	62.4	0.8	43.7	0.4	0.2
Delay (s)	61.7	46.7		67.9	62.3		41.6	107.4	31.4	83.7	23.3	20.1
Level of Service	E	D		E	E		D	F	C	F	C	C
Approach Delay (s)		55.1			64.9			99.1			34.3	
Approach LOS		E			E			F			C	

Intersection Summary			
HCM 2000 Control Delay	77.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.4
Intersection Capacity Utilization	111.9%	ICU Level of Service	H
Analysis Period (min)	15		

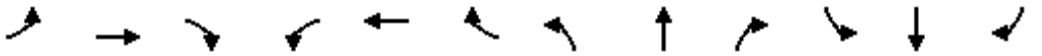
c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	162	177	490	168	116	127	181	1412	132	58	936	62
v/c Ratio	0.35	0.35	0.94	0.45	0.23	0.27	0.75	0.52	0.17	0.44	0.35	0.07
Control Delay	31.1	39.9	61.7	35.1	38.0	20.5	43.3	18.6	5.9	32.2	17.4	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.1	39.9	61.7	35.1	38.0	20.5	43.3	18.6	5.9	32.2	17.4	3.7
Queue Length 50th (m)	28.3	36.3	96.8	29.7	23.2	12.9	39.6	95.6	6.7	9.2	51.4	0.0
Queue Length 95th (m)	44.6	56.6	#159.3	46.9	38.7	29.1	#84.0	110.3	18.9	25.0	61.3	6.8
Internal Link Dist (m)		276.1			164.4			291.4			186.2	
Turn Bay Length (m)	90.0		106.0	106.0		64.0	140.0		150.0	112.0		114.0
Base Capacity (vph)	468	542	556	373	539	510	242	2728	780	133	2678	883
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.33	0.88	0.45	0.22	0.25	0.75	0.52	0.17	0.44	0.35	0.07

Intersection Summary

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



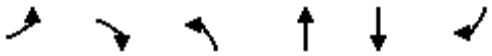
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	177	490	168	116	127	181	1412	132	58	936	62
Future Volume (vph)	162	177	490	168	116	127	181	1412	132	58	936	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.4	7.4	3.0	7.4	7.4	6.2	6.2	6.2	6.2	6.2	6.2
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.96	1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1766	1762	1522	1594	1795	1557	1580	4902	1296	1687	4812	1537
Flt Permitted	0.66	1.00	1.00	0.61	1.00	1.00	0.26	1.00	1.00	0.14	1.00	1.00
Satd. Flow (perm)	1235	1762	1522	1021	1795	1557	436	4902	1296	241	4812	1537
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	162	177	490	168	116	127	181	1412	132	58	936	62
RTOR Reduction (vph)	0	0	90	0	0	44	0	0	59	0	0	28
Lane Group Flow (vph)	162	177	400	168	116	83	181	1412	73	58	936	34
Confl. Peds. (#/hr)	5		8	8		5	6		6	6		6
Heavy Vehicles (%)	3%	9%	5%	14%	7%	3%	15%	7%	21%	8%	9%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	3	8		7	4			6			2	
Permitted Phases	8		8	4		4	6		6	2		2
Actuated Green, G (s)	44.3	38.3	38.3	42.3	37.3	37.3	75.1	75.1	75.1	75.1	75.1	75.1
Effective Green, g (s)	44.3	38.3	38.3	42.3	37.3	37.3	75.1	75.1	75.1	75.1	75.1	75.1
Actuated g/C Ratio	0.33	0.28	0.28	0.31	0.28	0.28	0.56	0.56	0.56	0.56	0.56	0.56
Clearance Time (s)	3.0	7.4	7.4	3.0	7.4	7.4	6.2	6.2	6.2	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	428	499	431	341	495	430	242	2726	720	134	2676	855
v/s Ratio Prot	c0.02	0.10		c0.02	0.06			0.29			0.19	
v/s Ratio Perm	0.11		c0.26	0.14		0.05	c0.41		0.06	0.24		0.02
v/c Ratio	0.38	0.35	0.93	0.49	0.23	0.19	0.75	0.52	0.10	0.43	0.35	0.04
Uniform Delay, d1	34.0	38.5	47.0	37.2	37.8	37.3	22.8	18.7	14.1	17.5	16.5	13.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.93	2.17	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.4	25.9	1.1	0.2	0.2	17.0	0.6	0.3	9.9	0.4	0.1
Delay (s)	34.5	38.9	72.9	38.3	38.0	37.6	39.1	18.0	30.8	27.4	16.9	13.7
Level of Service	C	D	E	D	D	D	D	B	C	C	B	B
Approach Delay (s)		58.2			38.0			21.2			17.3	
Approach LOS		E			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	29.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	137	62	2319	862
v/c Ratio	0.54	0.41	0.58	0.24
Control Delay	58.4	21.5	5.0	6.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	58.4	21.5	5.0	6.3
Queue Length 50th (m)	15.6	0.0	61.7	32.6
Queue Length 95th (m)	25.7	15.0	82.3	40.2
Internal Link Dist (m)	348.1		764.8	395.9
Turn Bay Length (m)		277.0		
Base Capacity (vph)	453	226	4023	3648
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	0.30	0.27	0.58	0.24

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	109	90	0	2319	862	0
Future Volume (vph)	109	90	0	2319	862	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6		6.6	6.6	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	0.97	0.85		1.00	1.00	
Flt Protected	0.96	1.00		1.00	1.00	
Satd. Flow (prot)	2889	1152		4902	4445	
Flt Permitted	0.96	1.00		1.00	1.00	
Satd. Flow (perm)	2889	1152		4902	4445	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	109	90	0	2319	862	0
RTOR Reduction (vph)	18	57	0	0	0	0
Lane Group Flow (vph)	119	5	0	2319	862	0
Heavy Vehicles (%)	18%	29%	0%	7%	18%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			6	2	
Permitted Phases		4				
Actuated Green, G (s)	11.0	11.0		110.8	110.8	
Effective Green, g (s)	11.0	11.0		110.8	110.8	
Actuated g/C Ratio	0.08	0.08		0.82	0.82	
Clearance Time (s)	6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	235	93		4023	3648	
v/s Ratio Prot	c0.04			c0.47	0.19	
v/s Ratio Perm		0.00				
v/c Ratio	0.50	0.05		0.58	0.24	
Uniform Delay, d1	59.4	57.2		4.1	2.7	
Progression Factor	1.00	1.00		1.00	2.17	
Incremental Delay, d2	1.7	0.2		0.6	0.1	
Delay (s)	61.1	57.4		4.7	6.0	
Level of Service	E	E		A	A	
Approach Delay (s)	60.0			4.7	6.0	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	8.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

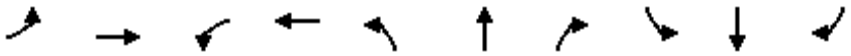
Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	182	82	1945	1095
v/c Ratio	0.63	0.53	0.50	0.29
Control Delay	62.2	50.2	2.1	2.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	62.2	50.2	2.1	2.4
Queue Length 50th (m)	21.9	15.0	14.6	13.9
Queue Length 95th (m)	33.2	32.8	16.1	19.1
Internal Link Dist (m)	415.5		395.9	291.4
Turn Bay Length (m)		193.0		
Base Capacity (vph)	500	256	3891	3786
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	0.36	0.32	0.50	0.29

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	148	116	1945	0	0	1095
Future Volume (vph)	148	116	1945	0	0	1095
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6	6.6			6.6
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.97	0.85	1.00			1.00
Flt Protected	0.96	1.00	1.00			1.00
Satd. Flow (prot)	2685	1292	4856			4725
Flt Permitted	0.96	1.00	1.00			1.00
Satd. Flow (perm)	2685	1292	4856			4725
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	148	116	1945	0	0	1095
RTOR Reduction (vph)	16	25	0	0	0	0
Lane Group Flow (vph)	166	57	1945	0	0	1095
Heavy Vehicles (%)	33%	15%	8%	0%	0%	11%
Turn Type	Prot	Perm	NA			NA
Protected Phases	4		6			2
Permitted Phases		4				
Actuated Green, G (s)	13.6	13.6	108.2			108.2
Effective Green, g (s)	13.6	13.6	108.2			108.2
Actuated g/C Ratio	0.10	0.10	0.80			0.80
Clearance Time (s)	6.6	6.6	6.6			6.6
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	270	130	3891			3787
v/s Ratio Prot	c0.06		c0.40			0.23
v/s Ratio Perm		0.04				
v/c Ratio	0.61	0.44	0.50			0.29
Uniform Delay, d1	58.2	57.1	4.4			3.5
Progression Factor	1.00	1.00	0.36			0.60
Incremental Delay, d2	4.1	2.3	0.4			0.2
Delay (s)	62.3	59.4	2.0			2.2
Level of Service	E	E	A			A
Approach Delay (s)	61.4		2.0			2.2
Approach LOS	E		A			A

Intersection Summary			
HCM 2000 Control Delay	6.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

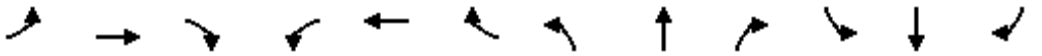
Appendix C – Future (2031) Total Conditions Synchro Output



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	65	165	178	144	47	545	282	570	1654	174
v/c Ratio	0.79	0.75	0.82	0.62	0.51	0.26	0.33	0.50	0.53	0.19
Control Delay	118.3	73.3	91.8	47.2	50.5	21.0	3.6	11.9	14.7	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	118.3	73.3	91.8	47.2	50.5	21.0	3.6	11.9	14.7	7.1
Queue Length 50th (m)	18.0	41.6	25.4	25.1	8.4	30.5	0.0	30.9	84.6	10.2
Queue Length 95th (m)	#44.2	62.6	#44.7	45.3	#31.3	44.9	16.3	46.9	113.8	23.6
Internal Link Dist (m)		223.1		240.5		258.6			341.2	
Turn Bay Length (m)	40.0		83.0		121.0		150.0	183.0		24.0
Base Capacity (vph)	84	394	217	377	93	2134	863	1150	3135	903
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.42	0.82	0.38	0.51	0.26	0.33	0.50	0.53	0.19

Intersection Summary

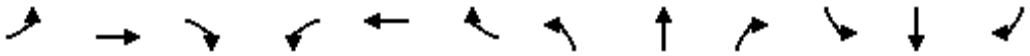
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	125	40	178	61	83	47	545	282	570	1654	174
Future Volume (vph)	65	125	40	178	61	83	47	545	282	570	1654	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.8		4.5	7.8		6.6	6.6	6.6	4.5	6.6	6.6
Lane Util. Factor	1.00	1.00		0.97	1.00		1.00	0.91	1.00	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00	0.98	1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.96		1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1242	1462		2902	1260		1256	4196	1425	3395	4856	1360
Flt Permitted	0.95	1.00		0.95	1.00		0.14	1.00	1.00	0.40	1.00	1.00
Satd. Flow (perm)	1242	1462		2902	1260		182	4196	1425	1432	4856	1360
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	65	125	40	178	61	83	47	545	282	570	1654	174
RTOR Reduction (vph)	0	9	0	0	41	0	0	0	139	0	0	26
Lane Group Flow (vph)	65	156	0	178	103	0	47	545	143	570	1654	148
Confl. Peds. (#/hr)	12		7	7		12	9		7	7		9
Heavy Vehicles (%)	47%	10%	76%	22%	43%	33%	45%	25%	12%	4%	8%	15%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases							2		2	6		6
Actuated Green, G (s)	9.2	20.2		10.5	21.5		71.2	71.2	71.2	90.4	90.4	90.4
Effective Green, g (s)	9.2	20.2		10.5	21.5		71.2	71.2	71.2	90.4	90.4	90.4
Actuated g/C Ratio	0.07	0.14		0.08	0.15		0.51	0.51	0.51	0.65	0.65	0.65
Clearance Time (s)	4.5	7.8		4.5	7.8		6.6	6.6	6.6	4.5	6.6	6.6
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	81	210		217	193		92	2133	724	1130	3135	878
v/s Ratio Prot	0.05	c0.11		c0.06	0.08			0.13		0.05	c0.34	
v/s Ratio Perm							0.26		0.10	0.27		0.11
v/c Ratio	0.80	0.74		0.82	0.54		0.51	0.26	0.20	0.50	0.53	0.17
Uniform Delay, d1	64.5	57.4		63.8	54.6		22.8	19.4	18.8	10.8	13.3	9.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	41.8	13.1		21.3	2.8		18.8	0.3	0.6	0.4	0.6	0.4
Delay (s)	106.3	70.5		85.2	57.5		41.7	19.7	19.4	11.2	14.0	10.3
Level of Service	F	E		F	E		D	B	B	B	B	B
Approach Delay (s)		80.6			72.8			20.8			13.0	
Approach LOS		F			E			C			B	

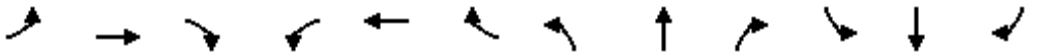
Intersection Summary			
HCM 2000 Control Delay	23.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.4
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	60	102	227	78	110	33	247	699	168	76	1718	175
v/c Ratio	0.32	0.61	0.66	0.44	0.55	0.13	0.74	0.20	0.15	0.19	0.59	0.19
Control Delay	51.9	74.6	16.1	56.7	69.4	1.2	38.9	7.6	3.6	18.3	21.1	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.9	74.6	16.1	56.7	69.4	1.2	38.9	7.6	3.6	18.3	21.1	3.0
Queue Length 50th (m)	14.2	27.5	0.0	18.8	29.7	0.0	38.7	25.4	0.9	9.4	105.8	0.0
Queue Length 95th (m)	26.2	44.5	24.5	32.5	47.2	0.3	70.4	32.8	13.3	23.5	153.1	12.3
Internal Link Dist (m)		276.1			164.4			291.4			186.2	
Turn Bay Length (m)	90.0		106.0	106.0		64.0	140.0		150.0	112.0		114.0
Base Capacity (vph)	187	404	515	178	430	446	386	3423	1093	402	2912	943
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.25	0.44	0.44	0.26	0.07	0.64	0.20	0.15	0.19	0.59	0.19

Intersection Summary



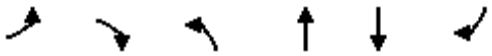
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	102	227	78	110	33	247	699	168	76	1718	175
Future Volume (vph)	60	102	227	78	110	33	247	699	168	76	1718	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.4	7.4	3.0	7.4	7.4	3.0	6.2	6.2	6.2	6.2	6.2
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.93
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1421	1656	1408	1390	1762	1603	1722	4601	1411	1753	4995	1492
Flt Permitted	0.69	1.00	1.00	0.64	1.00	1.00	0.08	1.00	1.00	0.37	1.00	1.00
Satd. Flow (perm)	1026	1656	1408	939	1762	1603	154	4601	1411	691	4995	1492
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	60	102	227	78	110	33	247	699	168	76	1718	175
RTOR Reduction (vph)	0	0	203	0	0	29	0	0	44	0	0	74
Lane Group Flow (vph)	60	102	24	78	110	4	247	699	124	76	1718	101
Confl. Peds. (#/hr)	5		4	4		5	14		1	1		14
Heavy Vehicles (%)	28%	16%	14%	31%	9%	0%	6%	14%	13%	4%	5%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	3	8		7	4		1	6			2	
Permitted Phases	8		8	4		4	6		6	2		2
Actuated Green, G (s)	18.8	14.8	14.8	20.8	15.8	15.8	103.6	103.6	103.6	81.1	81.1	81.1
Effective Green, g (s)	18.8	14.8	14.8	20.8	15.8	15.8	103.6	103.6	103.6	81.1	81.1	81.1
Actuated g/C Ratio	0.13	0.11	0.11	0.15	0.11	0.11	0.74	0.74	0.74	0.58	0.58	0.58
Clearance Time (s)	3.0	7.4	7.4	3.0	7.4	7.4	3.0	6.2	6.2	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	149	175	148	155	198	180	332	3404	1044	400	2893	864
v/s Ratio Prot	0.01	0.06		c0.02	c0.06		c0.10	0.15			0.34	
v/s Ratio Perm	0.04		0.02	0.06		0.00	c0.45		0.09	0.11		0.07
v/c Ratio	0.40	0.58	0.16	0.50	0.56	0.02	0.74	0.21	0.12	0.19	0.59	0.12
Uniform Delay, d1	54.8	59.7	57.0	54.2	58.8	55.2	30.6	5.6	5.2	13.9	18.9	13.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.06	1.30	3.65	1.00	1.00	1.00
Incremental Delay, d2	1.8	4.9	0.5	2.6	3.4	0.0	8.5	0.1	0.2	1.1	0.9	0.3
Delay (s)	56.6	64.5	57.5	56.7	62.1	55.3	41.1	7.4	19.2	15.0	19.8	13.6
Level of Service	E	E	E	E	E	E	D	A	B	B	B	B
Approach Delay (s)		59.2			59.2			16.6			19.1	
Approach LOS		E			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	25.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.6
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	458	262	545	1994
v/c Ratio	0.65	0.81	0.19	0.60
Control Delay	52.2	68.6	8.8	4.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	52.2	68.6	8.8	4.0
Queue Length 50th (m)	58.5	73.4	18.4	37.3
Queue Length 95th (m)	69.4	99.5	29.3	42.9
Internal Link Dist (m)	348.1		190.6	395.9
Turn Bay Length (m)		277.0		
Base Capacity (vph)	1025	464	2908	3308
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	0.45	0.56	0.19	0.60

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	195	525	0	545	1994	0
Future Volume (vph)	195	525	0	545	1994	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6		6.6	6.6	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	0.91	0.85		1.00	1.00	
Flt Protected	0.98	1.00		1.00	1.00	
Satd. Flow (prot)	3211	1443		4230	4812	
Flt Permitted	0.98	1.00		1.00	1.00	
Satd. Flow (perm)	3211	1443		4230	4812	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	195	525	0	545	1994	0
RTOR Reduction (vph)	8	8	0	0	0	0
Lane Group Flow (vph)	450	254	0	545	1994	0
Heavy Vehicles (%)	5%	3%	0%	24%	9%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			6	2	
Permitted Phases		4				
Actuated Green, G (s)	30.5	30.5		96.3	96.3	
Effective Green, g (s)	30.5	30.5		96.3	96.3	
Actuated g/C Ratio	0.22	0.22		0.69	0.69	
Clearance Time (s)	6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	699	314		2909	3309	
v/s Ratio Prot	0.14			0.13	c0.41	
v/s Ratio Perm		c0.18				
v/c Ratio	0.64	0.81		0.19	0.60	
Uniform Delay, d1	49.8	52.0		7.8	11.6	
Progression Factor	1.00	1.00		1.00	0.26	
Incremental Delay, d2	2.0	14.2		0.1	0.7	
Delay (s)	51.9	66.2		8.0	3.7	
Level of Service	D	E		A	A	
Approach Delay (s)	57.1			8.0	3.7	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	474	218	701	1831
v/c Ratio	0.79	0.50	0.21	0.53
Control Delay	60.9	9.5	5.0	14.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	60.9	9.5	5.0	14.1
Queue Length 50th (m)	61.8	0.0	14.7	145.5
Queue Length 95th (m)	76.1	22.8	25.6	173.3
Internal Link Dist (m)	415.5		395.9	291.4
Turn Bay Length (m)		193.0		
Base Capacity (vph)	859	539	3272	3483
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	0.55	0.40	0.21	0.53

Intersection Summary

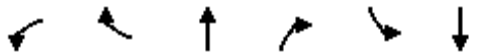
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	367	325	701	0	0	1831
Future Volume (vph)	367	325	701	0	0	1831
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.6			6.6
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.97	0.85	1.00			1.00
Flt Protected	0.96	1.00	1.00			1.00
Satd. Flow (prot)	3090	1402	4521			4812
Flt Permitted	0.96	1.00	1.00			1.00
Satd. Flow (perm)	3090	1402	4521			4812
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	367	325	701	0	0	1831
RTOR Reduction (vph)	23	177	0	0	0	0
Lane Group Flow (vph)	451	41	701	0	0	1831
Heavy Vehicles (%)	14%	6%	16%	0%	0%	9%
Turn Type	Prot	Perm	NA			NA
Protected Phases	4		6			2
Permitted Phases		4				
Actuated Green, G (s)	26.1	26.1	101.3			101.3
Effective Green, g (s)	26.1	26.1	101.3			101.3
Actuated g/C Ratio	0.19	0.19	0.72			0.72
Clearance Time (s)	6.0	6.0	6.6			6.6
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	576	261	3271			3481
v/s Ratio Prot	c0.15		0.16			c0.38
v/s Ratio Perm		0.03				
v/c Ratio	0.78	0.16	0.21			0.53
Uniform Delay, d1	54.3	47.7	6.3			8.6
Progression Factor	1.00	1.00	0.72			1.49
Incremental Delay, d2	6.9	0.3	0.1			0.5
Delay (s)	61.1	48.0	4.7			13.3
Level of Service	E	D	A			B
Approach Delay (s)	57.0		4.7			13.3
Approach LOS	E		A			B

Intersection Summary			
HCM 2000 Control Delay	20.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.6
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	8	728	19	0	2459
Future Volume (Veh/h)	0	8	728	19	0	2459
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	8	728	19	0	2459
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			209			215
pX, platoon unblocked	0.78					
vC, conflicting volume	1557	192			747	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	730	192			747	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	99			100	
cM capacity (veh/h)	279	818			857	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3
Volume Total	8	208	208	208	123	820	820	820
Volume Left	0	0	0	0	0	0	0	0
Volume Right	8	0	0	0	19	0	0	0
cSH	818	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.01	0.12	0.12	0.12	0.07	0.48	0.48	0.48
Queue Length 95th (m)	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	9.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A							
Approach Delay (s)	9.4	0.0				0.0		
Approach LOS	A							

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	50.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	10	8	712	20	61	2398
v/c Ratio	0.07	0.06	0.17	0.02	0.09	0.51
Control Delay	32.6	19.5	3.2	2.5	1.5	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.6	19.5	3.2	2.5	1.5	2.0
Queue Length 50th (m)	1.4	0.0	5.5	0.1	0.0	0.0
Queue Length 95th (m)	5.5	3.8	18.2	2.1	3.1	42.8
Internal Link Dist (m)	80.2		341.2			185.0
Turn Bay Length (m)				15.0	15.0	
Base Capacity (vph)	620	560	4211	1314	657	4713
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.01	0.17	0.02	0.09	0.51

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	8	712	20	61	2398
Future Volume (vph)	10	8	712	20	61	2398
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1789	1601	5142	1601	1789	5142
Flt Permitted	0.95	1.00	1.00	1.00	0.34	1.00
Satd. Flow (perm)	1789	1601	5142	1601	643	5142
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	10	8	712	20	61	2398
RTOR Reduction (vph)	0	8	0	5	0	0
Lane Group Flow (vph)	10	0	712	15	61	2398
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Actuated Green, G (s)	2.7	2.7	55.1	55.1	63.3	63.3
Effective Green, g (s)	2.7	2.7	55.1	55.1	63.3	63.3
Actuated g/C Ratio	0.04	0.04	0.73	0.73	0.84	0.84
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	64	57	3777	1176	599	4339
v/s Ratio Prot	c0.01		0.14		0.01	c0.47
v/s Ratio Perm		0.00		0.01	0.08	
v/c Ratio	0.16	0.01	0.19	0.01	0.10	0.55
Uniform Delay, d1	35.0	34.9	3.1	2.7	1.1	1.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	0.0	0.1	0.0	0.1	0.5
Delay (s)	36.2	34.9	3.2	2.7	1.2	2.2
Level of Service	D	C	A	A	A	A
Approach Delay (s)	35.6		3.2			2.2
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	2.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	81	63	507	590	80	2189	202	163	690	59
v/c Ratio	0.66	0.25	0.87	0.95	0.42	1.05	0.33	0.78	0.33	0.10
Control Delay	54.0	30.3	71.9	57.3	41.4	76.5	5.3	87.6	23.5	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.0	30.3	71.9	57.3	41.4	76.5	5.3	87.6	23.5	0.4
Queue Length 50th (m)	12.4	8.7	~82.7	118.8	16.6	~227.3	0.0	23.7	44.6	0.0
Queue Length 95th (m)	22.6	21.2	#118.0	#190.2	33.9	#252.5	16.2	#47.4	54.8	0.5
Internal Link Dist (m)		223.1		240.5		258.6			341.2	
Turn Bay Length (m)			83.0		121.0		150.0	183.0		24.0
Base Capacity (vph)	123	310	584	664	190	2082	618	210	2098	593
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.20	0.87	0.89	0.42	1.05	0.33	0.78	0.33	0.10

Intersection Summary

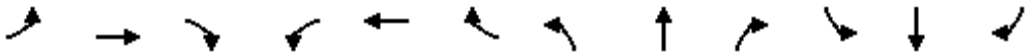
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	81	39	24	507	36	554	80	2189	202	163	690	59
Future Volume (vph)	81	39	24	507	36	554	80	2189	202	163	690	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.8		4.5	7.8		6.6	6.6	6.6	4.5	6.6	6.6
Lane Util. Factor	1.00	1.00		0.97	1.00		1.00	*1.00	1.00	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.98		1.00	1.00	0.98	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.94		1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1425	1112		3106	1521		1255	5437	1288	3052	4334	1111
Flt Permitted	0.20	1.00		0.95	1.00		0.38	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	303	1112		3106	1521		499	5437	1288	3052	4334	1111
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	81	39	24	507	36	554	80	2189	202	163	690	59
RTOR Reduction (vph)	0	18	0	0	103	0	0	0	127	0	0	31
Lane Group Flow (vph)	81	45	0	507	487	0	80	2189	75	163	690	28
Confl. Peds. (#/hr)	7		1	1		7	3		7	7		3
Heavy Vehicles (%)	28%	53%	77%	14%	30%	5%	45%	6%	24%	16%	21%	43%
Turn Type	pm+pt	NA		Prot	NA		Perm	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4						2		2			6
Actuated Green, G (s)	34.0	28.5		26.4	49.4		52.0	52.0	52.0	9.7	66.2	66.2
Effective Green, g (s)	34.0	28.5		26.4	49.4		52.0	52.0	52.0	9.7	66.2	66.2
Actuated g/C Ratio	0.24	0.20		0.19	0.35		0.37	0.37	0.37	0.07	0.47	0.47
Clearance Time (s)	4.5	7.8		4.5	7.8		6.6	6.6	6.6	4.5	6.6	6.6
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	117	226		585	536		185	2019	478	211	2049	525
v/s Ratio Prot	0.03	0.04		c0.16	c0.32			c0.40		c0.05	0.16	
v/s Ratio Perm	0.14						0.16		0.06			0.03
v/c Ratio	0.69	0.20		0.87	0.91		0.43	1.08	0.16	0.77	0.34	0.05
Uniform Delay, d1	45.4	46.3		55.1	43.2		32.9	44.0	29.4	64.1	23.1	20.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	16.2	0.4		12.8	19.2		7.2	47.1	0.7	16.0	0.4	0.2
Delay (s)	61.7	46.7		67.9	62.3		40.2	91.1	30.1	80.1	23.6	20.1
Level of Service	E	D		E	E		D	F	C	F	C	C
Approach Delay (s)		55.1			64.9			84.5			33.5	
Approach LOS		E			E			F			C	

Intersection Summary			
HCM 2000 Control Delay	68.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.4
Intersection Capacity Utilization	107.8%	ICU Level of Service	G
Analysis Period (min)	15		

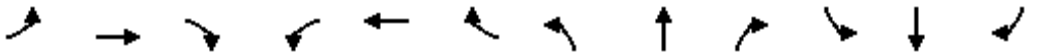
c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	162	177	490	168	116	127	181	1463	132	58	953	62
v/c Ratio	0.35	0.36	0.95	0.45	0.24	0.27	0.76	0.53	0.17	0.47	0.35	0.07
Control Delay	31.6	40.3	63.7	35.6	38.5	21.6	44.8	19.1	5.8	34.6	17.3	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.6	40.3	63.7	35.6	38.5	21.6	44.8	19.1	5.8	34.6	17.3	3.6
Queue Length 50th (m)	28.7	36.7	98.5	30.1	23.4	13.6	40.2	100.3	6.7	9.3	51.6	0.0
Queue Length 95th (m)	45.2	57.2	#162.8	47.5	39.2	30.2	#82.3	115.4	18.4	26.1	61.6	6.7
Internal Link Dist (m)		276.1			164.4			291.4			186.2	
Turn Bay Length (m)	90.0		106.0	106.0		64.0	140.0		150.0	112.0		114.0
Base Capacity (vph)	465	529	544	370	526	497	238	2737	781	124	2687	885
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.33	0.90	0.45	0.22	0.26	0.76	0.53	0.17	0.47	0.35	0.07

Intersection Summary

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



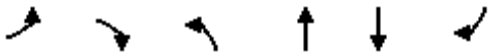
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	177	490	168	116	127	181	1463	132	58	953	62
Future Volume (vph)	162	177	490	168	116	127	181	1463	132	58	953	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.4	7.4	3.0	7.4	7.4	6.2	6.2	6.2	6.2	6.2	6.2
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.96	1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1766	1762	1522	1594	1795	1557	1580	4902	1296	1688	4812	1537
Flt Permitted	0.66	1.00	1.00	0.61	1.00	1.00	0.26	1.00	1.00	0.13	1.00	1.00
Satd. Flow (perm)	1235	1762	1522	1020	1795	1557	427	4902	1296	224	4812	1537
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	162	177	490	168	116	127	181	1463	132	58	953	62
RTOR Reduction (vph)	0	0	89	0	0	42	0	0	58	0	0	27
Lane Group Flow (vph)	162	177	401	168	116	85	181	1463	74	58	953	35
Confl. Peds. (#/hr)	5		8	8		5	6		6	6		6
Heavy Vehicles (%)	3%	9%	5%	14%	7%	3%	15%	7%	21%	8%	9%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	3	8		7	4			6			2	
Permitted Phases	8		8	4		4	6		6	2		2
Actuated Green, G (s)	44.0	38.0	38.0	42.0	37.0	37.0	75.4	75.4	75.4	75.4	75.4	75.4
Effective Green, g (s)	44.0	38.0	38.0	42.0	37.0	37.0	75.4	75.4	75.4	75.4	75.4	75.4
Actuated g/C Ratio	0.33	0.28	0.28	0.31	0.27	0.27	0.56	0.56	0.56	0.56	0.56	0.56
Clearance Time (s)	3.0	7.4	7.4	3.0	7.4	7.4	6.2	6.2	6.2	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	426	495	428	338	491	426	238	2737	723	125	2687	858
v/s Ratio Prot	c0.02	0.10		c0.02	0.06			0.30			0.20	
v/s Ratio Perm	0.11		c0.26	0.14		0.05	c0.42		0.06	0.26		0.02
v/c Ratio	0.38	0.36	0.94	0.50	0.24	0.20	0.76	0.53	0.10	0.46	0.35	0.04
Uniform Delay, d1	34.2	38.7	47.3	37.4	38.0	37.6	22.9	18.8	14.0	17.8	16.4	13.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.96	2.17	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.4	27.9	1.2	0.2	0.2	18.0	0.7	0.2	11.9	0.4	0.1
Delay (s)	34.8	39.2	75.2	38.6	38.3	37.9	40.8	18.6	30.6	29.6	16.8	13.5
Level of Service	C	D	E	D	D	D	D	B	C	C	B	B
Approach Delay (s)		59.6			38.3			21.7			17.3	
Approach LOS		E			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	29.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	137	62	2370	879
v/c Ratio	0.54	0.41	0.59	0.24
Control Delay	58.4	21.5	5.1	6.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	58.4	21.5	5.1	6.4
Queue Length 50th (m)	15.6	0.0	64.0	32.4
Queue Length 95th (m)	25.7	15.0	85.7	40.3
Internal Link Dist (m)	348.1		190.6	395.9
Turn Bay Length (m)		277.0		
Base Capacity (vph)	432	218	4024	3648
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	0.32	0.28	0.59	0.24

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	109	90	0	2370	879	0
Future Volume (vph)	109	90	0	2370	879	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6		6.6	6.6	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	0.97	0.85		1.00	1.00	
Flt Protected	0.96	1.00		1.00	1.00	
Satd. Flow (prot)	2889	1152		4902	4445	
Flt Permitted	0.96	1.00		1.00	1.00	
Satd. Flow (perm)	2889	1152		4902	4445	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	109	90	0	2370	879	0
RTOR Reduction (vph)	18	57	0	0	0	0
Lane Group Flow (vph)	119	5	0	2370	879	0
Heavy Vehicles (%)	18%	29%	0%	7%	18%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			6	2	
Permitted Phases		4				
Actuated Green, G (s)	11.0	11.0		110.8	110.8	
Effective Green, g (s)	11.0	11.0		110.8	110.8	
Actuated g/C Ratio	0.08	0.08		0.82	0.82	
Clearance Time (s)	6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	235	93		4023	3648	
v/s Ratio Prot	c0.04			c0.48	0.20	
v/s Ratio Perm		0.00				
v/c Ratio	0.50	0.05		0.59	0.24	
Uniform Delay, d1	59.4	57.2		4.2	2.7	
Progression Factor	1.00	1.00		1.00	2.19	
Incremental Delay, d2	1.7	0.2		0.6	0.2	
Delay (s)	61.1	57.4		4.8	6.1	
Level of Service	E	E		A	A	
Approach Delay (s)	60.0			4.8	6.1	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	8.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	182	82	1996	1122
v/c Ratio	0.63	0.54	0.51	0.30
Control Delay	62.2	51.9	2.1	2.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	62.2	51.9	2.1	2.4
Queue Length 50th (m)	21.9	15.7	16.3	14.3
Queue Length 95th (m)	33.2	33.5	17.9	m19.7
Internal Link Dist (m)	415.5		395.9	291.4
Turn Bay Length (m)		193.0		
Base Capacity (vph)	500	254	3891	3786
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	0.36	0.32	0.51	0.30

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

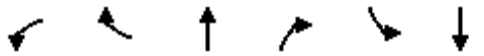
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	148	116	1996	0	0	1122
Future Volume (vph)	148	116	1996	0	0	1122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6	6.6			6.6
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.97	0.85	1.00			1.00
Flt Protected	0.96	1.00	1.00			1.00
Satd. Flow (prot)	2685	1292	4856			4725
Flt Permitted	0.96	1.00	1.00			1.00
Satd. Flow (perm)	2685	1292	4856			4725
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	148	116	1996	0	0	1122
RTOR Reduction (vph)	16	23	0	0	0	0
Lane Group Flow (vph)	166	59	1996	0	0	1122
Heavy Vehicles (%)	33%	15%	8%	0%	0%	11%
Turn Type	Prot	Perm	NA			NA
Protected Phases	4		6			2
Permitted Phases		4				
Actuated Green, G (s)	13.6	13.6	108.2			108.2
Effective Green, g (s)	13.6	13.6	108.2			108.2
Actuated g/C Ratio	0.10	0.10	0.80			0.80
Clearance Time (s)	6.6	6.6	6.6			6.6
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	270	130	3891			3787
v/s Ratio Prot	c0.06		c0.41			0.24
v/s Ratio Perm		0.05				
v/c Ratio	0.61	0.45	0.51			0.30
Uniform Delay, d1	58.2	57.2	4.5			3.5
Progression Factor	1.00	1.00	0.36			0.60
Incremental Delay, d2	4.1	2.5	0.4			0.2
Delay (s)	62.3	59.7	2.0			2.3
Level of Service	E	E	A			A
Approach Delay (s)	61.5		2.0			2.3
Approach LOS	E		A			A

Intersection Summary			
HCM 2000 Control Delay	6.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	26	2879	5	0	929
Future Volume (Veh/h)	0	26	2879	5	0	929
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	28	3129	5	0	1010
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			209			215
pX, platoon unblocked	0.67	0.66			0.66	
vC, conflicting volume	3468	785			3134	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1941	0			1628	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	96			100	
cM capacity (veh/h)	38	711			259	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3
Volume Total	28	894	894	894	452	337	337	337
Volume Left	0	0	0	0	0	0	0	0
Volume Right	28	0	0	0	5	0	0	0
cSH	711	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.04	0.53	0.53	0.53	0.27	0.20	0.20	0.20
Queue Length 95th (m)	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	10.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B							
Approach Delay (s)	10.3	0.0				0.0		
Approach LOS	B							

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	51.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	35	27	3075	7	18	991
v/c Ratio	0.28	0.20	0.74	0.01	0.11	0.23
Control Delay	53.6	20.5	9.2	4.5	3.5	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.6	20.5	9.2	4.5	3.5	2.2
Queue Length 50th (m)	7.3	0.0	80.7	0.2	0.5	12.9
Queue Length 95th (m)	17.0	8.3	191.3	1.7	1.8	18.7
Internal Link Dist (m)	80.2		341.2			185.0
Turn Bay Length (m)				15.0	15.0	
Base Capacity (vph)	422	399	4162	1296	159	4385
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.07	0.74	0.01	0.11	0.23

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	32	25	2829	6	17	912
Future Volume (vph)	32	25	2829	6	17	912
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1789	1601	5142	1601	1789	5142
Flt Permitted	0.95	1.00	1.00	1.00	0.04	1.00
Satd. Flow (perm)	1789	1601	5142	1601	85	5142
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	35	27	3075	7	18	991
RTOR Reduction (vph)	0	25	0	0	0	0
Lane Group Flow (vph)	35	2	3075	7	18	991
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Actuated Green, G (s)	6.6	6.6	83.0	83.0	91.4	91.4
Effective Green, g (s)	6.6	6.6	83.0	83.0	91.4	91.4
Actuated g/C Ratio	0.06	0.06	0.75	0.75	0.83	0.83
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	107	96	3879	1208	107	4272
v/s Ratio Prot	c0.02		c0.60		0.00	c0.19
v/s Ratio Perm		0.00		0.00	0.14	
v/c Ratio	0.33	0.02	0.79	0.01	0.17	0.23
Uniform Delay, d1	49.6	48.6	8.2	3.3	11.9	1.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8	0.1	1.7	0.0	0.7	0.1
Delay (s)	51.4	48.7	10.0	3.3	12.7	2.1
Level of Service	D	D	A	A	B	A
Approach Delay (s)	50.2		10.0			2.3
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	68.8%	ICU Level of Service	C
Analysis Period (min)	15		

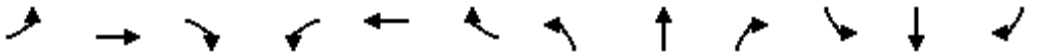
c Critical Lane Group

Appendix D – Future (2031) Total Conditions Improvement Synchro Output

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	65	165	178	144	47	545	282	570	1654	174
v/c Ratio	0.31	0.75	0.89	0.54	0.72	0.36	0.41	0.79	0.52	0.19
Control Delay	42.4	73.3	103.4	41.9	96.7	35.0	5.9	21.9	14.3	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.4	73.3	103.4	41.9	96.7	35.0	5.9	21.9	14.3	6.9
Queue Length 50th (m)	14.0	41.6	25.6	24.5	11.2	40.4	0.0	72.6	83.0	10.0
Queue Length 95th (m)	24.5	62.6	#47.2	44.5	#38.7	56.9	21.5	121.7	112.0	23.2
Internal Link Dist (m)		223.1		240.5		258.6			550.2	
Turn Bay Length (m)	40.0		83.0		121.0		150.0	183.0		24.0
Base Capacity (vph)	208	394	201	390	65	1518	688	725	3163	911
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.42	0.89	0.37	0.72	0.36	0.41	0.79	0.52	0.19

Intersection Summary

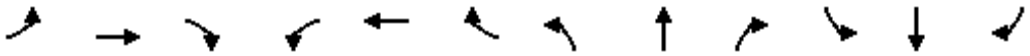
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	125	40	178	61	83	47	545	282	570	1654	174
Future Volume (vph)	65	125	40	178	61	83	47	545	282	570	1654	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.8		4.5	7.8		6.6	6.6	6.6	4.5	6.6	6.6
Lane Util. Factor	1.00	1.00		0.97	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00	0.96	1.00	1.00	0.96
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.96		1.00	0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1233	1462		2902	1260		1256	4196	1404	1751	4856	1360
Flt Permitted	0.67	1.00		0.95	1.00		0.14	1.00	1.00	0.36	1.00	1.00
Satd. Flow (perm)	863	1462		2902	1260		182	4196	1404	671	4856	1360
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	65	125	40	178	61	83	47	545	282	570	1654	174
RTOR Reduction (vph)	0	9	0	0	40	0	0	0	182	0	0	26
Lane Group Flow (vph)	65	156	0	178	104	0	47	545	100	570	1654	148
Confl. Peds. (#/hr)	12		7	7		12	9		7	7		9
Heavy Vehicles (%)	47%	10%	76%	22%	43%	33%	45%	25%	12%	4%	8%	15%
Turn Type	pm+pt	NA		Prot	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4						2		2	6		6
Actuated Green, G (s)	26.9	21.1		9.7	25.0		49.8	49.8	49.8	90.3	90.3	90.3
Effective Green, g (s)	26.9	21.1		9.7	25.0		49.8	49.8	49.8	90.3	90.3	90.3
Actuated g/C Ratio	0.19	0.15		0.07	0.18		0.36	0.36	0.36	0.64	0.64	0.64
Clearance Time (s)	4.5	7.8		4.5	7.8		6.6	6.6	6.6	4.5	6.6	6.6
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	181	220		201	225		64	1492	499	710	3132	877
v/s Ratio Prot	0.01	c0.11		c0.06	c0.08			0.13		c0.21	0.34	
v/s Ratio Perm	0.05						0.26		0.07	c0.31		0.11
v/c Ratio	0.36	0.71		0.89	0.46		0.73	0.37	0.20	0.80	0.53	0.17
Uniform Delay, d1	48.2	56.5		64.6	51.5		39.3	33.4	31.3	14.1	13.4	9.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	9.9		33.8	1.5		53.7	0.7	0.9	6.5	0.6	0.4
Delay (s)	49.5	66.5		98.4	53.0		93.0	34.1	32.2	20.6	14.0	10.3
Level of Service	D	E		F	D		F	C	C	C	B	B
Approach Delay (s)		61.7			78.1			36.6			15.3	
Approach LOS		E			E			D			B	

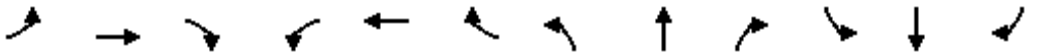
Intersection Summary			
HCM 2000 Control Delay	28.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.4
Intersection Capacity Utilization	94.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	60	102	227	78	110	33	247	699	168	76	1718	175
v/c Ratio	0.32	0.61	0.66	0.44	0.55	0.13	0.74	0.20	0.15	0.19	0.59	0.19
Control Delay	51.9	74.6	16.1	56.7	69.4	1.2	38.9	7.6	3.6	18.3	21.1	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.9	74.6	16.1	56.7	69.4	1.2	38.9	7.6	3.6	18.3	21.1	3.0
Queue Length 50th (m)	14.2	27.5	0.0	18.8	29.7	0.0	38.7	25.4	0.9	9.4	105.8	0.0
Queue Length 95th (m)	26.2	44.5	24.5	32.5	47.2	0.3	70.4	32.8	13.3	23.5	153.1	12.3
Internal Link Dist (m)		276.1			164.4			291.4			186.2	
Turn Bay Length (m)	90.0		106.0	106.0		64.0	140.0		150.0	112.0		114.0
Base Capacity (vph)	187	404	515	178	430	446	386	3423	1093	402	2912	943
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.25	0.44	0.44	0.26	0.07	0.64	0.20	0.15	0.19	0.59	0.19

Intersection Summary



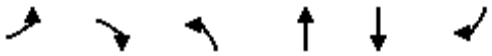
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	102	227	78	110	33	247	699	168	76	1718	175
Future Volume (vph)	60	102	227	78	110	33	247	699	168	76	1718	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.4	7.4	3.0	7.4	7.4	3.0	6.2	6.2	6.2	6.2	6.2
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.93
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1421	1656	1408	1390	1762	1603	1722	4601	1411	1753	4995	1492
Flt Permitted	0.69	1.00	1.00	0.64	1.00	1.00	0.08	1.00	1.00	0.37	1.00	1.00
Satd. Flow (perm)	1026	1656	1408	939	1762	1603	154	4601	1411	691	4995	1492
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	60	102	227	78	110	33	247	699	168	76	1718	175
RTOR Reduction (vph)	0	0	203	0	0	29	0	0	44	0	0	74
Lane Group Flow (vph)	60	102	24	78	110	4	247	699	124	76	1718	101
Confl. Peds. (#/hr)	5		4	4		5	14		1	1		14
Heavy Vehicles (%)	28%	16%	14%	31%	9%	0%	6%	14%	13%	4%	5%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	3	8		7	4		1	6			2	
Permitted Phases	8		8	4		4	6		6	2		2
Actuated Green, G (s)	18.8	14.8	14.8	20.8	15.8	15.8	103.6	103.6	103.6	81.1	81.1	81.1
Effective Green, g (s)	18.8	14.8	14.8	20.8	15.8	15.8	103.6	103.6	103.6	81.1	81.1	81.1
Actuated g/C Ratio	0.13	0.11	0.11	0.15	0.11	0.11	0.74	0.74	0.74	0.58	0.58	0.58
Clearance Time (s)	3.0	7.4	7.4	3.0	7.4	7.4	3.0	6.2	6.2	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	149	175	148	155	198	180	332	3404	1044	400	2893	864
v/s Ratio Prot	0.01	0.06		c0.02	c0.06		c0.10	0.15			0.34	
v/s Ratio Perm	0.04		0.02	0.06		0.00	c0.45		0.09	0.11		0.07
v/c Ratio	0.40	0.58	0.16	0.50	0.56	0.02	0.74	0.21	0.12	0.19	0.59	0.12
Uniform Delay, d1	54.8	59.7	57.0	54.2	58.8	55.2	30.6	5.6	5.2	13.9	18.9	13.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.06	1.30	3.65	1.00	1.00	1.00
Incremental Delay, d2	1.8	4.9	0.5	2.6	3.4	0.0	8.5	0.1	0.2	1.1	0.9	0.3
Delay (s)	56.6	64.5	57.5	56.7	62.1	55.3	41.1	7.4	19.2	15.0	19.8	13.6
Level of Service	E	E	E	E	E	E	D	A	B	B	B	B
Approach Delay (s)		59.2			59.2			16.6			19.1	
Approach LOS		E			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	25.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.6
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	458	262	545	1994
v/c Ratio	0.65	0.81	0.19	0.60
Control Delay	52.2	68.6	8.8	4.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	52.2	68.6	8.8	4.0
Queue Length 50th (m)	58.5	73.4	18.4	37.3
Queue Length 95th (m)	69.4	99.5	29.3	42.9
Internal Link Dist (m)	348.1		190.6	395.9
Turn Bay Length (m)		277.0		
Base Capacity (vph)	1025	464	2908	3308
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	0.45	0.56	0.19	0.60

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	195	525	0	545	1994	0
Future Volume (vph)	195	525	0	545	1994	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6		6.6	6.6	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	0.91	0.85		1.00	1.00	
Flt Protected	0.98	1.00		1.00	1.00	
Satd. Flow (prot)	3211	1443		4230	4812	
Flt Permitted	0.98	1.00		1.00	1.00	
Satd. Flow (perm)	3211	1443		4230	4812	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	195	525	0	545	1994	0
RTOR Reduction (vph)	8	8	0	0	0	0
Lane Group Flow (vph)	450	254	0	545	1994	0
Heavy Vehicles (%)	5%	3%	0%	24%	9%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			6	2	
Permitted Phases		4				
Actuated Green, G (s)	30.5	30.5		96.3	96.3	
Effective Green, g (s)	30.5	30.5		96.3	96.3	
Actuated g/C Ratio	0.22	0.22		0.69	0.69	
Clearance Time (s)	6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	699	314		2909	3309	
v/s Ratio Prot	0.14			0.13	c0.41	
v/s Ratio Perm		c0.18				
v/c Ratio	0.64	0.81		0.19	0.60	
Uniform Delay, d1	49.8	52.0		7.8	11.6	
Progression Factor	1.00	1.00		1.00	0.26	
Incremental Delay, d2	2.0	14.2		0.1	0.7	
Delay (s)	51.9	66.2		8.0	3.7	
Level of Service	D	E		A	A	
Approach Delay (s)	57.1			8.0	3.7	
Approach LOS	E			A	A	

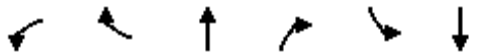
Intersection Summary			
HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	474	218	701	1831
v/c Ratio	0.79	0.50	0.21	0.53
Control Delay	60.9	9.5	5.0	14.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	60.9	9.5	5.0	14.1
Queue Length 50th (m)	61.8	0.0	14.7	145.5
Queue Length 95th (m)	76.1	22.8	25.6	173.3
Internal Link Dist (m)	415.5		395.9	291.4
Turn Bay Length (m)		193.0		
Base Capacity (vph)	859	539	3272	3483
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	0.55	0.40	0.21	0.53

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	367	325	701	0	0	1831
Future Volume (vph)	367	325	701	0	0	1831
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.6			6.6
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.97	0.85	1.00			1.00
Flt Protected	0.96	1.00	1.00			1.00
Satd. Flow (prot)	3090	1402	4521			4812
Flt Permitted	0.96	1.00	1.00			1.00
Satd. Flow (perm)	3090	1402	4521			4812
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	367	325	701	0	0	1831
RTOR Reduction (vph)	23	177	0	0	0	0
Lane Group Flow (vph)	451	41	701	0	0	1831
Heavy Vehicles (%)	14%	6%	16%	0%	0%	9%
Turn Type	Prot	Perm	NA			NA
Protected Phases	4		6			2
Permitted Phases		4				
Actuated Green, G (s)	26.1	26.1	101.3			101.3
Effective Green, g (s)	26.1	26.1	101.3			101.3
Actuated g/C Ratio	0.19	0.19	0.72			0.72
Clearance Time (s)	6.0	6.0	6.6			6.6
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	576	261	3271			3481
v/s Ratio Prot	c0.15		0.16			c0.38
v/s Ratio Perm		0.03				
v/c Ratio	0.78	0.16	0.21			0.53
Uniform Delay, d1	54.3	47.7	6.3			8.6
Progression Factor	1.00	1.00	0.72			1.49
Incremental Delay, d2	6.9	0.3	0.1			0.5
Delay (s)	61.1	48.0	4.7			13.3
Level of Service	E	D	A			B
Approach Delay (s)	57.0		4.7			13.3
Approach LOS	E		A			B

Intersection Summary			
HCM 2000 Control Delay	20.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.6
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



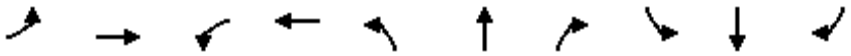
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	10	16	693	39	61	2398
v/c Ratio	0.07	0.11	0.16	0.03	0.09	0.51
Control Delay	32.5	17.6	3.3	2.0	1.5	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.5	17.6	3.3	2.0	1.5	2.0
Queue Length 50th (m)	1.4	0.0	5.3	0.1	0.0	0.0
Queue Length 95th (m)	5.5	5.4	17.8	2.9	3.1	43.2
Internal Link Dist (m)	80.2		550.2			190.6
Turn Bay Length (m)				15.0	15.0	
Base Capacity (vph)	620	565	4209	1317	665	4711
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.03	0.16	0.03	0.09	0.51

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	16	693	39	61	2398
Future Volume (vph)	10	16	693	39	61	2398
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1789	1601	5142	1601	1789	5142
Flt Permitted	0.95	1.00	1.00	1.00	0.35	1.00
Satd. Flow (perm)	1789	1601	5142	1601	656	5142
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	10	16	693	39	61	2398
RTOR Reduction (vph)	0	15	0	10	0	0
Lane Group Flow (vph)	10	1	693	29	61	2398
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Actuated Green, G (s)	2.7	2.7	55.1	55.1	63.3	63.3
Effective Green, g (s)	2.7	2.7	55.1	55.1	63.3	63.3
Actuated g/C Ratio	0.04	0.04	0.73	0.73	0.84	0.84
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	64	57	3777	1176	609	4339
v/s Ratio Prot	c0.01		0.13		0.00	c0.47
v/s Ratio Perm		0.00		0.02	0.08	
v/c Ratio	0.16	0.01	0.18	0.02	0.10	0.55
Uniform Delay, d1	35.0	34.9	3.1	2.7	1.1	1.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	0.1	0.1	0.0	0.1	0.5
Delay (s)	36.2	34.9	3.2	2.7	1.2	2.2
Level of Service	D	C	A	A	A	A
Approach Delay (s)	35.4		3.1			2.2
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	2.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

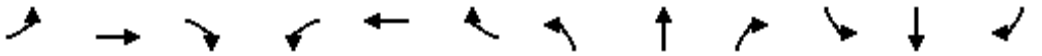


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	81	63	507	590	80	2189	202	163	690	59
v/c Ratio	0.66	0.25	0.87	0.95	0.44	1.09	0.34	0.90	0.33	0.10
Control Delay	54.0	30.3	71.9	57.3	42.5	92.1	5.4	77.2	23.5	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.0	30.3	71.9	57.3	42.5	92.1	5.4	77.2	23.5	0.4
Queue Length 50th (m)	12.4	8.7	~82.7	118.8	16.6	~227.3	0.0	~40.4	44.6	0.0
Queue Length 95th (m)	22.6	21.2	#118.0	#190.2	33.9	#252.5	16.3	#86.4	54.8	0.5
Internal Link Dist (m)		223.1		240.5		258.6			550.2	
Turn Bay Length (m)			83.0		121.0		150.0	183.0		24.0
Base Capacity (vph)	123	310	584	664	183	2003	594	181	2098	593
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.20	0.87	0.89	0.44	1.09	0.34	0.90	0.33	0.10

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

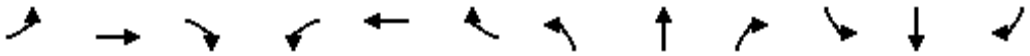
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	39	24	507	36	554	80	2189	202	163	690	59
Future Volume (vph)	81	39	24	507	36	554	80	2189	202	163	690	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.8		4.5	7.8		6.6	6.6	6.6	4.5	6.6	6.6
Lane Util. Factor	1.00	1.00		0.97	1.00		1.00	*1.00	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.98		1.00	1.00	0.96	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.94		1.00	0.86		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1425	1112		3106	1521		1255	5437	1268	1573	4334	1111
Flt Permitted	0.20	1.00		0.95	1.00		0.38	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	303	1112		3106	1521		499	5437	1268	122	4334	1111
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	81	39	24	507	36	554	80	2189	202	163	690	59
RTOR Reduction (vph)	0	18	0	0	103	0	0	0	130	0	0	31
Lane Group Flow (vph)	81	45	0	507	487	0	80	2189	72	163	690	28
Confl. Peds. (#/hr)	7		1	1		7	3		7	7		3
Heavy Vehicles (%)	28%	53%	77%	14%	30%	5%	45%	6%	24%	16%	21%	43%
Turn Type	pm+pt	NA		Prot	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4						2		2	6		6
Actuated Green, G (s)	34.0	28.5		26.4	49.4		50.0	50.0	50.0	66.2	66.2	66.2
Effective Green, g (s)	34.0	28.5		26.4	49.4		50.0	50.0	50.0	66.2	66.2	66.2
Actuated g/C Ratio	0.24	0.20		0.19	0.35		0.36	0.36	0.36	0.47	0.47	0.47
Clearance Time (s)	4.5	7.8		4.5	7.8		6.6	6.6	6.6	4.5	6.6	6.6
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	117	226		585	536		178	1941	452	178	2049	525
v/s Ratio Prot	0.03	0.04		c0.16	c0.32			c0.40		c0.08	0.16	
v/s Ratio Perm	0.14						0.16		0.06	0.36		0.03
v/c Ratio	0.69	0.20		0.87	0.91		0.45	1.13	0.16	0.92	0.34	0.05
Uniform Delay, d1	45.4	46.3		55.1	43.2		34.5	45.0	30.7	40.0	23.1	20.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	16.2	0.4		12.8	19.2		8.0	64.8	0.8	43.7	0.4	0.2
Delay (s)	61.7	46.7		67.9	62.3		42.5	109.8	31.4	83.7	23.6	20.1
Level of Service	E	D		E	E		D	F	C	F	C	C
Approach Delay (s)		55.1			64.9			101.2			34.1	
Approach LOS		E			E			F			C	

Intersection Summary			
HCM 2000 Control Delay	77.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.4
Intersection Capacity Utilization	112.2%	ICU Level of Service	H
Analysis Period (min)	15		

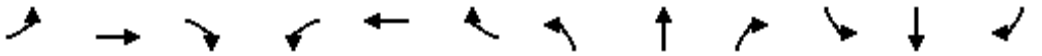
c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	162	177	490	168	116	127	181	1463	132	58	953	62
v/c Ratio	0.35	0.36	0.95	0.45	0.24	0.27	0.76	0.53	0.17	0.47	0.35	0.07
Control Delay	31.6	40.3	63.7	35.6	38.5	21.6	44.8	19.1	5.8	34.6	17.3	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.6	40.3	63.7	35.6	38.5	21.6	44.8	19.1	5.8	34.6	17.3	3.6
Queue Length 50th (m)	28.7	36.7	98.5	30.1	23.4	13.6	40.2	100.3	6.7	9.3	51.6	0.0
Queue Length 95th (m)	45.2	57.2	#162.8	47.5	39.2	30.2	#82.3	115.4	18.4	26.1	61.6	6.7
Internal Link Dist (m)		276.1			164.4			291.4			186.2	
Turn Bay Length (m)	90.0		106.0	106.0		64.0	140.0		150.0	112.0		114.0
Base Capacity (vph)	465	529	544	370	526	497	238	2737	781	124	2687	885
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.33	0.90	0.45	0.22	0.26	0.76	0.53	0.17	0.47	0.35	0.07

Intersection Summary

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



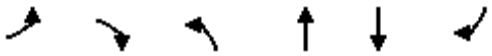
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	177	490	168	116	127	181	1463	132	58	953	62
Future Volume (vph)	162	177	490	168	116	127	181	1463	132	58	953	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	7.4	7.4	3.0	7.4	7.4	6.2	6.2	6.2	6.2	6.2	6.2
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.96	1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1766	1762	1522	1594	1795	1557	1580	4902	1296	1688	4812	1537
Flt Permitted	0.66	1.00	1.00	0.61	1.00	1.00	0.26	1.00	1.00	0.13	1.00	1.00
Satd. Flow (perm)	1235	1762	1522	1020	1795	1557	427	4902	1296	224	4812	1537
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	162	177	490	168	116	127	181	1463	132	58	953	62
RTOR Reduction (vph)	0	0	89	0	0	42	0	0	58	0	0	27
Lane Group Flow (vph)	162	177	401	168	116	85	181	1463	74	58	953	35
Confl. Peds. (#/hr)	5		8	8		5	6		6	6		6
Heavy Vehicles (%)	3%	9%	5%	14%	7%	3%	15%	7%	21%	8%	9%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	3	8		7	4			6			2	
Permitted Phases	8		8	4		4	6		6	2		2
Actuated Green, G (s)	44.0	38.0	38.0	42.0	37.0	37.0	75.4	75.4	75.4	75.4	75.4	75.4
Effective Green, g (s)	44.0	38.0	38.0	42.0	37.0	37.0	75.4	75.4	75.4	75.4	75.4	75.4
Actuated g/C Ratio	0.33	0.28	0.28	0.31	0.27	0.27	0.56	0.56	0.56	0.56	0.56	0.56
Clearance Time (s)	3.0	7.4	7.4	3.0	7.4	7.4	6.2	6.2	6.2	6.2	6.2	6.2
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	426	495	428	338	491	426	238	2737	723	125	2687	858
v/s Ratio Prot	c0.02	0.10		c0.02	0.06			0.30			0.20	
v/s Ratio Perm	0.11		c0.26	0.14		0.05	c0.42		0.06	0.26		0.02
v/c Ratio	0.38	0.36	0.94	0.50	0.24	0.20	0.76	0.53	0.10	0.46	0.35	0.04
Uniform Delay, d1	34.2	38.7	47.3	37.4	38.0	37.6	22.9	18.8	14.0	17.8	16.4	13.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.96	2.17	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.4	27.9	1.2	0.2	0.2	18.0	0.7	0.2	11.9	0.4	0.1
Delay (s)	34.8	39.2	75.2	38.6	38.3	37.9	40.8	18.6	30.6	29.6	16.8	13.5
Level of Service	C	D	E	D	D	D	D	B	C	C	B	B
Approach Delay (s)		59.6			38.3			21.7			17.3	
Approach LOS		E			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	29.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	137	62	2370	879
v/c Ratio	0.54	0.41	0.59	0.24
Control Delay	58.4	21.5	5.1	6.4
Queue Delay	0.0	0.0	0.4	0.0
Total Delay	58.4	21.5	5.5	6.4
Queue Length 50th (m)	15.6	0.0	64.0	32.4
Queue Length 95th (m)	25.7	15.0	85.7	40.3
Internal Link Dist (m)	348.1		190.6	395.9
Turn Bay Length (m)		277.0		
Base Capacity (vph)	432	218	4024	3648
Starvation Cap Reductn	0	0	984	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.32	0.28	0.78	0.24

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	109	90	0	2370	879	0
Future Volume (vph)	109	90	0	2370	879	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6		6.6	6.6	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	0.97	0.85		1.00	1.00	
Flt Protected	0.96	1.00		1.00	1.00	
Satd. Flow (prot)	2889	1152		4902	4445	
Flt Permitted	0.96	1.00		1.00	1.00	
Satd. Flow (perm)	2889	1152		4902	4445	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	109	90	0	2370	879	0
RTOR Reduction (vph)	18	57	0	0	0	0
Lane Group Flow (vph)	119	5	0	2370	879	0
Heavy Vehicles (%)	18%	29%	0%	7%	18%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			6	2	
Permitted Phases		4				
Actuated Green, G (s)	11.0	11.0		110.8	110.8	
Effective Green, g (s)	11.0	11.0		110.8	110.8	
Actuated g/C Ratio	0.08	0.08		0.82	0.82	
Clearance Time (s)	6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	235	93		4023	3648	
v/s Ratio Prot	c0.04			c0.48	0.20	
v/s Ratio Perm		0.00				
v/c Ratio	0.50	0.05		0.59	0.24	
Uniform Delay, d1	59.4	57.2		4.2	2.7	
Progression Factor	1.00	1.00		1.00	2.19	
Incremental Delay, d2	1.7	0.2		0.6	0.2	
Delay (s)	61.1	57.4		4.8	6.1	
Level of Service	E	E		A	A	
Approach Delay (s)	60.0			4.8	6.1	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	8.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

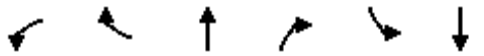
Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	182	82	1996	1122
v/c Ratio	0.63	0.54	0.51	0.30
Control Delay	62.2	51.9	2.1	2.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	62.2	51.9	2.1	2.4
Queue Length 50th (m)	21.9	15.7	16.3	14.3
Queue Length 95th (m)	33.2	33.5	17.9	m19.7
Internal Link Dist (m)	415.5		395.9	291.4
Turn Bay Length (m)		193.0		
Base Capacity (vph)	500	254	3891	3786
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	0.36	0.32	0.51	0.30

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	148	116	1996	0	0	1122
Future Volume (vph)	148	116	1996	0	0	1122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6	6.6			6.6
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.97	0.85	1.00			1.00
Flt Protected	0.96	1.00	1.00			1.00
Satd. Flow (prot)	2685	1292	4856			4725
Flt Permitted	0.96	1.00	1.00			1.00
Satd. Flow (perm)	2685	1292	4856			4725
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	148	116	1996	0	0	1122
RTOR Reduction (vph)	16	23	0	0	0	0
Lane Group Flow (vph)	166	59	1996	0	0	1122
Heavy Vehicles (%)	33%	15%	8%	0%	0%	11%
Turn Type	Prot	Perm	NA			NA
Protected Phases	4		6			2
Permitted Phases		4				
Actuated Green, G (s)	13.6	13.6	108.2			108.2
Effective Green, g (s)	13.6	13.6	108.2			108.2
Actuated g/C Ratio	0.10	0.10	0.80			0.80
Clearance Time (s)	6.6	6.6	6.6			6.6
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	270	130	3891			3787
v/s Ratio Prot	c0.06		c0.41			0.24
v/s Ratio Perm		0.05				
v/c Ratio	0.61	0.45	0.51			0.30
Uniform Delay, d1	58.2	57.2	4.5			3.5
Progression Factor	1.00	1.00	0.36			0.60
Incremental Delay, d2	4.1	2.5	0.4			0.2
Delay (s)	62.3	59.7	2.0			2.3
Level of Service	E	E	A			A
Approach Delay (s)	61.5		2.0			2.3
Approach LOS	E		A			A

Intersection Summary			
HCM 2000 Control Delay	6.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	35	57	3070	12	18	991
v/c Ratio	0.28	0.35	0.74	0.01	0.11	0.23
Control Delay	53.6	18.6	9.2	4.2	3.5	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.6	18.6	9.2	4.2	3.5	2.2
Queue Length 50th (m)	7.3	0.0	80.5	0.3	0.5	12.9
Queue Length 95th (m)	17.0	11.9	190.8	2.4	1.8	18.7
Internal Link Dist (m)	80.2		550.2			190.6
Turn Bay Length (m)				15.0	15.0	
Base Capacity (vph)	422	421	4162	1296	159	4385
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.14	0.74	0.01	0.11	0.23

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	32	52	2824	11	17	912
Future Volume (vph)	32	52	2824	11	17	912
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	0.91
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1789	1601	5142	1601	1789	5142
Flt Permitted	0.95	1.00	1.00	1.00	0.04	1.00
Satd. Flow (perm)	1789	1601	5142	1601	85	5142
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	35	57	3070	12	18	991
RTOR Reduction (vph)	0	54	0	0	0	0
Lane Group Flow (vph)	35	3	3070	12	18	991
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Actuated Green, G (s)	6.6	6.6	83.0	83.0	91.4	91.4
Effective Green, g (s)	6.6	6.6	83.0	83.0	91.4	91.4
Actuated g/C Ratio	0.06	0.06	0.75	0.75	0.83	0.83
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	107	96	3879	1208	107	4272
v/s Ratio Prot	c0.02		c0.60		0.00	c0.19
v/s Ratio Perm		0.00		0.01	0.14	
v/c Ratio	0.33	0.04	0.79	0.01	0.17	0.23
Uniform Delay, d1	49.6	48.7	8.2	3.3	11.9	1.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8	0.2	1.7	0.0	0.7	0.1
Delay (s)	51.4	48.9	10.0	3.4	12.6	2.1
Level of Service	D	D	A	A	B	A
Approach Delay (s)	49.8		9.9			2.3
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	9.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Appendix E – Turning Movement Counts

Spectrum

Turning Movement Count
Location Name: AIRPORT RD & STEELES AVE
Date: Wed, Apr 19, 2017 Deployment Lead: Chris Koukaras

Peel Region
10 Peel Centre Drive
Suite B - 4th Floor
Brampton ON, Canada, L6T 4B9

Turning Movement Count (5 . AIRPORT RD & STEELES AVE) CustID: 00706974 MioID: 403148

Start Time	Southbound AIRPORT RD						Westbound STEELES AVE						Northbound AIRPORT RD						Eastbound STEELES AVE						Int. Total (15 min)	Int. Total (1 hr)
	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total		
07:00:00	99	440	80	0	7	619	42	207	66	0	8	315	44	136	22	0	13	202	44	253	72	0	25	369	1505	
07:15:00	140	419	70	0	5	629	30	205	68	0	6	303	44	173	22	1	17	240	33	328	88	0	38	449	1621	
07:30:00	106	432	88	0	5	626	46	235	58	0	5	339	40	136	28	0	35	204	54	315	103	0	19	472	1641	
07:45:00	126	456	84	0	2	666	50	201	84	0	0	335	76	182	20	0	14	278	67	273	117	0	21	457	1736	6503
08:00:00	123	417	79	0	0	619	29	254	56	0	2	339	73	127	18	0	13	218	34	324	127	0	3	485	1661	6659
08:15:00	91	403	84	0	0	578	39	239	64	0	2	342	64	167	24	0	23	255	52	269	98	0	22	419	1594	6632
08:30:00	119	400	94	0	2	613	36	214	72	0	3	322	61	149	19	0	9	229	43	275	90	0	10	408	1572	6563
08:45:00	103	290	58	1	5	452	32	251	69	0	7	352	67	155	25	0	19	247	62	259	96	0	14	417	1468	6295
BREAK																										
11:00:00	53	164	73	0	0	290	29	136	54	0	0	219	37	147	31	0	15	215	50	187	52	0	10	289	1013	
11:15:00	65	166	65	1	0	297	41	201	56	0	1	298	57	141	32	0	10	230	43	213	69	0	6	325	1150	
11:30:00	67	202	72	0	0	341	38	151	61	0	0	250	58	155	36	0	13	249	40	207	62	0	7	309	1149	
11:45:00	46	182	63	0	0	291	31	196	62	1	0	290	53	156	42	0	11	251	67	230	56	0	9	353	1185	4497
12:00:00	59	156	74	0	0	289	51	150	59	0	0	260	64	195	34	0	9	293	50	163	57	0	5	270	1112	4596
12:15:00	51	166	60	0	1	277	38	162	57	1	1	258	61	185	44	0	14	290	59	201	70	0	13	330	1155	4601
12:30:00	54	180	75	0	4	309	37	215	70	0	1	322	53	190	33	0	11	276	51	191	73	0	12	315	1222	4674
12:45:00	44	180	75	0	0	299	32	178	62	0	0	272	70	210	31	0	17	311	50	227	69	0	8	346	1228	4717
13:00:00	42	182	64	0	0	288	38	230	78	0	0	346	46	166	27	0	11	239	46	223	70	0	6	339	1212	4817
13:15:00	63	179	78	0	2	320	24	192	64	1	1	281	61	212	31	0	9	304	58	191	64	0	18	313	1218	4880
13:30:00	51	161	77	0	3	289	28	214	91	0	6	333	42	179	39	0	14	260	54	257	64	0	6	375	1257	4915
13:45:00	61	166	63	0	5	290	37	207	82	1	0	327	56	223	26	0	11	305	61	217	67	0	9	345	1267	4954
BREAK																										
15:00:00	54	207	72	1	2	334	37	196	77	0	5	310	84	345	56	0	27	485	45	222	100	0	3	367	1496	
15:15:00	66	156	64	0	2	286	33	202	91	0	2	326	89	363	40	0	23	492	55	248	98	0	18	401	1505	
15:30:00	55	173	84	0	1	312	26	208	107	0	6	341	86	441	58	0	23	585	68	227	70	0	17	365	1603	
15:45:00	63	153	61	0	5	277	20	239	116	0	1	375	73	391	43	0	21	507	66	249	87	0	21	402	1561	6165
16:00:00	69	172	66	0	7	307	30	247	123	0	2	400	72	366	46	0	22	484	72	310	94	0	19	476	1667	6336
16:15:00	102	201	68	0	6	371	31	224	96	0	2	351	97	496	41	0	27	634	65	266	83	0	24	414	1770	6601
16:30:00	85	169	75	0	6	329	35	273	128	0	6	436	97	425	56	0	20	578	66	313	60	0	20	439	1782	6780
16:45:00	61	192	57	0	2	310	30	251	103	0	2	384	81	447	56	0	16	584	71	308	75	0	20	454	1732	6951
17:00:00	88	171	67	0	13	326	28	238	131	1	13	398	97	454	57	0	17	608	60	274	87	0	19	421	1753	7037
17:15:00	80	138	64	0	5	282	37	270	118	1	3	426	102	407	62	0	19	571	61	265	65	0	12	391	1670	6937

17:30:00	69	177	63	0	3	309	34	237	129	1	2	401	113	447	34	0	30	594	69	243	75	0	19	387	1691	6846
17:45:00	72	142	58	0	2	272	23	242	115	1	4	381	98	438	44	0	20	580	48	278	63	0	15	389	1622	6736
Grand Total	2427	7392	2275	3	95	12097	1092	6865	2667	8	91	10632	2216	8404	1177	1	553	11798	1764	8006	2521	0	468	12291	**46818**	-
Approach%	20.1%	61.1%	18.8%	0%		-	10.3%	64.6%	25.1%	0.1%		-	18.8%	71.2%	10%	0%		-	14.4%	65.1%	20.5%	0%		-	**-**	-
Totals %	5.2%	15.8%	4.9%	0%		25.8%	2.3%	14.7%	5.7%	0%		22.7%	4.7%	18%	2.5%	0%		25.2%	3.8%	17.1%	5.4%	0%		26.3%	**-**	-
Heavy	243	733	698	0		-	235	1178	324	0		-	176	784	257	0		-	463	1488	208	0		-	**-**	-
Heavy %	10%	9.9%	30.7%	0%		-	21.5%	17.2%	12.1%	0%		-	7.9%	9.3%	21.8%	0%		-	26.2%	18.6%	8.3%	0%		-	**-**	-
Bicycles	0	0	0	0		-	0	0	0	0		-	0	2	0	0		-	0	0	0	0		-	**-**	-
Bicycle %	0%	0%	0%	0%		-	0%	0%	0%	0%		-	0%	0%	0%	0%		-	0%	0%	0%	0%		-	**-**	-

Peak Hour: 07:15 AM - 08:15 AM Weather:

Start Time	Southbound AIRPORT RD						Westbound STEELES AVE						Northbound AIRPORT RD						Eastbound STEELES AVE						Int. Total (15 min)
	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	
07:15:00	140	419	70	0	5	629	30	205	68	0	6	303	44	173	22	1	17	240	33	328	88	0	38	449	1621
07:30:00	106	432	88	0	5	626	46	235	58	0	5	339	40	136	28	0	35	204	54	315	103	0	19	472	1641
07:45:00	126	456	84	0	2	666	50	201	84	0	0	335	76	182	20	0	14	278	67	273	117	0	21	457	1736
08:00:00	123	417	79	0	0	619	29	254	56	0	2	339	73	127	18	0	13	218	34	324	127	0	3	485	1661
Grand Total	495	1724	321	0	12	2540	155	895	266	0	13	1316	233	618	88	1	79	940	188	1240	435	0	81	1863	**6659**
Approach%	19.5%	67.9%	12.6%	0%		-	11.8%	68%	20.2%	0%		-	24.8%	65.7%	9.4%	0.1%		-	10.1%	66.6%	23.3%	0%		-	**-**
Totals %	7.4%	25.9%	4.8%	0%		38.1%	2.3%	13.4%	4%	0%		19.8%	3.5%	9.3%	1.3%	0%		14.1%	2.8%	18.6%	6.5%	0%		28%	**-**
PHF	0.88	0.95	0.91	0		0.95	0.78	0.88	0.79	0		0.97	0.77	0.85	0.79	0.25		0.85	0.7	0.95	0.86	0		0.96	**-**
Heavy	36	98	84	0		218	23	111	33	0		167	19	70	23	0		112	54	178	30	0		262	**-**
Heavy %	7.3%	5.7%	26.2%	0%		8.6%	14.8%	12.4%	12.4%	0%		12.7%	8.2%	11.3%	26.1%	0%		11.9%	28.7%	14.4%	6.9%	0%		14.1%	**-**
Lights	459	1626	237	0		2322	132	784	233	0		1149	214	548	65	1		828	134	1062	405	0		1601	**-**
Lights %	92.7%	94.3%	73.8%	0%		91.4%	85.2%	87.6%	87.6%	0%		87.3%	91.8%	88.7%	73.9%	100%		88.1%	71.3%	85.6%	93.1%	0%		85.9%	**-**
Single-Unit Trucks	11	25	21	0		57	12	36	20	0		68	6	32	8	0		46	29	67	7	0		103	**-**
Single-Unit Trucks %	2.2%	1.5%	6.5%	0%		2.2%	7.7%	4%	7.5%	0%		5.2%	2.6%	5.2%	9.1%	0%		4.9%	15.4%	5.4%	1.6%	0%		5.5%	**-**
Buses	3	28	1	0		32	0	13	1	0		14	7	16	0	0		23	0	16	6	0		22	**-**
Buses %	0.6%	1.6%	0.3%	0%		1.3%	0%	1.5%	0.4%	0%		1.1%	3%	2.6%	0%	0%		2.4%	0%	1.3%	1.4%	0%		1.2%	**-**
Articulated Trucks	22	45	62	0		129	11	62	12	0		85	6	22	15	0		43	25	95	17	0		137	**-**
Articulated Trucks %	4.4%	2.6%	19.3%	0%		5.1%	7.1%	6.9%	4.5%	0%		6.5%	2.6%	3.6%	17%	0%		4.6%	13.3%	7.7%	3.9%	0%		7.4%	**-**
Pedestrians	-	-	-	-	12	-	-	-	-	-	13	-	-	-	-	-	79	-	-	-	-	-	81	-	**-**
Pedestrians%	-	-	-	-	6.5%		-	-	-	-	7%		-	-	-	-	42.7%		-	-	-	-	43.8%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	0	-	0	0	0	0	0	-	**-**
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Peak Hour: 01:00 PM - 02:00 PM Weather:

Start Time	Southbound AIRPORT RD						Westbound STEELES AVE						Northbound AIRPORT RD						Eastbound STEELES AVE						Int. Total (15 min)
	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	
13:00:00	42	182	64	0	0	288	38	230	78	0	0	346	46	166	27	0	11	239	46	223	70	0	6	339	1212
13:15:00	63	179	78	0	2	320	24	192	64	1	1	281	61	212	31	0	9	304	58	191	64	0	18	313	1218
13:30:00	51	161	77	0	3	289	28	214	91	0	6	333	42	179	39	0	14	260	54	257	64	0	6	375	1257
13:45:00	61	166	63	0	5	290	37	207	82	1	0	327	56	223	26	0	11	305	61	217	67	0	9	345	1267
Grand Total	217	688	282	0	10	1187	127	843	315	2	7	1287	205	780	123	0	45	1108	219	888	265	0	39	1372	**4954**
Approach%	18.3%	58%	23.8%	0%		-	9.9%	65.5%	24.5%	0.2%		-	18.5%	70.4%	11.1%	0%		-	16%	64.7%	19.3%	0%		-	**-**
Totals %	4.4%	13.9%	5.7%	0%		24%	2.6%	17%	6.4%	0%		26%	4.1%	15.7%	2.5%	0%		22.4%	4.4%	17.9%	5.3%	0%		27.7%	**-**
PHF	0.86	0.95	0.9	0		0.93	0.84	0.92	0.87	0.5		0.93	0.84	0.87	0.79	0		0.91	0.9	0.86	0.95	0		0.91	**-**
Heavy	37	96	106	0		239	25	170	48	0		243	18	97	31	0		146	63	224	21	0		308	**-**
Heavy %	17.1%	14%	37.6%	0%		20.1%	19.7%	20.2%	15.2%	0%		18.9%	8.8%	12.4%	25.2%	0%		13.2%	28.8%	25.2%	7.9%	0%		22.4%	**-**
Lights	180	592	176	0		948	102	673	267	2		1044	187	683	92	0		962	156	664	244	0		1064	**-**
Lights %	82.9%	86%	62.4%	0%		79.9%	80.3%	79.8%	84.8%	100%		81.1%	91.2%	87.6%	74.8%	0%		86.8%	71.2%	74.8%	92.1%	0%		77.6%	**-**
Single-Unit Trucks	19	46	41	0		106	10	78	26	0		114	8	44	18	0		70	17	86	5	0		108	**-**
Single-Unit Trucks %	8.8%	6.7%	14.5%	0%		8.9%	7.9%	9.3%	8.3%	0%		8.9%	3.9%	5.6%	14.6%	0%		6.3%	7.8%	9.7%	1.9%	0%		7.9%	**-**
Buses	1	6	1	0		8	0	7	1	0		8	0	8	0	0		8	1	9	1	0		11	**-**
Buses %	0.5%	0.9%	0.4%	0%		0.7%	0%	0.8%	0.3%	0%		0.6%	0%	1%	0%	0%		0.7%	0.5%	1%	0.4%	0%		0.8%	**-**
Articulated Trucks	17	44	64	0		125	15	85	21	0		121	10	45	13	0		68	45	129	15	0		189	**-**
Articulated Trucks %	7.8%	6.4%	22.7%	0%		10.5%	11.8%	10.1%	6.7%	0%		9.4%	4.9%	5.8%	10.6%	0%		6.1%	20.5%	14.5%	5.7%	0%		13.8%	**-**
Pedestrians	-	-	-	-	10	-	-	-	-	-	7	-	-	-	-	-	45	-	-	-	-	-	39	-	**-**
Pedestrians%	-	-	-	-	9.9%		-	-	-	-	6.9%		-	-	-	-	44.6%		-	-	-	-	38.6%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	**-**
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Spectrum

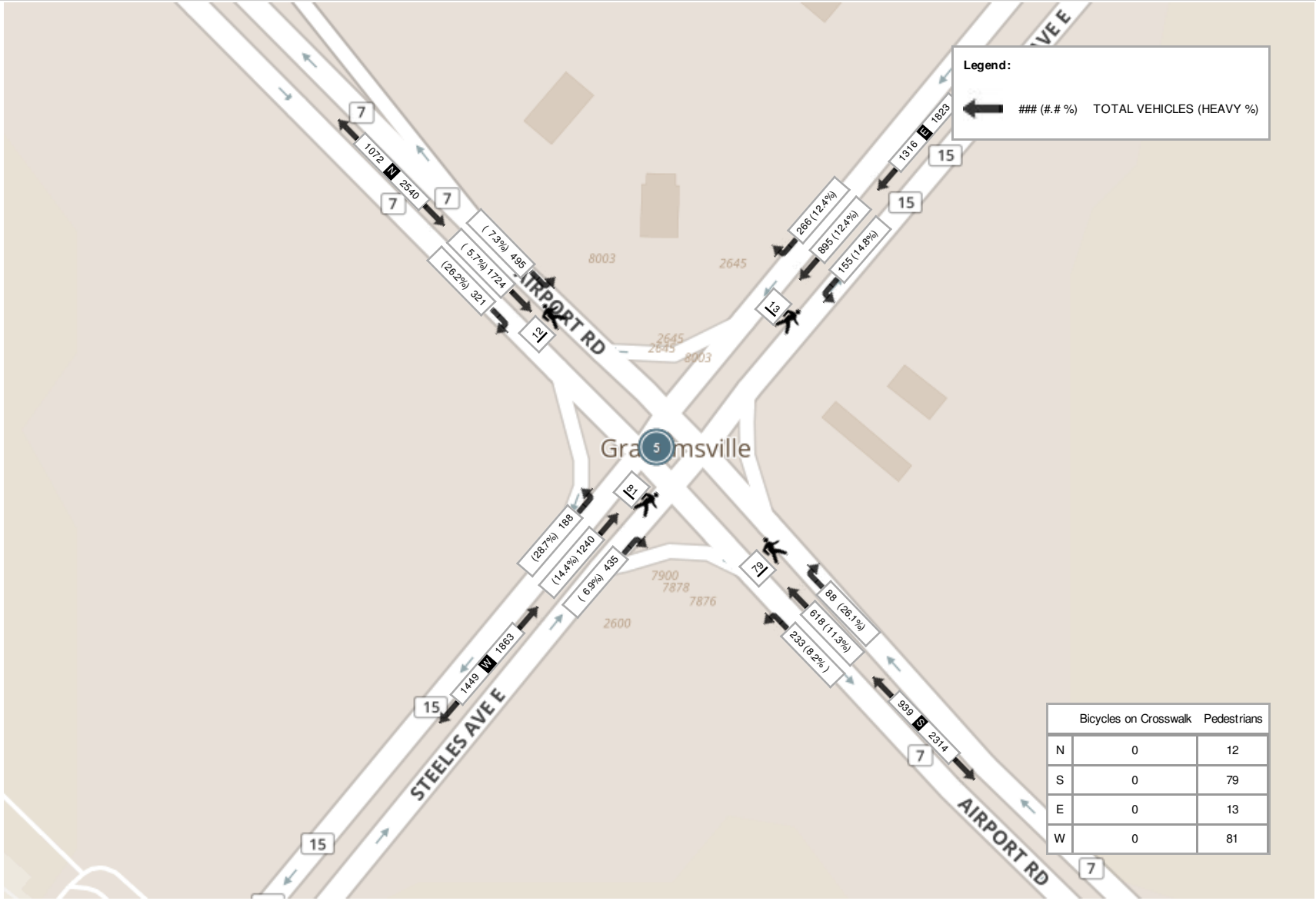
Turning Movement Count
Location Name: AIRPORT RD & STEELES AVE
Date: Wed, Apr 19, 2017 Deployment Lead: Chris Koukaras

Peel Region
10 Peel Centre Drive
Suite B - 4th Floor
Brampton ON, Canada, L6T 4B9

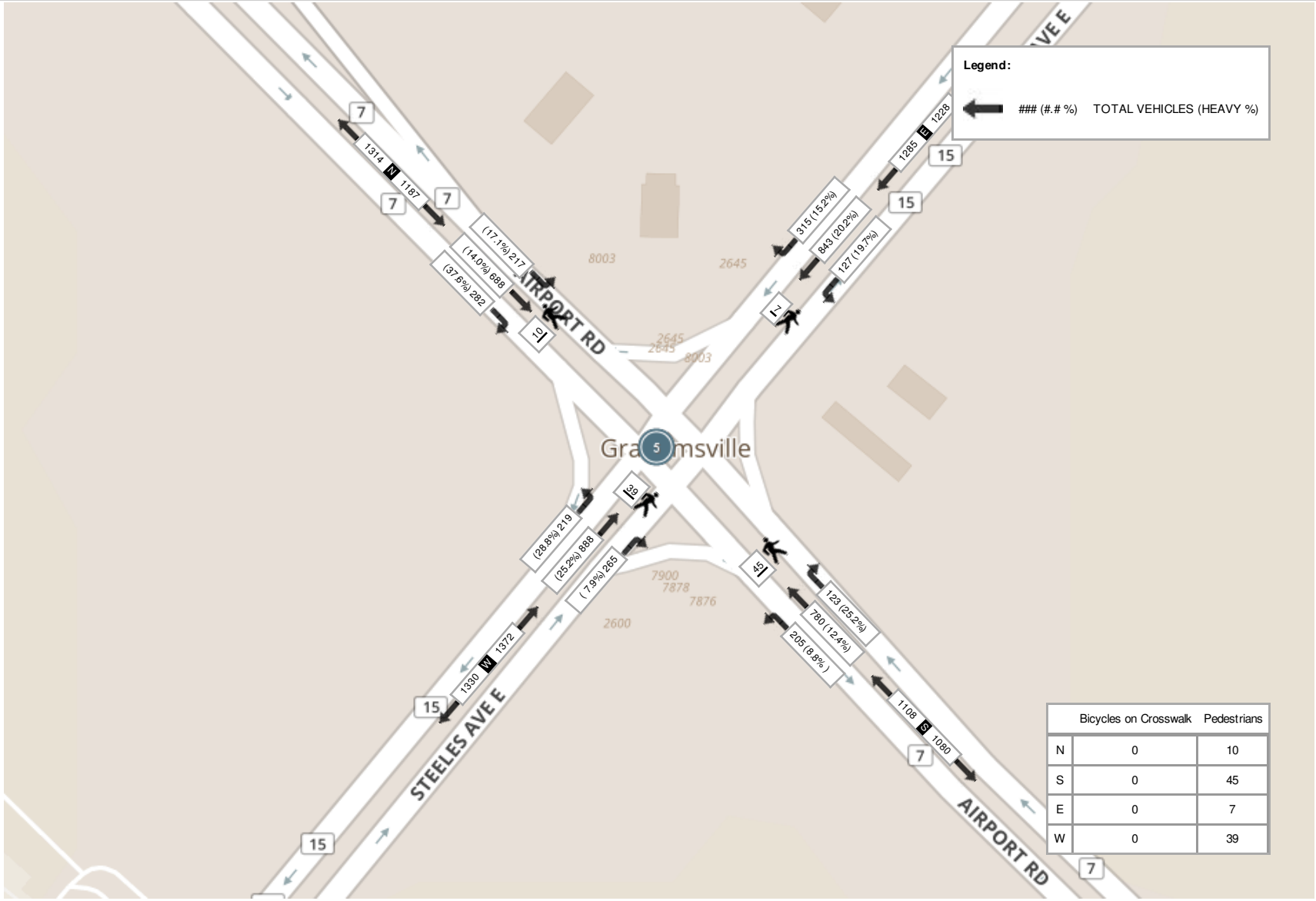
Peak Hour: 04:15 PM - 05:15 PM Weather:

Start Time	Southbound AIRPORT RD						Westbound STEELES AVE						Northbound AIRPORT RD						Eastbound STEELES AVE						Int. Total (15 min)
	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	
16:15:00	102	201	68	0	6	371	31	224	96	0	2	351	97	496	41	0	27	634	65	266	83	0	24	414	1770
16:30:00	85	169	75	0	6	329	35	273	128	0	6	436	97	425	56	0	20	578	66	313	60	0	20	439	1782
16:45:00	61	192	57	0	2	310	30	251	103	0	2	384	81	447	56	0	16	584	71	308	75	0	20	454	1732
17:00:00	88	171	67	0	13	326	28	238	131	1	13	398	97	454	57	0	17	608	60	274	87	0	19	421	1753
Grand Total	336	733	267	0	27	1336	124	986	458	1	23	1569	372	1822	210	0	80	2404	262	1161	305	0	83	1728	**7037**
Approach%	25.1%	54.9%	20%	0%		-	7.9%	62.8%	29.2%	0.1%		-	15.5%	75.8%	8.7%	0%		-	15.2%	67.2%	17.7%	0%		-	-
Totals %	4.8%	10.4%	3.8%	0%		19%	1.8%	14%	6.5%	0%		22.3%	5.3%	25.9%	3%	0%		34.2%	3.7%	16.5%	4.3%	0%		24.6%	-
PHF	0.82	0.91	0.89	0		0.9	0.89	0.9	0.87	0.25		0.9	0.96	0.92	0.92	0		0.95	0.92	0.93	0.88	0		0.95	-
Heavy	30	71	75	0		176	36	149	35	0		220	24	101	29	0		154	36	141	15	0		192	-
Heavy %	8.9%	9.7%	28.1%	0%		13.2%	29%	15.1%	7.6%	0%		14%	6.5%	5.5%	13.8%	0%		6.4%	13.7%	12.1%	4.9%	0%		11.1%	-
Lights	306	662	192	0		1160	88	837	423	1		1349	348	1721	181	0		2250	226	1020	290	0		1536	-
Lights %	91.1%	90.3%	71.9%	0%		86.8%	71%	84.9%	92.4%	100%		86%	93.5%	94.5%	86.2%	0%		93.6%	86.3%	87.9%	95.1%	0%		88.9%	-
Single-Unit Trucks	12	23	28	0		63	16	52	17	0		85	8	30	10	0		48	10	47	5	0		62	-
Single-Unit Trucks %	3.6%	3.1%	10.5%	0%		4.7%	12.9%	5.3%	3.7%	0%		5.4%	2.2%	1.6%	4.8%	0%		2%	3.8%	4%	1.6%	0%		3.6%	-
Buses	0	11	0	0		11	2	17	0	0		19	2	15	0	0		17	0	15	3	0		18	-
Buses %	0%	1.5%	0%	0%		0.8%	1.6%	1.7%	0%	0%		1.2%	0.5%	0.8%	0%	0%		0.7%	0%	1.3%	1%	0%		1%	-
Articulated Trucks	18	37	47	0		102	18	80	18	0		116	14	56	19	0		89	26	79	7	0		112	-
Articulated Trucks %	5.4%	5%	17.6%	0%		7.6%	14.5%	8.1%	3.9%	0%		7.4%	3.8%	3.1%	9%	0%		3.7%	9.9%	6.8%	2.3%	0%		6.5%	-
Pedestrians	-	-	-	-	27	-	-	-	-	-	23	-	-	-	-	-	80	-	-	-	-	-	83	-	-
Pedestrians%	-	-	-	-	12.7%		-	-	-	-	10.8%		-	-	-	-	37.6%		-	-	-	-	39%		-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	-
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-

Peak Hour: 07:15 AM - 08:15 AM Weather:

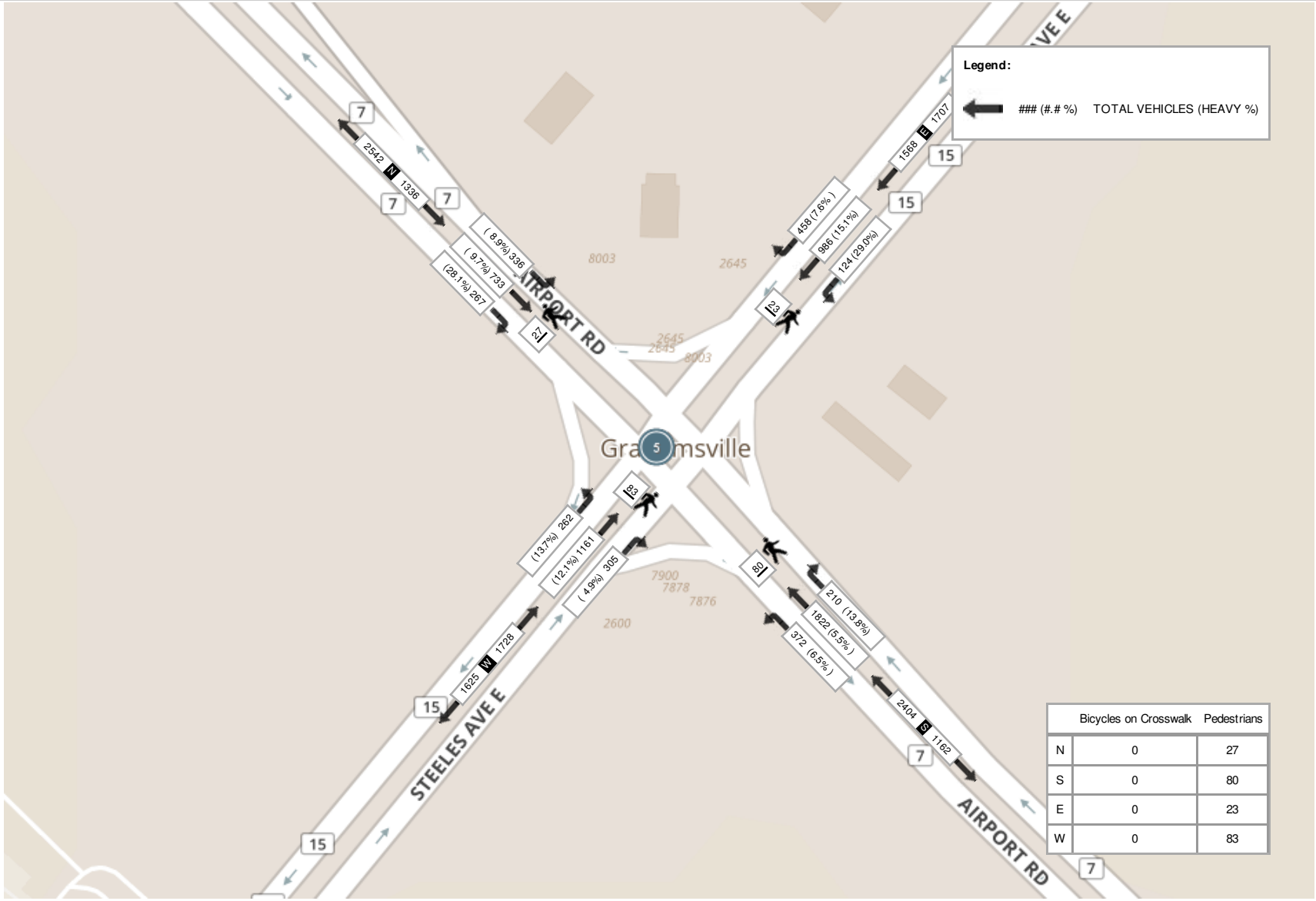


Peak Hour: 01:00 PM - 02:00 PM **Weather:**



	Bicycles on Crosswalk	Pedestrians
N	0	10
S	0	45
E	0	7
W	0	39

Peak Hour: 04:15 PM - 05:15 PM **Weather:**



MG8 ENG

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

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

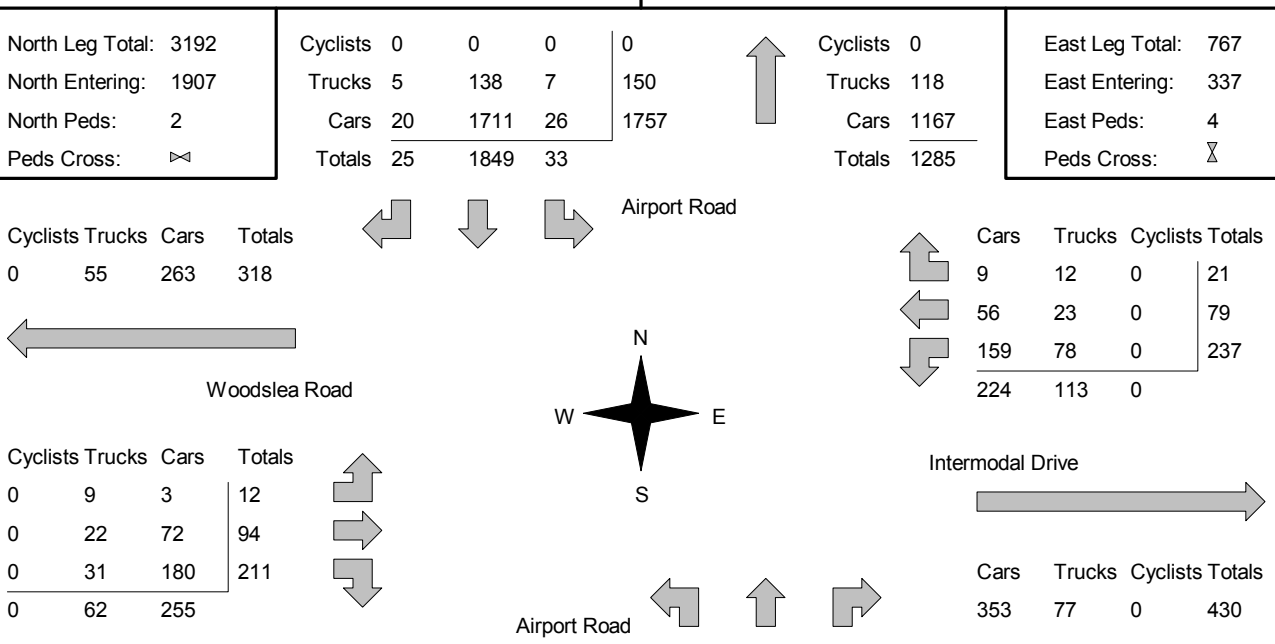
Municipality: Region of Peel
Site #: 0000708034
Intersection: Airport Road & Intermodal Drive
TFR File #: 1
Count date: 7-Feb-2013

Weather conditions:
Cold, snow

Person(s) who counted:
STEVE
NIKOLA

**** Signalized Intersection ****

Major Road: Airport Road runs N/S



Comments

MG8 ENG

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 12:45:00
To: 13:45:00

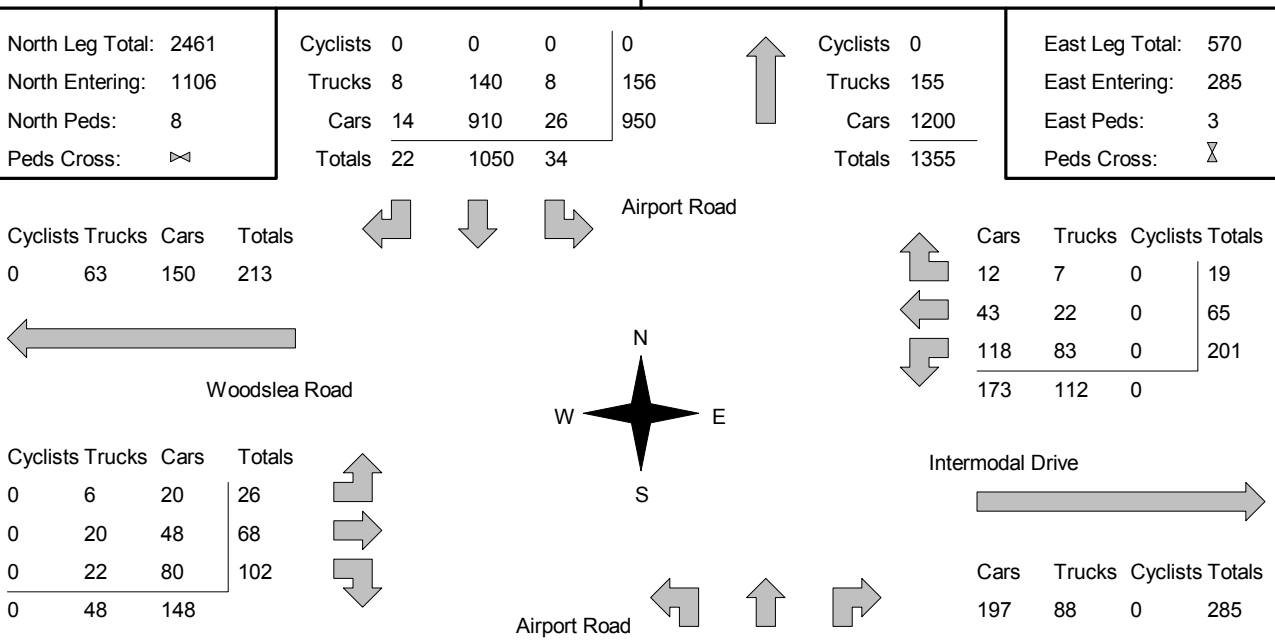
Municipality: Region of Peel
Site #: 0000708034
Intersection: Airport Road & Intermodal Drive
TFR File #: 1
Count date: 7-Feb-2013

Weather conditions:
Cold, snow

Person(s) who counted:
STEVE
NIKOLA

**** Signalized Intersection ****

Major Road: Airport Road runs N/S



Comments

MG8 ENG

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

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

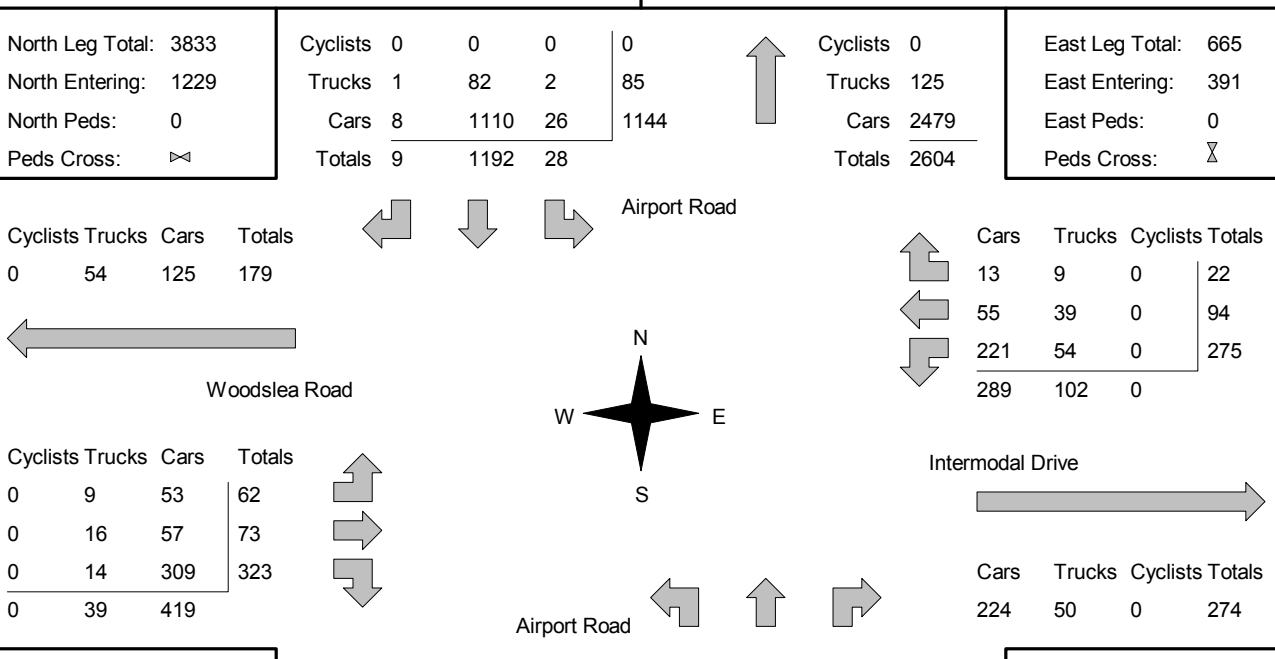
Municipality: Region of Peel
Site #: 0000708034
Intersection: Airport Road & Intermodal Drive
TFR File #: 1
Count date: 7-Feb-2013

Weather conditions:
Cold, snow

Person(s) who counted:
STEVE
NIKOLA

**** Signalized Intersection ****

Major Road: Airport Road runs N/S



Comments

MG8 ENG

Total Count Diagram

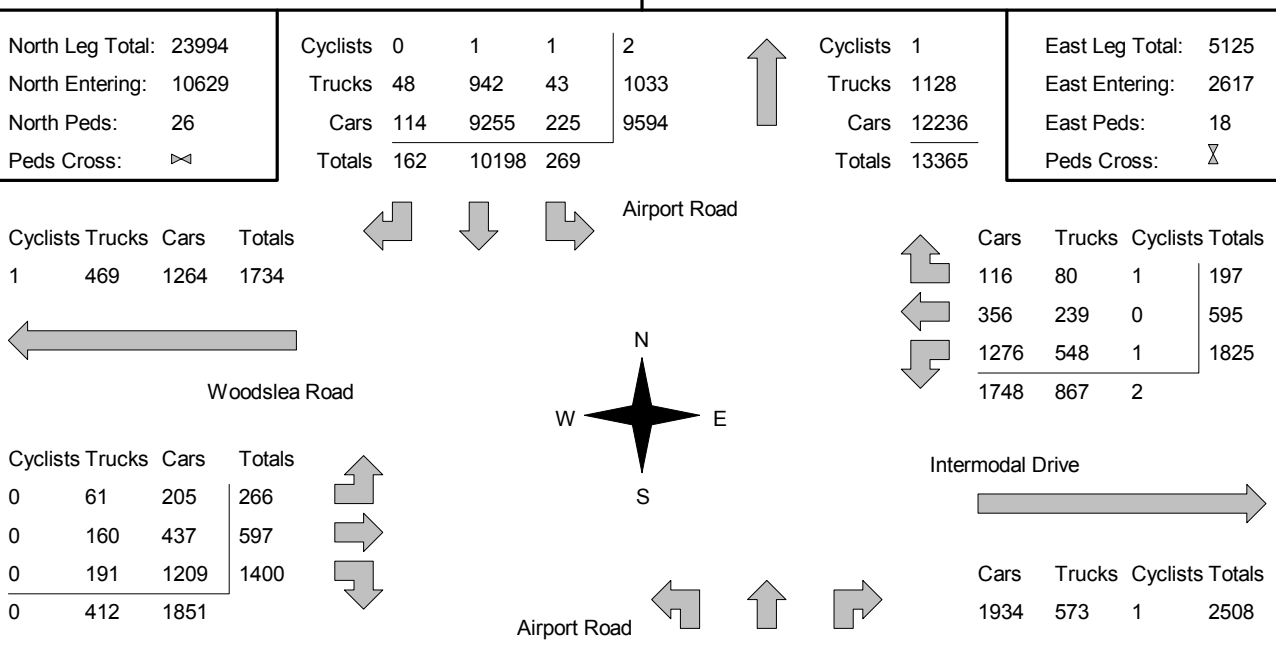
Municipality: Region of Peel
Site #: 0000708034
Intersection: Airport Road & Intermodal Drive
TFR File #: 1
Count date: 7-Feb-2013

Weather conditions:
Cold, snow

Person(s) who counted:
STEVE
NIKOLA

**** Signalized Intersection ****

Major Road: Airport Road runs N/S



Comments

MG8 ENG
Traffic Count Summary

Intersection: Airport Road & Intermodal Drive | **Count Date:** 7-Feb-2013 | **Municipality:** Region of Peel

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	29	0	29	0	29
8:00:00	39	1944	20	2003	4	3562
9:00:00	30	1872	29	1931	3	3716
11:00:00	0	55	1	56	0	56
12:00:00	46	879	27	952	0	2124
13:00:00	38	928	26	992	4	2421
14:00:00	38	1038	24	1100	7	2745
15:00:00	0	29	2	31	0	31
16:00:00	29	1145	17	1191	4	3702
17:00:00	35	1219	10	1264	4	4028
18:00:00	14	1060	6	1080	0	3736
Totals:	269	10198	162	10629	26	26150

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	184	1128	247	1559	0
9:00:00	212	1278	295	1785	4
11:00:00	0	0	0	0	0
12:00:00	93	928	151	1172	0
13:00:00	95	1146	188	1429	2
14:00:00	121	1337	187	1645	1
15:00:00	0	0	0	0	0
16:00:00	106	2196	209	2511	3
17:00:00	87	2494	183	2764	0
18:00:00	79	2395	182	2656	2
Totals:	977	12902	1642	15521	12

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	213	73	25	311	3	589
9:00:00	207	83	20	310	4	602
11:00:00	11	5	1	17	0	19
12:00:00	178	62	19	259	0	434
13:00:00	247	61	21	329	2	511
14:00:00	182	58	21	261	3	447
15:00:00	4	5	2	11	0	13
16:00:00	265	82	26	373	6	731
17:00:00	261	82	31	374	0	806
18:00:00	257	84	31	372	0	728
Totals:	1825	595	197	2617	18	4880

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	18	84	176	278	8
9:00:00	14	83	195	292	5
11:00:00	1	1	0	2	0
12:00:00	21	52	102	175	1
13:00:00	24	61	97	182	5
14:00:00	29	63	94	186	7
15:00:00	0	2	0	2	0
16:00:00	51	105	202	358	1
17:00:00	57	80	295	432	7
18:00:00	51	66	239	356	2
Totals:	266	597	1400	2263	36

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	319	311	261	338	282	428	404	394

MG8 ENG

Count Date: 7-Feb-2013 Site #: 0000708034

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
7:00:00	0	0	28	28	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
7:15:00	10	10	453	425	4	4	0	0	19	18	1	1	0	0	0	0	0	0	1	1
7:30:00	15	5	1015	562	7	3	0	0	48	29	3	2	0	0	0	0	0	0	3	2
7:45:00	24	9	1555	540	14	7	3	3	69	21	4	1	0	0	0	0	0	0	4	1
8:00:00	32	8	1879	324	15	1	7	4	94	25	5	1	0	0	0	0	0	0	4	0
8:15:00	35	3	2254	375	21	6	9	2	129	35	6	1	0	0	0	0	0	0	5	1
8:30:00	42	7	2707	453	29	8	9	0	158	29	9	3	0	0	0	0	0	0	6	1
8:45:00	50	8	3266	559	34	5	10	1	207	49	9	0	0	0	0	0	0	0	6	0
9:00:00	58	8	3608	342	38	4	11	1	237	30	11	2	0	0	0	0	0	0	7	1
11:00:00	58	0	3653	45	39	1	11	0	247	10	11	0	0	0	0	0	0	0	7	0
11:15:00	65	7	3817	164	42	3	15	4	281	34	13	2	0	0	0	0	0	0	7	0
11:30:00	76	11	4002	185	46	4	17	2	321	40	14	1	0	0	0	0	0	0	7	0
11:45:00	84	8	4173	171	51	5	20	3	364	43	20	6	0	0	0	0	0	0	7	0
12:00:00	94	10	4383	210	54	3	21	1	396	32	23	3	0	0	0	0	0	0	7	0
12:15:00	107	13	4575	192	59	5	21	0	426	30	24	1	0	0	0	0	0	0	8	1
12:30:00	117	10	4785	210	61	2	22	1	460	34	28	4	0	0	1	1	0	0	9	1
12:45:00	122	5	4963	178	66	5	23	1	503	43	30	2	0	0	1	0	0	0	10	1
13:00:00	130	8	5173	210	72	6	23	0	533	30	31	1	0	0	1	0	0	0	11	1
13:15:00	138	8	5377	204	75	3	27	4	564	31	34	3	0	0	1	0	0	0	13	2
13:30:00	145	7	5617	240	79	4	30	3	600	36	37	3	0	0	1	0	0	0	18	5
13:45:00	148	3	5873	256	80	1	31	1	643	43	38	1	0	0	1	0	0	0	18	0
14:00:00	158	10	6069	196	87	7	33	2	675	32	40	2	0	0	1	0	0	0	18	0
15:00:00	158	0	6097	28	89	2	33	0	676	1	40	0	0	0	1	0	0	0	18	0
15:15:00	164	6	6362	265	89	0	34	1	709	33	41	1	0	0	1	0	0	0	19	1
15:30:00	169	5	6628	266	90	1	35	1	741	32	44	3	0	0	1	0	0	0	19	0
15:45:00	174	5	6910	282	98	8	36	1	767	26	44	0	0	0	1	0	0	0	20	1
16:00:00	181	7	7131	221	102	4	38	2	787	20	44	0	1	1	1	0	0	0	22	2
16:15:00	190	9	7428	297	105	3	40	2	806	19	46	2	1	0	1	0	0	0	26	4
16:30:00	200	10	7728	300	106	1	40	0	830	24	46	0	1	0	1	0	0	0	26	0
16:45:00	207	7	7990	262	109	3	42	2	846	16	46	0	1	0	1	0	0	0	26	0
17:00:00	212	5	8266	276	110	1	42	0	871	25	46	0	1	0	1	0	0	0	26	0
17:15:00	216	4	8538	272	113	3	42	0	888	17	47	1	1	0	1	0	0	0	26	0
17:30:00	219	3	8786	248	114	1	42	0	908	20	48	1	1	0	1	0	0	0	26	0
17:45:00	220	1	9054	268	114	0	43	1	923	15	48	0	1	0	1	0	0	0	26	0
18:00:00	225	5	9255	201	114	0	43	0	942	19	48	0	1	0	1	0	0	0	26	0

MG8 ENG

Count Date: 7-Feb-2013 Site #: 0000708034

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
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	27	27	10	10	5	5	13	13	12	12	4	4	0	0	0	0	0	0	0	0
7:30:00	50	23	21	11	5	0	33	20	20	8	7	3	0	0	0	0	0	0	2	2
7:45:00	81	31	31	10	6	1	54	21	25	5	10	3	0	0	0	0	0	0	2	0
8:00:00	133	52	44	13	9	3	80	26	29	4	16	6	0	0	0	0	0	0	3	1
8:15:00	171	38	54	10	12	3	98	18	37	8	19	3	0	0	0	0	0	0	3	0
8:30:00	220	49	72	18	12	0	111	13	43	6	20	1	0	0	0	0	0	0	6	3
8:45:00	240	20	87	15	15	3	132	21	48	5	22	2	0	0	0	0	0	0	6	0
9:00:00	269	29	99	12	19	4	151	19	57	9	26	4	0	0	0	0	0	0	7	1
11:00:00	277	8	101	2	20	1	154	3	60	3	26	0	0	0	0	0	0	0	7	0
11:15:00	310	33	111	10	27	7	174	20	66	6	30	4	0	0	0	0	0	0	7	0
11:30:00	338	28	122	11	28	1	187	13	79	13	33	3	0	0	0	0	0	0	7	0
11:45:00	364	26	130	8	29	1	206	19	83	4	34	1	0	0	0	0	0	0	7	0
12:00:00	395	31	137	7	29	0	214	8	86	3	36	2	0	0	0	0	0	0	7	0
12:15:00	436	41	145	8	31	2	233	19	90	4	38	2	0	0	0	0	0	0	8	1
12:30:00	476	40	153	8	34	3	257	24	90	0	41	3	1	1	0	0	1	1	8	0
12:45:00	512	36	161	8	38	4	279	22	101	11	42	1	1	0	0	0	1	0	9	1
13:00:00	549	37	174	13	42	4	306	27	110	9	43	1	1	0	0	0	1	0	9	0
13:15:00	569	20	187	13	46	4	323	17	118	8	45	2	1	0	0	0	1	0	10	1
13:30:00	592	23	195	8	49	3	341	18	123	5	48	3	1	0	0	0	1	0	10	0
13:45:00	630	38	204	9	50	1	362	21	123	0	49	1	1	0	0	0	1	0	12	2
14:00:00	657	27	213	9	52	2	380	18	129	6	54	5	1	0	0	0	1	0	12	0
15:00:00	661	4	213	0	53	1	380	0	134	5	55	1	1	0	0	0	1	0	12	0
15:15:00	708	47	233	20	58	5	400	20	143	9	56	1	1	0	0	0	1	0	14	2
15:30:00	740	32	243	10	60	2	421	21	153	10	58	2	1	0	0	0	1	0	15	1
15:45:00	783	43	247	4	65	5	442	21	163	10	62	4	1	0	0	0	1	0	15	0
16:00:00	849	66	257	10	70	5	457	15	172	9	64	2	1	0	0	0	1	0	18	3
16:15:00	915	66	269	12	84	14	464	7	177	5	65	1	1	0	0	0	1	0	18	0
16:30:00	972	57	286	17	89	5	477	13	181	4	67	2	1	0	0	0	1	0	18	0
16:45:00	1020	48	304	18	92	3	493	16	189	8	70	3	1	0	0	0	1	0	18	0
17:00:00	1063	43	310	6	92	0	504	11	201	12	73	3	1	0	0	0	1	0	18	0
17:15:00	1136	73	324	14	97	5	518	14	216	15	74	1	1	0	0	0	1	0	18	0
17:30:00	1201	65	338	14	101	4	531	13	229	13	79	5	1	0	0	0	1	0	18	0
17:45:00	1227	26	348	10	112	11	540	9	232	3	79	0	1	0	0	0	1	0	18	0
18:00:00	1276	49	356	8	116	4	548	8	239	7	80	1	1	0	0	0	1	0	18	0

MG8 ENG

Count Date: 7-Feb-2013 Site #: 0000708034

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
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	29	29	182	182	33	33	8	8	24	24	6	6	0	0	0	0	0	0	0	0
7:30:00	70	41	457	275	85	52	11	3	54	30	15	9	0	0	0	0	0	0	0	0
7:45:00	114	44	713	256	148	63	14	3	77	23	24	9	0	0	0	0	0	0	0	0
8:00:00	163	49	1027	314	217	69	21	7	101	24	30	6	0	0	0	0	0	0	0	0
8:15:00	214	51	1299	272	281	64	26	5	121	20	44	14	0	0	0	0	0	0	0	0
8:30:00	263	49	1580	281	346	65	35	9	145	24	60	16	0	0	0	0	0	0	2	2
8:45:00	301	38	1868	288	403	57	41	6	174	29	72	12	0	0	0	0	0	0	3	1
9:00:00	352	51	2197	329	461	58	44	3	209	35	81	9	0	0	0	0	0	0	4	1
11:00:00	352	0	2197	0	461	0	44	0	209	0	81	0	0	0	0	0	0	0	4	0
11:15:00	378	26	2363	166	486	25	54	10	243	34	85	4	0	0	0	0	0	0	4	0
11:30:00	396	18	2543	180	513	27	60	6	272	29	100	15	0	0	0	0	0	0	4	0
11:45:00	414	18	2804	261	543	30	63	3	303	31	117	17	0	0	0	0	0	0	4	0
12:00:00	422	8	3001	197	568	25	67	4	333	30	125	8	0	0	0	0	0	0	4	0
12:15:00	432	10	3230	229	605	37	73	6	367	34	136	11	0	0	0	0	0	0	5	1
12:30:00	447	15	3517	287	642	37	80	7	393	26	153	17	0	0	0	0	0	0	5	0
12:45:00	465	18	3778	261	672	30	84	4	424	31	164	11	0	0	0	0	0	0	6	1
13:00:00	492	27	4030	252	703	31	92	8	450	26	178	14	0	0	0	0	0	0	6	0
13:15:00	512	20	4304	274	728	25	99	7	489	39	196	18	0	0	0	0	0	0	7	1
13:30:00	533	21	4624	320	753	25	106	7	532	43	209	13	0	0	0	0	0	0	7	0
13:45:00	558	25	4946	322	795	42	117	11	566	34	224	15	0	0	0	0	0	0	7	0
14:00:00	583	25	5223	277	826	31	122	5	594	28	242	18	0	0	0	0	0	0	7	0
15:00:00	583	0	5223	0	826	0	122	0	594	0	242	0	0	0	0	0	0	0	7	0
15:15:00	601	18	5602	379	858	32	131	9	635	41	256	14	0	0	0	0	0	0	9	2
15:30:00	619	18	6153	551	914	56	132	1	672	37	270	14	0	0	0	0	0	0	9	0
15:45:00	646	27	6709	556	946	32	137	5	724	52	284	14	0	0	0	0	0	0	9	0
16:00:00	669	23	7259	550	981	35	142	5	754	30	296	12	0	0	0	0	0	0	10	1
16:15:00	695	26	7806	547	1022	41	148	6	800	46	305	9	0	0	0	0	0	0	10	0
16:30:00	710	15	8342	536	1061	39	153	5	829	29	314	9	0	0	0	0	0	0	10	0
16:45:00	723	13	8856	514	1089	28	157	4	857	28	321	7	0	0	0	0	0	0	10	0
17:00:00	740	17	9620	764	1131	42	158	1	887	30	329	8	0	0	0	0	0	0	10	0
17:15:00	757	17	10219	599	1163	32	162	4	907	20	337	8	0	0	0	0	0	0	10	0
17:30:00	771	14	10756	537	1204	41	170	8	936	29	345	8	1	1	0	0	0	0	10	0
17:45:00	786	15	11281	525	1243	39	175	5	955	19	356	11	1	0	0	0	0	0	10	0
18:00:00	794	8	11915	634	1272	29	182	7	987	32	370	14	1	0	0	0	0	0	12	2

MG8 ENG

Count Date: 7-Feb-2013 Site #: 0000708034

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
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	2	2	9	9	22	22	1	1	6	6	6	6	0	0	0	0	0	0	0	0
7:30:00	3	1	22	13	51	29	3	2	10	4	12	6	0	0	0	0	0	0	2	2
7:45:00	6	3	40	18	94	43	7	4	16	6	23	11	0	0	0	0	0	0	4	2
8:00:00	7	1	66	26	139	45	11	4	18	2	37	14	0	0	0	0	0	0	8	4
8:15:00	8	1	82	16	181	42	12	1	26	8	47	10	0	0	0	0	0	0	10	2
8:30:00	9	1	97	15	239	58	14	2	29	3	51	4	0	0	0	0	0	0	10	0
8:45:00	9	0	112	15	274	35	16	2	38	9	54	3	0	0	0	0	0	0	10	0
9:00:00	13	4	126	14	309	35	19	3	41	3	62	8	0	0	0	0	0	0	13	3
11:00:00	14	1	126	0	309	0	19	0	42	1	62	0	0	0	0	0	0	0	13	0
11:15:00	15	1	133	7	327	18	21	2	47	5	71	9	0	0	0	0	0	0	14	1
11:30:00	18	3	141	8	342	15	23	2	52	5	79	8	0	0	0	0	0	0	14	0
11:45:00	22	4	151	10	359	17	26	3	57	5	88	9	0	0	0	0	0	0	14	0
12:00:00	28	6	160	9	379	20	26	0	60	3	94	6	0	0	0	0	0	0	14	0
12:15:00	30	2	168	8	401	22	27	1	63	3	101	7	0	0	0	0	0	0	16	2
12:30:00	35	5	177	9	419	18	28	1	71	8	105	4	0	0	0	0	0	0	16	0
12:45:00	42	7	190	13	438	19	31	3	73	2	107	2	0	0	0	0	0	0	17	1
13:00:00	46	4	202	12	459	21	32	1	79	6	111	4	0	0	0	0	0	0	19	2
13:15:00	54	8	214	12	481	22	35	3	83	4	115	4	0	0	0	0	0	0	21	2
13:30:00	58	4	223	9	492	11	37	2	88	5	124	9	0	0	0	0	0	0	25	4
13:45:00	62	4	238	15	518	26	37	0	93	5	129	5	0	0	0	0	0	0	26	1
14:00:00	66	4	244	6	532	14	41	4	100	7	132	3	0	0	0	0	0	0	26	0
15:00:00	66	0	245	1	532	0	41	0	101	1	132	0	0	0	0	0	0	0	26	0
15:15:00	81	15	264	19	580	48	43	2	105	4	136	4	0	0	0	0	0	0	26	0
15:30:00	86	5	282	18	625	45	45	2	110	5	139	3	0	0	0	0	0	0	26	0
15:45:00	98	12	294	12	662	37	47	2	113	3	141	2	0	0	0	0	0	0	26	0
16:00:00	111	13	323	29	700	38	47	0	128	15	166	25	0	0	0	0	0	0	27	1
16:15:00	128	17	338	15	763	63	49	2	135	7	169	3	0	0	0	0	0	0	31	4
16:30:00	135	7	350	12	822	59	52	3	139	4	172	3	0	0	0	0	0	0	31	0
16:45:00	145	10	367	17	914	92	54	2	142	3	173	1	0	0	0	0	0	0	33	2
17:00:00	157	12	383	16	984	70	58	4	148	6	177	4	0	0	0	0	0	0	34	1
17:15:00	181	24	395	12	1072	88	58	0	151	3	183	6	0	0	0	0	0	0	35	1
17:30:00	187	6	413	18	1134	62	59	1	152	1	187	4	0	0	0	0	0	0	35	0
17:45:00	199	12	423	10	1183	49	59	0	159	7	191	4	0	0	0	0	0	0	36	1
18:00:00	205	6	437	14	1209	26	61	2	160	1	191	0	0	0	0	0	0	0	36	0

TMC - Intersection Count Summary

Company name: Trans Plan Inc
Company address: 200 - 14200 Yonge Street,Toronto, Ontario, Canada
Company phone: 416-931-7383

Site: 01503318
Location: Steeles Avenue East at Parkhurst Square, Brampton
N/S Street: Parkhurst Square
E/W Street: Steeles Avenue East
GPS Coordinates: 43.726135, -79.665014
Date: 18 November 2014
Day of week: Tuesday
Analyst(s): Ivana Urrutia

VEHICLE TRAFFIC

Interval	SouthBound				WestBound				NorthBound				EastBound				Total
	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	
18/11/2014 07:00	1	0	3	4	0	274	6	280	0	0	0	0	9	501	0	510	794
18/11/2014 07:15	1	0	1	2	0	389	8	397	0	0	0	0	4	370	0	374	773
18/11/2014 07:30	1	0	4	5	0	407	4	411	0	0	0	0	4	442	0	446	862
18/11/2014 07:45	0	0	2	2	0	388	4	392	0	0	0	0	9	404	0	413	807
Hourly Total	3	0	10	13	0	1458	22	1480	0	0	0	0	26	1717	0	1743	3236
18/11/2014 08:00	1	0	1	2	0	343	1	344	0	0	0	0	6	430	0	436	782
18/11/2014 08:15	1	0	1	2	0	330	3	333	0	0	0	0	7	394	0	401	736
18/11/2014 08:30	0	0	4	4	0	347	11	358	0	0	0	0	6	377	0	383	745
18/11/2014 08:45	2	0	6	8	0	331	15	346	0	0	0	0	23	396	0	419	773
Hourly Total	4	0	12	16	0	1351	30	1381	0	0	0	0	42	1597	0	1639	3036
18/11/2014 09:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
18/11/2014 09:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Grand Total	7	0	22	29	0	2809	52	2861	0	0	0	0	69	3314	0	3383	6273
Approach %	24	0	76	100	0	98	2	100	0	0	0	0	2	98	0	100	-
Total %	0	0	0	0	0	45	1	46	0	0	0	0	1	53	0	54	-

AM Peak Hour 7:00 AM - 8:00 AM

Vehicle Total	3	0	10	13	0	1458	22	1480	0	0	0	0	26	1717	0	1743	3236
Car	2	0	4	6	0	1305	16	1321	0	0	0	0	24	1512	0	1536	2863
Truck	1	0	6	7	0	153	6	159	0	0	0	0	2	205	0	207	373
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Interval	SouthBound				WestBound				NorthBound				EastBound				Total
	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	
18/11/2014 11:00	3	0	7	10	0	257	4	261	0	0	0	0	18	251	0	269	540
18/11/2014 11:15	3	0	7	10	0	211	5	216	0	0	0	0	17	324	0	341	567
18/11/2014 11:30	5	0	13	18	0	274	3	277	0	0	0	0	9	284	0	293	588
18/11/2014 11:45	1	0	11	12	0	247	5	252	0	0	0	0	14	284	0	298	562
Hourly Total	12	0	38	50	0	989	17	1006	0	0	0	0	58	1143	0	1201	2257
18/11/2014 12:00	1	0	12	13	0	279	0	279	0	0	0	0	15	272	0	287	579
18/11/2014 12:15	2	0	10	12	0	265	3	268	0	0	0	0	18	289	0	307	587
18/11/2014 12:30	4	0	5	9	0	322	5	327	0	0	0	0	6	286	0	292	628
18/11/2014 12:45	5	0	8	13	0	267	10	277	0	0	0	0	18	291	0	309	599
Hourly Total	12	0	35	47	0	1133	18	1151	0	0	0	0	57	1138	0	1195	2393
18/11/2014 13:00	4	0	9	13	0	302	4	306	0	0	0	0	11	277	0	288	607
18/11/2014 13:15	8	0	5	13	0	253	2	255	0	0	0	0	13	301	0	314	582
18/11/2014 13:30	4	0	10	14	0	285	7	292	0	0	0	0	14	323	0	337	643
18/11/2014 13:45	5	0	5	10	0	257	11	268	0	0	0	0	7	295	0	302	580
Hourly Total	21	0	29	50	0	1097	24	1121	0	0	0	0	45	1196	0	1241	2412
18/11/2014 14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	45	0	102	147	0	3219	59	3278	0	0	0	0	160	3477	0	3637	7062
Approach %	31	0	69	100	0	98	2	100	0	0	0	0	4	96	0	100	-
Total %	1	0	1	2	0	46	1	47	0	0	0	0	2	49	0	51	-

Midday Peak Hour 12:45 PM - 1:45 PM

Vehicle Total	21	0	32	53	0	1107	23	1130	0	0	0	0	56	1192	0	1248	2431
Car	13	0	28	41	0	894	19	913	0	0	0	0	47	920	0	967	1921
Truck	8	0	4	12	0	213	4	217	0	0	0	0	9	272	0	281	510
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Interval	SouthBound				WestBound				NorthBound				EastBound				Total
	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	
18/11/2014 15:00	8	0	7	15	0	307	6	313	0	0	0	0	9	378	0	387	715
18/11/2014 15:15	3	0	9	12	0	382	6	388	0	0	0	0	12	427	0	439	839
18/11/2014 15:30	4	0	8	12	0	353	5	358	0	0	0	0	11	421	0	432	802
18/11/2014 15:45	12	0	8	20	0	331	3	334	0	0	0	0	15	426	0	441	795
Hourly Total	27	0	32	59	0	1373	20	1393	0	0	0	0	47	1652	0	1699	3151
18/11/2014 16:00	6	0	10	16	0	394	6	400	0	0	0	0	15	456	0	471	887
18/11/2014 16:15	3	0	12	15	0	412	6	418	0	0	0	0	16	412	0	428	861
18/11/2014 16:30	4	0	7	11	0	401	5	406	0	0	0	0	10	446	0	456	873
18/11/2014 16:45	5	0	15	20	0	423	6	429	0	0	0	0	12	470	0	482	931
Hourly Total	18	0	44	62	0	1630	23	1653	0	0	0	0	53	1784	0	1837	3552
18/11/2014 17:00	15	0	13	28	0	381	7	388	0	0	0	0	10	423	0	433	849
18/11/2014 17:15	4	0	11	15	0	419	6	425	0	0	0	0	9	456	0	465	905
18/11/2014 17:30	11	0	15	26	0	415	9	424	0	0	0	0	7	437	0	444	894
18/11/2014 17:45	2	0	4	6	0	341	5	346	0	0	0	0	9	369	0	378	730
Hourly Total	32	0	43	75	0	1556	27	1583	0	0	0	0	35	1685	0	1720	3378
18/11/2014 18:00	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
18/11/2014 18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
Grand Total	77	0	119	196	0	4560	70	4630	0	0	0	0	135	5122	0	5257	10083
Approach %	39	0	61	100	0	98	2	100	0	0	0	0	3	97	0	100	-
Total %	1	0	1	2	0	45	1	46	0	0	0	0	1	51	0	52	-

PM Peak Hour 4:45 PM - 5:45 PM

Vehicle Total	35	0	54	89	0	1638	28	1666	0	0	0	0	38	1786	0	1824	3579
Car	31	0	50	81	0	1436	24	1460	0	0	0	0	38	1574	0	1612	3153
Truck	4	0	4	8	0	202	4	206	0	0	0	0	0	212	0	212	426
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PEDESTRIAN CROSSING

	North East			North West			South West			South East			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
18/11/2014 07:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
18/11/2014 07:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0
18/11/2014 07:30:00	0	0	0	0	0	0	1	0	1	0	0	0	1
18/11/2014 07:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	1	0	1	0	0	0	1
18/11/2014 08:00:00	0	0	0	1	0	1	0	0	0	0	0	0	1
18/11/2014 08:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0
18/11/2014 08:30:00	0	0	0	0	0	0	1	0	1	0	0	0	1
18/11/2014 08:45:00	0	0	0	0	0	0	0	0	0	0	1	1	1
Hourly Total	0	0	0	1	0	1	1	0	1	0	1	1	3
18/11/2014 09:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
18/11/2014 09:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	1	0	1	2	0	2	0	1	1	4

AM Peak Hour 8:00 AM - 9:00 AM

Pedestrians	0	0	0	1	0	1	1	0	1	0	1	1	3

18/11/2014 11:00:00	0	0	0	0	0	0	0	1	1	0	1	1	2
18/11/2014 11:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0
18/11/2014 11:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0
18/11/2014 11:45:00	0	1	1	0	0	0	0	0	0	0	0	0	1
Hourly Total	0	1	1	0	0	0	0	1	1	0	1	1	3
18/11/2014 12:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
18/11/2014 12:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0
18/11/2014 12:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0
18/11/2014 12:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0
18/11/2014 13:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
18/11/2014 13:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0
18/11/2014 13:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0
18/11/2014 13:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0
18/11/2014 14:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	1	1	0	0	0	0	1	1	0	1	1	3

Midday Peak Hour 11:00 AM - 12:00 PM

Pedestrians	0	1	1	0	0	0	0	1	1	0	1	1	3

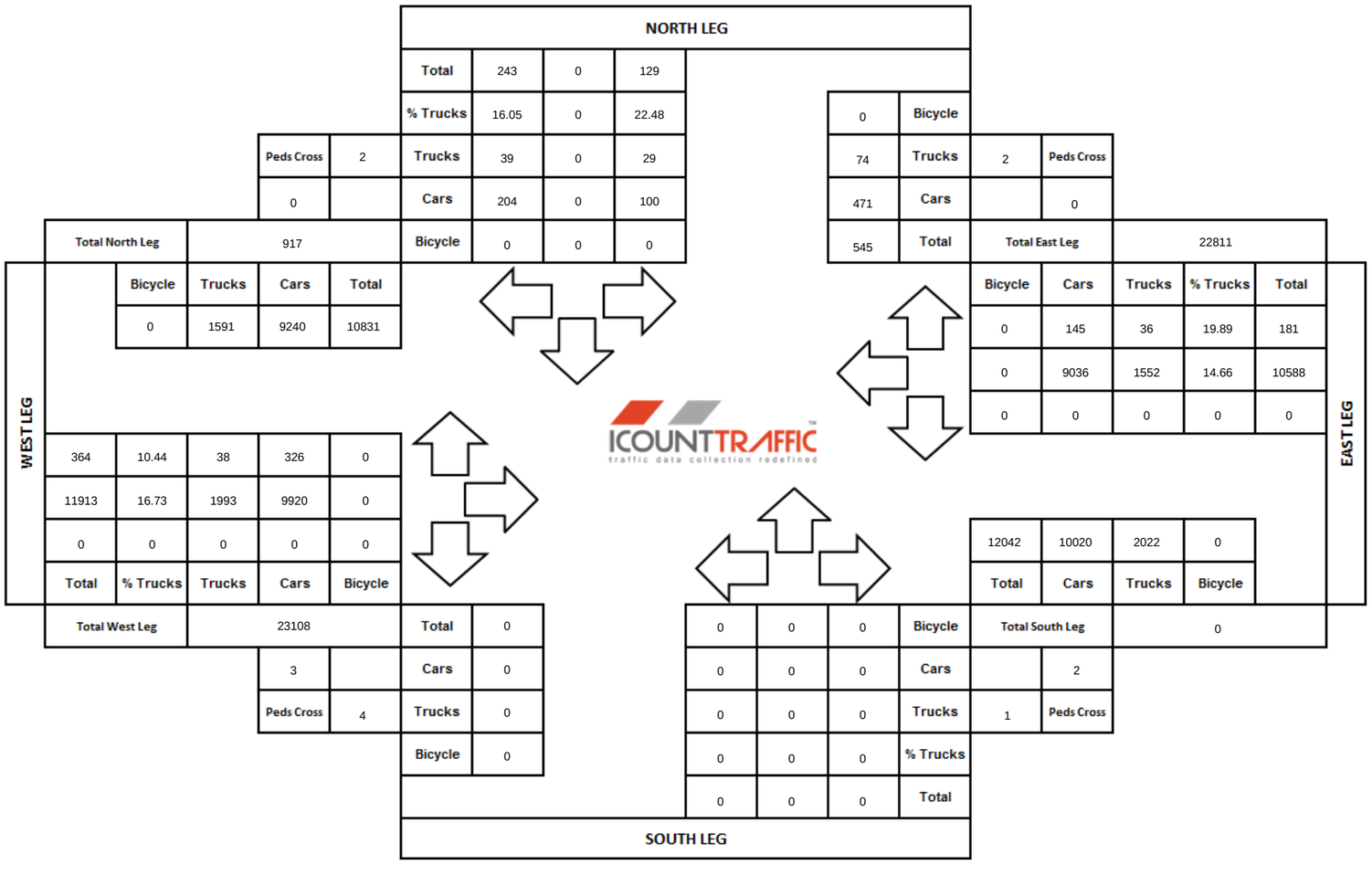
	North East			North West			South West			South East			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
18/11/2014 15:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
18/11/2014 15:15:00	0	0	0	0	0	0	0	1	1	0	0	0	1
18/11/2014 15:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0
18/11/2014 15:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	1	1	0	0	0	1
18/11/2014 16:00:00	0	1	1	0	0	0	0	1	1	0	0	0	2
18/11/2014 16:15:00	0	0	0	0	0	0	0	1	1	0	0	0	1
18/11/2014 16:30:00	0	0	0	0	0	0	0	0	0	1	0	1	1
18/11/2014 16:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	1	1	0	0	0	0	2	2	1	0	1	4
18/11/2014 17:00:00	0	0	0	0	0	0	1	0	1	0	0	0	1
18/11/2014 17:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0
18/11/2014 17:30:00	0	0	0	1	0	1	0	0	0	0	0	0	1
18/11/2014 17:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	1	0	1	1	0	1	0	0	0	2
18/11/2014 18:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	1	1	1	0	1	1	3	4	1	0	1	7

PM Peak Hour 3:45 PM - 4:45 PM

Pedestrians	0	1	1	0	0	0	0	2	2	1	0	1	4

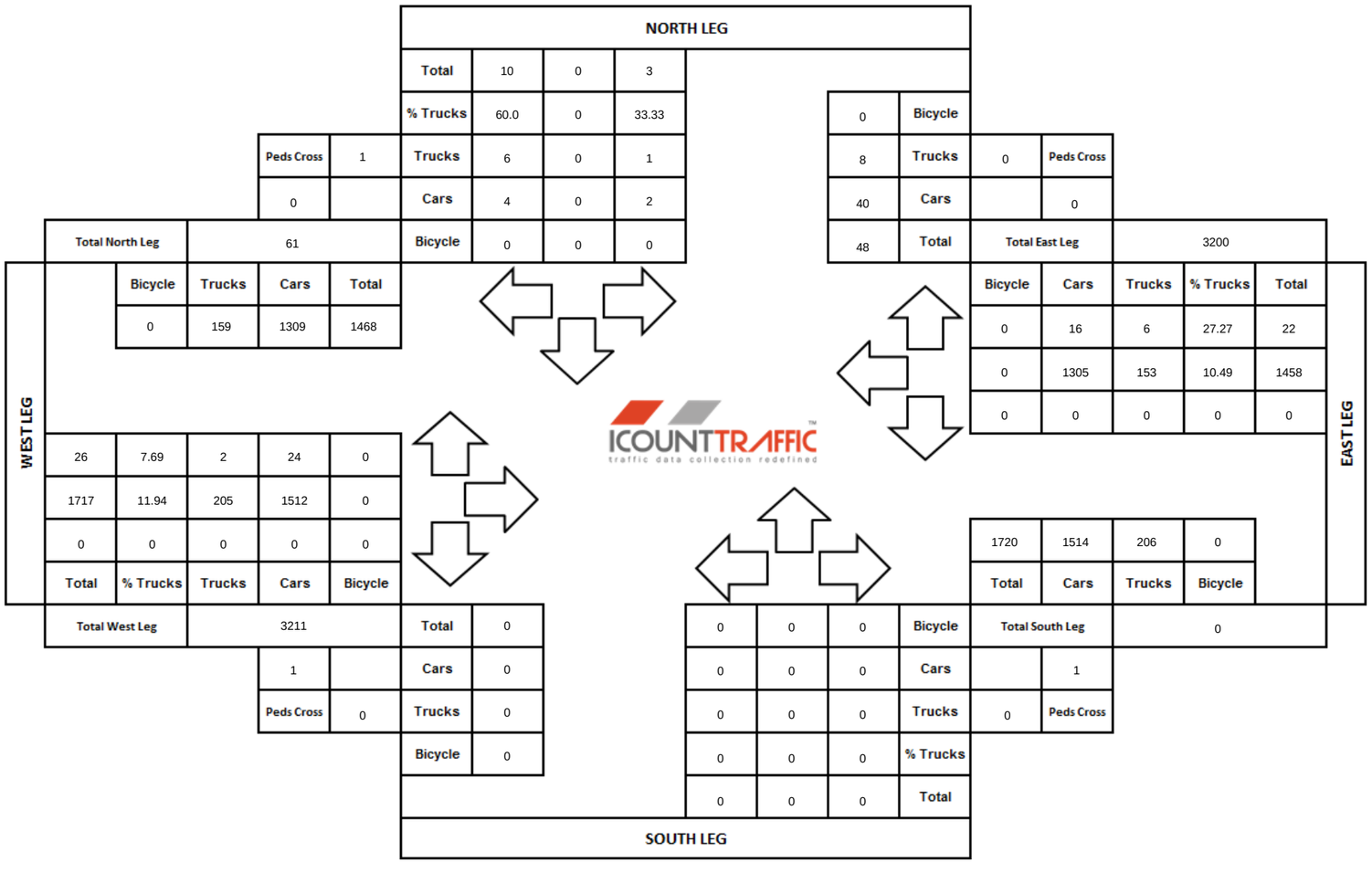
TOTAL TMC COUNT DIAGRAM

City:	**Brampton**	**Weather:**	**Partly Cloudy**
North/South Street:	**Parkhurst Square**	**Count Date:**	**18/11/2014**
East/West Street:	**Steeles Avenue East**	**Count Period:**	**AM, Noon, PM**
GPS Coordinates:	**43.726135, -79.665014**	**Peak Period:**	**7:00 AM - 8:00 AM, 12:45 PM - 1:45 PM, 4:45 PM - 5:45 PM**
Site Number:	**01503318**	**Major Road:**	**Steeles Avenue East**
Control:	**Signalized**	**Surveyor:**	**Ivana Urrutia**



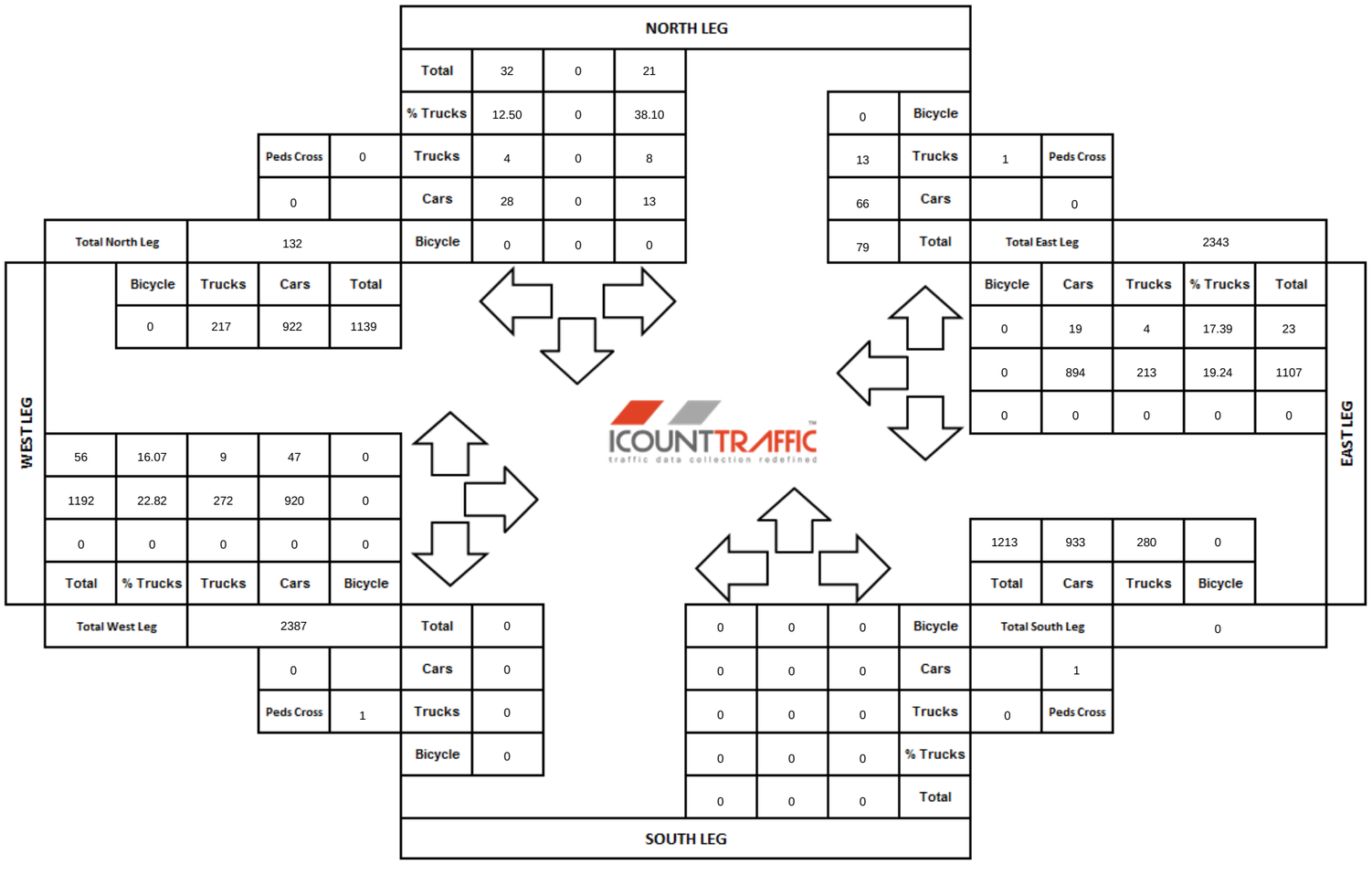
AM Peak Hour Count Diagram

City:	**Brampton**	**Weather:**	**Partly Cloudy**
North/South Street:	**Parkhurst Square**	**Count Date:**	**18/11/2014**
East/West Street:	**Steeles Avenue East**	**Count Period:**	**AM**
GPS Coordinates:	**43.726135, -79.665014**	**Peak Period:**	**7:00 AM - 8:00 AM**
Site Number:	**01503318**	**Major Road:**	**Steeles Avenue East**
Control:	**Signalized**	**Surveyor:**	**Ivana Urrutia**



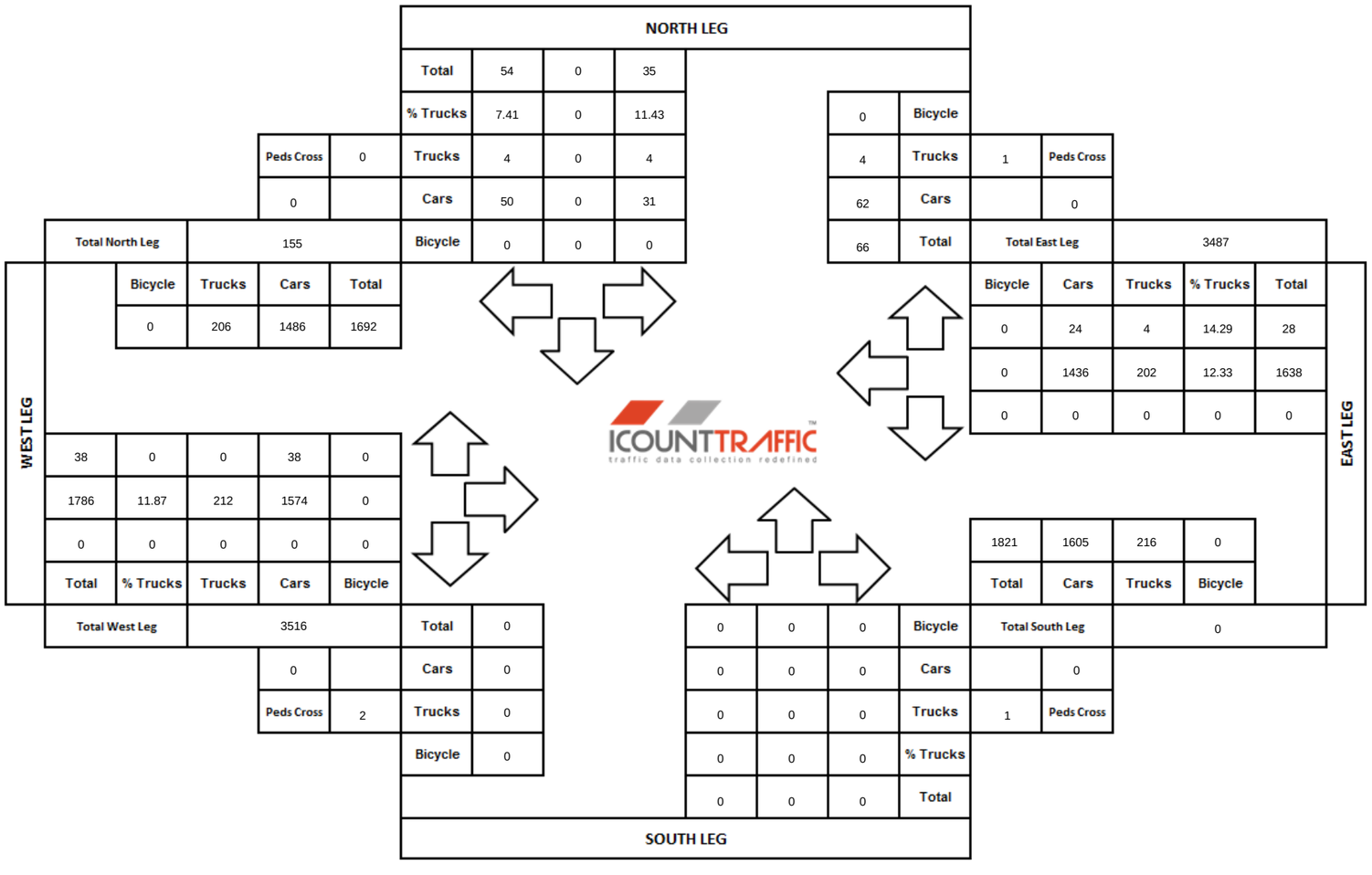
Noon Peak Hour Count Diagram

City:	**Brampton**	**Weather:**	**Partly Cloudy**
North/South Street:	**Parkhurst Square**	**Count Date:**	**18/11/2014**
East/West Street:	**Steeles Avenue East**	**Count Period:**	**Noon**
GPS Coordinates:	**43.726135, -79.665014**	**Peak Period:**	**12:45 PM - 1:45 PM**
Site Number:	**01503318**	**Major Road:**	**Steeles Avenue East**
Control:	**Signalized**	**Surveyor:**	**Ivana Urrutia**



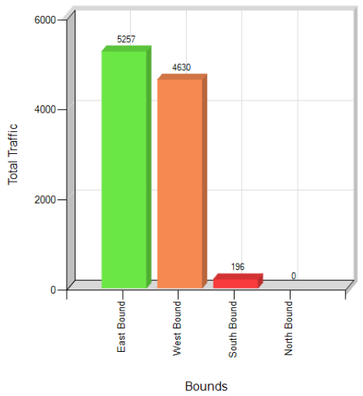
PM Peak Hour Count Diagram

City:	**Brampton**	**Weather:**	**Partly Cloudy**
North/South Street:	**Parkhurst Square**	**Count Date:**	**18/11/2014**
East/West Street:	**Steeles Avenue East**	**Count Period:**	**PM**
GPS Coordinates:	**43.726135, -79.665014**	**Peak Period:**	**4:45 PM - 5:45 PM**
Site Number:	**01503318**	**Major Road:**	**Steeles Avenue East**
Control:	**Signalized**	**Surveyor:**	**Ivana Urrutia**

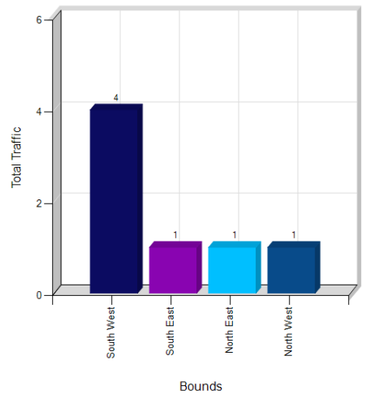


TMC chart data

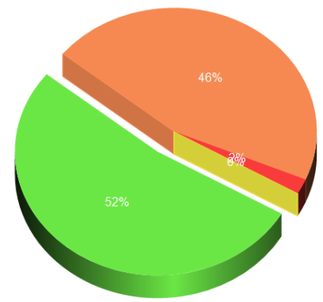
Total Traffic



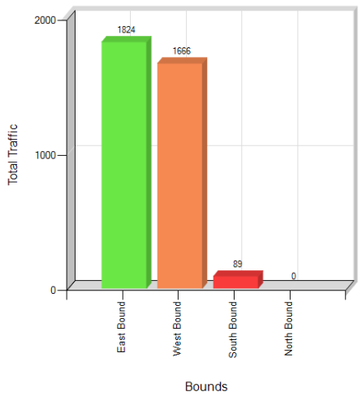
Total Pedestrians



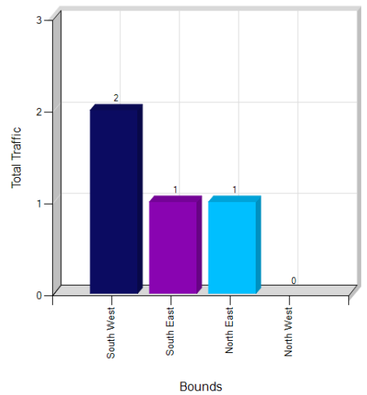
Total Approach



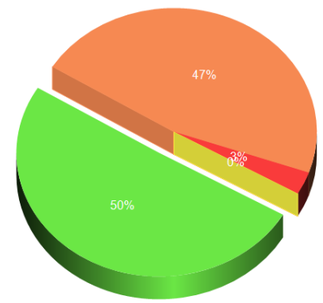
Total Traffic at Peak Hour



Total Pedestrians at Peak Hour



Total Approach at Peak Hour



	SouthBound		NorthEast
	WestBound		NorthWest
	NorthBound		SouthWest
	EastBound		SouthEast

NOTES & IMAGES

TMC - Intersection Count Summary

Company name: Trans-Plan Inc
Company address: 200-1920 Yonge Street,Toronto, Ontario, Canada
Company phone: 647-931-7383

Site: 01503992
Location: Steeles Avenue East at Pearson Convention Centre Entrance, Brampton
N/S Street: Pearson Convention Centre Entrance
E/W Street: Steeles Avenue East
GPS Coordinates: 43.717718, -79.668200
Date: 19 November 2014
Day of week: Wednesday
Analyst(s): Ivana Urrutia

VEHICLE TRAFFIC

Interval	SouthBound				WestBound				NorthBound				EastBound				Total
	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	
19/11/2014 07:00	4	0	7	11	0	292	5	297	0	0	0	0	3	410	0	413	721
19/11/2014 07:15	3	0	5	8	0	348	3	351	0	0	0	0	0	400	0	400	759
19/11/2014 07:30	4	0	8	12	0	369	2	371	0	0	0	0	4	427	0	431	814
19/11/2014 07:45	9	0	6	15	0	367	5	372	0	0	0	0	0	426	0	426	813
Hourly Total	20	0	26	46	0	1376	15	1391	0	0	0	0	7	1663	0	1670	3107
19/11/2014 08:00	3	0	5	8	0	314	3	317	0	0	0	0	4	390	0	394	719
19/11/2014 08:15	7	0	3	10	0	276	3	279	0	0	0	0	1	373	0	374	663
19/11/2014 08:30	7	0	7	14	0	324	3	327	0	0	0	0	1	380	0	381	722
19/11/2014 08:45	3	0	5	8	0	310	7	317	0	0	0	0	7	362	0	369	694
Hourly Total	20	0	20	40	0	1224	16	1240	0	0	0	0	13	1505	0	1518	2798
19/11/2014 09:00	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
19/11/2014 09:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
Grand Total	40	0	46	86	0	2602	31	2633	0	0	0	0	20	3168	0	3188	5907
Approach %	47	0	53	100	0	99	1	100	0	0	0	0	1	99	0	100	-
Total %	1	0	1	2	0	44	1	45	0	0	0	0	0	54	0	54	-

AM Peak Hour 7:00 AM - 8:00 AM

Vehicle Total	20	0	26	46	0	1376	15	1391	0	0	0	0	7	1663	0	1670	3107
Car	20	0	26	46	0	1164	15	1179	0	0	0	0	7	1424	0	1431	2656
Truck	0	0	0	0	0	212	0	212	0	0	0	0	0	239	0	239	451
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Interval	SouthBound				WestBound				NorthBound				EastBound				Total
	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	
19/11/2014 11:00	0	0	1	1	0	300	1	301	0	0	0	0	3	264	0	267	569
19/11/2014 11:15	2	0	3	5	0	266	0	266	0	0	0	0	2	351	0	353	624
19/11/2014 11:30	1	0	2	3	0	327	2	329	0	0	0	0	1	292	0	293	625
19/11/2014 11:45	0	0	0	0	0	274	2	276	0	0	0	0	0	271	0	271	547
Hourly Total	3	0	6	9	0	1167	5	1172	0	0	0	0	6	1178	0	1184	2365
19/11/2014 12:00	3	0	2	5	0	314	5	319	0	0	0	0	3	341	0	344	668
19/11/2014 12:15	6	0	2	8	0	250	3	253	0	0	0	0	0	316	0	316	577
19/11/2014 12:30	1	0	3	4	0	312	1	313	0	0	0	0	1	337	0	338	655
19/11/2014 12:45	0	0	3	3	0	272	6	278	0	0	0	0	1	318	0	319	600
Hourly Total	10	0	10	20	0	1148	15	1163	0	0	0	0	5	1312	0	1317	2500
19/11/2014 13:00	4	0	1	5	0	327	7	334	0	0	0	0	4	321	0	325	664
19/11/2014 13:15	5	0	6	11	0	292	6	298	0	0	0	0	5	292	0	297	606
19/11/2014 13:30	2	0	4	6	0	318	5	323	0	0	0	0	4	339	0	343	672
19/11/2014 13:45	2	0	1	3	0	282	11	293	0	0	0	0	7	311	0	318	614
Hourly Total	13	0	12	25	0	1219	29	1248	0	0	0	0	20	1263	0	1283	2556
19/11/2014 14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	26	0	28	54	0	3534	49	3583	0	0	0	0	31	3753	0	3784	7421
Approach %	48	0	52	100	0	99	1	100	0	0	0	0	1	99	0	100	-
Total %	0	0	0	0	0	48	1	49	0	0	0	0	0	51	0	51	-

Midday Peak Hour 1:00 PM - 2:00 PM

Vehicle Total	13	0	12	25	0	1219	29	1248	0	0	0	0	20	1263	0	1283	2556
Car	12	0	11	23	0	968	29	997	0	0	0	0	18	997	0	1015	2035
Truck	1	0	1	2	0	251	0	251	0	0	0	0	2	266	0	268	521
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Interval	SouthBound				WestBound				NorthBound				EastBound				Total
	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	
19/11/2014 15:00	4	0	6	10	0	313	7	320	0	0	0	0	7	381	0	388	718
19/11/2014 15:15	2	0	4	6	0	338	5	343	0	0	0	0	6	438	0	444	793
19/11/2014 15:30	5	0	5	10	0	376	13	389	0	0	0	0	12	401	0	413	812
19/11/2014 15:45	6	0	0	6	0	385	23	408	0	0	0	0	14	398	0	412	826
Hourly Total	17	0	15	32	0	1412	48	1460	0	0	0	0	39	1618	0	1657	3149
19/11/2014 16:00	0	0	2	2	0	362	14	376	0	0	0	0	12	415	0	427	805
19/11/2014 16:15	1	0	6	7	0	337	26	363	0	0	0	0	14	374	0	388	758
19/11/2014 16:30	3	0	2	5	0	302	10	312	0	0	0	0	7	340	0	347	664
19/11/2014 16:45	0	0	5	5	0	313	24	337	0	0	0	0	11	368	0	379	721
Hourly Total	4	0	15	19	0	1314	74	1388	0	0	0	0	44	1497	0	1541	2948
19/11/2014 17:00	5	0	2	7	0	274	26	300	0	0	0	0	14	331	0	345	652
19/11/2014 17:15	2	0	3	5	0	300	34	334	0	0	0	0	15	337	0	352	691
19/11/2014 17:30	4	0	4	8	0	287	24	311	0	0	0	0	13	297	0	310	629
19/11/2014 17:45	6	0	0	6	0	291	15	306	0	0	0	0	8	289	0	297	609
Hourly Total	17	0	9	26	0	1152	99	1251	0	0	0	0	50	1254	0	1304	2581
19/11/2014 18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	38	0	39	77	0	3878	221	4099	0	0	0	0	133	4369	0	4502	8678
Approach %	49	0	51	100	0	95	5	100	0	0	0	0	3	97	0	100	-
Total %	0	0	0	0	0	45	3	48	0	0	0	0	2	50	0	52	-

PM Peak Hour 3:15 PM - 4:15 PM

Vehicle Total	13	0	11	24	0	1461	55	1516	0	0	0	0	44	1652	0	1696	3236
Car	12	0	9	21	0	1253	55	1308	0	0	0	0	44	1409	0	1453	2782
Truck	1	0	2	3	0	208	0	208	0	0	0	0	0	243	0	243	454
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PEDESTRIAN CROSSING

	North East			North West			South West			South East			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
19/11/2014 07:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
19/11/2014 07:15:00	0	1	1	0	0	0	0	0	0	0	0	0	1
19/11/2014 07:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0
19/11/2014 07:45:00	0	0	0	1	0	1	0	0	0	0	0	0	1
Hourly Total	0	1	1	1	0	1	0	0	0	0	0	0	2
19/11/2014 08:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
19/11/2014 08:15:00	0	0	0	0	0	0	1	0	1	0	0	0	1
19/11/2014 08:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0
19/11/2014 08:45:00	0	0	0	0	0	0	0	1	1	0	0	0	1
Hourly Total	0	0	0	0	0	0	1	1	2	0	0	0	2
19/11/2014 09:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
19/11/2014 09:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	1	1	1	0	1	1	1	2	0	0	0	4

AM Peak Hour 7:00 AM - 8:00 AM

Pedestrians	0	1	1	1	0	1	0	0	0	0	0	0	2

19/11/2014 11:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
19/11/2014 11:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0
19/11/2014 11:30:00	0	0	0	0	0	0	1	0	1	0	0	0	1
19/11/2014 11:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	1	0	1	0	0	0	1
19/11/2014 12:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
19/11/2014 12:15:00	0	0	0	0	0	0	0	1	1	0	0	0	1
19/11/2014 12:30:00	0	0	0	1	0	1	0	0	0	0	0	0	1
19/11/2014 12:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	1	0	1	0	1	1	0	0	0	2
19/11/2014 13:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
19/11/2014 13:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0
19/11/2014 13:30:00	0	2	2	0	0	0	0	0	0	0	0	0	2
19/11/2014 13:45:00	0	1	1	0	0	0	0	0	0	0	0	0	1
Hourly Total	0	3	3	0	0	0	0	0	0	0	0	0	3
19/11/2014 14:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	3	3	1	0	1	1	1	2	0	0	0	6

Midday Peak Hour 1:00 PM - 2:00 PM

Pedestrians	0	3	3	0	0	0	0	0	0	0	0	0	3

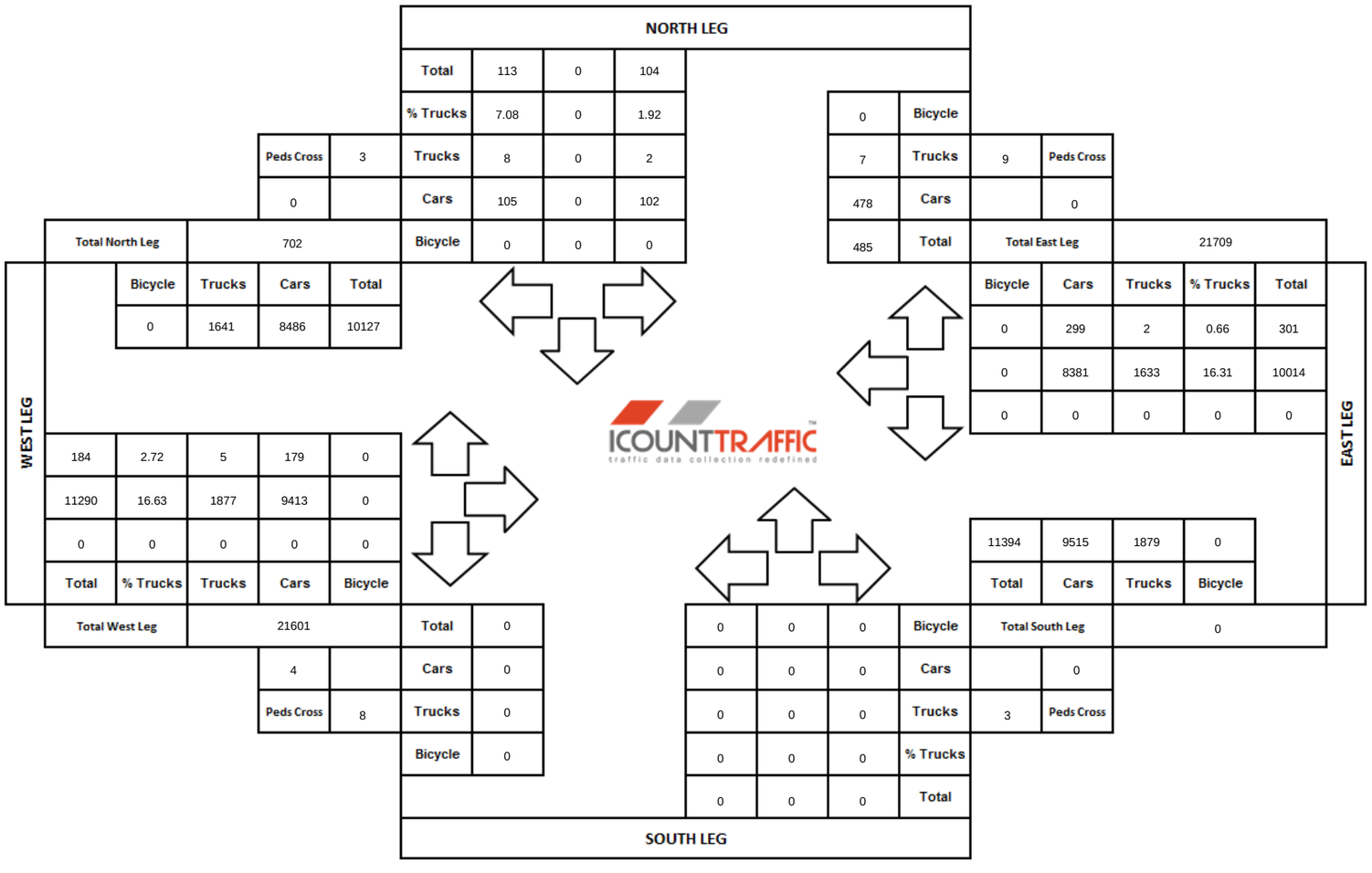
	North East			North West			South West			South East			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
19/11/2014 15:00:00	0	1	1	0	0	0	0	0	0	0	0	0	1
19/11/2014 15:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0
19/11/2014 15:30:00	0	0	0	0	0	0	0	0	0	1	0	1	1
19/11/2014 15:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	1	1	0	0	0	0	0	0	1	0	1	2
19/11/2014 16:00:00	0	0	0	0	0	0	0	1	1	0	0	0	1
19/11/2014 16:15:00	0	1	1	0	0	0	0	0	0	0	0	0	1
19/11/2014 16:30:00	0	1	1	0	0	0	1	2	3	1	0	1	5
19/11/2014 16:45:00	0	1	1	0	0	0	0	0	0	0	0	0	1
Hourly Total	0	3	3	0	0	0	1	3	4	1	0	1	8
19/11/2014 17:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
19/11/2014 17:15:00	0	1	1	1	0	1	1	2	3	1	0	1	6
19/11/2014 17:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0
19/11/2014 17:45:00	0	0	0	0	0	0	0	1	1	0	0	0	1
Hourly Total	0	1	1	1	0	1	1	3	4	1	0	1	7
19/11/2014 18:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	5	5	1	0	1	2	6	8	3	0	3	17

PM Peak Hour 4:30 PM - 5:30 PM

Pedestrians	0	3	3	1	0	1	2	4	6	2	0	2	12

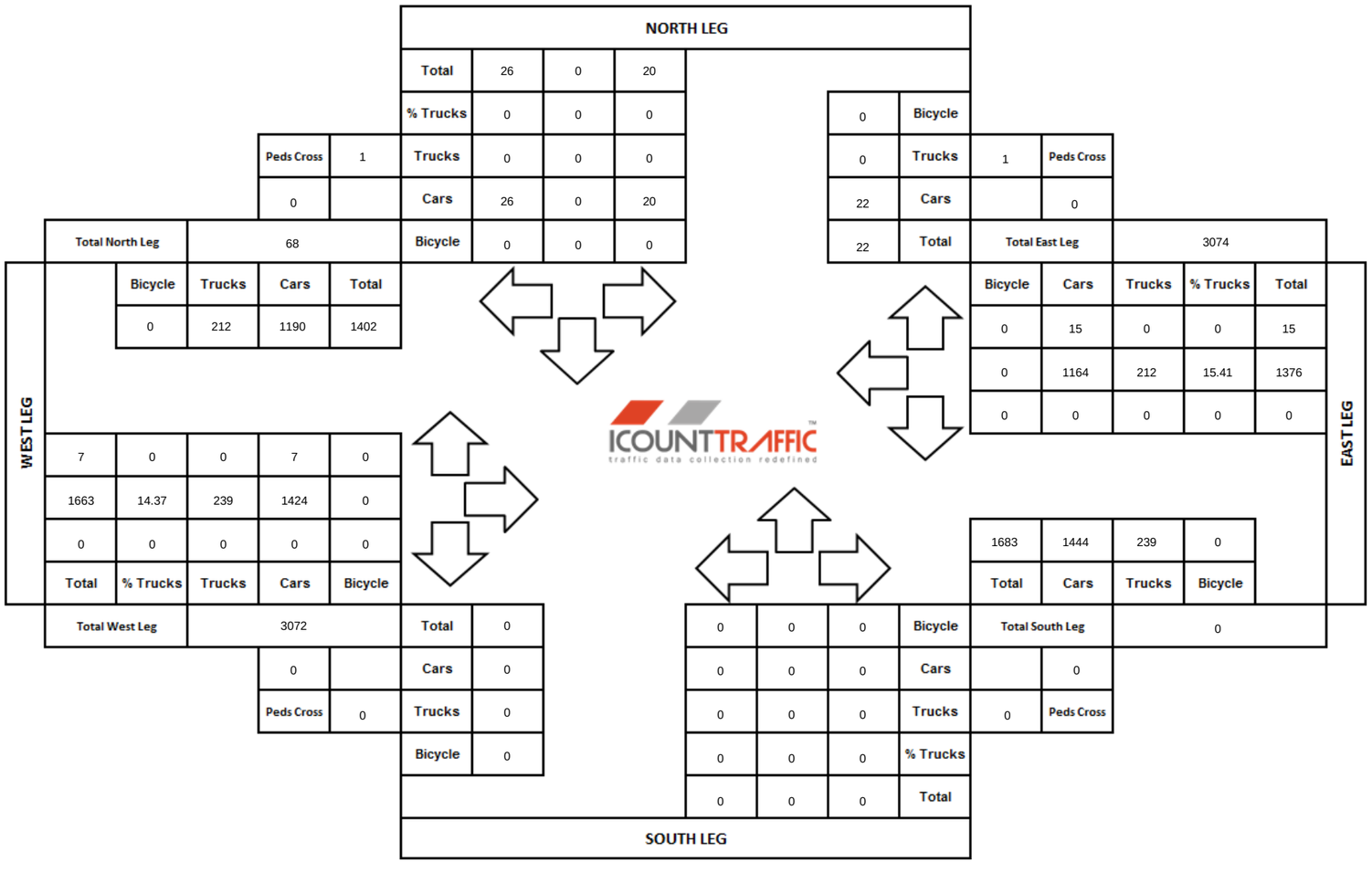
TOTAL TMC COUNT DIAGRAM

City:	**Brampton**	**Weather:**	**Clear**
North/South Street:	**Pearson Convention Centre Entrance**	**Count Date:**	**19/11/2014**
East/West Street:	**Steeles Avenue East**	**Count Period:**	**AM, Noon, PM**
GPS Coordinates:	**43.717718, -79.668200**	**Peak Period:**	**7:00 AM - 8:00 AM, 1:00 PM - 2:00 PM, 3:15 PM - 4:15 PM**
Site Number:	**01503992**	**Major Road:**	**Steeles Avenue East**
Control:	**Signalized**	**Surveyor:**	**Ivana Urrutia**



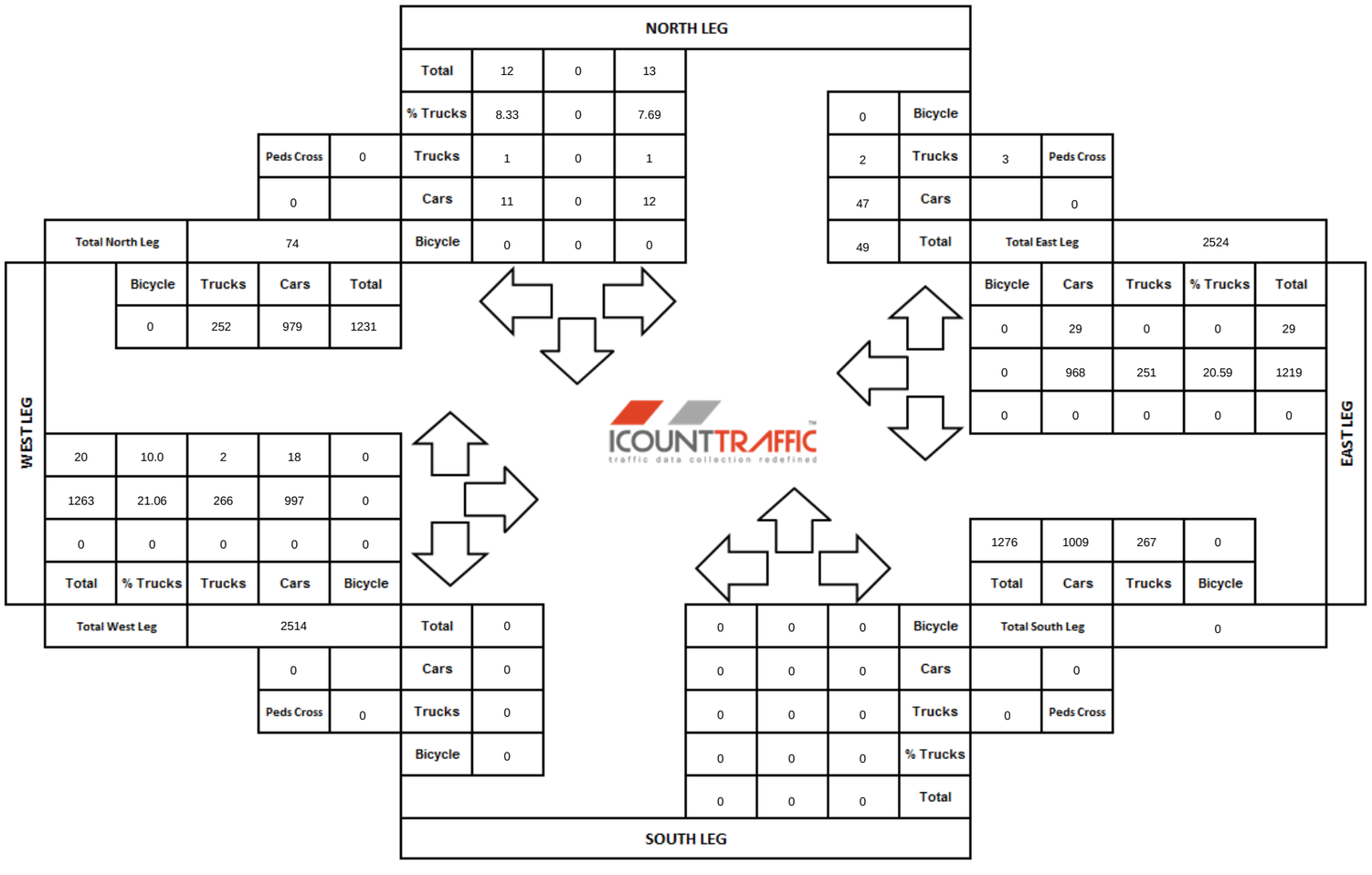
AM Peak Hour Count Diagram

City:	**Brampton**	**Weather:**	**Clear**
North/South Street:	**Pearson Convention Centre Entrance**	**Count Date:**	**19/11/2014**
East/West Street:	**Steeles Avenue East**	**Count Period:**	**AM**
GPS Coordinates:	**43.717718, -79.668200**	**Peak Period:**	**7:00 AM - 8:00 AM**
Site Number:	**01503992**	**Major Road:**	**Steeles Avenue East**
Control:	**Signalized**	**Surveyor:**	**Ivana Urrutia**



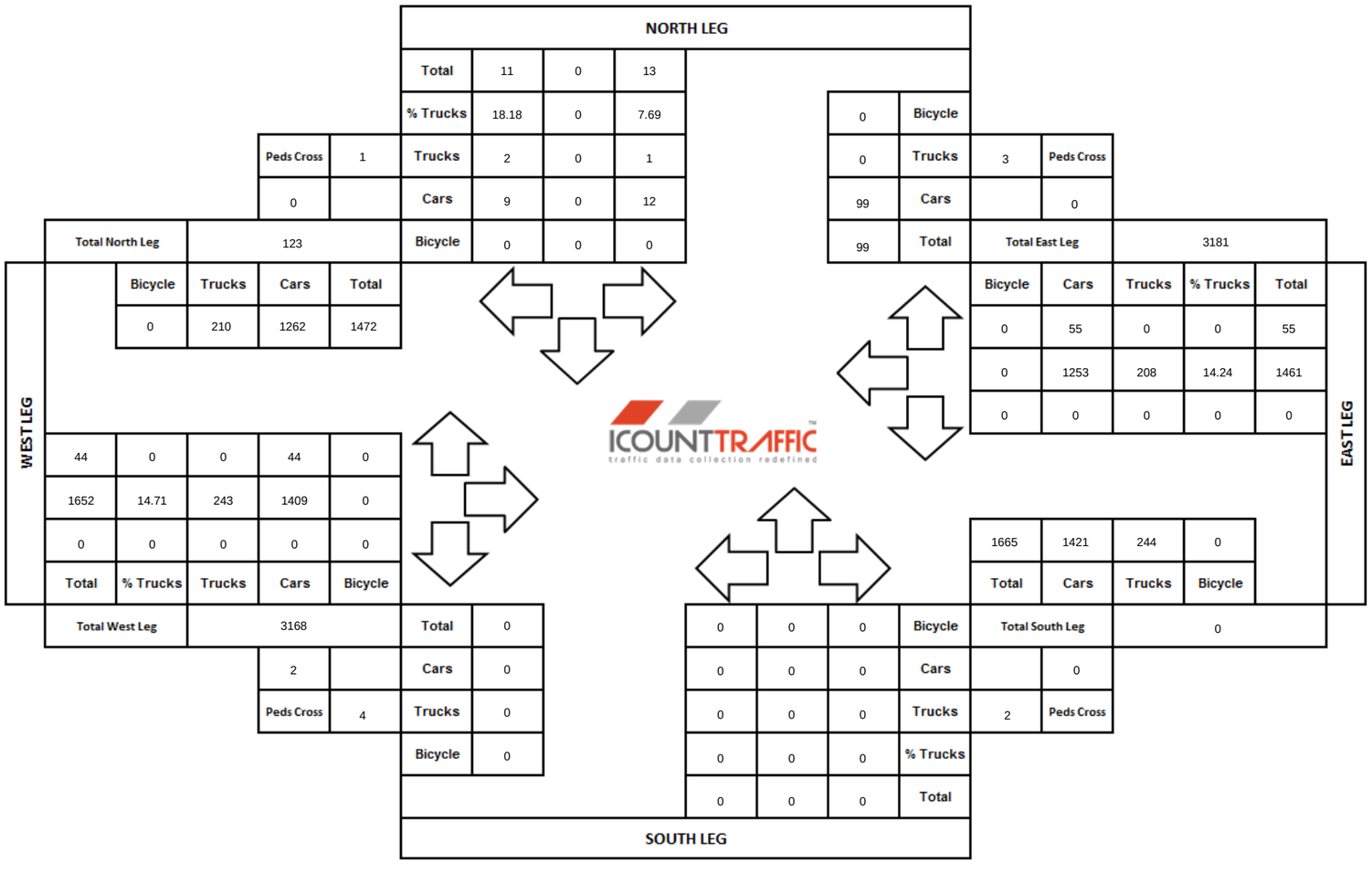
Noon Peak Hour Count Diagram

City:	**Brampton**	**Weather:**	**Clear**
North/South Street:	**Pearson Convention Centre Entrance**	**Count Date:**	**19/11/2014**
East/West Street:	**Steeles Avenue East**	**Count Period:**	**Noon**
GPS Coordinates:	**43.717718, -79.668200**	**Peak Period:**	**1:00 PM - 2:00 PM**
Site Number:	**01503992**	**Major Road:**	**Steeles Avenue East**
Control:	**Signalized**	**Surveyor:**	**Ivana Urrutia**



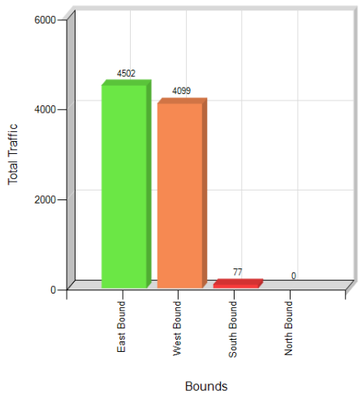
PM Peak Hour Count Diagram

City:	**Brampton**	**Weather:**	**Clear**
North/South Street:	**Pearson Convention Centre Entrance**	**Count Date:**	**19/11/2014**
East/West Street:	**Steeles Avenue East**	**Count Period:**	**PM**
GPS Coordinates:	**43.717718, -79.668200**	**Peak Period:**	**3:15 PM - 4:15 PM**
Site Number:	**01503992**	**Major Road:**	**Steeles Avenue East**
Control:	**Signalized**	**Surveyor:**	**Ivana Urrutia**

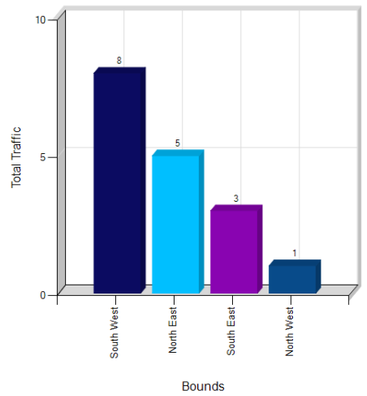


TMC chart data

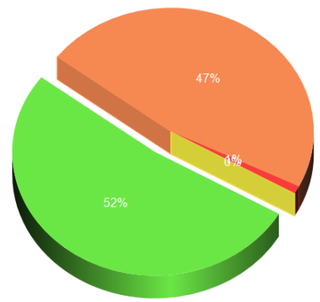
Total Traffic



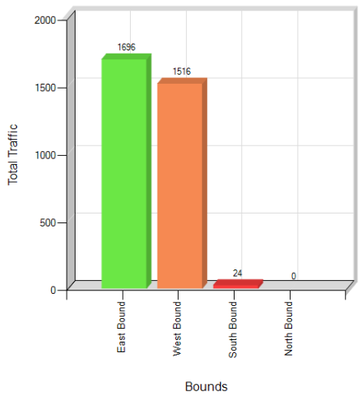
Total Pedestrians



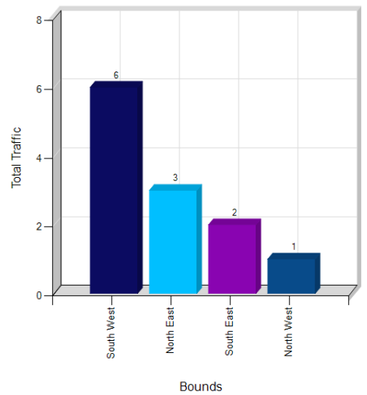
Total Approach



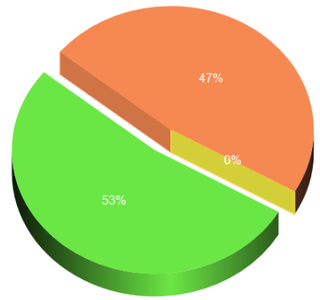
Total Traffic at Peak Hour

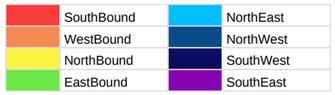


Total Pedestrians at Peak Hour



Total Approach at Peak Hour





NOTES & IMAGES

Spectrum

Turning Movement Count
Location Name: STEELES AVE & TORBRAM RD
Date: Wed, May 11, 2016 Deployment Lead: Chris Koukaras

Peel Region
10 Peel Centre Drive
Suite B - 4th Floor
Brampton ON, Canada, L6T 4B9

Turning Movement Count (6 . STEELES AVE & TORBRAM RD) CustID: 01505114 MioID: 314599

Start Time	Southbound TORBRAM RD						Westbound STEELES AVE E						Northbound TORBRAM RD						Eastbound STEELES AVE E						Int. Total (15 min)	Int. Total (1 hr)
	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total		
07:00:00	114	95	85	0	3	294	19	221	57	0	8	297	12	37	29	0	9	78	54	237	14	0	8	305	974	
07:15:00	106	104	88	0	2	298	20	227	64	0	1	311	23	28	21	0	12	72	54	298	21	0	4	373	1054	
07:30:00	135	146	107	0	4	388	23	254	63	0	6	340	19	28	32	0	11	79	59	299	15	1	5	374	1181	
07:45:00	103	152	82	0	3	337	24	242	92	0	0	358	24	45	26	0	9	95	52	290	16	0	6	358	1148	4357
08:00:00	95	148	67	0	0	310	25	287	78	0	5	390	30	34	23	0	7	87	42	273	16	0	5	331	1118	4501
08:15:00	117	102	73	0	3	292	34	201	79	0	2	314	29	36	22	0	3	87	67	253	31	0	0	351	1044	4491
08:30:00	82	97	79	0	0	258	26	275	63	0	1	364	20	41	20	0	12	81	56	258	20	0	4	334	1037	4347
08:45:00	93	139	81	0	2	313	29	235	73	0	2	337	33	39	28	0	11	100	56	278	31	1	7	366	1116	4315
BREAK																										
11:00:00	49	48	55	0	2	152	22	207	44	0	2	273	38	34	25	0	2	97	61	247	21	0	0	329	851	
11:15:00	47	50	51	0	2	148	29	216	38	0	2	283	36	37	36	0	12	109	67	213	23	0	7	303	843	
11:30:00	38	61	58	0	2	157	18	175	39	0	2	232	29	52	28	0	2	109	51	239	33	0	3	323	821	
11:45:00	39	62	66	0	1	167	22	243	44	0	3	309	40	45	30	0	3	115	62	217	44	0	3	323	914	3429
12:00:00	36	75	91	0	8	202	35	215	39	0	6	289	45	66	34	0	9	145	67	254	26	1	4	348	984	3562
12:15:00	52	83	60	0	5	195	24	221	64	0	8	309	42	91	25	0	2	158	62	242	27	1	5	332	994	3713
12:30:00	52	53	62	0	5	167	33	237	45	0	6	315	45	59	31	0	10	135	58	233	33	0	13	324	941	3833
12:45:00	34	50	64	0	3	148	26	217	41	0	1	284	35	67	43	0	7	145	63	241	34	2	9	340	917	3836
13:00:00	55	60	52	0	2	167	17	218	65	1	2	301	47	63	44	0	7	154	58	232	32	1	2	323	945	3797
13:15:00	34	46	54	0	4	134	26	258	56	0	1	340	41	44	38	0	7	123	78	266	44	0	5	388	985	3788
13:30:00	47	47	62	0	2	156	28	227	72	1	6	328	34	52	33	0	16	119	81	257	29	0	7	367	970	3817
13:45:00	60	58	59	0	5	177	20	212	74	0	7	306	44	62	30	0	18	136	50	234	46	0	16	330	949	3849
BREAK																										
15:00:00	52	77	72	0	8	201	29	291	66	1	9	387	34	87	41	0	14	162	80	294	39	0	13	413	1163	
15:15:00	56	66	78	0	11	200	29	269	93	0	14	391	44	99	48	0	10	191	74	286	45	1	4	406	1188	
15:30:00	75	65	75	0	7	215	23	275	89	0	6	387	48	147	55	0	9	250	74	321	29	0	16	424	1276	
15:45:00	67	67	65	0	10	199	25	318	105	0	5	448	26	103	32	0	9	161	98	326	27	0	4	451	1259	4886
16:00:00	75	42	58	0	13	175	28	227	98	0	7	353	42	136	29	0	6	207	72	279	29	0	5	380	1115	4838
16:15:00	66	45	45	0	10	156	20	287	82	0	6	389	46	99	28	0	17	173	87	358	37	0	12	482	1200	4850
16:30:00	75	54	72	0	11	201	14	293	109	0	8	416	41	150	44	0	14	235	91	354	21	0	7	466	1318	4892
16:45:00	72	58	71	0	4	201	12	290	87	0	7	389	37	182	37	0	10	256	77	304	25	0	6	406	1252	4885
17:00:00	91	44	73	0	13	208	23	312	90	0	8	425	53	190	41	0	13	284	84	325	16	0	7	425	1342	5112
17:15:00	68	46	59	0	10	173	17	298	100	1	2	416	45	228	47	0	9	320	91	389	27	0	9	507	1416	5328

17:30:00	65	58	44	0	4	167	20	274	108	0	6	402	40	182	37	0	7	259	76	322	21	0	6	419	1247	5257
17:45:00	54	41	41	0	9	136	10	306	88	0	11	404	39	148	39	0	6	226	109	332	23	0	3	464	1230	5235
Grand Total	2204	2339	2149	0	168	6692	750	8028	2305	4	160	11087	1161	2711	1076	0	293	4948	2211	8951	895	8	205	12065	**34792**	-
Approach%	32.9%	35%	32.1%	0%		-	6.8%	72.4%	20.8%	0%		-	23.5%	54.8%	21.7%	0%		-	18.3%	74.2%	7.4%	0.1%		-	**-**	-
Totals %	6.3%	6.7%	6.2%	0%		19.2%	2.2%	23.1%	6.6%	0%		31.9%	3.3%	7.8%	3.1%	0%		14.2%	6.4%	25.7%	2.6%	0%		34.7%	**-**	-
Heavy	177	260	355	0		-	277	1624	181	0		-	173	324	321	0		-	379	1715	165	1		-	**-**	-
Heavy %	8%	11.1%	16.5%	0%		-	36.9%	20.2%	7.9%	0%		-	14.9%	12%	29.8%	0%		-	17.1%	19.2%	18.4%	12.5%		-	**-**	-
Bicycles	0	1	0	0		-	0	1	0	0		-	0	0	0	0		-	0	2	1	0		-	**-**	-
Bicycle %	0%	0%	0%	0%		-	0%	0%	0%	0%		-	0%	0%	0%	0%		-	0%	0%	0.1%	0%		-	**-**	-

Peak Hour: 07:15 AM - 08:15 AM Weather: Scattered Clouds (11 °C)

Start Time	Southbound TORBRAM RD						Westbound STEELES AVE E						Northbound TORBRAM RD						Eastbound STEELES AVE E						Int. Total (15 min)
	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	
07:15:00	106	104	88	0	2	298	20	227	64	0	1	311	23	28	21	0	12	72	54	298	21	0	4	373	1054
07:30:00	135	146	107	0	4	388	23	254	63	0	6	340	19	28	32	0	11	79	59	299	15	1	5	374	1181
07:45:00	103	152	82	0	3	337	24	242	92	0	0	358	24	45	26	0	9	95	52	290	16	0	6	358	1148
08:00:00	95	148	67	0	0	310	25	287	78	0	5	390	30	34	23	0	7	87	42	273	16	0	5	331	1118
Grand Total	439	550	344	0	9	1333	92	1010	297	0	12	1399	96	135	102	0	39	333	207	1160	68	1	20	1436	**4501**
Approach%	32.9%	41.3%	25.8%	0%		-	6.6%	72.2%	21.2%	0%		-	28.8%	40.5%	30.6%	0%		-	14.4%	80.8%	4.7%	0.1%		-	**-**
Totals %	9.8%	12.2%	7.6%	0%		29.6%	2%	22.4%	6.6%	0%		31.1%	2.1%	3%	2.3%	0%		7.4%	4.6%	25.8%	1.5%	0%		31.9%	**-**
PHF	0.81	0.9	0.8	0		0.86	0.92	0.88	0.81	0		0.9	0.8	0.75	0.8	0		0.88	0.88	0.97	0.81	0.25		0.96	**-**
Heavy	26	26	26	0		78	22	175	23	0		220	27	48	34	0		109	35	246	6	1		288	**-**
Heavy %	5.9%	4.7%	7.6%	0%		5.9%	23.9%	17.3%	7.7%	0%		15.7%	28.1%	35.6%	33.3%	0%		32.7%	16.9%	21.2%	8.8%	100%		20.1%	**-**
Lights	413	524	318	0		1255	70	835	274	0		1179	69	87	68	0		224	172	914	62	0		1148	**-**
Lights %	94.1%	95.3%	92.4%	0%		94.1%	76.1%	82.7%	92.3%	0%		84.3%	71.9%	64.4%	66.7%	0%		67.3%	83.1%	78.8%	91.2%	0%		79.9%	**-**
Single-Unit Trucks	10	8	15	0		33	12	43	7	0		62	24	27	14	0		65	12	87	3	0		102	**-**
Single-Unit Trucks %	2.3%	1.5%	4.4%	0%		2.5%	13%	4.3%	2.4%	0%		4.4%	25%	20%	13.7%	0%		19.5%	5.8%	7.5%	4.4%	0%		7.1%	**-**
Buses	2	7	0	0		9	0	23	7	0		30	0	6	0	0		6	0	20	0	0		20	**-**
Buses %	0.5%	1.3%	0%	0%		0.7%	0%	2.3%	2.4%	0%		2.1%	0%	4.4%	0%	0%		1.8%	0%	1.7%	0%	0%		1.4%	**-**
Articulated Trucks	14	11	11	0		36	10	109	9	0		128	3	15	20	0		38	23	139	3	1		166	**-**
Articulated Trucks %	3.2%	2%	3.2%	0%		2.7%	10.9%	10.8%	3%	0%		9.1%	3.1%	11.1%	19.6%	0%		11.4%	11.1%	12%	4.4%	100%		11.6%	**-**
Pedestrians	-	-	-	-	9	-	-	-	-	-	11	-	-	-	-	-	39	-	-	-	-	-	20	-	**-**
Pedestrians%	-	-	-	-	11.3%		-	-	-	-	13.8%		-	-	-	-	48.8%		-	-	-	-	25%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	1.3%		-	-	-	-	0%		-	-	-	-	0%		**-**
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	0	-	**-**
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

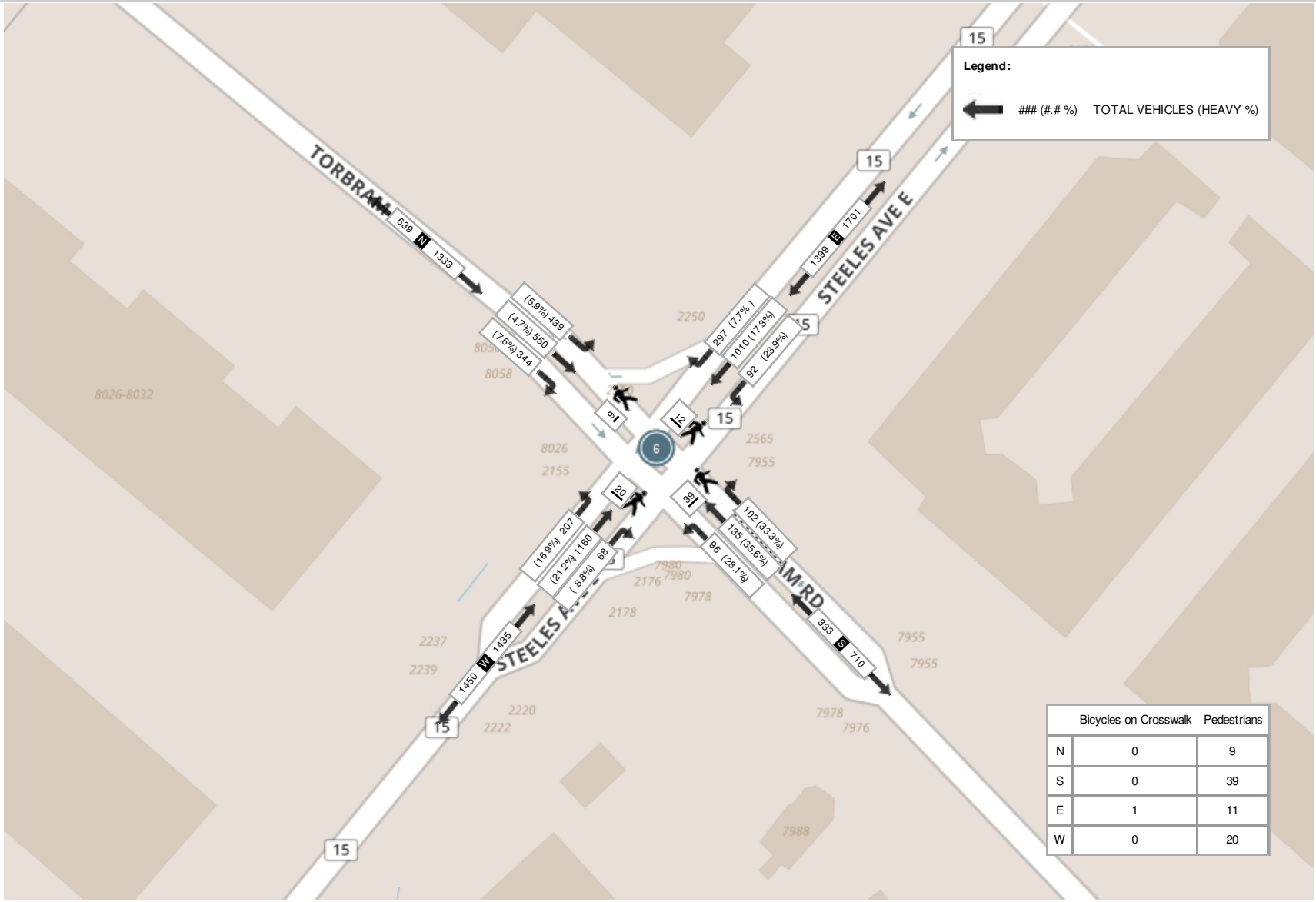
Peak Hour: 01:00 PM - 02:00 PM Weather: Mostly Cloudy (18.0 °C)

Start Time	Southbound TORBRAM RD						Westbound STEELES AVE E						Northbound TORBRAM RD						Eastbound STEELES AVE E						Int. Total (15 min)
	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	
13:00:00	55	60	52	0	2	167	17	218	65	1	2	301	47	63	44	0	7	154	58	232	32	1	2	323	945
13:15:00	34	46	54	0	4	134	26	258	56	0	1	340	41	44	38	0	7	123	78	266	44	0	5	388	985
13:30:00	47	47	62	0	2	156	28	227	72	1	6	328	34	52	33	0	16	119	81	257	29	0	7	367	970
13:45:00	60	58	59	0	5	177	20	212	74	0	7	306	44	62	30	0	18	136	50	234	46	0	16	330	949
Grand Total	196	211	227	0	13	634	91	915	267	2	16	1275	166	221	145	0	48	532	267	989	151	1	30	1408	**3849**
Approach%	30.9%	33.3%	35.8%	0%		-	7.1%	71.8%	20.9%	0.2%		-	31.2%	41.5%	27.3%	0%		-	19%	70.2%	10.7%	0.1%		-	**-**
Totals %	5.1%	5.5%	5.9%	0%		16.5%	2.4%	23.8%	6.9%	0.1%		33.1%	4.3%	5.7%	3.8%	0%		13.8%	6.9%	25.7%	3.9%	0%		36.6%	**-**
PHF	0.82	0.88	0.92	0		0.9	0.81	0.89	0.9	0.5		0.94	0.88	0.88	0.82	0		0.86	0.82	0.93	0.82	0.25		0.91	**-**
Heavy	18	29	49	0		96	40	229	24	0		293	27	33	47	0		107	51	217	29	0		297	**-**
Heavy %	9.2%	13.7%	21.6%	0%		15.1%	44%	25%	9%	0%		23%	16.3%	14.9%	32.4%	0%		20.1%	19.1%	21.9%	19.2%	0%		21.1%	**-**
Lights	178	182	178	0		538	51	686	243	2		982	139	188	98	0		425	216	772	122	1		1111	**-**
Lights %	90.8%	86.3%	78.4%	0%		84.9%	56%	75%	91%	100%		77%	83.7%	85.1%	67.6%	0%		79.9%	80.9%	78.1%	80.8%	100%		78.9%	**-**
Single-Unit Trucks	8	14	21	0		43	22	99	10	0		131	21	23	24	0		68	17	66	23	0		106	**-**
Single-Unit Trucks %	4.1%	6.6%	9.3%	0%		6.8%	24.2%	10.8%	3.7%	0%		10.3%	12.7%	10.4%	16.6%	0%		12.8%	6.4%	6.7%	15.2%	0%		7.5%	**-**
Buses	0	2	0	0		2	0	6	0	0		6	0	2	0	0		2	0	9	0	0		9	**-**
Buses %	0%	0.9%	0%	0%		0.3%	0%	0.7%	0%	0%		0.5%	0%	0.9%	0%	0%		0.4%	0%	0.9%	0%	0%		0.6%	**-**
Articulated Trucks	10	13	28	0		51	18	124	14	0		156	6	8	23	0		37	34	142	6	0		182	**-**
Articulated Trucks %	5.1%	6.2%	12.3%	0%		8%	19.8%	13.6%	5.2%	0%		12.2%	3.6%	3.6%	15.9%	0%		7%	12.7%	14.4%	4%	0%		12.9%	**-**
Pedestrians	-	-	-	-	13	-	-	-	-	-	15	-	-	-	-	-	46	-	-	-	-	-	29	-	**-**
Pedestrians%	-	-	-	-	12.1%		-	-	-	-	14%		-	-	-	-	43%		-	-	-	-	27.1%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	2	-	-	-	-	-	1	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0.9%		-	-	-	-	1.9%		-	-	-	-	0.9%		**-**
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	0	-	**-**
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

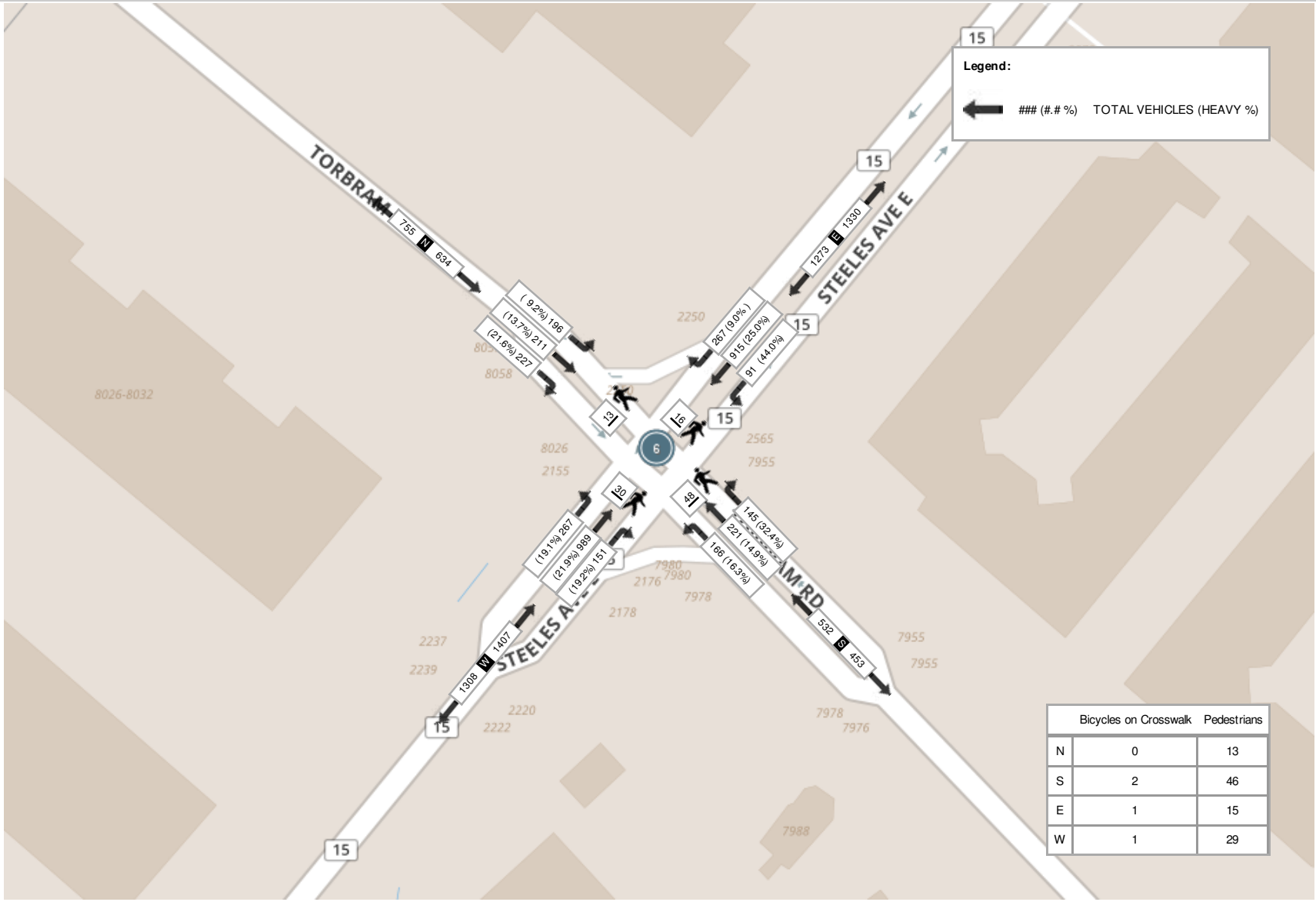
Peak Hour: 04:30 PM - 05:30 PM Weather: Mostly Cloudy (18.0 °C)

Start Time	Southbound TORBRAM RD						Westbound STEELES AVE E						Northbound TORBRAM RD						Eastbound STEELES AVE E						Int. Total (15 min)
	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	
16:30:00	75	54	72	0	11	201	14	293	109	0	8	416	41	150	44	0	14	235	91	354	21	0	7	466	1318
16:45:00	72	58	71	0	4	201	12	290	87	0	7	389	37	182	37	0	10	256	77	304	25	0	6	406	1252
17:00:00	91	44	73	0	13	208	23	312	90	0	8	425	53	190	41	0	13	284	84	325	16	0	7	425	1342
17:15:00	68	46	59	0	10	173	17	298	100	1	2	416	45	228	47	0	9	320	91	389	27	0	9	507	1416
Grand Total	306	202	275	0	38	783	66	1193	386	1	25	1646	176	750	169	0	46	1095	343	1372	89	0	29	1804	**5328**
Approach%	39.1%	25.8%	35.1%	0%		-	4%	72.5%	23.5%	0.1%		-	16.1%	68.5%	15.4%	0%		-	19%	76.1%	4.9%	0%		-	**-**
Totals %	5.7%	3.8%	5.2%	0%		14.7%	1.2%	22.4%	7.2%	0%		30.9%	3.3%	14.1%	3.2%	0%		20.6%	6.4%	25.8%	1.7%	0%		33.9%	**-**
PHF	0.84	0.87	0.94	0		0.94	0.72	0.96	0.89	0.25		0.97	0.83	0.82	0.9	0		0.86	0.94	0.88	0.82	0		0.89	**-**
Heavy	12	34	38	0		84	23	203	16	0		242	21	39	21	0		81	36	184	14	0		234	**-**
Heavy %	3.9%	16.8%	13.8%	0%		10.7%	34.8%	17%	4.1%	0%		14.7%	11.9%	5.2%	12.4%	0%		7.4%	10.5%	13.4%	15.7%	0%		13%	**-**
Lights	294	168	237	0		699	43	990	370	1		1404	155	711	148	0		1014	307	1188	75	0		1570	**-**
Lights %	96.1%	83.2%	86.2%	0%		89.3%	65.2%	83%	95.9%	100%		85.3%	88.1%	94.8%	87.6%	0%		92.6%	89.5%	86.6%	84.3%	0%		87%	**-**
Single-Unit Trucks	2	9	14	0		25	5	86	7	0		98	18	23	9	0		50	16	52	8	0		76	**-**
Single-Unit Trucks %	0.7%	4.5%	5.1%	0%		3.2%	7.6%	7.2%	1.8%	0%		6%	10.2%	3.1%	5.3%	0%		4.6%	4.7%	3.8%	9%	0%		4.2%	**-**
Buses	2	6	1	0		9	0	14	1	0		15	0	5	0	0		5	0	18	0	0		18	**-**
Buses %	0.7%	3%	0.4%	0%		1.1%	0%	1.2%	0.3%	0%		0.9%	0%	0.7%	0%	0%		0.5%	0%	1.3%	0%	0%		1%	**-**
Articulated Trucks	8	19	23	0		50	18	103	8	0		129	3	11	12	0		26	20	114	6	0		140	**-**
Articulated Trucks %	2.6%	9.4%	8.4%	0%		6.4%	27.3%	8.6%	2.1%	0%		7.8%	1.7%	1.5%	7.1%	0%		2.4%	5.8%	8.3%	6.7%	0%		7.8%	**-**
Pedestrians	-	-	-	-	38	-	-	-	-	-	25	-	-	-	-	-	46	-	-	-	-	-	29	-	**-**
Pedestrians%	-	-	-	-	27.5%		-	-	-	-	18.1%		-	-	-	-	33.3%		-	-	-	-	21%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	**-**
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Peak Hour: 07:15 AM - 08:15 AM Weather: Scattered Clouds (11 °C)

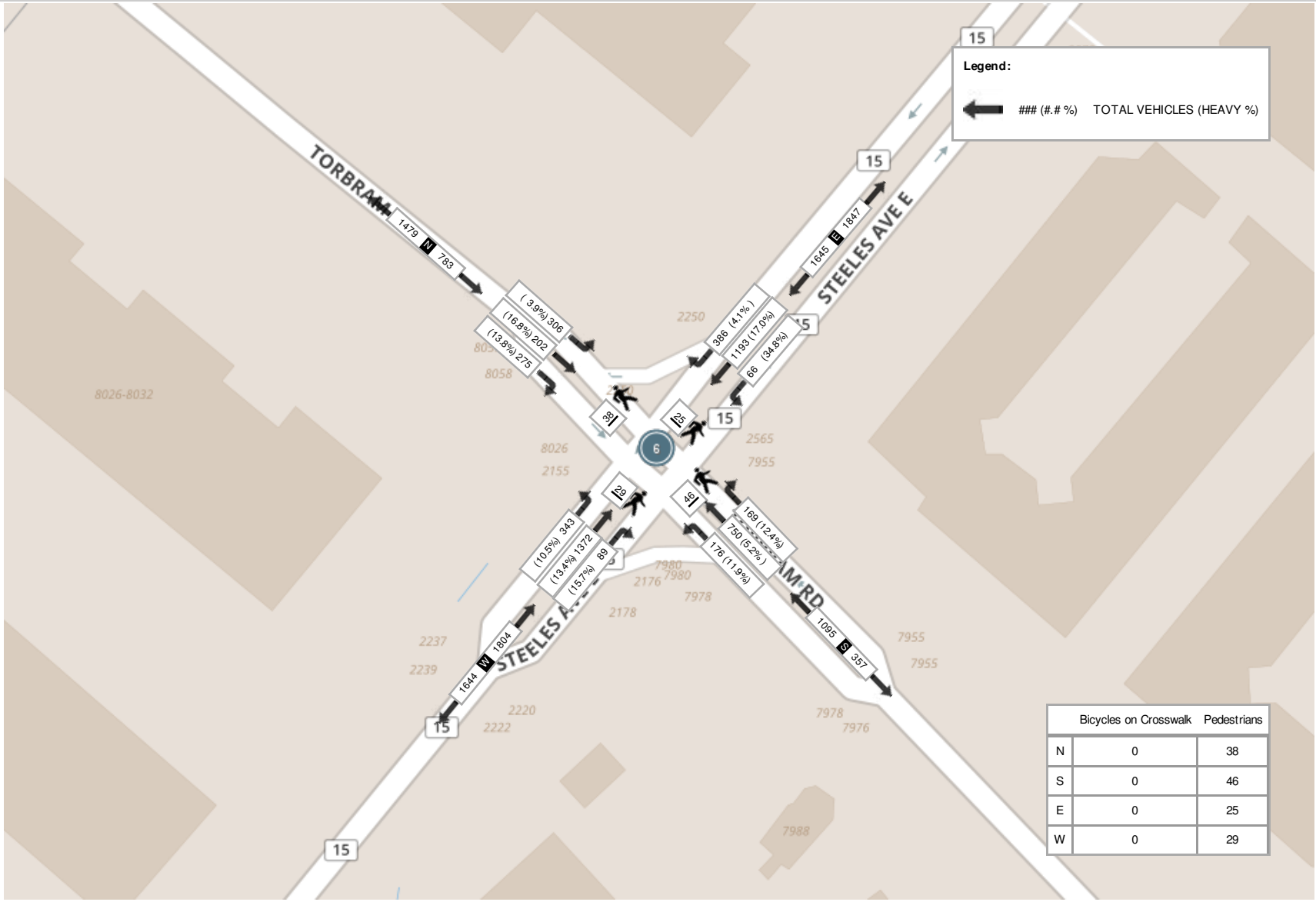


Peak Hour: 01:00 PM - 02:00 PM Weather: Mostly Cloudy (18.0 °C)



	Bicycles on Crosswalk	Pedestrians
N	0	13
S	2	46
E	1	15
W	1	29

Peak Hour: 04:30 PM - 05:30 PM Weather: Mostly Cloudy (18.0 °C)



	Bicycles on Crosswalk	Pedestrians
N	0	38
S	0	46
E	0	25
W	0	29

Production Rd / Driver Rd & Airport Rd

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

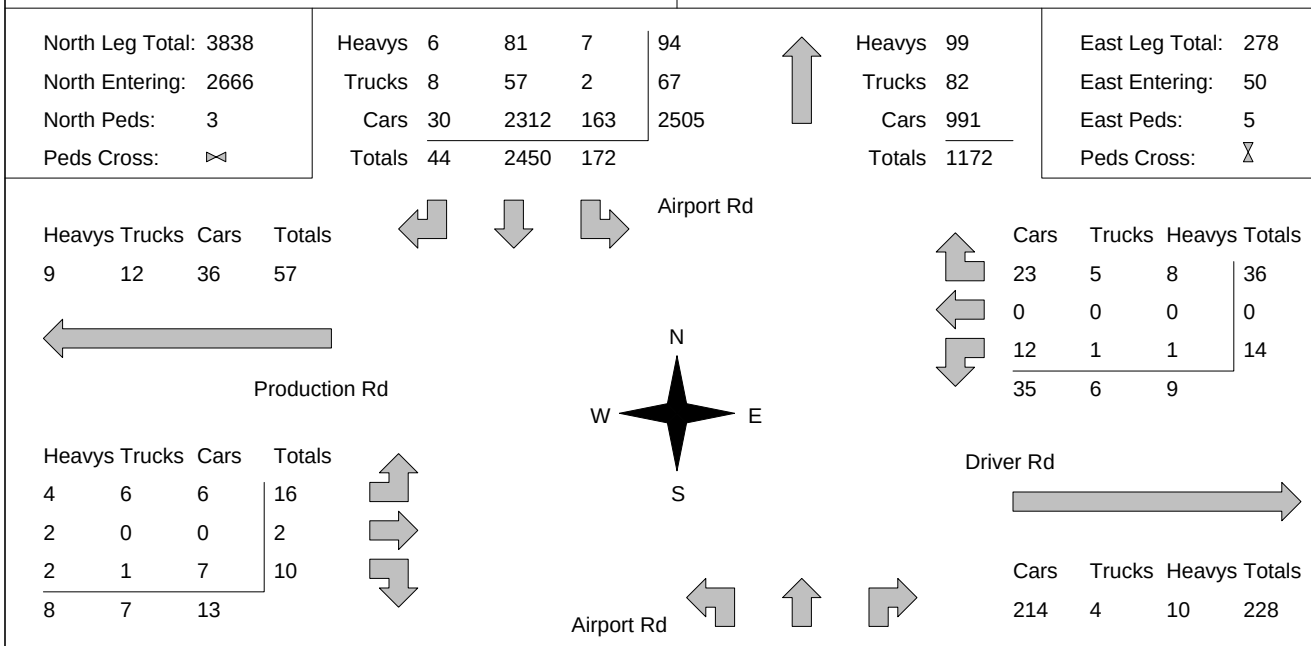
One Hour Peak
From: 7:45:00
To: 8:45:00

Municipality: Mississauga
Site #: 0000008706
Intersection: Airport Rd & Production Rd / Driver
TFR File #: 1
Count date: 8-Nov-2016

Weather conditions:
Clear / Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Airport Rd runs N/S



Comments

Production Rd / Driver Rd & Airport Rd

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

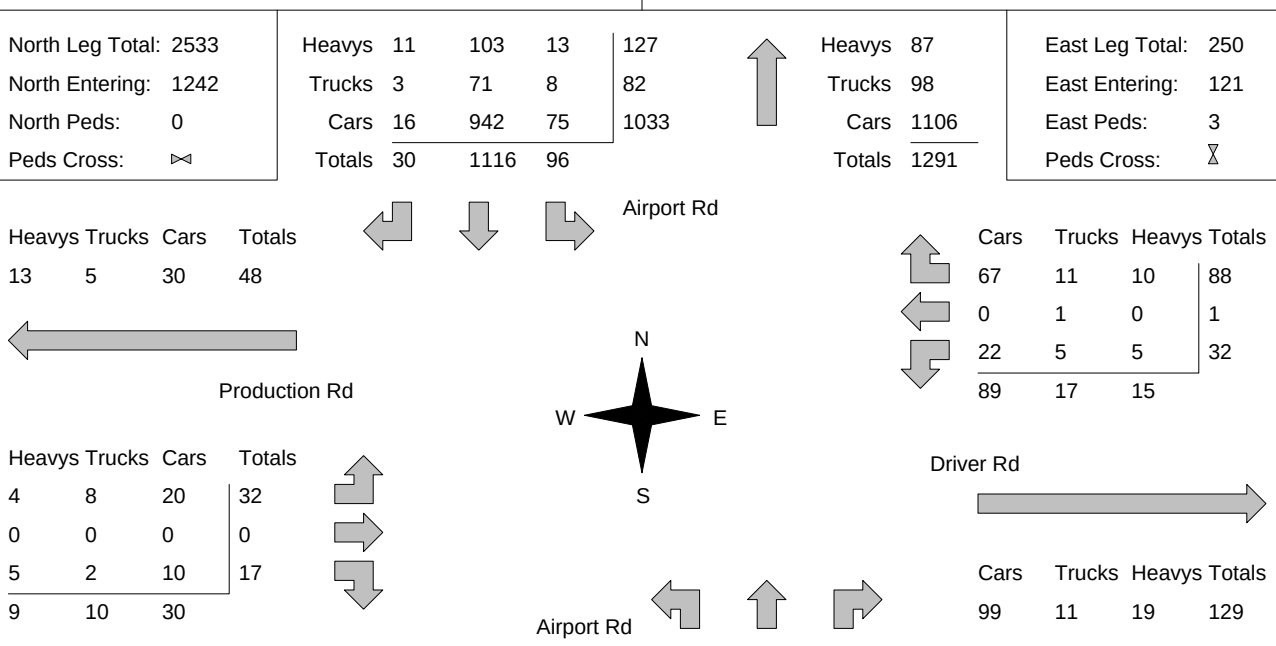
One Hour Peak
From: 12:15:00
To: 13:15:00

Municipality: Mississauga
Site #: 0000008706
Intersection: Airport Rd & Production Rd / Driver
TFR File #: 1
Count date: 8-Nov-2016

Weather conditions:
Clear / Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Airport Rd runs N/S



Comments

Production Rd / Driver Rd & Airport Rd

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

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

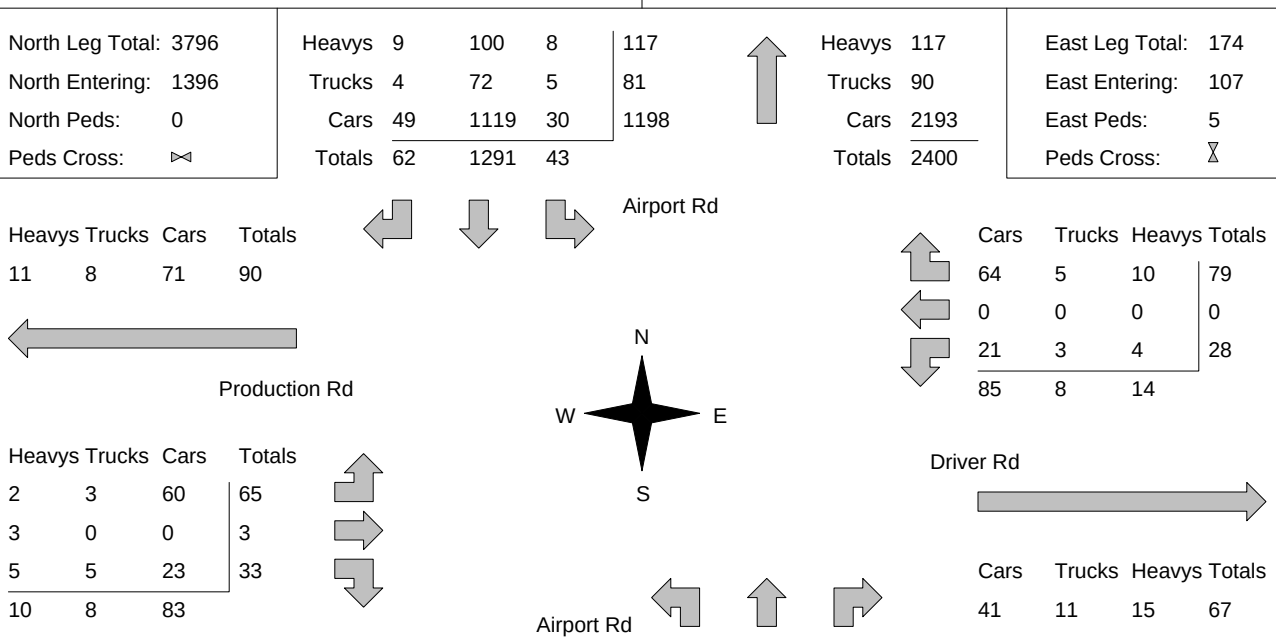
Municipality: Mississauga
Site #: 0000008706
Intersection: Airport Rd & Production Rd / Driver
TFR File #: 1
Count date: 8-Nov-2016

Weather conditions:
Clear / Cloudy

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Airport Rd runs N/S



Comments

Production Rd / Driver Rd & Airport Rd

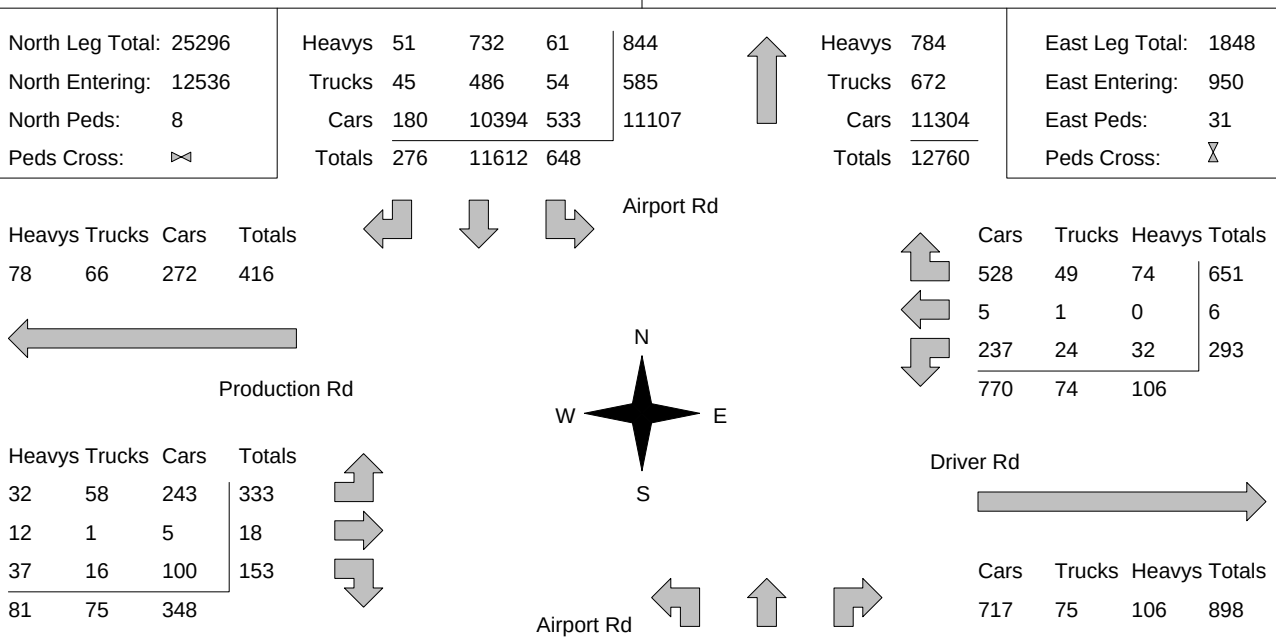
Total Count Diagram

Municipality: Mississauga
Site #: 0000008706
Intersection: Airport Rd & Production Rd / Driver
TFR File #: 1
Count date: 8-Nov-2016

Weather conditions:
Clear / Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Airport Rd runs N/S



Comments

Production Rd / Driver Rd & Airport Rd
Traffic Count Summary

Intersection: Airport Rd & Production Rd / Driver | **Count Date:** 8-Nov-2016 | **Municipality:** Mississauga

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	127	2398	40	2565	2	3635
9:00:00	153	2370	42	2565	1	3710
11:00:00	0	0	0	0	0	0
12:00:00	89	1103	18	1210	1	2127
13:00:00	78	1120	29	1227	3	2389
14:00:00	95	1117	29	1241	0	2443
15:00:00	0	0	0	0	0	0
16:00:00	45	1311	72	1428	1	3601
17:00:00	35	1136	33	1204	0	3509
18:00:00	26	1057	13	1096	0	3264
Totals:	648	11612	276	12536	8	24678

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	14	1014	42	1070	2
9:00:00	15	1087	43	1145	2
11:00:00	0	0	0	0	0
12:00:00	11	882	24	917	2
13:00:00	18	1114	30	1162	2
14:00:00	25	1141	36	1202	0
15:00:00	0	0	0	0	0
16:00:00	28	2125	20	2173	12
17:00:00	14	2265	26	2305	5
18:00:00	9	2148	11	2168	0
Totals:	134	11776	232	12142	25

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	35	2	61	98	12	123
9:00:00	12	0	42	54	0	85
11:00:00	0	0	0	0	0	0
12:00:00	26	1	72	99	0	140
13:00:00	36	1	87	124	7	178
14:00:00	33	0	55	88	0	127
15:00:00	0	0	0	0	0	0
16:00:00	41	2	89	132	4	266
17:00:00	47	0	133	180	7	284
18:00:00	63	0	112	175	1	251
Totals:	293	6	651	950	31	1454

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	13	3	9	25	3
9:00:00	20	3	8	31	2
11:00:00	0	0	0	0	0
12:00:00	23	1	17	41	1
13:00:00	35	0	19	54	4
14:00:00	23	2	14	39	2
15:00:00	0	0	0	0	0
16:00:00	88	3	43	134	4
17:00:00	78	3	23	104	2
18:00:00	53	3	20	76	1
Totals:	333	18	153	504	19

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	55	38	53	77	58	145	133	119

Highway 407 EB Off-ramp & Airport Road

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

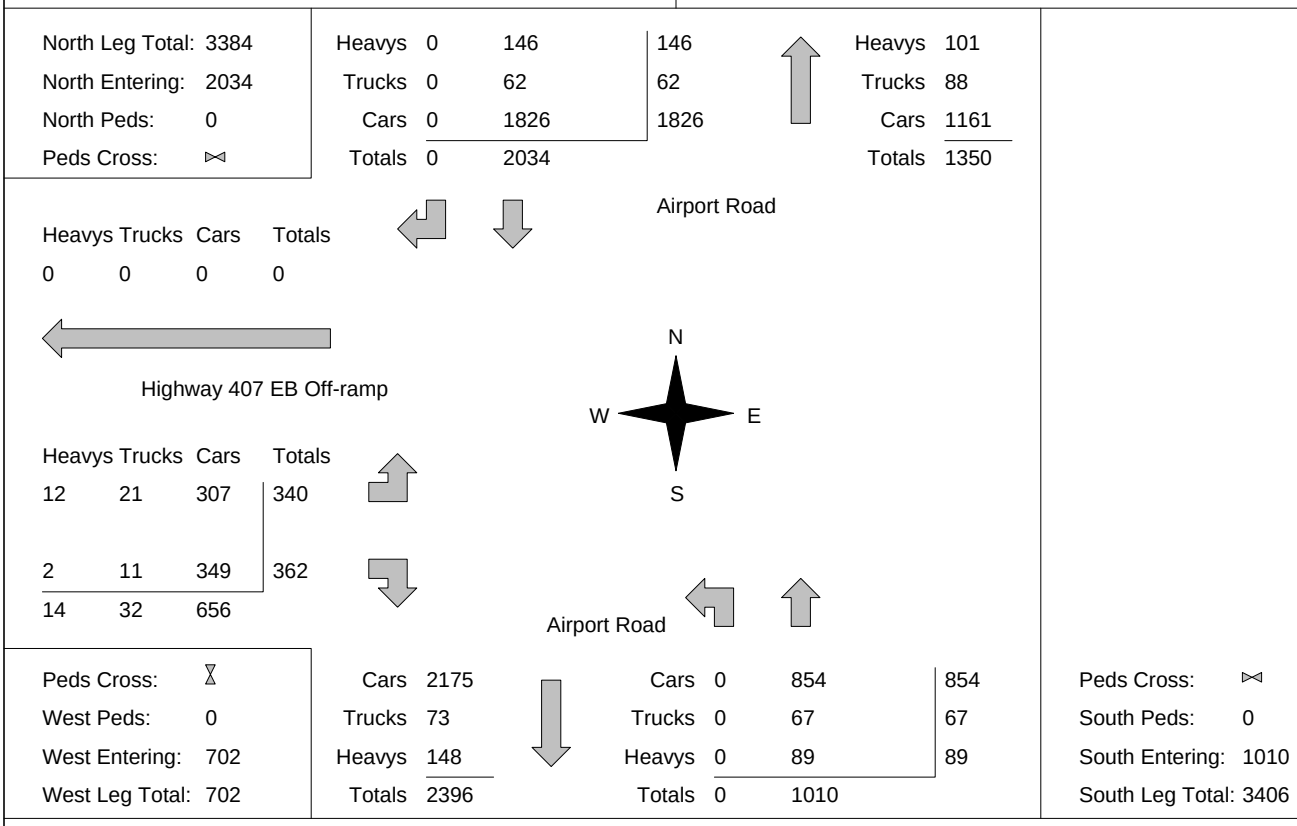
One Hour Peak
From: 7:30:00
To: 8:30:00

Municipality: Brampton
Site #: 0000001004
Intersection: Airport Road & Highway 407 EB Off
TFR File #: 1
Count date: 14-Feb-2017

Weather conditions:
Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Airport Road runs N/S



Comments

Highway 407 EB Off-ramp & Airport Road

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

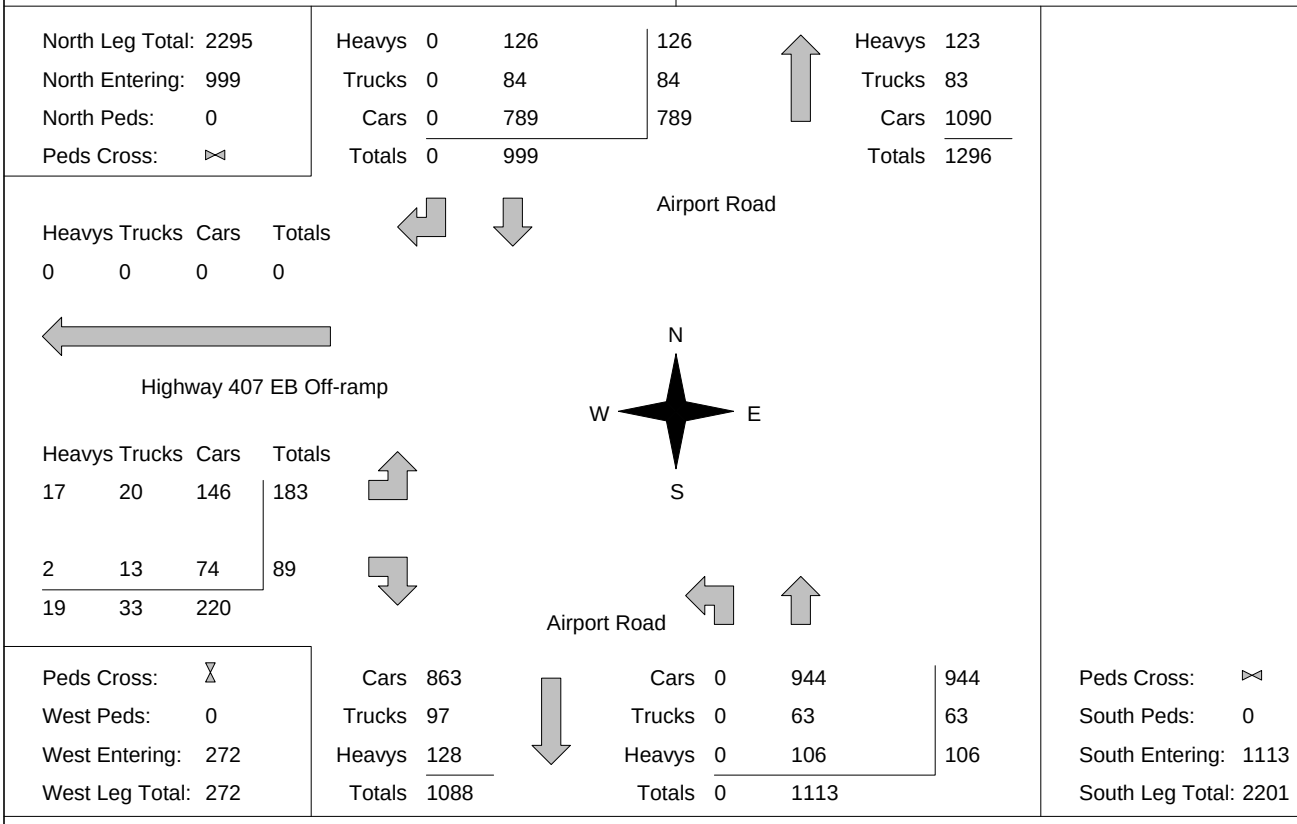
One Hour Peak
From: 13:00:00
To: 14:00:00

Municipality: Brampton
Site #: 0000001004
Intersection: Airport Road & Highway 407 EB Off
TFR File #: 1
Count date: 14-Feb-2017

Weather conditions:
Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Airport Road runs N/S



Comments

Highway 407 EB Off-ramp & Airport Road

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

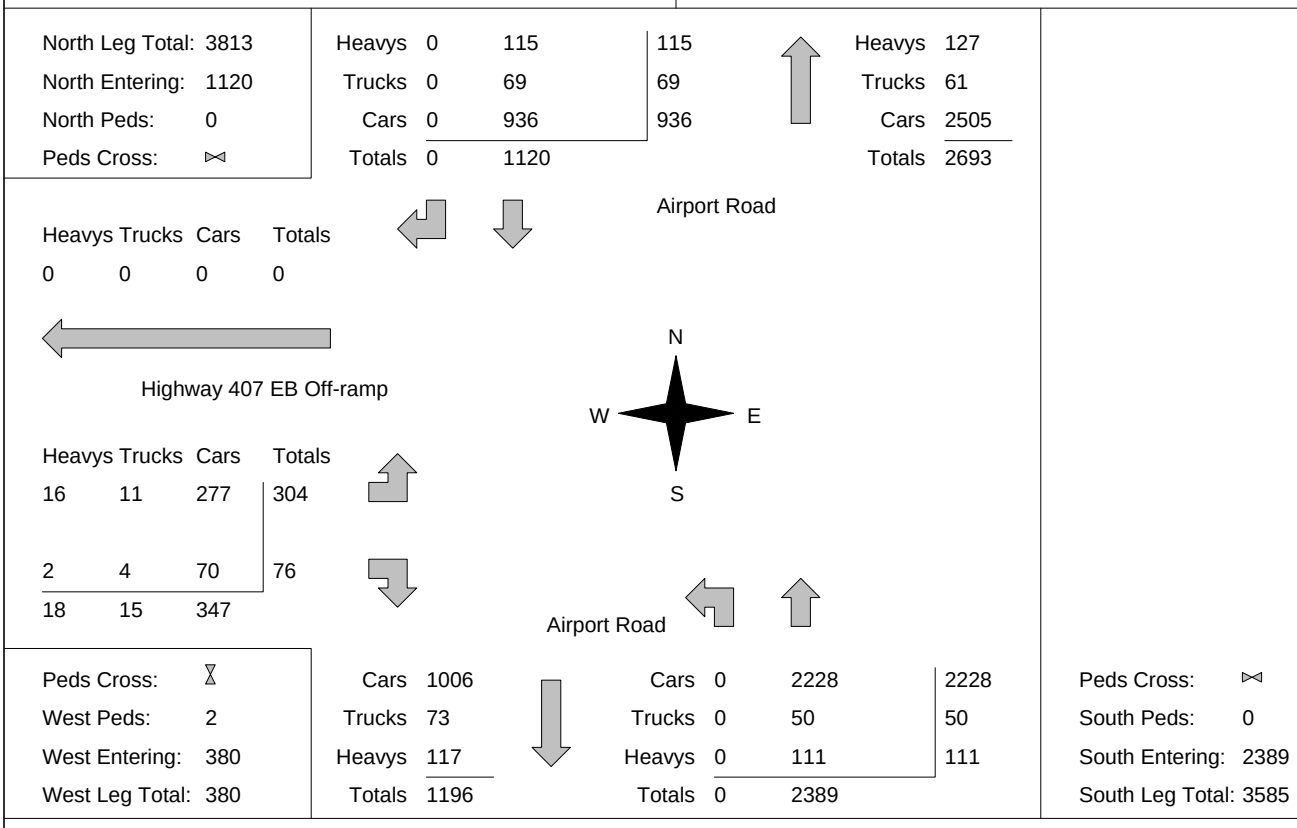
One Hour Peak
From: 16:45:00
To: 17:45:00

Municipality: Brampton
Site #: 0000001004
Intersection: Airport Road & Highway 407 EB Off
TFR File #: 1
Count date: 14-Feb-2017

Weather conditions:
Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Airport Road runs N/S



Comments

Highway 407 EB Off-ramp & Airport Road

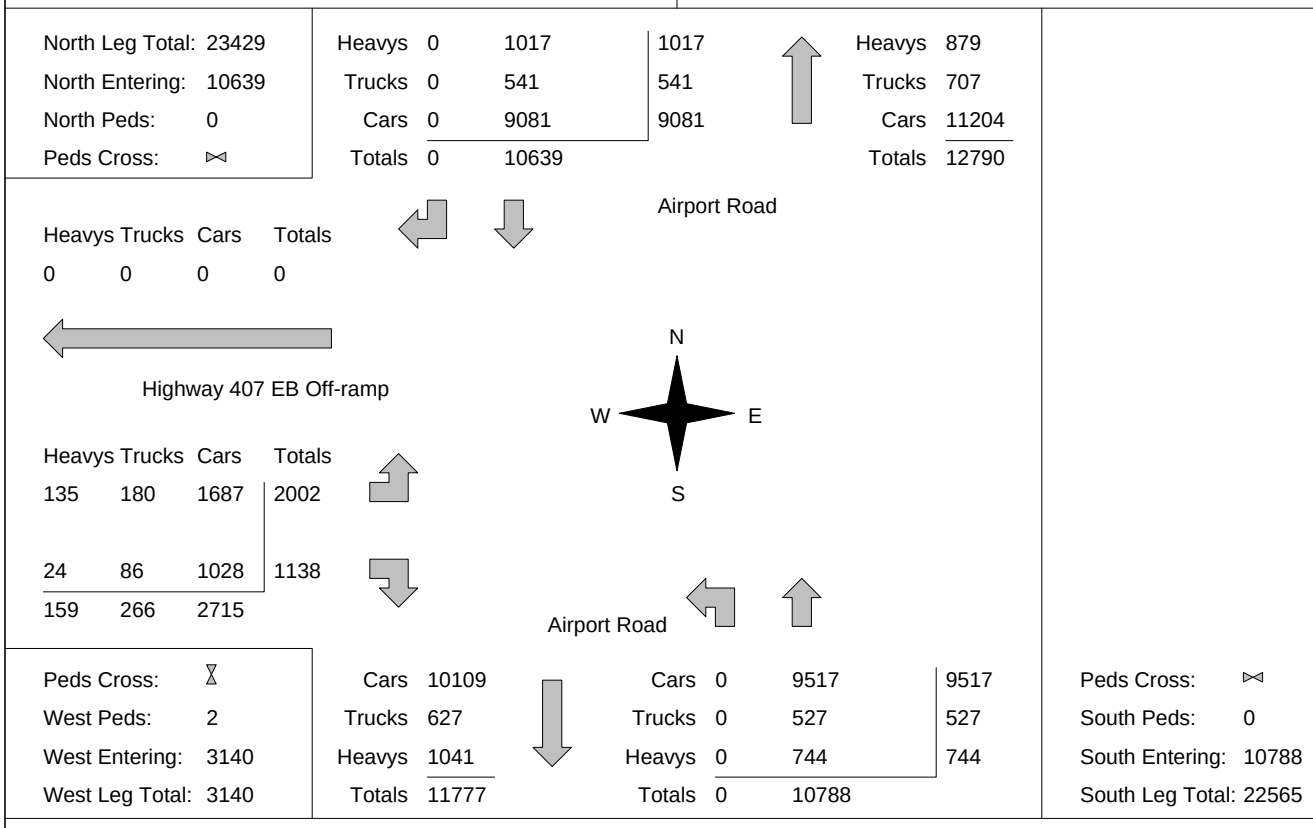
Total Count Diagram

Municipality: Brampton
Site #: 0000001004
Intersection: Airport Road & Highway 407 EB Off
TFR File #: 1
Count date: 14-Feb-2017

Weather conditions: Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Airport Road runs N/S



Comments

Highway 407 EB Off-ramp & Airport Road
Traffic Count Summary

Intersection: Airport Road & Highway 407 EB Of | **Count Date:** 14-Feb-2017 | **Municipality:** Brampton

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	0	2076	0	2076	0	3075
9:00:00	0	2068	0	2068	0	3002
11:00:00	0	0	0	0	0	0
12:00:00	0	1008	0	1008	0	1898
13:00:00	0	1009	0	1009	0	2034
14:00:00	0	999	0	999	0	2112
15:00:00	0	0	0	0	0	0
16:00:00	0	1255	0	1255	0	3088
17:00:00	0	1154	0	1154	0	2740
18:00:00	0	1070	0	1070	0	3478
Totals:	0	10639	0	10639	0	21427

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	999	0	999	0
9:00:00	0	934	0	934	0
11:00:00	0	0	0	0	0
12:00:00	0	890	0	890	0
13:00:00	0	1025	0	1025	0
14:00:00	0	1113	0	1113	0
15:00:00	0	0	0	0	0
16:00:00	0	1833	0	1833	0
17:00:00	0	1586	0	1586	0
18:00:00	0	2408	0	2408	0
Totals:	0	10788	0	10788	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	0	0	0	0	0	585
9:00:00	0	0	0	0	0	611
11:00:00	0	0	0	0	0	0
12:00:00	0	0	0	0	0	297
13:00:00	0	0	0	0	0	253
14:00:00	0	0	0	0	0	272
15:00:00	0	0	0	0	0	0
16:00:00	0	0	0	0	0	358
17:00:00	0	0	0	0	0	385
18:00:00	0	0	0	0	0	379
Totals:	0	0	0	0	0	3140

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	281	0	304	585	0
9:00:00	307	0	304	611	0
11:00:00	0	0	0	0	0
12:00:00	202	0	95	297	0
13:00:00	168	0	85	253	0
14:00:00	183	0	89	272	0
15:00:00	0	0	0	0	0
16:00:00	261	0	97	358	0
17:00:00	299	0	86	385	0
18:00:00	301	0	78	379	2
Totals:	2002	0	1138	3140	2

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	281	307	202	168	183	261	299	301

Highway 407 WB Off-ramp & Airport Road

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

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

Municipality: Brampton
Site #: 0000001003
Intersection: Airport Road & Highway 407 WB Of
TFR File #: 1
Count date: 14-Feb-2017

Weather conditions:
Cloudy

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Airport Road runs N/S

North Leg Total: 4038
North Entering: 2379
North Peds: 0
Peds Cross: ⋈

Heavys	145	0	145
Trucks	84	0	84
Cars	2150	0	2150
Totals	2379	0	

Heavys	104	
Trucks	84	
Cars	1471	
Totals	1659	

East Leg Total: 508
East Entering: 508
East Peds: 0
Peds Cross: ⋈

Airport Road

Cars	Trucks	Heavys	Totals
348	10	6	364
134	7	3	144
482	17	9	

N
W E
S

Highway 407 WB Off-ramp

Cars	Trucks	Heavys	Totals
0	0	0	0

Airport Road

Cars	2284
Trucks	91
Heavys	148
Totals	2523

Cars	1123	0	1123
Trucks	74	0	74
Heavys	98	0	98
Totals	1295	0	

Peds Cross: ⋈
South Peds: 0
South Entering: 1295
South Leg Total: 3818

Comments

Highway 407 WB Off-ramp & Airport Road

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 13:00:00
To: 14:00:00

Municipality: Brampton
Site #: 0000001003
Intersection: Airport Road & Highway 407 WB Of
TFR File #: 1
Count date: 14-Feb-2017

Weather conditions:
Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Airport Road runs N/S

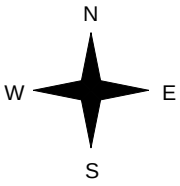
North Leg Total: 2480
North Entering: 1071
North Peds: 0
Peds Cross: ⋈

Heavys	136	0	136
Trucks	83	0	83
Cars	852	0	852
Totals	1071	0	

Heavys	125	
Trucks	98	
Cars	1186	
Totals	1409	

East Leg Total: 275
East Entering: 275
East Peds: 1
Peds Cross: ⋈

	Cars	Trucks	Heavys	Totals
	168	26	9	203
	59	10	3	72
	227	36	12	



Cars	Trucks	Heavys	Totals
0	0	0	0

Cars	911	Cars	1018	0	1018
Trucks	93	Trucks	72	0	72
Heavys	139	Heavys	116	0	116
Totals	1143	Totals	1206	0	

Peds Cross: ⋈
South Peds: 0
South Entering: 1206
South Leg Total: 2349

Comments

Highway 407 WB Off-ramp & Airport Road

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

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

Municipality: Brampton
Site #: 0000001003
Intersection: Airport Road & Highway 407 WB Of
TFR File #: 1
Count date: 14-Feb-2017

Weather conditions:
Cloudy

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Airport Road runs N/S

North Leg Total: 4046
North Entering: 1354
North Peds: 0
Peds Cross: ⋈

Heavys	111	0	111
Trucks	58	0	58
Cars	1185	0	1185
Totals	1354	0	

Heavys	118
Trucks	80
Cars	2494
Totals	2692

East Leg Total: 375
East Entering: 375
East Peds: 0
Peds Cross: ⋈

Airport Road

	Cars	Trucks	Heavys	Totals
	298	18	4	320
	43	7	5	55
	341	25	9	

N
W E
S

Highway 407 WB Off-ramp

Cars	Trucks	Heavys	Totals
0	0	0	0

Airport Road

Cars	1228		
Trucks	65		
Heavys	116		
Totals	1409		

Cars	2196	0	2196
Trucks	62	0	62
Heavys	114	0	114
Totals	2372	0	

Peds Cross: ⋈
South Peds: 0
South Entering: 2372
South Leg Total: 3781

Comments

Highway 407 WB Off-ramp & Airport Road

Total Count Diagram

Municipality: Brampton
Site #: 0000001003
Intersection: Airport Road & Highway 407 WB Of
TFR File #: 1
Count date: 14-Feb-2017

Weather conditions:
Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Airport Road runs N/S

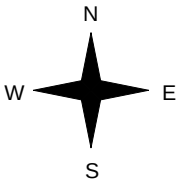
North Leg Total: 26065
North Entering: 12357
North Peds: 0
Peds Cross: ⋈

Heavys	1029	0	1029
Trucks	592	0	592
Cars	10736	0	10736
Totals	12357	0	

Heavys	895
Trucks	789
Cars	12024
Totals	13708

East Leg Total: 2780
East Entering: 2780
East Peds: 3
Peds Cross: ⋈

	Cars	Trucks	Heavys	Totals
	1909	156	44	2109
	573	70	28	671
	2482	226	72	



	Cars	Trucks	Heavys	Totals
	0	0	0	0

Cars	11309	Cars	10115 0	10115
Trucks	662	Trucks	633 0	633
Heavys	1057	Heavys	851 0	851
Totals	13028	Totals	11599 0	

Peds Cross: ⋈
South Peds: 0
South Entering: 11599
South Leg Total: 24627

Comments

Highway 407 WB Off-ramp & Airport Road
Traffic Count Summary

Intersection: Airport Road & Highway 407 WB O | **Count Date:** 14-Feb-2017 | **Municipality:** Brampton

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	0	2450	0	2450	0	3702
9:00:00	0	2373	0	2373	0	3563
11:00:00	0	0	0	0	0	0
12:00:00	0	1092	0	1092	0	2090
13:00:00	0	1086	0	1086	0	2171
14:00:00	0	1071	0	1071	0	2277
15:00:00	0	0	0	0	0	0
16:00:00	0	1452	0	1452	0	3371
17:00:00	0	1479	0	1479	0	3056
18:00:00	0	1354	0	1354	0	3726
Totals:	0	12357	0	12357	0	23956

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	1252	0	1252	0
9:00:00	0	1190	0	1190	0
11:00:00	0	0	0	0	0
12:00:00	0	998	0	998	0
13:00:00	0	1085	0	1085	0
14:00:00	0	1206	0	1206	0
15:00:00	0	0	0	0	0
16:00:00	0	1919	0	1919	0
17:00:00	0	1577	0	1577	0
18:00:00	0	2372	0	2372	0
Totals:	0	11599	0	11599	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	111	0	277	388	0	388
9:00:00	165	0	383	548	0	548
11:00:00	0	0	0	0	0	0
12:00:00	76	0	184	260	0	260
13:00:00	70	0	170	240	0	240
14:00:00	72	0	203	275	1	275
15:00:00	0	0	0	0	0	0
16:00:00	65	0	252	317	1	317
17:00:00	57	0	320	377	1	377
18:00:00	55	0	320	375	0	375
Totals:	671	0	2109	2780	3	2780

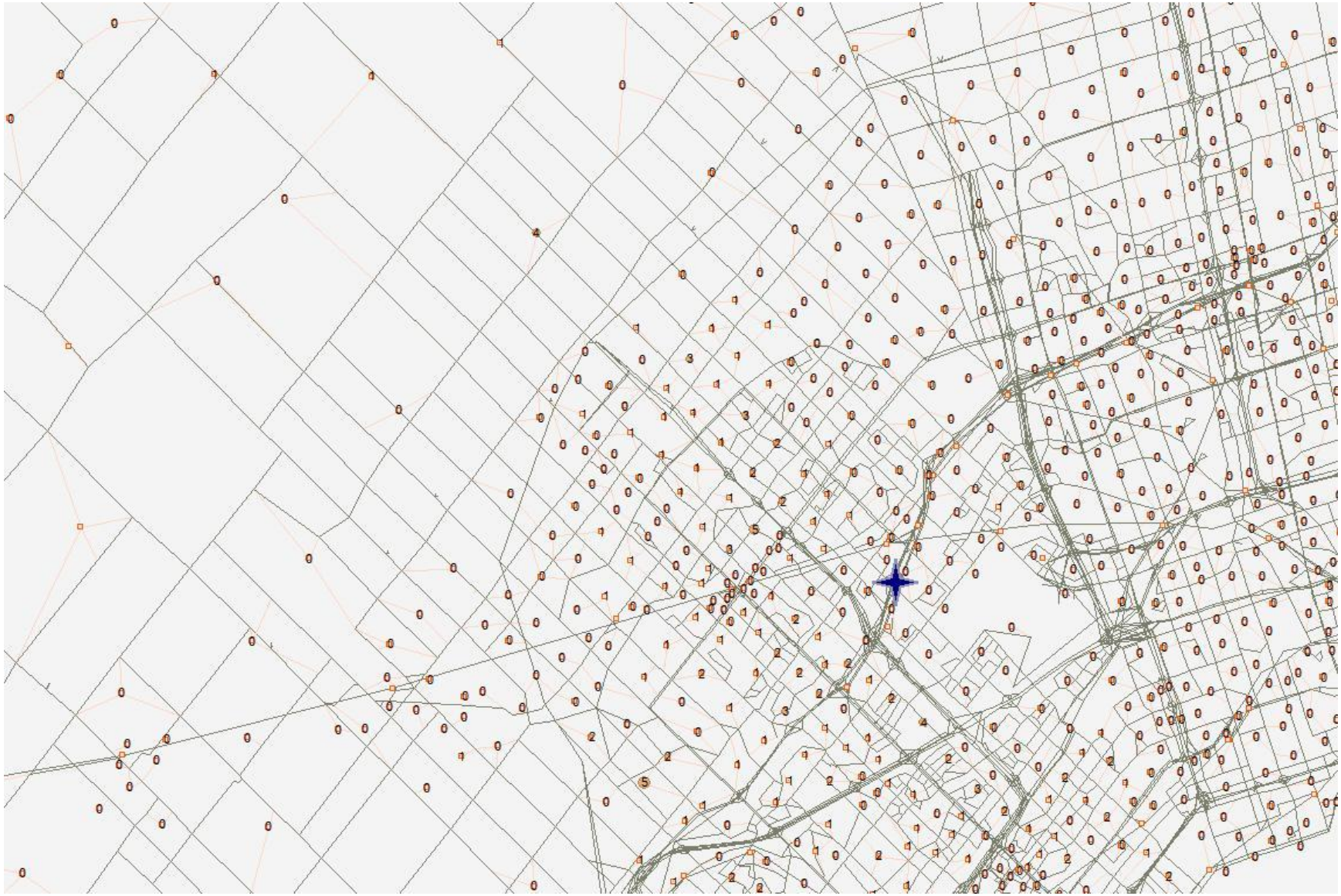
West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	0
9:00:00	0	0	0	0	0
11:00:00	0	0	0	0	0
12:00:00	0	0	0	0	0
13:00:00	0	0	0	0	0
14:00:00	0	0	0	0	0
15:00:00	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
Totals:	0	0	0	0	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	111	165	76	70	72	65	57	55

Appendix F – EMME Origin/Destination Output



Report

Airport Station
Traffic Impact Study

Highway 407 Transitway-3

Prepared for the Ministry of Transportation, Ontario
by IBI Group

July 27, 2018

Document Control Page

CLIENT:	Ministry of Transportation, Ontario
PROJECT NAME:	Highway 407 Transitway-3
REPORT TITLE:	Airport Station TIS – 2018-07-27
IBI REFERENCE:	39091
VERSION:	1.2
DIGITAL MASTER:	J:\39091_407trnstwy_W\10.0 Reports\3 Traffic Engineering
ORIGINATOR:	Josh Wilson, Gary Yeung
REVIEWER:	Scott Johnston
AUTHORIZATION:	Scott Johnston
CIRCULATION LIST:	
HISTORY:	1.0 Draft 2017-10-04 1.1 Draft 2017-12-12 1.2 2018-07-27

Table of Contents

List of Exhibits

List of Exhibits (continued)

1 Introduction

1.1 Project Overview

The Highway 407 Transitway is a rapid transit facility planned within the Greater Toronto and Hamilton Area (GTHA). The Transitway operate on a dedicated, grade-separated right-of-way providing users fast travel speeds and good travel time reliability. The Highway 407 Transitway project supports the Province's Growth Plan by meeting increased travel demands through alternative transportation modes, providing increased mobility for a wide variety of users, and supporting transit-oriented development and associated land uses.

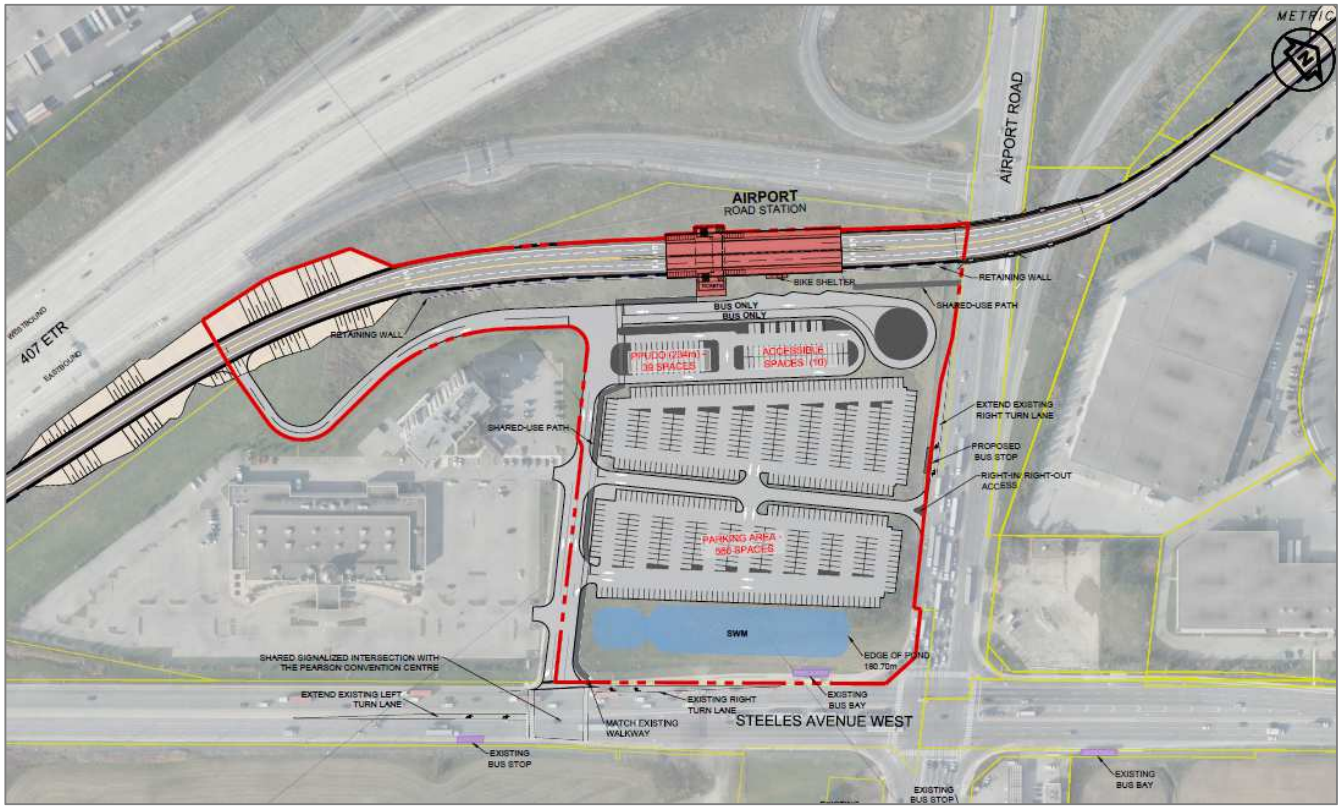
Building upon previous work IBI Group completed for the 'Central' and 'East' sections of the Transitway, the 'Transitway-3' section spans approximately 23 kilometres between Hurontario Street and Highway 400. This section of the Transitway provides opportunities to connect to the GO Rail system at Bramalea Station (Kitchener Line) as well as to a number of other higher order transit systems, supporting development within both the York and Peel Regions.

1.2 Study Area

Airport Station was recommended given the high transit demands forecasted at this location, the potential for this station to integrate well with local transit, and the proximity of the station with the Malton GO Station and with Pearson International Airport. There also exists an opportunity to expand Airport Road south of Steeles Avenue E in the future, which would increase roadway capacity to and from the airport.

The Transitway station is proposed constructed on the west side of the road given the existing developments to the east. The convention centre limits the amount space available for parking north of Steeles Avenue, however expansion opportunity exists within the hydro corridor south of Steeles Avenue – if needed either to meet future demands, or to accommodate additional demands in the case that the adjacent Goreway Station is not implemented. The proposed station layout is illustrated in Exhibit 1-1.

Exhibit 1-1: Proposed Airport Station Layout

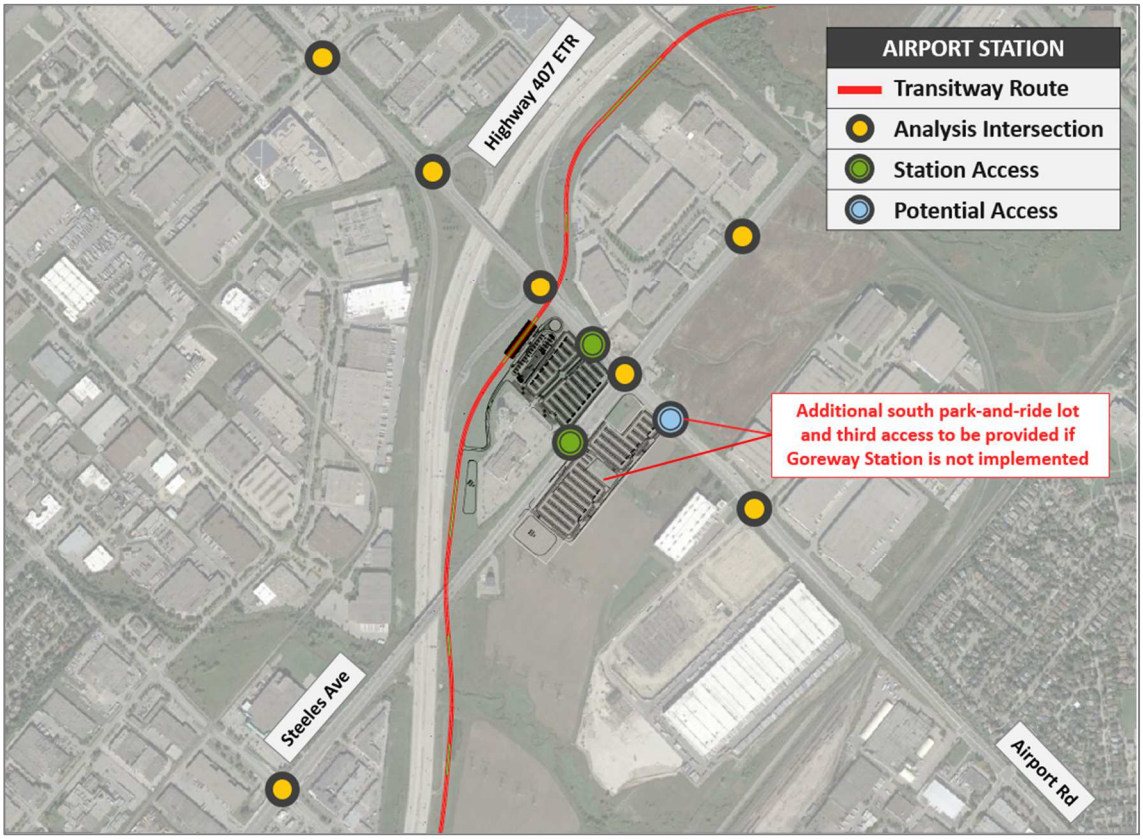


In addition to the future station accesses, the study area includes the following intersections:

- Airport Road & Woodslea Road / Intermodal Drive;
- Airport Road & Highway 407 Westbound Off-Ramp;
- Airport Road & Highway 407 Eastbound Off-Ramp;
- Airport Road & Steeles Avenue E;
- Airport Road & Production Road/Driver Road.
- Steeles Avenue East & Torbram Road;
- Steeles Avenue East & Convention Centre Access; and,
- Steeles Avenue East & Parkhurst Square;

The study area is illustrated in Exhibit 1-2

Exhibit 1-2: Airport Station Study Area



1.3 Study Objective

The purpose of this Airport Station TIS is to assess existing and future traffic operations in order to identify possible deficiencies in the road network and consider potential improvement options. The study is organized as follows:

- Section 2 provides an overview of the current transportation network and assesses existing traffic conditions;
- Section 3 outlines the process used to estimate peak hour traffic generated at this Transitway station, and how this traffic will be distributed on the road network;
- Section 4 assesses of future traffic conditions by considering background traffic growth in addition to traffic generated from the Transitway station;
- Section 5 evaluates potential improvement options that to address any future network deficiencies that have been identified; and,
- Section 6 provides a summary of traffic operations and recommended improvement measures.

1.4 Traffic Analysis Approach

This study documents existing traffic conditions, and assesses anticipated future conditions with consideration of background traffic growth and additional traffic generated from the proposed Transitway. Traffic analysis is conducted using Synchro (version 9) following Highway Capacity Manual (HCM 2000) methodologies of intersection analysis.

All critical traffic movements identified through the Synchro analysis are outlined and discussed, as per the following conditions:

- For signalized intersections,
  - V/C ratios for overall intersections operations, through movements or shared through/turning movements equal 0.80 or above;
  - V/C ratios for exclusive movements equal 0.85 or above; or,
  - Queues for an individual movement are projected to exceed available turning lane storage.
- For unsignalized intersections,
  - Level of service, based on average delay per vehicle or on individual movements is LOS "D" or greater; or,
  - The estimated 95th percentile queue length for an individual movement exceeds the available queue storage.

Level-of-service (LOS) is a measure of performance based on the control delay, defined as follows in Exhibit 1-3.

Exhibit 1-3: Intersection LOS Reference

HCM	CONTROL DELAY PER VEHICLE (S)	
LOS	Signalized	Unsignalized
A	≤10	≤10
B	>10 and ≤20	>10 and ≤15
C	>20 and ≤35	>15 and ≤25
D	>35 and ≤55	>25 and ≤35
E	>55 and ≤80	>35 and ≤50
F	>80	>50

Operational concerns or deficiencies noted in the studied horizon years are identified and addressed through recommendations on potential mitigation measures and/or operational improvements.

1.5 Synchro Model Calibration

The Synchro traffic models were calibrated to better reflect measured field conditions. This was accomplished by adjusting the following parameters detailed below.

Lane Utilization Factor

The "lane utilization factor" (LUF) was altered when calibrating through movements. This parameter is used to dictate the distribution of traffic across the available lanes, with a value of '1.0' representing a uniform distribution across all lanes.

During non-congested periods, there is often more traffic distributed amongst the right-most lanes as compared to the left-most lanes. However, in oversaturated conditions, the distribution of traffic is typically split more evenly across all lanes, as drivers quickly fill any available gap in traffic.

In the existing models, the LUF was adjusted to a value of '1.0' for all through movements initially identified as having a v/c ratio greater than '1.0'. These adjustments were also carried forward to those same movements in the future models (for the same peak period). Additionally, because the above-mentioned driver behaviour is quite predictable, this adjustment was also

made to any “new” critical through movements (having a v/c ratio > ‘1.0’) identified in the future models.

Lost Time Adjustment

Lost Time Adjustment (LTA) was altered in order to calibrate left-turn movements. Adjusting this parameter to a negative value effectively increases the clearance time available for left-turning traffic to clear the intersection during the amber and/or all-red signal phases.

During oversaturated conditions where left-turn queues are excessively long and/or there are limited gaps available in the opposing traffic to make the left-turn (under permissive phasing), drivers are typically more aggressive and willing to turn during the amber/all-red phases.

In the existing models, the LTA was changed for all left-turn movements identified as being well over capacity – defined as having a v/c ratio greater than ‘1.2’ – since these turning volumes were explicitly measured in the field. Values were assigned based on the initial v/c ratio for that movement:

- If the v/c ratio was between 1.2 and 1.5, the LTA was set to ‘-1’; and,
- If the v/c ratio exceeded 1.5, the LTA was set to ‘-2’.

All changes to the LTA made in the existing models were carried forward to those same movements in the future models (for the same peak period). However, because this driver behaviour is believed to be less predictable, no additional LTA changes were made to “new” critical left-turn movements (having a v/c ratio > ‘1.1) identified in the future models, which did not exist in the existing models.

2 Existing Conditions

2.1 Existing Road Network

Airport Road is a north-south arterial road in the Region of Peel that connects Pearson Airport in the City of Mississauga to the northern border of Brampton. Within the study area, it has six lanes and a posted speed limit of 80 km/h.

Highway 407 is a tolled 400-series highway with an eight lane cross section. It connects the City of Burlington to the City of Pickering. 400-series highways have a speed limit of 100 km/h. A full interchange is located at Highway 407 and Airport Road.

Woodslea Road/Intermodal Drive is a two lane east-west local road in the City of Brampton within the Region of Peel. It connects Walker Drive to west of Gorewood Drive. The road serves an industrial employment area.

Steeles Avenue East is a regional east-west road that connects the Town of Milton to Scarborough, Toronto. Within the study area, it is under the jurisdiction of Region of Peel and has 6 lanes. It also has a posted speed limit of 80 km/h.

Parkhurst Square is an access road that connects Steeles Avenue East to various employment areas and flea markets within the City of Brampton. A speed limit of 50 km/h is assumed.

Torbram Road is an arterial north-south road in the City of Brampton within Region of Peel. Within the study area, it has four lanes and a posted speed limit of 60 km/h.

Production Road/Driver Road is a two lane east-west local road that serves an industrial area. It is located within the City of Brampton and has an assumed speed limit of 50 km/h.

2.2 Traffic Counts & Signal Timing Data

Traffic count data and signal timing information was collected from City of Brampton, City of Mississauga, and Region of Peel. All turning movement counts modelled for the purposes of this study were conducted recently (within the past five years) and so should reflect current traffic patterns within the study area. Exhibit 2-1 provides a summary of dates on which this information was collected/recorded.

Exhibit 2-1: Traffic Count and Signal Timing Data

INTERSECTION	CONTROL TYPE	DATE OF TMC	DATE OF SIGNAL DATA
Airport Rd & Woodslea Rd / Intermodal Dr	Signalized	7-Feb-13	1-Sep-16
Airport Rd & Production Rd / Driver Rd	Signalized	8-Nov-16	15-Sep-16
Airport Rd & Hwy 407 WB off ramp	Signalized	14-Feb-17	2-Nov-10
Airport Rd & Hwy 407 EB off ramp	Signalized	14-Feb-17	2-Nov-10
Airport Rd & Steeles Ave	Signalized	19-Apr-17	31-Jul-15
Steeles Ave & Convention Centre	Signalized	19-Nov-14	7-Sep-16
Steeles Ave & Parkhurst Sq	Signalized	18-Nov-14	25-Aug-15
Steeles Ave & Torbram Rd	Signalized	11-May-16	31-Jul-15

2.3 Existing Transit Network

Brampton Transit (BT) and its bus rapid transit service (branded Züm) currently operates many routes that service the study area:

- **Züm Route 511 (Züm Queen)** is an express route that runs along Steeles Ave E in Brampton, connecting Lisgar GO Station in the City of Mississauga to the Humber College in Etobicoke Toronto, operating on approximately 10 minute frequencies during the peak hour in the study area;
- **BT Route 5A (Bovaird)** is a local route that runs along Bovaird Dr and Airport Rd, connecting Mount Pleasant GO Station in Brampton to Westwood Mall in Mississauga operating on approximately 20 minute frequencies;
- **BT Route 30 (Airport Road)** is a local route that serves Airport Rd, connecting Mayfield Rd to Westwood Mall with 10 minute headways during peak hours.
- **BT 20A (East Industrial)** is a local route that connects Bramalea Terminal to the east industrial employment area of Brampton (including Production Rd/Driver Rd) on 25 minute headways during peak hours.
- **BT 11 (Steeles)** is a local route that connects Lisgar GO Station in the City of Mississauga to Humber College along Steeles Ave with frequencies of 10 minutes during peak hours.

Exhibit 2-2 illustrates the transit services within the study area.

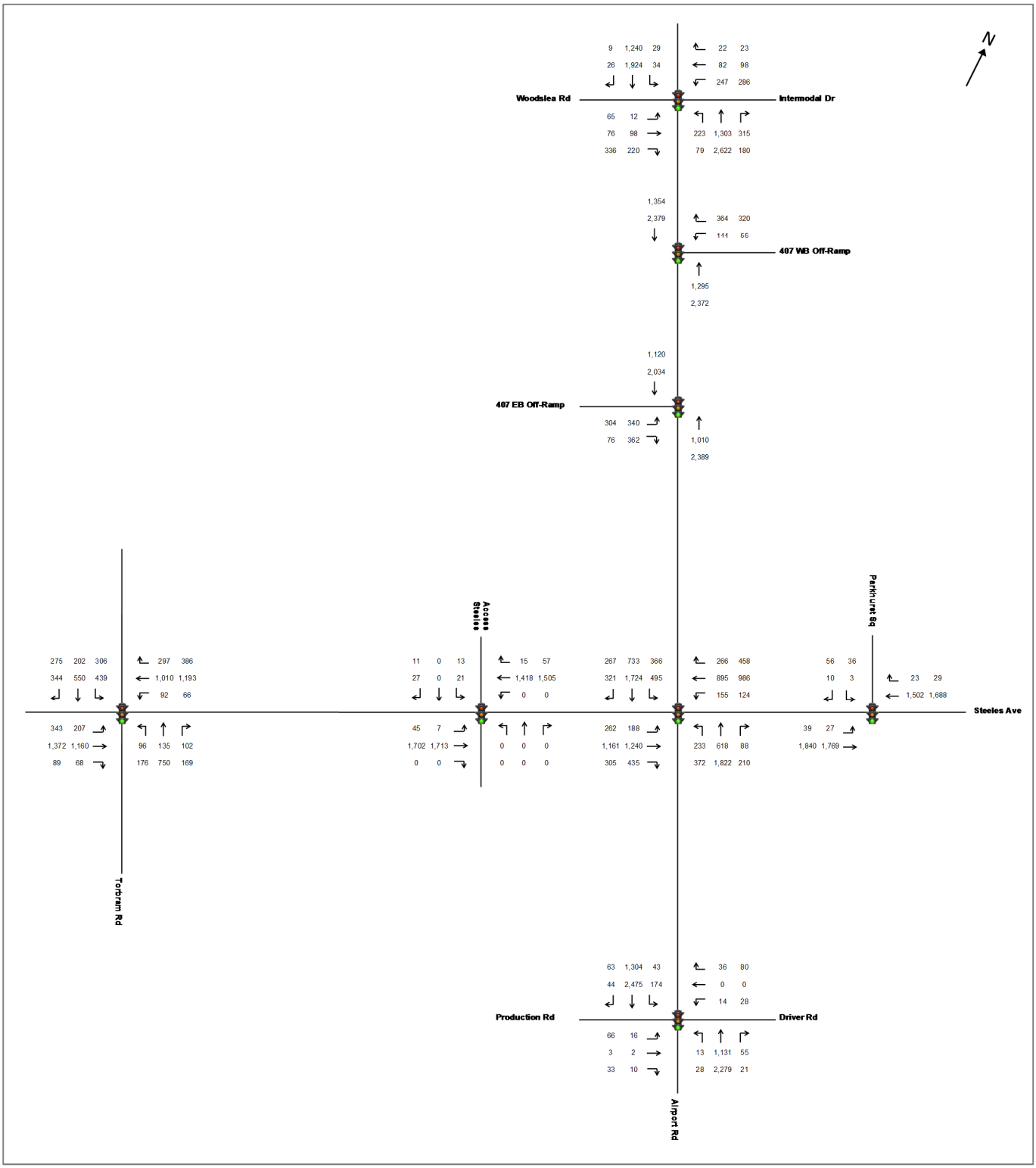
Exhibit 2-2: BT in the Study Area

2.4 Existing Traffic Operations

The existing conditions analysis represents traffic operations during base year 2017. An annual compound growth rate of 1.0% was applied to all count volumes obtained in years prior to 2017 in order to bring all counts to a consistent base year.

Existing conditions traffic volumes are illustrated in Exhibit 2-3.

Exhibit 2-3: Existing Volumes in AM (PM) Peak Hours



A summary of critical movements identified during the existing conditions analysis is provided in Exhibit 2-4, with a detailed output of the Synchro analysis provided in the Appendix.

Exhibit 2-4: Existing Critical Movements Summary

INTERSECTION	AM PEAK					PM PEAK				
	LOS	Critical Movements				LOS	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Airport Rd & Woodslea Rd / Intermodal Dr	D	EBL	E	0.13	10.3	D	EBL	E	0.40	42.1
		EBT	E	0.91	56.1		EBT	E	1.10	81.0
		WBL	E	0.78	52.4		WBL	E	0.87	109.6
		WBT	E	0.60	48.2		NBT	F	1.14	325.5
		NBL	F	1.03	116.8					
		SBT	D	0.89	212.0					
Airport Rd & 407 WB Off-Ramp	B	WBL	E	0.68	51.4	B	WBR	E	0.76	71.3
		WBR	E	0.69	62.9					
Airport Rd & 407 EB Off-Ramp	B	EBL	E	0.85	90.0	B	EBL	E	0.75	58.4
		EBR	E	0.85	110.6					
Airport Rd & Steeles Ave E	E	EBL	E	0.76	41.2	E	EBL	F	0.84	62.3
		EBT	D	0.93	145.4		EBT	D	0.86	100.1
		WBL	E	0.85	69.6		WBL	E	0.85	56.2
		NBL	F	1.05	67.8		WBT	D	0.87	119.6
		NBT	E	0.48	86.1		WBR	E	0.90	157.7
		NBR	F	0.07	18.4		NBL	E	0.85	75.8
		SBL	E	0.89	101.8		NBT	D	0.99	206.7
		SBT	D	0.92	174.0		SBL	F	1.38	107.0
							SBR	E	0.37	67.1
Airport Rd & Production Rd / Driver Rd	A	EBL	E	0.35	12.5	B	EBL	E	0.57	33.6
		EBT	E	0.04	7.4		EBT	E	0.06	11.4
		WBT	E	0.22	11.2		WBT	E	0.28	17.2
		WBR	E	0.03	1.5		WBR	E	0.06	15.1
Steeles Ave E & Torbram Rd	D	EBL	E	0.66	43.6	D	EBL	F	0.92	80.4
		WBL	F	0.68	48.4		WBL	E	0.66	29.2
		NBL	F	0.75	53.8		NBL	F	0.93	96.5
		SBL	E	0.84	84.7		NBT	E	0.92	146.4
							SBL	F	1.02	78.4
Steeles Ave E & Convention Centre	A	SBL	E	0.26	15.5	A	SBL	E	0.23	10.7
		SBR	E	0.02	10.2		SBR	E	0.01	6.5
Steeles Ave E & Parkhurst Sq	A	SBL	E	0.00	-	A	SBL	E	0.26	12.7
		SBR	E	0.01	-		SBR	E	0.02	11.4

The study intersections are currently operating as follows:

- Airport Road & Woodslea Road / Intermodal Drive is operating at LOS D during both peak hours. In the a.m. peak, southbound volumes are high and there are limited gaps in the traffic, causing the NBL movement to operate at LOS F. In the p.m. peak, volumes are higher in the northbound direction, and the NBT movement operates above capacity at LOS F. Additionally, the lack of dedicated SBR and EBR lanes is causing added delays to through movements on these approaches.
- The intersections between Airport Road and each of the Highway 407 off-ramps are operating well during both peak hours.

- Airport Road & Steeles Avenue is operating near capacity during both peak hours, at LOS E for both. Volumes are high on all four approaches, and so movements compete for available green-time. Despite dual-lefts having already been implemented on the northbound, southbound, and eastbound approaches, all left-turn movements operate near or at capacity. The SBT and EBT movements are approaching capacity in the a.m. peak, while the NBT, EBT, and WBT movements are approaching capacity in the p.m. peak.
- Steeles Avenue & Torbram Road is operating at LOS D during both peak hours. Similar to the case with Airport Road & Steeles Road, volumes at this intersection are high on all four approaches and movements compete for green-time. Despite dual-lefts having already been implemented on the northbound, southbound, and eastbound approaches, all left-turn movements operate near or at capacity. The NBT movement is approaching capacity during the p.m. peak hour.
- The intersections of Airport Road & Production Road / Drive Road, Steeles Avenue & Convention Centre Access, and Steeles Avenue & Parkhurst Square are all operating well during both peak hours. However, movements on the minor approaches still experience delays due to having limited green-time, with priority allocation given to the major approaches.

2.5 Existing Model Calibration

The Existing traffic models were calibrated to better reflect measured field conditions accomplished by adjusting either the Lane Utilization Factor (LUF) or Lost Time Adjustment (LTA) for certain movements.

Adjustments made to the existing traffic models are outlined in Exhibit 2-5.

Exhibit 2-5: Existing Model Calibration Parameters

PERIOD	INTERSECTION	MOVEMENT	ADJUSTED PARAMETER	ADJUSTMENT VALUE
AM Peak	Airport & Steeles	EBT	LUF	1.0
PM Peak	Airport & Steeles	NBT	LUF	1.0
		SBL	LTA	- 2 sec
	Airport & Woodslea/Intermodal	EBT	LUF	1.0
		NBT	LUF	1.0

These adjustments were applied using the methodologies outlined in Section 1.5.

3 Site Traffic & Parking

3.1 Ridership Forecasts

Ridership forecasts were developed using the Greater Golden Horseshoe Model (GGHM), a state-of-practice multi-modal travel demand model that estimates future travel demands within the Greater Golden Horseshoe. The GGHM was developed to forecast peak period demand in support of Growth Plan policies and has the capability of predicting mode shifts resulting from new public transit infrastructure. It can also be used to test network responses to changes in link characteristics such as transit vehicle frequency, operating speed, station location, and parking availability.

Future year forecasts were previously developed for a number of horizon years including 2031, 2041, and 2051. A number of road network improvements and expansions are also included in the future year models, including numerous widenings along the 400-series highways and major arterial roads. Transit infrastructure included in future models represent projects that are currently committed and funded. While is possible that additional projects will be funded over the upcoming years, this method represents a conservative approach. The following is a list of rapid transit projects that were included in the future year models:

- Toronto-York Spadina Subway Extension (TYSSE);
- 407 Transitway Central Section (Jane Street to Kennedy Road);
- VIVA routes and busways;
- Mississauga 403 Transitway;
- Eglinton Crosstown LRT;
- Sheppard LRT;
- Finch West LRT;
- Yonge Subway Extension to Richmond Hill;
- Two-way all-day GO Rail service (Regional Express Rail);
- Scarborough RT Extension;
- Hurontario-Main LRT; and,
- Highway 427 Transitway.

In addition to developing separate scenarios for the horizon years studied, alternative GGHM scenarios were also developed to represent different levels of funding for the Transitway-3 project: one representing an eleven-station structure and a second representing a reduced eight-station structure. It should also be noted that forecasts were developed only for the a.m. peak period, and so adjustment factors will be used to estimate p.m. peak demands.

With input from the MTO, a horizon year of 2031 was selected as the baseline for determining road and intersection requirements as part of this traffic impact study. The ridership forecasts used for the purposes of this study were taken from the 2031 GGHM model showing the reduced eight-station structure. Demands corresponding to the eight-station scenario for year 2031 are outlined in Exhibit 3-1.

Exhibit 3-1: 2031 AM Peak Hour Boardings

STATION	TOTAL BOARDINGS	PARK-AND-RIDE	WALK / TRANSIT	% PARK-AND-RIDE	% WALK / TRANSIT
Pine Valley	210	130	80	62%	38%
Martin Grove	420	170	250	40%	60%
Highway 27	400	170	230	43%	58%
Highway 50	790	260	530	33%	67%
Goreway	320	180	140	56%	44%
Airport	**610**	**120**	**490**	**20%**	**80%**
Dixie	1,770	110	1,660	6%	94%
Hurontario	1,320	170	1,150	13%	87%
Total:	5,840	1,310	4,530	22%	78%

Note that a ninth station may also be included at Bramalea (between Dixie and Airport), however this station would operate solely as a transit interlining/transfer station and therefore generate no park-and-ride demand.

3.2 Trip Generation

Peak hour trips to and from the station were estimated using the GGHM ridership forecasts presented in Exhibit 3-1. Because walk/transit boardings do not translate into vehicle trips generated, only park-and-ride demands were considered at this stage.

Park-and-ride boardings were equated to inbound vehicle trips at an assumed factor of 10:11, or 1.1 riders per park-and-ride vehicle. However, this only provides an indication of inbound trips to the station, and not of outbound trips leaving the station. Furthermore, the park-and-ride demands were developed only for the a.m. peak hour and not for the p.m. peak hour.

The ITE Trip Generation Manual (9th edition) was used to estimate a.m. peak outbound trips, as well as p.m. peak inbound and outbound trips. Average trip generation rates for bus stations with park-and-ride lots are indicated in Exhibit 3-2.

Exhibit 3-2: ITE Trip Generation Rates for Park-and-Ride Lots

LAND USE (CODE)	UNITS	AM PEAK HOUR		PM PEAK HOUR	
		Trip Rate	Inbound / Outbound	Trip Rate	Inbound / Outbound
Park-and-ride with bus service (090)	/ parking space	0.71	79% / 21%	0.62	25% / 75%

The 2031 GGHM forecasts indicate a demand of 120 park-and-ride boardings at Airport Station during the a.m. peak hour. Exhibit 3-3 lists the estimated site traffic generated given the above assumptions.

Exhibit 3-3: Vehicle Trips Generated by Airport Station

AM PEAK TRIPS		PM PEAK TRIPS	
Inbound	Outbound	Inbound	Outbound
109*	29	30	90

** Calculated based on forecasted 2031 a.m. park-and-ride boardings, at a factor 1.0 inbound vehicles per 1.1 boardings.*

Additional Demands from Goreway

In the event that the adjacent Goreway Station (to the east) is not implemented, it is anticipated that the projected demands for Goreway Station would shift to Airport Station. Airport Station would therefore generate a greater amount of site traffic and require more parking spaces in this scenario.

The 2031 GGHM forecasts indicate a combined demand of 300 park-and-ride boardings for Airport and Goreway stations during the a.m. peak hour. Exhibit 3-3 lists the estimated site traffic generated given the assumption that Goreway demands shift to Airport Station.

Exhibit 3-4: Vehicle Trips Generated (with combined Goreway demands)

AM PEAK TRIPS		PM PEAK TRIPS	
Inbound	Outbound	Inbound	Outbound
273*	72	75	226

** Calculated based on forecasted 2031 a.m. park-and-ride boardings, at a factor 1.0 inbound vehicles per 1.1 boardings.*

3.3 Trip Distribution

An origin/destination map showing the origin of park-and-ride trips destined to Airport Station was extracted from the 2031 GGHM and can be found attached in the Appendix. The model runs correspond to 2031 a.m. conditions for the eight-station Transitway structure, and with the assumption that the 'Central' and 'East' Transitway sections exist. Note that the model does not account for an extension of the Transitway west beyond Hurontario Street (i.e. beyond the 'Transitway-3' limits).

Using this map, inbound trips were tabulated in terms of general direction of origin (i.e. north, south, east or west) and assigned to the study area intersections as a percentage of total inbound trips. Distribution of outbound trips was assumed to the same as inbound trips (e.g. the percentage of inbound trips originating from the north is equal to the percentage of outbound trips destined to the north). Trip distribution percentages were assumed to be equal during both the a.m. and p.m. peak hours.

The resulting trip distribution percentages to and from the station are illustrated in Exhibit 3-5 (assuming a separate Goreway station exists), and in Exhibit 3-8 (assuming demands from Goreway shift to Airport Station). By then applying the trip generation values from Exhibit 3-3 to the trip distribution percentages, the site generated traffic was assigned to study area intersections and is indicated in Exhibit 3-6/Exhibit 3-7 (assuming a separate Goreway station exists) and Exhibit 3-9/Exhibit 3-10 (assuming demands from Goreway shift to Airport Station).

Exhibit 3-5: Trip Distribution in AM and PM Peak Hours (with separate Goreway station)

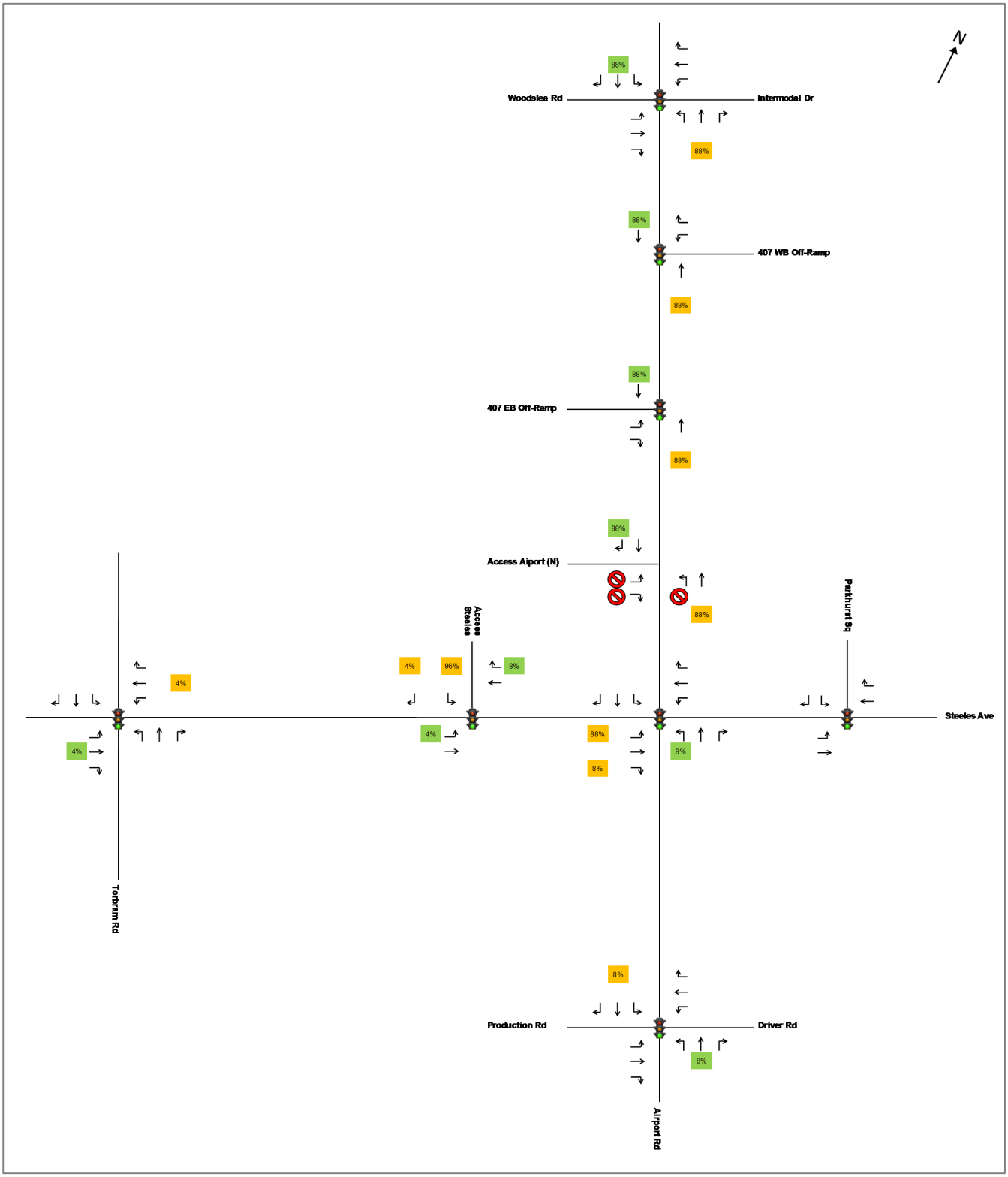


Exhibit 3-6: Site Generated Traffic in AM Peak Hour (with separate Goreway Station)

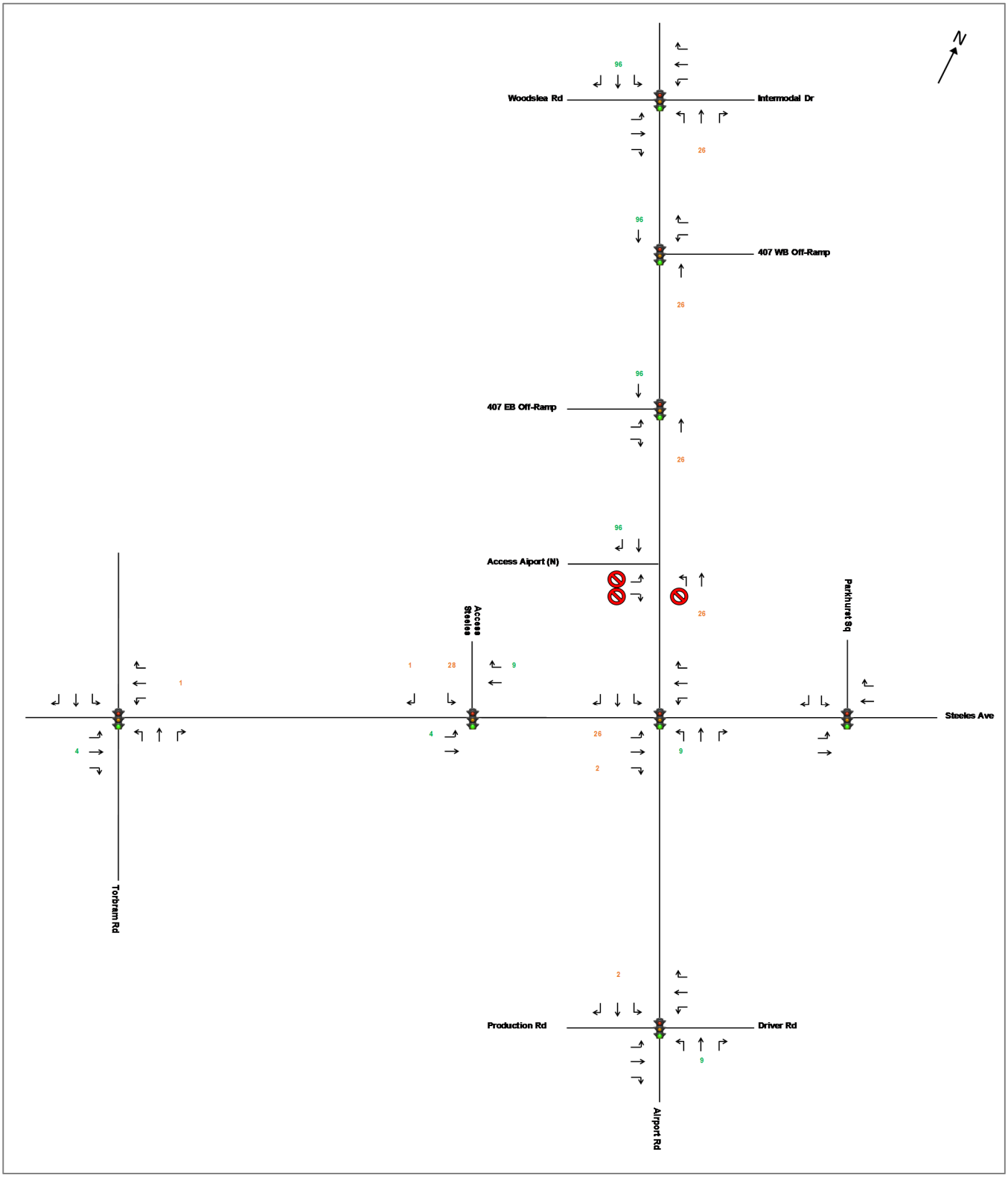


Exhibit 3-7: Site Generated Traffic in PM Peak Hour (with separate Goreway Station)

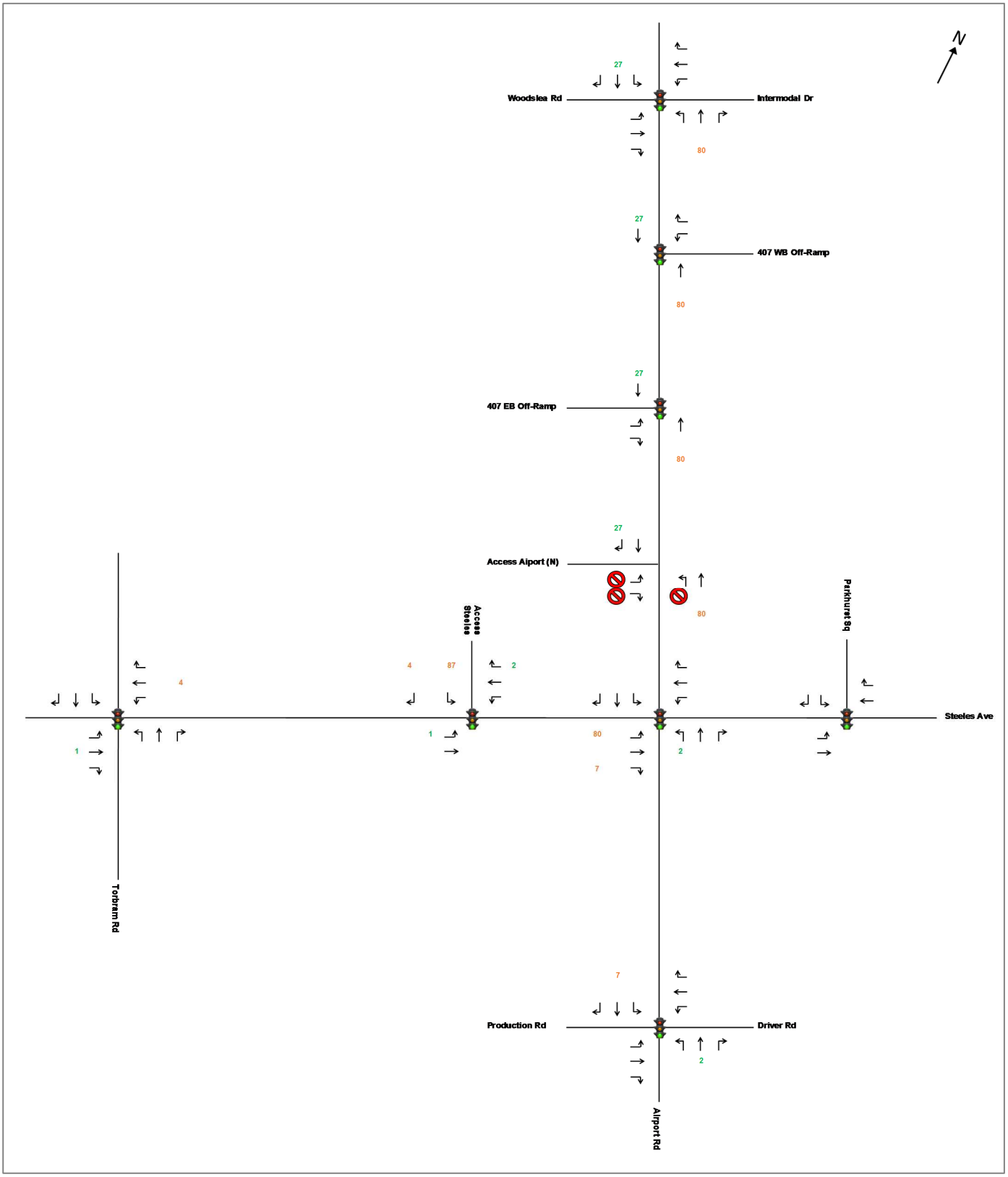


Exhibit 3-8: Trip Distribution in AM and PM Peak Hours (with combined Goreway demands)

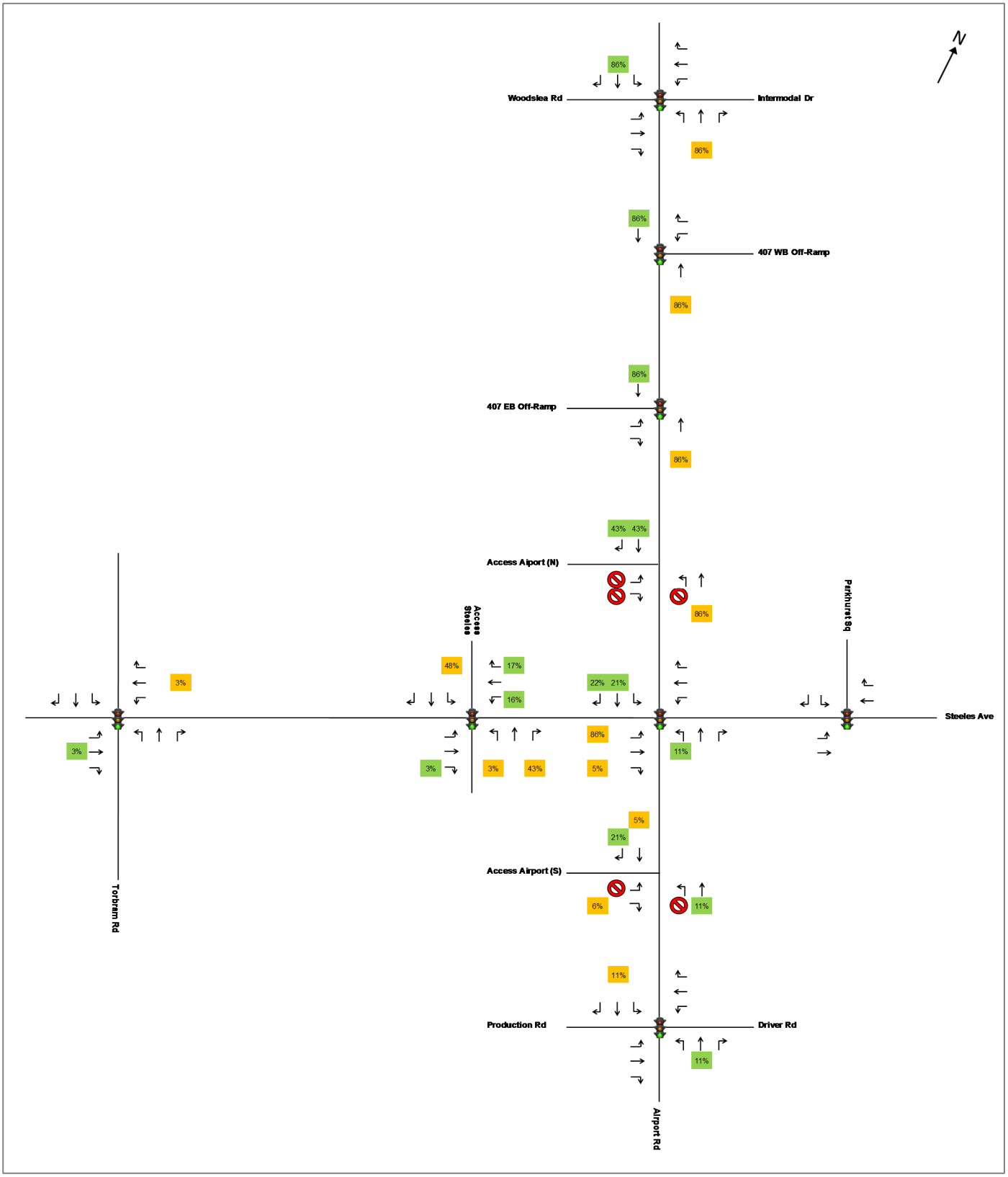


Exhibit 3-9: Site Generated Traffic in PM Peak Hour (with combined Goreway demands)

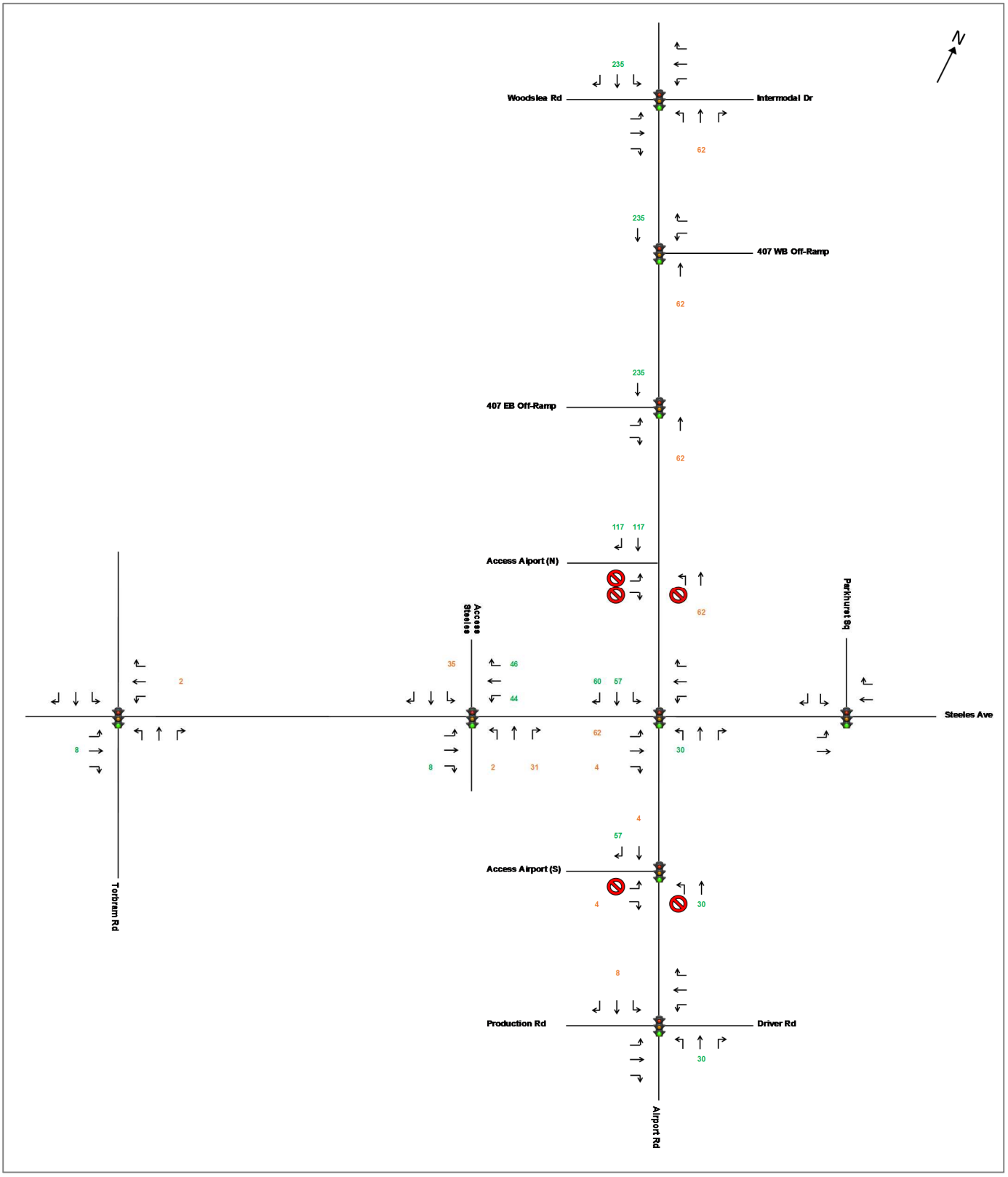
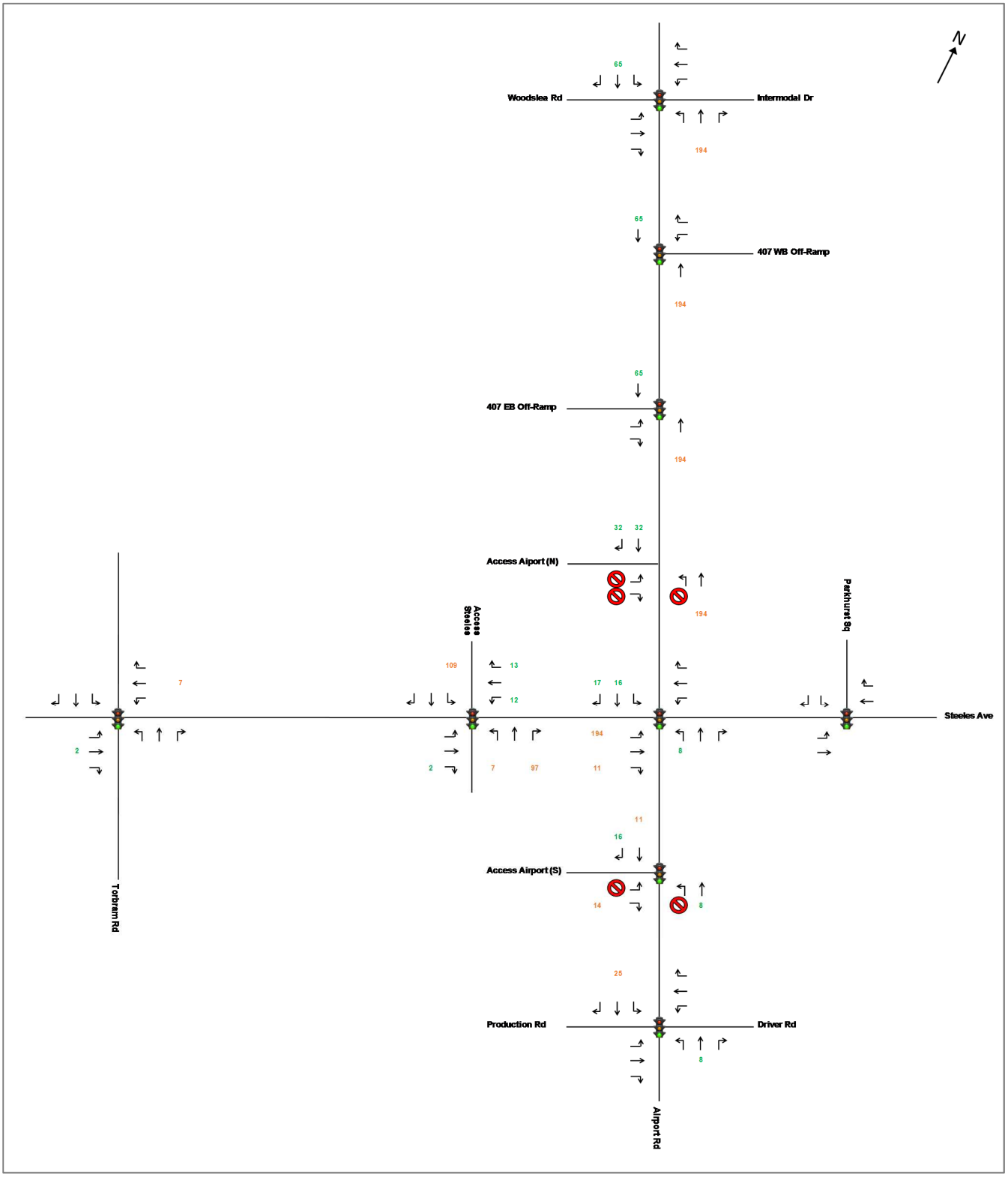


Exhibit 3-10: Site Generated Traffic in PM Peak Hour (with combined Goreway demands)



3.4 Parking Demands

In order to estimate parking demands at each of the Transitway stations, data from various GO transit stations nearby the study area was analyzed to study the relationship between inbound vehicle trips and average parking lot utilization. Four GO stations were considered, comprising of Brampton, Bramalea, Malton, and Etobicoke North stations.

The average number of inbound vehicle trips made to each of these GO stations during the a.m. peak period (defined as 6:30-9:30 am) were determined using 2011 Transportation Tomorrow Survey (TTS) data. The data was filtered to only include trips made via the auto driver mode, as this corresponds directly to number of inbound passenger vehicles.

Parking data for the GO transit stations was obtained from the *GO Transit Rail Parking and Station Access Plan (2013)* prepared for Metrolinx. The report notes the total capacity and average utilization of each GO station parking lot, which were used to calculate average parking demands. Note that the parking data from this report is dated May-2012, which is similar to the time period covered by the 2011 TTS.

By comparing the number of inbound auto drivers during the a.m. peak period to the average parking lot demand at each station, a representative “parking factor” was determined. These values are indicated in the below Exhibit 3-11.

Exhibit 3-11: Parking Demand Factors for nearby GO Transit Stations

2011 TTS AM PEAK PERIOD *		2012 GO STATION PARKING **			PARKING FACTOR
GO Station	Auto Drivers	Capacity	Utilization	Demand	
Brampton	860	891	101%	900	1.046
Bramalea	1,360	2,381	81%	1,929	1.418
Malton	580	731	95%	694	1.197
Etobicoke North	410	532	97%	516	1.259
Total	*3,210*	*4,535*	*89%*	*4,039*	***1.258***

** AM peak period inbound vehicles estimated using 2011 TTS data, and rounded to the nearest 10.*

*** GO parking data obtained from the "GO Transit Rail Parking and Station Access Plan" (2013), and is dated May-2012.*

This “parking factor” was then applied to the a.m. peak period inbound trips estimated at each Transitway station. Note that park-and-ride forecasts (and congruently, estimated inbound vehicle trips) for the a.m. peak hour can be converted to a.m. peak period forecasts by applying a factor of 2.174, as analysis of the TTS indicated that 46% of 3-hour a.m. peak period trips occur within the single a.m. peak hour.

The resulting estimated parking demands at each Transitway station are provided in Exhibit 3-12. Parking demands are provided for both the 2031 horizon used for the purposes of this traffic study, as well as for the 2051 horizon established to represent “ultimate” conditions.

Exhibit 3-12: Estimated Parking Demands for each Transitway Station

STATION	GGHM INBOUND TRIPS *				PARKING DEMAND ***	
	AM Peak Hour		AM Peak Period **			
	2031	2051	2031	2051	2031	2051
Pine Valley	118	164	257	356	323	448
Martin Grove	155	227	336	494	423	622
Highway 27	155	236	336	514	423	646
Highway 50	236	409	514	889	646	1119
Goreway	164	291	356	632	448	796
Airport	**109**	**191**	**237**	**415**	**298**	**522**
Dixie	100	164	217	356	273	448
Hurontario	155	245	336	534	423	671

** Calculated based on forecasted a.m. park-and-ride boardings, at a factor 1.0 inbound vehicles per 1.1 boardings.*

*** Peak hour trips can be converted to peak period trips at a factor of 2.174.*

**** Parking demands calculated by multiplying estimated a.m. peak period inbound trips by a factor of 1.258.*

Additional Demands from Goreway

In the instance that a separate Goreway station is not implemented, it is assumed that these demands will shift to Airport Station. The resultant parking demand for Airport Station should be taken as the combined demands listed Exhibit 3-12 for Airport and Goreway (i.e. 746 spaces in 2031, and 1,318 spaces in 2051).

4 Future Conditions

4.1 Future Background Operations

Future conditions analysis were undertaken for horizon year 2031. The City of Mississauga and Region of Peel population and trip-end growth forecasts were considered in the preparation of the traffic growth forecast. Relevant documents are listed as follows:

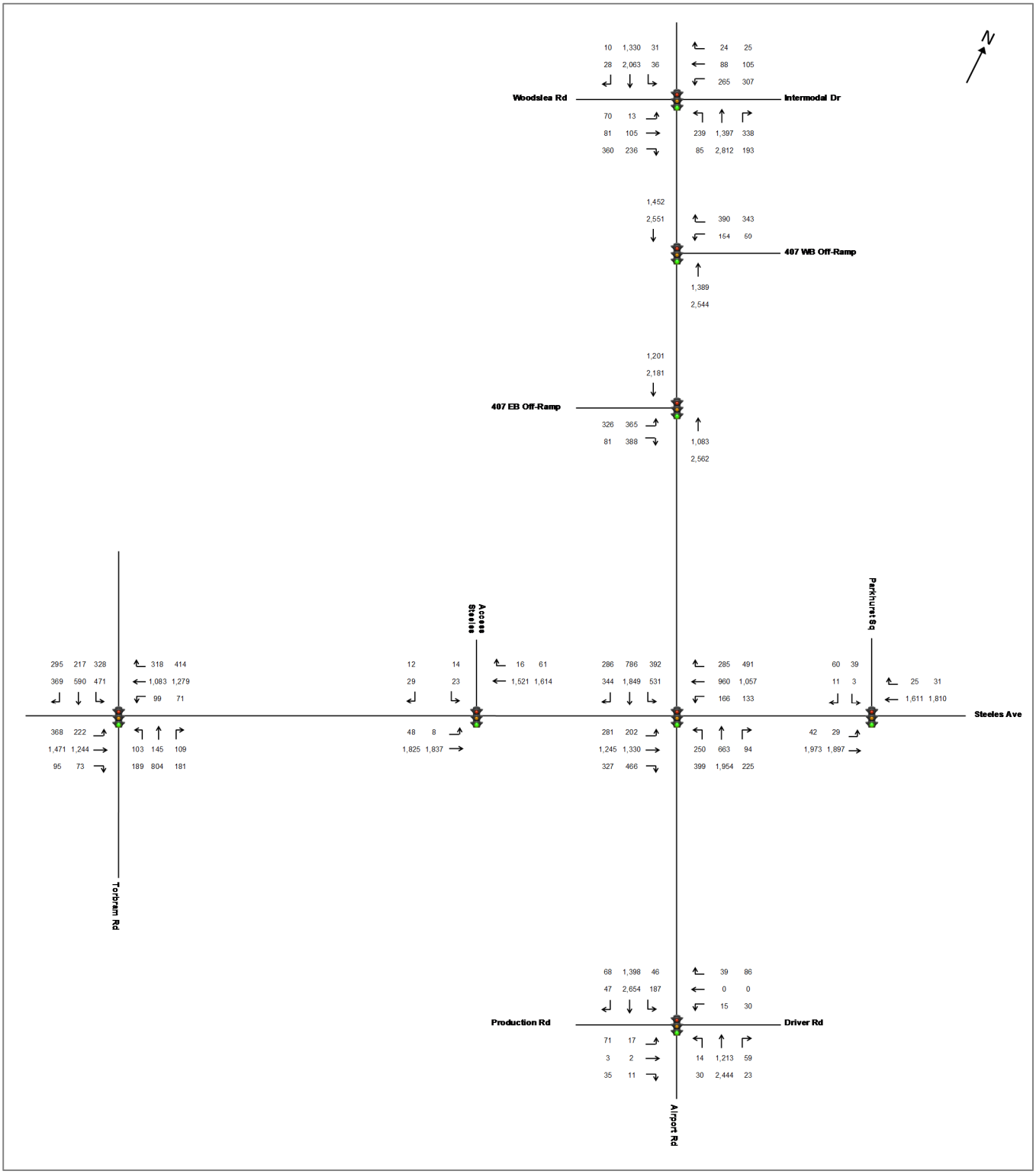
- Greater Toronto and Hamilton Area – "Growth Plan for the Greater Golden Horseshoe" (2017);
- City of Mississauga – "Mississauga Official Plan" (2016); "Population, Demographics & Housing" (2013); and "Moving Mississauga" (2011); and,
- Region of Peel – "Long Range Transportation Plan" (2012).

Review of the above documents showed that population growth is estimated to be 0.5% to 0.6% per year between 2011 and 2031, while trip ends are forecasted to increase by 0.9% to 1.0% per year during that same period time.

However, many major intersections nearby the Transitway are already operating at or above capacity during peak times, suggesting that there is limited remaining capacity available to serve added future demands. While trip ends are forecasted to increase up to 1.0% per year, it is expected that some "peak spreading" will occur – where some motorists alter their departure times to avoid congestion during the peak hours. Rather than growth occurring uniformly throughout the day, this results in less growth during the peak hours and greater growth during off-peak times.

Given the above, an annual compound growth rate of 0.5% per year was used to represent background growth (unrelated to the implementation of the Transitway) during the a.m. and p.m. peak hours. Future traffic volumes with background growth applied are illustrated in Exhibit 4-1.

Exhibit 4-1: Future Background Volumes in AM (PM) Peak Hours



A summary of critical movements identified during the future background conditions analysis is provided in Exhibit 4-2, with a detailed output of the Synchro analysis provided in the Appendix.

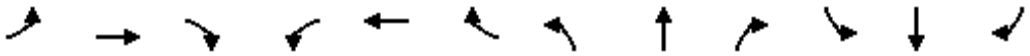
Exhibit 4-2: Future Background Critical Movements Summary

INTERSECTION	AM PEAK					PM PEAK				
	LOS	Critical Movements				LOS	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Airport Rd & Woodslea Rd / Intermodal Dr	E	EBL	E	0.12	10.3	F	EBL	E	0.48	45.4
		EBT	E	0.56	37.2		EBT	F	1.28	94.0
		WBL	E	0.73	52.7		WBL	E	0.88	125.0
		WBT	E	0.55	47.9		NBT	F	1.23	368.2
		NBL	D	0.77	125.7					
		SBT	F	1.08	261.1					
Airport Rd & 407 WB Off-Ramp	B	WBL	E	0.69	57.3	B	WBR	E	0.79	77.1
		WBR	E	0.76	73.4					
Airport Rd & 407 EB Off-Ramp	B	EBL	E	0.78	88.5	B	EBL	E	0.79	63.8
		EBR	E	0.79	100.7					
Airport Rd & Steeles Ave E	D	EBL	F	0.85	52.2	E	EBL	F	1.21	82.6
		EBT	D	0.89	141.8		EBT	D	0.91	126.0
		WBL	F	1.11	89.1		WBL	F	1.13	71.5
		NBL	F	0.94	66.7		WBT	D	0.90	129.0
		SBL	F	0.99	122.5		NBL	E	0.86	81.5
		SBT	D	0.97	210.0		NBT	F	1.12	241.1
							SBL	F	1.04	98.3
							SBT	E	0.58	98.3
							SBR	E	0.54	87.2
Airport Rd & Production Rd / Driver Rd	A	EBL	E	0.38	13.0	B	EBL	E	0.63	39.0
		EBT	E	0.04	7.6		WBT	E	0.28	18.1
		WBT	E	0.23	11.7		WBR	E	0.21	21.7
		WBR	E	0.04	2.6					
Steeles Ave E & Torbram Rd	D	EBL	E	0.77	55.0	E	EBL	F	1.00	89.0
		WBL	F	0.71	60.0		EBT	D	0.87	163.4
		NBL	F	0.80	61.8		WBL	F	0.96	53.1
		SBL	E	0.89	99.3		WBT	D	0.94	166.5
							NBL	F	0.94	102.6
							NBT	E	0.97	164.1
							SBL	F	0.94	78.9
Steeles Ave E & Convention Centre	A	SBL	E	0.28	16.3	A	SBL	E	0.25	11.2
		SBR	E	0.06	11.3		SBR	E	0.01	7.0
Steeles Ave E & Parkhurst Sq	A	SBL	E	0.00	-	A	SBL	E	0.28	13.4
		SBR	E	0.01	-		SBR	E	0.02	11.9

With background growth added, the study intersections are expected to operate as follows:

- Airport Road & Woodslea Road / Intermodal Drive deteriorates in both peak hours, from LOS D to LOS E in the a.m. peak and from LOS D to LOS F in the p.m. peak. With added background growth, the SBT movement now exceeds capacity during the a.m. peak. The already critical NBT movement is shown to further deteriorate in the p.m. peak, and 95th percentile queues now reach the Highway 407 westbound off-ramp located approximately 350 metres upstream.

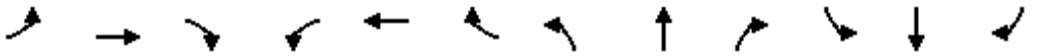
Appendix A – Existing (2017) Conditions Synchro Output



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	225	1261	74	100	1098	323	104	147	111	477	598	374
v/c Ratio	0.66	0.73	0.11	0.69	0.63	0.42	0.76	0.34	0.33	0.84	0.73	0.61
Control Delay	69.1	40.4	0.3	104.1	25.5	3.4	93.0	52.9	2.6	70.2	54.6	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.1	40.4	0.3	104.1	25.5	3.4	93.0	52.9	2.6	70.2	54.6	9.8
Queue Length 50th (m)	31.2	110.3	0.0	28.9	40.2	4.8	28.2	19.2	0.0	65.9	81.3	5.0
Queue Length 95th (m)	43.6	#153.4	0.0	48.4	113.8	9.4	#53.8	27.9	0.0	84.7	93.5	31.3
Internal Link Dist (m)		358.4			1114.0			261.4			215.3	
Turn Bay Length (m)	66.0		102.0	97.0		200.0	85.0		106.0	117.0		130.0
Base Capacity (vph)	497	1731	665	171	1733	766	152	592	396	620	1040	687
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.73	0.11	0.58	0.63	0.42	0.68	0.25	0.28	0.77	0.57	0.54

Intersection Summary

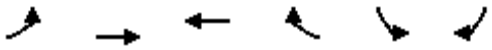
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	207	1160	68	92	1010	297	96	135	102	439	550	344
Future Volume (vph)	207	1160	68	92	1010	297	96	135	102	439	550	344
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.6	6.6	5.0	6.6	6.6	5.0	7.1	7.1	5.0	7.1	7.1
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.97	1.00	1.00	0.93	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3026	4334	1442	1472	4483	1471	1426	2684	1145	3340	3476	1475
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3026	4334	1442	1472	4483	1471	1426	2684	1145	3340	3476	1475
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)	225	1261	74	100	1098	323	104	147	111	477	598	374
RTOR Reduction (vph)	0	0	44	0	0	198	0	0	93	0	0	269
Lane Group Flow (vph)	225	1261	30	100	1098	125	104	147	18	477	598	105
Confl. Peds. (#/hr)	12		20	20		12	9		39	39		9
Heavy Vehicles (%)	17%	21%	9%	24%	17%	8%	28%	36%	33%	6%	5%	8%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	15.7	55.9	55.9	13.9	54.1	54.1	13.6	22.7	22.7	23.8	32.9	32.9
Effective Green, g (s)	15.7	55.9	55.9	13.9	54.1	54.1	13.6	22.7	22.7	23.8	32.9	32.9
Actuated g/C Ratio	0.11	0.40	0.40	0.10	0.39	0.39	0.10	0.16	0.16	0.17	0.23	0.23
Clearance Time (s)	5.0	6.6	6.6	5.0	6.6	6.6	5.0	7.1	7.1	5.0	7.1	7.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	339	1730	575	146	1732	568	138	435	185	567	816	346
v/s Ratio Prot	c0.07	c0.29		0.07	0.24		0.07	0.05		c0.14	c0.17	
v/s Ratio Perm			0.02			0.08			0.02			0.07
v/c Ratio	0.66	0.73	0.05	0.68	0.63	0.22	0.75	0.34	0.10	0.84	0.73	0.30
Uniform Delay, d1	59.6	35.6	25.8	60.9	34.9	28.8	61.6	52.0	49.9	56.3	49.5	44.1
Progression Factor	1.00	1.00	1.00	1.35	0.64	0.46	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.8	2.7	0.2	11.8	1.7	0.8	20.5	0.5	0.2	10.9	3.4	0.5
Delay (s)	64.5	38.4	26.0	94.2	23.9	13.9	82.1	52.5	50.2	67.1	52.9	44.6
Level of Service	E	D	C	F	C	B	F	D	D	E	D	D
Approach Delay (s)		41.5			26.4			60.3			55.5	
Approach LOS		D			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	42.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.7
Intersection Capacity Utilization	85.0%	ICU Level of Service	E
Analysis Period (min)	15		

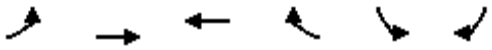
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	8	1862	1541	16	23	29
v/c Ratio	0.03	0.47	0.39	0.01	0.21	0.23
Control Delay	0.3	0.6	1.7	0.2	67.3	24.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.3	0.6	1.8	0.2	67.3	24.6
Queue Length 50th (m)	0.0	1.7	12.8	0.0	6.2	0.0
Queue Length 95th (m)	m0.1	2.0	m15.0	m0.0	15.5	10.2
Internal Link Dist (m)		1114.0	177.7		103.6	
Turn Bay Length (m)	56.0			60.0	36.0	
Base Capacity (vph)	253	3987	3953	1384	554	515
Starvation Cap Reductn	0	0	599	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.47	0.46	0.01	0.04	0.06

Intersection Summary

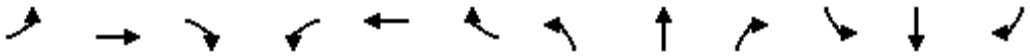
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	7	1713	1418	15	21	27
Future Volume (vph)	7	1713	1418	15	21	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4	7.4	7.4	7.5	7.5
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1824	4601	4561	1595	1825	1633
Flt Permitted	0.15	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	292	4601	4561	1595	1825	1633
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	1862	1541	16	23	29
RTOR Reduction (vph)	0	0	0	2	0	28
Lane Group Flow (vph)	8	1862	1541	14	23	1
Confl. Peds. (#/hr)	1			1		
Heavy Vehicles (%)	0%	14%	15%	0%	0%	0%
Turn Type	Perm	NA	NA	Perm	Prot	Perm
Protected Phases		2	6		8	
Permitted Phases	2			6		8
Actuated Green, G (s)	118.4	118.4	118.4	118.4	6.7	6.7
Effective Green, g (s)	118.4	118.4	118.4	118.4	6.7	6.7
Actuated g/C Ratio	0.85	0.85	0.85	0.85	0.05	0.05
Clearance Time (s)	7.4	7.4	7.4	7.4	7.5	7.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	246	3891	3857	1348	87	78
v/s Ratio Prot		c0.40	0.34		c0.01	
v/s Ratio Perm	0.03			0.01		0.00
v/c Ratio	0.03	0.48	0.40	0.01	0.26	0.02
Uniform Delay, d1	1.7	2.8	2.5	1.7	64.3	63.5
Progression Factor	0.06	0.10	0.60	0.20	1.00	1.00
Incremental Delay, d2	0.2	0.3	0.2	0.0	1.6	0.1
Delay (s)	0.3	0.6	1.7	0.3	65.9	63.6
Level of Service	A	A	A	A	E	E
Approach Delay (s)		0.6	1.7		64.6	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay	2.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	14.9
Intersection Capacity Utilization	52.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	204	1348	473	168	973	289	253	672	96	538	1874	349
v/c Ratio	0.76	0.93	0.82	0.83	0.78	0.47	1.05	0.48	0.20	0.89	0.92	0.54
Control Delay	79.2	48.0	29.1	72.0	50.2	5.4	128.7	56.9	15.3	79.8	50.4	19.9
Queue Delay	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.2	48.0	29.8	72.0	50.2	5.4	128.7	56.9	15.3	79.8	50.4	19.9
Queue Length 50th (m)	25.1	117.6	81.1	24.0	92.7	9.1	~39.4	60.3	0.0	76.4	149.5	28.5
Queue Length 95th (m)	#41.2	#145.4	#133.8	#69.6	109.6	14.5	#67.8	86.1	18.4	#101.8	174.0	m56.7
Internal Link Dist (m)		177.7			433.9			425.9			277.5	
Turn Bay Length (m)	175.0		160.0	208.0		160.0	135.0		114.0	200.0		126.0
Base Capacity (vph)	283	1452	578	205	1248	613	240	1406	481	632	2033	648
Starvation Cap Reductn	0	0	16	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.93	0.84	0.82	0.78	0.47	1.05	0.48	0.20	0.85	0.92	0.54

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

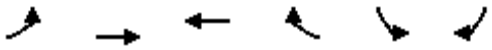
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	188	1240	435	155	895	266	233	618	88	495	1724	321
Future Volume (vph)	188	1240	435	155	895	266	233	618	88	495	1724	321
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.0	7.0	3.0	7.0	7.0	5.0	7.1	7.1	5.0	7.1	7.1
Lane Util. Factor	0.97	*1.00	1.00	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2832	5056	1570	1722	4768	1526	3372	4812	1328	3404	5092	1276
Flt Permitted	0.95	1.00	1.00	0.11	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2832	5056	1570	198	4768	1526	3372	4812	1328	3404	5092	1276
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)	204	1348	473	168	973	289	253	672	96	538	1874	349
RTOR Reduction (vph)	0	0	128	0	0	213	0	0	68	0	0	139
Lane Group Flow (vph)	204	1348	345	168	973	76	253	672	28	538	1874	210
Confl. Peds. (#/hr)							3					3
Heavy Vehicles (%)	25%	14%	4%	6%	10%	7%	5%	9%	23%	4%	3%	26%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6			4			8
Actuated Green, G (s)	13.3	40.2	40.2	48.5	36.7	36.7	10.0	40.9	40.9	25.0	55.9	55.9
Effective Green, g (s)	13.3	40.2	40.2	48.5	36.7	36.7	10.0	40.9	40.9	25.0	55.9	55.9
Actuated g/C Ratio	0.10	0.29	0.29	0.35	0.26	0.26	0.07	0.29	0.29	0.18	0.40	0.40
Clearance Time (s)	5.0	7.0	7.0	3.0	7.0	7.0	5.0	7.1	7.1	5.0	7.1	7.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	269	1451	450	197	1249	400	240	1405	387	607	2033	509
v/s Ratio Prot	0.07	c0.27		c0.07	0.20		0.08	0.14		c0.16	c0.37	
v/s Ratio Perm			0.22	0.22		0.05			0.02			0.16
v/c Ratio	0.76	0.93	0.77	0.85	0.78	0.19	1.05	0.48	0.07	0.89	0.92	0.41
Uniform Delay, d1	61.8	48.5	45.6	35.9	47.9	40.1	65.0	40.8	35.8	56.1	40.0	30.2
Progression Factor	1.01	0.75	0.60	1.36	0.94	0.66	0.93	1.35	6.73	1.18	1.09	1.68
Incremental Delay, d2	10.7	11.1	11.0	26.9	4.6	1.0	71.9	0.2	0.1	11.8	6.1	0.4
Delay (s)	73.4	47.7	38.4	75.6	49.8	27.3	132.2	55.4	241.3	77.9	49.5	51.3
Level of Service	E	D	D	E	D	C	F	E	F	E	D	D
Approach Delay (s)		48.1			48.3			91.9			55.3	
Approach LOS		D			D			F			E	

Intersection Summary			
HCM 2000 Control Delay	57.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	24.1
Intersection Capacity Utilization	91.8%	ICU Level of Service	F
Analysis Period (min)	15		

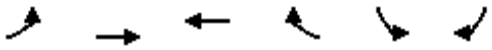
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	29	1923	1633	25	9	5
v/c Ratio	0.10	0.44	0.38	0.02	0.04	0.03
Control Delay	0.5	1.7	2.9	1.2	0.4	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.5	1.7	2.9	1.2	0.4	0.4
Queue Length 50th (m)	0.0	2.9	17.5	0.0	0.0	0.0
Queue Length 95th (m)	m0.2	14.6	54.2	1.9	0.0	0.0
Internal Link Dist (m)		433.9	330.4		103.8	
Turn Bay Length (m)	183.0			77.0		
Base Capacity (vph)	290	4394	4247	1121	550	273
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.44	0.38	0.02	0.02	0.02

Intersection Summary

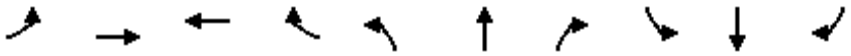
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	27	1769	1502	23	3	10
Future Volume (vph)	27	1769	1502	23	3	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.6	6.6	6.6	7.0	7.0
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.98	0.99	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.90	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.98	1.00
Satd. Flow (prot)	1690	4683	4768	1256	2165	916
Flt Permitted	0.13	1.00	1.00	1.00	0.98	1.00
Satd. Flow (perm)	234	4683	4768	1256	2165	916
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	29	1923	1633	25	3	11
RTOR Reduction (vph)	0	0	0	4	9	5
Lane Group Flow (vph)	29	1923	1633	21	0	0
Confl. Peds. (#/hr)	1			1	1	1
Heavy Vehicles (%)	8%	12%	10%	27%	33%	60%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		8	
Permitted Phases	2			6		8
Actuated Green, G (s)	123.2	123.2	116.7	116.7	3.2	3.2
Effective Green, g (s)	123.2	123.2	116.7	116.7	3.2	3.2
Actuated g/C Ratio	0.88	0.88	0.83	0.83	0.02	0.02
Clearance Time (s)	3.0	6.6	6.6	6.6	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	242	4121	3974	1046	49	20
v/s Ratio Prot	0.00	c0.41	0.34		0.00	
v/s Ratio Perm	0.10			0.02		c0.00
v/c Ratio	0.12	0.47	0.41	0.02	0.00	0.01
Uniform Delay, d1	1.3	1.7	2.9	2.0	66.8	66.8
Progression Factor	0.20	1.14	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.2	0.3	0.0	0.0	0.1
Delay (s)	0.4	2.1	3.3	2.0	66.9	67.0
Level of Service	A	A	A	A	E	E
Approach Delay (s)		2.1	3.2		66.9	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay	2.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	52.8%	ICU Level of Service	A
Analysis Period (min)	15		

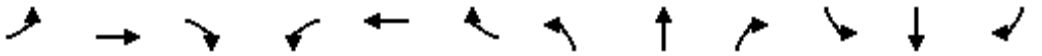
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	17	13	15	39	14	1229	60	189	2690	48
v/c Ratio	0.29	0.15	0.18	0.26	0.16	0.34	0.05	0.47	0.65	0.05
Control Delay	74.6	34.8	65.9	5.4	6.3	5.7	0.6	4.6	7.1	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.6	34.8	65.9	5.4	6.3	5.7	0.6	4.6	7.1	0.4
Queue Length 50th (m)	4.6	0.5	4.0	0.0	0.4	35.0	0.0	1.1	9.6	0.0
Queue Length 95th (m)	12.5	7.4	11.2	1.5	1.5	50.3	2.2	m2.1	242.4	m0.6
Internal Link Dist (m)		200.3	281.8			533.0			425.9	
Turn Bay Length (m)					86.0		230.0	192.0		115.0
Base Capacity (vph)	248	339	355	388	96	3579	1180	442	4147	1021
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.04	0.04	0.10	0.15	0.34	0.05	0.43	0.65	0.05

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	2	10	14	0	36	13	1131	55	174	2475	44
Future Volume (vph)	16	2	10	14	0	36	13	1131	55	174	2475	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5			7.5	7.5	3.0	6.7	6.7	3.0	6.7	6.7
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	0.99			1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.87			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00			0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1116	1177			1597	1182	1185	4601	1495	1738	4948	1208
Flt Permitted	0.75	1.00			0.75	1.00	0.04	1.00	1.00	0.20	1.00	1.00
Satd. Flow (perm)	878	1177			1260	1182	46	4601	1495	369	4948	1208
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	2	11	15	0	39	14	1229	60	189	2690	48
RTOR Reduction (vph)	0	10	0	0	0	37	0	0	14	0	0	9
Lane Group Flow (vph)	17	3	0	0	15	2	14	1229	46	189	2690	39
Confl. Peds. (#/hr)	3		2	2		3	2		5	5		2
Heavy Vehicles (%)	63%	100%	30%	14%	0%	36%	54%	14%	6%	5%	6%	32%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4	6		6	2		2
Actuated Green, G (s)	7.7	7.7			7.7	7.7	109.8	107.4	107.4	118.1	112.7	112.7
Effective Green, g (s)	7.7	7.7			7.7	7.7	109.8	107.4	107.4	118.1	112.7	112.7
Actuated g/C Ratio	0.06	0.06			0.06	0.06	0.78	0.77	0.77	0.84	0.81	0.81
Clearance Time (s)	7.5	7.5			7.5	7.5	3.0	6.7	6.7	3.0	6.7	6.7
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	48	64			69	65	55	3529	1146	386	3983	972
v/s Ratio Prot		0.00					0.00	0.27		c0.03	c0.54	
v/s Ratio Perm	c0.02				0.01	0.00	0.19		0.03	0.39		0.03
v/c Ratio	0.35	0.04			0.22	0.03	0.25	0.35	0.04	0.49	0.68	0.04
Uniform Delay, d1	63.8	62.7			63.3	62.6	5.4	5.2	3.9	2.3	5.8	2.7
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.41	1.09	0.41
Incremental Delay, d2	4.5	0.3			1.6	0.2	2.4	0.3	0.1	0.6	0.6	0.0
Delay (s)	68.2	62.9			64.9	62.8	7.8	5.5	4.0	3.8	7.0	1.2
Level of Service	E	E			E	E	A	A	A	A	A	A
Approach Delay (s)		65.9			63.4			5.4			6.7	
Approach LOS		E			E			A			A	

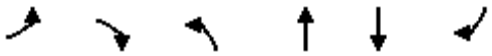
Intersection Summary			
HCM 2000 Control Delay	7.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.2
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	523	240	1098	2211
v/c Ratio	0.85	0.86	0.34	0.64
Control Delay	67.2	79.1	1.8	18.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	67.2	79.1	1.8	18.0
Queue Length 50th (m)	69.6	66.0	7.9	192.6
Queue Length 95th (m)	90.0	#110.6	7.2	237.1
Internal Link Dist (m)	491.5		277.5	378.4
Turn Bay Length (m)		205.0		
Base Capacity (vph)	665	301	3277	3458
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	0.79	0.80	0.34	0.64

Intersection Summary

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

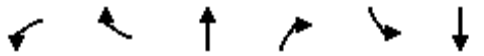


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	340	362	0	1010	2034	0
Future Volume (vph)	340	362	0	1010	2034	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6		6.6	6.6	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	0.96	0.85		1.00	1.00	
Flt Protected	0.97	1.00		1.00	1.00	
Satd. Flow (prot)	3222	1429		4561	4812	
Flt Permitted	0.97	1.00		1.00	1.00	
Satd. Flow (perm)	3222	1429		4561	4812	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	370	393	0	1098	2211	0
RTOR Reduction (vph)	12	12	0	0	0	0
Lane Group Flow (vph)	511	228	0	1098	2211	0
Heavy Vehicles (%)	8%	4%	0%	15%	9%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	26.2	26.2		100.6	100.6	
Effective Green, g (s)	26.2	26.2		100.6	100.6	
Actuated g/C Ratio	0.19	0.19		0.72	0.72	
Clearance Time (s)	6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	602	267		3277	3457	
v/s Ratio Prot	0.16			0.24	c0.46	
v/s Ratio Perm		c0.16				
v/c Ratio	0.85	0.85		0.34	0.64	
Uniform Delay, d1	55.0	55.0		7.3	10.3	
Progression Factor	1.00	1.00		0.21	1.62	
Incremental Delay, d2	10.8	22.3		0.2	0.7	
Delay (s)	65.7	77.3		1.8	17.3	
Level of Service	E	E		A	B	
Approach Delay (s)	69.4			1.8	17.3	
Approach LOS	E			A	B	

Intersection Summary			
HCM 2000 Control Delay	22.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	355	198	1408	2586
v/c Ratio	0.72	0.77	0.40	0.70
Control Delay	52.9	54.3	4.9	3.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	52.9	54.3	4.9	3.0
Queue Length 50th (m)	39.1	37.0	15.8	28.2
Queue Length 95th (m)	51.4	62.9	53.9	37.1
Internal Link Dist (m)	372.3		378.4	362.1
Turn Bay Length (m)		220.0		
Base Capacity (vph)	682	339	3555	3719
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	0.52	0.58	0.40	0.70

Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	144	364	1295	0	0	2379
Future Volume (vph)	144	364	1295	0	0	2379
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6	6.6			6.6
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.92	0.85	1.00			1.00
Flt Protected	0.98	1.00	1.00			1.00
Satd. Flow (prot)	3069	1376	4641			4856
Flt Permitted	0.98	1.00	1.00			1.00
Satd. Flow (perm)	3069	1376	4641			4856
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	157	396	1408	0	0	2586
RTOR Reduction (vph)	65	65	0	0	0	0
Lane Group Flow (vph)	290	133	1408	0	0	2586
Heavy Vehicles (%)	10%	8%	13%	0%	0%	8%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		6			2
Permitted Phases		8				
Actuated Green, G (s)	19.6	19.6	107.2			107.2
Effective Green, g (s)	19.6	19.6	107.2			107.2
Actuated g/C Ratio	0.14	0.14	0.77			0.77
Clearance Time (s)	6.6	6.6	6.6			6.6
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	429	192	3553			3718
v/s Ratio Prot	0.09		0.30			c0.53
v/s Ratio Perm		c0.10				
v/c Ratio	0.68	0.69	0.40			0.70
Uniform Delay, d1	57.2	57.3	5.5			8.2
Progression Factor	1.00	1.00	0.76			0.28
Incremental Delay, d2	4.2	10.2	0.3			0.5
Delay (s)	61.3	67.5	4.5			2.8
Level of Service	E	E	A			A
Approach Delay (s)	63.6		4.5			2.8
Approach LOS	E		A			A

Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	13	346	268	113	242	1416	342	37	2119
v/c Ratio	0.13	0.91dr	0.78	0.62	1.02	0.51	0.37	0.19	0.89
Control Delay	60.7	59.4	75.3	68.1	97.0	22.7	5.0	12.1	38.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.7	59.4	75.3	68.1	97.0	22.7	5.0	12.1	38.1
Queue Length 50th (m)	3.3	30.0	37.2	27.6	~62.0	124.3	15.9	3.6	189.8
Queue Length 95th (m)	10.3	#56.1	52.4	48.2	#116.8	104.1	20.0	7.9	212.0
Internal Link Dist (m)		247.6		157.3		362.1			334.5
Turn Bay Length (m)	60.0		57.0		88.0		91.0	120.0	
Base Capacity (vph)	106	406	380	203	238	2772	936	205	2386
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.85	0.71	0.56	1.02	0.51	0.37	0.18	0.89

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

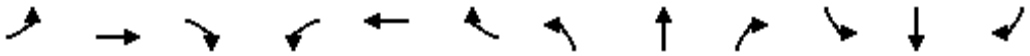
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	98	220	247	82	22	223	1303	315	34	1924	26
Future Volume (vph)	12	98	220	247	82	22	223	1303	315	34	1924	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		3.0	6.6	6.6	3.0	6.6	
Lane Util. Factor	1.00	0.95		0.97	1.00		1.00	0.91	1.00	1.00	0.91	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.90		1.00	0.97		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1043	2745		2662	1374		1615	4856	1383	1508	4883	
Flt Permitted	0.95	1.00		0.95	1.00		0.06	1.00	1.00	0.16	1.00	
Satd. Flow (perm)	1043	2745		2662	1374		95	4856	1383	252	4883	
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)	13	107	239	268	89	24	242	1416	342	37	2091	28
RTOR Reduction (vph)	0	127	0	0	7	0	0	0	148	0	1	0
Lane Group Flow (vph)	13	219	0	268	106	0	242	1416	194	37	2118	0
Confl. Peds. (#/hr)	2		3	3		2	6		4	4		6
Heavy Vehicles (%)	75%	23%	15%	33%	29%	57%	13%	8%	16%	21%	7%	20%
Turn Type	Split	NA		Split	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	8	8		4	4		1	6		5	2	
Permitted Phases							6		6	2		
Actuated Green, G (s)	13.7	13.7		18.0	18.0		87.7	79.3	79.3	73.8	68.4	
Effective Green, g (s)	13.7	13.7		18.0	18.0		87.7	79.3	79.3	73.8	68.4	
Actuated g/C Ratio	0.10	0.10		0.13	0.13		0.63	0.57	0.57	0.53	0.49	
Clearance Time (s)	7.0	7.0		7.0	7.0		3.0	6.6	6.6	3.0	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	102	268		342	176		236	2750	783	181	2385	
v/s Ratio Prot	0.01	c0.08		c0.10	0.08		c0.12	0.29		0.01	0.43	
v/s Ratio Perm							c0.52		0.14	0.10		
v/c Ratio	0.13	0.91dr		0.78	0.60		1.03	0.51	0.25	0.20	0.89	
Uniform Delay, d1	57.7	61.9		59.1	57.6		47.3	18.6	15.3	16.3	32.3	
Progression Factor	1.00	1.00		1.00	1.00		0.86	1.15	2.42	1.00	1.00	
Incremental Delay, d2	0.6	17.2		11.2	5.7		63.5	0.7	0.7	0.6	5.4	
Delay (s)	58.3	79.1		70.3	63.3		104.3	22.0	37.7	16.8	37.7	
Level of Service	E	E		E	E		F	C	D	B	D	
Approach Delay (s)		78.4			68.2			34.7			37.4	
Approach LOS		E			E			C			D	

Intersection Summary			
HCM 2000 Control Delay	41.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.6
Intersection Capacity Utilization	87.7%	ICU Level of Service	E
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	373	1491	97	72	1297	420	191	815	184	333	220	299
v/c Ratio	0.92	0.80	0.16	0.58	0.84	0.62	0.93	0.92	0.38	1.02	0.31	0.59
Control Delay	87.3	41.2	4.1	80.8	40.2	18.8	105.4	65.4	7.8	113.9	44.9	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.3	41.2	4.1	80.8	40.2	18.8	105.4	65.4	7.8	113.9	44.9	12.2
Queue Length 50th (m)	51.4	132.7	0.0	15.4	134.2	60.6	51.2	111.3	0.0	~48.2	25.7	5.9
Queue Length 95th (m)	#80.4	#170.1	8.9	29.2	149.7	106.9	#96.5	#146.4	18.2	#78.4	37.6	33.5
Internal Link Dist (m)		358.4			1114.0			261.4			215.3	
Turn Bay Length (m)	66.0		102.0	97.0		200.0	85.0		106.0	117.0		130.0
Base Capacity (vph)	404	1857	604	170	1553	680	205	898	485	327	714	515
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.80	0.16	0.42	0.84	0.62	0.93	0.91	0.38	1.02	0.31	0.58

Intersection Summary

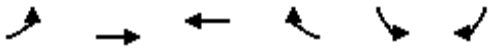
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	343	1372	89	66	1193	386	176	750	169	306	202	275
Future Volume (vph)	343	1372	89	66	1193	386	176	750	169	306	202	275
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.6	6.6	5.0	6.6	6.6	5.0	7.1	7.1	5.0	7.1	7.1
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.96	1.00	1.00	0.93	1.00	1.00	0.94
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3190	4641	1340	1352	4483	1503	1630	3476	1349	3404	3120	1341
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3190	4641	1340	1352	4483	1503	1630	3476	1349	3404	3120	1341
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)	373	1491	97	72	1297	420	191	815	184	333	220	299
RTOR Reduction (vph)	0	0	59	0	0	159	0	0	137	0	0	210
Lane Group Flow (vph)	373	1491	38	72	1297	261	191	815	47	333	220	89
Confl. Peds. (#/hr)	25		29	29		25	38		46	46		38
Heavy Vehicles (%)	11%	13%	16%	35%	17%	4%	12%	5%	12%	4%	17%	14%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	17.1	53.0	53.0	10.9	46.8	46.8	17.0	34.4	34.4	13.0	30.4	30.4
Effective Green, g (s)	17.1	53.0	53.0	10.9	46.8	46.8	17.0	34.4	34.4	13.0	30.4	30.4
Actuated g/C Ratio	0.13	0.39	0.39	0.08	0.35	0.35	0.13	0.25	0.25	0.10	0.23	0.23
Clearance Time (s)	5.0	6.6	6.6	5.0	6.6	6.6	5.0	7.1	7.1	5.0	7.1	7.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	404	1822	526	109	1554	521	205	885	343	327	702	301
v/s Ratio Prot	c0.12	c0.32		0.05	0.29		c0.12	c0.23		0.10	0.07	
v/s Ratio Perm			0.03			0.17			0.03			0.07
v/c Ratio	0.92	0.82	0.07	0.66	0.83	0.50	0.93	0.92	0.14	1.02	0.31	0.30
Uniform Delay, d1	58.3	36.7	25.6	60.3	40.5	34.9	58.4	49.0	38.8	61.0	43.6	43.4
Progression Factor	1.00	1.00	1.00	1.10	0.85	0.99	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	26.5	4.2	0.3	13.3	5.2	3.3	43.8	14.6	0.2	54.5	0.3	0.6
Delay (s)	84.8	40.9	25.9	79.5	39.8	37.8	102.3	63.6	39.0	115.5	43.9	44.0
Level of Service	F	D	C	E	D	D	F	E	D	F	D	D
Approach Delay (s)		48.5			40.9			66.0			71.9	
Approach LOS		D			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	53.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	23.7
Intersection Capacity Utilization	88.4%	ICU Level of Service	E
Analysis Period (min)	15		

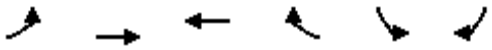
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	49	1850	1636	62	14	12
v/c Ratio	0.21	0.45	0.40	0.04	0.14	0.13
Control Delay	3.1	1.9	2.4	1.0	63.3	30.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.1	1.9	2.4	1.0	63.3	30.0
Queue Length 50th (m)	1.4	19.1	28.7	0.1	3.6	0.0
Queue Length 95th (m)	m2.1	m24.7	33.8	m0.9	10.7	6.5
Internal Link Dist (m)		1114.0	177.7		103.6	
Turn Bay Length (m)	56.0			60.0	36.0	
Base Capacity (vph)	236	4095	4131	1425	533	438
Starvation Cap Reductn	0	0	594	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.45	0.46	0.04	0.03	0.03

Intersection Summary

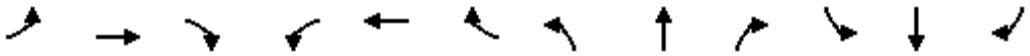
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	45	1702	1505	57	13	11
Future Volume (vph)	45	1702	1505	57	13	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4	7.4	7.4	7.4	7.4
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1823	4561	4601	1581	1690	1362
Flt Permitted	0.14	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	263	4561	4601	1581	1690	1362
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	1850	1636	62	14	12
RTOR Reduction (vph)	0	0	0	8	0	12
Lane Group Flow (vph)	49	1850	1636	54	14	0
Confl. Peds. (#/hr)	4			4		2
Heavy Vehicles (%)	0%	15%	14%	0%	8%	18%
Turn Type	Perm	NA	NA	Perm	Prot	Perm
Protected Phases		2	6		8	
Permitted Phases	2			6		8
Actuated Green, G (s)	115.3	115.3	115.3	115.3	4.9	4.9
Effective Green, g (s)	115.3	115.3	115.3	115.3	4.9	4.9
Actuated g/C Ratio	0.85	0.85	0.85	0.85	0.04	0.04
Clearance Time (s)	7.4	7.4	7.4	7.4	7.4	7.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	224	3895	3929	1350	61	49
v/s Ratio Prot		c0.41	0.36		c0.01	
v/s Ratio Perm	0.19			0.03		0.00
v/c Ratio	0.22	0.47	0.42	0.04	0.23	0.01
Uniform Delay, d1	1.8	2.4	2.2	1.5	63.2	62.7
Progression Factor	0.79	0.73	1.07	1.80	1.00	1.00
Incremental Delay, d2	1.3	0.2	0.2	0.0	1.9	0.1
Delay (s)	2.7	2.0	2.6	2.7	65.1	62.8
Level of Service	A	A	A	A	E	E
Approach Delay (s)		2.0	2.6		64.1	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay	2.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	14.8
Intersection Capacity Utilization	57.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

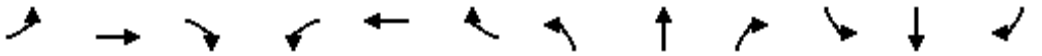


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	285	1262	332	135	1072	498	404	1980	228	398	797	290
v/c Ratio	0.84	0.86	0.48	0.83	0.87	0.93	0.85	0.99	0.34	1.38	0.56	0.55
Control Delay	98.7	44.1	10.3	70.0	50.7	49.0	69.3	48.2	4.0	243.8	41.1	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	98.7	44.1	10.3	70.0	50.7	49.0	69.3	48.2	4.0	243.8	41.1	16.8
Queue Length 50th (m)	41.5	61.4	5.4	16.5	100.9	89.9	49.0	173.9	11.5	~74.3	77.9	32.8
Queue Length 95th (m)	#62.3	100.1	30.0	#56.2	#119.6	#157.7	#75.8	#206.7	11.8	#107.0	92.1	67.1
Internal Link Dist (m)		177.7			433.9			425.9			277.5	
Turn Bay Length (m)	175.0		160.0	208.0		160.0	135.0		114.0	200.0		126.0
Base Capacity (vph)	345	1461	694	163	1227	537	494	2009	661	288	1435	530
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.86	0.48	0.83	0.87	0.93	0.82	0.99	0.34	1.38	0.56	0.55

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

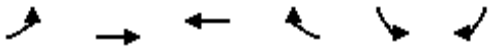
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	262	1161	305	124	986	458	372	1822	210	366	733	267
Future Volume (vph)	262	1161	305	124	986	458	372	1822	210	366	733	267
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.0	7.0	3.0	7.0	7.0	5.0	7.1	7.1	3.0	7.1	7.1
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	0.97	*1.00	1.00	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3106	4683	1555	1415	4561	1512	3340	5437	1432	3248	4768	1259
Flt Permitted	0.95	1.00	1.00	0.11	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3106	4683	1555	164	4561	1512	3340	5437	1432	3248	4768	1259
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)	285	1262	332	135	1072	498	404	1980	228	398	797	290
RTOR Reduction (vph)	0	0	210	0	0	131	0	0	132	0	0	152
Lane Group Flow (vph)	285	1262	122	135	1072	367	404	1980	96	398	797	138
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	14%	12%	5%	29%	15%	8%	6%	6%	14%	9%	10%	28%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6			4			8
Actuated Green, G (s)	14.7	42.1	42.1	47.2	36.3	36.3	19.3	49.9	49.9	10.0	40.6	40.6
Effective Green, g (s)	14.7	42.1	42.1	47.2	36.3	36.3	19.3	49.9	49.9	12.0	40.6	40.6
Actuated g/C Ratio	0.11	0.31	0.31	0.35	0.27	0.27	0.14	0.37	0.37	0.09	0.30	0.30
Clearance Time (s)	5.0	7.0	7.0	3.0	7.0	7.0	5.0	7.1	7.1	5.0	7.1	7.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	338	1460	484	158	1226	406	477	2009	529	288	1433	378
v/s Ratio Prot	c0.09	c0.27		0.07	0.24		0.12	c0.36		c0.12	0.17	
v/s Ratio Perm			0.08	0.23		0.24			0.07			0.11
v/c Ratio	0.84	0.86	0.25	0.85	0.87	0.90	0.85	0.99	0.18	1.38	0.56	0.37
Uniform Delay, d1	59.0	43.8	34.7	33.8	47.2	47.7	56.4	42.2	28.7	61.5	39.6	37.1
Progression Factor	1.34	0.85	1.53	1.20	0.90	0.83	0.99	0.79	0.59	1.26	0.99	1.20
Incremental Delay, d2	15.9	6.5	1.1	31.0	8.0	24.1	10.1	14.3	0.6	191.6	1.5	2.6
Delay (s)	94.9	43.8	54.1	71.5	50.4	63.8	66.1	47.8	17.4	268.9	40.7	47.2
Level of Service	F	D	D	E	D	E	E	D	B	F	D	D
Approach Delay (s)		53.4			56.0			48.0			103.1	
Approach LOS		D			E			D			F	

Intersection Summary			
HCM 2000 Control Delay	61.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	24.1
Intersection Capacity Utilization	93.4%	ICU Level of Service	F
Analysis Period (min)	15		

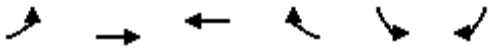
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	42	2000	1835	32	68	32
v/c Ratio	0.17	0.49	0.48	0.03	0.31	0.28
Control Delay	3.4	4.9	5.5	1.3	41.2	24.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.4	4.9	5.5	1.3	41.2	24.8
Queue Length 50th (m)	2.1	55.6	57.2	0.0	5.2	0.0
Queue Length 95th (m)	m2.7	m54.4	70.3	2.3	12.7	11.4
Internal Link Dist (m)		433.9	330.4		103.8	
Turn Bay Length (m)	183.0			77.0		
Base Capacity (vph)	254	4072	3821	1147	711	333
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.49	0.48	0.03	0.10	0.10

Intersection Summary

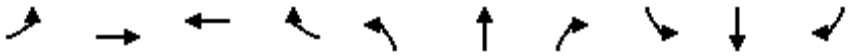
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	39	1840	1688	29	36	56
Future Volume (vph)	39	1840	1688	29	36	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.6	6.6	6.6	7.0	7.0
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.94	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.97	1.00
Satd. Flow (prot)	1825	4683	4683	1399	3103	1389
Flt Permitted	0.10	1.00	1.00	1.00	0.97	1.00
Satd. Flow (perm)	192	4683	4683	1399	3103	1389
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	42	2000	1835	32	39	61
RTOR Reduction (vph)	0	0	0	7	28	30
Lane Group Flow (vph)	42	2000	1835	25	40	2
Confl. Peds. (#/hr)	1			1		
Heavy Vehicles (%)	0%	12%	12%	14%	11%	7%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		8	
Permitted Phases	2			6		8
Actuated Green, G (s)	114.7	114.7	106.9	106.9	6.7	6.7
Effective Green, g (s)	114.7	114.7	106.9	106.9	6.7	6.7
Actuated g/C Ratio	0.85	0.85	0.79	0.79	0.05	0.05
Clearance Time (s)	3.0	6.6	6.6	6.6	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	221	3978	3708	1107	154	68
v/s Ratio Prot	0.01	c0.43	0.39		c0.01	
v/s Ratio Perm	0.15			0.02		0.00
v/c Ratio	0.19	0.50	0.49	0.02	0.26	0.02
Uniform Delay, d1	2.4	2.7	4.8	3.0	61.8	61.0
Progression Factor	1.93	1.74	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.2	0.5	0.0	0.9	0.1
Delay (s)	4.8	4.9	5.3	3.0	62.7	61.2
Level of Service	A	A	A	A	E	E
Approach Delay (s)		4.9	5.2		62.2	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay	6.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	53.6%	ICU Level of Service	A
Analysis Period (min)	15		

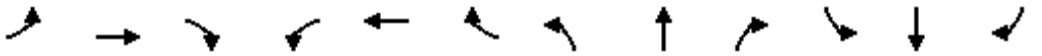
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	72	39	30	87	30	2477	23	47	1417	68
v/c Ratio	0.57	0.26	0.28	0.41	0.11	0.69	0.03	0.42	0.40	0.07
Control Delay	74.9	22.3	61.4	16.5	3.6	11.6	0.0	27.3	6.1	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.9	22.3	61.4	16.5	3.6	11.6	0.0	27.3	6.1	1.9
Queue Length 50th (m)	18.7	0.8	7.6	0.0	1.1	118.4	0.0	5.3	28.5	0.1
Queue Length 95th (m)	33.6	11.4	17.2	15.1	3.5	165.6	0.0	m13.7	53.8	m2.2
Internal Link Dist (m)		200.3	281.8			533.0			425.9	
Turn Bay Length (m)					86.0		230.0	192.0		115.0
Base Capacity (vph)	384	377	327	462	279	3596	815	168	3514	1010
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.10	0.09	0.19	0.11	0.69	0.03	0.28	0.40	0.07

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	3	33	28	0	80	28	2279	21	43	1304	63
Future Volume (vph)	66	3	33	28	0	80	28	2279	21	43	1304	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5			7.5	7.5	3.0	6.7	6.7	3.0	6.7	6.7
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	0.98			1.00	1.00	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00			0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.86			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00			0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1690	1202			1451	1372	1508	4856	1071	1404	4641	1313
Flt Permitted	0.74	1.00			0.73	1.00	0.17	1.00	1.00	0.04	1.00	1.00
Satd. Flow (perm)	1312	1202			1118	1372	266	4856	1071	59	4641	1313
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)	72	3	36	30	0	87	30	2477	23	47	1417	68
RTOR Reduction (vph)	0	33	0	0	0	79	0	0	6	0	0	17
Lane Group Flow (vph)	72	6	0	0	30	8	30	2477	17	47	1417	51
Confl. Peds. (#/hr)			6	6			4		5	5		4
Heavy Vehicles (%)	8%	100%	30%	25%	0%	19%	21%	8%	48%	30%	13%	21%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4	6		6	2		2
Actuated Green, G (s)	13.0	13.0			13.0	13.0	103.2	99.4	99.4	106.4	101.0	101.0
Effective Green, g (s)	13.0	13.0			13.0	13.0	103.2	99.4	99.4	106.4	101.0	101.0
Actuated g/C Ratio	0.10	0.10			0.10	0.10	0.76	0.74	0.74	0.79	0.75	0.75
Clearance Time (s)	7.5	7.5			7.5	7.5	3.0	6.7	6.7	3.0	6.7	6.7
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	126	115			107	132	238	3575	788	100	3472	982
v/s Ratio Prot		0.01					0.00	c0.51		c0.02	0.31	
v/s Ratio Perm	c0.05				0.03	0.01	0.09		0.02	0.35		0.04
v/c Ratio	0.57	0.06			0.28	0.06	0.13	0.69	0.02	0.47	0.41	0.05
Uniform Delay, d1	58.3	55.4			56.7	55.5	3.9	9.6	4.8	11.2	6.2	4.5
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.26	0.87	1.18
Incremental Delay, d2	6.1	0.2			1.4	0.2	0.2	1.1	0.1	3.1	0.3	0.1
Delay (s)	64.5	55.6			58.1	55.7	4.2	10.7	4.8	17.2	5.7	5.3
Level of Service	E	E			E	E	A	B	A	B	A	A
Approach Delay (s)		61.4			56.3			10.6			6.0	
Approach LOS		E			E			B			A	

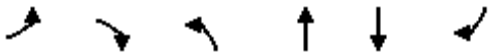
Intersection Summary			
HCM 2000 Control Delay	11.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	17.2
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	338	75	2597	1217
v/c Ratio	0.75	0.28	0.71	0.35
Control Delay	64.8	12.4	5.3	12.9
Queue Delay	0.0	0.0	0.3	0.0
Total Delay	64.8	12.4	5.5	12.9
Queue Length 50th (m)	44.7	0.0	35.5	58.9
Queue Length 95th (m)	58.4	14.7	m38.7	75.8
Internal Link Dist (m)	491.5		277.5	378.4
Turn Bay Length (m)		205.0		
Base Capacity (vph)	617	343	3635	3474
Starvation Cap Reductn	0	0	364	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.55	0.22	0.79	0.35

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	304	76	0	2389	1120	0
Future Volume (vph)	304	76	0	2389	1120	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6		6.6	6.6	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	2933	1351		4856	4641	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	2933	1351		4856	4641	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	330	83	0	2597	1217	0
RTOR Reduction (vph)	2	64	0	0	0	0
Lane Group Flow (vph)	336	12	0	2597	1217	0
Heavy Vehicles (%)	21%	10%	0%	8%	13%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	20.7	20.7		101.1	101.1	
Effective Green, g (s)	20.7	20.7		101.1	101.1	
Actuated g/C Ratio	0.15	0.15		0.75	0.75	
Clearance Time (s)	6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	449	207		3636	3475	
v/s Ratio Prot	c0.11			c0.53	0.26	
v/s Ratio Perm		0.01				
v/c Ratio	0.75	0.06		0.71	0.35	
Uniform Delay, d1	54.7	48.8		9.2	5.8	
Progression Factor	1.00	1.00		0.50	2.06	
Incremental Delay, d2	6.7	0.1		0.4	0.3	
Delay (s)	61.4	48.9		4.9	12.1	
Level of Service	E	D		A	B	
Approach Delay (s)	59.1			4.9	12.1	
Approach LOS	E			A	B	

Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	234	174	2578	1472
v/c Ratio	0.49	0.77	0.71	0.42
Control Delay	53.3	73.5	6.9	4.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	53.3	73.5	6.9	4.2
Queue Length 50th (m)	28.9	47.8	35.4	25.0
Queue Length 95th (m)	39.4	71.3	181.8	40.6
Internal Link Dist (m)	372.3		378.4	362.1
Turn Bay Length (m)		220.0		
Base Capacity (vph)	643	305	3626	3465
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	0.36	0.57	0.71	0.42

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	55	320	2372	0	0	1354
Future Volume (vph)	55	320	2372	0	0	1354
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6	6.6			6.6
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.89	0.85	1.00			1.00
Flt Protected	0.99	1.00	1.00			1.00
Satd. Flow (prot)	3039	1429	4856			4641
Flt Permitted	0.99	1.00	1.00			1.00
Satd. Flow (perm)	3039	1429	4856			4641
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	348	2578	0	0	1472
RTOR Reduction (vph)	5	5	0	0	0	0
Lane Group Flow (vph)	229	169	2578	0	0	1472
Heavy Vehicles (%)	18%	4%	8%	0%	0%	13%
Turn Type	Prot	Perm	NA			NA
Protected Phases	4		2			6
Permitted Phases		4				
Actuated Green, G (s)	21.0	21.0	100.8			100.8
Effective Green, g (s)	21.0	21.0	100.8			100.8
Actuated g/C Ratio	0.16	0.16	0.75			0.75
Clearance Time (s)	6.6	6.6	6.6			6.6
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	472	222	3625			3465
v/s Ratio Prot	0.08		c0.53			0.32
v/s Ratio Perm		c0.12				
v/c Ratio	0.49	0.76	0.71			0.42
Uniform Delay, d1	52.1	54.6	9.2			6.3
Progression Factor	1.00	1.00	0.60			0.58
Incremental Delay, d2	0.8	14.2	0.9			0.3
Delay (s)	52.8	68.8	6.4			3.9
Level of Service	D	E	A			A
Approach Delay (s)	59.7		6.4			3.9
Approach LOS	E		A			A

Intersection Summary			
HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	71	448	311	132	86	2850	196	32	1358
v/c Ratio	0.40	1.10dr	0.87	0.42	0.49	1.12	0.28	0.24	0.67
Control Delay	65.7	54.8	72.4	43.3	25.0	85.8	8.4	20.3	34.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.7	54.8	72.4	43.3	25.0	85.8	8.4	20.3	34.5
Queue Length 50th (m)	18.0	36.4	79.4	27.6	7.6	~302.7	2.0	4.0	107.2
Queue Length 95th (m)	#42.1	#81.0	109.6	45.0	m17.0	#325.5	m21.2	9.2	125.1
Internal Link Dist (m)		247.6		157.3		362.1			334.5
Turn Bay Length (m)	60.0		57.0		88.0		91.0	120.0	
Base Capacity (vph)	177	505	428	378	190	2545	692	132	2018
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.89	0.73	0.35	0.45	1.12	0.28	0.24	0.67

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.

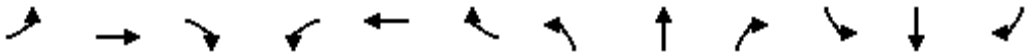
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	76	336	286	98	23	79	2622	180	29	1240	9
Future Volume (vph)	65	76	336	286	98	23	79	2622	180	29	1240	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		3.0	6.6	6.6	3.0	6.6	
Lane Util. Factor	1.00	*1.00		1.00	1.00		1.00	*1.00	1.00	1.00	0.91	
Frpb, ped/bikes	1.00	0.98		1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.88		1.00	0.97		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1587	3091		1521	1320		1547	5542	1360	1706	4894	
Flt Permitted	0.95	1.00		0.95	1.00		0.10	1.00	1.00	0.07	1.00	
Satd. Flow (perm)	1587	3091		1521	1320		167	5542	1360	129	4894	
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)	71	83	365	311	107	25	86	2850	196	32	1348	10
RTOR Reduction (vph)	0	162	0	0	7	0	0	0	69	0	1	0
Lane Group Flow (vph)	71	286	0	311	125	0	86	2850	127	32	1357	0
Confl. Peds. (#/hr)	2		3	3		2	6		4	4		6
Heavy Vehicles (%)	15%	22%	4%	20%	41%	41%	18%	4%	18%	7%	7%	11%
Turn Type	Split	NA		Split	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	8	8		4	4		1	6		5	2	
Permitted Phases							6		6	2		
Actuated Green, G (s)	15.1	15.1		31.9	31.9		67.4	60.8	60.8	59.2	55.6	
Effective Green, g (s)	15.1	15.1		31.9	31.9		67.4	60.8	60.8	59.2	55.6	
Actuated g/C Ratio	0.11	0.11		0.24	0.24		0.50	0.45	0.45	0.44	0.41	
Clearance Time (s)	7.0	7.0		7.0	7.0		3.0	6.6	6.6	3.0	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	177	345		359	311		173	2495	612	98	2015	
v/s Ratio Prot	0.04	c0.09		c0.20	0.09		c0.03	c0.51		0.01	0.28	
v/s Ratio Perm							0.22		0.09	0.13		
v/c Ratio	0.40	1.10dr		0.87	0.40		0.50	1.14	0.21	0.33	0.67	
Uniform Delay, d1	55.7	58.7		49.5	43.5		21.6	37.1	22.5	31.7	32.3	
Progression Factor	1.00	1.00		1.00	1.00		1.10	0.73	0.85	1.00	1.00	
Incremental Delay, d2	1.5	15.4		19.1	0.9		1.7	68.2	0.6	1.9	1.8	
Delay (s)	57.2	74.1		68.6	44.4		25.4	95.2	19.6	33.7	34.1	
Level of Service	E	E		E	D		C	F	B	C	C	
Approach Delay (s)		71.8			61.4			88.5			34.1	
Approach LOS		E			E			F			C	

Intersection Summary			
HCM 2000 Control Delay	71.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	23.6
Intersection Capacity Utilization	104.4%	ICU Level of Service	G
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

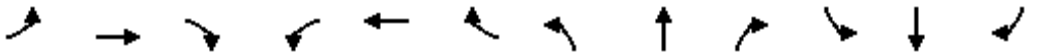
Appendix B – Future (2031) Background (0.5%) Conditions Synchro Output



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	241	1352	79	108	1177	346	112	158	118	512	641	401
v/c Ratio	0.76	0.74	0.12	0.71	0.66	0.46	0.81	0.30	0.37	0.89	0.74	0.81
Control Delay	75.9	40.1	0.4	101.6	25.4	3.8	100.7	51.8	6.9	75.5	53.1	32.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.9	40.1	0.4	101.6	25.4	3.8	100.7	51.8	6.9	75.5	53.1	32.6
Queue Length 50th (m)	33.3	119.1	0.0	31.5	45.1	2.2	30.9	20.5	0.0	71.8	86.3	45.9
Queue Length 95th (m)	#55.0	146.4	0.0	#60.0	88.7	10.5	#61.8	29.5	9.8	#99.3	99.7	83.8
Internal Link Dist (m)		358.4			1114.0			261.4			215.3	
Turn Bay Length (m)	66.0		102.0	97.0		200.0	85.0		106.0	117.0		130.0
Base Capacity (vph)	323	1838	676	160	1782	753	144	704	373	590	1057	551
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.74	0.12	0.68	0.66	0.46	0.78	0.22	0.32	0.87	0.61	0.73

Intersection Summary

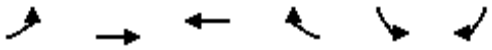
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	222	1244	73	99	1083	318	103	145	109	471	590	369
Future Volume (vph)	222	1244	73	99	1083	318	103	145	109	471	590	369
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.6	6.6	5.0	6.6	6.6	5.0	7.1	7.1	5.0	7.1	7.1
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.97	1.00	1.00	0.93	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2745	4601	1469	1587	4683	1418	1690	3288	1209	3309	3444	1264
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2745	4601	1469	1587	4683	1418	1690	3288	1209	3309	3444	1264
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)	241	1352	79	108	1177	346	112	158	118	512	641	401
RTOR Reduction (vph)	0	0	47	0	0	214	0	0	99	0	0	176
Lane Group Flow (vph)	241	1352	32	108	1177	132	112	158	19	512	641	225
Confl. Peds. (#/hr)	12		20	20		12	9		39	39		9
Heavy Vehicles (%)	29%	14%	7%	15%	12%	12%	8%	11%	26%	7%	6%	26%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	16.1	55.9	55.9	13.5	53.3	53.3	11.6	22.6	22.6	24.3	35.3	35.3
Effective Green, g (s)	16.1	55.9	55.9	13.5	53.3	53.3	11.6	22.6	22.6	24.3	35.3	35.3
Actuated g/C Ratio	0.12	0.40	0.40	0.10	0.38	0.38	0.08	0.16	0.16	0.17	0.25	0.25
Clearance Time (s)	5.0	6.6	6.6	5.0	6.6	6.6	5.0	7.1	7.1	5.0	7.1	7.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	315	1837	586	153	1782	539	140	530	195	574	868	318
v/s Ratio Prot	c0.09	c0.29		0.07	0.25		0.07	0.05		c0.15	c0.19	
v/s Ratio Perm			0.02			0.09			0.02			0.18
v/c Ratio	0.77	0.74	0.05	0.71	0.66	0.24	0.80	0.30	0.10	0.89	0.74	0.71
Uniform Delay, d1	60.1	35.8	25.8	61.3	35.9	29.6	63.1	51.7	50.0	56.6	48.1	47.6
Progression Factor	1.00	1.00	1.00	1.31	0.63	0.56	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.6	2.7	0.2	12.9	1.8	1.0	26.9	0.3	0.2	16.0	3.3	7.0
Delay (s)	70.7	38.4	26.0	93.1	24.4	17.7	90.0	52.0	50.2	72.6	51.4	54.6
Level of Service	E	D	C	F	C	B	F	D	D	E	D	D
Approach Delay (s)		42.5			27.5			62.4			59.2	
Approach LOS		D			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	44.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.7
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		

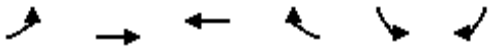
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	9	1997	1653	17	25	32
v/c Ratio	0.04	0.50	0.42	0.01	0.23	0.26
Control Delay	0.4	0.7	2.4	0.7	67.7	27.9
Queue Delay	0.0	0.0	0.1	0.0	0.0	0.0
Total Delay	0.4	0.7	2.5	0.7	67.7	27.9
Queue Length 50th (m)	0.0	3.1	21.5	0.1	6.7	0.8
Queue Length 95th (m)	m0.1	2.2	m24.4	m0.2	16.3	11.3
Internal Link Dist (m)		1114.0	177.7		103.6	
Turn Bay Length (m)	56.0			60.0	36.0	
Base Capacity (vph)	222	3985	3950	1383	508	475
Starvation Cap Reductn	0	0	542	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.50	0.49	0.01	0.05	0.07

Intersection Summary

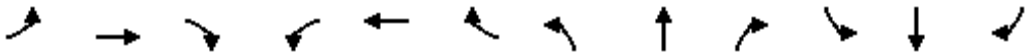
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	8	1837	1521	16	23	29
Future Volume (vph)	8	1837	1521	16	23	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4	7.4	7.4	7.5	7.5
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1825	4601	4561	1595	1825	1633
Flt Permitted	0.13	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	256	4601	4561	1595	1825	1633
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	1997	1653	17	25	32
RTOR Reduction (vph)	0	0	0	3	0	28
Lane Group Flow (vph)	9	1997	1653	14	25	4
Confl. Peds. (#/hr)	1			1		
Heavy Vehicles (%)	0%	14%	15%	0%	0%	0%
Turn Type	Perm	NA	NA	Perm	Prot	Perm
Protected Phases		2	6		8	
Permitted Phases	2			6		8
Actuated Green, G (s)	118.3	118.3	118.3	118.3	6.8	6.8
Effective Green, g (s)	118.3	118.3	118.3	118.3	6.8	6.8
Actuated g/C Ratio	0.84	0.84	0.84	0.84	0.05	0.05
Clearance Time (s)	7.4	7.4	7.4	7.4	7.5	7.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	216	3887	3854	1347	88	79
v/s Ratio Prot		c0.43	0.36		c0.01	
v/s Ratio Perm	0.04			0.01		0.00
v/c Ratio	0.04	0.51	0.43	0.01	0.28	0.06
Uniform Delay, d1	1.7	3.0	2.6	1.7	64.3	63.5
Progression Factor	0.07	0.12	0.83	0.77	1.00	1.00
Incremental Delay, d2	0.2	0.3	0.2	0.0	1.8	0.3
Delay (s)	0.4	0.7	2.4	1.3	66.0	63.8
Level of Service	A	A	A	A	E	E
Approach Delay (s)		0.7	2.4		64.8	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay	2.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	14.9
Intersection Capacity Utilization	54.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

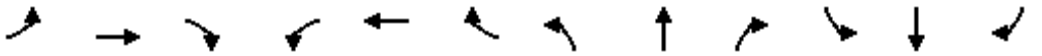


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	220	1446	507	180	1043	310	272	721	102	577	2010	374
v/c Ratio	0.85	0.89	0.79	1.08	0.78	0.48	0.94	0.53	0.20	0.99	0.97	0.63
Control Delay	89.5	41.4	23.7	127.7	48.4	5.0	96.7	50.8	8.7	96.5	53.7	25.2
Queue Delay	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	89.5	41.4	24.3	127.7	48.4	5.0	96.7	50.8	8.7	96.5	53.7	25.2
Queue Length 50th (m)	28.4	126.7	83.9	~38.0	98.0	9.8	39.2	52.5	0.0	84.6	152.4	32.1
Queue Length 95th (m)	#52.2	141.8	126.7	#89.1	115.3	13.6	#66.7	86.5	11.5	#122.5	#210.0	71.8
Internal Link Dist (m)		177.7			433.9			425.9			277.5	
Turn Bay Length (m)	175.0		160.0	208.0		160.0	135.0		114.0	200.0		126.0
Base Capacity (vph)	262	1625	643	167	1333	649	289	1371	500	583	2074	590
Starvation Cap Reductn	0	0	19	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.89	0.81	1.08	0.78	0.48	0.94	0.53	0.20	0.99	0.97	0.63

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

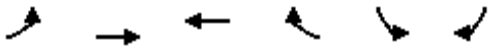
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	202	1330	466	166	960	285	250	663	94	531	1849	344
Future Volume (vph)	202	1330	466	166	960	285	250	663	94	531	1849	344
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.0	7.0	3.0	7.0	7.0	5.0	7.1	7.1	5.0	7.1	7.1
Lane Util. Factor	0.97	*1.00	1.00	1.00	0.91	1.00	0.97	0.91	1.00	0.97	*1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2832	5056	1570	1722	4768	1526	3372	4812	1328	3404	5595	1276
Flt Permitted	0.95	1.00	1.00	0.10	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2832	5056	1570	185	4768	1526	3372	4812	1328	3404	5595	1276
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)	220	1446	507	180	1043	310	272	721	102	577	2010	374
RTOR Reduction (vph)	0	0	139	0	0	223	0	0	73	0	0	117
Lane Group Flow (vph)	220	1446	368	180	1043	87	272	721	29	577	2010	257
Confl. Peds. (#/hr)							3					3
Heavy Vehicles (%)	25%	14%	4%	6%	10%	7%	5%	9%	23%	4%	3%	26%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6			4			8
Actuated Green, G (s)	12.9	45.0	45.0	48.1	39.1	39.1	12.0	39.9	39.9	24.0	51.9	51.9
Effective Green, g (s)	12.9	45.0	45.0	48.1	39.1	39.1	12.0	39.9	39.9	24.0	51.9	51.9
Actuated g/C Ratio	0.09	0.32	0.32	0.34	0.28	0.28	0.09	0.28	0.28	0.17	0.37	0.37
Clearance Time (s)	5.0	7.0	7.0	3.0	7.0	7.0	5.0	7.1	7.1	5.0	7.1	7.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	260	1625	504	162	1331	426	289	1371	378	583	2074	473
v/s Ratio Prot	0.08	c0.29		c0.07	0.22		0.08	0.15		c0.17	c0.36	
v/s Ratio Perm			0.23	c0.31		0.06			0.02			0.20
v/c Ratio	0.85	0.89	0.73	1.11	0.78	0.20	0.94	0.53	0.08	0.99	0.97	0.54
Uniform Delay, d1	62.6	45.1	42.1	37.5	46.5	38.5	63.6	42.1	36.6	57.9	43.3	34.7
Progression Factor	1.03	0.75	0.59	1.34	0.94	0.64	0.92	1.17	1.00	1.18	0.98	1.20
Incremental Delay, d2	19.9	7.1	8.2	101.1	4.4	1.0	36.2	0.3	0.1	29.1	10.7	0.9
Delay (s)	84.0	41.1	32.8	151.3	48.1	25.8	94.5	49.5	36.7	97.3	53.2	42.8
Level of Service	F	D	C	F	D	C	F	D	D	F	D	D
Approach Delay (s)		43.5			55.7			59.5			60.5	
Approach LOS		D			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	54.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	24.1
Intersection Capacity Utilization	97.0%	ICU Level of Service	F
Analysis Period (min)	15		

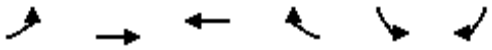
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	32	2062	1751	27	9	6
v/c Ratio	0.13	0.47	0.41	0.02	0.04	0.04
Control Delay	1.0	1.9	3.1	1.2	0.4	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.0	1.9	3.1	1.2	0.4	0.7
Queue Length 50th (m)	0.3	8.2	19.5	0.0	0.0	0.0
Queue Length 95th (m)	m0.6	m22.3	60.1	2.0	0.0	0.0
Internal Link Dist (m)		433.9	330.4		103.8	
Turn Bay Length (m)	183.0			77.0		
Base Capacity (vph)	264	4394	4247	1121	545	267
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.47	0.41	0.02	0.02	0.02

Intersection Summary

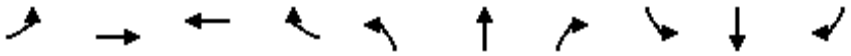
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	29	1897	1611	25	3	11
Future Volume (vph)	29	1897	1611	25	3	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.6	6.6	6.6	7.0	7.0
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.98	0.99	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.90	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.98	1.00
Satd. Flow (prot)	1690	4683	4768	1256	2165	916
Flt Permitted	0.11	1.00	1.00	1.00	0.98	1.00
Satd. Flow (perm)	203	4683	4768	1256	2165	916
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	2062	1751	27	3	12
RTOR Reduction (vph)	0	0	0	4	9	6
Lane Group Flow (vph)	32	2062	1751	23	0	0
Confl. Peds. (#/hr)	1			1	1	1
Heavy Vehicles (%)	8%	12%	10%	27%	33%	60%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		8	
Permitted Phases	2			6		8
Actuated Green, G (s)	123.2	123.2	116.7	116.7	3.2	3.2
Effective Green, g (s)	123.2	123.2	116.7	116.7	3.2	3.2
Actuated g/C Ratio	0.88	0.88	0.83	0.83	0.02	0.02
Clearance Time (s)	3.0	6.6	6.6	6.6	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	215	4121	3974	1046	49	20
v/s Ratio Prot	0.00	c0.44	0.37		0.00	
v/s Ratio Perm	0.13			0.02		c0.00
v/c Ratio	0.15	0.50	0.44	0.02	0.00	0.01
Uniform Delay, d1	1.4	1.8	3.1	2.0	66.8	66.8
Progression Factor	0.62	1.25	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.2	0.4	0.0	0.0	0.1
Delay (s)	1.0	2.5	3.4	2.0	66.9	67.0
Level of Service	A	A	A	A	E	E
Approach Delay (s)		2.4	3.4		66.9	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay	3.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		

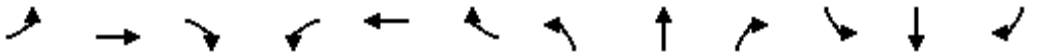
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	18	14	16	42	15	1318	64	203	2885	51
v/c Ratio	0.31	0.16	0.19	0.28	0.17	0.37	0.05	0.54	0.70	0.05
Control Delay	75.1	33.5	66.1	6.8	7.5	6.5	0.9	11.0	7.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.1	33.5	66.1	6.8	7.5	6.5	0.9	11.0	7.0	0.0
Queue Length 50th (m)	4.9	0.5	4.3	0.0	0.4	39.1	0.0	6.7	41.3	0.0
Queue Length 95th (m)	13.0	7.6	11.7	2.6	1.6	63.0	3.0	m9.7	m269.9	m0.1
Internal Link Dist (m)		200.3	281.8			533.0			425.9	
Turn Bay Length (m)					86.0		230.0	192.0		115.0
Base Capacity (vph)	244	337	350	384	86	3540	1168	462	4142	1020
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.04	0.05	0.11	0.17	0.37	0.05	0.44	0.70	0.05

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



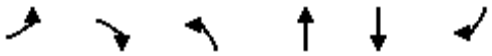
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	2	11	15	0	39	14	1213	59	187	2654	47
Future Volume (vph)	17	2	11	15	0	39	14	1213	59	187	2654	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5			7.5	7.5	3.0	6.7	6.7	3.0	6.7	6.7
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	0.99			1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.87			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00			0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1116	1181			1597	1182	1185	4601	1495	1738	4948	1208
Flt Permitted	0.75	1.00			0.75	1.00	0.04	1.00	1.00	0.18	1.00	1.00
Satd. Flow (perm)	878	1181			1258	1182	47	4601	1495	331	4948	1208
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)	18	2	12	16	0	42	15	1318	64	203	2885	51
RTOR Reduction (vph)	0	11	0	0	0	40	0	0	15	0	0	10
Lane Group Flow (vph)	18	3	0	0	16	2	15	1318	49	203	2885	41
Confl. Peds. (#/hr)	3		2	2		3	2		5	5		2
Heavy Vehicles (%)	63%	100%	30%	14%	0%	36%	54%	14%	6%	5%	6%	32%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4	6		6	2		2
Actuated Green, G (s)	7.8	7.8			7.8	7.8	108.6	106.2	106.2	118.0	112.6	112.6
Effective Green, g (s)	7.8	7.8			7.8	7.8	108.6	106.2	106.2	118.0	112.6	112.6
Actuated g/C Ratio	0.06	0.06			0.06	0.06	0.78	0.76	0.76	0.84	0.80	0.80
Clearance Time (s)	7.5	7.5			7.5	7.5	3.0	6.7	6.7	3.0	6.7	6.7
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	48	65			70	65	55	3490	1134	367	3979	971
v/s Ratio Prot		0.00					0.00	0.29		c0.03	c0.58	
v/s Ratio Perm	c0.02				0.01	0.00	0.20		0.03	0.43		0.03
v/c Ratio	0.38	0.04			0.23	0.04	0.27	0.38	0.04	0.55	0.73	0.04
Uniform Delay, d1	63.7	62.6			63.2	62.5	6.7	5.7	4.2	2.6	6.4	2.8
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00	5.00	0.96	0.00
Incremental Delay, d2	4.9	0.3			1.7	0.2	2.7	0.3	0.1	1.0	0.7	0.0
Delay (s)	68.6	62.8			64.9	62.8	9.4	6.0	4.3	13.9	6.8	0.0
Level of Service	E	E			E	E	A	A	A	B	A	A
Approach Delay (s)		66.1			63.4			6.0			7.2	
Approach LOS		E			E			A			A	

Intersection Summary			
HCM 2000 Control Delay	7.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.2
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	562	257	1177	2371
v/c Ratio	0.78	0.80	0.38	0.72
Control Delay	58.1	67.9	2.6	14.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	58.1	67.9	2.6	14.9
Queue Length 50th (m)	75.5	73.0	9.2	233.2
Queue Length 95th (m)	88.5	100.7	13.0	257.4
Internal Link Dist (m)	491.5		277.5	378.4
Turn Bay Length (m)		205.0		
Base Capacity (vph)	911	406	3115	3287
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	0.62	0.63	0.38	0.72

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	365	388	0	1083	2181	0
Future Volume (vph)	365	388	0	1083	2181	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6		6.6	6.6	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	0.96	0.85		1.00	1.00	
Flt Protected	0.97	1.00		1.00	1.00	
Satd. Flow (prot)	3221	1429		4561	4812	
Flt Permitted	0.97	1.00		1.00	1.00	
Satd. Flow (perm)	3221	1429		4561	4812	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	397	422	0	1177	2371	0
RTOR Reduction (vph)	5	5	0	0	0	0
Lane Group Flow (vph)	557	252	0	1177	2371	0
Heavy Vehicles (%)	8%	4%	0%	15%	9%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	31.2	31.2		95.6	95.6	
Effective Green, g (s)	31.2	31.2		95.6	95.6	
Actuated g/C Ratio	0.22	0.22		0.68	0.68	
Clearance Time (s)	6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	717	318		3114	3285	
v/s Ratio Prot	0.17			0.26	c0.49	
v/s Ratio Perm		c0.18				
v/c Ratio	0.78	0.79		0.38	0.72	
Uniform Delay, d1	51.1	51.4		9.5	13.9	
Progression Factor	1.00	1.00		0.23	0.93	
Incremental Delay, d2	5.3	12.7		0.3	0.9	
Delay (s)	56.4	64.1		2.5	13.9	
Level of Service	E	E		A	B	
Approach Delay (s)	58.8			2.5	13.9	
Approach LOS	E			A	B	

Intersection Summary			
HCM 2000 Control Delay	19.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	379	212	1510	2773
v/c Ratio	0.72	0.81	0.43	0.76
Control Delay	54.7	62.5	8.0	7.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	54.7	62.5	8.0	7.3
Queue Length 50th (m)	44.1	45.9	57.0	44.4
Queue Length 95th (m)	57.3	73.4	75.9	m29.2
Internal Link Dist (m)	372.3		378.4	362.1
Turn Bay Length (m)		220.0		
Base Capacity (vph)	691	336	3486	3647
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	0.55	0.63	0.43	0.76

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	154	390	1389	0	0	2551
Future Volume (vph)	154	390	1389	0	0	2551
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6	6.6			6.6
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.92	0.85	1.00			1.00
Flt Protected	0.98	1.00	1.00			1.00
Satd. Flow (prot)	3068	1376	4641			4856
Flt Permitted	0.98	1.00	1.00			1.00
Satd. Flow (perm)	3068	1376	4641			4856
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	167	424	1510	0	0	2773
RTOR Reduction (vph)	51	51	0	0	0	0
Lane Group Flow (vph)	328	161	1510	0	0	2773
Heavy Vehicles (%)	10%	8%	13%	0%	0%	8%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		6			2
Permitted Phases		8				
Actuated Green, G (s)	21.6	21.6	105.2			105.2
Effective Green, g (s)	21.6	21.6	105.2			105.2
Actuated g/C Ratio	0.15	0.15	0.75			0.75
Clearance Time (s)	6.6	6.6	6.6			6.6
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	473	212	3487			3648
v/s Ratio Prot	0.11		0.33			c0.57
v/s Ratio Perm		c0.12				
v/c Ratio	0.69	0.76	0.43			0.76
Uniform Delay, d1	56.1	56.7	6.4			10.1
Progression Factor	1.00	1.00	1.10			0.61
Incremental Delay, d2	4.4	14.8	0.4			0.4
Delay (s)	60.5	71.5	7.4			6.6
Level of Service	E	E	A			A
Approach Delay (s)	64.4		7.4			6.6
Approach LOS	E		A			A

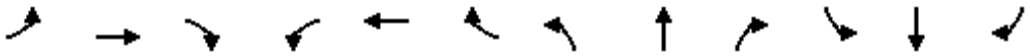
Intersection Summary			
HCM 2000 Control Delay	13.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	14	371	288	122	260	1518	367	39	2272
v/c Ratio	0.12	0.73	0.73	0.57	0.76	0.58	0.40	0.23	1.08
Control Delay	56.5	32.0	67.3	60.7	51.0	20.5	3.0	17.5	86.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.5	32.0	67.3	60.7	51.0	20.5	3.0	17.5	86.6
Queue Length 50th (m)	3.5	20.4	39.8	29.3	51.3	101.6	9.0	4.0	~235.7
Queue Length 95th (m)	10.3	37.2	52.7	47.9	#125.7	110.5	13.2	10.6	#261.1
Internal Link Dist (m)		247.6		157.3		362.1			334.5
Turn Bay Length (m)	60.0		57.0		88.0		91.0	120.0	
Base Capacity (vph)	116	505	722	380	341	2606	912	169	2099
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.73	0.40	0.32	0.76	0.58	0.40	0.23	1.08

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

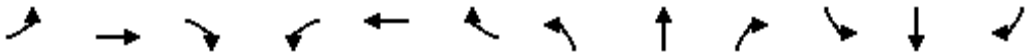
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	105	236	265	88	24	239	1397	338	36	2063	28
Future Volume (vph)	13	105	236	265	88	24	239	1397	338	36	2063	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		3.0	6.6	6.6	3.0	6.6	
Lane Util. Factor	1.00	0.95		0.97	1.00		1.00	0.91	1.00	1.00	*1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.90		1.00	0.97		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1043	2746		2662	1374		1615	4856	1383	1508	5366	
Flt Permitted	0.95	1.00		0.95	1.00		0.07	1.00	1.00	0.15	1.00	
Satd. Flow (perm)	1043	2746		2662	1374		118	4856	1383	239	5366	
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)	14	114	257	288	96	26	260	1518	367	39	2242	30
RTOR Reduction (vph)	0	200	0	0	9	0	0	0	172	0	1	0
Lane Group Flow (vph)	14	171	0	288	113	0	260	1518	195	39	2271	0
Confl. Peds. (#/hr)	2		3	3		2	6		4	4		6
Heavy Vehicles (%)	75%	23%	15%	33%	29%	57%	13%	8%	16%	21%	7%	20%
Turn Type	Split	NA		Split	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	8	8		4	4		1	6		5	2	
Permitted Phases							6		6	2		
Actuated Green, G (s)	15.6	15.6		20.9	20.9		82.9	74.5	74.5	60.2	54.8	
Effective Green, g (s)	15.6	15.6		20.9	20.9		82.9	74.5	74.5	60.2	54.8	
Actuated g/C Ratio	0.11	0.11		0.15	0.15		0.59	0.53	0.53	0.43	0.39	
Clearance Time (s)	7.0	7.0		7.0	7.0		3.0	6.6	6.6	3.0	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	116	305		397	205		338	2584	735	151	2100	
v/s Ratio Prot	0.01	c0.06		c0.11	0.08		c0.14	0.31		0.01	c0.42	
v/s Ratio Perm							0.32		0.14	0.10		
v/c Ratio	0.12	0.56		0.73	0.55		0.77	0.59	0.27	0.26	1.08	
Uniform Delay, d1	56.0	59.0		56.8	55.2		41.5	22.3	17.8	23.4	42.6	
Progression Factor	1.00	1.00		1.00	1.00		1.01	0.83	0.82	1.00	1.00	
Incremental Delay, d2	0.5	2.4		6.5	3.2		9.4	0.9	0.8	0.9	45.7	
Delay (s)	56.5	61.3		63.3	58.4		51.2	19.4	15.5	24.3	88.3	
Level of Service	E	E		E	E		D	B	B	C	F	
Approach Delay (s)		61.1			61.8			22.5			87.2	
Approach LOS		E			E			C			F	

Intersection Summary			
HCM 2000 Control Delay	56.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.6
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	400	1599	103	77	1390	450	205	874	197	357	236	321
v/c Ratio	1.00	0.87	0.17	0.96	0.94	0.66	0.94	0.97	0.43	0.94	0.32	0.67
Control Delay	102.8	44.0	4.3	150.5	54.7	21.9	106.0	73.7	14.5	93.5	44.1	22.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	102.8	44.0	4.3	150.5	54.7	21.9	106.0	73.7	14.5	93.5	44.1	22.8
Queue Length 50th (m)	55.7	142.6	0.0	19.4	143.5	63.5	55.0	122.1	9.7	49.4	27.5	25.0
Queue Length 95th (m)	#89.0	163.4	9.3	#53.1	#166.5	105.7	#102.6	#164.1	31.3	#78.9	39.6	59.4
Internal Link Dist (m)		358.4			1114.0			261.4			215.3	
Turn Bay Length (m)	66.0		102.0	97.0		200.0	85.0		106.0	117.0		130.0
Base Capacity (vph)	401	1835	598	80	1474	684	217	898	459	378	737	481
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.00	0.87	0.17	0.96	0.94	0.66	0.94	0.97	0.43	0.94	0.32	0.67

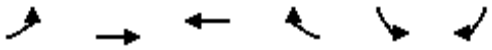
Intersection Summary

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)	368	1471	95	71	1279	414	189	804	181	328	217	295
Future Volume (vph)	368	1471	95	71	1279	414	189	804	181	328	217	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.6	6.6	5.0	6.6	6.6	5.0	7.1	7.1	5.0	7.1	7.1
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.96	1.00	1.00	0.93	1.00	1.00	0.94
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3190	4641	1340	1352	4483	1503	1630	3476	1349	3404	3120	1341
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3190	4641	1340	1352	4483	1503	1630	3476	1349	3404	3120	1341
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)	400	1599	103	77	1390	450	205	874	197	357	236	321
RTOR Reduction (vph)	0	0	62	0	0	191	0	0	111	0	0	164
Lane Group Flow (vph)	400	1599	41	77	1390	259	205	874	86	357	236	157
Confl. Peds. (#/hr)	25		29	29		25	38		46	46		38
Heavy Vehicles (%)	11%	13%	16%	35%	17%	4%	12%	5%	12%	4%	17%	14%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	17.0	53.4	53.4	8.0	44.4	44.4	18.0	34.9	34.9	15.0	31.9	31.9
Effective Green, g (s)	17.0	53.4	53.4	8.0	44.4	44.4	18.0	34.9	34.9	15.0	31.9	31.9
Actuated g/C Ratio	0.13	0.40	0.40	0.06	0.33	0.33	0.13	0.26	0.26	0.11	0.24	0.24
Clearance Time (s)	5.0	6.6	6.6	5.0	6.6	6.6	5.0	7.1	7.1	5.0	7.1	7.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	401	1835	530	80	1474	494	217	898	348	378	737	316
v/s Ratio Prot	c0.13	0.34		0.06	c0.31		c0.13	c0.25		0.10	0.08	
v/s Ratio Perm			0.03			0.17			0.06			0.12
v/c Ratio	1.00	0.87	0.08	0.96	0.94	0.53	0.94	0.97	0.25	0.94	0.32	0.50
Uniform Delay, d1	59.0	37.6	25.4	63.4	44.1	36.7	58.0	49.6	39.6	59.6	42.6	44.6
Progression Factor	1.00	1.00	1.00	1.01	0.95	1.26	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	44.0	6.0	0.3	84.5	12.7	3.7	45.4	23.5	0.4	32.1	0.3	1.2
Delay (s)	102.9	43.7	25.7	148.4	54.6	49.9	103.4	73.1	40.0	91.6	42.8	45.8
Level of Service	F	D	C	F	D	D	F	E	D	F	D	D
Approach Delay (s)		54.1			57.2			72.9			63.0	
Approach LOS		D			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	60.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	23.7
Intersection Capacity Utilization	90.0%	ICU Level of Service	E
Analysis Period (min)	15		

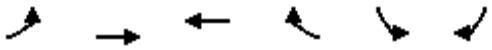
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	52	1984	1754	66	15	13
v/c Ratio	0.25	0.48	0.42	0.05	0.15	0.14
Control Delay	4.2	2.4	2.0	0.8	63.5	30.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.2	2.4	2.0	0.8	63.5	30.0
Queue Length 50th (m)	2.4	33.7	25.3	0.0	3.9	0.0
Queue Length 95th (m)	m2.8	m39.0	30.8	m0.6	11.2	7.0
Internal Link Dist (m)		1114.0	177.7		103.6	
Turn Bay Length (m)	56.0			60.0	36.0	
Base Capacity (vph)	206	4094	4130	1425	489	403
Starvation Cap Reductn	0	0	501	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.48	0.48	0.05	0.03	0.03

Intersection Summary

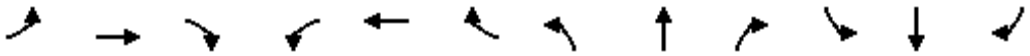
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	48	1825	1614	61	14	12
Future Volume (vph)	48	1825	1614	61	14	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4	7.4	7.4	7.4	7.4
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1823	4561	4601	1581	1690	1362
Flt Permitted	0.12	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	230	4561	4601	1581	1690	1362
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	52	1984	1754	66	15	13
RTOR Reduction (vph)	0	0	0	9	0	13
Lane Group Flow (vph)	52	1984	1754	57	15	0
Confl. Peds. (#/hr)	4			4		2
Heavy Vehicles (%)	0%	15%	14%	0%	8%	18%
Turn Type	Perm	NA	NA	Perm	Prot	Perm
Protected Phases		2	6		8	
Permitted Phases	2			6		8
Actuated Green, G (s)	115.3	115.3	115.3	115.3	4.9	4.9
Effective Green, g (s)	115.3	115.3	115.3	115.3	4.9	4.9
Actuated g/C Ratio	0.85	0.85	0.85	0.85	0.04	0.04
Clearance Time (s)	7.4	7.4	7.4	7.4	7.4	7.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	196	3895	3929	1350	61	49
v/s Ratio Prot		c0.44	0.38		c0.01	
v/s Ratio Perm	0.23			0.04		0.00
v/c Ratio	0.27	0.51	0.45	0.04	0.25	0.01
Uniform Delay, d1	1.9	2.5	2.3	1.5	63.3	62.7
Progression Factor	1.03	0.91	0.85	1.26	1.00	1.00
Incremental Delay, d2	1.7	0.2	0.2	0.0	2.1	0.1
Delay (s)	3.6	2.6	2.2	1.9	65.4	62.8
Level of Service	A	A	A	A	E	E
Approach Delay (s)		2.6	2.1		64.2	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay	2.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	14.8
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



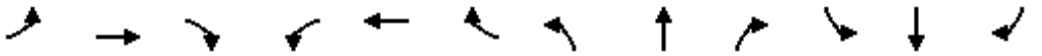
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	305	1353	355	145	1149	534	434	2124	245	426	854	311
v/c Ratio	1.21	0.91	0.51	1.10	0.90	0.88	0.86	1.12	0.41	1.04	0.58	0.63
Control Delay	181.6	50.8	12.7	136.7	50.7	34.3	74.5	95.5	8.2	115.2	58.5	45.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	181.6	50.8	12.7	136.7	50.7	34.3	74.5	95.5	8.2	115.2	58.5	45.0
Queue Length 50th (m)	~52.2	79.4	15.0	~28.3	108.2	79.0	53.8	~218.6	13.1	~64.5	83.4	54.6
Queue Length 95th (m)	#82.6	#126.0	34.0	#71.5	#129.0	#144.1	#81.5	#241.1	m15.3	#98.2	98.3	87.2
Internal Link Dist (m)		177.7			433.9			425.9			277.5	
Turn Bay Length (m)	175.0		160.0	208.0		160.0	135.0		114.0	200.0		126.0
Base Capacity (vph)	253	1491	700	132	1283	607	519	1888	593	409	1468	491
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.21	0.91	0.51	1.10	0.90	0.88	0.84	1.13	0.41	1.04	0.58	0.63

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

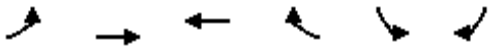
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	281	1245	327	133	1057	491	399	1954	225	392	786	286
Future Volume (vph)	281	1245	327	133	1057	491	399	1954	225	392	786	286
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.0	7.0	3.0	7.0	7.0	5.0	7.1	7.1	3.0	7.1	7.1
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	0.97	*1.00	1.00	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3106	4683	1555	1415	4561	1512	3340	5437	1432	3248	4768	1259
Flt Permitted	0.95	1.00	1.00	0.11	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3106	4683	1555	157	4561	1512	3340	5437	1432	3248	4768	1259
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)	305	1353	355	145	1149	534	434	2124	245	426	854	311
RTOR Reduction (vph)	0	0	205	0	0	182	0	0	96	0	0	103
Lane Group Flow (vph)	305	1353	150	145	1149	352	434	2124	149	426	854	208
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	14%	12%	5%	29%	15%	8%	6%	6%	14%	9%	10%	28%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6			4			8
Actuated Green, G (s)	11.0	43.0	43.0	46.0	38.0	38.0	20.3	46.9	46.9	15.0	41.6	41.6
Effective Green, g (s)	11.0	43.0	43.0	46.0	38.0	38.0	20.3	46.9	46.9	17.0	41.6	41.6
Actuated g/C Ratio	0.08	0.32	0.32	0.34	0.28	0.28	0.15	0.35	0.35	0.13	0.31	0.31
Clearance Time (s)	5.0	7.0	7.0	3.0	7.0	7.0	5.0	7.1	7.1	5.0	7.1	7.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	253	1491	495	128	1283	425	502	1888	497	409	1469	387
v/s Ratio Prot	c0.10	c0.29		0.07	0.25		0.13	c0.39		c0.13	0.18	
v/s Ratio Perm			0.10	c0.32		0.23			0.10			0.17
v/c Ratio	1.21	0.91	0.30	1.13	0.90	0.83	0.86	1.12	0.30	1.04	0.58	0.54
Uniform Delay, d1	62.0	44.1	34.7	37.4	46.6	45.5	56.0	44.0	32.1	59.0	39.4	38.7
Progression Factor	1.24	0.95	1.53	1.26	0.89	0.78	1.10	0.80	0.52	1.08	1.43	1.87
Incremental Delay, d2	121.0	8.7	1.4	114.6	8.9	15.0	10.3	61.6	1.1	54.9	1.6	5.1
Delay (s)	197.8	50.6	54.7	161.7	50.4	50.4	72.2	97.0	17.6	118.7	57.9	77.5
Level of Service	F	D	D	F	D	D	E	F	B	F	E	E
Approach Delay (s)		73.6			59.3			86.2			78.0	
Approach LOS		E			E			F			E	

Intersection Summary			
HCM 2000 Control Delay	75.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	24.1
Intersection Capacity Utilization	98.8%	ICU Level of Service	F
Analysis Period (min)	15		

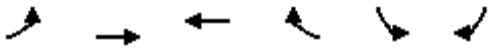
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	46	2145	1967	34	73	34
v/c Ratio	0.21	0.53	0.52	0.03	0.33	0.29
Control Delay	4.4	4.6	5.9	1.3	41.1	24.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.4	4.6	5.9	1.3	41.1	24.9
Queue Length 50th (m)	2.1	58.0	64.2	0.0	5.6	0.0
Queue Length 95th (m)	m3.0	m60.3	79.5	2.5	13.4	11.9
Internal Link Dist (m)		433.9	330.4		103.8	
Turn Bay Length (m)	183.0			77.0		
Base Capacity (vph)	220	4069	3818	1147	713	335
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.53	0.52	0.03	0.10	0.10

Intersection Summary

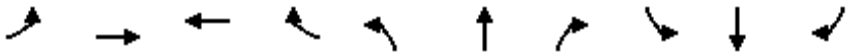
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	42	1973	1810	31	39	60
Future Volume (vph)	42	1973	1810	31	39	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.6	6.6	6.6	7.0	7.0
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.94	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.97	1.00
Satd. Flow (prot)	1825	4683	4683	1399	3103	1389
Flt Permitted	0.08	1.00	1.00	1.00	0.97	1.00
Satd. Flow (perm)	162	4683	4683	1399	3103	1389
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	2145	1967	34	42	65
RTOR Reduction (vph)	0	0	0	7	29	32
Lane Group Flow (vph)	46	2145	1967	27	44	2
Confl. Peds. (#/hr)	1			1		
Heavy Vehicles (%)	0%	12%	12%	14%	11%	7%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		8	
Permitted Phases	2			6		8
Actuated Green, G (s)	114.6	114.6	106.8	106.8	6.8	6.8
Effective Green, g (s)	114.6	114.6	106.8	106.8	6.8	6.8
Actuated g/C Ratio	0.85	0.85	0.79	0.79	0.05	0.05
Clearance Time (s)	3.0	6.6	6.6	6.6	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	196	3975	3704	1106	156	69
v/s Ratio Prot	0.01	c0.46	0.42		c0.01	
v/s Ratio Perm	0.19			0.02		0.00
v/c Ratio	0.23	0.54	0.53	0.02	0.28	0.02
Uniform Delay, d1	2.7	2.8	5.1	3.0	61.7	60.9
Progression Factor	2.31	1.48	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.3	0.5	0.0	1.0	0.1
Delay (s)	6.6	4.5	5.6	3.0	62.7	61.1
Level of Service	A	A	A	A	E	E
Approach Delay (s)		4.5	5.6		62.2	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay	6.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		

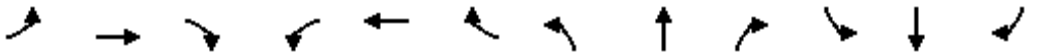
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	88	41	33	93	33	2657	25	50	1520	93
v/c Ratio	0.63	0.25	0.28	0.44	0.14	0.75	0.03	0.44	0.44	0.09
Control Delay	76.2	20.5	59.2	24.7	4.3	14.3	0.1	30.0	4.9	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.2	20.5	59.2	24.7	4.3	14.3	0.1	30.0	4.9	0.8
Queue Length 50th (m)	22.8	0.7	8.2	5.7	1.4	145.7	0.0	5.8	25.8	0.1
Queue Length 95th (m)	39.0	11.4	18.1	21.7	4.2	208.6	0.0	m14.1	m47.1	m0.9
Internal Link Dist (m)		200.3	281.8			533.0			425.9	
Turn Bay Length (m)					86.0		230.0	192.0		115.0
Base Capacity (vph)	378	374	322	446	242	3533	795	114	3459	1002
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.11	0.10	0.21	0.14	0.75	0.03	0.44	0.44	0.09

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	3	35	30	0	86	30	2444	23	46	1398	86
Future Volume (vph)	81	3	35	30	0	86	30	2444	23	46	1398	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5			7.5	7.5	3.0	6.7	6.7	3.0	6.7	6.7
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	0.98			1.00	1.00	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00			0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.86			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00			0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1690	1203			1451	1372	1508	4856	1071	1404	4641	1313
Flt Permitted	0.74	1.00			0.73	1.00	0.15	1.00	1.00	0.04	1.00	1.00
Satd. Flow (perm)	1309	1203			1116	1372	233	4856	1071	59	4641	1313
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)	88	3	38	33	0	93	33	2657	25	50	1520	93
RTOR Reduction (vph)	0	34	0	0	0	62	0	0	7	0	0	25
Lane Group Flow (vph)	88	7	0	0	33	31	33	2657	18	50	1520	68
Confl. Peds. (#/hr)			6	6			4		5	5		4
Heavy Vehicles (%)	8%	100%	30%	25%	0%	19%	21%	8%	48%	30%	13%	21%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4	6		6	2		2
Actuated Green, G (s)	14.5	14.5			14.5	14.5	101.5	97.6	97.6	105.1	99.4	99.4
Effective Green, g (s)	14.5	14.5			14.5	14.5	101.5	97.6	97.6	105.1	99.4	99.4
Actuated g/C Ratio	0.11	0.11			0.11	0.11	0.75	0.72	0.72	0.78	0.74	0.74
Clearance Time (s)	7.5	7.5			7.5	7.5	3.0	6.7	6.7	3.0	6.7	6.7
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	140	129			119	147	212	3510	774	102	3417	966
v/s Ratio Prot		0.01					0.00	c0.55		c0.02	0.33	
v/s Ratio Perm	c0.07				0.03	0.02	0.11		0.02	0.36		0.05
v/c Ratio	0.63	0.05			0.28	0.21	0.16	0.76	0.02	0.49	0.44	0.07
Uniform Delay, d1	57.7	54.1			55.4	55.0	4.5	11.4	5.3	15.0	7.0	5.0
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.32	0.60	0.44
Incremental Delay, d2	8.5	0.2			1.3	0.7	0.3	1.6	0.1	3.2	0.4	0.1
Delay (s)	66.2	54.3			56.7	55.7	4.8	13.0	5.3	23.0	4.6	2.3
Level of Service	E	D			E	E	A	B	A	C	A	A
Approach Delay (s)		62.4			56.0			12.8			5.0	
Approach LOS		E			E			B			A	

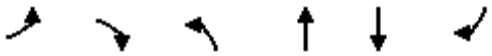
Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	17.2
Intersection Capacity Utilization	83.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	363	79	2785	1305
v/c Ratio	0.79	0.28	0.77	0.38
Control Delay	66.8	12.4	8.2	3.9
Queue Delay	0.0	0.0	0.6	0.0
Total Delay	66.8	12.4	8.9	3.9
Queue Length 50th (m)	48.0	0.0	42.2	22.4
Queue Length 95th (m)	63.8	15.4	m33.4	36.6
Internal Link Dist (m)	491.5		277.5	378.4
Turn Bay Length (m)		205.0		
Base Capacity (vph)	536	310	3618	3458
Starvation Cap Reductn	0	0	421	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.68	0.25	0.87	0.38

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	326	81	0	2562	1201	0
Future Volume (vph)	326	81	0	2562	1201	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6		6.6	6.6	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	2933	1351		4856	4641	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	2933	1351		4856	4641	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	354	88	0	2785	1305	0
RTOR Reduction (vph)	2	67	0	0	0	0
Lane Group Flow (vph)	361	12	0	2785	1305	0
Heavy Vehicles (%)	21%	10%	0%	8%	13%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	21.2	21.2		100.6	100.6	
Effective Green, g (s)	21.2	21.2		100.6	100.6	
Actuated g/C Ratio	0.16	0.16		0.75	0.75	
Clearance Time (s)	6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	460	212		3618	3458	
v/s Ratio Prot	c0.12			c0.57	0.28	
v/s Ratio Perm		0.01				
v/c Ratio	0.79	0.06		0.77	0.38	
Uniform Delay, d1	54.7	48.4		10.3	6.1	
Progression Factor	1.00	1.00		0.74	0.57	
Incremental Delay, d2	8.6	0.1		0.1	0.3	
Delay (s)	63.3	48.5		7.7	3.8	
Level of Service	E	D		A	A	
Approach Delay (s)	60.7			7.7	3.8	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	251	186	2765	1578
v/c Ratio	0.51	0.79	0.77	0.46
Control Delay	53.5	75.8	7.0	20.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	53.5	75.8	7.0	20.4
Queue Length 50th (m)	31.2	51.6	41.4	109.3
Queue Length 95th (m)	42.3	77.1	199.3	m129.0
Internal Link Dist (m)	372.3		378.4	362.1
Turn Bay Length (m)		220.0		
Base Capacity (vph)	642	303	3592	3433
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	0.39	0.61	0.77	0.46

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	59	343	2544	0	0	1452
Future Volume (vph)	59	343	2544	0	0	1452
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6	6.6			6.6
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.89	0.85	1.00			1.00
Flt Protected	0.99	1.00	1.00			1.00
Satd. Flow (prot)	3039	1429	4856			4641
Flt Permitted	0.99	1.00	1.00			1.00
Satd. Flow (perm)	3039	1429	4856			4641
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	64	373	2765	0	0	1578
RTOR Reduction (vph)	3	3	0	0	0	0
Lane Group Flow (vph)	248	183	2765	0	0	1578
Heavy Vehicles (%)	18%	4%	8%	0%	0%	13%
Turn Type	Prot	Perm	NA			NA
Protected Phases	4		2			6
Permitted Phases		4				
Actuated Green, G (s)	21.9	21.9	99.9			99.9
Effective Green, g (s)	21.9	21.9	99.9			99.9
Actuated g/C Ratio	0.16	0.16	0.74			0.74
Clearance Time (s)	6.6	6.6	6.6			6.6
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	492	231	3593			3434
v/s Ratio Prot	0.08		c0.57			0.34
v/s Ratio Perm		c0.13				
v/c Ratio	0.50	0.79	0.77			0.46
Uniform Delay, d1	51.6	54.3	10.6			6.9
Progression Factor	1.00	1.00	0.51			2.69
Incremental Delay, d2	0.8	16.7	1.0			0.3
Delay (s)	52.4	71.0	6.4			18.9
Level of Service	D	E	A			B
Approach Delay (s)	60.3		6.4			18.9
Approach LOS	E		A			B

Intersection Summary			
HCM 2000 Control Delay	15.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	76	479	334	141	92	3057	210	34	1457
v/c Ratio	0.48	1.28dr	0.88	0.42	0.56	1.20	0.30	0.26	0.72
Control Delay	70.5	91.7	72.9	42.8	26.2	127.7	11.4	20.7	36.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.5	91.7	72.9	42.8	26.2	127.7	11.4	20.7	36.0
Queue Length 50th (m)	19.9	~54.5	84.0	28.9	13.6	~344.9	22.1	4.3	118.8
Queue Length 95th (m)	#45.4	#94.0	#125.0	48.0	m16.7	#368.2	m31.8	9.7	137.4
Internal Link Dist (m)		247.6		157.3		362.1			334.5
Turn Bay Length (m)	60.0		57.0		88.0		91.0	120.0	
Base Capacity (vph)	157	458	428	377	175	2545	692	132	2013
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	1.05	0.78	0.37	0.53	1.20	0.30	0.26	0.72

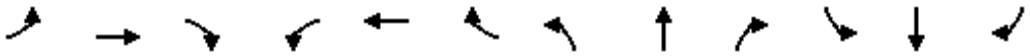
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

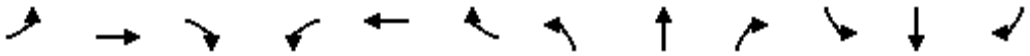


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	81	360	307	105	25	85	2812	193	31	1330	10
Future Volume (vph)	70	81	360	307	105	25	85	2812	193	31	1330	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		3.0	6.6	6.6	3.0	6.6	
Lane Util. Factor	1.00	*1.00		1.00	1.00		1.00	*1.00	1.00	1.00	0.91	
Frpb, ped/bikes	1.00	0.98		1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.88		1.00	0.97		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1587	3089		1521	1320		1547	5542	1360	1706	4894	
Flt Permitted	0.95	1.00		0.95	1.00		0.08	1.00	1.00	0.07	1.00	
Satd. Flow (perm)	1587	3089		1521	1320		135	5542	1360	129	4894	
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)	76	88	391	334	114	27	92	3057	210	34	1446	11
RTOR Reduction (vph)	0	152	0	0	7	0	0	0	69	0	1	0
Lane Group Flow (vph)	76	327	0	334	134	0	92	3057	141	34	1456	0
Confl. Peds. (#/hr)	2		3	3		2	6		4	4		6
Heavy Vehicles (%)	15%	22%	4%	20%	41%	41%	18%	4%	18%	7%	7%	11%
Turn Type	Split	NA		Split	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	8	8		4	4		1	6		5	2	
Permitted Phases							6		6	2		
Actuated Green, G (s)	13.4	13.4		33.6	33.6		67.4	60.8	60.8	59.1	55.5	
Effective Green, g (s)	13.4	13.4		33.6	33.6		67.4	60.8	60.8	59.1	55.5	
Actuated g/C Ratio	0.10	0.10		0.25	0.25		0.50	0.45	0.45	0.44	0.41	
Clearance Time (s)	7.0	7.0		7.0	7.0		3.0	6.6	6.6	3.0	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	157	306		378	328		160	2495	612	98	2011	
v/s Ratio Prot	0.05	c0.11		c0.22	0.10		c0.04	c0.55		0.01	0.30	
v/s Ratio Perm							0.25		0.10	0.14		
v/c Ratio	0.48	1.28dr		0.88	0.41		0.57	1.23	0.23	0.35	0.72	
Uniform Delay, d1	57.5	60.8		48.8	42.4		23.0	37.1	22.7	31.8	33.3	
Progression Factor	1.00	1.00		1.00	1.00		0.90	1.03	1.08	1.00	1.00	
Incremental Delay, d2	2.3	70.6		20.9	0.8		3.5	104.1	0.6	2.1	2.3	
Delay (s)	59.9	131.4		69.7	43.2		24.2	142.2	25.3	33.9	35.6	
Level of Service	E	F		E	D		C	F	C	C	D	
Approach Delay (s)		121.6			61.8			131.7			35.6	
Approach LOS		F			E			F			D	

Intersection Summary			
HCM 2000 Control Delay	100.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	23.6
Intersection Capacity Utilization	110.2%	ICU Level of Service	H
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

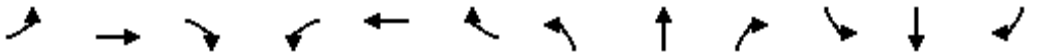
Appendix C – Future (2031)
Total Conditions Synchro Output



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	241	1357	79	100	1099	323	112	158	118	512	641	401
v/c Ratio	0.77	0.79	0.12	0.74	0.64	0.42	0.79	0.34	0.37	0.91	0.76	0.75
Control Delay	77.2	42.4	0.4	81.9	23.6	11.3	97.2	51.4	6.8	78.7	55.1	28.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.2	42.4	0.4	81.9	23.6	11.3	97.2	51.4	6.8	78.7	55.1	28.0
Queue Length 50th (m)	33.4	127.8	0.0	26.0	99.5	32.5	30.5	20.1	0.0	72.4	86.5	43.0
Queue Length 95th (m)	#53.8	148.2	0.0	#57.1	132.9	52.4	#59.5	30.0	9.8	#102.0	103.8	79.5
Internal Link Dist (m)		358.4			1114.0			261.4			215.3	
Turn Bay Length (m)	66.0		102.0	97.0		200.0	85.0		106.0	117.0		130.0
Base Capacity (vph)	322	1718	661	139	1722	764	152	575	359	572	968	581
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.79	0.12	0.72	0.64	0.42	0.74	0.27	0.33	0.90	0.66	0.69

Intersection Summary

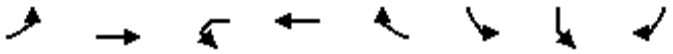
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	222	1248	73	92	1011	297	103	145	109	471	590	369
Future Volume (vph)	222	1248	73	92	1011	297	103	145	109	471	590	369
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.6	6.6	5.0	6.6	6.6	5.0	7.1	7.1	5.0	7.1	7.1
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.97	1.00	1.00	0.93	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3026	4334	1442	1472	4483	1471	1426	2684	1145	3340	3476	1475
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3026	4334	1442	1472	4483	1471	1426	2684	1145	3340	3476	1475
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)	241	1357	79	100	1099	323	112	158	118	512	641	401
RTOR Reduction (vph)	0	0	48	0	0	199	0	0	97	0	0	179
Lane Group Flow (vph)	241	1357	31	100	1099	124	112	158	21	512	641	222
Confl. Peds. (#/hr)	12		20	20		12	9		39	39		9
Heavy Vehicles (%)	17%	21%	9%	24%	17%	8%	28%	36%	33%	6%	5%	8%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	14.6	55.5	55.5	12.9	53.8	53.8	13.9	24.4	24.4	23.5	34.0	34.0
Effective Green, g (s)	14.6	55.5	55.5	12.9	53.8	53.8	13.9	24.4	24.4	23.5	34.0	34.0
Actuated g/C Ratio	0.10	0.40	0.40	0.09	0.38	0.38	0.10	0.17	0.17	0.17	0.24	0.24
Clearance Time (s)	5.0	6.6	6.6	5.0	6.6	6.6	5.0	7.1	7.1	5.0	7.1	7.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	315	1718	571	135	1722	565	141	467	199	560	844	358
v/s Ratio Prot	c0.08	c0.31		0.07	0.25		0.08	0.06		c0.15	c0.18	
v/s Ratio Perm			0.02			0.08			0.02			0.15
v/c Ratio	0.77	0.79	0.05	0.74	0.64	0.22	0.79	0.34	0.10	0.91	0.76	0.62
Uniform Delay, d1	61.0	37.1	26.1	61.9	35.2	29.0	61.7	50.7	48.6	57.3	49.2	47.2
Progression Factor	1.00	1.00	1.00	0.89	0.60	2.95	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.6	3.8	0.2	16.7	1.5	0.8	25.7	0.4	0.2	19.5	4.0	3.2
Delay (s)	71.6	40.9	26.3	71.9	22.8	86.2	87.4	51.1	48.8	76.8	53.2	50.4
Level of Service	E	D	C	E	C	F	F	D	D	E	D	D
Approach Delay (s)		44.6			39.5			60.9			60.2	
Approach LOS		D			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	49.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.7
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	WBR	SBL2	SBL	SBR
Lane Group Flow (vph)	13	1997	17	1541	34	27	27	33
v/c Ratio	0.10	0.73	0.27	0.57	0.04	0.05	0.05	0.06
Control Delay	10.3	14.3	36.2	24.9	11.0	26.3	24.5	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.3	14.3	36.2	24.9	11.0	26.3	24.5	7.9
Queue Length 50th (m)	0.6	173.1	2.4	85.1	0.6	4.8	4.6	0.0
Queue Length 95th (m)	m0.8	180.0	m3.5	m107.6	m1.6	11.3	10.9	6.6
Internal Link Dist (m)		1114.0		177.7			103.6	
Turn Bay Length (m)	56.0		50.0		60.0	36.0	36.0	
Base Capacity (vph)	134	2750	63	2726	967	687	581	667
Starvation Cap Reductn	0	0	0	39	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	0.10	0.73	0.27	0.57	0.04	0.04	0.05	0.05

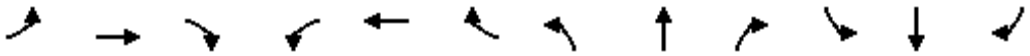
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR
Lane Configurations											
Traffic Volume (vph)	12	1837	0	16	1418	31	50	0	30	0	0
Future Volume (vph)	12	1837	0	16	1418	31	50	0	30	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4		7.4	7.4	7.4	7.5	4.5	7.5		
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	0.95	0.95	1.00		
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	1.00	1.00		
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85		
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	0.95	1.00		
Satd. Flow (prot)	1825	4601		1789	4561	1595	1734	1734	1633		
Flt Permitted	0.12	1.00		0.06	1.00	1.00	0.95	1.00	1.00		
Satd. Flow (perm)	225	4601		105	4561	1595	1734	1825	1633		
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
Adj. Flow (vph)	13	1997	0	17	1541	34	54	0	33	0	0
RTOR Reduction (vph)	0	0	0	0	0	14	0	0	23	0	0
Lane Group Flow (vph)	13	1997	0	17	1541	20	27	27	10	0	0
Confl. Peds. (#/hr)	1					1					
Heavy Vehicles (%)	0%	14%	2%	2%	15%	0%	0%	2%	0%	2%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Prot	Prot	Perm	Prot	Perm
Protected Phases		2			6		8!	4!		8!	
Permitted Phases	2			6		6			8		8!
Actuated Green, G (s)	80.7	80.7		80.7	80.7	80.7	44.4	47.4	44.4		
Effective Green, g (s)	80.7	80.7		80.7	80.7	80.7	44.4	47.4	44.4		
Actuated g/C Ratio	0.58	0.58		0.58	0.58	0.58	0.32	0.34	0.32		
Clearance Time (s)	7.4	7.4		7.4	7.4	7.4	7.5	4.5	7.5		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)	129	2652		60	2629	919	549	617	517		
v/s Ratio Prot		c0.43			0.34		c0.02	0.01			
v/s Ratio Perm	0.06			0.16		0.01		0.00	0.01		
v/c Ratio	0.10	0.75		0.28	0.59	0.02	0.05	0.04	0.02		
Uniform Delay, d1	13.3	22.2		15.0	19.0	12.7	33.2	31.1	32.9		
Progression Factor	0.47	0.49		1.16	1.07	2.03	1.00	1.00	1.00		
Incremental Delay, d2	0.9	1.2		6.4	0.5	0.0	0.0	0.0	0.0		
Delay (s)	7.2	12.2		23.8	20.7	25.8	33.2	31.1	32.9		
Level of Service	A	B		C	C	C	C	C	C		
Approach Delay (s)		12.1			20.9			32.4		0.0	
Approach LOS		B			C			C		A	

Intersection Summary			
HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	14.9
Intersection Capacity Utilization	54.4%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group



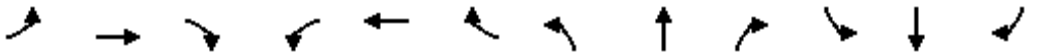
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	249	1446	508	168	973	289	282	721	102	577	2011	374
v/c Ratio	0.98	0.93	0.82	1.09	0.86	0.48	0.93	0.52	0.20	0.98	0.98	0.62
Control Delay	112.5	34.9	20.8	136.3	54.5	5.7	92.3	48.0	7.6	80.2	57.2	26.0
Queue Delay	0.0	0.0	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	112.5	34.9	25.1	136.3	54.5	5.7	92.3	48.0	7.6	80.2	57.2	26.0
Queue Length 50th (m)	33.3	128.9	94.9	~36.5	94.3	9.1	40.7	50.9	0.0	84.6	168.9	44.4
Queue Length 95th (m)	m#63.0	#140.0	#143.3	#85.3	112.1	13.0	#67.9	81.8	9.8	m#107.3	#213.1	m55.7
Internal Link Dist (m)		177.7			433.9			176.1			127.8	
Turn Bay Length (m)	175.0		160.0	208.0		160.0	135.0		114.0	200.0		126.0
Base Capacity (vph)	254	1552	619	154	1136	597	304	1380	499	590	2054	600
Starvation Cap Reductn	0	0	60	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.93	0.91	1.09	0.86	0.48	0.93	0.52	0.20	0.98	0.98	0.62

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

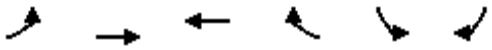
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	229	1330	467	155	895	266	259	663	94	531	1850	344
Future Volume (vph)	229	1330	467	155	895	266	259	663	94	531	1850	344
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.0	7.0	3.0	7.0	7.0	5.0	7.1	7.1	5.0	7.1	7.1
Lane Util. Factor	0.97	*1.00	1.00	1.00	0.91	1.00	0.97	0.91	1.00	0.97	*1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2745	5056	1526	1587	4299	1458	3278	4725	1296	3309	5437	1276
Flt Permitted	0.95	1.00	1.00	0.11	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2745	5056	1526	181	4299	1458	3278	4725	1296	3309	5437	1276
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)	249	1446	508	168	973	289	282	721	102	577	2011	374
RTOR Reduction (vph)	0	0	150	0	0	213	0	0	72	0	0	118
Lane Group Flow (vph)	249	1446	358	168	973	76	282	721	30	577	2011	256
Confl. Peds. (#/hr)							3					3
Heavy Vehicles (%)	29%	14%	7%	15%	22%	12%	8%	11%	26%	7%	6%	26%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6			4			8
Actuated Green, G (s)	13.0	43.0	43.0	46.0	37.0	37.0	13.0	40.9	40.9	25.0	52.9	52.9
Effective Green, g (s)	13.0	43.0	43.0	46.0	37.0	37.0	13.0	40.9	40.9	25.0	52.9	52.9
Actuated g/C Ratio	0.09	0.31	0.31	0.33	0.26	0.26	0.09	0.29	0.29	0.18	0.38	0.38
Clearance Time (s)	5.0	7.0	7.0	3.0	7.0	7.0	5.0	7.1	7.1	5.0	7.1	7.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	254	1552	468	149	1136	385	304	1380	378	590	2054	482
v/s Ratio Prot	c0.09	0.29		c0.07	0.23		0.09	0.15		c0.17	c0.37	
v/s Ratio Perm			0.23	c0.30		0.05			0.02			0.20
v/c Ratio	0.98	0.93	0.76	1.13	0.86	0.20	0.93	0.52	0.08	0.98	0.98	0.53
Uniform Delay, d1	63.4	47.1	43.9	39.3	49.0	40.0	63.0	41.4	35.9	57.2	43.0	33.9
Progression Factor	1.11	0.54	0.44	1.39	0.95	0.70	0.91	1.12	1.00	1.07	1.13	1.41
Incremental Delay, d2	43.3	9.1	8.6	109.9	7.9	1.1	31.8	0.3	0.1	19.3	8.9	0.5
Delay (s)	113.3	34.4	28.1	164.5	54.3	28.9	89.4	46.8	36.0	80.4	57.3	48.3
Level of Service	F	C	C	F	D	C	F	D	D	F	E	D
Approach Delay (s)		41.8			62.1			56.7			60.6	
Approach LOS		D			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	55.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	24.1
Intersection Capacity Utilization	96.7%	ICU Level of Service	F
Analysis Period (min)	15		

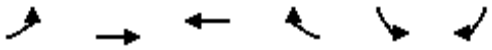
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	32	2062	1633	25	9	6
v/c Ratio	0.12	0.47	0.38	0.02	0.04	0.04
Control Delay	1.1	2.3	2.9	1.2	0.4	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.1	2.3	2.9	1.2	0.4	0.5
Queue Length 50th (m)	0.3	8.3	17.5	0.0	0.0	0.0
Queue Length 95th (m)	m0.7	m26.5	54.2	1.9	0.0	0.0
Internal Link Dist (m)		433.9	330.4		103.8	
Turn Bay Length (m)	183.0			77.0		
Base Capacity (vph)	290	4394	4247	1121	550	273
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.47	0.38	0.02	0.02	0.02

Intersection Summary

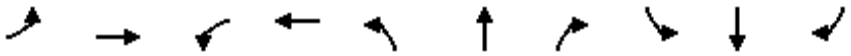
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	29	1897	1502	23	3	11
Future Volume (vph)	29	1897	1502	23	3	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.6	6.6	6.6	7.0	7.0
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.98	0.99	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.90	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.98	1.00
Satd. Flow (prot)	1690	4683	4768	1256	2165	916
Flt Permitted	0.13	1.00	1.00	1.00	0.98	1.00
Satd. Flow (perm)	234	4683	4768	1256	2165	916
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	2062	1633	25	3	12
RTOR Reduction (vph)	0	0	0	4	9	6
Lane Group Flow (vph)	32	2062	1633	21	0	0
Confl. Peds. (#/hr)	1			1	1	1
Heavy Vehicles (%)	8%	12%	10%	27%	33%	60%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		8	
Permitted Phases	2			6		8
Actuated Green, G (s)	123.2	123.2	116.7	116.7	3.2	3.2
Effective Green, g (s)	123.2	123.2	116.7	116.7	3.2	3.2
Actuated g/C Ratio	0.88	0.88	0.83	0.83	0.02	0.02
Clearance Time (s)	3.0	6.6	6.6	6.6	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	242	4121	3974	1046	49	20
v/s Ratio Prot	0.00	c0.44	0.34		0.00	
v/s Ratio Perm	0.11			0.02		c0.00
v/c Ratio	0.13	0.50	0.41	0.02	0.00	0.01
Uniform Delay, d1	1.3	1.8	2.9	2.0	66.8	66.8
Progression Factor	0.85	1.48	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.2	0.3	0.0	0.0	0.1
Delay (s)	1.2	2.8	3.3	2.0	66.9	67.0
Level of Service	A	A	A	A	E	E
Approach Delay (s)		2.8	3.2		66.9	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay	3.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	18	14	15	39	15	1328	64	203	2887	51
v/c Ratio	0.31	0.16	0.18	0.14	0.17	0.38	0.05	0.54	0.70	0.05
Control Delay	75.4	33.5	65.4	1.1	7.6	6.6	0.9	11.2	6.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.4	33.5	65.4	1.1	7.6	6.6	0.9	11.2	6.6	0.1
Queue Length 50th (m)	4.9	0.5	4.0	0.0	0.4	39.5	0.0	5.5	18.8	0.0
Queue Length 95th (m)	13.0	7.6	11.1	0.0	1.6	64.4	3.0	m9.5	m265.2	m0.0
Internal Link Dist (m)		200.3		281.8		533.0			225.8	
Turn Bay Length (m)			155.0		86.0		230.0	192.0		115.0
Base Capacity (vph)	239	337	350	480	86	3534	1167	459	4140	1020
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.04	0.04	0.08	0.17	0.38	0.05	0.44	0.70	0.05

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	2	11	14	0	36	14	1222	59	187	2656	47
Future Volume (vph)	17	2	11	14	0	36	14	1222	59	187	2656	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5		7.5	7.5		3.0	6.7	6.7	3.0	6.7	6.7
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.98		1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.87		1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1116	1181		1597	1182		1185	4601	1495	1738	4948	1208
Flt Permitted	0.73	1.00		0.75	1.00		0.04	1.00	1.00	0.18	1.00	1.00
Satd. Flow (perm)	860	1181		1258	1182		47	4601	1495	327	4948	1208
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)	18	2	12	15	0	39	15	1328	64	203	2887	51
RTOR Reduction (vph)	0	11	0	0	37	0	0	0	16	0	0	10
Lane Group Flow (vph)	18	3	0	15	2	0	15	1328	48	203	2887	41
Confl. Peds. (#/hr)	3		2	2		3	2		5	5		2
Heavy Vehicles (%)	63%	100%	30%	14%	0%	36%	54%	14%	6%	5%	6%	32%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6		6	2		2
Actuated Green, G (s)	7.9	7.9		7.9	7.9		108.4	106.0	106.0	117.9	112.5	112.5
Effective Green, g (s)	7.9	7.9		7.9	7.9		108.4	106.0	106.0	117.9	112.5	112.5
Actuated g/C Ratio	0.06	0.06		0.06	0.06		0.77	0.76	0.76	0.84	0.80	0.80
Clearance Time (s)	7.5	7.5		7.5	7.5		3.0	6.7	6.7	3.0	6.7	6.7
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	48	66		70	66		55	3483	1131	365	3976	970
v/s Ratio Prot		0.00			0.00		0.00	0.29		c0.04	c0.58	
v/s Ratio Perm	c0.02			0.01			0.20		0.03	0.43		0.03
v/c Ratio	0.38	0.04		0.21	0.03		0.27	0.38	0.04	0.56	0.73	0.04
Uniform Delay, d1	63.7	62.5		63.1	62.4		6.8	5.8	4.3	2.6	6.5	2.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	5.07	0.88	0.00
Incremental Delay, d2	4.9	0.3		1.5	0.2		2.7	0.3	0.1	1.0	0.7	0.0
Delay (s)	68.5	62.7		64.6	62.6		9.5	6.1	4.3	14.4	6.4	0.1
Level of Service	E	E		E	E		A	A	A	B	A	A
Approach Delay (s)		66.0			63.2			6.1			6.8	
Approach LOS		E			E			A			A	

Intersection Summary			
HCM 2000 Control Delay	7.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.2
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		

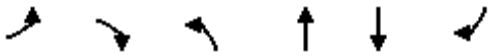
c Critical Lane Group

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	562	257	1205	3018
v/c Ratio	0.86	0.88	0.38	0.89
Control Delay	67.0	83.1	2.0	27.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	67.0	83.1	2.0	27.8
Queue Length 50th (m)	76.4	74.7	9.2	317.2
Queue Length 95th (m)	97.6	#123.6	m8.7	335.8
Internal Link Dist (m)	491.5		125.8	378.4
Turn Bay Length (m)		205.0		
Base Capacity (vph)	701	311	3203	3380
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	0.80	0.83	0.38	0.89

Intersection Summary

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	365	388	0	1109	2777	0
Future Volume (vph)	365	388	0	1109	2777	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6		6.6	6.6	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	0.96	0.85		1.00	1.00	
Flt Protected	0.97	1.00		1.00	1.00	
Satd. Flow (prot)	3221	1429		4561	4812	
Flt Permitted	0.97	1.00		1.00	1.00	
Satd. Flow (perm)	3221	1429		4561	4812	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	397	422	0	1205	3018	0
RTOR Reduction (vph)	2	2	0	0	0	0
Lane Group Flow (vph)	560	255	0	1205	3018	0
Heavy Vehicles (%)	8%	4%	0%	15%	9%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	28.5	28.5		98.3	98.3	
Effective Green, g (s)	28.5	28.5		98.3	98.3	
Actuated g/C Ratio	0.20	0.20		0.70	0.70	
Clearance Time (s)	6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	655	290		3202	3378	
v/s Ratio Prot	0.17			0.26	c0.63	
v/s Ratio Perm		c0.18				
v/c Ratio	0.86	0.88		0.38	0.89	
Uniform Delay, d1	53.8	54.1		8.4	16.7	
Progression Factor	1.00	1.00		0.20	1.44	
Incremental Delay, d2	10.6	25.2		0.3	2.6	
Delay (s)	64.4	79.3		1.9	26.7	
Level of Service	E	E		A	C	
Approach Delay (s)	69.1			1.9	26.7	
Approach LOS	E			A	C	

Intersection Summary			
HCM 2000 Control Delay	27.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	355	198	1538	2877
v/c Ratio	0.72	0.79	0.44	0.78
Control Delay	55.2	61.7	7.1	8.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	55.2	61.7	7.1	8.3
Queue Length 50th (m)	40.9	41.6	42.1	62.8
Queue Length 95th (m)	54.3	68.7	77.3	m30.9
Internal Link Dist (m)	372.3		378.4	362.1
Turn Bay Length (m)		220.0		
Base Capacity (vph)	648	317	3532	3695
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	0.55	0.62	0.44	0.78

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	144	364	1415	0	0	2647
Future Volume (vph)	144	364	1415	0	0	2647
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6	6.6			6.6
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.92	0.85	1.00			1.00
Flt Protected	0.98	1.00	1.00			1.00
Satd. Flow (prot)	3069	1376	4641			4856
Flt Permitted	0.98	1.00	1.00			1.00
Satd. Flow (perm)	3069	1376	4641			4856
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	157	396	1538	0	0	2877
RTOR Reduction (vph)	51	51	0	0	0	0
Lane Group Flow (vph)	304	147	1538	0	0	2877
Heavy Vehicles (%)	10%	8%	13%	0%	0%	8%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		6			2
Permitted Phases		8				
Actuated Green, G (s)	20.2	20.2	106.6			106.6
Effective Green, g (s)	20.2	20.2	106.6			106.6
Actuated g/C Ratio	0.14	0.14	0.76			0.76
Clearance Time (s)	6.6	6.6	6.6			6.6
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	442	198	3533			3697
v/s Ratio Prot	0.10		0.33			c0.59
v/s Ratio Perm		c0.11				
v/c Ratio	0.69	0.74	0.44			0.78
Uniform Delay, d1	56.9	57.4	6.0			9.8
Progression Factor	1.00	1.00	1.05			0.74
Incremental Delay, d2	4.4	13.8	0.3			0.2
Delay (s)	61.3	71.2	6.6			7.4
Level of Service	E	E	A			A
Approach Delay (s)	64.9		6.6			7.4
Approach LOS	E		A			A

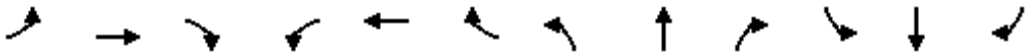
Intersection Summary			
HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	14	371	268	113	260	1547	367	39	2377
v/c Ratio	0.12	0.73	0.72	0.56	0.75	0.59	0.40	0.23	1.12
Control Delay	55.9	31.6	68.2	61.2	49.6	21.9	3.0	17.2	100.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.9	31.6	68.2	61.2	49.6	21.9	3.0	17.2	100.0
Queue Length 50th (m)	3.5	20.4	37.1	27.0	52.2	108.4	9.0	3.9	~252.3
Queue Length 95th (m)	10.2	36.7	49.7	45.1	#127.9	114.2	11.0	10.6	#277.3
Internal Link Dist (m)		247.6		157.3		362.1			334.5
Turn Bay Length (m)	60.0		57.0		88.0		91.0	120.0	
Base Capacity (vph)	117	509	722	380	345	2640	919	168	2124
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.73	0.37	0.30	0.75	0.59	0.40	0.23	1.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	13	105	236	247	82	22	239	1423	338	36	2159	28
Future Volume (vph)	13	105	236	247	82	22	239	1423	338	36	2159	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		3.0	6.6	6.6	3.0	6.6	
Lane Util. Factor	1.00	0.95		0.97	1.00		1.00	0.91	1.00	1.00	*1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.90		1.00	0.97		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1043	2747		2662	1374		1615	4856	1383	1508	5366	
Flt Permitted	0.95	1.00		0.95	1.00		0.07	1.00	1.00	0.15	1.00	
Satd. Flow (perm)	1043	2747		2662	1374		117	4856	1383	232	5366	
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)	14	114	257	268	89	24	260	1547	367	39	2347	30
RTOR Reduction (vph)	0	199	0	0	9	0	0	0	169	0	1	0
Lane Group Flow (vph)	14	172	0	268	104	0	260	1547	198	39	2376	0
Confl. Peds. (#/hr)	2		3	3		2	6		4	4		6
Heavy Vehicles (%)	75%	23%	15%	33%	29%	57%	13%	8%	16%	21%	7%	20%
Turn Type	Split	NA		Split	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	8	8		4	4		1	6		5	2	
Permitted Phases							6		6	2		
Actuated Green, G (s)	15.9	15.9		19.7	19.7		83.8	75.5	75.5	60.6	55.3	
Effective Green, g (s)	15.9	15.9		19.7	19.7		83.8	75.5	75.5	60.6	55.3	
Actuated g/C Ratio	0.11	0.11		0.14	0.14		0.60	0.54	0.54	0.43	0.39	
Clearance Time (s)	7.0	7.0		7.0	7.0		3.0	6.6	6.6	3.0	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	118	311		374	193		342	2618	745	148	2119	
v/s Ratio Prot	0.01	c0.06		c0.10	0.08		c0.14	0.32		0.01	c0.44	
v/s Ratio Perm							0.32		0.14	0.10		
v/c Ratio	0.12	0.55		0.72	0.54		0.76	0.59	0.27	0.26	1.12	
Uniform Delay, d1	55.8	58.7		57.5	55.9		41.3	21.8	17.3	23.1	42.4	
Progression Factor	1.00	1.00		1.00	1.00		0.99	0.90	0.84	1.00	1.00	
Incremental Delay, d2	0.5	2.1		6.4	3.1		8.9	0.9	0.8	1.0	61.5	
Delay (s)	56.2	60.8		63.9	59.0		49.8	20.6	15.4	24.1	103.9	
Level of Service	E	E		E	E		D	C	B	C	F	
Approach Delay (s)		60.6			62.5			23.2			102.6	
Approach LOS		E			E			C			F	

Intersection Summary			
HCM 2000 Control Delay	64.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.6
Intersection Capacity Utilization	93.9%	ICU Level of Service	F
Analysis Period (min)	15		

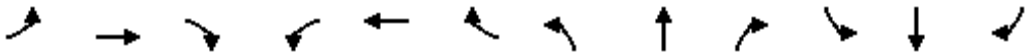
c Critical Lane Group

Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations		↑↑↑	↑↑↑	↱		
Traffic Volume (veh/h)	0	1183	2725	96	0	0
Future Volume (Veh/h)	0	1183	2725	96	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1286	2962	104	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		152	150			
pX, platoon unblocked	0.50				0.56	0.50
vC, conflicting volume	3066				3391	987
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1620				1057	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	198				123	540

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4
Volume Total	429	429	429	987	987	987	104
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	104
cSH	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.25	0.25	0.25	0.58	0.58	0.58	0.06
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS							
Approach Delay (s)	0.0			0.0			
Approach LOS							

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		

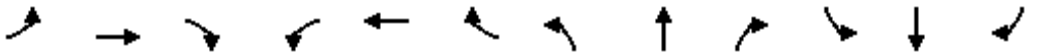
Intersection Sign configuration not allowed in HCM analysis.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	400	1600	103	77	1395	450	205	874	197	357	236	321
v/c Ratio	1.00	0.87	0.17	0.96	0.95	0.66	0.94	0.97	0.43	0.94	0.32	0.67
Control Delay	102.8	44.0	4.3	144.8	51.8	25.1	106.0	73.7	14.5	93.5	44.1	22.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	102.8	44.0	4.3	144.8	51.8	25.1	106.0	73.7	14.5	93.5	44.1	22.8
Queue Length 50th (m)	55.7	142.8	0.0	19.2	144.9	88.0	55.0	122.1	9.7	49.4	27.5	25.0
Queue Length 95th (m)	#89.0	163.6	9.3	#52.9	#167.5	121.4	#102.6	#164.1	31.3	#78.9	39.6	59.4
Internal Link Dist (m)		358.4			1114.0			261.4			215.3	
Turn Bay Length (m)	66.0		102.0	97.0		200.0	85.0		106.0	117.0		130.0
Base Capacity (vph)	401	1835	598	80	1474	684	217	898	459	378	737	481
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.00	0.87	0.17	0.96	0.95	0.66	0.94	0.97	0.43	0.94	0.32	0.67

Intersection Summary

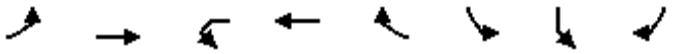
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	368	1472	95	71	1283	414	189	804	181	328	217	295
Future Volume (vph)	368	1472	95	71	1283	414	189	804	181	328	217	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.6	6.6	5.0	6.6	6.6	5.0	7.1	7.1	5.0	7.1	7.1
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.96	1.00	1.00	0.93	1.00	1.00	0.94
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3190	4641	1340	1352	4483	1503	1630	3476	1349	3404	3120	1341
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3190	4641	1340	1352	4483	1503	1630	3476	1349	3404	3120	1341
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)	400	1600	103	77	1395	450	205	874	197	357	236	321
RTOR Reduction (vph)	0	0	62	0	0	191	0	0	111	0	0	164
Lane Group Flow (vph)	400	1600	41	77	1395	259	205	874	86	357	236	157
Confl. Peds. (#/hr)	25		29	29		25	38		46	46		38
Heavy Vehicles (%)	11%	13%	16%	35%	17%	4%	12%	5%	12%	4%	17%	14%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	17.0	53.4	53.4	8.0	44.4	44.4	18.0	34.9	34.9	15.0	31.9	31.9
Effective Green, g (s)	17.0	53.4	53.4	8.0	44.4	44.4	18.0	34.9	34.9	15.0	31.9	31.9
Actuated g/C Ratio	0.13	0.40	0.40	0.06	0.33	0.33	0.13	0.26	0.26	0.11	0.24	0.24
Clearance Time (s)	5.0	6.6	6.6	5.0	6.6	6.6	5.0	7.1	7.1	5.0	7.1	7.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	401	1835	530	80	1474	494	217	898	348	378	737	316
v/s Ratio Prot	c0.13	0.34		0.06	c0.31		c0.13	c0.25		0.10	0.08	
v/s Ratio Perm			0.03			0.17			0.06			0.12
v/c Ratio	1.00	0.87	0.08	0.96	0.95	0.53	0.94	0.97	0.25	0.94	0.32	0.50
Uniform Delay, d1	59.0	37.6	25.4	63.4	44.1	36.7	58.0	49.6	39.6	59.6	42.6	44.6
Progression Factor	1.00	1.00	1.00	0.97	0.89	1.51	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	44.0	6.0	0.3	81.1	12.4	3.5	45.4	23.5	0.4	32.1	0.3	1.2
Delay (s)	102.9	43.7	25.7	142.3	51.5	59.0	103.4	73.1	40.0	91.6	42.8	45.8
Level of Service	F	D	C	F	D	E	F	E	D	F	D	D
Approach Delay (s)		54.1			56.9			72.9			63.0	
Approach LOS		D			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	60.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	23.7
Intersection Capacity Utilization	90.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	WBR	SBL2	SBL	SBR
Lane Group Flow (vph)	53	1984	5	1754	72	52	53	17
v/c Ratio	0.42	0.64	0.06	0.56	0.07	0.13	0.13	0.05
Control Delay	14.2	8.0	10.2	8.9	1.9	36.7	34.2	3.1
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	14.2	8.0	10.2	9.0	1.9	36.7	34.2	3.1
Queue Length 50th (m)	2.8	38.3	0.3	40.6	0.3	10.7	10.6	0.0
Queue Length 95th (m)	m3.6	m44.4	m0.3	50.2	m0.8	21.7	21.4	2.1
Internal Link Dist (m)		1114.0		177.7			103.6	
Turn Bay Length (m)	56.0		50.0		60.0	36.0	36.0	
Base Capacity (vph)	127	3101	90	3128	1096	466	400	421
Starvation Cap Reductn	0	0	0	347	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	0.42	0.64	0.06	0.63	0.07	0.11	0.13	0.04

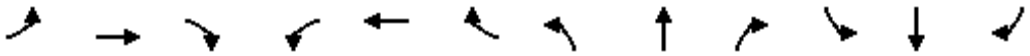
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR
Lane Configurations											
Traffic Volume (vph)	49	1825	0	5	1614	66	97	0	16	0	0
Future Volume (vph)	49	1825	0	5	1614	66	97	0	16	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4		7.4	7.4	7.4	7.4	4.5	7.4		
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	0.95	0.95	1.00		
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.98		
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85		
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	0.95	1.00		
Satd. Flow (prot)	1824	4561		1789	4601	1581	1605	1605	1362		
Flt Permitted	0.10	1.00		0.07	1.00	1.00	0.95	1.00	1.00		
Satd. Flow (perm)	189	4561		133	4601	1581	1605	1690	1362		
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
Adj. Flow (vph)	53	1984	0	5	1754	72	105	0	17	0	0
RTOR Reduction (vph)	0	0	0	0	0	23	0	0	13	0	0
Lane Group Flow (vph)	53	1984	0	5	1754	49	52	53	4	0	0
Confl. Peds. (#/hr)	4					4			2		
Heavy Vehicles (%)	0%	15%	2%	2%	14%	0%	8%	2%	18%	2%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Prot	Prot	Perm	Prot	Perm
Protected Phases		2			6		8!	4!		8!	
Permitted Phases	2			6		6			8		8!
Actuated Green, G (s)	88.8	88.8		88.8	88.8	88.8	31.4	34.3	31.4		
Effective Green, g (s)	88.8	88.8		88.8	88.8	88.8	31.4	34.3	31.4		
Actuated g/C Ratio	0.66	0.66		0.66	0.66	0.66	0.23	0.25	0.23		
Clearance Time (s)	7.4	7.4		7.4	7.4	7.4	7.4	4.5	7.4		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)	124	3000		87	3026	1039	373	429	316		
v/s Ratio Prot		c0.44			0.38		c0.03	0.03			
v/s Ratio Perm	0.28			0.04		0.03		0.00	0.00		
v/c Ratio	0.43	0.66		0.06	0.58	0.05	0.14	0.12	0.01		
Uniform Delay, d1	11.0	14.0		8.2	12.8	8.2	41.1	38.8	39.9		
Progression Factor	0.50	0.45		0.80	0.57	0.65	1.00	1.00	1.00		
Incremental Delay, d2	5.4	0.6		0.6	0.4	0.0	0.2	0.1	0.0		
Delay (s)	10.9	6.9		7.1	7.7	5.3	41.3	39.0	39.9		
Level of Service	B	A		A	A	A	D	D	D		
Approach Delay (s)		7.0			7.6			40.1		0.0	
Approach LOS		A			A			D		A	

Intersection Summary			
HCM 2000 Control Delay	8.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	14.8
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group



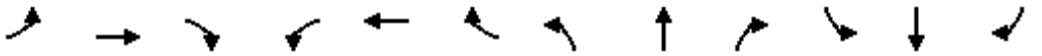
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	392	1353	360	145	1149	534	436	2124	245	426	859	311
v/c Ratio	1.22	0.87	0.51	1.10	0.92	0.92	0.90	1.15	0.42	1.11	0.60	0.61
Control Delay	182.1	39.8	8.8	137.0	53.8	41.4	77.5	106.0	8.7	135.1	59.7	38.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	182.1	39.8	8.8	137.0	53.8	41.4	77.5	106.0	8.7	135.1	59.7	38.2
Queue Length 50th (m)	~64.2	78.0	11.7	~28.1	109.4	86.3	55.2	~222.4	14.6	~68.1	84.1	42.4
Queue Length 95th (m)	#96.9	117.2	29.7	#71.3	#135.9	#154.5	#85.8	#244.9	m17.2	#101.6	99.3	77.6
Internal Link Dist (m)		177.7			433.9			176.1			127.8	
Turn Bay Length (m)	175.0		160.0	208.0		160.0	135.0		114.0	200.0		126.0
Base Capacity (vph)	322	1561	712	132	1250	583	494	1848	582	384	1421	513
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.22	0.87	0.51	1.10	0.92	0.92	0.88	1.15	0.42	1.11	0.60	0.61

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

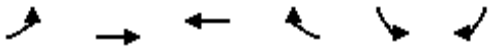
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	361	1245	331	133	1057	491	401	1954	225	392	790	286
Future Volume (vph)	361	1245	331	133	1057	491	401	1954	225	392	790	286
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.0	7.0	3.0	7.0	7.0	5.0	7.1	7.1	3.0	7.1	7.1
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	0.97	*1.00	1.00	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3106	4683	1555	1415	4561	1512	3340	5437	1432	3248	4768	1259
Flt Permitted	0.95	1.00	1.00	0.11	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3106	4683	1555	161	4561	1512	3340	5437	1432	3248	4768	1259
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)	392	1353	360	145	1149	534	436	2124	245	426	859	311
RTOR Reduction (vph)	0	0	194	0	0	169	0	0	96	0	0	138
Lane Group Flow (vph)	392	1353	166	145	1149	365	436	2124	149	426	859	173
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	14%	12%	5%	29%	15%	8%	6%	6%	14%	9%	10%	28%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6			4			8
Actuated Green, G (s)	14.0	45.0	45.0	45.0	37.0	37.0	19.7	45.9	45.9	14.0	40.2	40.2
Effective Green, g (s)	14.0	45.0	45.0	45.0	37.0	37.0	19.7	45.9	45.9	16.0	40.2	40.2
Actuated g/C Ratio	0.10	0.33	0.33	0.33	0.27	0.27	0.15	0.34	0.34	0.12	0.30	0.30
Clearance Time (s)	5.0	7.0	7.0	3.0	7.0	7.0	5.0	7.1	7.1	5.0	7.1	7.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	322	1561	518	127	1250	414	487	1848	486	384	1419	374
v/s Ratio Prot	c0.13	0.29		0.07	0.25		0.13	c0.39		c0.13	0.18	
v/s Ratio Perm			0.11	c0.31		0.24			0.10			0.14
v/c Ratio	1.22	0.87	0.32	1.14	0.92	0.88	0.90	1.15	0.31	1.11	0.61	0.46
Uniform Delay, d1	60.5	42.2	33.6	37.3	47.5	46.9	56.6	44.5	32.8	59.5	40.6	38.6
Progression Factor	1.36	0.81	0.89	1.27	0.89	0.80	1.08	0.81	0.52	1.08	1.42	2.25
Incremental Delay, d2	118.4	5.5	1.3	118.0	11.0	20.5	13.8	72.0	1.1	78.0	1.8	3.9
Delay (s)	200.9	39.5	31.1	165.3	53.5	57.9	75.1	108.0	18.2	142.4	59.3	90.7
Level of Service	F	D	C	F	D	E	E	F	B	F	E	F
Approach Delay (s)		68.1			63.7			95.0			87.6	
Approach LOS		E			E			F			F	

Intersection Summary			
HCM 2000 Control Delay	79.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	24.1
Intersection Capacity Utilization	98.9%	ICU Level of Service	F
Analysis Period (min)	15		

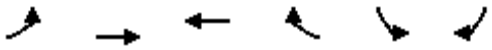
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	46	2145	1967	34	73	34
v/c Ratio	0.21	0.53	0.52	0.03	0.33	0.29
Control Delay	4.2	4.1	5.9	1.3	41.1	24.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.2	4.1	5.9	1.3	41.1	24.9
Queue Length 50th (m)	2.1	58.5	64.2	0.0	5.6	0.0
Queue Length 95th (m)	m3.1	m59.7	79.5	2.5	13.4	11.9
Internal Link Dist (m)		433.9	330.4		103.8	
Turn Bay Length (m)	183.0			77.0		
Base Capacity (vph)	220	4069	3818	1147	713	335
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.53	0.52	0.03	0.10	0.10

Intersection Summary

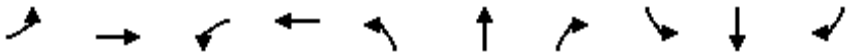
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	42	1973	1810	31	39	60
Future Volume (vph)	42	1973	1810	31	39	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.6	6.6	6.6	7.0	7.0
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.94	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.97	1.00
Satd. Flow (prot)	1825	4683	4683	1399	3103	1389
Flt Permitted	0.08	1.00	1.00	1.00	0.97	1.00
Satd. Flow (perm)	162	4683	4683	1399	3103	1389
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	2145	1967	34	42	65
RTOR Reduction (vph)	0	0	0	7	29	32
Lane Group Flow (vph)	46	2145	1967	27	44	2
Confl. Peds. (#/hr)	1			1		
Heavy Vehicles (%)	0%	12%	12%	14%	11%	7%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		8	
Permitted Phases	2			6		8
Actuated Green, G (s)	114.6	114.6	106.8	106.8	6.8	6.8
Effective Green, g (s)	114.6	114.6	106.8	106.8	6.8	6.8
Actuated g/C Ratio	0.85	0.85	0.79	0.79	0.05	0.05
Clearance Time (s)	3.0	6.6	6.6	6.6	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	196	3975	3704	1106	156	69
v/s Ratio Prot	0.01	c0.46	0.42		c0.01	
v/s Ratio Perm	0.19			0.02		0.00
v/c Ratio	0.23	0.54	0.53	0.02	0.28	0.02
Uniform Delay, d1	2.7	2.8	5.1	3.0	61.7	60.9
Progression Factor	2.16	1.32	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.3	0.5	0.0	1.0	0.1
Delay (s)	6.2	4.1	5.6	3.0	62.7	61.1
Level of Service	A	A	A	A	E	E
Approach Delay (s)		4.1	5.6		62.2	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay	6.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		

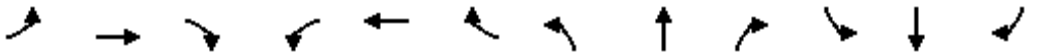
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	77	41	33	93	33	2659	25	50	1527	74
v/c Ratio	0.61	0.26	0.29	0.46	0.14	0.75	0.03	0.44	0.44	0.07
Control Delay	76.5	21.0	60.4	25.4	4.2	13.8	0.1	29.1	5.0	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.5	21.0	60.4	25.4	4.2	13.8	0.1	29.1	5.0	1.1
Queue Length 50th (m)	20.0	0.7	8.3	5.7	1.3	142.3	0.0	5.5	23.9	0.1
Queue Length 95th (m)	35.4	11.5	18.2	21.9	4.0	204.8	0.0	m13.7	m50.8	m0.6
Internal Link Dist (m)		200.3		281.8		533.0			225.8	
Turn Bay Length (m)			155.0		86.0		230.0	192.0		115.0
Base Capacity (vph)	358	374	322	446	242	3556	800	114	3479	1002
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.11	0.10	0.21	0.14	0.75	0.03	0.44	0.44	0.07

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	3	35	30	0	86	30	2446	23	46	1405	68
Future Volume (vph)	71	3	35	30	0	86	30	2446	23	46	1405	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5		7.5	7.5		3.0	6.7	6.7	3.0	6.7	6.7
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	0.98		1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		0.99	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.86		1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1690	1203		1451	1372		1508	4856	1071	1404	4641	1313
Flt Permitted	0.70	1.00		0.73	1.00		0.15	1.00	1.00	0.04	1.00	1.00
Satd. Flow (perm)	1239	1203		1116	1372		231	4856	1071	59	4641	1313
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)	77	3	38	33	0	93	33	2659	25	50	1527	74
RTOR Reduction (vph)	0	34	0	0	63	0	0	0	7	0	0	19
Lane Group Flow (vph)	77	7	0	33	30	0	33	2659	18	50	1527	55
Confl. Peds. (#/hr)			6	6			4		5	5		4
Heavy Vehicles (%)	8%	100%	30%	25%	0%	19%	21%	8%	48%	30%	13%	21%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6		6	2		2
Actuated Green, G (s)	13.9	13.9		13.9	13.9		102.2	98.3	98.3	105.6	100.0	100.0
Effective Green, g (s)	13.9	13.9		13.9	13.9		102.2	98.3	98.3	105.6	100.0	100.0
Actuated g/C Ratio	0.10	0.10		0.10	0.10		0.76	0.73	0.73	0.78	0.74	0.74
Clearance Time (s)	7.5	7.5		7.5	7.5		3.0	6.7	6.7	3.0	6.7	6.7
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	127	123		114	141		211	3535	779	101	3437	972
v/s Ratio Prot		0.01			0.02		0.00	c0.55		c0.02	0.33	
v/s Ratio Perm	c0.06			0.03			0.11		0.02	0.36		0.04
v/c Ratio	0.61	0.06		0.29	0.21		0.16	0.75	0.02	0.50	0.44	0.06
Uniform Delay, d1	57.9	54.6		56.0	55.5		4.3	11.0	5.1	14.7	6.8	4.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.26	0.64	0.62
Incremental Delay, d2	7.9	0.2		1.4	0.8		0.3	1.5	0.1	3.3	0.4	0.1
Delay (s)	65.9	54.8		57.4	56.3		4.7	12.6	5.1	21.8	4.7	3.0
Level of Service	E	D		E	E		A	B	A	C	A	A
Approach Delay (s)		62.0			56.6			12.4			5.1	
Approach LOS		E			E			B			A	

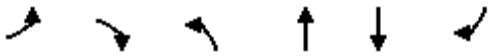
Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	17.2
Intersection Capacity Utilization	73.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	363	79	2872	1335
v/c Ratio	0.79	0.28	0.79	0.39
Control Delay	66.9	12.5	8.6	4.0
Queue Delay	0.0	0.0	0.6	0.0
Total Delay	66.9	12.5	9.2	4.0
Queue Length 50th (m)	48.0	0.0	42.7	22.4
Queue Length 95th (m)	63.9	15.4	m35.3	38.2
Internal Link Dist (m)	491.5		125.8	378.4
Turn Bay Length (m)		205.0		
Base Capacity (vph)	531	308	3620	3459
Starvation Cap Reductn	0	0	364	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.68	0.26	0.88	0.39

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	326	81	0	2642	1228	0
Future Volume (vph)	326	81	0	2642	1228	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6		6.6	6.6	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	2933	1351		4856	4641	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	2933	1351		4856	4641	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	354	88	0	2872	1335	0
RTOR Reduction (vph)	2	67	0	0	0	0
Lane Group Flow (vph)	361	12	0	2872	1335	0
Heavy Vehicles (%)	21%	10%	0%	8%	13%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	21.2	21.2		100.6	100.6	
Effective Green, g (s)	21.2	21.2		100.6	100.6	
Actuated g/C Ratio	0.16	0.16		0.75	0.75	
Clearance Time (s)	6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	460	212		3618	3458	
v/s Ratio Prot	c0.12			c0.59	0.29	
v/s Ratio Perm		0.01				
v/c Ratio	0.79	0.06		0.79	0.39	
Uniform Delay, d1	54.7	48.4		10.7	6.2	
Progression Factor	1.00	1.00		0.73	0.57	
Incremental Delay, d2	8.6	0.1		0.2	0.3	
Delay (s)	63.3	48.5		8.0	3.8	
Level of Service	E	D		A	A	
Approach Delay (s)	60.7			8.0	3.8	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	75.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	251	186	2852	1608
v/c Ratio	0.51	0.79	0.79	0.47
Control Delay	53.6	76.1	8.0	20.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	53.6	76.1	8.0	20.4
Queue Length 50th (m)	31.2	51.6	45.6	112.4
Queue Length 95th (m)	42.4	77.4	243.2	m131.7
Internal Link Dist (m)	372.3		378.4	362.1
Turn Bay Length (m)		220.0		
Base Capacity (vph)	635	300	3594	3435
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	0.40	0.62	0.79	0.47

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	59	343	2624	0	0	1479
Future Volume (vph)	59	343	2624	0	0	1479
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6	6.6			6.6
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.89	0.85	1.00			1.00
Flt Protected	0.99	1.00	1.00			1.00
Satd. Flow (prot)	3039	1429	4856			4641
Flt Permitted	0.99	1.00	1.00			1.00
Satd. Flow (perm)	3039	1429	4856			4641
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	64	373	2852	0	0	1608
RTOR Reduction (vph)	3	3	0	0	0	0
Lane Group Flow (vph)	248	183	2852	0	0	1608
Heavy Vehicles (%)	18%	4%	8%	0%	0%	13%
Turn Type	Prot	Perm	NA			NA
Protected Phases	4		2			6
Permitted Phases		4				
Actuated Green, G (s)	21.9	21.9	99.9			99.9
Effective Green, g (s)	21.9	21.9	99.9			99.9
Actuated g/C Ratio	0.16	0.16	0.74			0.74
Clearance Time (s)	6.6	6.6	6.6			6.6
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	492	231	3593			3434
v/s Ratio Prot	0.08		c0.59			0.35
v/s Ratio Perm		c0.13				
v/c Ratio	0.50	0.79	0.79			0.47
Uniform Delay, d1	51.6	54.3	11.1			7.0
Progression Factor	1.00	1.00	0.56			2.69
Incremental Delay, d2	0.8	16.7	1.1			0.3
Delay (s)	52.4	71.0	7.4			19.0
Level of Service	D	E	A			B
Approach Delay (s)	60.3		7.4			19.0
Approach LOS	E		A			B

Intersection Summary			
HCM 2000 Control Delay	15.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	75.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	76	479	334	141	92	3143	210	34	1486
v/c Ratio	0.48	1.28dr	0.88	0.42	0.57	1.23	0.30	0.26	0.74
Control Delay	70.5	91.7	72.9	42.8	27.5	141.7	11.2	20.7	36.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.5	91.7	72.9	42.8	27.5	141.7	11.2	20.7	36.5
Queue Length 50th (m)	19.9	~54.5	84.0	28.9	13.5	~360.7	21.8	4.3	122.1
Queue Length 95th (m)	#45.4	#94.0	#125.0	48.0	m15.8	#384.0	m29.1	9.7	141.0
Internal Link Dist (m)		247.6		157.3		362.1			334.5
Turn Bay Length (m)	60.0		57.0		88.0		91.0	120.0	
Base Capacity (vph)	157	458	428	377	171	2545	690	132	2013
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	1.05	0.78	0.37	0.54	1.23	0.30	0.26	0.74

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	81	360	307	105	25	85	2892	193	31	1357	10
Future Volume (vph)	70	81	360	307	105	25	85	2892	193	31	1357	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		3.0	6.6	6.6	3.0	6.6	
Lane Util. Factor	1.00	*1.00		1.00	1.00		1.00	*1.00	1.00	1.00	0.91	
Frpb, ped/bikes	1.00	0.98		1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.88		1.00	0.97		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1587	3089		1521	1320		1547	5542	1360	1706	4894	
Flt Permitted	0.95	1.00		0.95	1.00		0.08	1.00	1.00	0.07	1.00	
Satd. Flow (perm)	1587	3089		1521	1320		127	5542	1360	129	4894	
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)	76	88	391	334	114	27	92	3143	210	34	1475	11
RTOR Reduction (vph)	0	152	0	0	7	0	0	0	67	0	1	0
Lane Group Flow (vph)	76	327	0	334	134	0	92	3143	143	34	1485	0
Confl. Peds. (#/hr)	2		3	3		2	6		4	4		6
Heavy Vehicles (%)	15%	22%	4%	20%	41%	41%	18%	4%	18%	7%	7%	11%
Turn Type	Split	NA		Split	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	8	8		4	4		1	6		5	2	
Permitted Phases							6		6	2		
Actuated Green, G (s)	13.4	13.4		33.6	33.6		67.4	60.8	60.8	59.1	55.5	
Effective Green, g (s)	13.4	13.4		33.6	33.6		67.4	60.8	60.8	59.1	55.5	
Actuated g/C Ratio	0.10	0.10		0.25	0.25		0.50	0.45	0.45	0.44	0.41	
Clearance Time (s)	7.0	7.0		7.0	7.0		3.0	6.6	6.6	3.0	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	157	306		378	328		157	2495	612	98	2011	
v/s Ratio Prot	0.05	c0.11		c0.22	0.10		c0.04	c0.57		0.01	0.30	
v/s Ratio Perm							0.25		0.11	0.14		
v/c Ratio	0.48	1.28dr		0.88	0.41		0.59	1.26	0.23	0.35	0.74	
Uniform Delay, d1	57.5	60.8		48.8	42.4		23.4	37.1	22.8	31.8	33.6	
Progression Factor	1.00	1.00		1.00	1.00		0.92	1.01	1.03	1.00	1.00	
Incremental Delay, d2	2.3	70.6		20.9	0.8		3.8	119.2	0.6	2.1	2.5	
Delay (s)	59.9	131.4		69.7	43.2		25.2	156.9	24.0	33.9	36.1	
Level of Service	E	F		E	D		C	F	C	C	D	
Approach Delay (s)		121.6			61.8			145.2			36.0	
Approach LOS		F			E			F			D	

Intersection Summary			
HCM 2000 Control Delay	108.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	23.6
Intersection Capacity Utilization	111.7%	ICU Level of Service	H
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

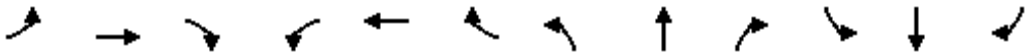
Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations		↑↑↑	↑↑↑	↱		
Traffic Volume (veh/h)	0	2886	1468	27	0	0
Future Volume (Veh/h)	0	2886	1468	27	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	3137	1596	29	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		152	150			
pX, platoon unblocked	0.90				0.71	0.90
vC, conflicting volume	1625				2642	532
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1320				977	111
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	470				177	833

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4
Volume Total	1046	1046	1046	532	532	532	29
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	29
cSH	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.62	0.62	0.62	0.31	0.31	0.31	0.02
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS							
Approach Delay (s)	0.0			0.0			
Approach LOS							

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		

Intersection Sign configuration not allowed in HCM analysis.

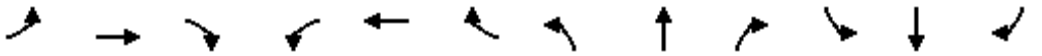
Appendix D – Future (2031) Total Conditions No Goreway Synchro Output



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	241	1361	79	100	1100	323	112	158	118	512	641	401
v/c Ratio	0.77	0.79	0.12	0.74	0.64	0.42	0.79	0.34	0.37	0.91	0.76	0.75
Control Delay	77.2	42.5	0.4	94.7	18.3	7.4	97.2	51.4	6.8	78.7	55.1	28.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.2	42.5	0.4	94.7	18.3	7.4	97.2	51.4	6.8	78.7	55.1	28.0
Queue Length 50th (m)	33.4	128.4	0.0	29.1	50.8	23.2	30.5	20.1	0.0	72.4	86.5	43.0
Queue Length 95th (m)	#53.8	148.8	0.0	#59.5	80.0	34.2	#59.5	30.0	9.8	#102.0	103.8	79.5
Internal Link Dist (m)		358.4			1114.0			261.4			215.3	
Turn Bay Length (m)	66.0		102.0	97.0		200.0	85.0		106.0	117.0		130.0
Base Capacity (vph)	322	1718	661	139	1722	764	152	575	359	572	968	581
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.79	0.12	0.72	0.64	0.42	0.74	0.27	0.33	0.90	0.66	0.69

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)	222	1252	73	92	1012	297	103	145	109	471	590	369
Future Volume (vph)	222	1252	73	92	1012	297	103	145	109	471	590	369
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.6	6.6	5.0	6.6	6.6	5.0	7.1	7.1	5.0	7.1	7.1
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.97	1.00	1.00	0.93	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3026	4334	1442	1472	4483	1471	1426	2684	1145	3340	3476	1475
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3026	4334	1442	1472	4483	1471	1426	2684	1145	3340	3476	1475
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)	241	1361	79	100	1100	323	112	158	118	512	641	401
RTOR Reduction (vph)	0	0	48	0	0	199	0	0	97	0	0	179
Lane Group Flow (vph)	241	1361	31	100	1100	124	112	158	21	512	641	222
Confl. Peds. (#/hr)	12		20	20		12	9		39	39		9
Heavy Vehicles (%)	17%	21%	9%	24%	17%	8%	28%	36%	33%	6%	5%	8%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	14.6	55.5	55.5	12.9	53.8	53.8	13.9	24.4	24.4	23.5	34.0	34.0
Effective Green, g (s)	14.6	55.5	55.5	12.9	53.8	53.8	13.9	24.4	24.4	23.5	34.0	34.0
Actuated g/C Ratio	0.10	0.40	0.40	0.09	0.38	0.38	0.10	0.17	0.17	0.17	0.24	0.24
Clearance Time (s)	5.0	6.6	6.6	5.0	6.6	6.6	5.0	7.1	7.1	5.0	7.1	7.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	315	1718	571	135	1722	565	141	467	199	560	844	358
v/s Ratio Prot	c0.08	c0.31		0.07	0.25		0.08	0.06		c0.15	c0.18	
v/s Ratio Perm			0.02			0.08			0.02			0.15
v/c Ratio	0.77	0.79	0.05	0.74	0.64	0.22	0.79	0.34	0.10	0.91	0.76	0.62
Uniform Delay, d1	61.0	37.2	26.1	61.9	35.2	29.0	61.7	50.7	48.6	57.3	49.2	47.2
Progression Factor	1.00	1.00	1.00	1.09	0.46	1.75	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.6	3.8	0.2	17.6	1.6	0.8	25.7	0.4	0.2	19.5	4.0	3.2
Delay (s)	71.6	41.0	26.3	85.3	17.6	51.6	87.4	51.1	48.8	76.8	53.2	50.4
Level of Service	E	D	C	F	B	D	F	D	D	E	D	D
Approach Delay (s)		44.7			29.3			60.9			60.2	
Approach LOS		D			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	46.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.7
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR
Lane Group Flow (vph)	9	2006	48	1541	66	29	30	32	2	34
v/c Ratio	0.05	0.63	0.54	0.49	0.06	0.07	0.07	0.08	0.00	0.08
Control Delay	1.4	2.7	35.5	12.2	3.7	37.2	35.1	11.0	36.0	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.4	2.7	35.5	12.2	3.7	37.2	35.1	11.0	36.0	11.8
Queue Length 50th (m)	0.1	5.4	5.1	58.4	1.1	6.2	6.2	0.0	0.4	0.0
Queue Length 95th (m)	m0.0	7.9	m6.4	m66.7	m1.4	14.6	14.4	7.5	2.6	8.4
Internal Link Dist (m)		1114.0		177.7			103.6		75.8	
Turn Bay Length (m)	56.0		50.0		60.0	36.0	36.0			
Base Capacity (vph)	174	3164	89	3138	1117	491	424	487	507	478
Starvation Cap Reductn	0	0	0	242	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.63	0.54	0.53	0.06	0.06	0.07	0.07	0.00	0.07

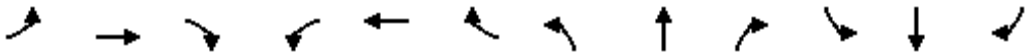
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR	NWR2
Lane Configurations												
Traffic Volume (vph)	8	1837	8	44	1418	61	54	0	29	2	0	31
Future Volume (vph)	8	1837	8	44	1418	61	54	0	29	2	0	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4		7.4	7.4	7.4	7.5	4.5	7.5	7.5	7.5	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	0.95	0.95	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	
Satd. Flow (prot)	1825	4600		1789	4561	1595	1734	1734	1633	1789	1601	
Flt Permitted	0.13	1.00		0.07	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	254	4600		130	4561	1595	1734	1825	1633	1789	1601	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	1997	9	48	1541	66	59	0	32	2	0	34
RTOR Reduction (vph)	0	0	0	0	0	22	0	0	25	0	26	0
Lane Group Flow (vph)	9	2006	0	48	1541	44	29	30	7	2	8	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	0%	14%	2%	2%	15%	0%	0%	2%	0%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Prot	Prot	Perm	Prot	Perm	
Protected Phases		2			6		8!	4!		8!		
Permitted Phases	2			6		6			8		8!	
Actuated Green, G (s)	93.3	93.3		93.3	93.3	93.3	31.8	34.8	31.8	31.8	31.8	
Effective Green, g (s)	93.3	93.3		93.3	93.3	93.3	31.8	34.8	31.8	31.8	31.8	
Actuated g/C Ratio	0.67	0.67		0.67	0.67	0.67	0.23	0.25	0.23	0.23	0.23	
Clearance Time (s)	7.4	7.4		7.4	7.4	7.4	7.5	4.5	7.5	7.5	7.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	169	3065		86	3039	1062	393	453	370	406	363	
v/s Ratio Prot		c0.44			0.34		c0.02	0.02		0.00		
v/s Ratio Perm	0.04			0.37		0.03		0.00	0.00		0.00	
v/c Ratio	0.05	0.65		0.56	0.51	0.04	0.07	0.07	0.02	0.00	0.02	
Uniform Delay, d1	8.1	13.8		12.4	11.8	8.0	42.5	40.2	42.0	41.9	42.0	
Progression Factor	0.09	0.13		1.08	0.87	1.45	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.7		11.6	0.3	0.0	0.1	0.1	0.0	0.0	0.0	
Delay (s)	1.1	2.4		25.0	10.5	11.6	42.6	40.3	42.0	41.9	42.0	
Level of Service	A	A		C	B	B	D	D	D	D	D	
Approach Delay (s)		2.4			10.9			41.6		42.0		
Approach LOS		A			B			D		D		

Intersection Summary			
HCM 2000 Control Delay	7.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	14.9
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

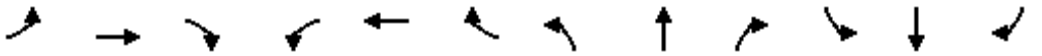


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	287	1446	507	168	973	289	304	721	102	577	2076	439
v/c Ratio	1.05	0.95	0.84	1.09	0.91	0.50	1.00	0.53	0.21	0.92	0.99	0.71
Control Delay	125.0	50.3	27.1	136.1	60.3	6.1	107.9	50.0	8.4	79.1	59.1	28.0
Queue Delay	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	125.0	50.3	29.1	136.1	60.3	6.1	107.9	50.0	8.4	79.1	59.1	28.0
Queue Length 50th (m)	~42.9	132.2	88.1	~36.4	96.3	9.1	44.0	51.5	0.0	83.0	170.2	46.5
Queue Length 95th (m)	#72.5	#156.9	#139.2	#85.1	#120.5	13.5	#75.1	84.6	11.1	#113.6	#221.0	80.0
Internal Link Dist (m)		177.7			433.9			176.1			127.8	
Turn Bay Length (m)	175.0		160.0	208.0		160.0	135.0		114.0	200.0		126.0
Base Capacity (vph)	274	1516	607	154	1074	581	304	1364	495	638	2093	619
Starvation Cap Reductn	0	0	32	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.05	0.95	0.88	1.09	0.91	0.50	1.00	0.53	0.21	0.90	0.99	0.71

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

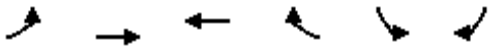
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	264	1330	466	155	895	266	280	663	94	531	1910	404
Future Volume (vph)	264	1330	466	155	895	266	280	663	94	531	1910	404
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.0	7.0	3.0	7.0	7.0	5.0	7.1	7.1	5.0	7.1	7.1
Lane Util. Factor	0.97	*1.00	1.00	1.00	0.91	1.00	0.97	0.91	1.00	0.97	*1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2745	5056	1526	1587	4299	1458	3278	4725	1296	3309	5437	1276
Flt Permitted	0.95	1.00	1.00	0.11	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2745	5056	1526	191	4299	1458	3278	4725	1296	3309	5437	1276
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)	287	1446	507	168	973	289	304	721	102	577	2076	439
RTOR Reduction (vph)	0	0	150	0	0	217	0	0	73	0	0	129
Lane Group Flow (vph)	287	1446	357	168	973	72	304	721	29	577	2076	310
Confl. Peds. (#/hr)							3					3
Heavy Vehicles (%)	29%	14%	7%	15%	22%	12%	8%	11%	26%	7%	6%	26%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6			4			8
Actuated Green, G (s)	14.0	42.0	42.0	44.0	35.0	35.0	13.0	40.4	40.4	26.5	53.9	53.9
Effective Green, g (s)	14.0	42.0	42.0	44.0	35.0	35.0	13.0	40.4	40.4	26.5	53.9	53.9
Actuated g/C Ratio	0.10	0.30	0.30	0.31	0.25	0.25	0.09	0.29	0.29	0.19	0.38	0.38
Clearance Time (s)	5.0	7.0	7.0	3.0	7.0	7.0	5.0	7.1	7.1	5.0	7.1	7.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	274	1516	457	149	1074	364	304	1363	373	626	2093	491
v/s Ratio Prot	c0.10	0.29		c0.07	0.23		0.09	0.15		c0.17	c0.38	
v/s Ratio Perm			0.23	c0.28		0.05			0.02			0.24
v/c Ratio	1.05	0.95	0.78	1.13	0.91	0.20	1.00	0.53	0.08	0.92	0.99	0.63
Uniform Delay, d1	63.0	48.0	44.8	40.8	50.9	41.4	63.5	41.8	36.3	55.7	42.8	35.0
Progression Factor	1.06	0.78	0.60	1.37	0.95	0.70	0.91	1.15	1.00	1.13	1.05	1.24
Incremental Delay, d2	62.5	12.6	10.6	109.9	11.9	1.1	50.2	0.4	0.1	14.5	14.4	1.8
Delay (s)	129.4	50.0	37.4	166.0	60.1	30.1	108.2	48.6	36.3	77.7	59.2	45.3
Level of Service	F	D	D	F	E	C	F	D	D	E	E	D
Approach Delay (s)		57.3			66.5			63.6			60.7	
Approach LOS		E			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	61.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	24.1
Intersection Capacity Utilization	98.4%	ICU Level of Service	F
Analysis Period (min)	15		

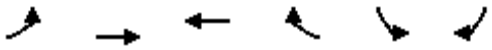
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	32	2062	1633	25	9	6
v/c Ratio	0.12	0.47	0.38	0.02	0.04	0.04
Control Delay	1.0	2.4	2.9	1.2	0.4	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.0	2.4	2.9	1.2	0.4	0.5
Queue Length 50th (m)	0.3	8.5	17.5	0.0	0.0	0.0
Queue Length 95th (m)	m0.7	m24.8	54.2	1.9	0.0	0.0
Internal Link Dist (m)		433.9	330.4		103.8	
Turn Bay Length (m)	183.0			77.0		
Base Capacity (vph)	290	4394	4247	1121	550	273
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.47	0.38	0.02	0.02	0.02

Intersection Summary

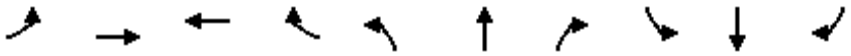
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	29	1897	1502	23	3	11
Future Volume (vph)	29	1897	1502	23	3	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.6	6.6	6.6	7.0	7.0
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.98	0.99	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.90	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.98	1.00
Satd. Flow (prot)	1690	4683	4768	1256	2165	916
Flt Permitted	0.13	1.00	1.00	1.00	0.98	1.00
Satd. Flow (perm)	234	4683	4768	1256	2165	916
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	2062	1633	25	3	12
RTOR Reduction (vph)	0	0	0	4	9	6
Lane Group Flow (vph)	32	2062	1633	21	0	0
Confl. Peds. (#/hr)	1			1	1	1
Heavy Vehicles (%)	8%	12%	10%	27%	33%	60%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		8	
Permitted Phases	2			6		8
Actuated Green, G (s)	123.2	123.2	116.7	116.7	3.2	3.2
Effective Green, g (s)	123.2	123.2	116.7	116.7	3.2	3.2
Actuated g/C Ratio	0.88	0.88	0.83	0.83	0.02	0.02
Clearance Time (s)	3.0	6.6	6.6	6.6	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	242	4121	3974	1046	49	20
v/s Ratio Prot	0.00	c0.44	0.34		0.00	
v/s Ratio Perm	0.11			0.02		c0.00
v/c Ratio	0.13	0.50	0.41	0.02	0.00	0.01
Uniform Delay, d1	1.3	1.8	2.9	2.0	66.8	66.8
Progression Factor	0.78	1.56	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.2	0.3	0.0	0.0	0.1
Delay (s)	1.1	3.0	3.3	2.0	66.9	67.0
Level of Service	A	A	A	A	E	E
Approach Delay (s)		3.0	3.2		66.9	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay	3.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		

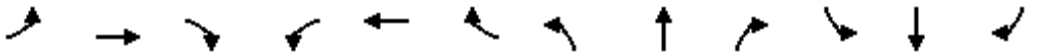
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	18	14	15	39	15	1351	64	203	2893	51
v/c Ratio	0.31	0.16	0.18	0.26	0.17	0.38	0.05	0.55	0.70	0.05
Control Delay	75.1	33.5	65.6	5.3	7.8	6.7	0.9	11.8	6.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.1	33.5	65.6	5.3	7.8	6.7	0.9	11.8	6.6	0.0
Queue Length 50th (m)	4.9	0.5	4.0	0.0	0.4	40.4	0.0	6.9	22.6	0.0
Queue Length 95th (m)	13.0	7.6	11.1	1.5	1.6	66.4	3.0	m9.1	m263.0	m0.1
Internal Link Dist (m)		200.3	281.8			533.0			225.8	
Turn Bay Length (m)					86.0		230.0	192.0		115.0
Base Capacity (vph)	244	337	350	384	86	3529	1165	452	4142	1020
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.04	0.04	0.10	0.17	0.38	0.05	0.45	0.70	0.05

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	2	11	14	0	36	14	1243	59	187	2662	47
Future Volume (vph)	17	2	11	14	0	36	14	1243	59	187	2662	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5			7.5	7.5	3.0	6.7	6.7	3.0	6.7	6.7
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	0.99			1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.87			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00			0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1116	1181			1597	1182	1185	4601	1495	1738	4948	1208
Flt Permitted	0.75	1.00			0.75	1.00	0.04	1.00	1.00	0.17	1.00	1.00
Satd. Flow (perm)	878	1181			1258	1182	47	4601	1495	318	4948	1208
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)	18	2	12	15	0	39	15	1351	64	203	2893	51
RTOR Reduction (vph)	0	11	0	0	0	37	0	0	16	0	0	10
Lane Group Flow (vph)	18	3	0	0	15	2	15	1351	48	203	2893	41
Confl. Peds. (#/hr)	3		2	2		3	2		5	5		2
Heavy Vehicles (%)	63%	100%	30%	14%	0%	36%	54%	14%	6%	5%	6%	32%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4	6		6	2		2
Actuated Green, G (s)	7.8	7.8			7.8	7.8	108.3	105.9	105.9	118.0	112.6	112.6
Effective Green, g (s)	7.8	7.8			7.8	7.8	108.3	105.9	105.9	118.0	112.6	112.6
Actuated g/C Ratio	0.06	0.06			0.06	0.06	0.77	0.76	0.76	0.84	0.80	0.80
Clearance Time (s)	7.5	7.5			7.5	7.5	3.0	6.7	6.7	3.0	6.7	6.7
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	48	65			70	65	55	3480	1130	360	3979	971
v/s Ratio Prot		0.00					0.00	0.29		c0.04	c0.58	
v/s Ratio Perm	c0.02				0.01	0.00	0.20		0.03	0.44		0.03
v/c Ratio	0.38	0.04			0.21	0.03	0.27	0.39	0.04	0.56	0.73	0.04
Uniform Delay, d1	63.7	62.6			63.2	62.5	6.8	5.9	4.3	2.7	6.5	2.8
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00	5.48	0.90	0.00
Incremental Delay, d2	4.9	0.3			1.5	0.2	2.7	0.3	0.1	1.1	0.6	0.0
Delay (s)	68.6	62.8			64.7	62.7	9.4	6.2	4.4	15.8	6.4	0.0
Level of Service	E	E			E	E	A	A	A	B	A	A
Approach Delay (s)		66.1			63.3			6.2			6.9	
Approach LOS		E			E			A			A	

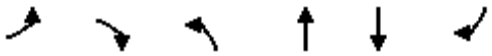
Intersection Summary			
HCM 2000 Control Delay	7.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.2
Intersection Capacity Utilization	80.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	562	257	1245	2626
v/c Ratio	0.80	0.82	0.40	0.79
Control Delay	60.0	71.3	2.3	17.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	60.0	71.3	2.3	17.7
Queue Length 50th (m)	75.7	73.7	10.3	272.0
Queue Length 95th (m)	91.6	104.5	m11.5	285.3
Internal Link Dist (m)	491.5		125.8	378.4
Turn Bay Length (m)		205.0		
Base Capacity (vph)	840	374	3136	3308
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	0.67	0.69	0.40	0.79

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	365	388	0	1145	2416	0
Future Volume (vph)	365	388	0	1145	2416	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6		6.6	6.6	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	0.96	0.85		1.00	1.00	
Flt Protected	0.97	1.00		1.00	1.00	
Satd. Flow (prot)	3221	1429		4561	4812	
Flt Permitted	0.97	1.00		1.00	1.00	
Satd. Flow (perm)	3221	1429		4561	4812	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	397	422	0	1245	2626	0
RTOR Reduction (vph)	3	3	0	0	0	0
Lane Group Flow (vph)	559	254	0	1245	2626	0
Heavy Vehicles (%)	8%	4%	0%	15%	9%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	30.5	30.5		96.3	96.3	
Effective Green, g (s)	30.5	30.5		96.3	96.3	
Actuated g/C Ratio	0.22	0.22		0.69	0.69	
Clearance Time (s)	6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	701	311		3137	3309	
v/s Ratio Prot	0.17			0.27	c0.55	
v/s Ratio Perm		c0.18				
v/c Ratio	0.80	0.82		0.40	0.79	
Uniform Delay, d1	51.8	52.1		9.4	15.0	
Progression Factor	1.00	1.00		0.20	1.02	
Incremental Delay, d2	6.3	15.1		0.3	1.2	
Delay (s)	58.1	67.2		2.2	16.5	
Level of Service	E	E		A	B	
Approach Delay (s)	61.0			2.2	16.5	
Approach LOS	E			A	B	

Intersection Summary			
HCM 2000 Control Delay	20.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	355	198	1577	3028
v/c Ratio	0.73	0.81	0.44	0.82
Control Delay	56.5	64.1	6.2	10.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	56.5	64.1	6.2	10.7
Queue Length 50th (m)	41.1	41.9	44.9	99.7
Queue Length 95th (m)	55.4	70.4	74.0	m33.1
Internal Link Dist (m)	372.3		378.4	362.1
Turn Bay Length (m)		220.0		
Base Capacity (vph)	604	297	3545	3709
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	0.59	0.67	0.44	0.82

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	144	364	1451	0	0	2786
Future Volume (vph)	144	364	1451	0	0	2786
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6	6.6			6.6
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.92	0.85	1.00			1.00
Flt Protected	0.98	1.00	1.00			1.00
Satd. Flow (prot)	3069	1376	4641			4856
Flt Permitted	0.98	1.00	1.00			1.00
Satd. Flow (perm)	3069	1376	4641			4856
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	157	396	1577	0	0	3028
RTOR Reduction (vph)	51	51	0	0	0	0
Lane Group Flow (vph)	304	147	1577	0	0	3028
Heavy Vehicles (%)	10%	8%	13%	0%	0%	8%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		6			2
Permitted Phases		8				
Actuated Green, G (s)	19.9	19.9	106.9			106.9
Effective Green, g (s)	19.9	19.9	106.9			106.9
Actuated g/C Ratio	0.14	0.14	0.76			0.76
Clearance Time (s)	6.6	6.6	6.6			6.6
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	436	195	3543			3707
v/s Ratio Prot	0.10		0.34			c0.62
v/s Ratio Perm		c0.11				
v/c Ratio	0.70	0.76	0.45			0.82
Uniform Delay, d1	57.2	57.7	5.9			10.4
Progression Factor	1.00	1.00	0.92			0.91
Incremental Delay, d2	4.8	15.3	0.4			0.2
Delay (s)	62.0	73.0	5.8			9.7
Level of Service	E	E	A			A
Approach Delay (s)	66.0		5.8			9.7
Approach LOS	E		A			A

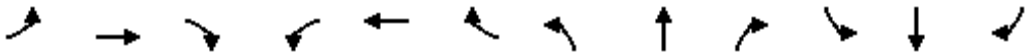
Intersection Summary			
HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	14	371	268	113	260	1586	367	39	2528
v/c Ratio	0.12	0.73	0.72	0.56	0.75	0.60	0.40	0.24	1.19
Control Delay	55.9	31.6	68.2	61.2	50.1	21.2	2.8	17.5	128.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.9	31.6	68.2	61.2	50.1	21.2	2.8	17.5	128.5
Queue Length 50th (m)	3.5	20.4	37.1	27.0	53.8	109.7	10.6	3.9	~281.6
Queue Length 95th (m)	10.2	36.7	49.7	45.1	#129.5	117.0	13.0	10.6	#305.7
Internal Link Dist (m)		247.6		157.3		362.1			334.5
Turn Bay Length (m)	60.0		57.0		88.0		91.0	120.0	
Base Capacity (vph)	117	509	722	380	345	2640	919	162	2124
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.73	0.37	0.30	0.75	0.60	0.40	0.24	1.19

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	13	105	236	247	82	22	239	1459	338	36	2298	28
Future Volume (vph)	13	105	236	247	82	22	239	1459	338	36	2298	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		3.0	6.6	6.6	3.0	6.6	
Lane Util. Factor	1.00	0.95		0.97	1.00		1.00	0.91	1.00	1.00	*1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.90		1.00	0.97		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1043	2747		2662	1374		1615	4856	1383	1508	5368	
Flt Permitted	0.95	1.00		0.95	1.00		0.07	1.00	1.00	0.14	1.00	
Satd. Flow (perm)	1043	2747		2662	1374		117	4856	1383	218	5368	
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)	14	114	257	268	89	24	260	1586	367	39	2498	30
RTOR Reduction (vph)	0	199	0	0	9	0	0	0	169	0	1	0
Lane Group Flow (vph)	14	172	0	268	104	0	260	1586	198	39	2527	0
Confl. Peds. (#/hr)	2		3	3		2	6		4	4		6
Heavy Vehicles (%)	75%	23%	15%	33%	29%	57%	13%	8%	16%	21%	7%	20%
Turn Type	Split	NA		Split	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	8	8		4	4		1	6		5	2	
Permitted Phases							6		6	2		
Actuated Green, G (s)	15.9	15.9		19.7	19.7		83.8	75.5	75.5	60.6	55.3	
Effective Green, g (s)	15.9	15.9		19.7	19.7		83.8	75.5	75.5	60.6	55.3	
Actuated g/C Ratio	0.11	0.11		0.14	0.14		0.60	0.54	0.54	0.43	0.39	
Clearance Time (s)	7.0	7.0		7.0	7.0		3.0	6.6	6.6	3.0	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	118	311		374	193		342	2618	745	143	2120	
v/s Ratio Prot	0.01	c0.06		c0.10	0.08		c0.14	0.33		0.01	c0.47	
v/s Ratio Perm							0.32		0.14	0.11		
v/c Ratio	0.12	0.55		0.72	0.54		0.76	0.61	0.27	0.27	1.19	
Uniform Delay, d1	55.8	58.7		57.5	55.9		41.3	22.1	17.3	23.2	42.4	
Progression Factor	1.00	1.00		1.00	1.00		1.01	0.86	0.75	1.00	1.00	
Incremental Delay, d2	0.5	2.1		6.4	3.1		8.9	1.0	0.8	1.0	91.3	
Delay (s)	56.2	60.8		63.9	59.0		50.7	20.0	13.9	24.2	133.7	
Level of Service	E	E		E	E		D	B	B	C	F	
Approach Delay (s)		60.6			62.5			22.6			132.0	
Approach LOS		E			E			C			F	

Intersection Summary			
HCM 2000 Control Delay	78.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.6
Intersection Capacity Utilization	96.6%	ICU Level of Service	F
Analysis Period (min)	15		

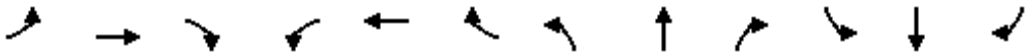
c Critical Lane Group

Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations		↑↑↑	↑↑↑	↱		
Traffic Volume (veh/h)	0	1255	2962	117	0	0
Future Volume (Veh/h)	0	1255	2962	117	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1364	3220	127	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		152	150			
pX, platoon unblocked	0.62				0.68	0.62
vC, conflicting volume	3347				3675	1073
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2634				2080	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	98				31	670

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4
Volume Total	455	455	455	1073	1073	1073	127
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	127
cSH	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.27	0.27	0.27	0.63	0.63	0.63	0.07
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS							
Approach Delay (s)	0.0			0.0			
Approach LOS							

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		

Intersection Sign configuration not allowed in HCM analysis.

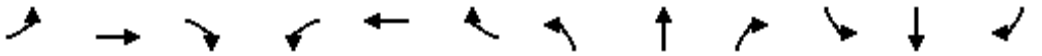


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	400	1599	103	77	1401	450	205	874	197	357	236	321
v/c Ratio	1.00	0.87	0.17	0.96	0.95	0.66	0.94	0.97	0.43	0.94	0.32	0.67
Control Delay	102.8	44.0	4.3	142.2	53.1	24.7	106.0	73.7	14.5	93.5	44.1	22.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	102.8	44.0	4.3	142.2	53.1	24.7	106.0	73.7	14.5	93.5	44.1	22.8
Queue Length 50th (m)	55.7	142.6	0.0	19.2	145.4	87.9	55.0	122.1	9.7	49.4	27.5	25.0
Queue Length 95th (m)	#89.0	163.4	9.3	m#44.6	#168.7	121.1	#102.6	#164.1	31.3	#78.9	39.6	59.4
Internal Link Dist (m)		358.4			1114.0			261.4			215.3	
Turn Bay Length (m)	66.0		102.0	97.0		200.0	85.0		106.0	117.0		130.0
Base Capacity (vph)	401	1835	598	80	1474	684	217	898	459	378	737	481
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.00	0.87	0.17	0.96	0.95	0.66	0.94	0.97	0.43	0.94	0.32	0.67

Intersection Summary

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	368	1471	95	71	1289	414	189	804	181	328	217	295
Future Volume (vph)	368	1471	95	71	1289	414	189	804	181	328	217	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.6	6.6	5.0	6.6	6.6	5.0	7.1	7.1	5.0	7.1	7.1
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.96	1.00	1.00	0.93	1.00	1.00	0.94
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3190	4641	1340	1352	4483	1503	1630	3476	1349	3404	3120	1341
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3190	4641	1340	1352	4483	1503	1630	3476	1349	3404	3120	1341
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)	400	1599	103	77	1401	450	205	874	197	357	236	321
RTOR Reduction (vph)	0	0	62	0	0	191	0	0	111	0	0	164
Lane Group Flow (vph)	400	1599	41	77	1401	259	205	874	86	357	236	157
Confl. Peds. (#/hr)	25		29	29		25	38		46	46		38
Heavy Vehicles (%)	11%	13%	16%	35%	17%	4%	12%	5%	12%	4%	17%	14%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	17.0	53.4	53.4	8.0	44.4	44.4	18.0	34.9	34.9	15.0	31.9	31.9
Effective Green, g (s)	17.0	53.4	53.4	8.0	44.4	44.4	18.0	34.9	34.9	15.0	31.9	31.9
Actuated g/C Ratio	0.13	0.40	0.40	0.06	0.33	0.33	0.13	0.26	0.26	0.11	0.24	0.24
Clearance Time (s)	5.0	6.6	6.6	5.0	6.6	6.6	5.0	7.1	7.1	5.0	7.1	7.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	401	1835	530	80	1474	494	217	898	348	378	737	316
v/s Ratio Prot	c0.13	0.34		0.06	c0.31		c0.13	c0.25		0.10	0.08	
v/s Ratio Perm			0.03			0.17			0.06			0.12
v/c Ratio	1.00	0.87	0.08	0.96	0.95	0.53	0.94	0.97	0.25	0.94	0.32	0.50
Uniform Delay, d1	59.0	37.6	25.4	63.4	44.2	36.7	58.0	49.6	39.6	59.6	42.6	44.6
Progression Factor	1.00	1.00	1.00	0.97	0.91	1.50	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	44.0	6.0	0.3	78.5	12.4	3.3	45.4	23.5	0.4	32.1	0.3	1.2
Delay (s)	102.9	43.7	25.7	139.8	52.8	58.3	103.4	73.1	40.0	91.6	42.8	45.8
Level of Service	F	D	C	F	D	E	F	E	D	F	D	D
Approach Delay (s)		54.1			57.6			72.9			63.0	
Approach LOS		D			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	60.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	23.7
Intersection Capacity Utilization	90.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR
Lane Group Flow (vph)	52	1987	13	1754	80	60	61	13	8	105
v/c Ratio	0.51	0.73	0.19	0.64	0.08	0.13	0.12	0.03	0.02	0.21
Control Delay	19.2	9.6	12.9	9.9	1.8	36.3	34.2	0.6	34.4	24.9
Queue Delay	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.2	9.6	12.9	10.2	1.8	36.3	34.2	0.6	34.4	24.9
Queue Length 50th (m)	2.8	38.4	0.9	41.0	0.5	12.4	12.2	0.0	1.5	13.7
Queue Length 95th (m)	m3.5	m44.4	m1.0	m47.3	m0.7	24.3	23.6	0.8	5.6	28.6
Internal Link Dist (m)		1114.0		177.7			103.6		75.8	
Turn Bay Length (m)	56.0		50.0		60.0	36.0	36.0			
Base Capacity (vph)	102	2736	69	2760	978	466	500	421	519	490
Starvation Cap Reductn	0	0	0	348	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.73	0.19	0.73	0.08	0.13	0.12	0.03	0.02	0.21

Intersection Summary

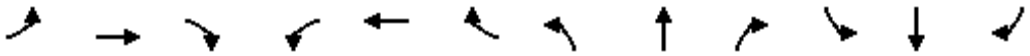
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR	NWR2
Lane Configurations												
Traffic Volume (vph)	48	1825	3	12	1614	74	111	0	12	7	0	97
Future Volume (vph)	48	1825	3	12	1614	74	111	0	12	7	0	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4		7.4	7.4	7.4	7.4	4.5	7.4	7.4	7.4	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	0.95	0.95	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	
Satd. Flow (prot)	1824	4560		1789	4601	1581	1605	1605	1362	1789	1601	
Flt Permitted	0.09	1.00		0.06	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	171	4560		116	4601	1581	1605	1690	1362	1789	1601	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	52	1984	3	13	1754	80	121	0	13	8	0	105
RTOR Reduction (vph)	0	0	0	0	0	30	0	0	9	0	26	0
Lane Group Flow (vph)	52	1987	0	13	1754	50	60	61	4	8	79	0
Confl. Peds. (#/hr)	4					4			2			
Heavy Vehicles (%)	0%	15%	2%	2%	14%	0%	8%	2%	18%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Prot	Prot	Perm	Prot	Perm	
Protected Phases		2			6		8!	4!		8!		
Permitted Phases	2			6		6			8		8!	
Actuated Green, G (s)	81.0	81.0		81.0	81.0	81.0	39.2	42.1	39.2	39.2	39.2	
Effective Green, g (s)	81.0	81.0		81.0	81.0	81.0	39.2	42.1	39.2	39.2	39.2	
Actuated g/C Ratio	0.60	0.60		0.60	0.60	0.60	0.29	0.31	0.29	0.29	0.29	
Clearance Time (s)	7.4	7.4		7.4	7.4	7.4	7.4	4.5	7.4	7.4	7.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	102	2736		69	2760	948	466	527	395	519	464	
v/s Ratio Prot		c0.44			0.38		0.04	0.03		0.00		
v/s Ratio Perm	0.30			0.11		0.03		0.00	0.00		c0.05	
v/c Ratio	0.51	0.73		0.19	0.64	0.05	0.13	0.12	0.01	0.02	0.17	
Uniform Delay, d1	15.6	19.1		12.2	17.5	11.2	35.3	33.2	34.1	34.1	35.8	
Progression Factor	0.51	0.45		0.71	0.53	0.61	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	9.0	0.9		2.7	0.5	0.0	0.1	0.1	0.0	0.0	0.2	
Delay (s)	16.9	9.5		11.3	9.8	6.9	35.4	33.3	34.1	34.2	35.9	
Level of Service	B	A		B	A	A	D	C	C	C	D	
Approach Delay (s)		9.7			9.7			34.3		35.8		
Approach LOS		A			A			C		D		

Intersection Summary			
HCM 2000 Control Delay	11.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	14.8
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group



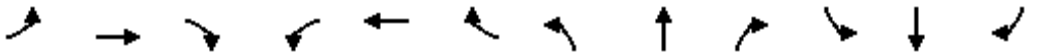
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	516	1353	355	145	1149	534	442	2124	245	426	884	329
v/c Ratio	1.40	0.87	0.51	0.95	0.92	0.94	0.99	1.17	0.41	1.18	0.63	0.62
Control Delay	245.5	39.4	9.7	94.1	53.8	46.3	96.3	117.2	6.8	160.4	55.9	32.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	245.5	39.4	9.7	94.1	53.8	46.3	96.3	117.2	6.8	160.4	55.9	32.8
Queue Length 50th (m)	~92.8	81.5	10.7	21.0	109.4	91.7	58.3	~226.2	12.2	~71.8	86.6	40.4
Queue Length 95th (m)	#128.1	121.4	28.7	#65.3	#135.9	#161.5	#95.2	#248.6	m12.7	#105.3	101.2	76.5
Internal Link Dist (m)		177.7			433.9			176.1			127.8	
Turn Bay Length (m)	175.0		160.0	208.0		160.0	135.0		114.0	200.0		126.0
Base Capacity (vph)	368	1561	696	153	1250	571	445	1808	594	360	1409	533
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.40	0.87	0.51	0.95	0.92	0.94	0.99	1.17	0.41	1.18	0.63	0.62

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

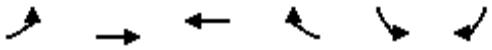
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	475	1245	327	133	1057	491	407	1954	225	392	813	303
Future Volume (vph)	475	1245	327	133	1057	491	407	1954	225	392	813	303
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.0	7.0	3.0	7.0	7.0	5.0	7.1	7.1	3.0	7.1	7.1
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	0.97	*1.00	1.00	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3106	4683	1555	1415	4561	1512	3340	5437	1432	3248	4768	1259
Flt Permitted	0.95	1.00	1.00	0.11	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3106	4683	1555	161	4561	1512	3340	5437	1432	3248	4768	1259
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	516	1353	355	145	1149	534	442	2124	245	426	884	329
RTOR Reduction (vph)	0	0	178	0	0	157	0	0	118	0	0	161
Lane Group Flow (vph)	516	1353	177	145	1149	377	442	2124	127	426	884	168
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	14%	12%	5%	29%	15%	8%	6%	6%	14%	9%	10%	28%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6			4			8
Actuated Green, G (s)	16.0	45.0	45.0	47.0	37.0	37.0	18.0	44.9	44.9	13.0	39.9	39.9
Effective Green, g (s)	16.0	45.0	45.0	47.0	37.0	37.0	18.0	44.9	44.9	15.0	39.9	39.9
Actuated g/C Ratio	0.12	0.33	0.33	0.35	0.27	0.27	0.13	0.33	0.33	0.11	0.30	0.30
Clearance Time (s)	5.0	7.0	7.0	3.0	7.0	7.0	5.0	7.1	7.1	5.0	7.1	7.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	368	1561	518	148	1250	414	445	1808	476	360	1409	372
v/s Ratio Prot	c0.17	0.29		0.07	0.25		0.13	c0.39		c0.13	0.19	
v/s Ratio Perm			0.11	c0.27		0.25			0.09			0.13
v/c Ratio	1.40	0.87	0.34	0.98	0.92	0.91	0.99	1.17	0.27	1.18	0.63	0.45
Uniform Delay, d1	59.5	42.2	33.9	34.5	47.5	47.4	58.4	45.0	33.0	60.0	41.1	38.6
Progression Factor	1.33	0.80	0.84	1.25	0.89	0.81	1.09	0.82	0.52	1.08	1.30	2.20
Incremental Delay, d2	192.8	5.1	1.3	62.5	11.0	24.3	33.4	83.0	0.9	106.5	2.0	3.8
Delay (s)	272.2	39.0	29.8	105.7	53.5	62.7	96.9	119.7	18.2	171.5	55.5	89.0
Level of Service	F	D	C	F	D	E	F	F	B	F	E	F
Approach Delay (s)		91.7			60.3			107.3			92.4	
Approach LOS		F			E			F			F	

Intersection Summary			
HCM 2000 Control Delay	90.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	24.1
Intersection Capacity Utilization	102.2%	ICU Level of Service	G
Analysis Period (min)	15		

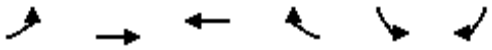
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	46	2145	1967	34	73	34
v/c Ratio	0.21	0.53	0.52	0.03	0.33	0.29
Control Delay	4.3	4.3	5.9	1.3	41.1	24.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.3	4.3	5.9	1.3	41.1	24.9
Queue Length 50th (m)	2.3	58.4	64.2	0.0	5.6	0.0
Queue Length 95th (m)	m3.3	m58.0	79.5	2.5	13.4	11.9
Internal Link Dist (m)		433.9	330.4		103.8	
Turn Bay Length (m)	183.0			77.0		
Base Capacity (vph)	220	4069	3818	1147	713	335
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.53	0.52	0.03	0.10	0.10

Intersection Summary

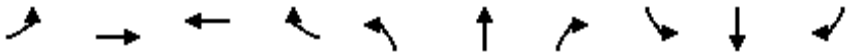
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	42	1973	1810	31	39	60
Future Volume (vph)	42	1973	1810	31	39	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.6	6.6	6.6	7.0	7.0
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.94	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.97	1.00
Satd. Flow (prot)	1825	4683	4683	1399	3103	1389
Flt Permitted	0.08	1.00	1.00	1.00	0.97	1.00
Satd. Flow (perm)	162	4683	4683	1399	3103	1389
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	2145	1967	34	42	65
RTOR Reduction (vph)	0	0	0	7	29	32
Lane Group Flow (vph)	46	2145	1967	27	44	2
Confl. Peds. (#/hr)	1			1		
Heavy Vehicles (%)	0%	12%	12%	14%	11%	7%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		8	
Permitted Phases	2			6		8
Actuated Green, G (s)	114.6	114.6	106.8	106.8	6.8	6.8
Effective Green, g (s)	114.6	114.6	106.8	106.8	6.8	6.8
Actuated g/C Ratio	0.85	0.85	0.79	0.79	0.05	0.05
Clearance Time (s)	3.0	6.6	6.6	6.6	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	196	3975	3704	1106	156	69
v/s Ratio Prot	0.01	c0.46	0.42		c0.01	
v/s Ratio Perm	0.19			0.02		0.00
v/c Ratio	0.23	0.54	0.53	0.02	0.28	0.02
Uniform Delay, d1	2.7	2.8	5.1	3.0	61.7	60.9
Progression Factor	2.27	1.38	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.3	0.5	0.0	1.0	0.1
Delay (s)	6.5	4.2	5.6	3.0	62.7	61.1
Level of Service	A	A	A	A	E	E
Approach Delay (s)		4.3	5.6		62.2	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay	6.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		

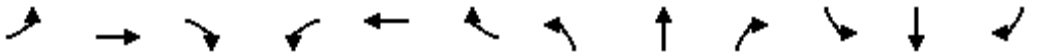
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	77	41	33	93	33	2670	25	50	1559	74
v/c Ratio	0.59	0.27	0.30	0.47	0.14	0.75	0.03	0.44	0.45	0.07
Control Delay	75.6	21.5	61.5	26.1	4.1	13.5	0.1	29.1	4.5	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.6	21.5	61.5	26.1	4.1	13.5	0.1	29.1	4.5	0.8
Queue Length 50th (m)	20.0	0.8	8.3	5.7	1.3	141.5	0.0	5.6	27.3	0.0
Queue Length 95th (m)	35.4	11.6	18.4	22.0	3.9	201.7	0.0	m13.1	m48.9	m1.1
Internal Link Dist (m)		200.3	281.8			533.0			225.8	
Turn Bay Length (m)					86.0		230.0	192.0		115.0
Base Capacity (vph)	378	374	322	446	237	3574	804	114	3496	1007
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.11	0.10	0.21	0.14	0.75	0.03	0.44	0.45	0.07

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	3	35	30	0	86	30	2456	23	46	1434	68
Future Volume (vph)	71	3	35	30	0	86	30	2456	23	46	1434	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5			7.5	7.5	3.0	6.7	6.7	3.0	6.7	6.7
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	0.98			1.00	1.00	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00			0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.86			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00			0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1690	1203			1451	1372	1508	4856	1071	1404	4641	1313
Flt Permitted	0.74	1.00			0.73	1.00	0.14	1.00	1.00	0.04	1.00	1.00
Satd. Flow (perm)	1309	1203			1116	1372	223	4856	1071	59	4641	1313
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)	77	3	38	33	0	93	33	2670	25	50	1559	74
RTOR Reduction (vph)	0	34	0	0	0	63	0	0	7	0	0	19
Lane Group Flow (vph)	77	7	0	0	33	30	33	2670	18	50	1559	55
Confl. Peds. (#/hr)			6	6			4		5	5		4
Heavy Vehicles (%)	8%	100%	30%	25%	0%	19%	21%	8%	48%	30%	13%	21%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4	6		6	2		2
Actuated Green, G (s)	13.4	13.4			13.4	13.4	102.6	98.8	98.8	106.2	100.6	100.6
Effective Green, g (s)	13.4	13.4			13.4	13.4	102.6	98.8	98.8	106.2	100.6	100.6
Actuated g/C Ratio	0.10	0.10			0.10	0.10	0.76	0.73	0.73	0.79	0.75	0.75
Clearance Time (s)	7.5	7.5			7.5	7.5	3.0	6.7	6.7	3.0	6.7	6.7
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	129	119			110	136	205	3553	783	102	3458	978
v/s Ratio Prot		0.01					0.00	c0.55		c0.02	0.34	
v/s Ratio Perm	c0.06				0.03	0.02	0.12		0.02	0.37		0.04
v/c Ratio	0.60	0.06			0.30	0.22	0.16	0.75	0.02	0.49	0.45	0.06
Uniform Delay, d1	58.2	55.1			56.4	56.0	4.2	10.8	4.9	14.6	6.6	4.6
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.27	0.59	0.43
Incremental Delay, d2	7.2	0.2			1.5	0.8	0.4	1.5	0.1	3.2	0.4	0.1
Delay (s)	65.4	55.3			58.0	56.8	4.6	12.3	5.0	21.8	4.2	2.1
Level of Service	E	E			E	E	A	B	A	C	A	A
Approach Delay (s)		61.9			57.1			12.1			4.7	
Approach LOS		E			E			B			A	

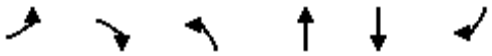
Intersection Summary			
HCM 2000 Control Delay	11.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	17.2
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	363	79	2996	1376
v/c Ratio	0.79	0.28	0.83	0.40
Control Delay	66.9	12.5	8.9	3.8
Queue Delay	0.0	0.0	0.9	0.0
Total Delay	66.9	12.5	9.8	3.8
Queue Length 50th (m)	48.0	0.0	42.3	22.7
Queue Length 95th (m)	63.9	15.4	m36.9	35.9
Internal Link Dist (m)	491.5		125.8	378.4
Turn Bay Length (m)		205.0		
Base Capacity (vph)	531	308	3620	3459
Starvation Cap Reductn	0	0	329	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.68	0.26	0.91	0.40

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	326	81	0	2756	1266	0
Future Volume (vph)	326	81	0	2756	1266	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6		6.6	6.6	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	2933	1351		4856	4641	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	2933	1351		4856	4641	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	354	88	0	2996	1376	0
RTOR Reduction (vph)	2	67	0	0	0	0
Lane Group Flow (vph)	361	12	0	2996	1376	0
Heavy Vehicles (%)	21%	10%	0%	8%	13%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	21.2	21.2		100.6	100.6	
Effective Green, g (s)	21.2	21.2		100.6	100.6	
Actuated g/C Ratio	0.16	0.16		0.75	0.75	
Clearance Time (s)	6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	460	212		3618	3458	
v/s Ratio Prot	c0.12			c0.62	0.30	
v/s Ratio Perm		0.01				
v/c Ratio	0.79	0.06		0.83	0.40	
Uniform Delay, d1	54.7	48.4		11.4	6.2	
Progression Factor	1.00	1.00		0.71	0.53	
Incremental Delay, d2	8.6	0.1		0.2	0.3	
Delay (s)	63.3	48.5		8.4	3.6	
Level of Service	E	D		A	A	
Approach Delay (s)	60.7			8.4	3.6	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	251	186	2976	1649
v/c Ratio	0.52	0.82	0.82	0.48
Control Delay	54.8	80.1	9.4	19.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	54.8	80.1	9.4	19.1
Queue Length 50th (m)	31.2	51.8	45.2	110.9
Queue Length 95th (m)	43.7	#80.1	288.6	m127.6
Internal Link Dist (m)	372.3		378.4	362.1
Turn Bay Length (m)		220.0		
Base Capacity (vph)	573	271	3612	3453
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	0.69	0.82	0.48

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	59	343	2738	0	0	1517
Future Volume (vph)	59	343	2738	0	0	1517
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6	6.6			6.6
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.89	0.85	1.00			1.00
Flt Protected	0.99	1.00	1.00			1.00
Satd. Flow (prot)	3039	1429	4856			4641
Flt Permitted	0.99	1.00	1.00			1.00
Satd. Flow (perm)	3039	1429	4856			4641
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	64	373	2976	0	0	1649
RTOR Reduction (vph)	3	3	0	0	0	0
Lane Group Flow (vph)	248	183	2976	0	0	1649
Heavy Vehicles (%)	18%	4%	8%	0%	0%	13%
Turn Type	Prot	Perm	NA			NA
Protected Phases	4		2			6
Permitted Phases		4				
Actuated Green, G (s)	21.4	21.4	100.4			100.4
Effective Green, g (s)	21.4	21.4	100.4			100.4
Actuated g/C Ratio	0.16	0.16	0.74			0.74
Clearance Time (s)	6.6	6.6	6.6			6.6
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	481	226	3611			3451
v/s Ratio Prot	0.08		c0.61			0.36
v/s Ratio Perm		c0.13				
v/c Ratio	0.52	0.81	0.82			0.48
Uniform Delay, d1	52.1	54.9	11.5			6.9
Progression Factor	1.00	1.00	0.65			2.59
Incremental Delay, d2	0.9	19.4	1.3			0.3
Delay (s)	53.0	74.3	8.7			18.1
Level of Service	D	E	A			B
Approach Delay (s)	62.1		8.7			18.1
Approach LOS	E		A			B

Intersection Summary			
HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	76	479	334	141	92	3267	210	34	1527
v/c Ratio	0.48	1.28dr	0.88	0.42	0.59	1.28	0.31	0.26	0.76
Control Delay	70.5	91.7	72.9	42.8	29.2	162.5	10.8	20.7	37.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.5	91.7	72.9	42.8	29.2	162.5	10.8	20.7	37.2
Queue Length 50th (m)	19.9	~54.5	84.0	28.9	13.1	~383.2	22.3	4.3	127.0
Queue Length 95th (m)	#45.4	#94.0	#125.0	48.0	m15.1	#406.8	m26.4	9.7	146.5
Internal Link Dist (m)		247.6		157.3		362.1			334.5
Turn Bay Length (m)	60.0		57.0		88.0		91.0	120.0	
Base Capacity (vph)	157	458	428	377	167	2545	688	132	2013
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	1.05	0.78	0.37	0.55	1.28	0.31	0.26	0.76

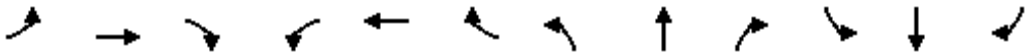
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	81	360	307	105	25	85	3006	193	31	1395	10
Future Volume (vph)	70	81	360	307	105	25	85	3006	193	31	1395	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		3.0	6.6	6.6	3.0	6.6	
Lane Util. Factor	1.00	*1.00		1.00	1.00		1.00	*1.00	1.00	1.00	0.91	
Frpb, ped/bikes	1.00	0.98		1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.88		1.00	0.97		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1587	3089		1521	1320		1547	5542	1360	1706	4894	
Flt Permitted	0.95	1.00		0.95	1.00		0.07	1.00	1.00	0.07	1.00	
Satd. Flow (perm)	1587	3089		1521	1320		115	5542	1360	129	4894	
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)	76	88	391	334	114	27	92	3267	210	34	1516	11
RTOR Reduction (vph)	0	152	0	0	7	0	0	0	65	0	1	0
Lane Group Flow (vph)	76	327	0	334	134	0	92	3267	145	34	1526	0
Confl. Peds. (#/hr)	2		3	3		2	6		4	4		6
Heavy Vehicles (%)	15%	22%	4%	20%	41%	41%	18%	4%	18%	7%	7%	11%
Turn Type	Split	NA		Split	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	8	8		4	4		1	6		5	2	
Permitted Phases							6		6	2		
Actuated Green, G (s)	13.4	13.4		33.6	33.6		67.4	60.8	60.8	59.1	55.5	
Effective Green, g (s)	13.4	13.4		33.6	33.6		67.4	60.8	60.8	59.1	55.5	
Actuated g/C Ratio	0.10	0.10		0.25	0.25		0.50	0.45	0.45	0.44	0.41	
Clearance Time (s)	7.0	7.0		7.0	7.0		3.0	6.6	6.6	3.0	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	157	306		378	328		151	2495	612	98	2011	
v/s Ratio Prot	0.05	c0.11		c0.22	0.10		c0.04	c0.59		0.01	0.31	
v/s Ratio Perm							0.26		0.11	0.14		
v/c Ratio	0.48	1.28dr		0.88	0.41		0.61	1.31	0.24	0.35	0.76	
Uniform Delay, d1	57.5	60.8		48.8	42.4		24.0	37.1	22.8	31.8	34.0	
Progression Factor	1.00	1.00		1.00	1.00		0.92	1.02	0.95	1.00	1.00	
Incremental Delay, d2	2.3	70.6		20.9	0.8		4.5	141.2	0.6	2.1	2.7	
Delay (s)	59.9	131.4		69.7	43.2		26.5	178.9	22.3	33.9	36.8	
Level of Service	E	F		E	D		C	F	C	C	D	
Approach Delay (s)		121.6			61.8			165.8			36.7	
Approach LOS		F			E			F			D	

Intersection Summary			
HCM 2000 Control Delay	121.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	23.6
Intersection Capacity Utilization	113.9%	ICU Level of Service	H
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

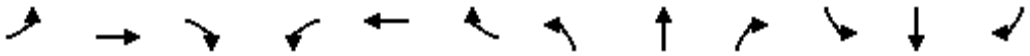
Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	0	3114	1540	32	0	0
Future Volume (Veh/h)	0	3114	1540	32	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	3385	1674	35	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		152	150			
pX, platoon unblocked	0.90				0.72	0.90
vC, conflicting volume	1709				2802	558
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1397				1205	117
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	436				127	821

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4
Volume Total	1128	1128	1128	558	558	558	35
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	35
cSH	1700	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.66	0.66	0.66	0.33	0.33	0.33	0.02
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS							
Approach Delay (s)	0.0			0.0			
Approach LOS							

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		

Intersection Sign configuration not allowed in HCM analysis.

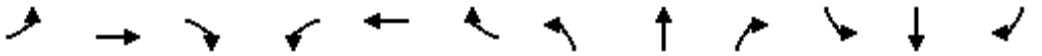
Appendix E – Future (2031) Total Conditions Improvement Synchro Output



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	241	1357	79	100	1099	323	112	158	118	512	641	401
v/c Ratio	0.76	0.75	0.11	0.55	0.65	0.43	0.77	0.34	0.34	0.87	0.75	0.77
Control Delay	76.2	38.9	0.3	65.5	26.5	12.7	92.2	51.9	3.0	72.2	54.6	32.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.2	38.9	0.3	65.5	26.5	12.7	92.2	51.9	3.0	72.2	54.6	32.6
Queue Length 50th (m)	33.4	120.8	0.0	13.0	118.6	32.5	30.3	20.3	0.0	71.0	86.4	50.5
Queue Length 95th (m)	#53.8	144.7	0.0	#22.5	132.9	52.4	#56.6	30.0	0.9	#95.0	102.8	86.7
Internal Link Dist (m)		358.4			1114.0			261.4			215.3	
Turn Bay Length (m)	66.0		102.0	97.0		200.0	85.0		106.0	117.0		130.0
Base Capacity (vph)	326	1813	690	183	1691	756	162	575	389	620	993	572
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.75	0.11	0.55	0.65	0.43	0.69	0.27	0.30	0.83	0.65	0.70

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)	222	1248	73	92	1011	297	103	145	109	471	590	369
Future Volume (vph)	222	1248	73	92	1011	297	103	145	109	471	590	369
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.6	6.6	5.0	6.6	6.6	5.0	7.1	7.1	5.0	7.1	7.1
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.97	1.00	1.00	0.93	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3026	4334	1442	2855	4483	1471	1426	2684	1145	3340	3476	1475
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3026	4334	1442	2855	4483	1471	1426	2684	1145	3340	3476	1475
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)	241	1357	79	100	1099	323	112	158	118	512	641	401
RTOR Reduction (vph)	0	0	46	0	0	201	0	0	98	0	0	160
Lane Group Flow (vph)	241	1357	33	100	1099	122	112	158	20	512	641	241
Confl. Peds. (#/hr)	12		20	20		12	9		39	39		9
Heavy Vehicles (%)	17%	21%	9%	24%	17%	8%	28%	36%	33%	6%	5%	8%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	14.8	58.5	58.5	9.0	52.7	52.7	14.4	24.1	24.1	24.7	34.4	34.4
Effective Green, g (s)	14.8	58.5	58.5	9.0	52.7	52.7	14.4	24.1	24.1	24.7	34.4	34.4
Actuated g/C Ratio	0.11	0.42	0.42	0.06	0.38	0.38	0.10	0.17	0.17	0.18	0.25	0.25
Clearance Time (s)	5.0	6.6	6.6	5.0	6.6	6.6	5.0	7.1	7.1	5.0	7.1	7.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	319	1810	602	183	1687	553	146	462	197	589	854	362
v/s Ratio Prot	c0.08	c0.31		0.04	0.25		0.08	0.06		c0.15	c0.18	
v/s Ratio Perm			0.02			0.08			0.02			0.16
v/c Ratio	0.76	0.75	0.05	0.55	0.65	0.22	0.77	0.34	0.10	0.87	0.75	0.67
Uniform Delay, d1	60.8	34.5	24.3	63.5	36.1	29.7	61.2	51.0	48.8	56.1	48.8	47.6
Progression Factor	1.00	1.00	1.00	0.88	0.66	3.20	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.8	2.9	0.2	2.8	1.7	0.8	21.1	0.4	0.2	12.9	3.7	4.6
Delay (s)	70.6	37.4	24.5	58.5	25.5	95.6	82.3	51.4	49.1	69.0	52.6	52.2
Level of Service	E	D	C	E	C	F	F	D	D	E	D	D
Approach Delay (s)		41.6			42.5			59.6			57.9	
Approach LOS		D			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	48.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.7
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	WBR	SBL2	SBL	SBR
Lane Group Flow (vph)	13	1997	1541	34	27	27	33
v/c Ratio	0.10	0.73	0.57	0.04	0.05	0.05	0.06
Control Delay	11.9	17.0	24.9	11.0	26.3	24.5	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.9	17.0	24.9	11.0	26.3	24.5	7.9
Queue Length 50th (m)	0.7	177.4	85.1	0.6	4.8	4.6	0.0
Queue Length 95th (m)	m1.0	203.1	m107.6	m1.6	11.3	10.9	6.6
Internal Link Dist (m)		1114.0	177.7			103.6	
Turn Bay Length (m)	56.0			60.0	36.0	36.0	
Base Capacity (vph)	134	2750	2726	967	687	581	667
Starvation Cap Reductn	0	0	39	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.73	0.57	0.04	0.04	0.05	0.05

Intersection Summary

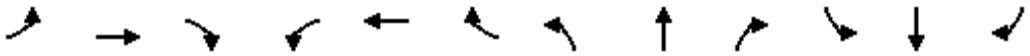
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR
Lane Configurations											
Traffic Volume (vph)	12	1837	0	0	1418	31	50	0	30	0	0
Future Volume (vph)	12	1837	0	0	1418	31	50	0	30	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4			7.4	7.4	7.5	4.5	7.5		
Lane Util. Factor	1.00	0.91			0.91	1.00	0.95	0.95	1.00		
Frpb, ped/bikes	1.00	1.00			1.00	0.98	1.00	1.00	1.00		
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00	1.00		
Frt	1.00	1.00			1.00	0.85	1.00	1.00	0.85		
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.95	1.00		
Satd. Flow (prot)	1825	4601			4561	1595	1734	1734	1633		
Flt Permitted	0.12	1.00			1.00	1.00	0.95	1.00	1.00		
Satd. Flow (perm)	225	4601			4561	1595	1734	1825	1633		
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
Adj. Flow (vph)	13	1997	0	0	1541	34	54	0	33	0	0
RTOR Reduction (vph)	0	0	0	0	0	14	0	0	23	0	0
Lane Group Flow (vph)	13	1997	0	0	1541	20	27	27	10	0	0
Confl. Peds. (#/hr)	1					1					
Heavy Vehicles (%)	0%	14%	2%	2%	15%	0%	0%	2%	0%	2%	2%
Turn Type	Perm	NA			NA	Perm	Prot	Prot	Perm	Prot	Perm
Protected Phases		2			6		8!	4!		8!	
Permitted Phases	2					6			8		8!
Actuated Green, G (s)	80.7	80.7			80.7	80.7	44.4	47.4	44.4		
Effective Green, g (s)	80.7	80.7			80.7	80.7	44.4	47.4	44.4		
Actuated g/C Ratio	0.58	0.58			0.58	0.58	0.32	0.34	0.32		
Clearance Time (s)	7.4	7.4			7.4	7.4	7.5	4.5	7.5		
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)	129	2652			2629	919	549	617	517		
v/s Ratio Prot		c0.43			0.34		c0.02	0.01			
v/s Ratio Perm	0.06					0.01		0.00	0.01		
v/c Ratio	0.10	0.75			0.59	0.02	0.05	0.04	0.02		
Uniform Delay, d1	13.3	22.2			19.0	12.7	33.2	31.1	32.9		
Progression Factor	0.54	0.59			1.07	2.02	1.00	1.00	1.00		
Incremental Delay, d2	1.0	1.4			0.5	0.0	0.0	0.0	0.0		
Delay (s)	8.3	14.5			20.7	25.8	33.2	31.1	32.9		
Level of Service	A	B			C	C	C	C	C		
Approach Delay (s)		14.4			20.9			32.4		0.0	
Approach LOS		B			C			C		A	

Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	14.9
Intersection Capacity Utilization	54.4%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

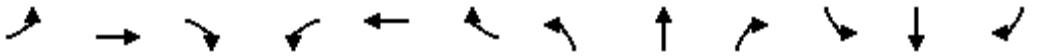


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	249	1446	508	168	973	289	282	721	102	577	2011	374
v/c Ratio	0.98	0.91	0.82	0.96	0.86	0.48	0.93	0.52	0.20	0.98	0.98	0.62
Control Delay	112.6	32.7	20.2	130.9	54.5	5.7	92.3	48.0	7.6	79.8	56.8	25.6
Queue Delay	0.0	0.0	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	112.6	32.7	23.8	130.9	54.5	5.7	92.3	48.0	7.6	79.8	56.8	25.6
Queue Length 50th (m)	33.3	128.8	90.8	24.1	94.3	9.1	40.7	50.9	0.0	84.6	168.9	44.4
Queue Length 95th (m)	m#63.0	#125.9	#131.8	#48.7	112.1	13.0	#67.9	81.8	9.8	m#107.0	#213.1	m55.6
Internal Link Dist (m)		177.7			433.9			176.1			127.8	
Turn Bay Length (m)	175.0		160.0	208.0		160.0	135.0		114.0	200.0		126.0
Base Capacity (vph)	254	1589	622	175	1136	597	304	1380	499	590	2054	600
Starvation Cap Reductn	0	0	57	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.91	0.90	0.96	0.86	0.48	0.93	0.52	0.20	0.98	0.98	0.62

Intersection Summary

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

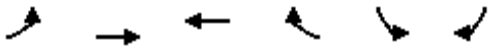
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	229	1330	467	155	895	266	259	663	94	531	1850	344
Future Volume (vph)	229	1330	467	155	895	266	259	663	94	531	1850	344
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.0	7.0	3.0	7.0	7.0	5.0	7.1	7.1	5.0	7.1	7.1
Lane Util. Factor	0.97	*1.00	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	*1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2745	5056	1526	3079	4299	1458	3278	4725	1296	3309	5437	1276
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2745	5056	1526	3079	4299	1458	3278	4725	1296	3309	5437	1276
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)	249	1446	508	168	973	289	282	721	102	577	2011	374
RTOR Reduction (vph)	0	0	143	0	0	213	0	0	72	0	0	118
Lane Group Flow (vph)	249	1446	365	168	973	76	282	721	30	577	2011	256
Confl. Peds. (#/hr)							3					3
Heavy Vehicles (%)	29%	14%	7%	15%	22%	12%	8%	11%	26%	7%	6%	26%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	13.0	44.0	44.0	8.0	37.0	37.0	13.0	40.9	40.9	25.0	52.9	52.9
Effective Green, g (s)	13.0	44.0	44.0	8.0	37.0	37.0	13.0	40.9	40.9	25.0	52.9	52.9
Actuated g/C Ratio	0.09	0.31	0.31	0.06	0.26	0.26	0.09	0.29	0.29	0.18	0.38	0.38
Clearance Time (s)	5.0	7.0	7.0	3.0	7.0	7.0	5.0	7.1	7.1	5.0	7.1	7.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	254	1589	479	175	1136	385	304	1380	378	590	2054	482
v/s Ratio Prot	c0.09	c0.29		0.05	0.23		0.09	0.15		c0.17	c0.37	
v/s Ratio Perm			0.24			0.05			0.02			0.20
v/c Ratio	0.98	0.91	0.76	0.96	0.86	0.20	0.93	0.52	0.08	0.98	0.98	0.53
Uniform Delay, d1	63.4	46.1	43.3	65.8	49.0	40.0	63.0	41.4	35.9	57.2	43.0	33.9
Progression Factor	1.11	0.54	0.42	1.17	0.95	0.70	0.91	1.12	1.00	1.06	1.11	1.39
Incremental Delay, d2	43.3	7.2	8.4	53.7	7.9	1.1	31.8	0.3	0.1	19.4	8.9	0.5
Delay (s)	113.5	32.2	26.6	130.7	54.3	28.9	89.4	46.8	36.0	79.9	56.8	47.5
Level of Service	F	C	C	F	D	C	F	D	D	E	E	D
Approach Delay (s)		40.1			58.1			56.7			60.1	
Approach LOS		D			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	53.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	24.1
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		

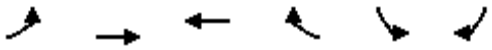
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	32	2062	1633	25	9	6
v/c Ratio	0.12	0.47	0.38	0.02	0.04	0.04
Control Delay	1.1	2.2	2.9	1.2	0.4	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.1	2.2	2.9	1.2	0.4	0.5
Queue Length 50th (m)	0.3	8.3	17.5	0.0	0.0	0.0
Queue Length 95th (m)	m0.8	m26.5	54.2	1.9	0.0	0.0
Internal Link Dist (m)		433.9	330.4		103.8	
Turn Bay Length (m)	183.0			77.0		
Base Capacity (vph)	290	4394	4247	1121	550	273
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.47	0.38	0.02	0.02	0.02

Intersection Summary

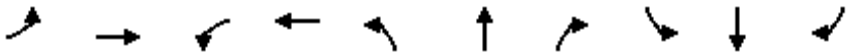
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	29	1897	1502	23	3	11
Future Volume (vph)	29	1897	1502	23	3	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.6	6.6	6.6	7.0	7.0
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.98	0.99	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.90	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.98	1.00
Satd. Flow (prot)	1690	4683	4768	1256	2165	916
Flt Permitted	0.13	1.00	1.00	1.00	0.98	1.00
Satd. Flow (perm)	234	4683	4768	1256	2165	916
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	2062	1633	25	3	12
RTOR Reduction (vph)	0	0	0	4	9	6
Lane Group Flow (vph)	32	2062	1633	21	0	0
Confl. Peds. (#/hr)	1			1	1	1
Heavy Vehicles (%)	8%	12%	10%	27%	33%	60%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		8	
Permitted Phases	2			6		8
Actuated Green, G (s)	123.2	123.2	116.7	116.7	3.2	3.2
Effective Green, g (s)	123.2	123.2	116.7	116.7	3.2	3.2
Actuated g/C Ratio	0.88	0.88	0.83	0.83	0.02	0.02
Clearance Time (s)	3.0	6.6	6.6	6.6	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	242	4121	3974	1046	49	20
v/s Ratio Prot	0.00	c0.44	0.34		0.00	
v/s Ratio Perm	0.11			0.02		c0.00
v/c Ratio	0.13	0.50	0.41	0.02	0.00	0.01
Uniform Delay, d1	1.3	1.8	2.9	2.0	66.8	66.8
Progression Factor	0.85	1.43	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.2	0.3	0.0	0.0	0.1
Delay (s)	1.2	2.8	3.3	2.0	66.9	67.0
Level of Service	A	A	A	A	E	E
Approach Delay (s)		2.7	3.2		66.9	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay	3.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		

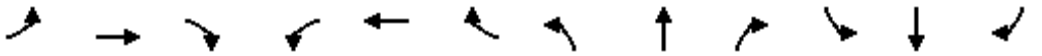
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	18	14	15	39	15	1328	64	203	2887	51
v/c Ratio	0.31	0.16	0.18	0.14	0.17	0.38	0.05	0.54	0.70	0.05
Control Delay	75.4	33.5	65.4	1.1	7.6	6.6	0.9	11.5	6.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.4	33.5	65.4	1.1	7.6	6.6	0.9	11.5	6.2	0.0
Queue Length 50th (m)	4.9	0.5	4.0	0.0	0.4	39.5	0.0	5.5	15.2	0.0
Queue Length 95th (m)	13.0	7.6	11.1	0.0	1.6	64.4	3.0	m9.7	m268.5	m0.0
Internal Link Dist (m)		200.3		281.8		533.0			225.8	
Turn Bay Length (m)			155.0		86.0		230.0	192.0		115.0
Base Capacity (vph)	239	337	350	480	86	3534	1167	459	4140	1020
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.04	0.04	0.08	0.17	0.38	0.05	0.44	0.70	0.05

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	2	11	14	0	36	14	1222	59	187	2656	47
Future Volume (vph)	17	2	11	14	0	36	14	1222	59	187	2656	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5		7.5	7.5		3.0	6.7	6.7	3.0	6.7	6.7
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.98		1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.87		1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1116	1181		1597	1182		1185	4601	1495	1738	4948	1208
Flt Permitted	0.73	1.00		0.75	1.00		0.04	1.00	1.00	0.18	1.00	1.00
Satd. Flow (perm)	860	1181		1258	1182		47	4601	1495	327	4948	1208
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)	18	2	12	15	0	39	15	1328	64	203	2887	51
RTOR Reduction (vph)	0	11	0	0	37	0	0	0	16	0	0	10
Lane Group Flow (vph)	18	3	0	15	2	0	15	1328	48	203	2887	41
Confl. Peds. (#/hr)	3		2	2		3	2		5	5		2
Heavy Vehicles (%)	63%	100%	30%	14%	0%	36%	54%	14%	6%	5%	6%	32%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6		6	2		2
Actuated Green, G (s)	7.9	7.9		7.9	7.9		108.4	106.0	106.0	117.9	112.5	112.5
Effective Green, g (s)	7.9	7.9		7.9	7.9		108.4	106.0	106.0	117.9	112.5	112.5
Actuated g/C Ratio	0.06	0.06		0.06	0.06		0.77	0.76	0.76	0.84	0.80	0.80
Clearance Time (s)	7.5	7.5		7.5	7.5		3.0	6.7	6.7	3.0	6.7	6.7
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	48	66		70	66		55	3483	1131	365	3976	970
v/s Ratio Prot		0.00			0.00		0.00	0.29		c0.04	c0.58	
v/s Ratio Perm	c0.02			0.01			0.20		0.03	0.43		0.03
v/c Ratio	0.38	0.04		0.21	0.03		0.27	0.38	0.04	0.56	0.73	0.04
Uniform Delay, d1	63.7	62.5		63.1	62.4		6.8	5.8	4.3	2.6	6.5	2.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	5.20	0.83	0.00
Incremental Delay, d2	4.9	0.3		1.5	0.2		2.7	0.3	0.1	1.0	0.7	0.0
Delay (s)	68.5	62.7		64.6	62.6		9.5	6.1	4.3	14.7	6.1	0.0
Level of Service	E	E		E	E		A	A	A	B	A	A
Approach Delay (s)		66.0			63.2			6.1			6.5	
Approach LOS		E			E			A			A	

Intersection Summary			
HCM 2000 Control Delay	7.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.2
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		

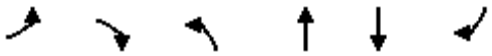
c Critical Lane Group

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	562	257	1205	3018
v/c Ratio	0.86	0.88	0.38	0.89
Control Delay	67.0	83.1	2.0	35.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	67.0	83.1	2.0	35.3
Queue Length 50th (m)	76.4	74.7	9.2	317.2
Queue Length 95th (m)	97.6	#123.6	m8.7	335.8
Internal Link Dist (m)	491.5		125.8	378.4
Turn Bay Length (m)		205.0		
Base Capacity (vph)	701	311	3203	3380
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	0.80	0.83	0.38	0.89

Intersection Summary

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	365	388	0	1109	2777	0
Future Volume (vph)	365	388	0	1109	2777	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6		6.6	6.6	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	0.96	0.85		1.00	1.00	
Flt Protected	0.97	1.00		1.00	1.00	
Satd. Flow (prot)	3221	1429		4561	4812	
Flt Permitted	0.97	1.00		1.00	1.00	
Satd. Flow (perm)	3221	1429		4561	4812	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	397	422	0	1205	3018	0
RTOR Reduction (vph)	2	2	0	0	0	0
Lane Group Flow (vph)	560	255	0	1205	3018	0
Heavy Vehicles (%)	8%	4%	0%	15%	9%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	28.5	28.5		98.3	98.3	
Effective Green, g (s)	28.5	28.5		98.3	98.3	
Actuated g/C Ratio	0.20	0.20		0.70	0.70	
Clearance Time (s)	6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	655	290		3202	3378	
v/s Ratio Prot	0.17			0.26	c0.63	
v/s Ratio Perm		c0.18				
v/c Ratio	0.86	0.88		0.38	0.89	
Uniform Delay, d1	53.8	54.1		8.4	16.7	
Progression Factor	1.00	1.00		0.20	1.88	
Incremental Delay, d2	10.6	25.2		0.3	2.6	
Delay (s)	64.4	79.3		1.9	33.9	
Level of Service	E	E		A	C	
Approach Delay (s)	69.1			1.9	33.9	
Approach LOS	E			A	C	

Intersection Summary			
HCM 2000 Control Delay	32.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	355	198	1538	2877
v/c Ratio	0.72	0.79	0.44	0.78
Control Delay	55.2	61.7	7.1	12.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	55.2	61.7	7.1	12.6
Queue Length 50th (m)	40.9	41.6	42.1	148.2
Queue Length 95th (m)	54.3	68.7	77.3	208.5
Internal Link Dist (m)	372.3		378.4	362.1
Turn Bay Length (m)		220.0		
Base Capacity (vph)	648	317	3532	3695
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	0.55	0.62	0.44	0.78

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	144	364	1415	0	0	2647
Future Volume (vph)	144	364	1415	0	0	2647
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6	6.6			6.6
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.92	0.85	1.00			1.00
Flt Protected	0.98	1.00	1.00			1.00
Satd. Flow (prot)	3069	1376	4641			4856
Flt Permitted	0.98	1.00	1.00			1.00
Satd. Flow (perm)	3069	1376	4641			4856
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	157	396	1538	0	0	2877
RTOR Reduction (vph)	51	51	0	0	0	0
Lane Group Flow (vph)	304	147	1538	0	0	2877
Heavy Vehicles (%)	10%	8%	13%	0%	0%	8%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		6			2
Permitted Phases		8				
Actuated Green, G (s)	20.2	20.2	106.6			106.6
Effective Green, g (s)	20.2	20.2	106.6			106.6
Actuated g/C Ratio	0.14	0.14	0.76			0.76
Clearance Time (s)	6.6	6.6	6.6			6.6
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	442	198	3533			3697
v/s Ratio Prot	0.10		0.33			c0.59
v/s Ratio Perm		c0.11				
v/c Ratio	0.69	0.74	0.44			0.78
Uniform Delay, d1	56.9	57.4	6.0			9.8
Progression Factor	1.00	1.00	1.05			1.00
Incremental Delay, d2	4.4	13.8	0.3			1.7
Delay (s)	61.3	71.2	6.6			11.5
Level of Service	E	E	A			B
Approach Delay (s)	64.9		6.6			11.5
Approach LOS	E		A			B

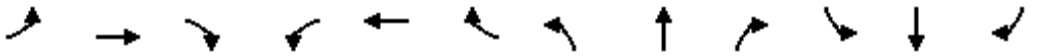
Intersection Summary			
HCM 2000 Control Delay	15.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	14	114	257	268	113	260	1547	367	39	2347	30
v/c Ratio	0.10	0.32	0.83	0.82	0.32	0.76	0.56	0.39	0.22	1.03	0.05
Control Delay	32.6	54.5	43.7	78.4	39.5	49.2	21.3	3.1	14.9	66.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.6	54.5	43.7	78.4	39.5	49.2	21.3	3.1	14.9	66.6	0.1
Queue Length 50th (m)	2.7	14.8	26.2	36.2	21.5	49.8	96.5	0.0	3.5	~223.5	0.0
Queue Length 95th (m)	7.1	22.6	54.3	#56.0	38.2	#120.9	128.9	16.2	9.6	#248.6	0.0
Internal Link Dist (m)		247.6			157.3		362.1			334.5	
Turn Bay Length (m)	60.0		60.0	57.0		88.0		91.0	120.0		25.0
Base Capacity (vph)	143	567	395	339	393	344	2747	941	175	2270	651
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.20	0.65	0.79	0.29	0.76	0.56	0.39	0.22	1.03	0.05

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	13	105	236	247	82	22	239	1423	338	36	2159	28
Future Volume (vph)	13	105	236	247	82	22	239	1423	338	36	2159	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.0	7.0	4.5	7.0		3.0	6.6	6.6	3.0	6.6	6.6
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00		1.00	0.91	1.00	1.00	*1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1042	2968	1394	2662	1374		1615	4856	1383	1508	5386	1334
Flt Permitted	0.68	1.00	1.00	0.95	1.00		0.07	1.00	1.00	0.15	1.00	1.00
Satd. Flow (perm)	750	2968	1394	2662	1374		119	4856	1383	231	5386	1334
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)	14	114	257	268	89	24	260	1547	367	39	2347	30
RTOR Reduction (vph)	0	0	137	0	8	0	0	0	169	0	0	18
Lane Group Flow (vph)	14	114	120	268	105	0	260	1547	198	39	2347	12
Confl. Peds. (#/hr)	2		3	3		2	6		4	4		6
Heavy Vehicles (%)	75%	23%	15%	33%	29%	57%	13%	8%	16%	21%	7%	20%
Turn Type	pm+pt	NA	Perm	Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8				6		6	2		2
Actuated Green, G (s)	21.1	19.1	19.1	16.5	33.6		81.3	73.0	73.0	59.5	54.2	54.2
Effective Green, g (s)	21.1	19.1	19.1	16.5	33.6		81.3	73.0	73.0	59.5	54.2	54.2
Actuated g/C Ratio	0.16	0.14	0.14	0.12	0.25		0.60	0.54	0.54	0.44	0.40	0.40
Clearance Time (s)	4.5	7.0	7.0	4.5	7.0		3.0	6.6	6.6	3.0	6.6	6.6
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	121	419	197	325	341		338	2625	747	151	2162	535
v/s Ratio Prot	0.00	0.04		c0.10	0.08		c0.14	0.32		0.01	c0.44	
v/s Ratio Perm	0.02		c0.09				0.33		0.14	0.10		0.01
v/c Ratio	0.12	0.27	0.61	0.82	0.31		0.77	0.59	0.27	0.26	1.09	0.02
Uniform Delay, d1	48.7	51.7	54.5	57.8	41.3		39.9	20.9	16.6	21.7	40.4	24.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.4	5.5	15.5	0.5		10.1	1.0	0.9	0.9	47.1	0.1
Delay (s)	49.1	52.1	60.0	73.3	41.8		50.0	21.9	17.5	22.6	87.5	24.5
Level of Service	D	D	E	E	D		D	C	B	C	F	C
Approach Delay (s)		57.3			64.0			24.5			85.7	
Approach LOS		E			E			C			F	

Intersection Summary			
HCM 2000 Control Delay	57.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	21.1
Intersection Capacity Utilization	84.4%	ICU Level of Service	E
Analysis Period (min)	15		

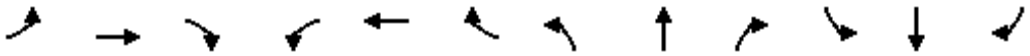
c Critical Lane Group

Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	0	1183	2725	96	0	1
Future Volume (Veh/h)	0	1183	2725	96	0	1
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1286	2962	104	0	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		152	150			
pX, platoon unblocked	0.49				0.55	0.49
vC, conflicting volume	3066				3443	1039
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1586				1114	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	202				112	534

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	NE 1
Volume Total	429	429	429	1185	1185	696	1
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	104	1
cSH	1700	1700	1700	1700	1700	1700	534
Volume to Capacity	0.25	0.25	0.25	0.70	0.70	0.41	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	11.8
Lane LOS							B
Approach Delay (s)	0.0			0.0			11.8
Approach LOS							B

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		

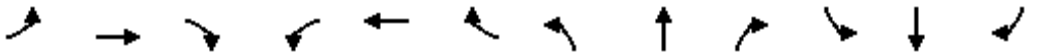
Intersection Sign configuration not allowed in HCM analysis.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	400	1600	103	77	1395	450	205	874	197	357	236	321
v/c Ratio	1.00	0.83	0.17	0.50	0.95	0.66	0.94	0.97	0.43	0.94	0.32	0.67
Control Delay	102.8	40.7	4.2	75.6	58.9	22.2	106.0	73.7	14.5	93.5	44.1	22.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	102.8	40.7	4.2	75.6	58.9	22.2	106.0	73.7	14.5	93.5	44.1	22.8
Queue Length 50th (m)	55.7	142.8	0.0	9.1	144.8	61.3	55.0	122.1	9.7	49.4	27.5	25.0
Queue Length 95th (m)	#89.0	163.6	9.3	17.6	#167.5	107.7	#102.6	#164.1	31.3	#78.9	39.6	59.4
Internal Link Dist (m)		358.4			1114.0			261.4			215.3	
Turn Bay Length (m)	66.0		102.0	97.0		200.0	85.0		106.0	117.0		130.0
Base Capacity (vph)	401	1924	622	155	1474	684	217	898	459	378	737	481
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.00	0.83	0.17	0.50	0.95	0.66	0.94	0.97	0.43	0.94	0.32	0.67

Intersection Summary

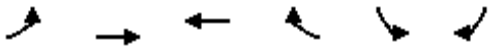
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	368	1472	95	71	1283	414	189	804	181	328	217	295
Future Volume (vph)	368	1472	95	71	1283	414	189	804	181	328	217	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.6	6.6	5.0	6.6	6.6	5.0	7.1	7.1	5.0	7.1	7.1
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.96	1.00	1.00	0.93	1.00	1.00	0.94
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3190	4641	1340	2623	4483	1503	1630	3476	1349	3404	3120	1341
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3190	4641	1340	2623	4483	1503	1630	3476	1349	3404	3120	1341
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)	400	1600	103	77	1395	450	205	874	197	357	236	321
RTOR Reduction (vph)	0	0	61	0	0	191	0	0	111	0	0	164
Lane Group Flow (vph)	400	1600	42	77	1395	259	205	874	86	357	236	157
Confl. Peds. (#/hr)	25		29	29		25	38		46	46		38
Heavy Vehicles (%)	11%	13%	16%	35%	17%	4%	12%	5%	12%	4%	17%	14%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	17.0	55.0	55.0	6.4	44.4	44.4	18.0	34.9	34.9	15.0	31.9	31.9
Effective Green, g (s)	17.0	55.0	55.0	6.4	44.4	44.4	18.0	34.9	34.9	15.0	31.9	31.9
Actuated g/C Ratio	0.13	0.41	0.41	0.05	0.33	0.33	0.13	0.26	0.26	0.11	0.24	0.24
Clearance Time (s)	5.0	6.6	6.6	5.0	6.6	6.6	5.0	7.1	7.1	5.0	7.1	7.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	401	1890	545	124	1474	494	217	898	348	378	737	316
v/s Ratio Prot	c0.13	0.34		0.03	c0.31		c0.13	c0.25		0.10	0.08	
v/s Ratio Perm			0.03			0.17			0.06			0.12
v/c Ratio	1.00	0.85	0.08	0.62	0.95	0.53	0.94	0.97	0.25	0.94	0.32	0.50
Uniform Delay, d1	59.0	36.2	24.5	63.1	44.1	36.7	58.0	49.6	39.6	59.6	42.6	44.6
Progression Factor	1.00	1.00	1.00	1.06	1.04	1.28	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	44.0	4.9	0.3	8.6	12.9	3.6	45.4	23.5	0.4	32.1	0.3	1.2
Delay (s)	102.9	41.1	24.7	75.3	58.8	50.9	103.4	73.1	40.0	91.6	42.8	45.8
Level of Service	F	D	C	E	E	D	F	E	D	F	D	D
Approach Delay (s)		52.1			57.6			72.9			63.0	
Approach LOS		D			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	59.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	23.7
Intersection Capacity Utilization	90.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL2	SBR
Lane Group Flow (vph)	53	1984	1754	72	105	17
v/c Ratio	0.29	0.53	0.47	0.06	0.44	0.13
Control Delay	5.8	3.9	3.7	1.1	65.2	6.7
Queue Delay	0.0	0.0	0.1	0.0	0.0	0.0
Total Delay	5.8	3.9	3.8	1.1	65.2	6.7
Queue Length 50th (m)	2.5	34.2	34.0	0.3	14.0	0.0
Queue Length 95th (m)	m3.3	m40.8	38.5	m0.8	23.1	2.7
Internal Link Dist (m)		1114.0	177.7			
Turn Bay Length (m)	56.0			60.0	36.0	
Base Capacity (vph)	184	3725	3757	1303	951	421
Starvation Cap Reductn	0	0	482	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.53	0.54	0.06	0.11	0.04

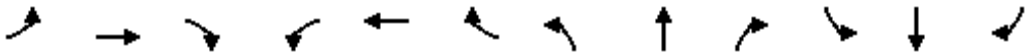
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR
Lane Configurations											
Traffic Volume (vph)	49	1825	0	0	1614	66	97	0	16	0	0
Future Volume (vph)	49	1825	0	0	1614	66	97	0	16	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4			7.4	7.4	7.4		7.4		
Lane Util. Factor	1.00	0.91			0.91	1.00	0.97		1.00		
Frpb, ped/bikes	1.00	1.00			1.00	0.97	1.00		0.98		
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00		1.00		
Frt	1.00	1.00			1.00	0.85	1.00		0.85		
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00		
Satd. Flow (prot)	1823	4561			4601	1581	3278		1362		
Flt Permitted	0.12	1.00			1.00	1.00	0.95		1.00		
Satd. Flow (perm)	224	4561			4601	1581	3278		1362		
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
Adj. Flow (vph)	53	1984	0	0	1754	72	105	0	17	0	0
RTOR Reduction (vph)	0	0	0	0	0	12	0	0	16	0	0
Lane Group Flow (vph)	53	1984	0	0	1754	60	105	0	1	0	0
Confl. Peds. (#/hr)	4					4			2		
Heavy Vehicles (%)	0%	15%	2%	2%	14%	0%	8%	2%	18%	2%	2%
Turn Type	Perm	NA			NA	Perm	Prot		Perm	Prot	Perm
Protected Phases		2			6		8!			8	
Permitted Phases	2					6			8		8!
Actuated Green, G (s)	110.3	110.3			110.3	110.3	9.9		9.9		
Effective Green, g (s)	110.3	110.3			110.3	110.3	9.9		9.9		
Actuated g/C Ratio	0.82	0.82			0.82	0.82	0.07		0.07		
Clearance Time (s)	7.4	7.4			7.4	7.4	7.4		7.4		
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0		
Lane Grp Cap (vph)	183	3726			3759	1291	240		99		
v/s Ratio Prot		c0.44			0.38		c0.03				
v/s Ratio Perm	0.24					0.04			0.00		
v/c Ratio	0.29	0.53			0.47	0.05	0.44		0.01		
Uniform Delay, d1	3.0	4.0			3.7	2.3	59.9		58.0		
Progression Factor	0.95	0.86			0.93	1.54	1.00		1.00		
Incremental Delay, d2	2.2	0.3			0.2	0.0	1.3		0.1		
Delay (s)	5.0	3.8			3.6	3.7	61.2		58.1		
Level of Service	A	A			A	A	E		E		
Approach Delay (s)		3.8			3.6			60.7		0.0	
Approach LOS		A			A			E		A	

Intersection Summary			
HCM 2000 Control Delay	5.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	14.8
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group



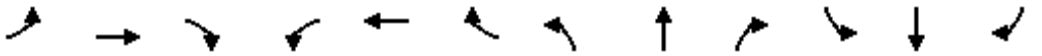
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	392	1353	360	145	1149	534	436	2124	245	426	859	311
v/c Ratio	1.22	0.87	0.51	0.90	0.92	0.92	0.90	1.15	0.42	1.11	0.60	0.61
Control Delay	179.8	43.6	12.6	113.2	53.8	41.4	77.5	106.0	8.7	134.1	60.9	39.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	179.8	43.6	12.6	113.2	53.8	41.4	77.5	106.0	8.7	134.1	60.9	39.3
Queue Length 50th (m)	~67.8	77.9	14.5	18.4	109.4	86.3	55.2	~222.4	14.6	~68.1	84.1	44.1
Queue Length 95th (m)	#100.7	117.3	36.8	#39.5	#135.9	#154.5	#85.8	#244.9	m17.2	#101.6	99.3	77.6
Internal Link Dist (m)		177.7			433.9			176.1			127.8	
Turn Bay Length (m)	175.0		160.0	208.0		160.0	135.0		114.0	200.0		126.0
Base Capacity (vph)	322	1561	703	162	1250	583	494	1848	582	384	1421	513
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.22	0.87	0.51	0.90	0.92	0.92	0.88	1.15	0.42	1.11	0.60	0.61

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

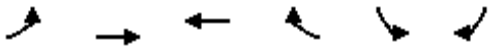
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	361	1245	331	133	1057	491	401	1954	225	392	790	286
Future Volume (vph)	361	1245	331	133	1057	491	401	1954	225	392	790	286
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.0	7.0	3.0	7.0	7.0	5.0	7.1	7.1	3.0	7.1	7.1
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	*1.00	1.00	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3106	4683	1555	2745	4561	1512	3340	5437	1432	3248	4768	1259
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3106	4683	1555	2745	4561	1512	3340	5437	1432	3248	4768	1259
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)	392	1353	360	145	1149	534	436	2124	245	426	859	311
RTOR Reduction (vph)	0	0	185	0	0	169	0	0	96	0	0	138
Lane Group Flow (vph)	392	1353	175	145	1149	365	436	2124	149	426	859	173
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	14%	12%	5%	29%	15%	8%	6%	6%	14%	9%	10%	28%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	14.0	45.0	45.0	8.0	37.0	37.0	19.7	45.9	45.9	14.0	40.2	40.2
Effective Green, g (s)	14.0	45.0	45.0	8.0	37.0	37.0	19.7	45.9	45.9	16.0	40.2	40.2
Actuated g/C Ratio	0.10	0.33	0.33	0.06	0.27	0.27	0.15	0.34	0.34	0.12	0.30	0.30
Clearance Time (s)	5.0	7.0	7.0	3.0	7.0	7.0	5.0	7.1	7.1	5.0	7.1	7.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	322	1561	518	162	1250	414	487	1848	486	384	1419	374
v/s Ratio Prot	c0.13	c0.29		0.05	0.25		0.13	c0.39		c0.13	0.18	
v/s Ratio Perm			0.11			0.24			0.10			0.14
v/c Ratio	1.22	0.87	0.34	0.90	0.92	0.88	0.90	1.15	0.31	1.11	0.61	0.46
Uniform Delay, d1	60.5	42.2	33.8	63.1	47.5	46.9	56.6	44.5	32.8	59.5	40.6	38.6
Progression Factor	1.26	0.89	1.20	1.13	0.89	0.80	1.08	0.81	0.52	1.06	1.45	2.32
Incremental Delay, d2	120.1	6.0	1.5	38.0	11.0	20.5	13.8	72.0	1.1	78.0	1.8	3.9
Delay (s)	196.5	43.3	42.1	109.1	53.5	57.9	75.1	108.0	18.2	141.0	60.5	93.4
Level of Service	F	D	D	F	D	E	E	F	B	F	E	F
Approach Delay (s)		71.6			59.2			95.0			88.4	
Approach LOS		E			E			F			F	

Intersection Summary			
HCM 2000 Control Delay	80.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	24.1
Intersection Capacity Utilization	98.9%	ICU Level of Service	F
Analysis Period (min)	15		

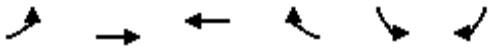
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	46	2145	1967	34	73	34
v/c Ratio	0.21	0.53	0.52	0.03	0.33	0.29
Control Delay	4.2	4.2	5.9	1.3	41.1	24.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.2	4.2	5.9	1.3	41.1	24.9
Queue Length 50th (m)	2.1	58.5	64.2	0.0	5.6	0.0
Queue Length 95th (m)	m3.1	m59.7	79.5	2.5	13.4	11.9
Internal Link Dist (m)		433.9	330.4		103.8	
Turn Bay Length (m)	183.0			77.0		
Base Capacity (vph)	220	4069	3818	1147	713	335
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.53	0.52	0.03	0.10	0.10

Intersection Summary

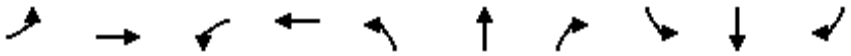
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	42	1973	1810	31	39	60
Future Volume (vph)	42	1973	1810	31	39	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.6	6.6	6.6	7.0	7.0
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.94	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.97	1.00
Satd. Flow (prot)	1825	4683	4683	1399	3103	1389
Flt Permitted	0.08	1.00	1.00	1.00	0.97	1.00
Satd. Flow (perm)	162	4683	4683	1399	3103	1389
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	2145	1967	34	42	65
RTOR Reduction (vph)	0	0	0	7	29	32
Lane Group Flow (vph)	46	2145	1967	27	44	2
Confl. Peds. (#/hr)	1			1		
Heavy Vehicles (%)	0%	12%	12%	14%	11%	7%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		8	
Permitted Phases	2			6		8
Actuated Green, G (s)	114.6	114.6	106.8	106.8	6.8	6.8
Effective Green, g (s)	114.6	114.6	106.8	106.8	6.8	6.8
Actuated g/C Ratio	0.85	0.85	0.79	0.79	0.05	0.05
Clearance Time (s)	3.0	6.6	6.6	6.6	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	196	3975	3704	1106	156	69
v/s Ratio Prot	0.01	c0.46	0.42		c0.01	
v/s Ratio Perm	0.19			0.02		0.00
v/c Ratio	0.23	0.54	0.53	0.02	0.28	0.02
Uniform Delay, d1	2.7	2.8	5.1	3.0	61.7	60.9
Progression Factor	2.17	1.35	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.3	0.5	0.0	1.0	0.1
Delay (s)	6.2	4.1	5.6	3.0	62.7	61.1
Level of Service	A	A	A	A	E	E
Approach Delay (s)		4.2	5.6		62.2	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay	6.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		

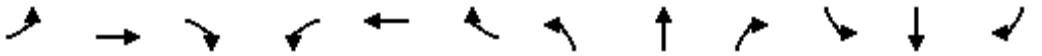
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	77	41	33	93	33	2659	25	50	1527	74
v/c Ratio	0.61	0.26	0.29	0.46	0.14	0.75	0.03	0.44	0.44	0.07
Control Delay	76.5	21.0	60.4	25.4	4.2	13.8	0.1	29.7	6.0	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.5	21.0	60.4	25.4	4.2	13.8	0.1	29.7	6.0	1.6
Queue Length 50th (m)	20.0	0.7	8.3	5.7	1.3	142.3	0.0	6.0	32.3	0.2
Queue Length 95th (m)	35.4	11.5	18.2	21.9	4.0	204.8	0.0	m14.7	57.3	m1.7
Internal Link Dist (m)		200.3		281.8		533.0			225.8	
Turn Bay Length (m)			155.0		86.0		230.0	192.0		115.0
Base Capacity (vph)	358	374	322	446	242	3556	800	114	3479	1002
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.11	0.10	0.21	0.14	0.75	0.03	0.44	0.44	0.07

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	3	35	30	0	86	30	2446	23	46	1405	68
Future Volume (vph)	71	3	35	30	0	86	30	2446	23	46	1405	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5		7.5	7.5		3.0	6.7	6.7	3.0	6.7	6.7
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	0.98		1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		0.99	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.86		1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1690	1203		1451	1372		1508	4856	1071	1404	4641	1313
Flt Permitted	0.70	1.00		0.73	1.00		0.15	1.00	1.00	0.04	1.00	1.00
Satd. Flow (perm)	1239	1203		1116	1372		231	4856	1071	59	4641	1313
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)	77	3	38	33	0	93	33	2659	25	50	1527	74
RTOR Reduction (vph)	0	34	0	0	63	0	0	0	7	0	0	19
Lane Group Flow (vph)	77	7	0	33	30	0	33	2659	18	50	1527	55
Confl. Peds. (#/hr)			6	6			4		5	5		4
Heavy Vehicles (%)	8%	100%	30%	25%	0%	19%	21%	8%	48%	30%	13%	21%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4			6		6	2		2
Actuated Green, G (s)	13.9	13.9		13.9	13.9		102.2	98.3	98.3	105.6	100.0	100.0
Effective Green, g (s)	13.9	13.9		13.9	13.9		102.2	98.3	98.3	105.6	100.0	100.0
Actuated g/C Ratio	0.10	0.10		0.10	0.10		0.76	0.73	0.73	0.78	0.74	0.74
Clearance Time (s)	7.5	7.5		7.5	7.5		3.0	6.7	6.7	3.0	6.7	6.7
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	127	123		114	141		211	3535	779	101	3437	972
v/s Ratio Prot		0.01			0.02		0.00	c0.55		c0.02	0.33	
v/s Ratio Perm	c0.06			0.03			0.11		0.02	0.36		0.04
v/c Ratio	0.61	0.06		0.29	0.21		0.16	0.75	0.02	0.50	0.44	0.06
Uniform Delay, d1	57.9	54.6		56.0	55.5		4.3	11.0	5.1	14.7	6.8	4.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.30	0.77	0.94
Incremental Delay, d2	7.9	0.2		1.4	0.8		0.3	1.5	0.1	3.3	0.4	0.1
Delay (s)	65.9	54.8		57.4	56.3		4.7	12.6	5.1	22.4	5.6	4.5
Level of Service	E	D		E	E		A	B	A	C	A	A
Approach Delay (s)		62.0			56.6			12.4			6.0	
Approach LOS		E			E			B			A	

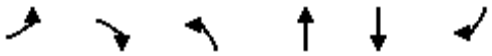
Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	17.2
Intersection Capacity Utilization	73.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	363	79	2872	1335
v/c Ratio	0.79	0.28	0.79	0.39
Control Delay	66.9	12.5	8.6	3.7
Queue Delay	0.0	0.0	0.6	0.0
Total Delay	66.9	12.5	9.2	3.7
Queue Length 50th (m)	48.0	0.0	42.7	19.1
Queue Length 95th (m)	63.9	15.4	m35.3	37.8
Internal Link Dist (m)	491.5		125.8	378.4
Turn Bay Length (m)		205.0		
Base Capacity (vph)	531	308	3620	3459
Starvation Cap Reductn	0	0	364	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.68	0.26	0.88	0.39

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	326	81	0	2642	1228	0
Future Volume (vph)	326	81	0	2642	1228	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6		6.6	6.6	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	2933	1351		4856	4641	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	2933	1351		4856	4641	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	354	88	0	2872	1335	0
RTOR Reduction (vph)	2	67	0	0	0	0
Lane Group Flow (vph)	361	12	0	2872	1335	0
Heavy Vehicles (%)	21%	10%	0%	8%	13%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	21.2	21.2		100.6	100.6	
Effective Green, g (s)	21.2	21.2		100.6	100.6	
Actuated g/C Ratio	0.16	0.16		0.75	0.75	
Clearance Time (s)	6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	460	212		3618	3458	
v/s Ratio Prot	c0.12			c0.59	0.29	
v/s Ratio Perm		0.01				
v/c Ratio	0.79	0.06		0.79	0.39	
Uniform Delay, d1	54.7	48.4		10.7	6.2	
Progression Factor	1.00	1.00		0.73	0.54	
Incremental Delay, d2	8.6	0.1		0.2	0.3	
Delay (s)	63.3	48.5		8.1	3.6	
Level of Service	E	D		A	A	
Approach Delay (s)	60.7			8.1	3.6	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	75.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	251	186	2852	1608
v/c Ratio	0.51	0.79	0.79	0.47
Control Delay	53.6	76.1	8.0	21.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	53.6	76.1	8.0	21.5
Queue Length 50th (m)	31.2	51.6	45.6	117.6
Queue Length 95th (m)	42.4	77.4	243.2	m131.5
Internal Link Dist (m)	372.3		378.4	362.1
Turn Bay Length (m)		220.0		
Base Capacity (vph)	635	300	3594	3435
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	0.40	0.62	0.79	0.47

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	59	343	2624	0	0	1479
Future Volume (vph)	59	343	2624	0	0	1479
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6	6.6			6.6
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.89	0.85	1.00			1.00
Flt Protected	0.99	1.00	1.00			1.00
Satd. Flow (prot)	3039	1429	4856			4641
Flt Permitted	0.99	1.00	1.00			1.00
Satd. Flow (perm)	3039	1429	4856			4641
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	64	373	2852	0	0	1608
RTOR Reduction (vph)	3	3	0	0	0	0
Lane Group Flow (vph)	248	183	2852	0	0	1608
Heavy Vehicles (%)	18%	4%	8%	0%	0%	13%
Turn Type	Prot	Perm	NA			NA
Protected Phases	4		2			6
Permitted Phases		4				
Actuated Green, G (s)	21.9	21.9	99.9			99.9
Effective Green, g (s)	21.9	21.9	99.9			99.9
Actuated g/C Ratio	0.16	0.16	0.74			0.74
Clearance Time (s)	6.6	6.6	6.6			6.6
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	492	231	3593			3434
v/s Ratio Prot	0.08		c0.59			0.35
v/s Ratio Perm		c0.13				
v/c Ratio	0.50	0.79	0.79			0.47
Uniform Delay, d1	51.6	54.3	11.1			7.0
Progression Factor	1.00	1.00	0.56			2.83
Incremental Delay, d2	0.8	16.7	1.1			0.2
Delay (s)	52.4	71.0	7.4			20.0
Level of Service	D	E	A			B
Approach Delay (s)	60.3		7.4			20.0
Approach LOS	E		A			B

Intersection Summary			
HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	75.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

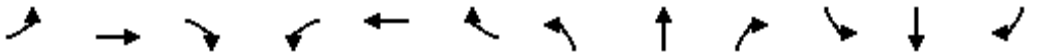
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	76	88	391	334	141	92	3143	210	34	1475	11
v/c Ratio	0.39	0.23	1.19	0.88	0.42	0.65	1.30	0.32	0.26	0.76	0.02
Control Delay	63.9	57.5	142.2	72.9	42.8	34.7	169.4	12.4	22.1	38.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.9	57.5	142.2	72.9	42.8	34.7	169.4	12.4	22.1	38.3	0.0
Queue Length 50th (m)	19.4	11.0	~92.0	84.0	28.9	14.2	~371.3	23.3	4.5	123.3	0.0
Queue Length 95th (m)	36.4	19.6	#160.0	#125.0	48.0	m16.9	#395.7	m31.1	10.3	141.7	0.0
Internal Link Dist (m)		247.6			157.3		362.1			334.5	
Turn Bay Length (m)	60.0		60.0	57.0		88.0		91.0	120.0		25.0
Base Capacity (vph)	193	382	328	428	377	144	2422	660	132	1946	640
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.23	1.19	0.78	0.37	0.64	1.30	0.32	0.26	0.76	0.02

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	81	360	307	105	25	85	2892	193	31	1357	10
Future Volume (vph)	70	81	360	307	105	25	85	2892	193	31	1357	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0		3.0	6.6	6.6	3.0	6.6	6.6
Lane Util. Factor	1.00	*1.00	1.00	1.00	1.00		1.00	*1.00	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1587	3149	1540	1521	1320		1547	5542	1360	1706	4902	1442
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.07	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	1587	3149	1540	1521	1320		121	5542	1360	134	4902	1442
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)	76	88	391	334	114	27	92	3143	210	34	1475	11
RTOR Reduction (vph)	0	0	141	0	7	0	0	0	67	0	0	7
Lane Group Flow (vph)	76	88	250	334	134	0	92	3143	143	34	1475	4
Confl. Peds. (#/hr)	2		3	3		2	6		4	4		6
Heavy Vehicles (%)	15%	22%	4%	20%	41%	41%	18%	4%	18%	7%	7%	11%
Turn Type	Split	NA	Perm	Split	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	8	8		4	4		1	6		5	2	
Permitted Phases			8				6		6	2		2
Actuated Green, G (s)	16.4	16.4	16.4	33.6	33.6		64.4	57.8	57.8	57.2	53.6	53.6
Effective Green, g (s)	16.4	16.4	16.4	33.6	33.6		64.4	57.8	57.8	57.2	53.6	53.6
Actuated g/C Ratio	0.12	0.12	0.12	0.25	0.25		0.48	0.43	0.43	0.42	0.40	0.40
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		3.0	6.6	6.6	3.0	6.6	6.6
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	192	382	187	378	328		140	2372	582	98	1946	572
v/s Ratio Prot	0.05	0.03		c0.22	0.10		c0.04	c0.57		0.01	0.30	
v/s Ratio Perm			c0.16				0.28		0.10	0.14		0.00
v/c Ratio	0.40	0.23	1.33	0.88	0.41		0.66	1.33	0.24	0.35	0.76	0.01
Uniform Delay, d1	54.7	53.6	59.3	48.8	42.4		25.1	38.6	24.7	32.2	35.1	24.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.93	1.00	1.01	1.00	1.00	1.00
Incremental Delay, d2	1.3	0.3	182.3	20.9	0.8		7.4	148.4	0.7	2.1	2.8	0.0
Delay (s)	56.1	53.9	241.6	69.7	43.2		30.8	187.1	25.6	34.3	37.9	24.6
Level of Service	E	D	F	E	D		C	F	C	C	D	C
Approach Delay (s)		186.4			61.8			173.1			37.8	
Approach LOS		F			E			F			D	

Intersection Summary			
HCM 2000 Control Delay	131.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	23.6
Intersection Capacity Utilization	104.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

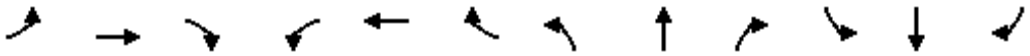
Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	0	2886	1468	27	0	4
Future Volume (Veh/h)	0	2886	1468	27	0	4
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	3137	1596	29	0	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		152	150			
pX, platoon unblocked	0.90				0.71	0.90
vC, conflicting volume	1625				2656	546
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1316				990	121
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	471				173	819

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	NE 1
Volume Total	1046	1046	1046	638	638	348	4
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	29	4
cSH	1700	1700	1700	1700	1700	1700	819
Volume to Capacity	0.62	0.62	0.62	0.38	0.38	0.20	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.4
Lane LOS							A
Approach Delay (s)	0.0			0.0			9.4
Approach LOS							A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		

Intersection Sign configuration not allowed in HCM analysis.

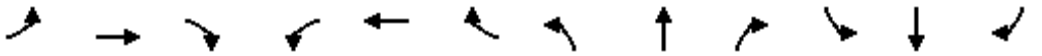
Appendix F – Future (2031)
Total Conditions No Goreway Improvement
Synchro Output



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	241	1361	79	100	1100	323	112	158	118	512	641	401
v/c Ratio	0.76	0.75	0.11	0.55	0.65	0.43	0.77	0.34	0.34	0.87	0.75	0.77
Control Delay	76.2	39.0	0.3	79.0	20.3	7.9	92.2	51.9	3.0	72.2	54.6	32.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.2	39.0	0.3	79.0	20.3	7.9	92.2	51.9	3.0	72.2	54.6	32.6
Queue Length 50th (m)	33.4	121.3	0.0	15.0	69.5	23.2	30.3	20.3	0.0	71.0	86.4	50.5
Queue Length 95th (m)	#53.8	145.3	0.0	#25.0	105.0	34.2	#56.6	30.0	0.9	#95.0	102.8	86.7
Internal Link Dist (m)		358.4			1114.0			261.4			215.3	
Turn Bay Length (m)	66.0		102.0	97.0		200.0	85.0		106.0	117.0		130.0
Base Capacity (vph)	326	1813	690	183	1691	756	162	575	389	620	993	572
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.75	0.11	0.55	0.65	0.43	0.69	0.27	0.30	0.83	0.65	0.70

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)	222	1252	73	92	1012	297	103	145	109	471	590	369
Future Volume (vph)	222	1252	73	92	1012	297	103	145	109	471	590	369
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.6	6.6	5.0	6.6	6.6	5.0	7.1	7.1	5.0	7.1	7.1
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.97	1.00	1.00	0.93	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3026	4334	1442	2855	4483	1471	1426	2684	1145	3340	3476	1475
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3026	4334	1442	2855	4483	1471	1426	2684	1145	3340	3476	1475
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)	241	1361	79	100	1100	323	112	158	118	512	641	401
RTOR Reduction (vph)	0	0	46	0	0	201	0	0	98	0	0	160
Lane Group Flow (vph)	241	1361	33	100	1100	122	112	158	20	512	641	241
Confl. Peds. (#/hr)	12		20	20		12	9		39	39		9
Heavy Vehicles (%)	17%	21%	9%	24%	17%	8%	28%	36%	33%	6%	5%	8%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	14.8	58.5	58.5	9.0	52.7	52.7	14.4	24.1	24.1	24.7	34.4	34.4
Effective Green, g (s)	14.8	58.5	58.5	9.0	52.7	52.7	14.4	24.1	24.1	24.7	34.4	34.4
Actuated g/C Ratio	0.11	0.42	0.42	0.06	0.38	0.38	0.10	0.17	0.17	0.18	0.25	0.25
Clearance Time (s)	5.0	6.6	6.6	5.0	6.6	6.6	5.0	7.1	7.1	5.0	7.1	7.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	319	1810	602	183	1687	553	146	462	197	589	854	362
v/s Ratio Prot	c0.08	c0.31		0.04	0.25		0.08	0.06		c0.15	c0.18	
v/s Ratio Perm			0.02			0.08			0.02			0.16
v/c Ratio	0.76	0.75	0.05	0.55	0.65	0.22	0.77	0.34	0.10	0.87	0.75	0.67
Uniform Delay, d1	60.8	34.6	24.3	63.5	36.1	29.7	61.2	51.0	48.8	56.1	48.8	47.6
Progression Factor	1.00	1.00	1.00	1.08	0.49	1.81	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.8	2.9	0.2	3.0	1.8	0.8	21.1	0.4	0.2	12.9	3.7	4.6
Delay (s)	70.6	37.5	24.5	71.5	19.5	54.6	82.3	51.4	49.1	69.0	52.6	52.2
Level of Service	E	D	C	E	B	D	F	D	D	E	D	D
Approach Delay (s)		41.7			30.4			59.6			57.9	
Approach LOS		D			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	44.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.7
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR
Lane Group Flow (vph)	9	2006	48	1541	66	29	30	32	2	34
v/c Ratio	0.05	0.63	0.54	0.49	0.06	0.07	0.07	0.08	0.00	0.08
Control Delay	1.2	3.0	35.5	12.2	3.7	37.2	35.1	11.0	36.0	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.2	3.0	35.5	12.2	3.7	37.2	35.1	11.0	36.0	11.8
Queue Length 50th (m)	0.1	5.4	5.1	58.4	1.1	6.2	6.2	0.0	0.4	0.0
Queue Length 95th (m)	m0.1	6.0	m6.4	m66.7	m1.4	14.6	14.4	7.5	2.6	8.4
Internal Link Dist (m)		1114.0		177.7			103.6		75.8	
Turn Bay Length (m)	56.0		50.0		60.0	36.0	36.0			
Base Capacity (vph)	174	3164	89	3138	1117	491	424	487	507	478
Starvation Cap Reductn	0	0	0	242	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.63	0.54	0.53	0.06	0.06	0.07	0.07	0.00	0.07

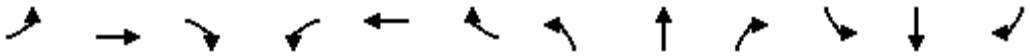
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR	NWR2
Lane Configurations												
Traffic Volume (vph)	8	1837	8	44	1418	61	54	0	29	2	0	31
Future Volume (vph)	8	1837	8	44	1418	61	54	0	29	2	0	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4		7.4	7.4	7.4	7.5	4.5	7.5	7.5	7.5	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	0.95	0.95	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	
Satd. Flow (prot)	1825	4600		1789	4561	1595	1734	1734	1633	1789	1601	
Flt Permitted	0.13	1.00		0.07	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	254	4600		130	4561	1595	1734	1825	1633	1789	1601	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	1997	9	48	1541	66	59	0	32	2	0	34
RTOR Reduction (vph)	0	0	0	0	0	22	0	0	25	0	26	0
Lane Group Flow (vph)	9	2006	0	48	1541	44	29	30	7	2	8	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	0%	14%	2%	2%	15%	0%	0%	2%	0%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Prot	Prot	Perm	Prot	Perm	
Protected Phases		2			6		8!	4!		8!		
Permitted Phases	2			6		6			8		8!	
Actuated Green, G (s)	93.3	93.3		93.3	93.3	93.3	31.8	34.8	31.8	31.8	31.8	
Effective Green, g (s)	93.3	93.3		93.3	93.3	93.3	31.8	34.8	31.8	31.8	31.8	
Actuated g/C Ratio	0.67	0.67		0.67	0.67	0.67	0.23	0.25	0.23	0.23	0.23	
Clearance Time (s)	7.4	7.4		7.4	7.4	7.4	7.5	4.5	7.5	7.5	7.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	169	3065		86	3039	1062	393	453	370	406	363	
v/s Ratio Prot		c0.44			0.34		c0.02	0.02		0.00		
v/s Ratio Perm	0.04			0.37		0.03		0.00	0.00		0.00	
v/c Ratio	0.05	0.65		0.56	0.51	0.04	0.07	0.07	0.02	0.00	0.02	
Uniform Delay, d1	8.1	13.8		12.4	11.8	8.0	42.5	40.2	42.0	41.9	42.0	
Progression Factor	0.07	0.15		1.08	0.87	1.45	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.7		11.6	0.3	0.0	0.1	0.1	0.0	0.0	0.0	
Delay (s)	1.0	2.8		25.0	10.5	11.7	42.6	40.3	42.0	41.9	42.0	
Level of Service	A	A		C	B	B	D	D	D	D	D	
Approach Delay (s)		2.7			10.9			41.6		42.0		
Approach LOS		A			B			D		D		

Intersection Summary			
HCM 2000 Control Delay	7.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	14.9
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

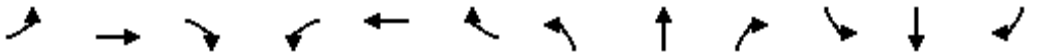


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	287	1446	507	168	973	289	304	721	102	577	2076	439
v/c Ratio	1.05	0.93	0.83	0.96	0.91	0.50	1.00	0.53	0.21	0.92	0.99	0.71
Control Delay	124.7	49.1	29.1	130.4	60.3	6.1	107.9	50.0	8.4	79.0	59.0	27.9
Queue Delay	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	124.7	49.1	30.7	130.4	60.3	6.1	107.9	50.0	8.4	79.0	59.0	27.9
Queue Length 50th (m)	~42.8	134.8	92.6	23.7	96.3	9.1	44.0	51.5	0.0	82.9	170.3	46.5
Queue Length 95th (m)	#72.5	#153.9	#141.2	#48.7	#120.5	13.5	#75.1	84.6	11.1	#113.9	#221.3	80.0
Internal Link Dist (m)		177.7			433.9			176.1			127.8	
Turn Bay Length (m)	175.0		160.0	208.0		160.0	135.0		114.0	200.0		126.0
Base Capacity (vph)	274	1552	610	175	1074	581	304	1364	495	638	2093	619
Starvation Cap Reductn	0	0	29	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.05	0.93	0.87	0.96	0.91	0.50	1.00	0.53	0.21	0.90	0.99	0.71

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

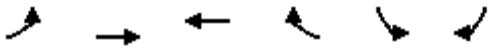
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	264	1330	466	155	895	266	280	663	94	531	1910	404
Future Volume (vph)	264	1330	466	155	895	266	280	663	94	531	1910	404
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.0	7.0	3.0	7.0	7.0	5.0	7.1	7.1	5.0	7.1	7.1
Lane Util. Factor	0.97	*1.00	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	*1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2745	5056	1526	3079	4299	1458	3278	4725	1296	3309	5437	1276
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2745	5056	1526	3079	4299	1458	3278	4725	1296	3309	5437	1276
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)	287	1446	507	168	973	289	304	721	102	577	2076	439
RTOR Reduction (vph)	0	0	142	0	0	217	0	0	73	0	0	129
Lane Group Flow (vph)	287	1446	365	168	973	72	304	721	29	577	2076	310
Confl. Peds. (#/hr)							3					3
Heavy Vehicles (%)	29%	14%	7%	15%	22%	12%	8%	11%	26%	7%	6%	26%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	14.0	43.0	43.0	8.0	35.0	35.0	13.0	40.4	40.4	26.5	53.9	53.9
Effective Green, g (s)	14.0	43.0	43.0	8.0	35.0	35.0	13.0	40.4	40.4	26.5	53.9	53.9
Actuated g/C Ratio	0.10	0.31	0.31	0.06	0.25	0.25	0.09	0.29	0.29	0.19	0.38	0.38
Clearance Time (s)	5.0	7.0	7.0	3.0	7.0	7.0	5.0	7.1	7.1	5.0	7.1	7.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	274	1552	468	175	1074	364	304	1363	373	626	2093	491
v/s Ratio Prot	c0.10	c0.29		0.05	0.23		0.09	0.15		c0.17	c0.38	
v/s Ratio Perm			0.24			0.05			0.02			0.24
v/c Ratio	1.05	0.93	0.78	0.96	0.91	0.20	1.00	0.53	0.08	0.92	0.99	0.63
Uniform Delay, d1	63.0	47.1	44.2	65.8	50.9	41.4	63.5	41.8	36.3	55.7	42.8	35.0
Progression Factor	1.06	0.83	0.68	1.16	0.95	0.70	0.91	1.15	1.00	1.13	1.04	1.24
Incremental Delay, d2	62.5	9.9	10.2	53.7	11.9	1.1	50.2	0.4	0.1	14.5	14.5	1.8
Delay (s)	129.0	48.9	40.2	130.2	60.1	30.1	108.2	48.6	36.3	77.6	59.1	45.2
Level of Service	F	D	D	F	E	C	F	D	D	E	E	D
Approach Delay (s)		57.2			62.3			63.6			60.6	
Approach LOS		E			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	60.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	24.1
Intersection Capacity Utilization	94.3%	ICU Level of Service	F
Analysis Period (min)	15		

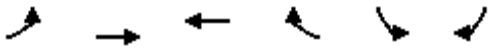
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	32	2062	1633	25	9	6
v/c Ratio	0.12	0.47	0.38	0.02	0.04	0.04
Control Delay	1.0	2.3	2.9	1.2	0.4	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.0	2.3	2.9	1.2	0.4	0.5
Queue Length 50th (m)	0.3	8.7	17.5	0.0	0.0	0.0
Queue Length 95th (m)	m0.7	25.2	54.2	1.9	0.0	0.0
Internal Link Dist (m)		433.9	330.4		103.8	
Turn Bay Length (m)	183.0			77.0		
Base Capacity (vph)	290	4394	4247	1121	550	273
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.47	0.38	0.02	0.02	0.02

Intersection Summary

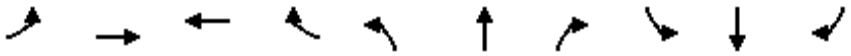
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	29	1897	1502	23	3	11
Future Volume (vph)	29	1897	1502	23	3	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.6	6.6	6.6	7.0	7.0
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.98	0.99	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.90	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.98	1.00
Satd. Flow (prot)	1690	4683	4768	1256	2165	916
Flt Permitted	0.13	1.00	1.00	1.00	0.98	1.00
Satd. Flow (perm)	234	4683	4768	1256	2165	916
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	2062	1633	25	3	12
RTOR Reduction (vph)	0	0	0	4	9	6
Lane Group Flow (vph)	32	2062	1633	21	0	0
Confl. Peds. (#/hr)	1			1	1	1
Heavy Vehicles (%)	8%	12%	10%	27%	33%	60%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		8	
Permitted Phases	2			6		8
Actuated Green, G (s)	123.2	123.2	116.7	116.7	3.2	3.2
Effective Green, g (s)	123.2	123.2	116.7	116.7	3.2	3.2
Actuated g/C Ratio	0.88	0.88	0.83	0.83	0.02	0.02
Clearance Time (s)	3.0	6.6	6.6	6.6	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	242	4121	3974	1046	49	20
v/s Ratio Prot	0.00	c0.44	0.34		0.00	
v/s Ratio Perm	0.11			0.02		c0.00
v/c Ratio	0.13	0.50	0.41	0.02	0.00	0.01
Uniform Delay, d1	1.3	1.8	2.9	2.0	66.8	66.8
Progression Factor	0.78	1.48	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.2	0.3	0.0	0.0	0.1
Delay (s)	1.1	2.9	3.3	2.0	66.9	67.0
Level of Service	A	A	A	A	E	E
Approach Delay (s)		2.8	3.2		66.9	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay	3.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		

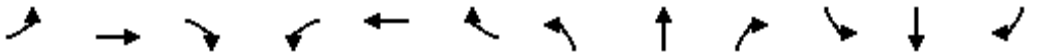
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	18	14	15	39	15	1351	64	203	2893	51
v/c Ratio	0.31	0.16	0.18	0.26	0.17	0.38	0.05	0.55	0.70	0.05
Control Delay	75.1	33.5	65.6	5.3	7.8	6.7	0.9	12.1	6.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.1	33.5	65.6	5.3	7.8	6.7	0.9	12.1	6.3	0.0
Queue Length 50th (m)	4.9	0.5	4.0	0.0	0.4	40.4	0.0	6.9	22.0	0.0
Queue Length 95th (m)	13.0	7.6	11.1	1.5	1.6	66.4	3.0	m9.5	m266.4	m0.1
Internal Link Dist (m)		200.3	281.8			533.0			225.8	
Turn Bay Length (m)					86.0		230.0	192.0		115.0
Base Capacity (vph)	244	337	350	384	86	3529	1165	452	4142	1020
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.04	0.04	0.10	0.17	0.38	0.05	0.45	0.70	0.05

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	2	11	14	0	36	14	1243	59	187	2662	47
Future Volume (vph)	17	2	11	14	0	36	14	1243	59	187	2662	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5			7.5	7.5	3.0	6.7	6.7	3.0	6.7	6.7
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	0.99			1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.87			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00			0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1116	1181			1597	1182	1185	4601	1495	1738	4948	1208
Flt Permitted	0.75	1.00			0.75	1.00	0.04	1.00	1.00	0.17	1.00	1.00
Satd. Flow (perm)	878	1181			1258	1182	47	4601	1495	318	4948	1208
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)	18	2	12	15	0	39	15	1351	64	203	2893	51
RTOR Reduction (vph)	0	11	0	0	0	37	0	0	16	0	0	10
Lane Group Flow (vph)	18	3	0	0	15	2	15	1351	48	203	2893	41
Confl. Peds. (#/hr)	3		2	2		3	2		5	5		2
Heavy Vehicles (%)	63%	100%	30%	14%	0%	36%	54%	14%	6%	5%	6%	32%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4	6		6	2		2
Actuated Green, G (s)	7.8	7.8			7.8	7.8	108.3	105.9	105.9	118.0	112.6	112.6
Effective Green, g (s)	7.8	7.8			7.8	7.8	108.3	105.9	105.9	118.0	112.6	112.6
Actuated g/C Ratio	0.06	0.06			0.06	0.06	0.77	0.76	0.76	0.84	0.80	0.80
Clearance Time (s)	7.5	7.5			7.5	7.5	3.0	6.7	6.7	3.0	6.7	6.7
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	48	65			70	65	55	3480	1130	360	3979	971
v/s Ratio Prot		0.00					0.00	0.29		c0.04	c0.58	
v/s Ratio Perm	c0.02				0.01	0.00	0.20		0.03	0.44		0.03
v/c Ratio	0.38	0.04			0.21	0.03	0.27	0.39	0.04	0.56	0.73	0.04
Uniform Delay, d1	63.7	62.6			63.2	62.5	6.8	5.9	4.3	2.7	6.5	2.8
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00	5.65	0.85	0.00
Incremental Delay, d2	4.9	0.3			1.5	0.2	2.7	0.3	0.1	1.1	0.7	0.0
Delay (s)	68.6	62.8			64.7	62.7	9.4	6.2	4.4	16.3	6.2	0.0
Level of Service	E	E			E	E	A	A	A	B	A	A
Approach Delay (s)		66.1			63.3			6.2			6.7	
Approach LOS		E			E			A			A	

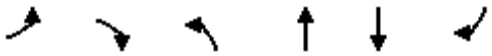
Intersection Summary			
HCM 2000 Control Delay	7.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.2
Intersection Capacity Utilization	80.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	562	257	1245	2626
v/c Ratio	0.80	0.82	0.40	0.79
Control Delay	60.0	71.3	2.3	26.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	60.0	71.3	2.3	26.7
Queue Length 50th (m)	75.7	73.7	10.3	264.7
Queue Length 95th (m)	91.6	104.5	m11.5	285.4
Internal Link Dist (m)	491.5		125.8	378.4
Turn Bay Length (m)		205.0		
Base Capacity (vph)	840	374	3136	3308
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	0.67	0.69	0.40	0.79

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	365	388	0	1145	2416	0
Future Volume (vph)	365	388	0	1145	2416	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6		6.6	6.6	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	0.96	0.85		1.00	1.00	
Flt Protected	0.97	1.00		1.00	1.00	
Satd. Flow (prot)	3221	1429		4561	4812	
Flt Permitted	0.97	1.00		1.00	1.00	
Satd. Flow (perm)	3221	1429		4561	4812	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	397	422	0	1245	2626	0
RTOR Reduction (vph)	3	3	0	0	0	0
Lane Group Flow (vph)	559	254	0	1245	2626	0
Heavy Vehicles (%)	8%	4%	0%	15%	9%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	30.5	30.5		96.3	96.3	
Effective Green, g (s)	30.5	30.5		96.3	96.3	
Actuated g/C Ratio	0.22	0.22		0.69	0.69	
Clearance Time (s)	6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	701	311		3137	3309	
v/s Ratio Prot	0.17			0.27	c0.55	
v/s Ratio Perm		c0.18				
v/c Ratio	0.80	0.82		0.40	0.79	
Uniform Delay, d1	51.8	52.1		9.4	15.0	
Progression Factor	1.00	1.00		0.20	1.58	
Incremental Delay, d2	6.3	15.1		0.3	1.2	
Delay (s)	58.1	67.2		2.2	24.9	
Level of Service	E	E		A	C	
Approach Delay (s)	61.0			2.2	24.9	
Approach LOS	E			A	C	

Intersection Summary			
HCM 2000 Control Delay	25.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	355	198	1577	3028
v/c Ratio	0.73	0.81	0.44	0.82
Control Delay	56.5	64.1	6.2	13.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	56.5	64.1	6.2	13.6
Queue Length 50th (m)	41.1	41.9	45.2	169.4
Queue Length 95th (m)	55.4	70.4	74.0	224.1
Internal Link Dist (m)	372.3		378.4	362.1
Turn Bay Length (m)		220.0		
Base Capacity (vph)	604	297	3545	3709
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	0.59	0.67	0.44	0.82

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	144	364	1451	0	0	2786
Future Volume (vph)	144	364	1451	0	0	2786
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6	6.6			6.6
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.92	0.85	1.00			1.00
Flt Protected	0.98	1.00	1.00			1.00
Satd. Flow (prot)	3069	1376	4641			4856
Flt Permitted	0.98	1.00	1.00			1.00
Satd. Flow (perm)	3069	1376	4641			4856
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	157	396	1577	0	0	3028
RTOR Reduction (vph)	51	51	0	0	0	0
Lane Group Flow (vph)	304	147	1577	0	0	3028
Heavy Vehicles (%)	10%	8%	13%	0%	0%	8%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		6			2
Permitted Phases		8				
Actuated Green, G (s)	19.9	19.9	106.9			106.9
Effective Green, g (s)	19.9	19.9	106.9			106.9
Actuated g/C Ratio	0.14	0.14	0.76			0.76
Clearance Time (s)	6.6	6.6	6.6			6.6
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	436	195	3543			3707
v/s Ratio Prot	0.10		0.34			c0.62
v/s Ratio Perm		c0.11				
v/c Ratio	0.70	0.76	0.45			0.82
Uniform Delay, d1	57.2	57.7	5.9			10.4
Progression Factor	1.00	1.00	0.93			1.00
Incremental Delay, d2	4.8	15.3	0.4			2.1
Delay (s)	62.0	73.0	5.9			12.5
Level of Service	E	E	A			B
Approach Delay (s)	66.0		5.9			12.5
Approach LOS	E		A			B

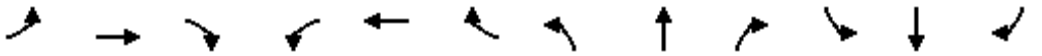
Intersection Summary			
HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	14	114	257	268	113	260	1586	367	39	2498	30
v/c Ratio	0.10	0.31	0.84	0.82	0.32	0.83	0.58	0.39	0.23	1.06	0.04
Control Delay	32.2	53.9	46.5	78.4	39.1	57.6	22.0	3.2	15.1	75.1	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.2	53.9	46.5	78.4	39.1	57.6	22.0	3.2	15.1	75.1	0.1
Queue Length 50th (m)	2.6	14.7	28.7	36.2	21.3	51.6	101.8	0.0	3.6	~244.0	0.0
Queue Length 95th (m)	7.1	22.6	57.0	#56.0	38.2	#127.5	133.4	16.2	9.6	#268.5	0.0
Internal Link Dist (m)		247.6			157.3		362.1			334.5	
Turn Bay Length (m)	60.0		60.0	57.0		88.0		91.0	120.0		25.0
Base Capacity (vph)	146	567	388	339	394	314	2728	937	167	2349	668
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.20	0.66	0.79	0.29	0.83	0.58	0.39	0.23	1.06	0.04

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	13	105	236	247	82	22	239	1459	338	36	2298	28
Future Volume (vph)	13	105	236	247	82	22	239	1459	338	36	2298	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.0	7.0	4.5	7.0		3.0	6.6	6.6	3.0	6.6	6.6
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00		1.00	0.91	1.00	1.00	*1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1042	2968	1394	2662	1374		1615	4856	1383	1508	5386	1334
Flt Permitted	0.68	1.00	1.00	0.95	1.00		0.07	1.00	1.00	0.13	1.00	1.00
Satd. Flow (perm)	750	2968	1394	2662	1374		115	4856	1383	206	5386	1334
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)	14	114	257	268	89	24	260	1586	367	39	2498	30
RTOR Reduction (vph)	0	0	128	0	7	0	0	0	170	0	0	18
Lane Group Flow (vph)	14	114	129	268	106	0	260	1586	197	39	2498	12
Confl. Peds. (#/hr)	2		3	3		2	6		4	4		6
Heavy Vehicles (%)	75%	23%	15%	33%	29%	57%	13%	8%	16%	21%	7%	20%
Turn Type	pm+pt	NA	Perm	Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8				6		6	2		2
Actuated Green, G (s)	21.6	19.6	19.6	16.5	34.1		80.8	72.5	72.5	61.5	56.2	56.2
Effective Green, g (s)	21.6	19.6	19.6	16.5	34.1		80.8	72.5	72.5	61.5	56.2	56.2
Actuated g/C Ratio	0.16	0.15	0.15	0.12	0.25		0.60	0.54	0.54	0.46	0.42	0.42
Clearance Time (s)	4.5	7.0	7.0	4.5	7.0		3.0	6.6	6.6	3.0	6.6	6.6
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	124	430	202	325	347		308	2607	742	144	2242	555
v/s Ratio Prot	0.00	0.04		c0.10	0.08		c0.13	0.33		0.01	c0.46	
v/s Ratio Perm	0.02		c0.09				0.37		0.14	0.11		0.01
v/c Ratio	0.11	0.27	0.64	0.82	0.30		0.84	0.61	0.27	0.27	1.11	0.02
Uniform Delay, d1	48.3	51.3	54.4	57.8	40.8		42.1	21.5	16.9	20.7	39.4	23.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.3	6.5	15.5	0.5		18.6	1.1	0.9	1.0	58.3	0.1
Delay (s)	48.7	51.6	60.8	73.3	41.3		60.8	22.6	17.7	21.8	97.7	23.3
Level of Service	D	D	E	E	D		E	C	B	C	F	C
Approach Delay (s)		57.6			63.8			26.2			95.7	
Approach LOS		E			E			C			F	

Intersection Summary			
HCM 2000 Control Delay	63.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	21.1
Intersection Capacity Utilization	87.1%	ICU Level of Service	E
Analysis Period (min)	15		

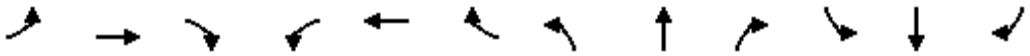
c Critical Lane Group

Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	0	1255	2962	117	0	4
Future Volume (Veh/h)	0	1255	2962	117	0	4
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1364	3220	127	0	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		152	150			
pX, platoon unblocked	0.61				0.67	0.61
vC, conflicting volume	3347				3738	1137
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2618				2155	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	99
cM capacity (veh/h)	99				28	664

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	NE 1
Volume Total	455	455	455	1288	1288	771	4
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	127	4
cSH	1700	1700	1700	1700	1700	1700	664
Volume to Capacity	0.27	0.27	0.27	0.76	0.76	0.45	0.01
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	10.5
Lane LOS							B
Approach Delay (s)	0.0			0.0			10.5
Approach LOS							B

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		

Intersection Sign configuration not allowed in HCM analysis.

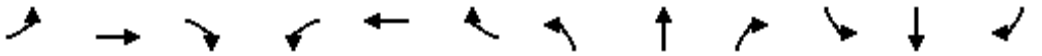


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	400	1599	103	77	1401	450	205	874	197	357	236	321
v/c Ratio	1.00	0.83	0.17	0.50	0.95	0.66	0.94	0.97	0.43	0.94	0.32	0.67
Control Delay	102.8	40.6	4.2	69.9	53.3	24.8	106.0	73.7	14.5	93.5	44.1	22.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	102.8	40.6	4.2	69.9	53.3	24.8	106.0	73.7	14.5	93.5	44.1	22.8
Queue Length 50th (m)	55.7	142.6	0.0	9.1	145.4	87.9	55.0	122.1	9.7	49.4	27.5	25.0
Queue Length 95th (m)	#89.0	163.4	9.3	m15.5	#168.7	121.1	#102.6	#164.1	31.3	#78.9	39.6	59.4
Internal Link Dist (m)		358.4			1114.0			261.4			215.3	
Turn Bay Length (m)	66.0		102.0	97.0		200.0	85.0		106.0	117.0		130.0
Base Capacity (vph)	401	1924	622	155	1474	684	217	898	459	378	737	481
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.00	0.83	0.17	0.50	0.95	0.66	0.94	0.97	0.43	0.94	0.32	0.67

Intersection Summary

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	368	1471	95	71	1289	414	189	804	181	328	217	295
Future Volume (vph)	368	1471	95	71	1289	414	189	804	181	328	217	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.6	6.6	5.0	6.6	6.6	5.0	7.1	7.1	5.0	7.1	7.1
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.96	1.00	1.00	0.93	1.00	1.00	0.94
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3190	4641	1340	2623	4483	1503	1630	3476	1349	3404	3120	1341
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3190	4641	1340	2623	4483	1503	1630	3476	1349	3404	3120	1341
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)	400	1599	103	77	1401	450	205	874	197	357	236	321
RTOR Reduction (vph)	0	0	61	0	0	191	0	0	111	0	0	164
Lane Group Flow (vph)	400	1599	42	77	1401	259	205	874	86	357	236	157
Confl. Peds. (#/hr)	25		29	29		25	38		46	46		38
Heavy Vehicles (%)	11%	13%	16%	35%	17%	4%	12%	5%	12%	4%	17%	14%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	17.0	55.0	55.0	6.4	44.4	44.4	18.0	34.9	34.9	15.0	31.9	31.9
Effective Green, g (s)	17.0	55.0	55.0	6.4	44.4	44.4	18.0	34.9	34.9	15.0	31.9	31.9
Actuated g/C Ratio	0.13	0.41	0.41	0.05	0.33	0.33	0.13	0.26	0.26	0.11	0.24	0.24
Clearance Time (s)	5.0	6.6	6.6	5.0	6.6	6.6	5.0	7.1	7.1	5.0	7.1	7.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	401	1890	545	124	1474	494	217	898	348	378	737	316
v/s Ratio Prot	c0.13	0.34		0.03	c0.31		c0.13	c0.25		0.10	0.08	
v/s Ratio Perm			0.03			0.17			0.06			0.12
v/c Ratio	1.00	0.85	0.08	0.62	0.95	0.53	0.94	0.97	0.25	0.94	0.32	0.50
Uniform Delay, d1	59.0	36.2	24.5	63.1	44.2	36.7	58.0	49.6	39.6	59.6	42.6	44.6
Progression Factor	1.00	1.00	1.00	0.98	0.92	1.51	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	44.0	4.9	0.3	7.7	12.4	3.3	45.4	23.5	0.4	32.1	0.3	1.2
Delay (s)	102.9	41.1	24.7	69.6	53.1	58.7	103.4	73.1	40.0	91.6	42.8	45.8
Level of Service	F	D	C	E	D	E	F	E	D	F	D	D
Approach Delay (s)		52.0			55.1			72.9			63.0	
Approach LOS		D			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	58.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	23.7
Intersection Capacity Utilization	90.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR
Lane Group Flow (vph)	52	1987	13	1754	80	60	61	13	8	105
v/c Ratio	0.51	0.73	0.19	0.64	0.08	0.13	0.12	0.03	0.02	0.21
Control Delay	20.0	9.9	13.5	10.7	2.1	36.3	34.2	0.6	34.4	24.9
Queue Delay	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.0	9.9	13.5	10.9	2.1	36.3	34.2	0.6	34.4	24.9
Queue Length 50th (m)	2.8	38.4	0.9	43.4	0.7	12.4	12.2	0.0	1.5	13.7
Queue Length 95th (m)	m3.6	m44.4	m1.1	m49.8	m0.9	24.3	23.6	0.8	5.6	28.6
Internal Link Dist (m)		1114.0		177.7			103.6		75.8	
Turn Bay Length (m)	56.0		50.0		60.0	36.0	36.0			
Base Capacity (vph)	102	2736	69	2760	978	466	500	421	519	490
Starvation Cap Reductn	0	0	0	340	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.73	0.19	0.72	0.08	0.13	0.12	0.03	0.02	0.21

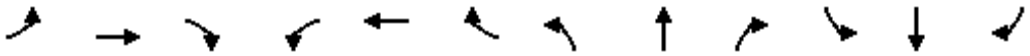
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR	NWR2
Lane Configurations												
Traffic Volume (vph)	48	1825	3	12	1614	74	111	0	12	7	0	97
Future Volume (vph)	48	1825	3	12	1614	74	111	0	12	7	0	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.4	7.4		7.4	7.4	7.4	7.4	4.5	7.4	7.4	7.4	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	0.95	0.95	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	
Satd. Flow (prot)	1824	4560		1789	4601	1581	1605	1605	1362	1789	1601	
Flt Permitted	0.09	1.00		0.06	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	171	4560		116	4601	1581	1605	1690	1362	1789	1601	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	52	1984	3	13	1754	80	121	0	13	8	0	105
RTOR Reduction (vph)	0	0	0	0	0	30	0	0	9	0	26	0
Lane Group Flow (vph)	52	1987	0	13	1754	50	60	61	4	8	79	0
Confl. Peds. (#/hr)	4					4			2			
Heavy Vehicles (%)	0%	15%	2%	2%	14%	0%	8%	2%	18%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Prot	Prot	Perm	Prot	Perm	
Protected Phases		2			6		8!	4!		8!		
Permitted Phases	2			6		6			8		8!	
Actuated Green, G (s)	81.0	81.0		81.0	81.0	81.0	39.2	42.1	39.2	39.2	39.2	
Effective Green, g (s)	81.0	81.0		81.0	81.0	81.0	39.2	42.1	39.2	39.2	39.2	
Actuated g/C Ratio	0.60	0.60		0.60	0.60	0.60	0.29	0.31	0.29	0.29	0.29	
Clearance Time (s)	7.4	7.4		7.4	7.4	7.4	7.4	4.5	7.4	7.4	7.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	102	2736		69	2760	948	466	527	395	519	464	
v/s Ratio Prot		c0.44			0.38		0.04	0.03		0.00		
v/s Ratio Perm	0.30			0.11		0.03		0.00	0.00		c0.05	
v/c Ratio	0.51	0.73		0.19	0.64	0.05	0.13	0.12	0.01	0.02	0.17	
Uniform Delay, d1	15.6	19.1		12.2	17.5	11.2	35.3	33.2	34.1	34.1	35.8	
Progression Factor	0.51	0.46		0.76	0.58	0.73	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	9.7	1.0		2.7	0.5	0.0	0.1	0.1	0.0	0.0	0.2	
Delay (s)	17.7	9.8		11.9	10.6	8.2	35.4	33.3	34.1	34.2	35.9	
Level of Service	B	A		B	B	A	D	C	C	C	D	
Approach Delay (s)		10.0			10.5			34.3		35.8		
Approach LOS		B			B			C		D		

Intersection Summary			
HCM 2000 Control Delay	11.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	14.8
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group



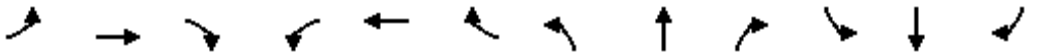
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	516	1353	355	145	1149	534	442	2124	245	426	884	329
v/c Ratio	1.40	0.85	0.51	0.79	0.92	0.94	0.99	1.17	0.42	1.18	0.63	0.62
Control Delay	245.5	36.4	9.9	95.7	53.8	46.3	95.8	117.1	7.9	159.9	57.6	33.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	245.5	36.4	9.9	95.7	53.8	46.3	95.8	117.1	7.9	159.9	57.6	33.9
Queue Length 50th (m)	~92.8	78.8	13.2	17.9	109.4	91.7	58.3	~226.2	13.9	~71.8	86.6	41.2
Queue Length 95th (m)	#128.1	116.9	29.3	#36.5	#135.9	#161.5	#95.2	#248.6	m14.4	#105.7	101.1	76.1
Internal Link Dist (m)		177.7			433.9			176.1			127.8	
Turn Bay Length (m)	175.0		160.0	208.0		160.0	135.0		114.0	200.0		126.0
Base Capacity (vph)	368	1595	694	183	1250	571	445	1808	583	360	1409	533
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.40	0.85	0.51	0.79	0.92	0.94	0.99	1.17	0.42	1.18	0.63	0.62

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

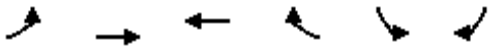
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	475	1245	327	133	1057	491	407	1954	225	392	813	303
Future Volume (vph)	475	1245	327	133	1057	491	407	1954	225	392	813	303
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.0	7.0	3.0	7.0	7.0	5.0	7.1	7.1	3.0	7.1	7.1
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	*1.00	1.00	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3106	4683	1555	2745	4561	1512	3340	5437	1432	3248	4768	1259
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3106	4683	1555	2745	4561	1512	3340	5437	1432	3248	4768	1259
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	516	1353	355	145	1149	534	442	2124	245	426	884	329
RTOR Reduction (vph)	0	0	165	0	0	157	0	0	107	0	0	161
Lane Group Flow (vph)	516	1353	190	145	1149	377	442	2124	138	426	884	168
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	14%	12%	5%	29%	15%	8%	6%	6%	14%	9%	10%	28%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	16.0	46.0	46.0	9.0	37.0	37.0	18.0	44.9	44.9	13.0	39.9	39.9
Effective Green, g (s)	16.0	46.0	46.0	9.0	37.0	37.0	18.0	44.9	44.9	15.0	39.9	39.9
Actuated g/C Ratio	0.12	0.34	0.34	0.07	0.27	0.27	0.13	0.33	0.33	0.11	0.30	0.30
Clearance Time (s)	5.0	7.0	7.0	3.0	7.0	7.0	5.0	7.1	7.1	5.0	7.1	7.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	368	1595	529	183	1250	414	445	1808	476	360	1409	372
v/s Ratio Prot	c0.17	0.29		0.05	c0.25		0.13	c0.39		c0.13	0.19	
v/s Ratio Perm			0.12			0.25			0.10			0.13
v/c Ratio	1.40	0.85	0.36	0.79	0.92	0.91	0.99	1.17	0.29	1.18	0.63	0.45
Uniform Delay, d1	59.5	41.3	33.4	62.1	47.5	47.4	58.4	45.0	33.3	60.0	41.1	38.6
Progression Factor	1.33	0.77	0.77	1.13	0.89	0.81	1.08	0.81	0.52	1.07	1.34	2.29
Incremental Delay, d2	192.8	4.4	1.4	18.3	11.0	24.3	33.4	83.0	1.1	106.5	2.0	3.8
Delay (s)	272.2	36.1	27.1	88.7	53.5	62.7	96.4	119.7	18.4	170.7	57.2	92.3
Level of Service	F	D	C	F	D	E	F	F	B	F	E	F
Approach Delay (s)		89.5			59.0			107.2			93.8	
Approach LOS		F			E			F			F	

Intersection Summary			
HCM 2000 Control Delay	89.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	24.1
Intersection Capacity Utilization	102.2%	ICU Level of Service	G
Analysis Period (min)	15		

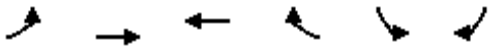
c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	46	2145	1967	34	73	34
v/c Ratio	0.21	0.53	0.52	0.03	0.33	0.29
Control Delay	4.0	4.0	5.9	1.3	41.1	24.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.0	4.0	5.9	1.3	41.1	24.9
Queue Length 50th (m)	2.1	58.4	64.2	0.0	5.6	0.0
Queue Length 95th (m)	m3.1	m58.6	79.5	2.5	13.4	11.9
Internal Link Dist (m)		433.9	330.4		103.8	
Turn Bay Length (m)	183.0			77.0		
Base Capacity (vph)	220	4069	3818	1147	713	335
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.53	0.52	0.03	0.10	0.10

Intersection Summary

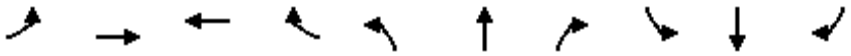
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	42	1973	1810	31	39	60
Future Volume (vph)	42	1973	1810	31	39	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.6	6.6	6.6	7.0	7.0
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.94	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.97	1.00
Satd. Flow (prot)	1825	4683	4683	1399	3103	1389
Flt Permitted	0.08	1.00	1.00	1.00	0.97	1.00
Satd. Flow (perm)	162	4683	4683	1399	3103	1389
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	46	2145	1967	34	42	65
RTOR Reduction (vph)	0	0	0	7	29	32
Lane Group Flow (vph)	46	2145	1967	27	44	2
Confl. Peds. (#/hr)	1			1		
Heavy Vehicles (%)	0%	12%	12%	14%	11%	7%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		8	
Permitted Phases	2			6		8
Actuated Green, G (s)	114.6	114.6	106.8	106.8	6.8	6.8
Effective Green, g (s)	114.6	114.6	106.8	106.8	6.8	6.8
Actuated g/C Ratio	0.85	0.85	0.79	0.79	0.05	0.05
Clearance Time (s)	3.0	6.6	6.6	6.6	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	196	3975	3704	1106	156	69
v/s Ratio Prot	0.01	c0.46	0.42		c0.01	
v/s Ratio Perm	0.19			0.02		0.00
v/c Ratio	0.23	0.54	0.53	0.02	0.28	0.02
Uniform Delay, d1	2.7	2.8	5.1	3.0	61.7	60.9
Progression Factor	2.01	1.29	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.3	0.5	0.0	1.0	0.1
Delay (s)	5.8	4.0	5.6	3.0	62.7	61.1
Level of Service	A	A	A	A	E	E
Approach Delay (s)		4.0	5.6		62.2	
Approach LOS		A	A		E	

Intersection Summary			
HCM 2000 Control Delay	6.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	77	41	33	93	33	2670	25	50	1559	74
v/c Ratio	0.59	0.27	0.30	0.47	0.14	0.75	0.03	0.44	0.45	0.07
Control Delay	75.6	21.5	61.5	26.1	4.1	13.5	0.1	29.0	5.4	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.6	21.5	61.5	26.1	4.1	13.5	0.1	29.0	5.4	1.4
Queue Length 50th (m)	20.0	0.8	8.3	5.7	1.3	141.5	0.0	5.8	33.9	0.1
Queue Length 95th (m)	35.4	11.6	18.4	22.0	3.9	201.7	0.0	m13.8	57.7	m1.7
Internal Link Dist (m)		200.3	281.8			533.0			225.8	
Turn Bay Length (m)					86.0		230.0	192.0		115.0
Base Capacity (vph)	378	374	322	446	237	3574	804	114	3496	1007
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.11	0.10	0.21	0.14	0.75	0.03	0.44	0.45	0.07

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	3	35	30	0	86	30	2456	23	46	1434	68
Future Volume (vph)	71	3	35	30	0	86	30	2456	23	46	1434	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5			7.5	7.5	3.0	6.7	6.7	3.0	6.7	6.7
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	0.98			1.00	1.00	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00			0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.86			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00			0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1690	1203			1451	1372	1508	4856	1071	1404	4641	1313
Flt Permitted	0.74	1.00			0.73	1.00	0.14	1.00	1.00	0.04	1.00	1.00
Satd. Flow (perm)	1309	1203			1116	1372	223	4856	1071	59	4641	1313
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)	77	3	38	33	0	93	33	2670	25	50	1559	74
RTOR Reduction (vph)	0	34	0	0	0	63	0	0	7	0	0	19
Lane Group Flow (vph)	77	7	0	0	33	30	33	2670	18	50	1559	55
Confl. Peds. (#/hr)			6	6			4		5	5		4
Heavy Vehicles (%)	8%	100%	30%	25%	0%	19%	21%	8%	48%	30%	13%	21%
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4	6		6	2		2
Actuated Green, G (s)	13.4	13.4			13.4	13.4	102.6	98.8	98.8	106.2	100.6	100.6
Effective Green, g (s)	13.4	13.4			13.4	13.4	102.6	98.8	98.8	106.2	100.6	100.6
Actuated g/C Ratio	0.10	0.10			0.10	0.10	0.76	0.73	0.73	0.79	0.75	0.75
Clearance Time (s)	7.5	7.5			7.5	7.5	3.0	6.7	6.7	3.0	6.7	6.7
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	129	119			110	136	205	3553	783	102	3458	978
v/s Ratio Prot		0.01					0.00	c0.55		c0.02	0.34	
v/s Ratio Perm	c0.06				0.03	0.02	0.12		0.02	0.37		0.04
v/c Ratio	0.60	0.06			0.30	0.22	0.16	0.75	0.02	0.49	0.45	0.06
Uniform Delay, d1	58.2	55.1			56.4	56.0	4.2	10.8	4.9	14.6	6.6	4.6
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.26	0.71	0.86
Incremental Delay, d2	7.2	0.2			1.5	0.8	0.4	1.5	0.1	3.2	0.4	0.1
Delay (s)	65.4	55.3			58.0	56.8	4.6	12.3	5.0	21.7	5.1	4.0
Level of Service	E	E			E	E	A	B	A	C	A	A
Approach Delay (s)		61.9			57.1			12.1			5.5	
Approach LOS		E			E			B			A	

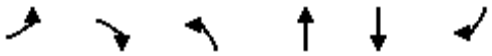
Intersection Summary			
HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	17.2
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	363	79	2996	1376
v/c Ratio	0.79	0.28	0.83	0.40
Control Delay	66.9	12.5	9.1	3.6
Queue Delay	0.0	0.0	0.9	0.0
Total Delay	66.9	12.5	10.0	3.6
Queue Length 50th (m)	48.0	0.0	43.1	19.2
Queue Length 95th (m)	63.9	15.4	m36.9	35.4
Internal Link Dist (m)	491.5		125.8	378.4
Turn Bay Length (m)		205.0		
Base Capacity (vph)	531	308	3620	3459
Starvation Cap Reductn	0	0	323	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.68	0.26	0.91	0.40

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	326	81	0	2756	1266	0
Future Volume (vph)	326	81	0	2756	1266	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6		6.6	6.6	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	2933	1351		4856	4641	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	2933	1351		4856	4641	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	354	88	0	2996	1376	0
RTOR Reduction (vph)	2	67	0	0	0	0
Lane Group Flow (vph)	361	12	0	2996	1376	0
Heavy Vehicles (%)	21%	10%	0%	8%	13%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	21.2	21.2		100.6	100.6	
Effective Green, g (s)	21.2	21.2		100.6	100.6	
Actuated g/C Ratio	0.16	0.16		0.75	0.75	
Clearance Time (s)	6.6	6.6		6.6	6.6	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	460	212		3618	3458	
v/s Ratio Prot	c0.12			c0.62	0.30	
v/s Ratio Perm		0.01				
v/c Ratio	0.79	0.06		0.83	0.40	
Uniform Delay, d1	54.7	48.4		11.4	6.2	
Progression Factor	1.00	1.00		0.73	0.50	
Incremental Delay, d2	8.6	0.1		0.2	0.3	
Delay (s)	63.3	48.5		8.5	3.4	
Level of Service	E	D		A	A	
Approach Delay (s)	60.7			8.5	3.4	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	11.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	251	186	2976	1649
v/c Ratio	0.52	0.82	0.82	0.48
Control Delay	54.8	80.1	9.4	19.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	54.8	80.1	9.4	19.9
Queue Length 50th (m)	31.2	51.8	47.2	113.6
Queue Length 95th (m)	43.7	#80.1	288.6	m125.4
Internal Link Dist (m)	372.3		378.4	362.1
Turn Bay Length (m)		220.0		
Base Capacity (vph)	573	271	3612	3453
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	0.69	0.82	0.48

Intersection Summary

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

m Volume for 95th percentile queue is metered by upstream signal.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	59	343	2738	0	0	1517
Future Volume (vph)	59	343	2738	0	0	1517
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	6.6	6.6			6.6
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.89	0.85	1.00			1.00
Flt Protected	0.99	1.00	1.00			1.00
Satd. Flow (prot)	3039	1429	4856			4641
Flt Permitted	0.99	1.00	1.00			1.00
Satd. Flow (perm)	3039	1429	4856			4641
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	64	373	2976	0	0	1649
RTOR Reduction (vph)	3	3	0	0	0	0
Lane Group Flow (vph)	248	183	2976	0	0	1649
Heavy Vehicles (%)	18%	4%	8%	0%	0%	13%
Turn Type	Prot	Perm	NA			NA
Protected Phases	4		2			6
Permitted Phases		4				
Actuated Green, G (s)	21.4	21.4	100.4			100.4
Effective Green, g (s)	21.4	21.4	100.4			100.4
Actuated g/C Ratio	0.16	0.16	0.74			0.74
Clearance Time (s)	6.6	6.6	6.6			6.6
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	481	226	3611			3451
v/s Ratio Prot	0.08		c0.61			0.36
v/s Ratio Perm		c0.13				
v/c Ratio	0.52	0.81	0.82			0.48
Uniform Delay, d1	52.1	54.9	11.5			6.9
Progression Factor	1.00	1.00	0.65			2.69
Incremental Delay, d2	0.9	19.4	1.3			0.2
Delay (s)	53.0	74.3	8.7			18.8
Level of Service	D	E	A			B
Approach Delay (s)	62.1		8.7			18.8
Approach LOS	E		A			B

Intersection Summary			
HCM 2000 Control Delay	16.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

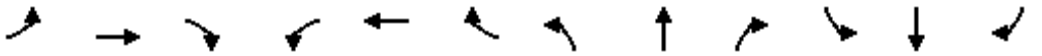
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	76	88	391	334	141	92	3267	210	34	1516	11
v/c Ratio	0.39	0.23	1.20	0.88	0.42	0.76	1.35	0.32	0.26	0.75	0.02
Control Delay	63.9	57.5	146.5	72.9	42.8	45.7	191.5	12.7	22.0	36.9	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.9	57.5	146.5	72.9	42.8	45.7	191.5	12.7	22.0	36.9	0.0
Queue Length 50th (m)	19.4	11.0	~93.5	84.0	28.9	14.2	~395.0	24.4	4.5	125.0	0.0
Queue Length 95th (m)	36.4	19.6	#161.6	#125.0	48.0	m16.5	#418.5	m29.6	10.3	143.1	0.0
Internal Link Dist (m)		247.6			157.3		362.1			334.5	
Turn Bay Length (m)	60.0		60.0	57.0		88.0		91.0	120.0		25.0
Base Capacity (vph)	193	382	325	428	377	121	2422	657	132	2011	658
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.23	1.20	0.78	0.37	0.76	1.35	0.32	0.26	0.75	0.02

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	81	360	307	105	25	85	3006	193	31	1395	10
Future Volume (vph)	70	81	360	307	105	25	85	3006	193	31	1395	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0		3.0	6.6	6.6	3.0	6.6	6.6
Lane Util. Factor	1.00	*1.00	1.00	1.00	1.00		1.00	*1.00	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1587	3149	1540	1521	1320		1547	5542	1360	1706	4902	1442
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.07	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	1587	3149	1540	1521	1320		119	5542	1360	130	4902	1442
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)	76	88	391	334	114	27	92	3267	210	34	1516	11
RTOR Reduction (vph)	0	0	139	0	7	0	0	0	65	0	0	6
Lane Group Flow (vph)	76	88	252	334	134	0	92	3267	145	34	1516	5
Confl. Peds. (#/hr)	2		3	3		2	6		4	4		6
Heavy Vehicles (%)	15%	22%	4%	20%	41%	41%	18%	4%	18%	7%	7%	11%
Turn Type	Split	NA	Perm	Split	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	8	8		4	4		1	6		5	2	
Permitted Phases			8				6		6	2		2
Actuated Green, G (s)	16.4	16.4	16.4	33.6	33.6		63.8	57.8	57.8	59.0	55.4	55.4
Effective Green, g (s)	16.4	16.4	16.4	33.6	33.6		63.8	57.8	57.8	59.0	55.4	55.4
Actuated g/C Ratio	0.12	0.12	0.12	0.25	0.25		0.47	0.43	0.43	0.44	0.41	0.41
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0		3.0	6.6	6.6	3.0	6.6	6.6
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	192	382	187	378	328		119	2372	582	98	2011	591
v/s Ratio Prot	0.05	0.03		c0.22	0.10		c0.03	c0.59		0.01	0.31	
v/s Ratio Perm			c0.16				0.33		0.11	0.14		0.00
v/c Ratio	0.40	0.23	1.35	0.88	0.41		0.77	1.38	0.25	0.35	0.75	0.01
Uniform Delay, d1	54.7	53.6	59.3	48.8	42.4		25.6	38.6	24.7	31.8	34.0	23.5
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.91	1.01	0.99	1.00	1.00	1.00
Incremental Delay, d2	1.3	0.3	188.0	20.9	0.8		18.1	171.6	0.7	2.1	2.7	0.0
Delay (s)	56.1	53.9	247.3	69.7	43.2		41.5	210.7	25.2	33.9	36.7	23.6
Level of Service	E	D	F	E	D		D	F	C	C	D	C
Approach Delay (s)		190.4			61.8			195.5			36.5	
Approach LOS		F			E			F			D	

Intersection Summary			
HCM 2000 Control Delay	144.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	23.6
Intersection Capacity Utilization	106.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	0	3114	1540	32	0	11
Future Volume (Veh/h)	0	3114	1540	32	0	11
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	3385	1674	35	0	12
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		152	150			
pX, platoon unblocked	0.90				0.72	0.90
vC, conflicting volume	1709				2820	576
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1393				1220	131
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	99
cM capacity (veh/h)	438				124	804

Direction, Lane #	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	NE 1
Volume Total	1128	1128	1128	670	670	370	12
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	35	12
cSH	1700	1700	1700	1700	1700	1700	804
Volume to Capacity	0.66	0.66	0.66	0.39	0.39	0.22	0.01
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	9.5
Lane LOS							A
Approach Delay (s)	0.0			0.0			9.5
Approach LOS							A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		

Intersection Sign configuration not allowed in HCM analysis.

Appendix G – Turning Movement Counts

Spectrum

Turning Movement Count
Location Name: AIRPORT RD & STEELES AVE
Date: Wed, Apr 19, 2017 Deployment Lead: Chris Koukaras

Peel Region
10 Peel Centre Drive
Suite B - 4th Floor
Brampton ON, Canada, L6T 4B9

Turning Movement Count (5 . AIRPORT RD & STEELES AVE) CustID: 00706974 MioID: 403148

Start Time	Southbound AIRPORT RD						Westbound STEELES AVE						Northbound AIRPORT RD						Eastbound STEELES AVE						Int. Total (15 min)	Int. Total (1 hr)
	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total		
07:00:00	99	440	80	0	7	619	42	207	66	0	8	315	44	136	22	0	13	202	44	253	72	0	25	369	1505	
07:15:00	140	419	70	0	5	629	30	205	68	0	6	303	44	173	22	1	17	240	33	328	88	0	38	449	1621	
07:30:00	106	432	88	0	5	626	46	235	58	0	5	339	40	136	28	0	35	204	54	315	103	0	19	472	1641	
07:45:00	126	456	84	0	2	666	50	201	84	0	0	335	76	182	20	0	14	278	67	273	117	0	21	457	1736	6503
08:00:00	123	417	79	0	0	619	29	254	56	0	2	339	73	127	18	0	13	218	34	324	127	0	3	485	1661	6659
08:15:00	91	403	84	0	0	578	39	239	64	0	2	342	64	167	24	0	23	255	52	269	98	0	22	419	1594	6632
08:30:00	119	400	94	0	2	613	36	214	72	0	3	322	61	149	19	0	9	229	43	275	90	0	10	408	1572	6563
08:45:00	103	290	58	1	5	452	32	251	69	0	7	352	67	155	25	0	19	247	62	259	96	0	14	417	1468	6295
BREAK																										
11:00:00	53	164	73	0	0	290	29	136	54	0	0	219	37	147	31	0	15	215	50	187	52	0	10	289	1013	
11:15:00	65	166	65	1	0	297	41	201	56	0	1	298	57	141	32	0	10	230	43	213	69	0	6	325	1150	
11:30:00	67	202	72	0	0	341	38	151	61	0	0	250	58	155	36	0	13	249	40	207	62	0	7	309	1149	
11:45:00	46	182	63	0	0	291	31	196	62	1	0	290	53	156	42	0	11	251	67	230	56	0	9	353	1185	4497
12:00:00	59	156	74	0	0	289	51	150	59	0	0	260	64	195	34	0	9	293	50	163	57	0	5	270	1112	4596
12:15:00	51	166	60	0	1	277	38	162	57	1	1	258	61	185	44	0	14	290	59	201	70	0	13	330	1155	4601
12:30:00	54	180	75	0	4	309	37	215	70	0	1	322	53	190	33	0	11	276	51	191	73	0	12	315	1222	4674
12:45:00	44	180	75	0	0	299	32	178	62	0	0	272	70	210	31	0	17	311	50	227	69	0	8	346	1228	4717
13:00:00	42	182	64	0	0	288	38	230	78	0	0	346	46	166	27	0	11	239	46	223	70	0	6	339	1212	4817
13:15:00	63	179	78	0	2	320	24	192	64	1	1	281	61	212	31	0	9	304	58	191	64	0	18	313	1218	4880
13:30:00	51	161	77	0	3	289	28	214	91	0	6	333	42	179	39	0	14	260	54	257	64	0	6	375	1257	4915
13:45:00	61	166	63	0	5	290	37	207	82	1	0	327	56	223	26	0	11	305	61	217	67	0	9	345	1267	4954
BREAK																										
15:00:00	54	207	72	1	2	334	37	196	77	0	5	310	84	345	56	0	27	485	45	222	100	0	3	367	1496	
15:15:00	66	156	64	0	2	286	33	202	91	0	2	326	89	363	40	0	23	492	55	248	98	0	18	401	1505	
15:30:00	55	173	84	0	1	312	26	208	107	0	6	341	86	441	58	0	23	585	68	227	70	0	17	365	1603	
15:45:00	63	153	61	0	5	277	20	239	116	0	1	375	73	391	43	0	21	507	66	249	87	0	21	402	1561	6165
16:00:00	69	172	66	0	7	307	30	247	123	0	2	400	72	366	46	0	22	484	72	310	94	0	19	476	1667	6336
16:15:00	102	201	68	0	6	371	31	224	96	0	2	351	97	496	41	0	27	634	65	266	83	0	24	414	1770	6601
16:30:00	85	169	75	0	6	329	35	273	128	0	6	436	97	425	56	0	20	578	66	313	60	0	20	439	1782	6780
16:45:00	61	192	57	0	2	310	30	251	103	0	2	384	81	447	56	0	16	584	71	308	75	0	20	454	1732	6951
17:00:00	88	171	67	0	13	326	28	238	131	1	13	398	97	454	57	0	17	608	60	274	87	0	19	421	1753	7037
17:15:00	80	138	64	0	5	282	37	270	118	1	3	426	102	407	62	0	19	571	61	265	65	0	12	391	1670	6937

17:30:00	69	177	63	0	3	309	34	237	129	1	2	401	113	447	34	0	30	594	69	243	75	0	19	387	1691	6846
17:45:00	72	142	58	0	2	272	23	242	115	1	4	381	98	438	44	0	20	580	48	278	63	0	15	389	1622	6736
Grand Total	2427	7392	2275	3	95	12097	1092	6865	2667	8	91	10632	2216	8404	1177	1	553	11798	1764	8006	2521	0	468	12291	**46818**	-
Approach%	20.1%	61.1%	18.8%	0%		-	10.3%	64.6%	25.1%	0.1%		-	18.8%	71.2%	10%	0%		-	14.4%	65.1%	20.5%	0%		-	**-**	-
Totals %	5.2%	15.8%	4.9%	0%		25.8%	2.3%	14.7%	5.7%	0%		22.7%	4.7%	18%	2.5%	0%		25.2%	3.8%	17.1%	5.4%	0%		26.3%	**-**	-
Heavy	243	733	698	0		-	235	1178	324	0		-	176	784	257	0		-	463	1488	208	0		-	**-**	-
Heavy %	10%	9.9%	30.7%	0%		-	21.5%	17.2%	12.1%	0%		-	7.9%	9.3%	21.8%	0%		-	26.2%	18.6%	8.3%	0%		-	**-**	-
Bicycles	0	0	0	0		-	0	0	0	0		-	0	2	0	0		-	0	0	0	0		-	**-**	-
Bicycle %	0%	0%	0%	0%		-	0%	0%	0%	0%		-	0%	0%	0%	0%		-	0%	0%	0%	0%		-	**-**	-

Peak Hour: 07:15 AM - 08:15 AM Weather:

Start Time	Southbound AIRPORT RD						Westbound STEELES AVE						Northbound AIRPORT RD						Eastbound STEELES AVE						Int. Total (15 min)
	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	
07:15:00	140	419	70	0	5	629	30	205	68	0	6	303	44	173	22	1	17	240	33	328	88	0	38	449	1621
07:30:00	106	432	88	0	5	626	46	235	58	0	5	339	40	136	28	0	35	204	54	315	103	0	19	472	1641
07:45:00	126	456	84	0	2	666	50	201	84	0	0	335	76	182	20	0	14	278	67	273	117	0	21	457	1736
08:00:00	123	417	79	0	0	619	29	254	56	0	2	339	73	127	18	0	13	218	34	324	127	0	3	485	1661
Grand Total	495	1724	321	0	12	2540	155	895	266	0	13	1316	233	618	88	1	79	940	188	1240	435	0	81	1863	**6659**
Approach%	19.5%	67.9%	12.6%	0%		-	11.8%	68%	20.2%	0%		-	24.8%	65.7%	9.4%	0.1%		-	10.1%	66.6%	23.3%	0%		-	**-**
Totals %	7.4%	25.9%	4.8%	0%		38.1%	2.3%	13.4%	4%	0%		19.8%	3.5%	9.3%	1.3%	0%		14.1%	2.8%	18.6%	6.5%	0%		28%	**-**
PHF	0.88	0.95	0.91	0		0.95	0.78	0.88	0.79	0		0.97	0.77	0.85	0.79	0.25		0.85	0.7	0.95	0.86	0		0.96	**-**
Heavy	36	98	84	0		218	23	111	33	0		167	19	70	23	0		112	54	178	30	0		262	**-**
Heavy %	7.3%	5.7%	26.2%	0%		8.6%	14.8%	12.4%	12.4%	0%		12.7%	8.2%	11.3%	26.1%	0%		11.9%	28.7%	14.4%	6.9%	0%		14.1%	**-**
Lights	459	1626	237	0		2322	132	784	233	0		1149	214	548	65	1		828	134	1062	405	0		1601	**-**
Lights %	92.7%	94.3%	73.8%	0%		91.4%	85.2%	87.6%	87.6%	0%		87.3%	91.8%	88.7%	73.9%	100%		88.1%	71.3%	85.6%	93.1%	0%		85.9%	**-**
Single-Unit Trucks	11	25	21	0		57	12	36	20	0		68	6	32	8	0		46	29	67	7	0		103	**-**
Single-Unit Trucks %	2.2%	1.5%	6.5%	0%		2.2%	7.7%	4%	7.5%	0%		5.2%	2.6%	5.2%	9.1%	0%		4.9%	15.4%	5.4%	1.6%	0%		5.5%	**-**
Buses	3	28	1	0		32	0	13	1	0		14	7	16	0	0		23	0	16	6	0		22	**-**
Buses %	0.6%	1.6%	0.3%	0%		1.3%	0%	1.5%	0.4%	0%		1.1%	3%	2.6%	0%	0%		2.4%	0%	1.3%	1.4%	0%		1.2%	**-**
Articulated Trucks	22	45	62	0		129	11	62	12	0		85	6	22	15	0		43	25	95	17	0		137	**-**
Articulated Trucks %	4.4%	2.6%	19.3%	0%		5.1%	7.1%	6.9%	4.5%	0%		6.5%	2.6%	3.6%	17%	0%		4.6%	13.3%	7.7%	3.9%	0%		7.4%	**-**
Pedestrians	-	-	-	-	12	-	-	-	-	-	13	-	-	-	-	-	79	-	-	-	-	-	81	-	**-**
Pedestrians%	-	-	-	-	6.5%		-	-	-	-	7%		-	-	-	-	42.7%		-	-	-	-	43.8%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	0	-	0	0	0	0	0	-	**-**
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Peak Hour: 01:00 PM - 02:00 PM Weather:

Start Time	Southbound AIRPORT RD						Westbound STEELES AVE						Northbound AIRPORT RD						Eastbound STEELES AVE						Int. Total (15 min)
	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	
13:00:00	42	182	64	0	0	288	38	230	78	0	0	346	46	166	27	0	11	239	46	223	70	0	6	339	1212
13:15:00	63	179	78	0	2	320	24	192	64	1	1	281	61	212	31	0	9	304	58	191	64	0	18	313	1218
13:30:00	51	161	77	0	3	289	28	214	91	0	6	333	42	179	39	0	14	260	54	257	64	0	6	375	1257
13:45:00	61	166	63	0	5	290	37	207	82	1	0	327	56	223	26	0	11	305	61	217	67	0	9	345	1267
Grand Total	217	688	282	0	10	1187	127	843	315	2	7	1287	205	780	123	0	45	1108	219	888	265	0	39	1372	**4954**
Approach%	18.3%	58%	23.8%	0%		-	9.9%	65.5%	24.5%	0.2%		-	18.5%	70.4%	11.1%	0%		-	16%	64.7%	19.3%	0%		-	**-**
Totals %	4.4%	13.9%	5.7%	0%		24%	2.6%	17%	6.4%	0%		26%	4.1%	15.7%	2.5%	0%		22.4%	4.4%	17.9%	5.3%	0%		27.7%	**-**
PHF	0.86	0.95	0.9	0		0.93	0.84	0.92	0.87	0.5		0.93	0.84	0.87	0.79	0		0.91	0.9	0.86	0.95	0		0.91	**-**
Heavy	37	96	106	0		239	25	170	48	0		243	18	97	31	0		146	63	224	21	0		308	**-**
Heavy %	17.1%	14%	37.6%	0%		20.1%	19.7%	20.2%	15.2%	0%		18.9%	8.8%	12.4%	25.2%	0%		13.2%	28.8%	25.2%	7.9%	0%		22.4%	**-**
Lights	180	592	176	0		948	102	673	267	2		1044	187	683	92	0		962	156	664	244	0		1064	**-**
Lights %	82.9%	86%	62.4%	0%		79.9%	80.3%	79.8%	84.8%	100%		81.1%	91.2%	87.6%	74.8%	0%		86.8%	71.2%	74.8%	92.1%	0%		77.6%	**-**
Single-Unit Trucks	19	46	41	0		106	10	78	26	0		114	8	44	18	0		70	17	86	5	0		108	**-**
Single-Unit Trucks %	8.8%	6.7%	14.5%	0%		8.9%	7.9%	9.3%	8.3%	0%		8.9%	3.9%	5.6%	14.6%	0%		6.3%	7.8%	9.7%	1.9%	0%		7.9%	**-**
Buses	1	6	1	0		8	0	7	1	0		8	0	8	0	0		8	1	9	1	0		11	**-**
Buses %	0.5%	0.9%	0.4%	0%		0.7%	0%	0.8%	0.3%	0%		0.6%	0%	1%	0%	0%		0.7%	0.5%	1%	0.4%	0%		0.8%	**-**
Articulated Trucks	17	44	64	0		125	15	85	21	0		121	10	45	13	0		68	45	129	15	0		189	**-**
Articulated Trucks %	7.8%	6.4%	22.7%	0%		10.5%	11.8%	10.1%	6.7%	0%		9.4%	4.9%	5.8%	10.6%	0%		6.1%	20.5%	14.5%	5.7%	0%		13.8%	**-**
Pedestrians	-	-	-	-	10	-	-	-	-	-	7	-	-	-	-	-	45	-	-	-	-	-	39	-	**-**
Pedestrians%	-	-	-	-	9.9%		-	-	-	-	6.9%		-	-	-	-	44.6%		-	-	-	-	38.6%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	**-**
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Spectrum

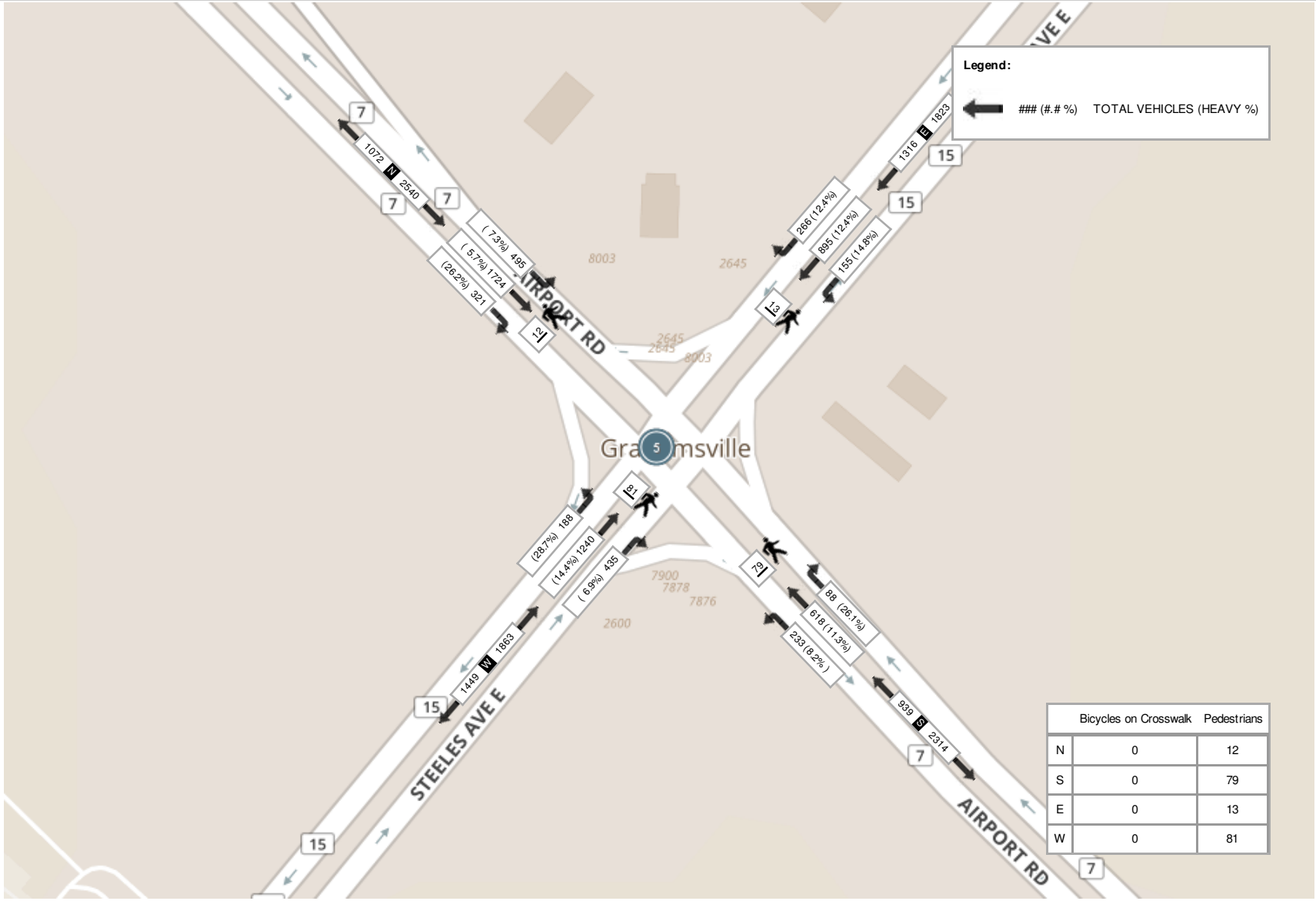
Turning Movement Count
Location Name: AIRPORT RD & STEELES AVE
Date: Wed, Apr 19, 2017 Deployment Lead: Chris Koukaras

Peel Region
10 Peel Centre Drive
Suite B - 4th Floor
Brampton ON, Canada, L6T 4B9

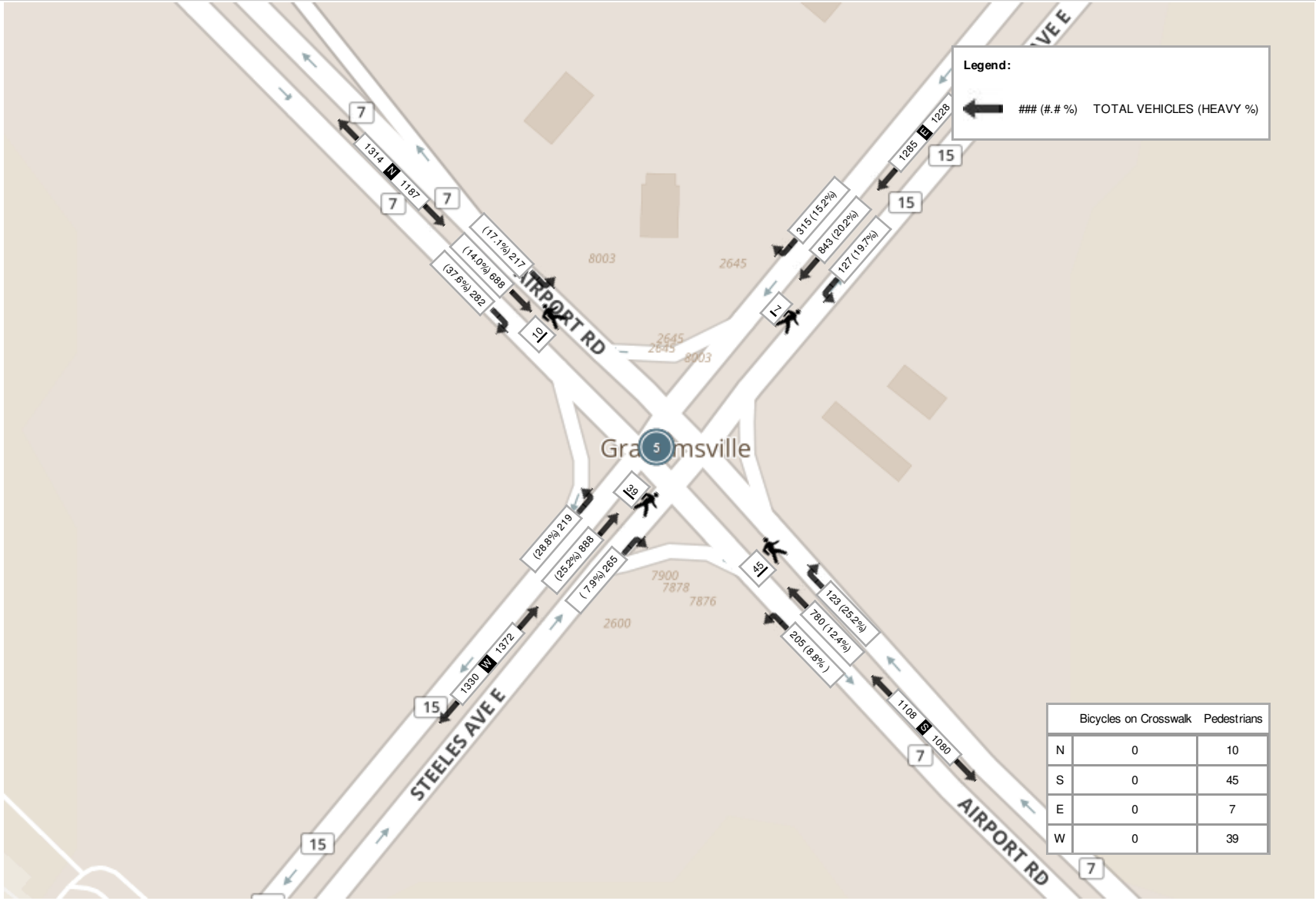
Peak Hour: 04:15 PM - 05:15 PM Weather:

Start Time	Southbound AIRPORT RD						Westbound STEELES AVE						Northbound AIRPORT RD						Eastbound STEELES AVE						Int. Total (15 min)
	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	
16:15:00	102	201	68	0	6	371	31	224	96	0	2	351	97	496	41	0	27	634	65	266	83	0	24	414	1770
16:30:00	85	169	75	0	6	329	35	273	128	0	6	436	97	425	56	0	20	578	66	313	60	0	20	439	1782
16:45:00	61	192	57	0	2	310	30	251	103	0	2	384	81	447	56	0	16	584	71	308	75	0	20	454	1732
17:00:00	88	171	67	0	13	326	28	238	131	1	13	398	97	454	57	0	17	608	60	274	87	0	19	421	1753
Grand Total	336	733	267	0	27	1336	124	986	458	1	23	1569	372	1822	210	0	80	2404	262	1161	305	0	83	1728	**7037**
Approach%	25.1%	54.9%	20%	0%		-	7.9%	62.8%	29.2%	0.1%		-	15.5%	75.8%	8.7%	0%		-	15.2%	67.2%	17.7%	0%		-	-
Totals %	4.8%	10.4%	3.8%	0%		19%	1.8%	14%	6.5%	0%		22.3%	5.3%	25.9%	3%	0%		34.2%	3.7%	16.5%	4.3%	0%		24.6%	-
PHF	0.82	0.91	0.89	0		0.9	0.89	0.9	0.87	0.25		0.9	0.96	0.92	0.92	0		0.95	0.92	0.93	0.88	0		0.95	-
Heavy	30	71	75	0		176	36	149	35	0		220	24	101	29	0		154	36	141	15	0		192	-
Heavy %	8.9%	9.7%	28.1%	0%		13.2%	29%	15.1%	7.6%	0%		14%	6.5%	5.5%	13.8%	0%		6.4%	13.7%	12.1%	4.9%	0%		11.1%	-
Lights	306	662	192	0		1160	88	837	423	1		1349	348	1721	181	0		2250	226	1020	290	0		1536	-
Lights %	91.1%	90.3%	71.9%	0%		86.8%	71%	84.9%	92.4%	100%		86%	93.5%	94.5%	86.2%	0%		93.6%	86.3%	87.9%	95.1%	0%		88.9%	-
Single-Unit Trucks	12	23	28	0		63	16	52	17	0		85	8	30	10	0		48	10	47	5	0		62	-
Single-Unit Trucks %	3.6%	3.1%	10.5%	0%		4.7%	12.9%	5.3%	3.7%	0%		5.4%	2.2%	1.6%	4.8%	0%		2%	3.8%	4%	1.6%	0%		3.6%	-
Buses	0	11	0	0		11	2	17	0	0		19	2	15	0	0		17	0	15	3	0		18	-
Buses %	0%	1.5%	0%	0%		0.8%	1.6%	1.7%	0%	0%		1.2%	0.5%	0.8%	0%	0%		0.7%	0%	1.3%	1%	0%		1%	-
Articulated Trucks	18	37	47	0		102	18	80	18	0		116	14	56	19	0		89	26	79	7	0		112	-
Articulated Trucks %	5.4%	5%	17.6%	0%		7.6%	14.5%	8.1%	3.9%	0%		7.4%	3.8%	3.1%	9%	0%		3.7%	9.9%	6.8%	2.3%	0%		6.5%	-
Pedestrians	-	-	-	-	27	-	-	-	-	-	23	-	-	-	-	-	80	-	-	-	-	-	83	-	-
Pedestrians%	-	-	-	-	12.7%		-	-	-	-	10.8%		-	-	-	-	37.6%		-	-	-	-	39%		-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	-
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-

Peak Hour: 07:15 AM - 08:15 AM Weather:

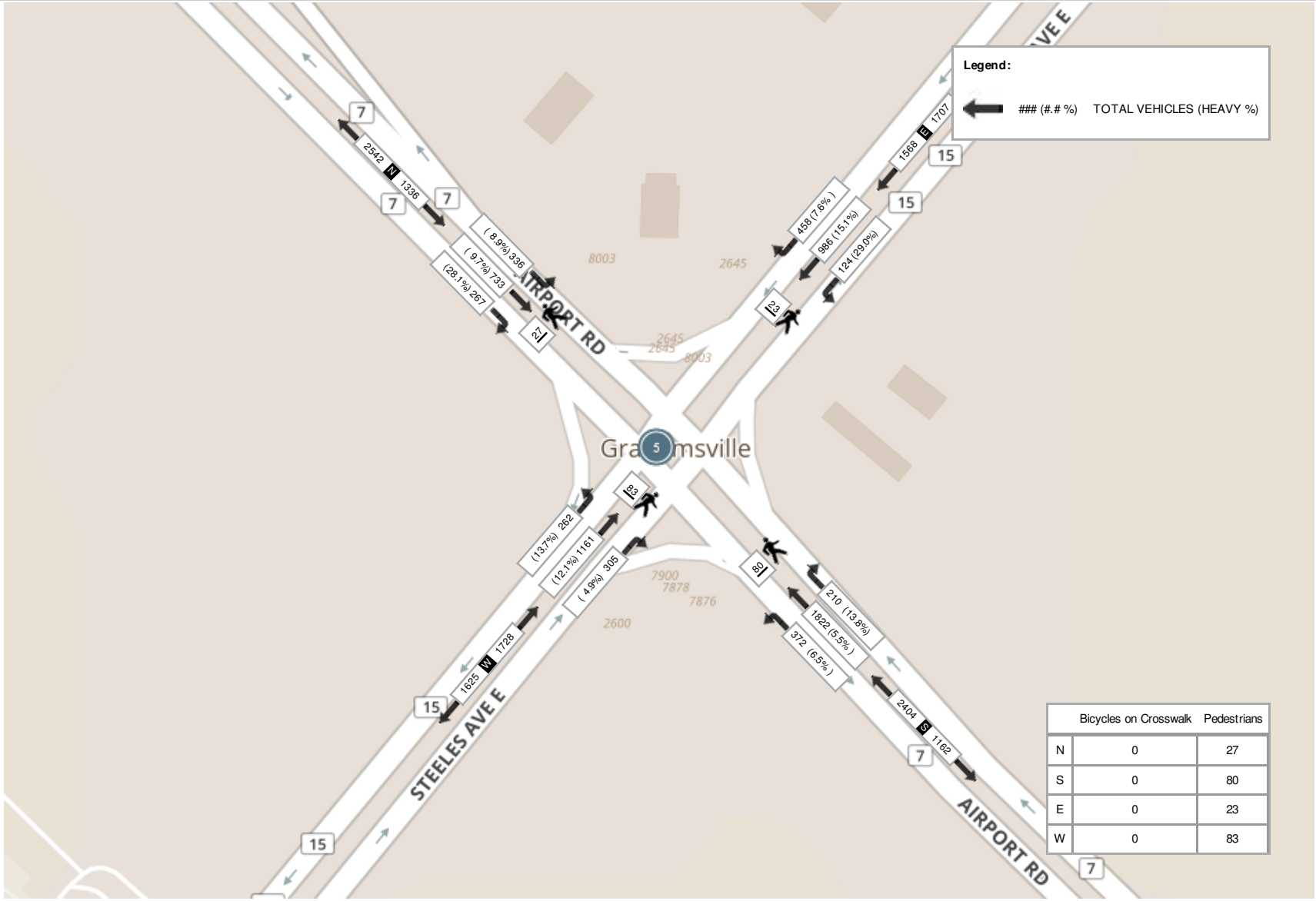


Peak Hour: 01:00 PM - 02:00 PM **Weather:**



	Bicycles on Crosswalk	Pedestrians
N	0	10
S	0	45
E	0	7
W	0	39

Peak Hour: 04:15 PM - 05:15 PM **Weather:**



MG8 ENG

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

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

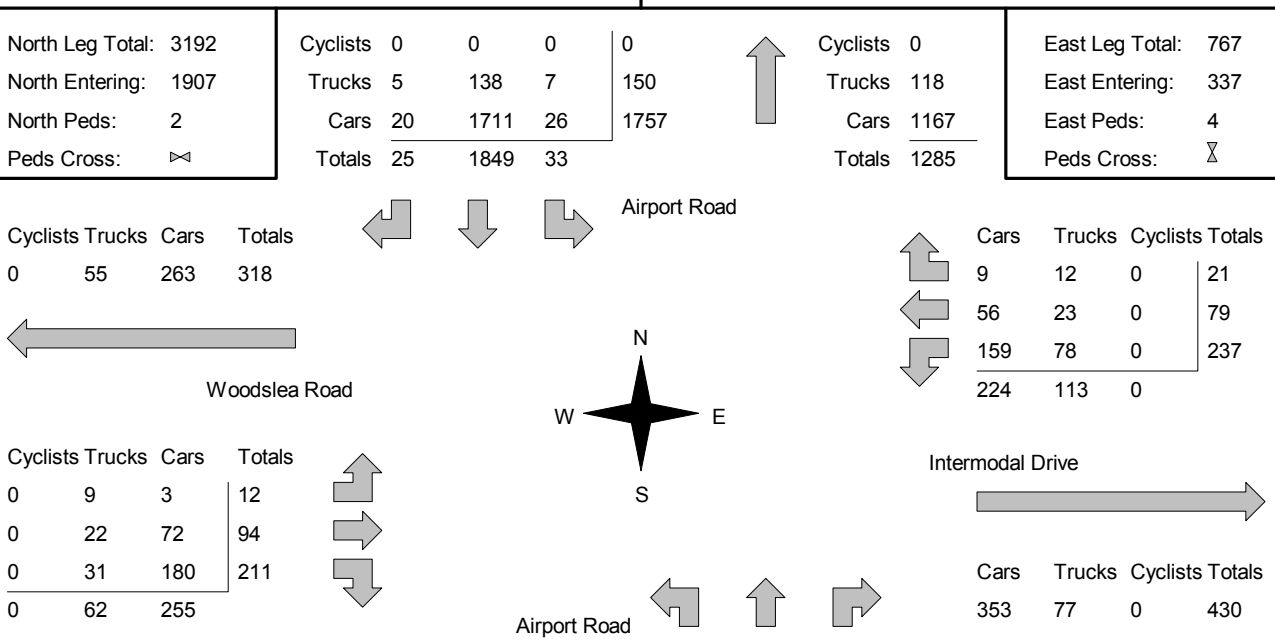
Municipality: Region of Peel
Site #: 0000708034
Intersection: Airport Road & Intermodal Drive
TFR File #: 1
Count date: 7-Feb-2013

Weather conditions:
Cold, snow

Person(s) who counted:
STEVE
NIKOLA

**** Signalized Intersection ****

Major Road: Airport Road runs N/S



Comments

MG8 ENG

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 12:45:00
To: 13:45:00

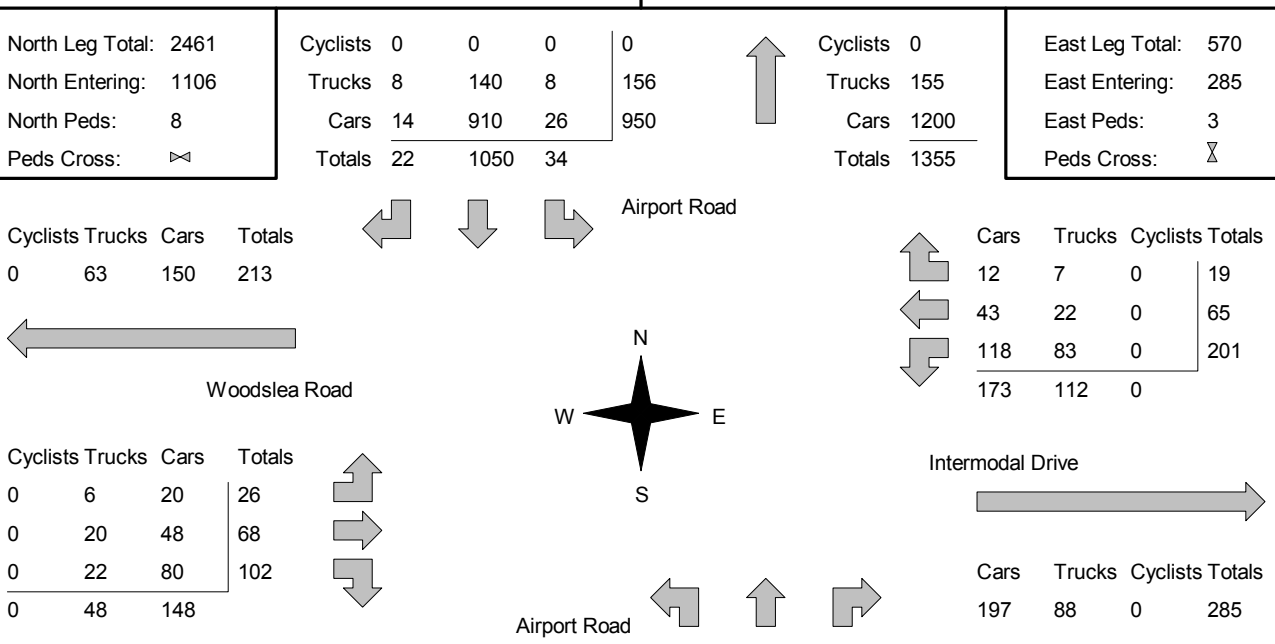
Municipality: Region of Peel
Site #: 0000708034
Intersection: Airport Road & Intermodal Drive
TFR File #: 1
Count date: 7-Feb-2013

Weather conditions:
Cold, snow

Person(s) who counted:
STEVE
NIKOLA

**** Signalized Intersection ****

Major Road: Airport Road runs N/S



Comments

MG8 ENG

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

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

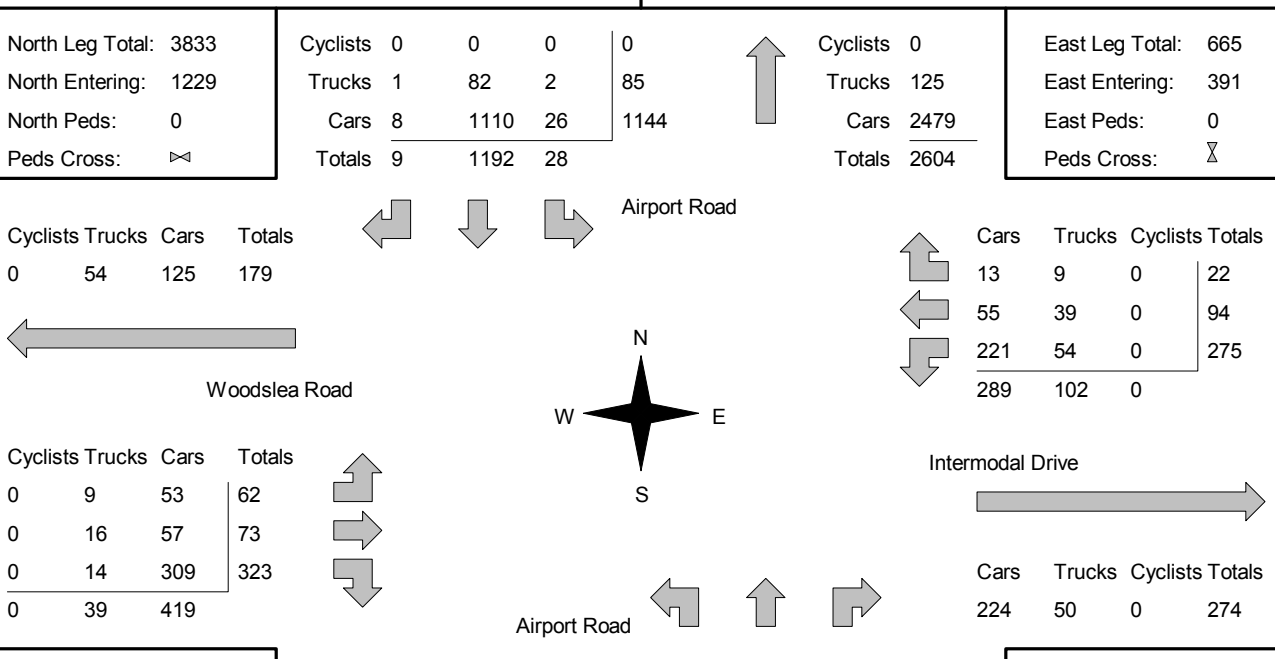
Municipality: Region of Peel
Site #: 0000708034
Intersection: Airport Road & Intermodal Drive
TFR File #: 1
Count date: 7-Feb-2013

Weather conditions:
Cold, snow

Person(s) who counted:
STEVE
NIKOLA

**** Signalized Intersection ****

Major Road: Airport Road runs N/S



Comments

MG8 ENG

Total Count Diagram

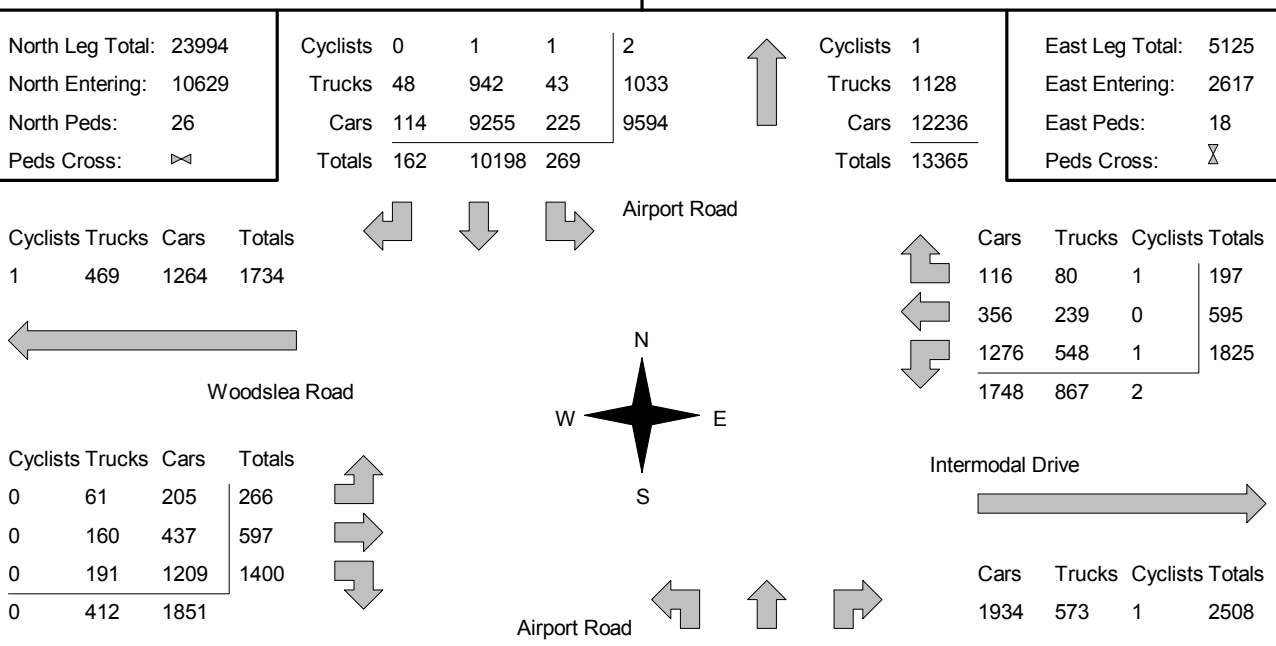
Municipality: Region of Peel
Site #: 0000708034
Intersection: Airport Road & Intermodal Drive
TFR File #: 1
Count date: 7-Feb-2013

Weather conditions:
Cold, snow

Person(s) who counted:
STEVE
NIKOLA

**** Signalized Intersection ****

Major Road: Airport Road runs N/S



Comments

MG8 ENG
Traffic Count Summary

Intersection: Airport Road & Intermodal Drive | **Count Date:** 7-Feb-2013 | **Municipality:** Region of Peel

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	29	0	29	0	29
8:00:00	39	1944	20	2003	4	3562
9:00:00	30	1872	29	1931	3	3716
11:00:00	0	55	1	56	0	56
12:00:00	46	879	27	952	0	2124
13:00:00	38	928	26	992	4	2421
14:00:00	38	1038	24	1100	7	2745
15:00:00	0	29	2	31	0	31
16:00:00	29	1145	17	1191	4	3702
17:00:00	35	1219	10	1264	4	4028
18:00:00	14	1060	6	1080	0	3736
Totals:	269	10198	162	10629	26	26150

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	184	1128	247	1559	0
9:00:00	212	1278	295	1785	4
11:00:00	0	0	0	0	0
12:00:00	93	928	151	1172	0
13:00:00	95	1146	188	1429	2
14:00:00	121	1337	187	1645	1
15:00:00	0	0	0	0	0
16:00:00	106	2196	209	2511	3
17:00:00	87	2494	183	2764	0
18:00:00	79	2395	182	2656	2
Totals:	977	12902	1642	15521	12

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	213	73	25	311	3	589
9:00:00	207	83	20	310	4	602
11:00:00	11	5	1	17	0	19
12:00:00	178	62	19	259	0	434
13:00:00	247	61	21	329	2	511
14:00:00	182	58	21	261	3	447
15:00:00	4	5	2	11	0	13
16:00:00	265	82	26	373	6	731
17:00:00	261	82	31	374	0	806
18:00:00	257	84	31	372	0	728
Totals:	1825	595	197	2617	18	4880

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Cyclists: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	18	84	176	278	8
9:00:00	14	83	195	292	5
11:00:00	1	1	0	2	0
12:00:00	21	52	102	175	1
13:00:00	24	61	97	182	5
14:00:00	29	63	94	186	7
15:00:00	0	2	0	2	0
16:00:00	51	105	202	358	1
17:00:00	57	80	295	432	7
18:00:00	51	66	239	356	2
Totals:	266	597	1400	2263	36

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	319	311	261	338	282	428	404	394

MG8 ENG

Count Date: 7-Feb-2013 Site #: 0000708034

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
7:00:00	0	0	28	28	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
7:15:00	10	10	453	425	4	4	0	0	19	18	1	1	0	0	0	0	0	0	1	1
7:30:00	15	5	1015	562	7	3	0	0	48	29	3	2	0	0	0	0	0	0	3	2
7:45:00	24	9	1555	540	14	7	3	3	69	21	4	1	0	0	0	0	0	0	4	1
8:00:00	32	8	1879	324	15	1	7	4	94	25	5	1	0	0	0	0	0	0	4	0
8:15:00	35	3	2254	375	21	6	9	2	129	35	6	1	0	0	0	0	0	0	5	1
8:30:00	42	7	2707	453	29	8	9	0	158	29	9	3	0	0	0	0	0	0	6	1
8:45:00	50	8	3266	559	34	5	10	1	207	49	9	0	0	0	0	0	0	0	6	0
9:00:00	58	8	3608	342	38	4	11	1	237	30	11	2	0	0	0	0	0	0	7	1
11:00:00	58	0	3653	45	39	1	11	0	247	10	11	0	0	0	0	0	0	0	7	0
11:15:00	65	7	3817	164	42	3	15	4	281	34	13	2	0	0	0	0	0	0	7	0
11:30:00	76	11	4002	185	46	4	17	2	321	40	14	1	0	0	0	0	0	0	7	0
11:45:00	84	8	4173	171	51	5	20	3	364	43	20	6	0	0	0	0	0	0	7	0
12:00:00	94	10	4383	210	54	3	21	1	396	32	23	3	0	0	0	0	0	0	7	0
12:15:00	107	13	4575	192	59	5	21	0	426	30	24	1	0	0	0	0	0	0	8	1
12:30:00	117	10	4785	210	61	2	22	1	460	34	28	4	0	0	1	1	0	0	9	1
12:45:00	122	5	4963	178	66	5	23	1	503	43	30	2	0	0	1	0	0	0	10	1
13:00:00	130	8	5173	210	72	6	23	0	533	30	31	1	0	0	1	0	0	0	11	1
13:15:00	138	8	5377	204	75	3	27	4	564	31	34	3	0	0	1	0	0	0	13	2
13:30:00	145	7	5617	240	79	4	30	3	600	36	37	3	0	0	1	0	0	0	18	5
13:45:00	148	3	5873	256	80	1	31	1	643	43	38	1	0	0	1	0	0	0	18	0
14:00:00	158	10	6069	196	87	7	33	2	675	32	40	2	0	0	1	0	0	0	18	0
15:00:00	158	0	6097	28	89	2	33	0	676	1	40	0	0	0	1	0	0	0	18	0
15:15:00	164	6	6362	265	89	0	34	1	709	33	41	1	0	0	1	0	0	0	19	1
15:30:00	169	5	6628	266	90	1	35	1	741	32	44	3	0	0	1	0	0	0	19	0
15:45:00	174	5	6910	282	98	8	36	1	767	26	44	0	0	0	1	0	0	0	20	1
16:00:00	181	7	7131	221	102	4	38	2	787	20	44	0	1	1	1	0	0	0	22	2
16:15:00	190	9	7428	297	105	3	40	2	806	19	46	2	1	0	1	0	0	0	26	4
16:30:00	200	10	7728	300	106	1	40	0	830	24	46	0	1	0	1	0	0	0	26	0
16:45:00	207	7	7990	262	109	3	42	2	846	16	46	0	1	0	1	0	0	0	26	0
17:00:00	212	5	8266	276	110	1	42	0	871	25	46	0	1	0	1	0	0	0	26	0
17:15:00	216	4	8538	272	113	3	42	0	888	17	47	1	1	0	1	0	0	0	26	0
17:30:00	219	3	8786	248	114	1	42	0	908	20	48	1	1	0	1	0	0	0	26	0
17:45:00	220	1	9054	268	114	0	43	1	923	15	48	0	1	0	1	0	0	0	26	0
18:00:00	225	5	9255	201	114	0	43	0	942	19	48	0	1	0	1	0	0	0	26	0

MG8 ENG

Count Date: 7-Feb-2013 Site #: 0000708034

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
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	27	27	10	10	5	5	13	13	12	12	4	4	0	0	0	0	0	0	0	0
7:30:00	50	23	21	11	5	0	33	20	20	8	7	3	0	0	0	0	0	0	2	2
7:45:00	81	31	31	10	6	1	54	21	25	5	10	3	0	0	0	0	0	0	2	0
8:00:00	133	52	44	13	9	3	80	26	29	4	16	6	0	0	0	0	0	0	3	1
8:15:00	171	38	54	10	12	3	98	18	37	8	19	3	0	0	0	0	0	0	3	0
8:30:00	220	49	72	18	12	0	111	13	43	6	20	1	0	0	0	0	0	0	6	3
8:45:00	240	20	87	15	15	3	132	21	48	5	22	2	0	0	0	0	0	0	6	0
9:00:00	269	29	99	12	19	4	151	19	57	9	26	4	0	0	0	0	0	0	7	1
11:00:00	277	8	101	2	20	1	154	3	60	3	26	0	0	0	0	0	0	0	7	0
11:15:00	310	33	111	10	27	7	174	20	66	6	30	4	0	0	0	0	0	0	7	0
11:30:00	338	28	122	11	28	1	187	13	79	13	33	3	0	0	0	0	0	0	7	0
11:45:00	364	26	130	8	29	1	206	19	83	4	34	1	0	0	0	0	0	0	7	0
12:00:00	395	31	137	7	29	0	214	8	86	3	36	2	0	0	0	0	0	0	7	0
12:15:00	436	41	145	8	31	2	233	19	90	4	38	2	0	0	0	0	0	0	8	1
12:30:00	476	40	153	8	34	3	257	24	90	0	41	3	1	1	0	0	1	1	8	0
12:45:00	512	36	161	8	38	4	279	22	101	11	42	1	1	0	0	0	1	0	9	1
13:00:00	549	37	174	13	42	4	306	27	110	9	43	1	1	0	0	0	1	0	9	0
13:15:00	569	20	187	13	46	4	323	17	118	8	45	2	1	0	0	0	1	0	10	1
13:30:00	592	23	195	8	49	3	341	18	123	5	48	3	1	0	0	0	1	0	10	0
13:45:00	630	38	204	9	50	1	362	21	123	0	49	1	1	0	0	0	1	0	12	2
14:00:00	657	27	213	9	52	2	380	18	129	6	54	5	1	0	0	0	1	0	12	0
15:00:00	661	4	213	0	53	1	380	0	134	5	55	1	1	0	0	0	1	0	12	0
15:15:00	708	47	233	20	58	5	400	20	143	9	56	1	1	0	0	0	1	0	14	2
15:30:00	740	32	243	10	60	2	421	21	153	10	58	2	1	0	0	0	1	0	15	1
15:45:00	783	43	247	4	65	5	442	21	163	10	62	4	1	0	0	0	1	0	15	0
16:00:00	849	66	257	10	70	5	457	15	172	9	64	2	1	0	0	0	1	0	18	3
16:15:00	915	66	269	12	84	14	464	7	177	5	65	1	1	0	0	0	1	0	18	0
16:30:00	972	57	286	17	89	5	477	13	181	4	67	2	1	0	0	0	1	0	18	0
16:45:00	1020	48	304	18	92	3	493	16	189	8	70	3	1	0	0	0	1	0	18	0
17:00:00	1063	43	310	6	92	0	504	11	201	12	73	3	1	0	0	0	1	0	18	0
17:15:00	1136	73	324	14	97	5	518	14	216	15	74	1	1	0	0	0	1	0	18	0
17:30:00	1201	65	338	14	101	4	531	13	229	13	79	5	1	0	0	0	1	0	18	0
17:45:00	1227	26	348	10	112	11	540	9	232	3	79	0	1	0	0	0	1	0	18	0
18:00:00	1276	49	356	8	116	4	548	8	239	7	80	1	1	0	0	0	1	0	18	0

MG8 ENG

Count Date: 7-Feb-2013 Site #: 0000708034

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
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	29	29	182	182	33	33	8	8	24	24	6	6	0	0	0	0	0	0	0	0
7:30:00	70	41	457	275	85	52	11	3	54	30	15	9	0	0	0	0	0	0	0	0
7:45:00	114	44	713	256	148	63	14	3	77	23	24	9	0	0	0	0	0	0	0	0
8:00:00	163	49	1027	314	217	69	21	7	101	24	30	6	0	0	0	0	0	0	0	0
8:15:00	214	51	1299	272	281	64	26	5	121	20	44	14	0	0	0	0	0	0	0	0
8:30:00	263	49	1580	281	346	65	35	9	145	24	60	16	0	0	0	0	0	0	2	2
8:45:00	301	38	1868	288	403	57	41	6	174	29	72	12	0	0	0	0	0	0	3	1
9:00:00	352	51	2197	329	461	58	44	3	209	35	81	9	0	0	0	0	0	0	4	1
11:00:00	352	0	2197	0	461	0	44	0	209	0	81	0	0	0	0	0	0	0	4	0
11:15:00	378	26	2363	166	486	25	54	10	243	34	85	4	0	0	0	0	0	0	4	0
11:30:00	396	18	2543	180	513	27	60	6	272	29	100	15	0	0	0	0	0	0	4	0
11:45:00	414	18	2804	261	543	30	63	3	303	31	117	17	0	0	0	0	0	0	4	0
12:00:00	422	8	3001	197	568	25	67	4	333	30	125	8	0	0	0	0	0	0	4	0
12:15:00	432	10	3230	229	605	37	73	6	367	34	136	11	0	0	0	0	0	0	5	1
12:30:00	447	15	3517	287	642	37	80	7	393	26	153	17	0	0	0	0	0	0	5	0
12:45:00	465	18	3778	261	672	30	84	4	424	31	164	11	0	0	0	0	0	0	6	1
13:00:00	492	27	4030	252	703	31	92	8	450	26	178	14	0	0	0	0	0	0	6	0
13:15:00	512	20	4304	274	728	25	99	7	489	39	196	18	0	0	0	0	0	0	7	1
13:30:00	533	21	4624	320	753	25	106	7	532	43	209	13	0	0	0	0	0	0	7	0
13:45:00	558	25	4946	322	795	42	117	11	566	34	224	15	0	0	0	0	0	0	7	0
14:00:00	583	25	5223	277	826	31	122	5	594	28	242	18	0	0	0	0	0	0	7	0
15:00:00	583	0	5223	0	826	0	122	0	594	0	242	0	0	0	0	0	0	0	7	0
15:15:00	601	18	5602	379	858	32	131	9	635	41	256	14	0	0	0	0	0	0	9	2
15:30:00	619	18	6153	551	914	56	132	1	672	37	270	14	0	0	0	0	0	0	9	0
15:45:00	646	27	6709	556	946	32	137	5	724	52	284	14	0	0	0	0	0	0	9	0
16:00:00	669	23	7259	550	981	35	142	5	754	30	296	12	0	0	0	0	0	0	10	1
16:15:00	695	26	7806	547	1022	41	148	6	800	46	305	9	0	0	0	0	0	0	10	0
16:30:00	710	15	8342	536	1061	39	153	5	829	29	314	9	0	0	0	0	0	0	10	0
16:45:00	723	13	8856	514	1089	28	157	4	857	28	321	7	0	0	0	0	0	0	10	0
17:00:00	740	17	9620	764	1131	42	158	1	887	30	329	8	0	0	0	0	0	0	10	0
17:15:00	757	17	10219	599	1163	32	162	4	907	20	337	8	0	0	0	0	0	0	10	0
17:30:00	771	14	10756	537	1204	41	170	8	936	29	345	8	1	1	0	0	0	0	10	0
17:45:00	786	15	11281	525	1243	39	175	5	955	19	356	11	1	0	0	0	0	0	10	0
18:00:00	794	8	11915	634	1272	29	182	7	987	32	370	14	1	0	0	0	0	0	12	2

MG8 ENG

Count Date: 7-Feb-2013 Site #: 0000708034

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
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	2	2	9	9	22	22	1	1	6	6	6	6	0	0	0	0	0	0	0	0
7:30:00	3	1	22	13	51	29	3	2	10	4	12	6	0	0	0	0	0	0	2	2
7:45:00	6	3	40	18	94	43	7	4	16	6	23	11	0	0	0	0	0	0	4	2
8:00:00	7	1	66	26	139	45	11	4	18	2	37	14	0	0	0	0	0	0	8	4
8:15:00	8	1	82	16	181	42	12	1	26	8	47	10	0	0	0	0	0	0	10	2
8:30:00	9	1	97	15	239	58	14	2	29	3	51	4	0	0	0	0	0	0	10	0
8:45:00	9	0	112	15	274	35	16	2	38	9	54	3	0	0	0	0	0	0	10	0
9:00:00	13	4	126	14	309	35	19	3	41	3	62	8	0	0	0	0	0	0	13	3
11:00:00	14	1	126	0	309	0	19	0	42	1	62	0	0	0	0	0	0	0	13	0
11:15:00	15	1	133	7	327	18	21	2	47	5	71	9	0	0	0	0	0	0	14	1
11:30:00	18	3	141	8	342	15	23	2	52	5	79	8	0	0	0	0	0	0	14	0
11:45:00	22	4	151	10	359	17	26	3	57	5	88	9	0	0	0	0	0	0	14	0
12:00:00	28	6	160	9	379	20	26	0	60	3	94	6	0	0	0	0	0	0	14	0
12:15:00	30	2	168	8	401	22	27	1	63	3	101	7	0	0	0	0	0	0	16	2
12:30:00	35	5	177	9	419	18	28	1	71	8	105	4	0	0	0	0	0	0	16	0
12:45:00	42	7	190	13	438	19	31	3	73	2	107	2	0	0	0	0	0	0	17	1
13:00:00	46	4	202	12	459	21	32	1	79	6	111	4	0	0	0	0	0	0	19	2
13:15:00	54	8	214	12	481	22	35	3	83	4	115	4	0	0	0	0	0	0	21	2
13:30:00	58	4	223	9	492	11	37	2	88	5	124	9	0	0	0	0	0	0	25	4
13:45:00	62	4	238	15	518	26	37	0	93	5	129	5	0	0	0	0	0	0	26	1
14:00:00	66	4	244	6	532	14	41	4	100	7	132	3	0	0	0	0	0	0	26	0
15:00:00	66	0	245	1	532	0	41	0	101	1	132	0	0	0	0	0	0	0	26	0
15:15:00	81	15	264	19	580	48	43	2	105	4	136	4	0	0	0	0	0	0	26	0
15:30:00	86	5	282	18	625	45	45	2	110	5	139	3	0	0	0	0	0	0	26	0
15:45:00	98	12	294	12	662	37	47	2	113	3	141	2	0	0	0	0	0	0	26	0
16:00:00	111	13	323	29	700	38	47	0	128	15	166	25	0	0	0	0	0	0	27	1
16:15:00	128	17	338	15	763	63	49	2	135	7	169	3	0	0	0	0	0	0	31	4
16:30:00	135	7	350	12	822	59	52	3	139	4	172	3	0	0	0	0	0	0	31	0
16:45:00	145	10	367	17	914	92	54	2	142	3	173	1	0	0	0	0	0	0	33	2
17:00:00	157	12	383	16	984	70	58	4	148	6	177	4	0	0	0	0	0	0	34	1
17:15:00	181	24	395	12	1072	88	58	0	151	3	183	6	0	0	0	0	0	0	35	1
17:30:00	187	6	413	18	1134	62	59	1	152	1	187	4	0	0	0	0	0	0	35	0
17:45:00	199	12	423	10	1183	49	59	0	159	7	191	4	0	0	0	0	0	0	36	1
18:00:00	205	6	437	14	1209	26	61	2	160	1	191	0	0	0	0	0	0	0	36	0

TMC - Intersection Count Summary

Company name: Trans Plan Inc
Company address: 200 - 14200 Yonge Street,Toronto, Ontario, Canada
Company phone: 416-931-7383

Site: 01503318
Location: Steeles Avenue East at Parkhurst Square, Brampton
N/S Street: Parkhurst Square
E/W Street: Steeles Avenue East
GPS Coordinates: 43.726135, -79.665014
Date: 18 November 2014
Day of week: Tuesday
Analyst(s): Ivana Urrutia

VEHICLE TRAFFIC

Interval	SouthBound				WestBound				NorthBound				EastBound				Total
	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	
18/11/2014 07:00	1	0	3	4	0	274	6	280	0	0	0	0	9	501	0	510	794
18/11/2014 07:15	1	0	1	2	0	389	8	397	0	0	0	0	4	370	0	374	773
18/11/2014 07:30	1	0	4	5	0	407	4	411	0	0	0	0	4	442	0	446	862
18/11/2014 07:45	0	0	2	2	0	388	4	392	0	0	0	0	9	404	0	413	807
Hourly Total	3	0	10	13	0	1458	22	1480	0	0	0	0	26	1717	0	1743	3236
18/11/2014 08:00	1	0	1	2	0	343	1	344	0	0	0	0	6	430	0	436	782
18/11/2014 08:15	1	0	1	2	0	330	3	333	0	0	0	0	7	394	0	401	736
18/11/2014 08:30	0	0	4	4	0	347	11	358	0	0	0	0	6	377	0	383	745
18/11/2014 08:45	2	0	6	8	0	331	15	346	0	0	0	0	23	396	0	419	773
Hourly Total	4	0	12	16	0	1351	30	1381	0	0	0	0	42	1597	0	1639	3036
18/11/2014 09:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
18/11/2014 09:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Grand Total	7	0	22	29	0	2809	52	2861	0	0	0	0	69	3314	0	3383	6273
Approach %	24	0	76	100	0	98	2	100	0	0	0	0	2	98	0	100	-
Total %	0	0	0	0	0	45	1	46	0	0	0	0	1	53	0	54	-

AM Peak Hour 7:00 AM - 8:00 AM

Vehicle Total	3	0	10	13	0	1458	22	1480	0	0	0	0	26	1717	0	1743	3236
Car	2	0	4	6	0	1305	16	1321	0	0	0	0	24	1512	0	1536	2863
Truck	1	0	6	7	0	153	6	159	0	0	0	0	2	205	0	207	373
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Interval	SouthBound				WestBound				NorthBound				EastBound				Total
	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	
18/11/2014 11:00	3	0	7	10	0	257	4	261	0	0	0	0	18	251	0	269	540
18/11/2014 11:15	3	0	7	10	0	211	5	216	0	0	0	0	17	324	0	341	567
18/11/2014 11:30	5	0	13	18	0	274	3	277	0	0	0	0	9	284	0	293	588
18/11/2014 11:45	1	0	11	12	0	247	5	252	0	0	0	0	14	284	0	298	562
Hourly Total	12	0	38	50	0	989	17	1006	0	0	0	0	58	1143	0	1201	2257
18/11/2014 12:00	1	0	12	13	0	279	0	279	0	0	0	0	15	272	0	287	579
18/11/2014 12:15	2	0	10	12	0	265	3	268	0	0	0	0	18	289	0	307	587
18/11/2014 12:30	4	0	5	9	0	322	5	327	0	0	0	0	6	286	0	292	628
18/11/2014 12:45	5	0	8	13	0	267	10	277	0	0	0	0	18	291	0	309	599
Hourly Total	12	0	35	47	0	1133	18	1151	0	0	0	0	57	1138	0	1195	2393
18/11/2014 13:00	4	0	9	13	0	302	4	306	0	0	0	0	11	277	0	288	607
18/11/2014 13:15	8	0	5	13	0	253	2	255	0	0	0	0	13	301	0	314	582
18/11/2014 13:30	4	0	10	14	0	285	7	292	0	0	0	0	14	323	0	337	643
18/11/2014 13:45	5	0	5	10	0	257	11	268	0	0	0	0	7	295	0	302	580
Hourly Total	21	0	29	50	0	1097	24	1121	0	0	0	0	45	1196	0	1241	2412
18/11/2014 14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	45	0	102	147	0	3219	59	3278	0	0	0	0	160	3477	0	3637	7062
Approach %	31	0	69	100	0	98	2	100	0	0	0	0	4	96	0	100	-
Total %	1	0	1	2	0	46	1	47	0	0	0	0	2	49	0	51	-

Midday Peak Hour 12:45 PM - 1:45 PM

Vehicle Total	21	0	32	53	0	1107	23	1130	0	0	0	0	56	1192	0	1248	2431
Car	13	0	28	41	0	894	19	913	0	0	0	0	47	920	0	967	1921
Truck	8	0	4	12	0	213	4	217	0	0	0	0	9	272	0	281	510
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Interval	SouthBound				WestBound				NorthBound				EastBound				Total
	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	
18/11/2014 15:00	8	0	7	15	0	307	6	313	0	0	0	0	9	378	0	387	715
18/11/2014 15:15	3	0	9	12	0	382	6	388	0	0	0	0	12	427	0	439	839
18/11/2014 15:30	4	0	8	12	0	353	5	358	0	0	0	0	11	421	0	432	802
18/11/2014 15:45	12	0	8	20	0	331	3	334	0	0	0	0	15	426	0	441	795
Hourly Total	27	0	32	59	0	1373	20	1393	0	0	0	0	47	1652	0	1699	3151
18/11/2014 16:00	6	0	10	16	0	394	6	400	0	0	0	0	15	456	0	471	887
18/11/2014 16:15	3	0	12	15	0	412	6	418	0	0	0	0	16	412	0	428	861
18/11/2014 16:30	4	0	7	11	0	401	5	406	0	0	0	0	10	446	0	456	873
18/11/2014 16:45	5	0	15	20	0	423	6	429	0	0	0	0	12	470	0	482	931
Hourly Total	18	0	44	62	0	1630	23	1653	0	0	0	0	53	1784	0	1837	3552
18/11/2014 17:00	15	0	13	28	0	381	7	388	0	0	0	0	10	423	0	433	849
18/11/2014 17:15	4	0	11	15	0	419	6	425	0	0	0	0	9	456	0	465	905
18/11/2014 17:30	11	0	15	26	0	415	9	424	0	0	0	0	7	437	0	444	894
18/11/2014 17:45	2	0	4	6	0	341	5	346	0	0	0	0	9	369	0	378	730
Hourly Total	32	0	43	75	0	1556	27	1583	0	0	0	0	35	1685	0	1720	3378
18/11/2014 18:00	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
18/11/2014 18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
Grand Total	77	0	119	196	0	4560	70	4630	0	0	0	0	135	5122	0	5257	10083
Approach %	39	0	61	100	0	98	2	100	0	0	0	0	3	97	0	100	-
Total %	1	0	1	2	0	45	1	46	0	0	0	0	1	51	0	52	-

PM Peak Hour 4:45 PM - 5:45 PM

Vehicle Total	35	0	54	89	0	1638	28	1666	0	0	0	0	38	1786	0	1824	3579
Car	31	0	50	81	0	1436	24	1460	0	0	0	0	38	1574	0	1612	3153
Truck	4	0	4	8	0	202	4	206	0	0	0	0	0	212	0	212	426
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PEDESTRIAN CROSSING

	North East			North West			South West			South East			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
18/11/2014 07:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
18/11/2014 07:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0
18/11/2014 07:30:00	0	0	0	0	0	0	1	0	1	0	0	0	1
18/11/2014 07:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	1	0	1	0	0	0	1
18/11/2014 08:00:00	0	0	0	1	0	1	0	0	0	0	0	0	1
18/11/2014 08:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0
18/11/2014 08:30:00	0	0	0	0	0	0	1	0	1	0	0	0	1
18/11/2014 08:45:00	0	0	0	0	0	0	0	0	0	0	1	1	1
Hourly Total	0	0	0	1	0	1	1	0	1	0	1	1	3
18/11/2014 09:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
18/11/2014 09:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	1	0	1	2	0	2	0	1	1	4

AM Peak Hour 8:00 AM - 9:00 AM

Pedestrians	0	0	0	1	0	1	1	0	1	0	1	1	3

18/11/2014 11:00:00	0	0	0	0	0	0	0	1	1	0	1	1	2
18/11/2014 11:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0
18/11/2014 11:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0
18/11/2014 11:45:00	0	1	1	0	0	0	0	0	0	0	0	0	1
Hourly Total	0	1	1	0	0	0	0	1	1	0	1	1	3
18/11/2014 12:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
18/11/2014 12:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0
18/11/2014 12:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0
18/11/2014 12:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0
18/11/2014 13:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
18/11/2014 13:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0
18/11/2014 13:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0
18/11/2014 13:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0
18/11/2014 14:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	1	1	0	0	0	0	1	1	0	1	1	3

Midday Peak Hour 11:00 AM - 12:00 PM

Pedestrians	0	1	1	0	0	0	0	1	1	0	1	1	3

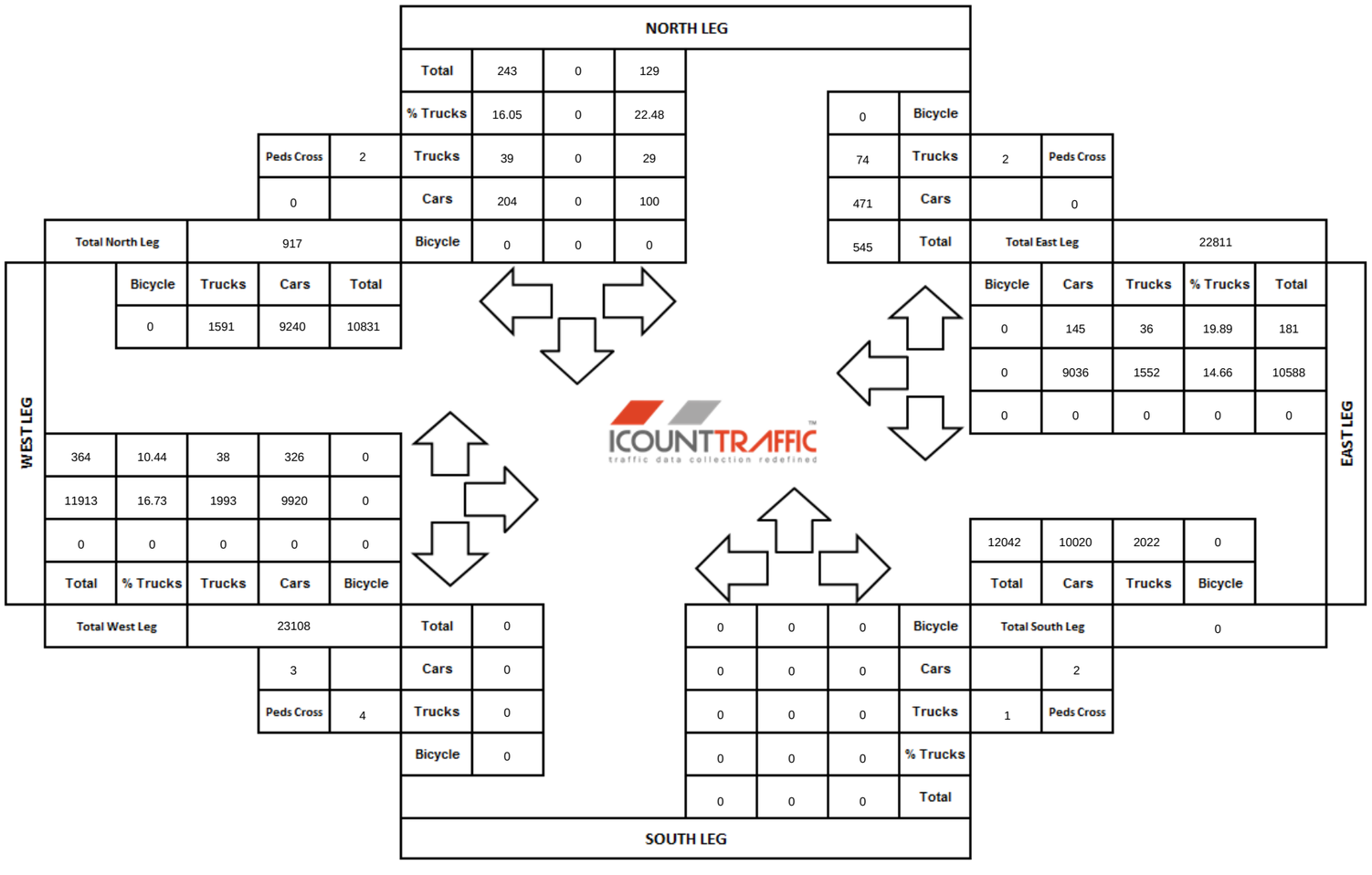
	North East			North West			South West			South East			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
18/11/2014 15:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
18/11/2014 15:15:00	0	0	0	0	0	0	0	1	1	0	0	0	1
18/11/2014 15:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0
18/11/2014 15:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	1	1	0	0	0	1
18/11/2014 16:00:00	0	1	1	0	0	0	0	1	1	0	0	0	2
18/11/2014 16:15:00	0	0	0	0	0	0	0	1	1	0	0	0	1
18/11/2014 16:30:00	0	0	0	0	0	0	0	0	0	1	0	1	1
18/11/2014 16:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	1	1	0	0	0	0	2	2	1	0	1	4
18/11/2014 17:00:00	0	0	0	0	0	0	1	0	1	0	0	0	1
18/11/2014 17:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0
18/11/2014 17:30:00	0	0	0	1	0	1	0	0	0	0	0	0	1
18/11/2014 17:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	1	0	1	1	0	1	0	0	0	2
18/11/2014 18:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	1	1	1	0	1	1	3	4	1	0	1	7

PM Peak Hour 3:45 PM - 4:45 PM

Pedestrians	0	1	1	0	0	0	0	2	2	1	0	1	4

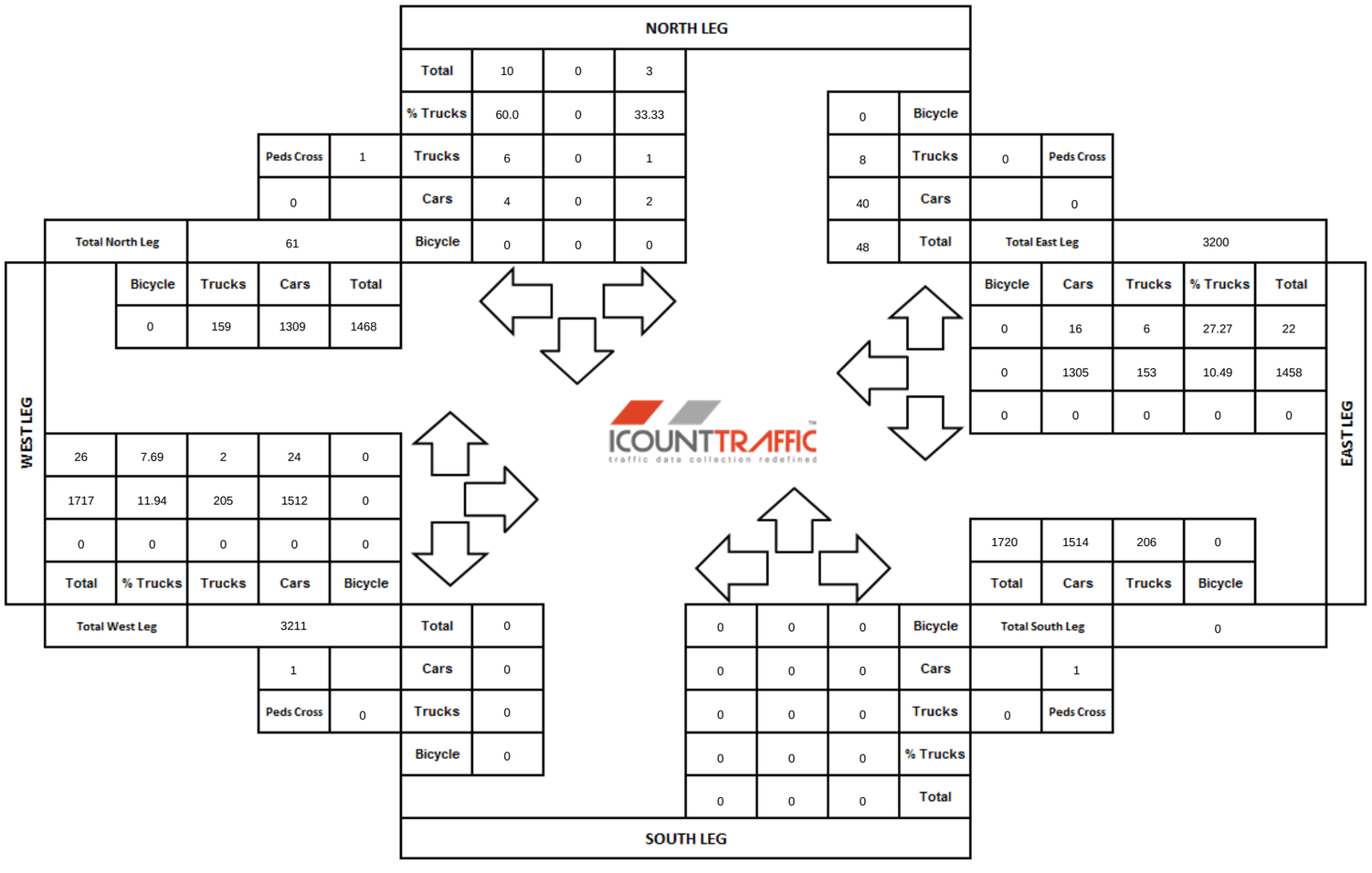
TOTAL TMC COUNT DIAGRAM

City:	**Brampton**	**Weather:**	**Partly Cloudy**
North/South Street:	**Parkhurst Square**	**Count Date:**	**18/11/2014**
East/West Street:	**Steeles Avenue East**	**Count Period:**	**AM, Noon, PM**
GPS Coordinates:	**43.726135, -79.665014**	**Peak Period:**	**7:00 AM - 8:00 AM, 12:45 PM - 1:45 PM, 4:45 PM - 5:45 PM**
Site Number:	**01503318**	**Major Road:**	**Steeles Avenue East**
Control:	**Signalized**	**Surveyor:**	**Ivana Urrutia**



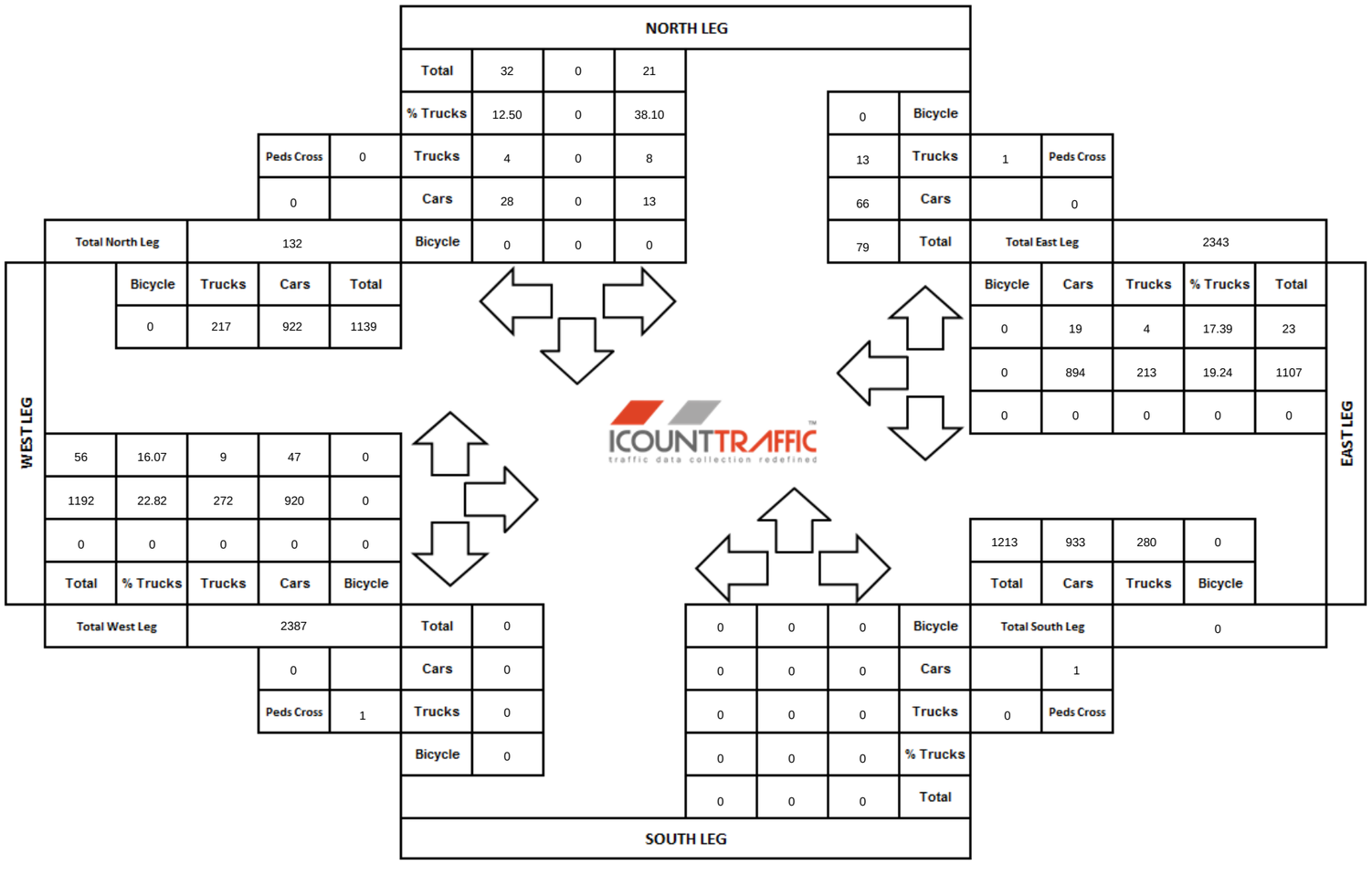
AM Peak Hour Count Diagram

City:	**Brampton**	**Weather:**	**Partly Cloudy**
North/South Street:	**Parkhurst Square**	**Count Date:**	**18/11/2014**
East/West Street:	**Steeles Avenue East**	**Count Period:**	**AM**
GPS Coordinates:	**43.726135, -79.665014**	**Peak Period:**	**7:00 AM - 8:00 AM**
Site Number:	**01503318**	**Major Road:**	**Steeles Avenue East**
Control:	**Signalized**	**Surveyor:**	**Ivana Urrutia**



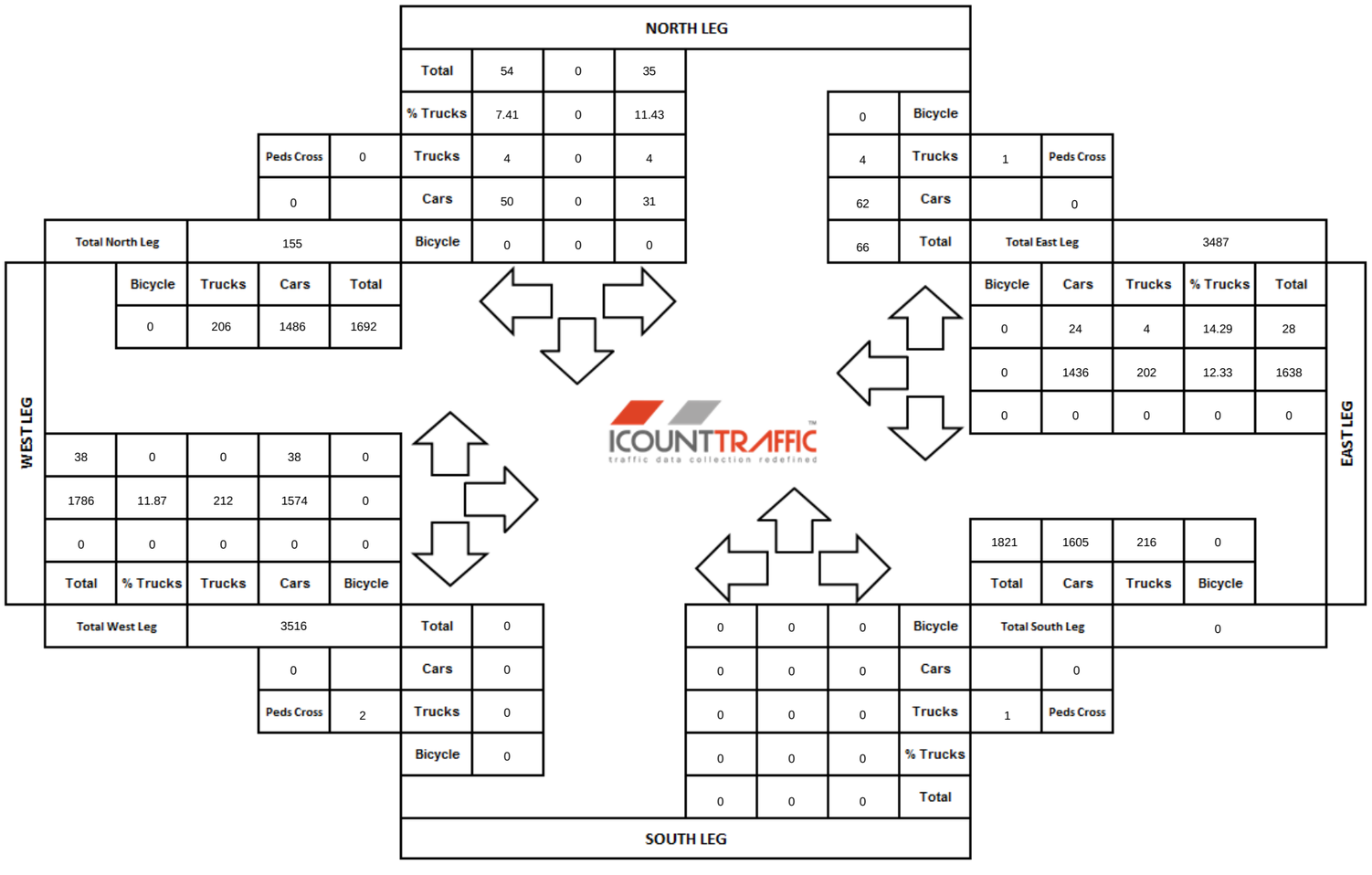
Noon Peak Hour Count Diagram

City:	**Brampton**	**Weather:**	**Partly Cloudy**
North/South Street:	**Parkhurst Square**	**Count Date:**	**18/11/2014**
East/West Street:	**Steeles Avenue East**	**Count Period:**	**Noon**
GPS Coordinates:	**43.726135, -79.665014**	**Peak Period:**	**12:45 PM - 1:45 PM**
Site Number:	**01503318**	**Major Road:**	**Steeles Avenue East**
Control:	**Signalized**	**Surveyor:**	**Ivana Urrutia**



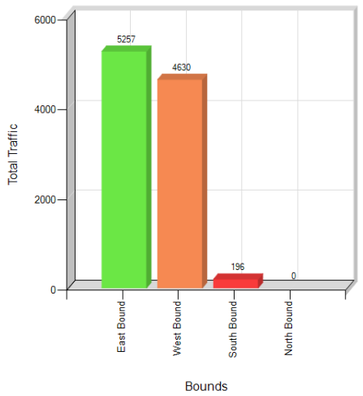
PM Peak Hour Count Diagram

City:	**Brampton**	**Weather:**	**Partly Cloudy**
North/South Street:	**Parkhurst Square**	**Count Date:**	**18/11/2014**
East/West Street:	**Steeles Avenue East**	**Count Period:**	**PM**
GPS Coordinates:	**43.726135, -79.665014**	**Peak Period:**	**4:45 PM - 5:45 PM**
Site Number:	**01503318**	**Major Road:**	**Steeles Avenue East**
Control:	**Signalized**	**Surveyor:**	**Ivana Urrutia**

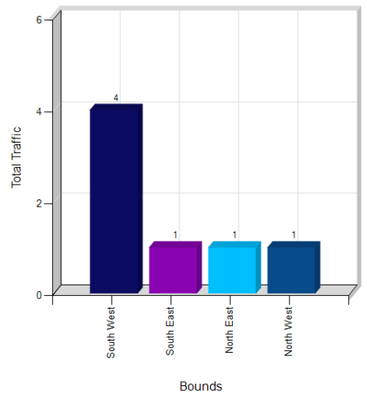


TMC chart data

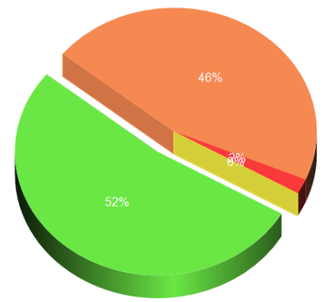
Total Traffic



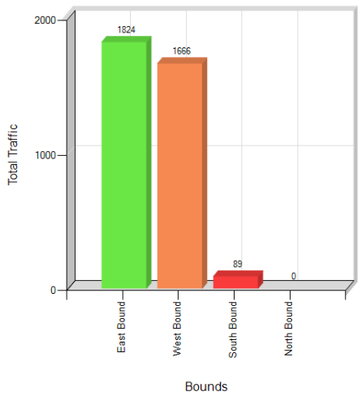
Total Pedestrians



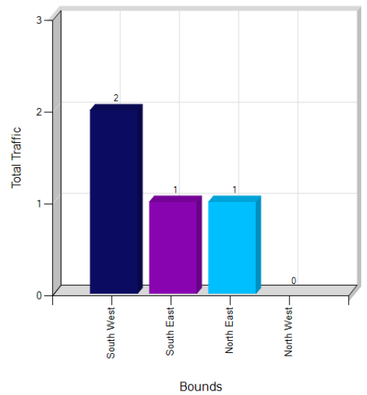
Total Approach



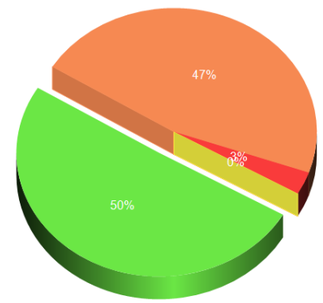
Total Traffic at Peak Hour



Total Pedestrians at Peak Hour



Total Approach at Peak Hour



	SouthBound		NorthEast
	WestBound		NorthWest
	NorthBound		SouthWest
	EastBound		SouthEast

NOTES & IMAGES

TMC - Intersection Count Summary

Company name: Trans-Plan Inc
Company address: 200-1920 Yonge Street,Toronto, Ontario, Canada
Company phone: 647-931-7383

Site: 01503992
Location: Steeles Avenue East at Pearson Convention Centre Entrance, Brampton
N/S Street: Pearson Convention Centre Entrance
E/W Street: Steeles Avenue East
GPS Coordinates: 43.717718, -79.668200
Date: 19 November 2014
Day of week: Wednesday
Analyst(s): Ivana Urrutia

VEHICLE TRAFFIC

Interval	SouthBound				WestBound				NorthBound				EastBound				Total
	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	
19/11/2014 07:00	4	0	7	11	0	292	5	297	0	0	0	0	3	410	0	413	721
19/11/2014 07:15	3	0	5	8	0	348	3	351	0	0	0	0	0	400	0	400	759
19/11/2014 07:30	4	0	8	12	0	369	2	371	0	0	0	0	4	427	0	431	814
19/11/2014 07:45	9	0	6	15	0	367	5	372	0	0	0	0	0	426	0	426	813
Hourly Total	20	0	26	46	0	1376	15	1391	0	0	0	0	7	1663	0	1670	3107
19/11/2014 08:00	3	0	5	8	0	314	3	317	0	0	0	0	4	390	0	394	719
19/11/2014 08:15	7	0	3	10	0	276	3	279	0	0	0	0	1	373	0	374	663
19/11/2014 08:30	7	0	7	14	0	324	3	327	0	0	0	0	1	380	0	381	722
19/11/2014 08:45	3	0	5	8	0	310	7	317	0	0	0	0	7	362	0	369	694
Hourly Total	20	0	20	40	0	1224	16	1240	0	0	0	0	13	1505	0	1518	2798
19/11/2014 09:00	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
19/11/2014 09:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
Grand Total	40	0	46	86	0	2602	31	2633	0	0	0	0	20	3168	0	3188	5907
Approach %	47	0	53	100	0	99	1	100	0	0	0	0	1	99	0	100	-
Total %	1	0	1	2	0	44	1	45	0	0	0	0	0	54	0	54	-

AM Peak Hour 7:00 AM - 8:00 AM

Vehicle Total	20	0	26	46	0	1376	15	1391	0	0	0	0	7	1663	0	1670	3107
Car	20	0	26	46	0	1164	15	1179	0	0	0	0	7	1424	0	1431	2656
Truck	0	0	0	0	0	212	0	212	0	0	0	0	0	239	0	239	451
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Interval	SouthBound				WestBound				NorthBound				EastBound				Total
	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	
19/11/2014 11:00	0	0	1	1	0	300	1	301	0	0	0	0	3	264	0	267	569
19/11/2014 11:15	2	0	3	5	0	266	0	266	0	0	0	0	2	351	0	353	624
19/11/2014 11:30	1	0	2	3	0	327	2	329	0	0	0	0	1	292	0	293	625
19/11/2014 11:45	0	0	0	0	0	274	2	276	0	0	0	0	0	271	0	271	547
Hourly Total	3	0	6	9	0	1167	5	1172	0	0	0	0	6	1178	0	1184	2365
19/11/2014 12:00	3	0	2	5	0	314	5	319	0	0	0	0	3	341	0	344	668
19/11/2014 12:15	6	0	2	8	0	250	3	253	0	0	0	0	0	316	0	316	577
19/11/2014 12:30	1	0	3	4	0	312	1	313	0	0	0	0	1	337	0	338	655
19/11/2014 12:45	0	0	3	3	0	272	6	278	0	0	0	0	1	318	0	319	600
Hourly Total	10	0	10	20	0	1148	15	1163	0	0	0	0	5	1312	0	1317	2500
19/11/2014 13:00	4	0	1	5	0	327	7	334	0	0	0	0	4	321	0	325	664
19/11/2014 13:15	5	0	6	11	0	292	6	298	0	0	0	0	5	292	0	297	606
19/11/2014 13:30	2	0	4	6	0	318	5	323	0	0	0	0	4	339	0	343	672
19/11/2014 13:45	2	0	1	3	0	282	11	293	0	0	0	0	7	311	0	318	614
Hourly Total	13	0	12	25	0	1219	29	1248	0	0	0	0	20	1263	0	1283	2556
19/11/2014 14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	26	0	28	54	0	3534	49	3583	0	0	0	0	31	3753	0	3784	7421
Approach %	48	0	52	100	0	99	1	100	0	0	0	0	1	99	0	100	-
Total %	0	0	0	0	0	48	1	49	0	0	0	0	0	51	0	51	-

Midday Peak Hour 1:00 PM - 2:00 PM

Vehicle Total	13	0	12	25	0	1219	29	1248	0	0	0	0	20	1263	0	1283	2556
Car	12	0	11	23	0	968	29	997	0	0	0	0	18	997	0	1015	2035
Truck	1	0	1	2	0	251	0	251	0	0	0	0	2	266	0	268	521
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Interval	SouthBound				WestBound				NorthBound				EastBound				Total
	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	
19/11/2014 15:00	4	0	6	10	0	313	7	320	0	0	0	0	7	381	0	388	718
19/11/2014 15:15	2	0	4	6	0	338	5	343	0	0	0	0	6	438	0	444	793
19/11/2014 15:30	5	0	5	10	0	376	13	389	0	0	0	0	12	401	0	413	812
19/11/2014 15:45	6	0	0	6	0	385	23	408	0	0	0	0	14	398	0	412	826
Hourly Total	17	0	15	32	0	1412	48	1460	0	0	0	0	39	1618	0	1657	3149
19/11/2014 16:00	0	0	2	2	0	362	14	376	0	0	0	0	12	415	0	427	805
19/11/2014 16:15	1	0	6	7	0	337	26	363	0	0	0	0	14	374	0	388	758
19/11/2014 16:30	3	0	2	5	0	302	10	312	0	0	0	0	7	340	0	347	664
19/11/2014 16:45	0	0	5	5	0	313	24	337	0	0	0	0	11	368	0	379	721
Hourly Total	4	0	15	19	0	1314	74	1388	0	0	0	0	44	1497	0	1541	2948
19/11/2014 17:00	5	0	2	7	0	274	26	300	0	0	0	0	14	331	0	345	652
19/11/2014 17:15	2	0	3	5	0	300	34	334	0	0	0	0	15	337	0	352	691
19/11/2014 17:30	4	0	4	8	0	287	24	311	0	0	0	0	13	297	0	310	629
19/11/2014 17:45	6	0	0	6	0	291	15	306	0	0	0	0	8	289	0	297	609
Hourly Total	17	0	9	26	0	1152	99	1251	0	0	0	0	50	1254	0	1304	2581
19/11/2014 18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	38	0	39	77	0	3878	221	4099	0	0	0	0	133	4369	0	4502	8678
Approach %	49	0	51	100	0	95	5	100	0	0	0	0	3	97	0	100	-
Total %	0	0	0	0	0	45	3	48	0	0	0	0	2	50	0	52	-

PM Peak Hour 3:15 PM - 4:15 PM

Vehicle Total	13	0	11	24	0	1461	55	1516	0	0	0	0	44	1652	0	1696	3236
Car	12	0	9	21	0	1253	55	1308	0	0	0	0	44	1409	0	1453	2782
Truck	1	0	2	3	0	208	0	208	0	0	0	0	0	243	0	243	454
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PEDESTRIAN CROSSING

	North East			North West			South West			South East			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
19/11/2014 07:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
19/11/2014 07:15:00	0	1	1	0	0	0	0	0	0	0	0	0	1
19/11/2014 07:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0
19/11/2014 07:45:00	0	0	0	1	0	1	0	0	0	0	0	0	1
Hourly Total	0	1	1	1	0	1	0	0	0	0	0	0	2
19/11/2014 08:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
19/11/2014 08:15:00	0	0	0	0	0	0	1	0	1	0	0	0	1
19/11/2014 08:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0
19/11/2014 08:45:00	0	0	0	0	0	0	0	1	1	0	0	0	1
Hourly Total	0	0	0	0	0	0	1	1	2	0	0	0	2
19/11/2014 09:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
19/11/2014 09:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	1	1	1	0	1	1	1	2	0	0	0	4

AM Peak Hour 7:00 AM - 8:00 AM

Pedestrians	0	1	1	1	0	1	0	0	0	0	0	0	2

19/11/2014 11:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
19/11/2014 11:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0
19/11/2014 11:30:00	0	0	0	0	0	0	1	0	1	0	0	0	1
19/11/2014 11:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	1	0	1	0	0	0	1
19/11/2014 12:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
19/11/2014 12:15:00	0	0	0	0	0	0	0	1	1	0	0	0	1
19/11/2014 12:30:00	0	0	0	1	0	1	0	0	0	0	0	0	1
19/11/2014 12:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	1	0	1	0	1	1	0	0	0	2
19/11/2014 13:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
19/11/2014 13:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0
19/11/2014 13:30:00	0	2	2	0	0	0	0	0	0	0	0	0	2
19/11/2014 13:45:00	0	1	1	0	0	0	0	0	0	0	0	0	1
Hourly Total	0	3	3	0	0	0	0	0	0	0	0	0	3
19/11/2014 14:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	3	3	1	0	1	1	1	2	0	0	0	6

Midday Peak Hour 1:00 PM - 2:00 PM

Pedestrians	0	3	3	0	0	0	0	0	0	0	0	0	3

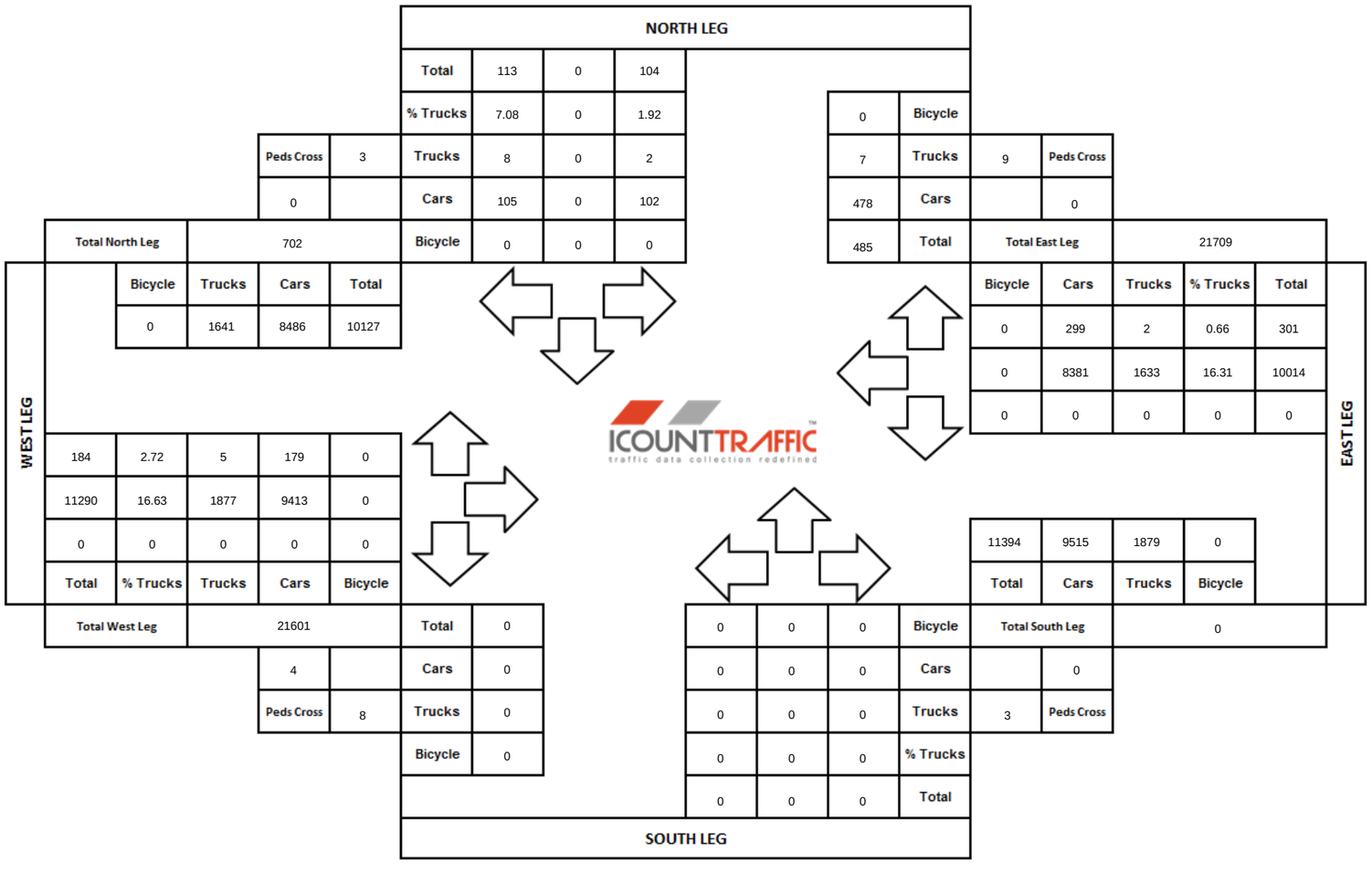
	North East			North West			South West			South East			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
19/11/2014 15:00:00	0	1	1	0	0	0	0	0	0	0	0	0	1
19/11/2014 15:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0
19/11/2014 15:30:00	0	0	0	0	0	0	0	0	0	1	0	1	1
19/11/2014 15:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	1	1	0	0	0	0	0	0	1	0	1	2
19/11/2014 16:00:00	0	0	0	0	0	0	0	1	1	0	0	0	1
19/11/2014 16:15:00	0	1	1	0	0	0	0	0	0	0	0	0	1
19/11/2014 16:30:00	0	1	1	0	0	0	1	2	3	1	0	1	5
19/11/2014 16:45:00	0	1	1	0	0	0	0	0	0	0	0	0	1
Hourly Total	0	3	3	0	0	0	1	3	4	1	0	1	8
19/11/2014 17:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
19/11/2014 17:15:00	0	1	1	1	0	1	1	2	3	1	0	1	6
19/11/2014 17:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0
19/11/2014 17:45:00	0	0	0	0	0	0	0	1	1	0	0	0	1
Hourly Total	0	1	1	1	0	1	1	3	4	1	0	1	7
19/11/2014 18:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	5	5	1	0	1	2	6	8	3	0	3	17

PM Peak Hour 4:30 PM - 5:30 PM

Pedestrians	0	3	3	1	0	1	2	4	6	2	0	2	12

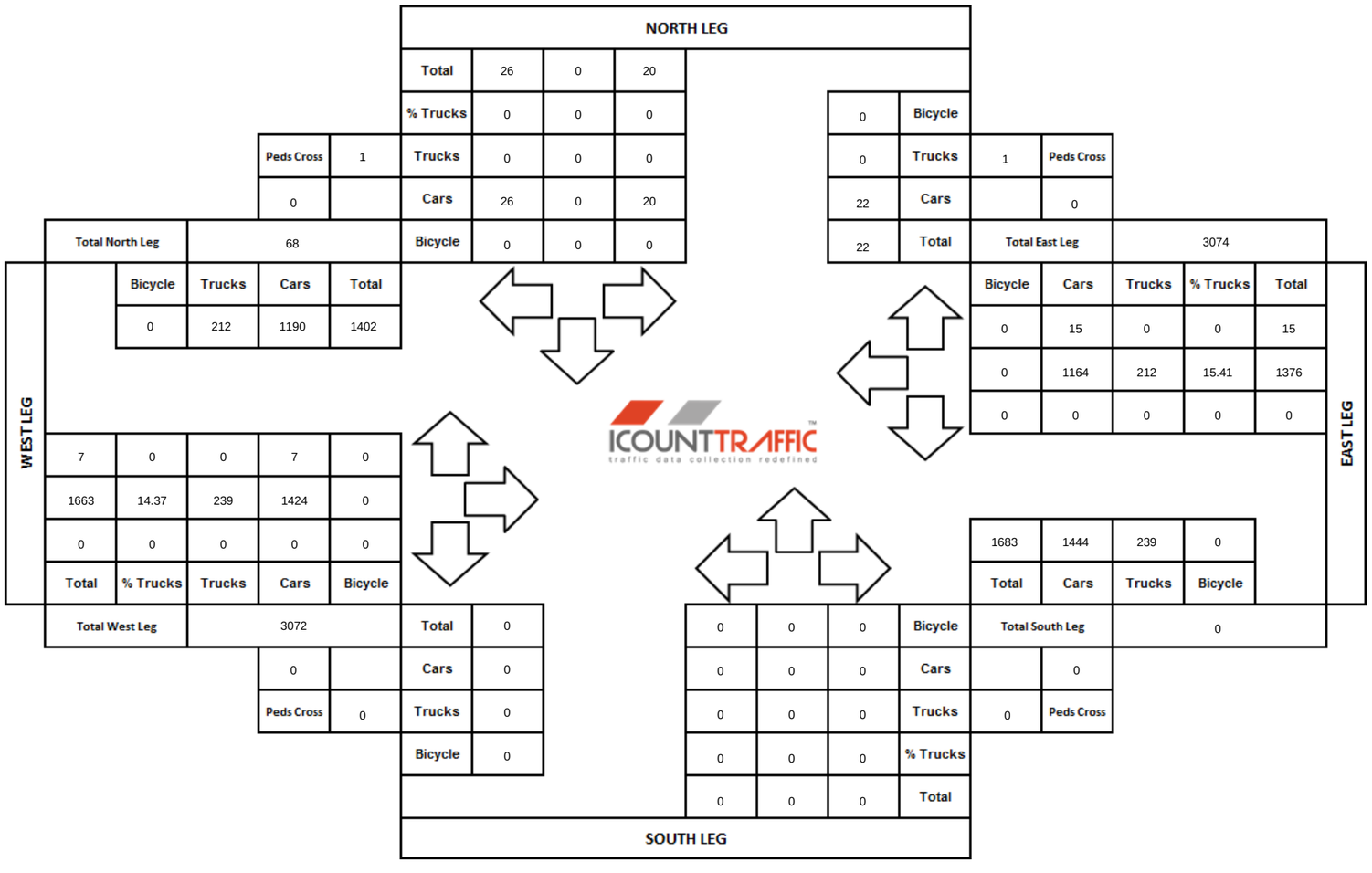
TOTAL TMC COUNT DIAGRAM

City:	**Brampton**	**Weather:**	**Clear**
North/South Street:	**Pearson Convention Centre Entrance**	**Count Date:**	**19/11/2014**
East/West Street:	**Steeles Avenue East**	**Count Period:**	**AM, Noon, PM**
GPS Coordinates:	**43.717718, -79.668200**	**Peak Period:**	**7:00 AM - 8:00 AM, 1:00 PM - 2:00 PM, 3:15 PM - 4:15 PM**
Site Number:	**01503992**	**Major Road:**	**Steeles Avenue East**
Control:	**Signalized**	**Surveyor:**	**Ivana Urrutia**



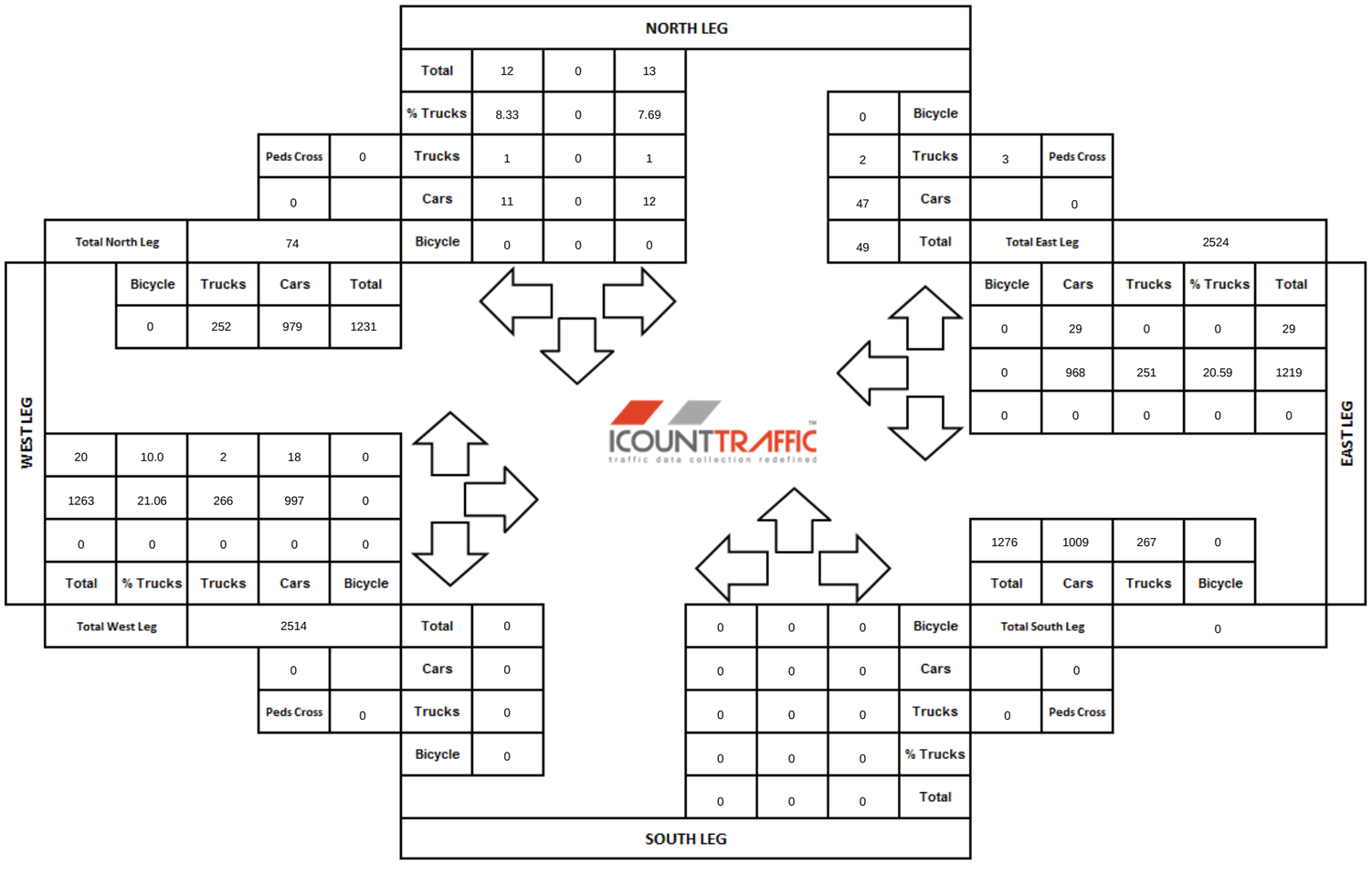
AM Peak Hour Count Diagram

City:	**Brampton**	**Weather:**	**Clear**
North/South Street:	**Pearson Convention Centre Entrance**	**Count Date:**	**19/11/2014**
East/West Street:	**Steeles Avenue East**	**Count Period:**	**AM**
GPS Coordinates:	**43.717718, -79.668200**	**Peak Period:**	**7:00 AM - 8:00 AM**
Site Number:	**01503992**	**Major Road:**	**Steeles Avenue East**
Control:	**Signalized**	**Surveyor:**	**Ivana Urrutia**



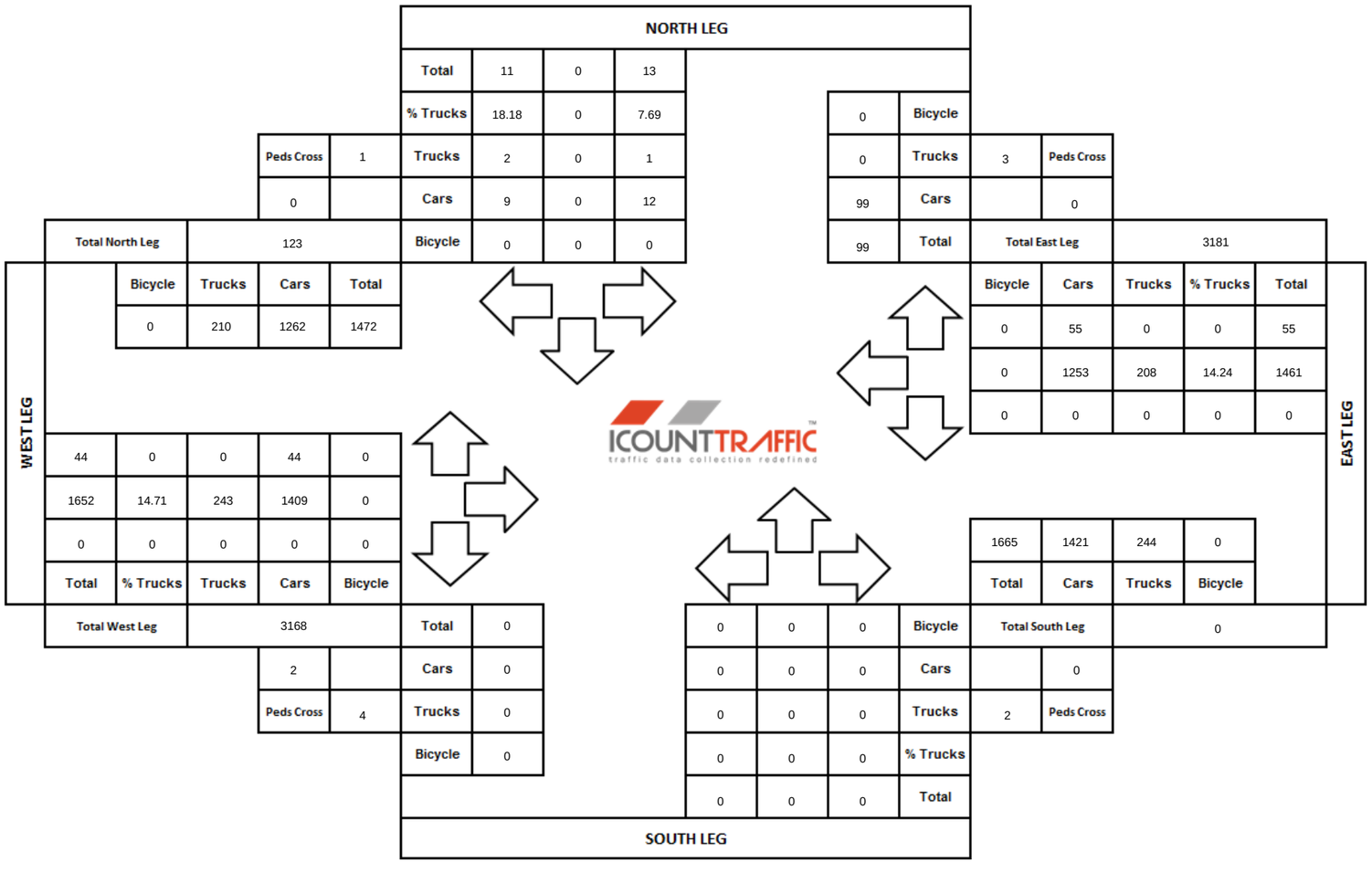
Noon Peak Hour Count Diagram

City:	**Brampton**	**Weather:**	**Clear**
North/South Street:	**Pearson Convention Centre Entrance**	**Count Date:**	**19/11/2014**
East/West Street:	**Steeles Avenue East**	**Count Period:**	**Noon**
GPS Coordinates:	**43.717718, -79.668200**	**Peak Period:**	**1:00 PM - 2:00 PM**
Site Number:	**01503992**	**Major Road:**	**Steeles Avenue East**
Control:	**Signalized**	**Surveyor:**	**Ivana Urrutia**



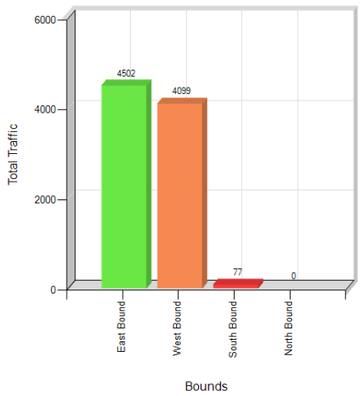
PM Peak Hour Count Diagram

City:	**Brampton**	**Weather:**	**Clear**
North/South Street:	**Pearson Convention Centre Entrance**	**Count Date:**	**19/11/2014**
East/West Street:	**Steeles Avenue East**	**Count Period:**	**PM**
GPS Coordinates:	**43.717718, -79.668200**	**Peak Period:**	**3:15 PM - 4:15 PM**
Site Number:	**01503992**	**Major Road:**	**Steeles Avenue East**
Control:	**Signalized**	**Surveyor:**	**Ivana Urrutia**

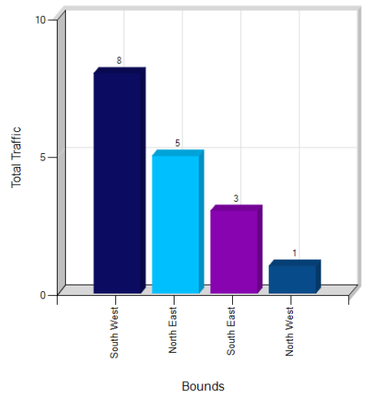


TMC chart data

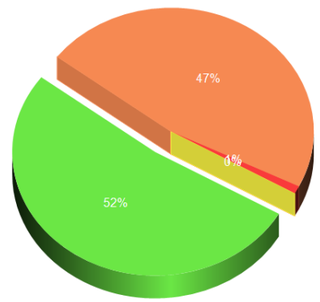
Total Traffic



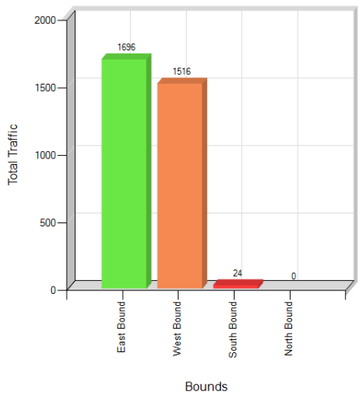
Total Pedestrians



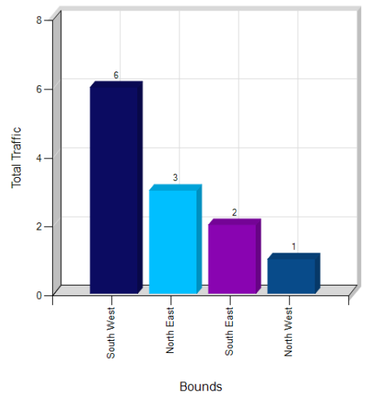
Total Approach



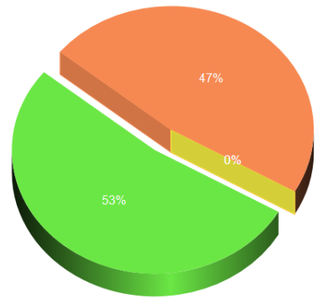
Total Traffic at Peak Hour

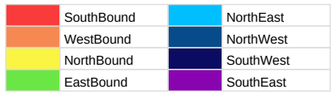


Total Pedestrians at Peak Hour



Total Approach at Peak Hour





NOTES & IMAGES

Spectrum

Turning Movement Count
Location Name: STEELES AVE & TORBRAM RD
Date: Wed, May 11, 2016 Deployment Lead: Chris Koukaras

Peel Region
10 Peel Centre Drive
Suite B - 4th Floor
Brampton ON, Canada, L6T 4B9

Turning Movement Count (6 . STEELES AVE & TORBRAM RD) CustID: 01505114 MioID: 314599

Start Time	Southbound TORBRAM RD						Westbound STEELES AVE E						Northbound TORBRAM RD						Eastbound STEELES AVE E						Int. Total (15 min)	Int. Total (1 hr)
	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total		
07:00:00	114	95	85	0	3	294	19	221	57	0	8	297	12	37	29	0	9	78	54	237	14	0	8	305	974	
07:15:00	106	104	88	0	2	298	20	227	64	0	1	311	23	28	21	0	12	72	54	298	21	0	4	373	1054	
07:30:00	135	146	107	0	4	388	23	254	63	0	6	340	19	28	32	0	11	79	59	299	15	1	5	374	1181	
07:45:00	103	152	82	0	3	337	24	242	92	0	0	358	24	45	26	0	9	95	52	290	16	0	6	358	1148	4357
08:00:00	95	148	67	0	0	310	25	287	78	0	5	390	30	34	23	0	7	87	42	273	16	0	5	331	1118	4501
08:15:00	117	102	73	0	3	292	34	201	79	0	2	314	29	36	22	0	3	87	67	253	31	0	0	351	1044	4491
08:30:00	82	97	79	0	0	258	26	275	63	0	1	364	20	41	20	0	12	81	56	258	20	0	4	334	1037	4347
08:45:00	93	139	81	0	2	313	29	235	73	0	2	337	33	39	28	0	11	100	56	278	31	1	7	366	1116	4315
BREAK																										
11:00:00	49	48	55	0	2	152	22	207	44	0	2	273	38	34	25	0	2	97	61	247	21	0	0	329	851	
11:15:00	47	50	51	0	2	148	29	216	38	0	2	283	36	37	36	0	12	109	67	213	23	0	7	303	843	
11:30:00	38	61	58	0	2	157	18	175	39	0	2	232	29	52	28	0	2	109	51	239	33	0	3	323	821	
11:45:00	39	62	66	0	1	167	22	243	44	0	3	309	40	45	30	0	3	115	62	217	44	0	3	323	914	3429
12:00:00	36	75	91	0	8	202	35	215	39	0	6	289	45	66	34	0	9	145	67	254	26	1	4	348	984	3562
12:15:00	52	83	60	0	5	195	24	221	64	0	8	309	42	91	25	0	2	158	62	242	27	1	5	332	994	3713
12:30:00	52	53	62	0	5	167	33	237	45	0	6	315	45	59	31	0	10	135	58	233	33	0	13	324	941	3833
12:45:00	34	50	64	0	3	148	26	217	41	0	1	284	35	67	43	0	7	145	63	241	34	2	9	340	917	3836
13:00:00	55	60	52	0	2	167	17	218	65	1	2	301	47	63	44	0	7	154	58	232	32	1	2	323	945	3797
13:15:00	34	46	54	0	4	134	26	258	56	0	1	340	41	44	38	0	7	123	78	266	44	0	5	388	985	3788
13:30:00	47	47	62	0	2	156	28	227	72	1	6	328	34	52	33	0	16	119	81	257	29	0	7	367	970	3817
13:45:00	60	58	59	0	5	177	20	212	74	0	7	306	44	62	30	0	18	136	50	234	46	0	16	330	949	3849
BREAK																										
15:00:00	52	77	72	0	8	201	29	291	66	1	9	387	34	87	41	0	14	162	80	294	39	0	13	413	1163	
15:15:00	56	66	78	0	11	200	29	269	93	0	14	391	44	99	48	0	10	191	74	286	45	1	4	406	1188	
15:30:00	75	65	75	0	7	215	23	275	89	0	6	387	48	147	55	0	9	250	74	321	29	0	16	424	1276	
15:45:00	67	67	65	0	10	199	25	318	105	0	5	448	26	103	32	0	9	161	98	326	27	0	4	451	1259	4886
16:00:00	75	42	58	0	13	175	28	227	98	0	7	353	42	136	29	0	6	207	72	279	29	0	5	380	1115	4838
16:15:00	66	45	45	0	10	156	20	287	82	0	6	389	46	99	28	0	17	173	87	358	37	0	12	482	1200	4850
16:30:00	75	54	72	0	11	201	14	293	109	0	8	416	41	150	44	0	14	235	91	354	21	0	7	466	1318	4892
16:45:00	72	58	71	0	4	201	12	290	87	0	7	389	37	182	37	0	10	256	77	304	25	0	6	406	1252	4885
17:00:00	91	44	73	0	13	208	23	312	90	0	8	425	53	190	41	0	13	284	84	325	16	0	7	425	1342	5112
17:15:00	68	46	59	0	10	173	17	298	100	1	2	416	45	228	47	0	9	320	91	389	27	0	9	507	1416	5328

17:30:00	65	58	44	0	4	167	20	274	108	0	6	402	40	182	37	0	7	259	76	322	21	0	6	419	1247	5257
17:45:00	54	41	41	0	9	136	10	306	88	0	11	404	39	148	39	0	6	226	109	332	23	0	3	464	1230	5235
Grand Total	2204	2339	2149	0	168	6692	750	8028	2305	4	160	11087	1161	2711	1076	0	293	4948	2211	8951	895	8	205	12065	**34792**	-
Approach%	32.9%	35%	32.1%	0%		-	6.8%	72.4%	20.8%	0%		-	23.5%	54.8%	21.7%	0%		-	18.3%	74.2%	7.4%	0.1%		-	**-**	-
Totals %	6.3%	6.7%	6.2%	0%		19.2%	2.2%	23.1%	6.6%	0%		31.9%	3.3%	7.8%	3.1%	0%		14.2%	6.4%	25.7%	2.6%	0%		34.7%	**-**	-
Heavy	177	260	355	0		-	277	1624	181	0		-	173	324	321	0		-	379	1715	165	1		-	**-**	-
Heavy %	8%	11.1%	16.5%	0%		-	36.9%	20.2%	7.9%	0%		-	14.9%	12%	29.8%	0%		-	17.1%	19.2%	18.4%	12.5%		-	**-**	-
Bicycles	0	1	0	0		-	0	1	0	0		-	0	0	0	0		-	0	2	1	0		-	**-**	-
Bicycle %	0%	0%	0%	0%		-	0%	0%	0%	0%		-	0%	0%	0%	0%		-	0%	0%	0.1%	0%		-	**-**	-

Peak Hour: 07:15 AM - 08:15 AM Weather: Scattered Clouds (11 °C)

Start Time	Southbound TORBRAM RD						Westbound STEELES AVE E						Northbound TORBRAM RD						Eastbound STEELES AVE E						Int. Total (15 min)
	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	
07:15:00	106	104	88	0	2	298	20	227	64	0	1	311	23	28	21	0	12	72	54	298	21	0	4	373	1054
07:30:00	135	146	107	0	4	388	23	254	63	0	6	340	19	28	32	0	11	79	59	299	15	1	5	374	1181
07:45:00	103	152	82	0	3	337	24	242	92	0	0	358	24	45	26	0	9	95	52	290	16	0	6	358	1148
08:00:00	95	148	67	0	0	310	25	287	78	0	5	390	30	34	23	0	7	87	42	273	16	0	5	331	1118
Grand Total	439	550	344	0	9	1333	92	1010	297	0	12	1399	96	135	102	0	39	333	207	1160	68	1	20	1436	**4501**
Approach%	32.9%	41.3%	25.8%	0%		-	6.6%	72.2%	21.2%	0%		-	28.8%	40.5%	30.6%	0%		-	14.4%	80.8%	4.7%	0.1%		-	**-**
Totals %	9.8%	12.2%	7.6%	0%		29.6%	2%	22.4%	6.6%	0%		31.1%	2.1%	3%	2.3%	0%		7.4%	4.6%	25.8%	1.5%	0%		31.9%	**-**
PHF	0.81	0.9	0.8	0		0.86	0.92	0.88	0.81	0		0.9	0.8	0.75	0.8	0		0.88	0.88	0.97	0.81	0.25		0.96	**-**
Heavy	26	26	26	0		78	22	175	23	0		220	27	48	34	0		109	35	246	6	1		288	**-**
Heavy %	5.9%	4.7%	7.6%	0%		5.9%	23.9%	17.3%	7.7%	0%		15.7%	28.1%	35.6%	33.3%	0%		32.7%	16.9%	21.2%	8.8%	100%		20.1%	**-**
Lights	413	524	318	0		1255	70	835	274	0		1179	69	87	68	0		224	172	914	62	0		1148	**-**
Lights %	94.1%	95.3%	92.4%	0%		94.1%	76.1%	82.7%	92.3%	0%		84.3%	71.9%	64.4%	66.7%	0%		67.3%	83.1%	78.8%	91.2%	0%		79.9%	**-**
Single-Unit Trucks	10	8	15	0		33	12	43	7	0		62	24	27	14	0		65	12	87	3	0		102	**-**
Single-Unit Trucks %	2.3%	1.5%	4.4%	0%		2.5%	13%	4.3%	2.4%	0%		4.4%	25%	20%	13.7%	0%		19.5%	5.8%	7.5%	4.4%	0%		7.1%	**-**
Buses	2	7	0	0		9	0	23	7	0		30	0	6	0	0		6	0	20	0	0		20	**-**
Buses %	0.5%	1.3%	0%	0%		0.7%	0%	2.3%	2.4%	0%		2.1%	0%	4.4%	0%	0%		1.8%	0%	1.7%	0%	0%		1.4%	**-**
Articulated Trucks	14	11	11	0		36	10	109	9	0		128	3	15	20	0		38	23	139	3	1		166	**-**
Articulated Trucks %	3.2%	2%	3.2%	0%		2.7%	10.9%	10.8%	3%	0%		9.1%	3.1%	11.1%	19.6%	0%		11.4%	11.1%	12%	4.4%	100%		11.6%	**-**
Pedestrians	-	-	-	-	9	-	-	-	-	-	11	-	-	-	-	-	39	-	-	-	-	-	20	-	**-**
Pedestrians%	-	-	-	-	11.3%		-	-	-	-	13.8%		-	-	-	-	48.8%		-	-	-	-	25%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	1.3%		-	-	-	-	0%		-	-	-	-	0%		**-**
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	0	-	**-**
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

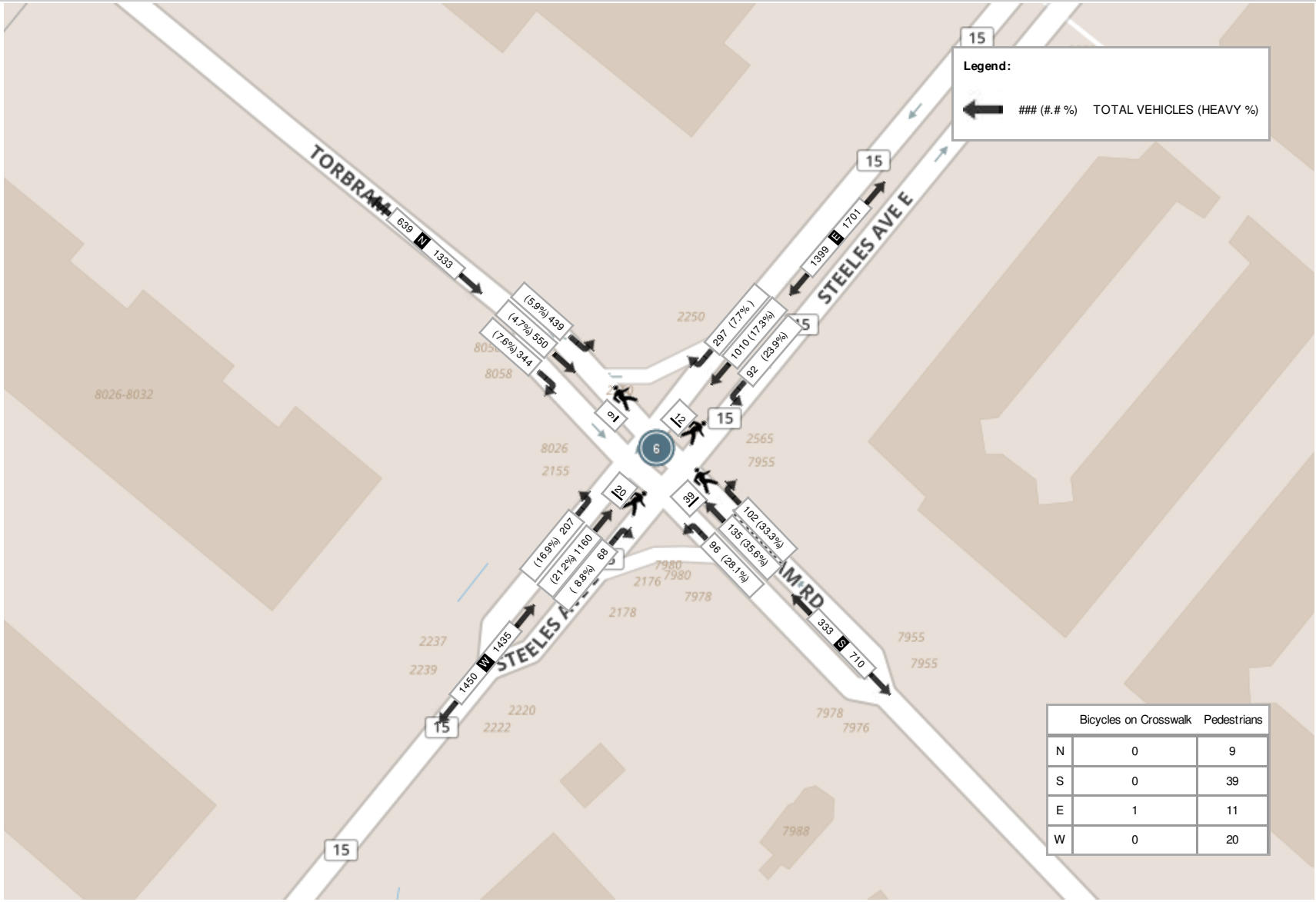
Peak Hour: 01:00 PM - 02:00 PM Weather: Mostly Cloudy (18.0 °C)

Start Time	Southbound TORBRAM RD						Westbound STEELES AVE E						Northbound TORBRAM RD						Eastbound STEELES AVE E						Int. Total (15 min)
	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	
13:00:00	55	60	52	0	2	167	17	218	65	1	2	301	47	63	44	0	7	154	58	232	32	1	2	323	945
13:15:00	34	46	54	0	4	134	26	258	56	0	1	340	41	44	38	0	7	123	78	266	44	0	5	388	985
13:30:00	47	47	62	0	2	156	28	227	72	1	6	328	34	52	33	0	16	119	81	257	29	0	7	367	970
13:45:00	60	58	59	0	5	177	20	212	74	0	7	306	44	62	30	0	18	136	50	234	46	0	16	330	949
Grand Total	196	211	227	0	13	634	91	915	267	2	16	1275	166	221	145	0	48	532	267	989	151	1	30	1408	**3849**
Approach%	30.9%	33.3%	35.8%	0%		-	7.1%	71.8%	20.9%	0.2%		-	31.2%	41.5%	27.3%	0%		-	19%	70.2%	10.7%	0.1%		-	**-**
Totals %	5.1%	5.5%	5.9%	0%		16.5%	2.4%	23.8%	6.9%	0.1%		33.1%	4.3%	5.7%	3.8%	0%		13.8%	6.9%	25.7%	3.9%	0%		36.6%	**-**
PHF	0.82	0.88	0.92	0		0.9	0.81	0.89	0.9	0.5		0.94	0.88	0.88	0.82	0		0.86	0.82	0.93	0.82	0.25		0.91	**-**
Heavy	18	29	49	0		96	40	229	24	0		293	27	33	47	0		107	51	217	29	0		297	**-**
Heavy %	9.2%	13.7%	21.6%	0%		15.1%	44%	25%	9%	0%		23%	16.3%	14.9%	32.4%	0%		20.1%	19.1%	21.9%	19.2%	0%		21.1%	**-**
Lights	178	182	178	0		538	51	686	243	2		982	139	188	98	0		425	216	772	122	1		1111	**-**
Lights %	90.8%	86.3%	78.4%	0%		84.9%	56%	75%	91%	100%		77%	83.7%	85.1%	67.6%	0%		79.9%	80.9%	78.1%	80.8%	100%		78.9%	**-**
Single-Unit Trucks	8	14	21	0		43	22	99	10	0		131	21	23	24	0		68	17	66	23	0		106	**-**
Single-Unit Trucks %	4.1%	6.6%	9.3%	0%		6.8%	24.2%	10.8%	3.7%	0%		10.3%	12.7%	10.4%	16.6%	0%		12.8%	6.4%	6.7%	15.2%	0%		7.5%	**-**
Buses	0	2	0	0		2	0	6	0	0		6	0	2	0	0		2	0	9	0	0		9	**-**
Buses %	0%	0.9%	0%	0%		0.3%	0%	0.7%	0%	0%		0.5%	0%	0.9%	0%	0%		0.4%	0%	0.9%	0%	0%		0.6%	**-**
Articulated Trucks	10	13	28	0		51	18	124	14	0		156	6	8	23	0		37	34	142	6	0		182	**-**
Articulated Trucks %	5.1%	6.2%	12.3%	0%		8%	19.8%	13.6%	5.2%	0%		12.2%	3.6%	3.6%	15.9%	0%		7%	12.7%	14.4%	4%	0%		12.9%	**-**
Pedestrians	-	-	-	-	13	-	-	-	-	-	15	-	-	-	-	-	46	-	-	-	-	-	29	-	**-**
Pedestrians%	-	-	-	-	12.1%		-	-	-	-	14%		-	-	-	-	43%		-	-	-	-	27.1%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	2	-	-	-	-	-	1	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0.9%		-	-	-	-	1.9%		-	-	-	-	0.9%		**-**
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	0	-	**-**
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

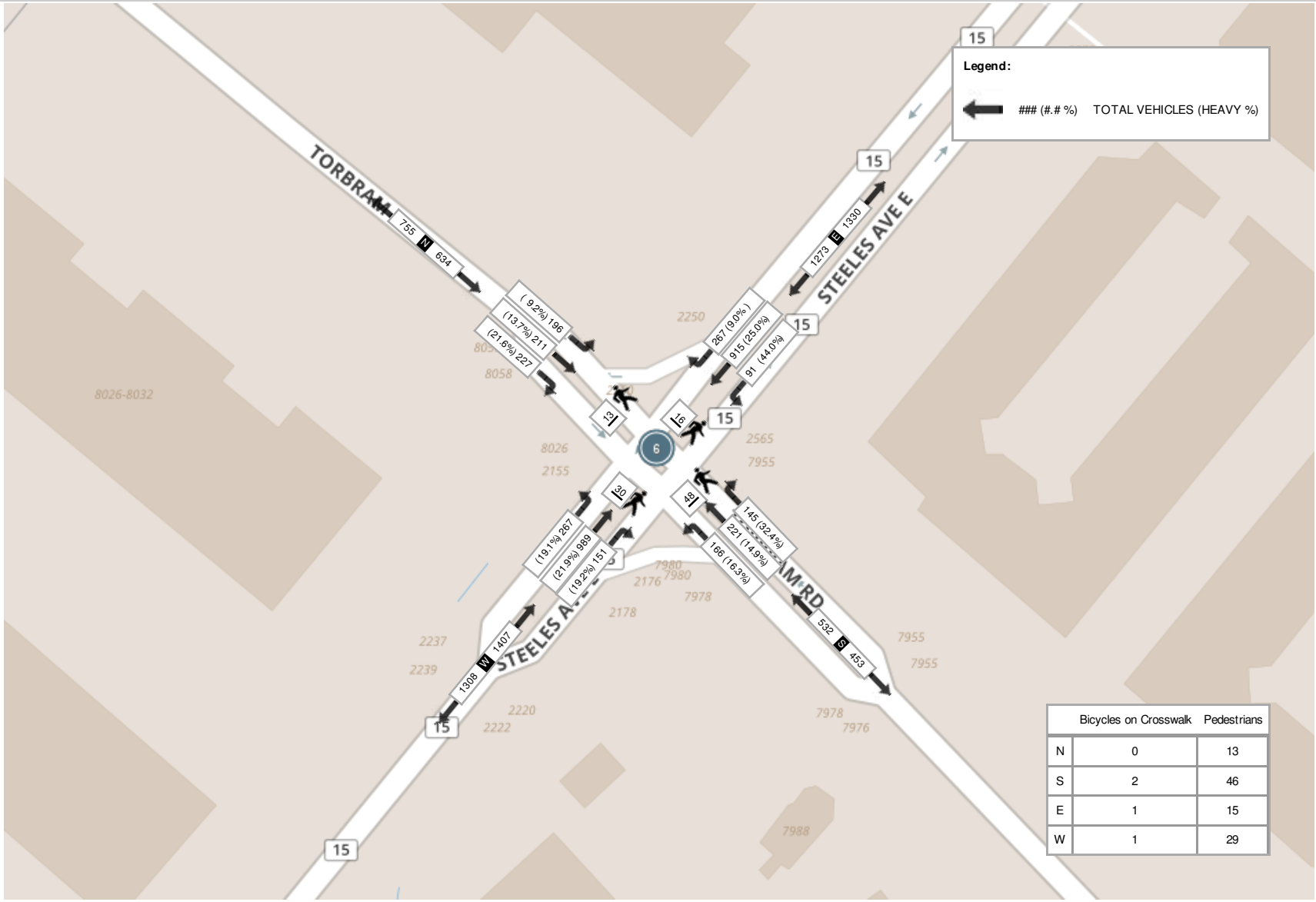
Peak Hour: 04:30 PM - 05:30 PM Weather: Mostly Cloudy (18.0 °C)

Start Time	Southbound TORBRAM RD						Westbound STEELES AVE E						Northbound TORBRAM RD						Eastbound STEELES AVE E						Int. Total (15 min)
	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	Left	Thru	Right	U-Turn	Peds	Approach Total	
16:30:00	75	54	72	0	11	201	14	293	109	0	8	416	41	150	44	0	14	235	91	354	21	0	7	466	1318
16:45:00	72	58	71	0	4	201	12	290	87	0	7	389	37	182	37	0	10	256	77	304	25	0	6	406	1252
17:00:00	91	44	73	0	13	208	23	312	90	0	8	425	53	190	41	0	13	284	84	325	16	0	7	425	1342
17:15:00	68	46	59	0	10	173	17	298	100	1	2	416	45	228	47	0	9	320	91	389	27	0	9	507	1416
Grand Total	306	202	275	0	38	783	66	1193	386	1	25	1646	176	750	169	0	46	1095	343	1372	89	0	29	1804	**5328**
Approach%	39.1%	25.8%	35.1%	0%		-	4%	72.5%	23.5%	0.1%		-	16.1%	68.5%	15.4%	0%		-	19%	76.1%	4.9%	0%		-	**-**
Totals %	5.7%	3.8%	5.2%	0%		14.7%	1.2%	22.4%	7.2%	0%		30.9%	3.3%	14.1%	3.2%	0%		20.6%	6.4%	25.8%	1.7%	0%		33.9%	**-**
PHF	0.84	0.87	0.94	0		0.94	0.72	0.96	0.89	0.25		0.97	0.83	0.82	0.9	0		0.86	0.94	0.88	0.82	0		0.89	**-**
Heavy	12	34	38	0		84	23	203	16	0		242	21	39	21	0		81	36	184	14	0		234	**-**
Heavy %	3.9%	16.8%	13.8%	0%		10.7%	34.8%	17%	4.1%	0%		14.7%	11.9%	5.2%	12.4%	0%		7.4%	10.5%	13.4%	15.7%	0%		13%	**-**
Lights	294	168	237	0		699	43	990	370	1		1404	155	711	148	0		1014	307	1188	75	0		1570	**-**
Lights %	96.1%	83.2%	86.2%	0%		89.3%	65.2%	83%	95.9%	100%		85.3%	88.1%	94.8%	87.6%	0%		92.6%	89.5%	86.6%	84.3%	0%		87%	**-**
Single-Unit Trucks	2	9	14	0		25	5	86	7	0		98	18	23	9	0		50	16	52	8	0		76	**-**
Single-Unit Trucks %	0.7%	4.5%	5.1%	0%		3.2%	7.6%	7.2%	1.8%	0%		6%	10.2%	3.1%	5.3%	0%		4.6%	4.7%	3.8%	9%	0%		4.2%	**-**
Buses	2	6	1	0		9	0	14	1	0		15	0	5	0	0		5	0	18	0	0		18	**-**
Buses %	0.7%	3%	0.4%	0%		1.1%	0%	1.2%	0.3%	0%		0.9%	0%	0.7%	0%	0%		0.5%	0%	1.3%	0%	0%		1%	**-**
Articulated Trucks	8	19	23	0		50	18	103	8	0		129	3	11	12	0		26	20	114	6	0		140	**-**
Articulated Trucks %	2.6%	9.4%	8.4%	0%		6.4%	27.3%	8.6%	2.1%	0%		7.8%	1.7%	1.5%	7.1%	0%		2.4%	5.8%	8.3%	6.7%	0%		7.8%	**-**
Pedestrians	-	-	-	-	38	-	-	-	-	-	25	-	-	-	-	-	46	-	-	-	-	-	29	-	**-**
Pedestrians%	-	-	-	-	27.5%		-	-	-	-	18.1%		-	-	-	-	33.3%		-	-	-	-	21%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	**-**
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Peak Hour: 07:15 AM - 08:15 AM Weather: Scattered Clouds (11 °C)

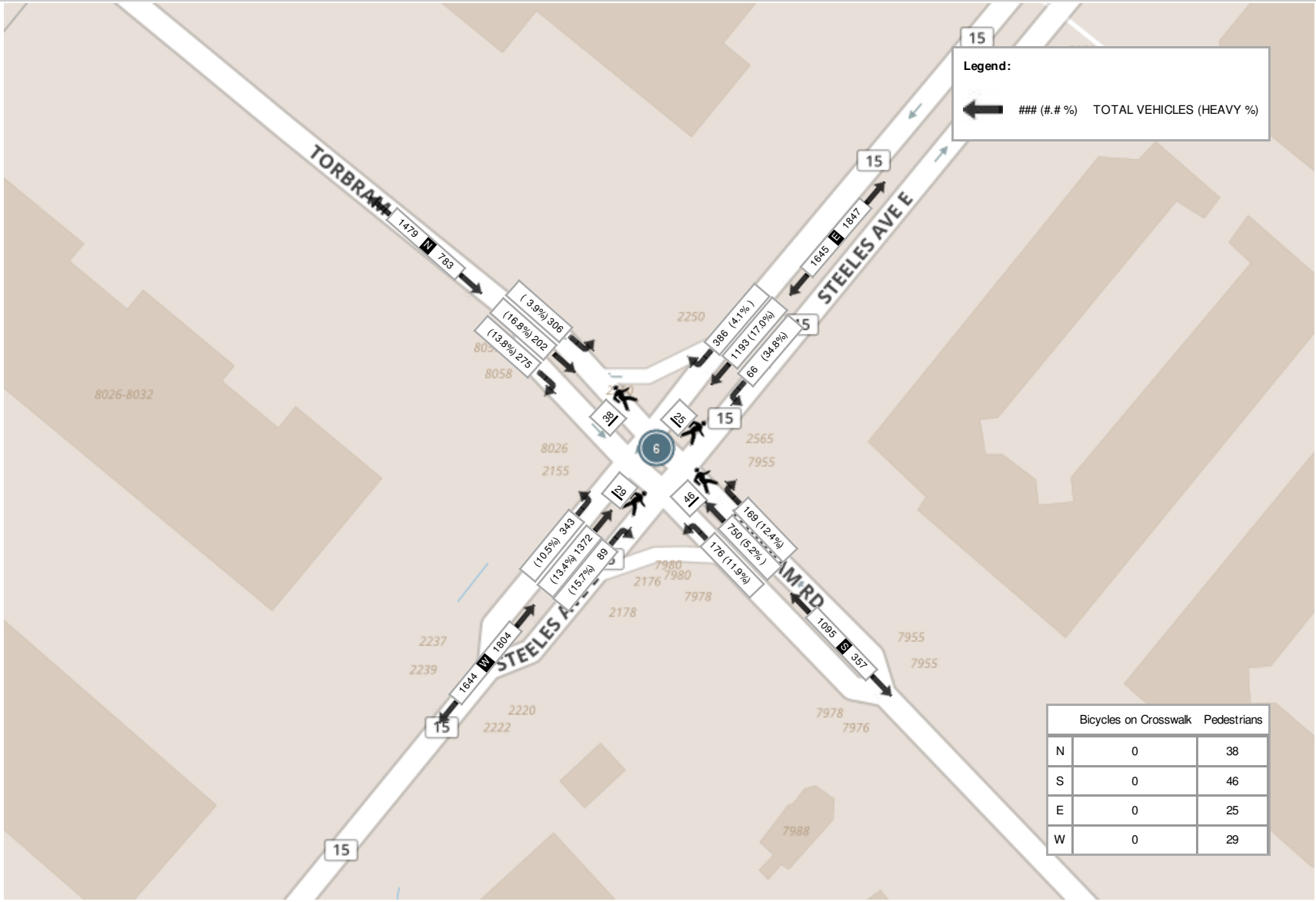


Peak Hour: 01:00 PM - 02:00 PM Weather: Mostly Cloudy (18.0 °C)



	Bicycles on Crosswalk	Pedestrians
N	0	13
S	2	46
E	1	15
W	1	29

Peak Hour: 04:30 PM - 05:30 PM Weather: Mostly Cloudy (18.0 °C)



	Bicycles on Crosswalk	Pedestrians
N	0	38
S	0	46
E	0	25
W	0	29

Production Rd / Driver Rd & Airport Rd

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

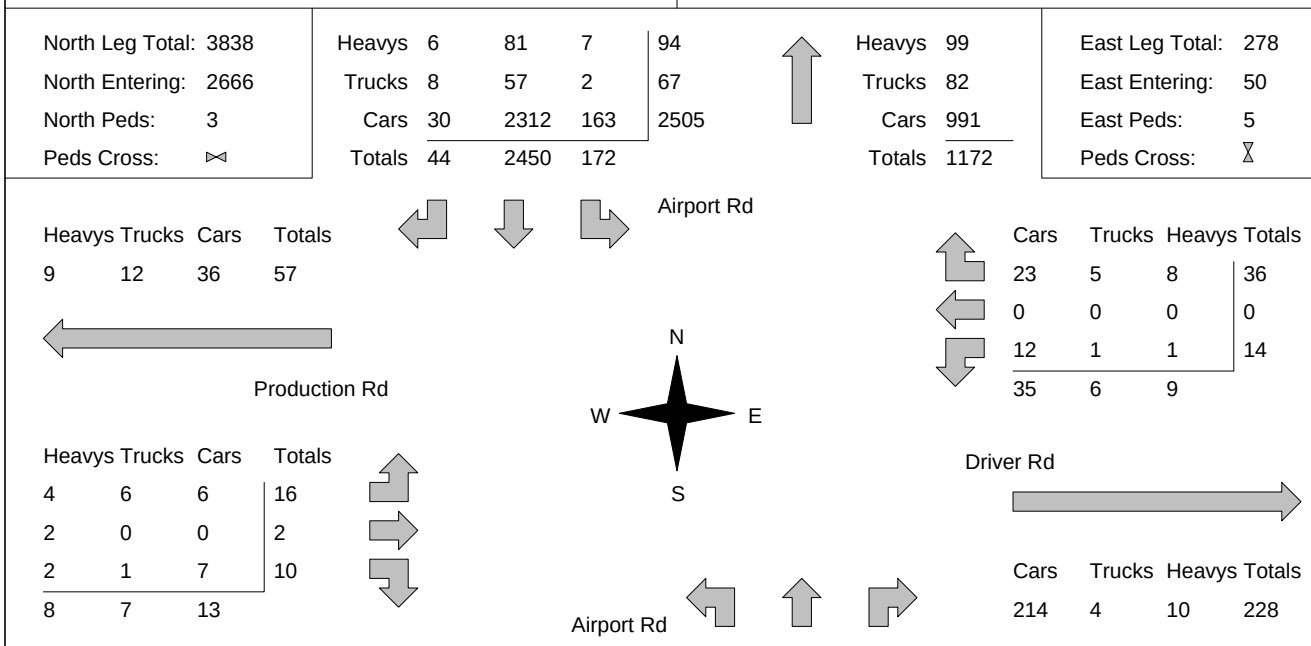
One Hour Peak
From: 7:45:00
To: 8:45:00

Municipality: Mississauga
Site #: 0000008706
Intersection: Airport Rd & Production Rd / Driver
TFR File #: 1
Count date: 8-Nov-2016

Weather conditions:
Clear / Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Airport Rd runs N/S



Comments

Production Rd / Driver Rd & Airport Rd

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

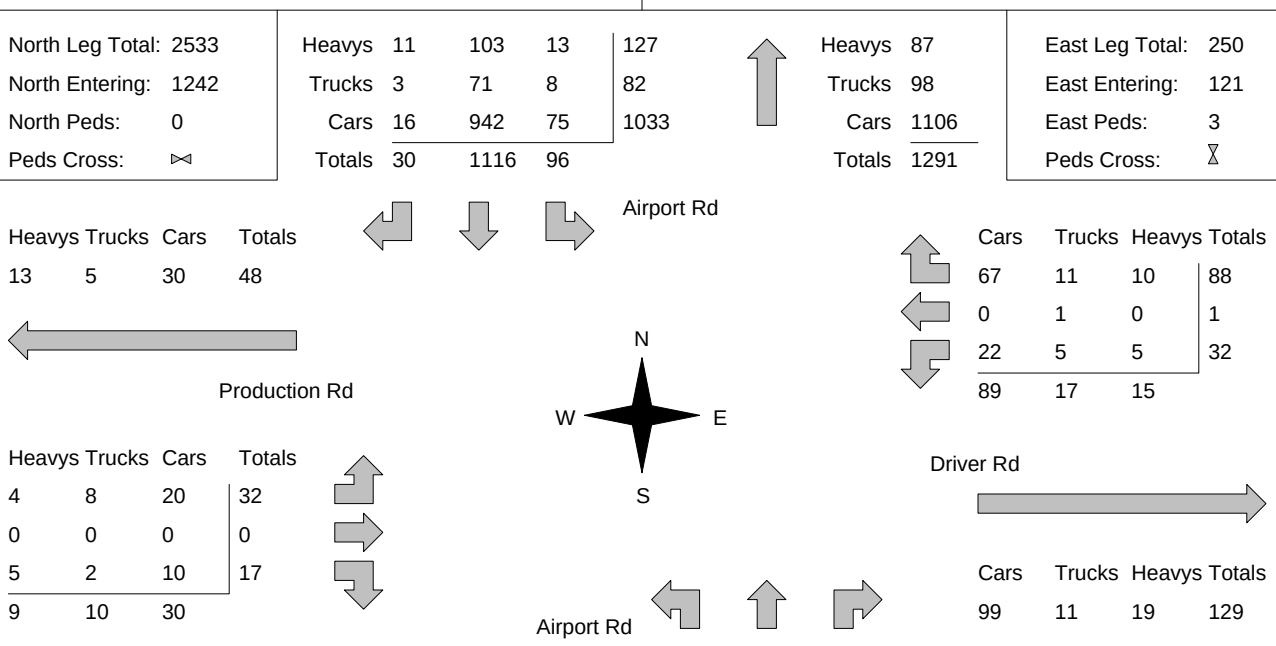
One Hour Peak
From: 12:15:00
To: 13:15:00

Municipality: Mississauga
Site #: 0000008706
Intersection: Airport Rd & Production Rd / Driver
TFR File #: 1
Count date: 8-Nov-2016

Weather conditions:
Clear / Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Airport Rd runs N/S



Comments

Production Rd / Driver Rd & Airport Rd

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

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

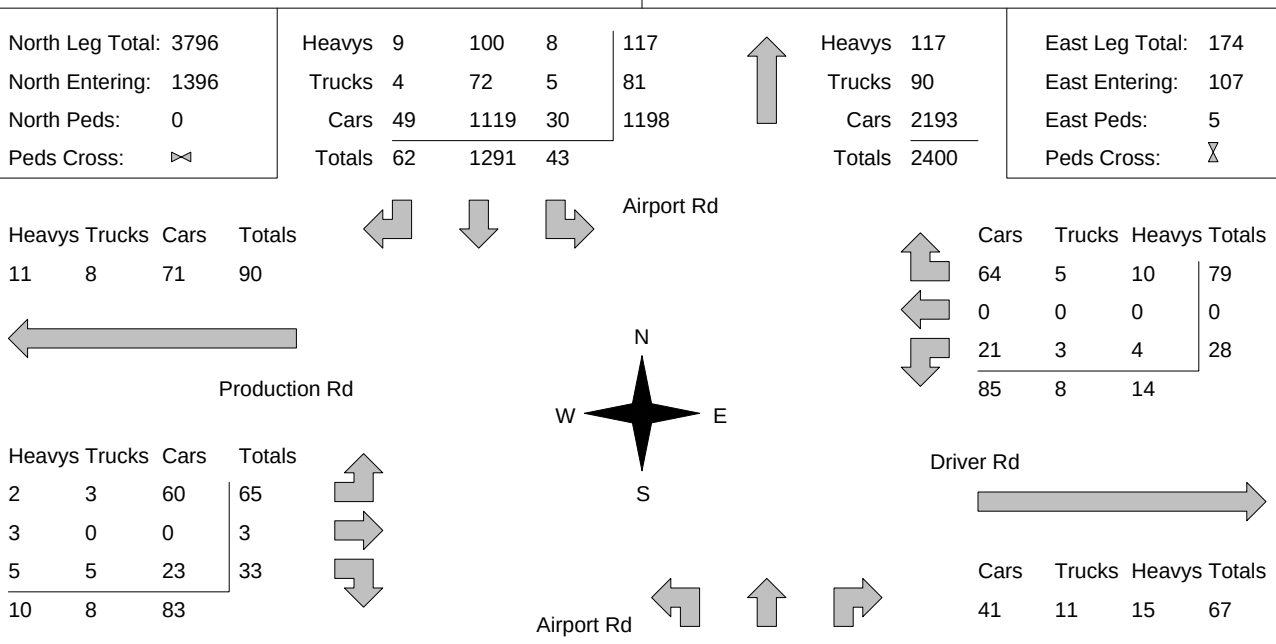
Municipality: Mississauga
Site #: 0000008706
Intersection: Airport Rd & Production Rd / Driver
TFR File #: 1
Count date: 8-Nov-2016

Weather conditions:
Clear / Cloudy

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Airport Rd runs N/S



Comments

Production Rd / Driver Rd & Airport Rd

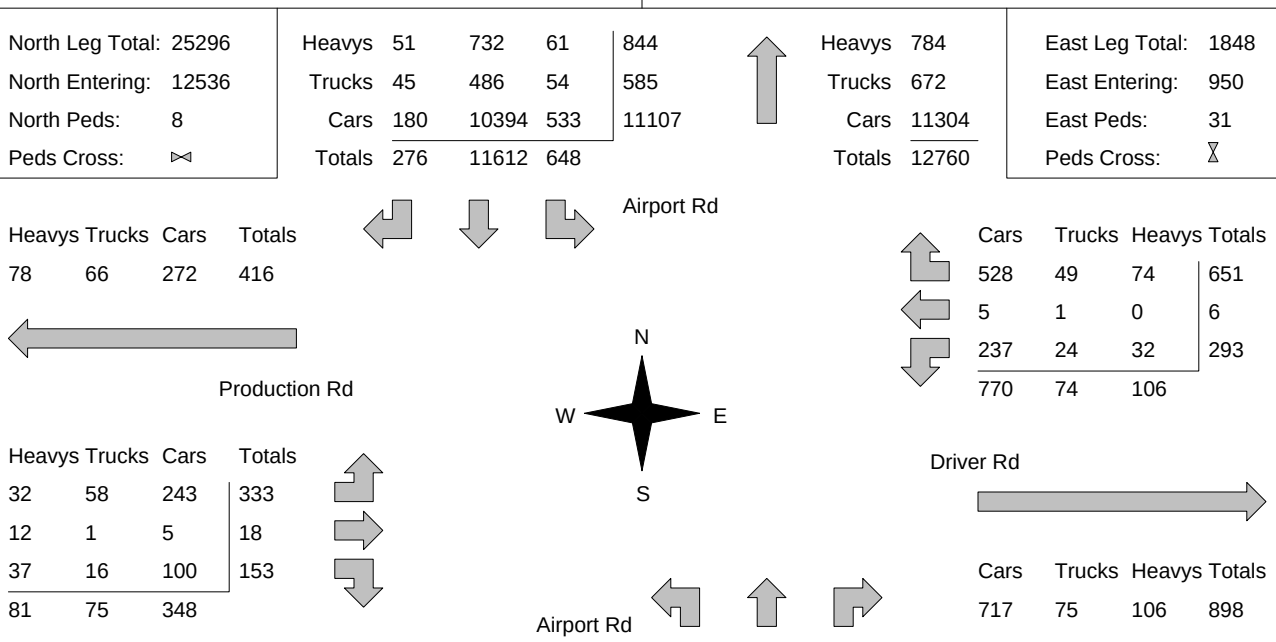
Total Count Diagram

Municipality: Mississauga
Site #: 0000008706
Intersection: Airport Rd & Production Rd / Driver
TFR File #: 1
Count date: 8-Nov-2016

Weather conditions:
Clear / Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Airport Rd runs N/S



Comments

Production Rd / Driver Rd & Airport Rd
Traffic Count Summary

Intersection: Airport Rd & Production Rd / Driver | **Count Date:** 8-Nov-2016 | **Municipality:** Mississauga

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	127	2398	40	2565	2	3635
9:00:00	153	2370	42	2565	1	3710
11:00:00	0	0	0	0	0	0
12:00:00	89	1103	18	1210	1	2127
13:00:00	78	1120	29	1227	3	2389
14:00:00	95	1117	29	1241	0	2443
15:00:00	0	0	0	0	0	0
16:00:00	45	1311	72	1428	1	3601
17:00:00	35	1136	33	1204	0	3509
18:00:00	26	1057	13	1096	0	3264
Totals:	648	11612	276	12536	8	24678

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	14	1014	42	1070	2
9:00:00	15	1087	43	1145	2
11:00:00	0	0	0	0	0
12:00:00	11	882	24	917	2
13:00:00	18	1114	30	1162	2
14:00:00	25	1141	36	1202	0
15:00:00	0	0	0	0	0
16:00:00	28	2125	20	2173	12
17:00:00	14	2265	26	2305	5
18:00:00	9	2148	11	2168	0
Totals:	134	11776	232	12142	25

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	35	2	61	98	12	123
9:00:00	12	0	42	54	0	85
11:00:00	0	0	0	0	0	0
12:00:00	26	1	72	99	0	140
13:00:00	36	1	87	124	7	178
14:00:00	33	0	55	88	0	127
15:00:00	0	0	0	0	0	0
16:00:00	41	2	89	132	4	266
17:00:00	47	0	133	180	7	284
18:00:00	63	0	112	175	1	251
Totals:	293	6	651	950	31	1454

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	13	3	9	25	3
9:00:00	20	3	8	31	2
11:00:00	0	0	0	0	0
12:00:00	23	1	17	41	1
13:00:00	35	0	19	54	4
14:00:00	23	2	14	39	2
15:00:00	0	0	0	0	0
16:00:00	88	3	43	134	4
17:00:00	78	3	23	104	2
18:00:00	53	3	20	76	1
Totals:	333	18	153	504	19

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	55	38	53	77	58	145	133	119

Highway 407 EB Off-ramp & Airport Road

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

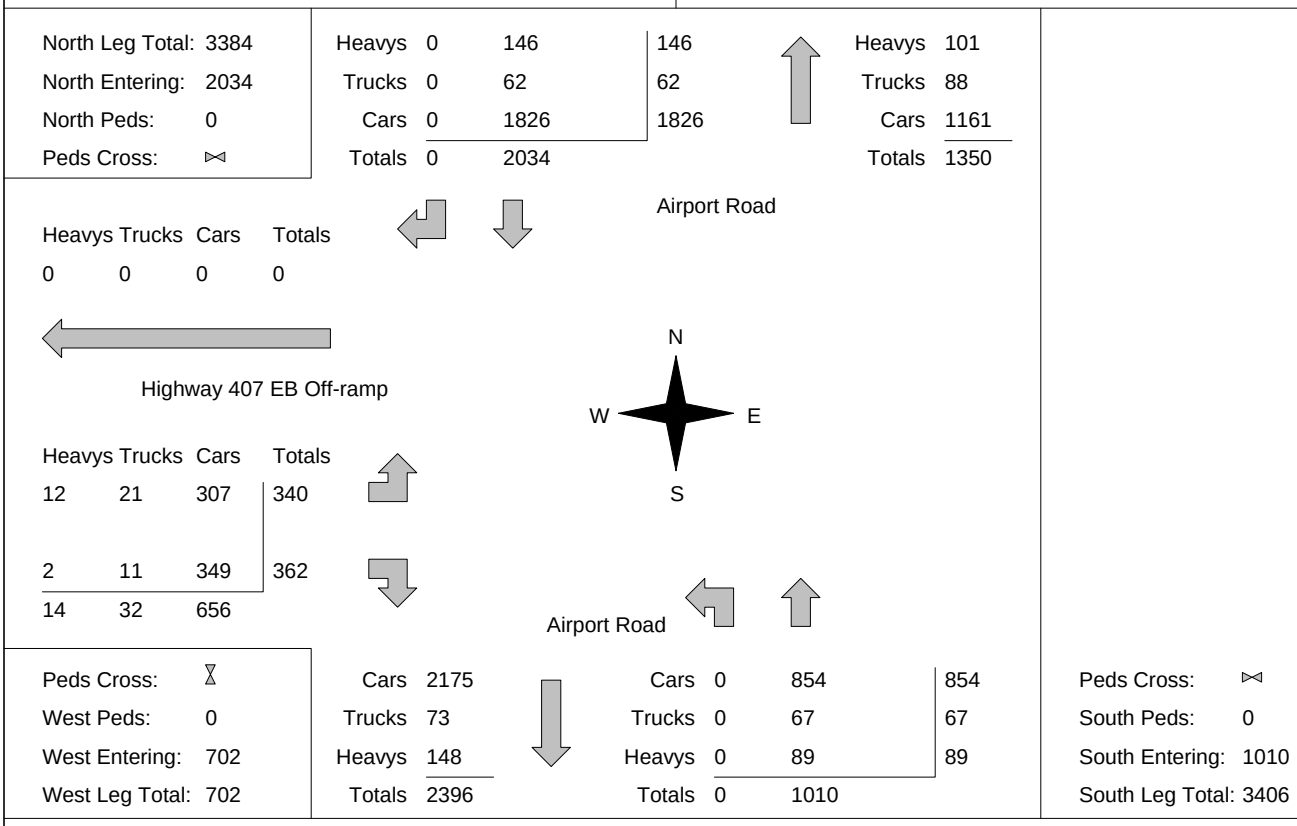
One Hour Peak
From: 7:30:00
To: 8:30:00

Municipality: Brampton
Site #: 0000001004
Intersection: Airport Road & Highway 407 EB Off
TFR File #: 1
Count date: 14-Feb-2017

Weather conditions:
Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Airport Road runs N/S



Comments

Highway 407 EB Off-ramp & Airport Road

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

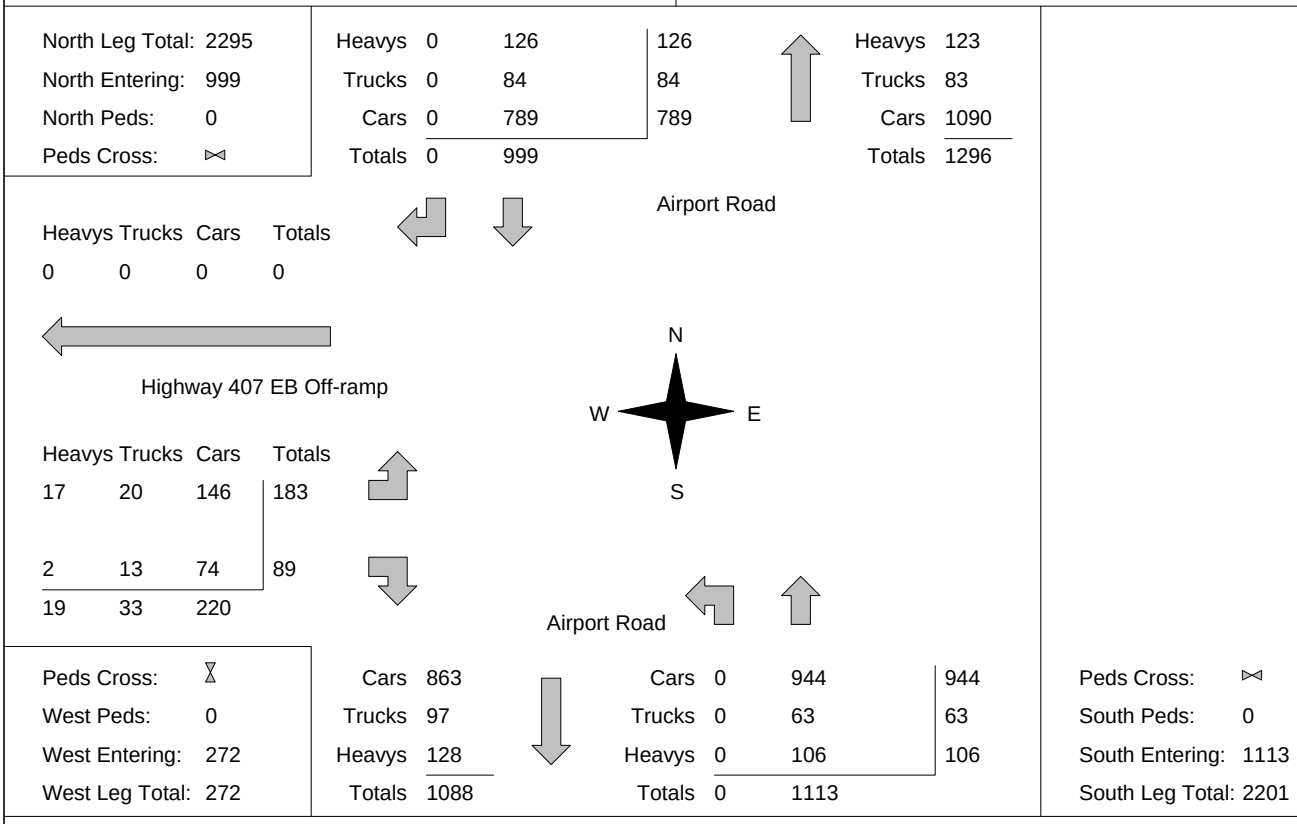
One Hour Peak
From: 13:00:00
To: 14:00:00

Municipality: Brampton
Site #: 0000001004
Intersection: Airport Road & Highway 407 EB Off
TFR File #: 1
Count date: 14-Feb-2017

Weather conditions:
Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Airport Road runs N/S



Comments

Highway 407 EB Off-ramp & Airport Road

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

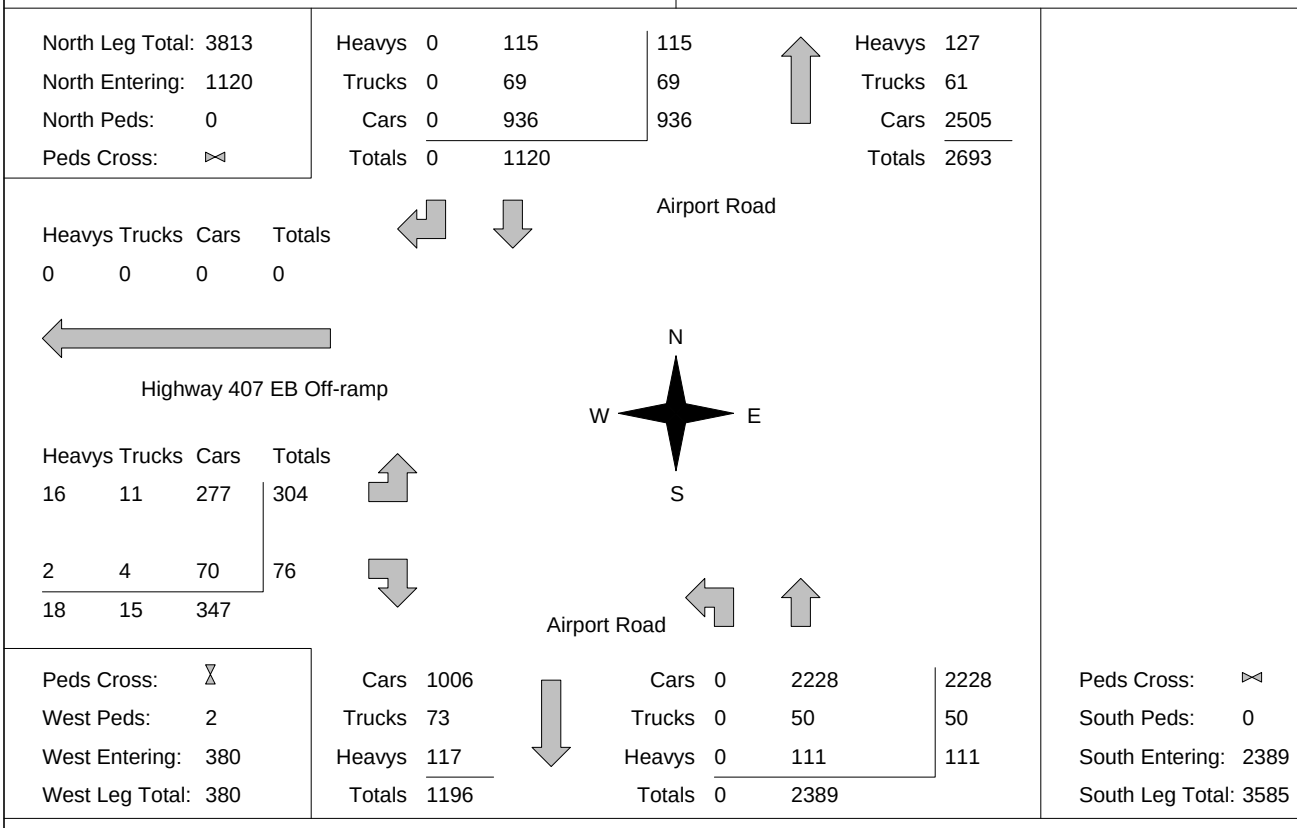
One Hour Peak
From: 16:45:00
To: 17:45:00

Municipality: Brampton
Site #: 0000001004
Intersection: Airport Road & Highway 407 EB Off
TFR File #: 1
Count date: 14-Feb-2017

Weather conditions:
Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Airport Road runs N/S



Comments

Highway 407 EB Off-ramp & Airport Road

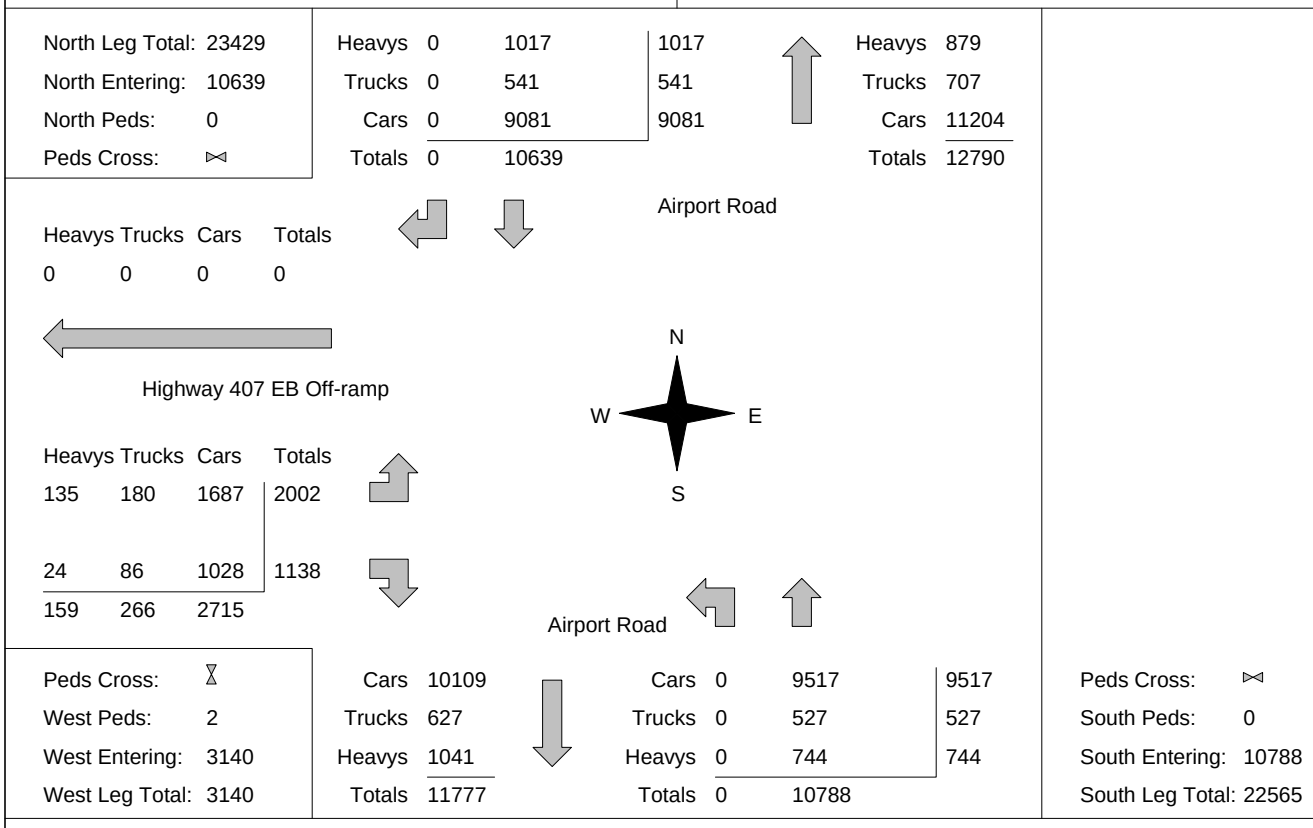
Total Count Diagram

Municipality: Brampton
Site #: 0000001004
Intersection: Airport Road & Highway 407 EB Off
TFR File #: 1
Count date: 14-Feb-2017

Weather conditions: Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Airport Road runs N/S



Comments

Highway 407 EB Off-ramp & Airport Road
Traffic Count Summary

Intersection: Airport Road & Highway 407 EB Of | **Count Date:** 14-Feb-2017 | **Municipality:** Brampton

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	0	2076	0	2076	0	3075
9:00:00	0	2068	0	2068	0	3002
11:00:00	0	0	0	0	0	0
12:00:00	0	1008	0	1008	0	1898
13:00:00	0	1009	0	1009	0	2034
14:00:00	0	999	0	999	0	2112
15:00:00	0	0	0	0	0	0
16:00:00	0	1255	0	1255	0	3088
17:00:00	0	1154	0	1154	0	2740
18:00:00	0	1070	0	1070	0	3478
Totals:	0	10639	0	10639	0	21427

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	999	0	999	0
9:00:00	0	934	0	934	0
11:00:00	0	0	0	0	0
12:00:00	0	890	0	890	0
13:00:00	0	1025	0	1025	0
14:00:00	0	1113	0	1113	0
15:00:00	0	0	0	0	0
16:00:00	0	1833	0	1833	0
17:00:00	0	1586	0	1586	0
18:00:00	0	2408	0	2408	0
Totals:	0	10788	0	10788	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	0	0	0	0	0	585
9:00:00	0	0	0	0	0	611
11:00:00	0	0	0	0	0	0
12:00:00	0	0	0	0	0	297
13:00:00	0	0	0	0	0	253
14:00:00	0	0	0	0	0	272
15:00:00	0	0	0	0	0	0
16:00:00	0	0	0	0	0	358
17:00:00	0	0	0	0	0	385
18:00:00	0	0	0	0	0	379
Totals:	0	0	0	0	0	3140

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	281	0	304	585	0
9:00:00	307	0	304	611	0
11:00:00	0	0	0	0	0
12:00:00	202	0	95	297	0
13:00:00	168	0	85	253	0
14:00:00	183	0	89	272	0
15:00:00	0	0	0	0	0
16:00:00	261	0	97	358	0
17:00:00	299	0	86	385	0
18:00:00	301	0	78	379	2
Totals:	2002	0	1138	3140	2

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	281	307	202	168	183	261	299	301

Highway 407 WB Off-ramp & Airport Road

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

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

Municipality: Brampton
Site #: 0000001003
Intersection: Airport Road & Highway 407 WB Of
TFR File #: 1
Count date: 14-Feb-2017

Weather conditions:
Cloudy

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Airport Road runs N/S

North Leg Total: 4038
North Entering: 2379
North Peds: 0
Peds Cross: ⋈

Heavys	145	0	145
Trucks	84	0	84
Cars	2150	0	2150
Totals	2379	0	

Heavys	104	
Trucks	84	
Cars	1471	
Totals	1659	

East Leg Total: 508
East Entering: 508
East Peds: 0
Peds Cross: ⋈

Airport Road

Cars	Trucks	Heavys	Totals
348	10	6	364
134	7	3	144
482	17	9	

N
W E
S

Highway 407 WB Off-ramp

Cars	Trucks	Heavys	Totals
0	0	0	0

Airport Road

Cars	2284
Trucks	91
Heavys	148
Totals	2523

Cars	1123	0	1123
Trucks	74	0	74
Heavys	98	0	98
Totals	1295	0	

Peds Cross: ⋈
South Peds: 0
South Entering: 1295
South Leg Total: 3818

Comments

Highway 407 WB Off-ramp & Airport Road

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 13:00:00
To: 14:00:00

Municipality: Brampton
Site #: 0000001003
Intersection: Airport Road & Highway 407 WB Of
TFR File #: 1
Count date: 14-Feb-2017

Weather conditions:
Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Airport Road runs N/S

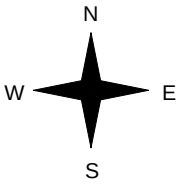
North Leg Total: 2480
North Entering: 1071
North Peds: 0
Peds Cross: ⋈

Heavys	136	0	136
Trucks	83	0	83
Cars	852	0	852
Totals	1071	0	

Heavys	125	
Trucks	98	
Cars	1186	
Totals	1409	

East Leg Total: 275
East Entering: 275
East Peds: 1
Peds Cross: ⋈

	Cars	Trucks	Heavys	Totals
	168	26	9	203
	59	10	3	72
	227	36	12	



Cars	Trucks	Heavys	Totals
0	0	0	0

Cars	911	Cars	1018	0	1018
Trucks	93	Trucks	72	0	72
Heavys	139	Heavys	116	0	116
Totals	1143	Totals	1206	0	

Peds Cross: ⋈
South Peds: 0
South Entering: 1206
South Leg Total: 2349

Comments

Highway 407 WB Off-ramp & Airport Road

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

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

Municipality: Brampton
Site #: 0000001003
Intersection: Airport Road & Highway 407 WB Of
TFR File #: 1
Count date: 14-Feb-2017

Weather conditions:
Cloudy

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Airport Road runs N/S

North Leg Total: 4046
North Entering: 1354
North Peds: 0
Peds Cross: ⋈

Heavys	111	0	111
Trucks	58	0	58
Cars	1185	0	1185
Totals	1354	0	

Heavys	118
Trucks	80
Cars	2494
Totals	2692

East Leg Total: 375
East Entering: 375
East Peds: 0
Peds Cross: ⋈

Airport Road

	Cars	Trucks	Heavys	Totals
	298	18	4	320
	43	7	5	55
	341	25	9	

N
W E
S

Highway 407 WB Off-ramp

Cars	Trucks	Heavys	Totals
0	0	0	0

Airport Road

Cars	1228		
Trucks	65		
Heavys	116		
Totals	1409		

Cars	2196	0	2196
Trucks	62	0	62
Heavys	114	0	114
Totals	2372	0	

Peds Cross: ⋈
South Peds: 0
South Entering: 2372
South Leg Total: 3781

Comments

Highway 407 WB Off-ramp & Airport Road

Total Count Diagram

Municipality: Brampton
Site #: 0000001003
Intersection: Airport Road & Highway 407 WB Of
TFR File #: 1
Count date: 14-Feb-2017

Weather conditions:
Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Airport Road runs N/S

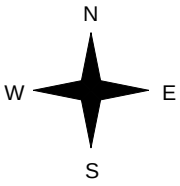
North Leg Total: 26065
North Entering: 12357
North Peds: 0
Peds Cross: ⋈

Heavys	1029	0	1029
Trucks	592	0	592
Cars	10736	0	10736
Totals	12357	0	

Heavys	895
Trucks	789
Cars	12024
Totals	13708

East Leg Total: 2780
East Entering: 2780
East Peds: 3
Peds Cross: ⋈

	Cars	Trucks	Heavys	Totals
	1909	156	44	2109
	573	70	28	671
	2482	226	72	



	Cars	Trucks	Heavys	Totals
	0	0	0	0

Cars	11309	Cars	10115 0	10115
Trucks	662	Trucks	633 0	633
Heavys	1057	Heavys	851 0	851
Totals	13028	Totals	11599 0	

Peds Cross: ⋈
South Peds: 0
South Entering: 11599
South Leg Total: 24627

Comments

Highway 407 WB Off-ramp & Airport Road
Traffic Count Summary

Intersection: Airport Road & Highway 407 WB O | **Count Date:** 14-Feb-2017 | **Municipality:** Brampton

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	0	2450	0	2450	0	3702
9:00:00	0	2373	0	2373	0	3563
11:00:00	0	0	0	0	0	0
12:00:00	0	1092	0	1092	0	2090
13:00:00	0	1086	0	1086	0	2171
14:00:00	0	1071	0	1071	0	2277
15:00:00	0	0	0	0	0	0
16:00:00	0	1452	0	1452	0	3371
17:00:00	0	1479	0	1479	0	3056
18:00:00	0	1354	0	1354	0	3726
Totals:	0	12357	0	12357	0	23956

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	1252	0	1252	0
9:00:00	0	1190	0	1190	0
11:00:00	0	0	0	0	0
12:00:00	0	998	0	998	0
13:00:00	0	1085	0	1085	0
14:00:00	0	1206	0	1206	0
15:00:00	0	0	0	0	0
16:00:00	0	1919	0	1919	0
17:00:00	0	1577	0	1577	0
18:00:00	0	2372	0	2372	0
Totals:	0	11599	0	11599	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	111	0	277	388	0	388
9:00:00	165	0	383	548	0	548
11:00:00	0	0	0	0	0	0
12:00:00	76	0	184	260	0	260
13:00:00	70	0	170	240	0	240
14:00:00	72	0	203	275	1	275
15:00:00	0	0	0	0	0	0
16:00:00	65	0	252	317	1	317
17:00:00	57	0	320	377	1	377
18:00:00	55	0	320	375	0	375
Totals:	671	0	2109	2780	3	2780

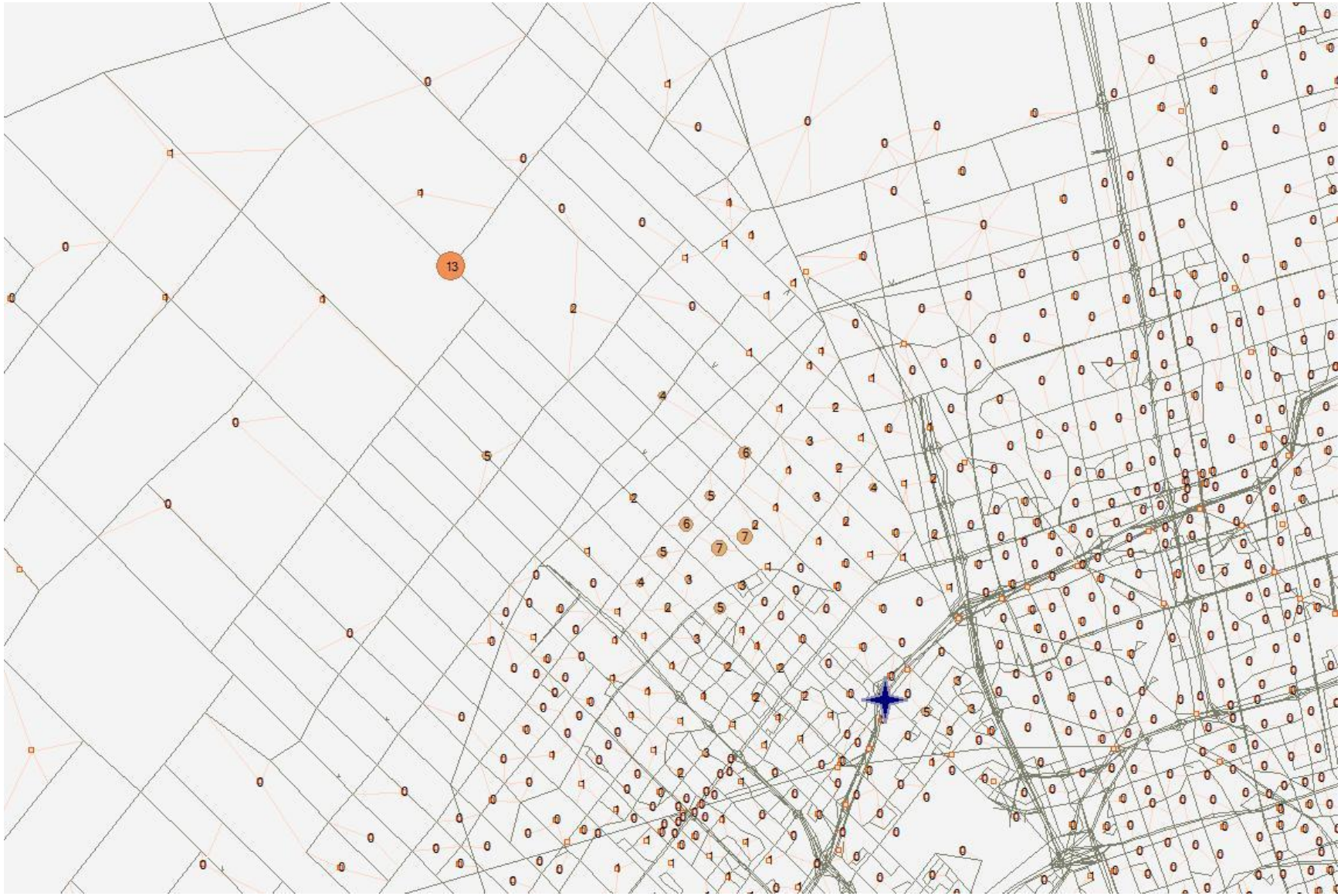
West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	0
9:00:00	0	0	0	0	0
11:00:00	0	0	0	0	0
12:00:00	0	0	0	0	0
13:00:00	0	0	0	0	0
14:00:00	0	0	0	0	0
15:00:00	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
Totals:	0	0	0	0	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	111	165	76	70	72	65	57	55

Appendix H – EMME Origin/Destination Output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Report

Goreway Station
Traffic Impact Study

Highway 407 Transitway-3

Prepared for the Ministry of Transportation, Ontario
by IBI Group

July 27, 2018

Document Control Page

CLIENT:	Ministry of Transportation, Ontario
PROJECT NAME:	Highway 407 Transitway-3
REPORT TITLE:	Goreway Station TIS – 2018-07-27
IBI REFERENCE:	39091
VERSION:	1.2
DIGITAL MASTER:	J:\39091_407trnstwy_W\10.0 Reports\3 Traffic Engineering
ORIGINATOR:	Josh Wilson, Gary Yeung
REVIEWER:	Scott Johnston
AUTHORIZATION:	Scott Johnston
CIRCULATION LIST:	
HISTORY:	1.0 Draft 2017-10-04 1.1 Draft 2017-12-12 1.2 2018-07-27

Table of Contents

1 Introduction

1.1 Project Overview

The Highway 407 Transitway is a rapid transit facility planned within the Greater Toronto and Hamilton Area (GTHA). The Transitway operate on a dedicated, grade-separated right-of-way providing users fast travel speeds and good travel time reliability. The Highway 407 Transitway project supports the Province's Growth Plan by meeting increased travel demands through alternative transportation modes, providing increased mobility for a wide variety of users, and supporting transit-oriented development and associated land uses.

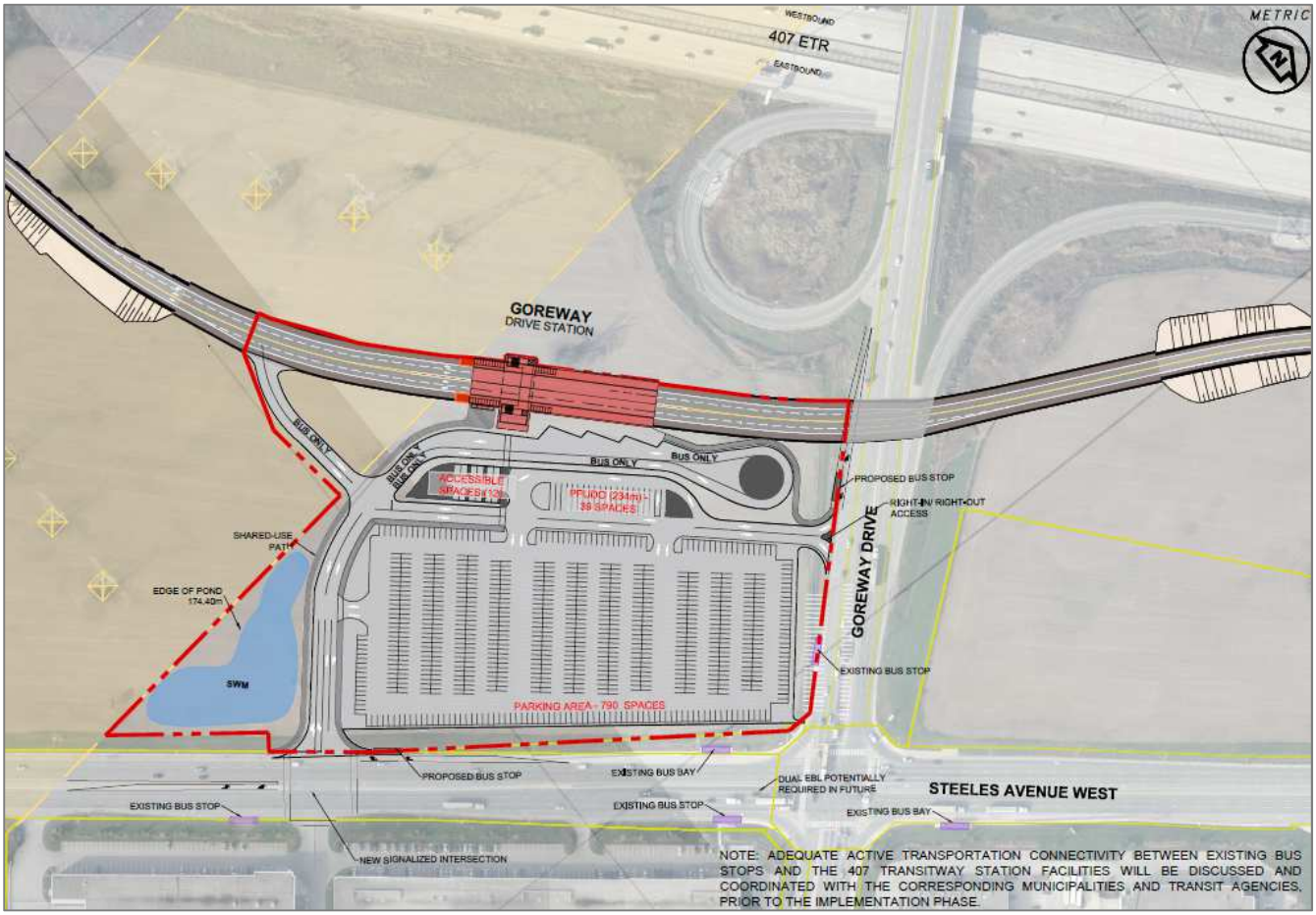
Building upon previous work IBI Group completed for the 'Central' and 'East' sections of the Transitway, the 'Transitway-3' section spans approximately 23 kilometres between Hurontario Street and Highway 400. This section of the Transitway provides opportunities to connect to the GO Rail system at Bramalea Station (Kitchener Line) as well as to a number of other higher order transit systems, supporting development within both the York and Peel Regions.

1.2 Study Area

Goreway station was not initially identified as a priority station since only moderate transit demand is forecasted at this this location, there is limited connection opportunity to Highway 407 ETR (the partial Goreway-407 interchange means connection is provided to/from the east only), and the station would lie in close proximity with the priority Airport Road station. However, Goreway Station is being carried forward conditionally in case demand exceeds available parking capacity at Airport Station and/or discussions with Hydro One for additional parking at Airport Station fail. The Goreway Station would relieve park-and-ride demands at Airport Station, and would alleviate added traffic on the already congested road network.

In the case Goreway Station is not carried forward for initial construction based on the 2041 demands, it is still recommended that the land still be protected to accommodate a possible future station if warranted based on volumes beyond the 2041 horizon year. The proposed layout of this station is illustrated in Exhibit 1-1.

Exhibit 1-1: Proposed Goreway Station Layout

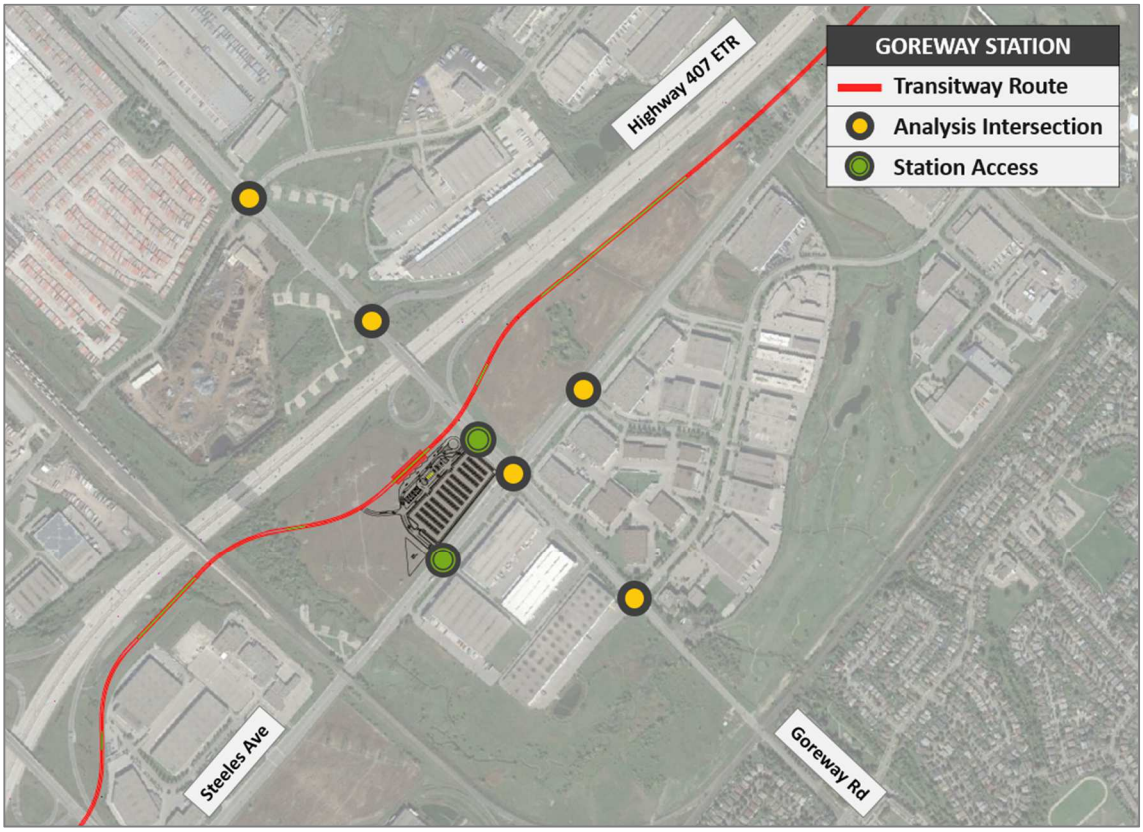


In addition to the future station accesses, the study area includes the following intersections:

- Goreway Drive & Intermodal Drive;
- Goreway Drive & Highway 407 Westbound Off-Ramp;
- Goreway Drive & Steeles Avenue;
- Goreway Drive & Kenview Boulevard;
- Intersection at 3389 Steeles Avenue; and,
- Steeles Avenue & Paget Road.

The study area is illustrated in Exhibit 1-2.

Exhibit 1-2: Goreway Station Study Area



1.3 Study Objective

The purpose of this Goreway Station TIS is to assess existing and future traffic operations in order to identify possible deficiencies in the road network and consider potential improvement options. The study is organized as follows:

- Section 2 provides an overview of the current transportation network and assesses existing traffic conditions;
- Section 3 outlines the process used to estimate peak hour traffic generated at this Transitway station, and how this traffic will be distributed on the road network;
- Section 4 assesses of future traffic conditions by considering background traffic growth in addition to traffic generated from the Transitway station;
- Section 5 evaluates potential improvement options that to address any future network deficiencies that have been identified; and,
- Section 6 provides a summary of traffic operations and recommended improvement measures.

1.4 Traffic Analysis Approach

This study documents existing traffic conditions, and assesses anticipated future conditions with consideration of background traffic growth and additional traffic generated from the proposed Transitway. Traffic analysis is conducted using Synchro (version 9) following Highway Capacity Manual (HCM 2000) methodologies of intersection analysis.

All critical traffic movements identified through the Synchro analysis are outlined and discussed, as per the following conditions:

- For signalized intersections,
  - V/C ratios for overall intersections operations, through movements or shared through/turning movements equal 0.80 or above;
  - V/C ratios for exclusive movements equal 0.85 or above; or,
  - Queues for an individual movement are projected to exceed available turning lane storage.
- For unsignalized intersections,
  - Level of service, based on average delay per vehicle or on individual movements is LOS "D" or greater; or,
  - The estimated 95th percentile queue length for an individual movement exceeds the available queue storage.

Level-of-service (LOS) is a measure of performance based on the control delay, defined as follows in Exhibit 1-3.

Exhibit 1-3: Intersection LOS Reference

HCM	CONTROL DELAY PER VEHICLE (S)	
LOS	Signalized	Unsignalized
A	≤10	≤10
B	>10 and ≤20	>10 and ≤15
C	>20 and ≤35	>15 and ≤25
D	>35 and ≤55	>25 and ≤35
E	>55 and ≤80	>35 and ≤50
F	>80	>50

Operational concerns or deficiencies noted in the studied horizon years are identified and addressed through recommendations on potential mitigation measures and/or operational improvements.

1.5 Synchro Model Calibration

The Synchro traffic models were calibrated to better reflect measured field conditions. This was accomplished by adjusting the following parameters detailed below.

Lane Utilization Factor

The "lane utilization factor" (LUF) was altered when calibrating through movements. This parameter is used to dictate the distribution of traffic across the available lanes, with a value of '1.0' representing a uniform distribution across all lanes.

During non-congested periods, there is often more traffic distributed amongst the right-most lanes as compared to the left-most lanes. However, in oversaturated conditions, the distribution of traffic is typically split more evenly across all lanes, as drivers quickly fill any available gap in traffic.

In the existing models, the LUF was adjusted to a value of '1.0' for all through movements initially identified as having a v/c ratio greater than '1.0'. These adjustments were also carried forward to those same movements in the future models (for the same peak period). Additionally, because the above-mentioned driver behaviour is quite predictable, this adjustment was also

made to any “new” critical through movements (having a v/c ratio > ‘1.0’) identified in the future models.

Lost Time Adjustment

Lost Time Adjustment (LTA) was altered in order to calibrate left-turn movements. Adjusting this parameter to a negative value effectively increases the clearance time available for left-turning traffic to clear the intersection during the amber and/or all-red signal phases.

During oversaturated conditions where left-turn queues are excessively long and/or there are limited gaps available in the opposing traffic to make the left-turn (under permissive phasing), drivers are typically more aggressive and willing to turn during the amber/all-red phases.

In the existing models, the LTA was changed for all left-turn movements identified as being well over capacity – defined as having a v/c ratio greater than ‘1.2’ – since these turning volumes were explicitly measured in the field. Values were assigned based on the initial v/c ratio for that movement:

- If the v/c ratio was between 1.2 and 1.5, the LTA was set to ‘-1’; and,
- If the v/c ratio exceeded 1.5, the LTA was set to ‘-2’.

All changes to the LTA made in the existing models were carried forward to those same movements in the future models (for the same peak period). However, because this driver behaviour is believed to be less predictable, no additional LTA changes were made to “new” critical left-turn movements (having a v/c ratio > ‘1.1) identified in the future models, which did not exist in the existing models.

2 Existing Conditions

2.1 Existing Road Network

Goreway Drive is a six lane north-south arterial road primarily within the Region of Peel. It connects Derry Road in Mississauga to Queen Street in Brampton. Currently, it has a posted speed limit of 60 km/h and serves the large residential area in Mississauga as well as an industrial employment area in Brampton.

Highway 407 is a tolled 400-series highway with an eight lane cross section. It connects the City of Burlington to the City of Pickering. 400-series highways have a speed limit of 100 km/h. A partial interchange is located at Highway 407 and Goreway Drive, providing an eastbound entrance and a westbound exit from Goreway Drive. There are currently plans to widen Highway 407 from 8 to 10 lanes.

Steeles Avenue is an arterial east-west road that connects the Town of Milton to Scarborough, Toronto. Within the study area, it is under the jurisdiction of Region of Peel and has 6 lanes. It also has a posted speed limit of 80 km/h.

Intermodal Drive is a two lane east-west local road in the City of Brampton within the Region of Peel. It connects Walker Drive to west of Gorewood Drive. The road serves an industrial employment area. A speed limit of 50 km/h is assumed.

Paget Road is a two lane north-south collector road that is located within the City of Brampton, connecting Steeles Avenue East and Kenview Boulevard. It serves a small employment area and has an assumed speed limit of 50 km/h.

Kenview Boulevard is a four lane east-west collector road in the City of Brampton. It connects Goreway Drive and Finch Avenue West and serves an employment area. A speed limit of 50 km/h is assumed.

3389 Steeles Avenue Access is an access road located off of Steeles Avenue East and serves LKQ Dominion Auto Recycling. This intersection will also provide access to this proposed Transitway station.

2.2 Traffic Counts & Signal Timing Data

Traffic count data and signal timing information was collected from City of Brampton, City of Mississauga, and Region of Peel. All turning movement counts modelled for the purposes of this study were conducted recently (within the past five years) and so should reflect current traffic patterns within the study area. Exhibit 2-1 provides a summary of dates on which this information was collected/recorded.

Exhibit 2-1: Traffic Count and Signal Timing Data

INTERSECTION	CONTROL TYPE	DATE OF TMC	DATE OF SIGNAL DATA
Goreway Dr & Kenview Blvd	Signalized	18-Jun-15	9-Sep-16
Goreway Dr & Intermodal Dr	Signalized	18-Jun-15	9-Sep-16
Goreway Dr & Hwy 407 North Ramp Terminal	Signalized	18-Jun-15	9-Sept-16
Goreway Dr at Steeles Ave	Signalized	11-Nov-14	31-Jul-15

2.3 Existing Transit Network

Brampton Transit (BT) and its branded Bus Rapid Transit service (Züm) currently operates routes in the study area:

- **BT Route 5 (Bovaird)** is a local route that runs along Bovaird Dr and Airport Rd, connecting Mount Pleasant GO Station in Brampton to Westwood Mall in Mississauga operating on approximately 20 minute frequencies;
- **BT Route 29A (Williams)** is a local route that travels on Williams Parkway East and Goreway Drive, connecting Mount Pleasant GO Station to the Kenview Boulevard/Paget Road loop on 15 minute frequencies during peak hours.
- **BT Route 11 (Steeles)** is a local route that connects Lisgar GO Station in the City of Mississauga to Humber College along Steeles Ave with frequencies of 10 minutes during peak hours; and
- **Züm Route 511 (Züm Steeles)** is an express route that runs along Steeles Ave E in Brampton, connecting Lisgar GO Station in the City of Mississauga to the Humber College in Etobicoke Toronto, operating on approximately 10 minute frequencies during the peak hour in the study area.

Exhibit 2-2 illustrates the transit services within the study area.

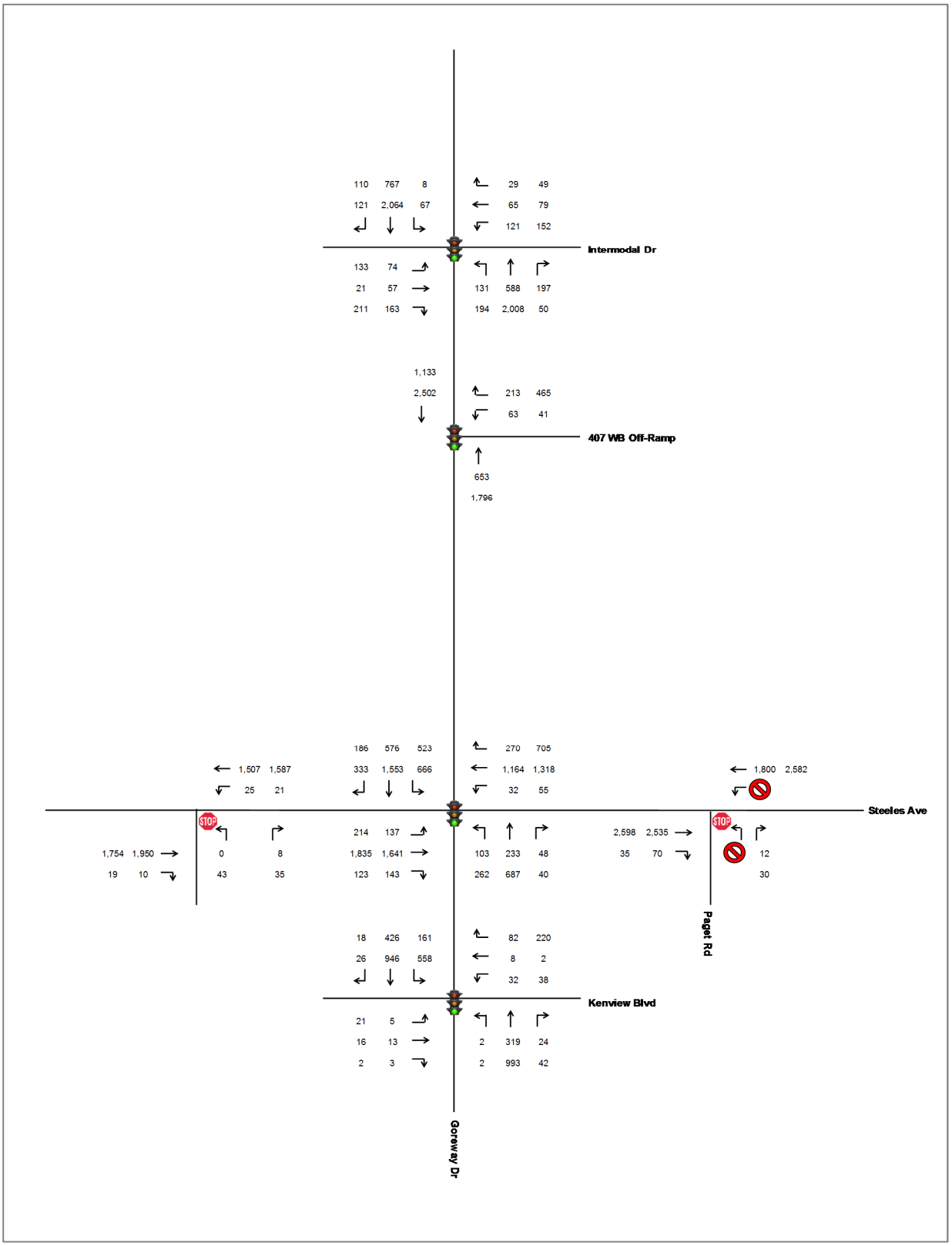
Exhibit 2-2: BT in the Study Area

2.4 Existing Traffic Operations

The existing conditions analysis represents traffic operations during base year 2017. An annual compound growth rate of 1.0% was applied to all count volumes obtained in years prior to 2017 in order to bring all counts to a consistent base year.

Existing conditions traffic volumes are illustrated in Exhibit 2-3.

Exhibit 2-3: Existing Volumes in AM (PM) Peak Hours



A summary of critical movements identified during the existing conditions analysis is provided in Exhibit 2-4, with a detailed output of the Synchro analysis provided in the Appendix.

Exhibit 2-4: Existing Critical Movements Summary

INTERSECTION	AM PEAK					PM PEAK				
	LOS	Critical Movements				LOS	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Goreway Dr & Intermodal Dr	C	EBL WBL	E F	0.45 0.80	33.4 54.0	B	EBL WBL	E E	0.77 0.75	52.4 57.4
Goreway Rd & 407 WB Off-Ramp	B	WBL WBR	E E	0.36 0.08	21.0 20.5	B	WBR	E	0.80	84.5
Goreway Dr & Steeles Ave	F	EBL EBT NBL SBL SBT	E D E F F	0.82 0.89 0.50 1.17 1.18	55.3 192.6 24.1 150.4 325.3	E	EBL EBT WBT WBR NBL SBL SBT SBR	F D D F E F E F	1.08 0.94 0.85 1.02 0.71 1.20 0.61 0.13	113.0 214.5 138.7 210.2 49.1 131.8 104.0 39.2
Goreway Dr & Kenview Blvd	A	(no critical movements)				B	(no critical movements)			
Access located at 3389 Steeles Ave	N/A	(no critical movements)				N/A	(no critical movements)			
Steeles Ave & Paget Rd	N/A	(no critical movements)				N/A	(no critical movements)			

The study intersections are currently operating as follows:

- Goreway Drive & Intermodal Drive is operating satisfactorily in both peak hours, at LOS C in the a.m. peak and LOS B in the p.m. peak. However, the left-turn movements on the minor approaches experience delays as a result of having limited green-time.
- The intersection of Goreway Road and the Highway 407 westbound off-ramp is operating well at LOS B during both peak hours. There is limited to access to Highway 407 at Goreway Road, with no on-ramp to the westbound mainline and no off-ramp from the eastbound mainline.
- Goreway Drive & Steeles Avenue is operating near or at capacity during both peak hours, at LOS F in the a.m. peak hour and LOS E in the p.m. peak hour. Volumes are high on all four approaches, and so movements compete for available green-time. Presently, dual left-turn lanes are implemented on the north and south approaches, while the east and west legs possess only single left-turn lanes.
- Goreway Drive & Kenview Boulevard is operating well during both peak hours.
- The intersections on Steeles Avenue at 3389 Steeles Avenue Access and at Paget Road are both unsignalized, with stop control implemented on the minor approaches. The minor approaches at both intersections currently operate well during both peak hours, with limited delays observed.

2.5 Existing Model Calibration

The Existing traffic models were calibrated to better reflect measured field conditions accomplished by adjusting either the Lane Utilization Factor (LUF) or Lost Time Adjustment (LTA) for certain movements.

Adjustments made to the existing traffic models are outlined in Exhibit 2-5. These adjustments were applied using the methodologies outlined in Section 2.

Exhibit 2-5: Existing Model Calibration Parameters

PERIOD	INTERSECTION	MOVEMENT	ADJUSTED PARAMETER	ADJUSTMENT VALUE
AM Peak	Goreway & Steeles	SBT	LUF	1.0
PM Peak	Goreway & Steeles	SBL	LTA	- 1 sec

These adjustments were applied using the methodologies outlined in Section 2.

3 Site Traffic & Parking

3.1 Ridership Forecasts

Ridership forecasts were developed using the Greater Golden Horseshoe Model (GGHM), a state-of-practice multi-modal travel demand model that estimates future travel demands within the Greater Golden Horseshoe. The GGHM was developed to forecast peak period demand in support of Growth Plan policies and has the capability of predicting mode shifts resulting from new public transit infrastructure. It can also be used to test network responses to changes in link characteristics such as transit vehicle frequency, operating speed, station location, and parking availability.

Future year forecasts were previously developed for a number of horizon years including 2031, 2041, and 2051. A number of road network improvements and expansions are also included in the future year models, including numerous widenings along the 400-series highways and major arterial roads. Transit infrastructure included in future models represent projects that are currently committed and funded. While is possible that additional projects will be funded over the upcoming years, this method represents a conservative approach. The following is a list of rapid transit projects that were included in the future year models:

- Toronto-York Spadina Subway Extension (TYSSE);
- 407 Transitway Central Section (Jane Street to Kennedy Road);
- VIVA routes and busways;
- Mississauga 403 Transitway;
- Eglinton Crosstown LRT;
- Sheppard LRT;
- Finch West LRT;
- Yonge Subway Extension to Richmond Hill;
- Two-way all-day GO Rail service (Regional Express Rail);
- Scarborough RT Extension;
- Hurontario-Main LRT; and,
- Highway 427 Transitway.

In addition to developing separate scenarios for the horizon years studied, alternative GGHM scenarios were also developed to represent different levels of funding for the Transitway-3 project: one representing an eleven-station structure and a second representing a reduced eight-station structure. It should also be noted that forecasts were developed only for the a.m. peak period, and so adjustment factors will be used to estimate p.m. peak demands.

With input from the MTO, a horizon year of 2031 was selected as the baseline for determining road and intersection requirements as part of this traffic impact study. The ridership forecasts used for the purposes of this study were taken from the 2031 GGHM model showing the reduced eight-station structure. Demands corresponding to the eight-station scenario for year 2031 are outlined in Exhibit 3-1.

Exhibit 3-1: 2031 AM Peak Hour Boardings

STATION	TOTAL BOARDINGS	PARK-AND-RIDE	WALK / TRANSIT	% PARK-AND-RIDE	% WALK / TRANSIT
Pine Valley	210	130	80	62%	38%
Martin Grove	420	170	250	40%	60%
Highway 27	400	170	230	43%	58%
Highway 50	790	260	530	33%	67%
Goreway	**320**	**180**	**140**	**56%**	**44%**
Airport	610	120	490	20%	80%
Dixie	1,770	110	1,660	6%	94%
Hurontario	1,320	170	1,150	13%	87%
Total:	210	130	80	62%	38%

Note that a ninth station may also be included at Bramalea (between Dixie and Airport), however this station would operate solely as a transit interlining/transfer station and therefore generate no park-and-ride demand.

3.2 Trip Generation

Peak hour trips to and from the station were estimated using the GGHM ridership forecasts presented in Exhibit 3-1. Because walk/transit boardings do not translate into vehicle trips generated, only park-and-ride demands were considered at this stage.

Park-and-ride boardings were equated to inbound vehicle trips at an assumed factor of 10:11, or 1.1 riders per park-and-ride vehicle. However, this only provides an indication of inbound trips to the station, and not of outbound trips leaving the station. Furthermore, the park-and-ride demands were developed only for the a.m. peak hour and not for the p.m. peak hour.

The ITE Trip Generation Manual (9th edition) was used to estimate a.m. peak outbound trips, as well as p.m. peak inbound and outbound trips. Average trip generation rates for bus stations with park-and-ride lots are indicated in Exhibit 3-2.

Exhibit 3-2: ITE Trip Generation Rates for Park-and-Ride Lots

LAND USE (CODE)	UNITS	AM PEAK HOUR		PM PEAK HOUR	
		Trip Rate	Inbound / Outbound	Trip Rate	Inbound / Outbound
Park-and-ride with bus service (090)	/ parking space	0.71	79% / 21%	0.62	25% / 75%

The 2031 GGHM forecasts indicate a demand of 180 park-and-ride boardings at Goreway Statyion during the a.m. peak hour. Exhibit 3-3 lists the estimated site traffic generated given the above assumptions.

Exhibit 3-3: Estimated Vehicle Trips Generated by Goreway Station

AM PEAK TRIPS		PM PEAK TRIPS	
Inbound	Outbound	Inbound	Outbound
164 *	43	45	136

** Calculated based on forecasted 2031 a.m. park-and-ride boardings, at a factor 1.0 inbound vehicles per 1.1 boardings.*

3.3 Trip Distribution

An origin/destination map showing the origin of park-and-ride trips destined to Goreway Station was extracted from the 2031 GGHM and can be found attached in the Appendix. The model runs correspond to 2031 a.m. conditions for the eight-station Transitway structure, and with the assumption that the 'Central' and 'East' Transitway sections exist. Note that the model does not account for an extension of the Transitway west beyond Hurontario Street (i.e. beyond the 'Transitway-3' limits).

Using this map, inbound trips were tabulated in terms of general direction of origin (i.e. north, south, east or west) and assigned to the study area intersections as a percentage of total inbound trips. Distribution of outbound trips was assumed to the same as inbound trips (e.g. the percentage of inbound trips originating from the north is equal to the percentage of outbound trips destined to the north). Trip distribution percentages were assumed to be equal during both the a.m. and p.m. peak hours.

The resulting trip distribution percentages to and from the station are illustrated in Exhibit 3-4. By then applying the trip generation values from Exhibit 3-3 to the trip distribution percentages shown in Exhibit 3-4, the site generated traffic was assigned to study area intersections and is indicated in Exhibit 3-5 and Exhibit 3-6 (for the a.m. and p.m. peak hours, respectively).

Exhibit 3-4: Trip Distribution in AM and PM Peak Hours

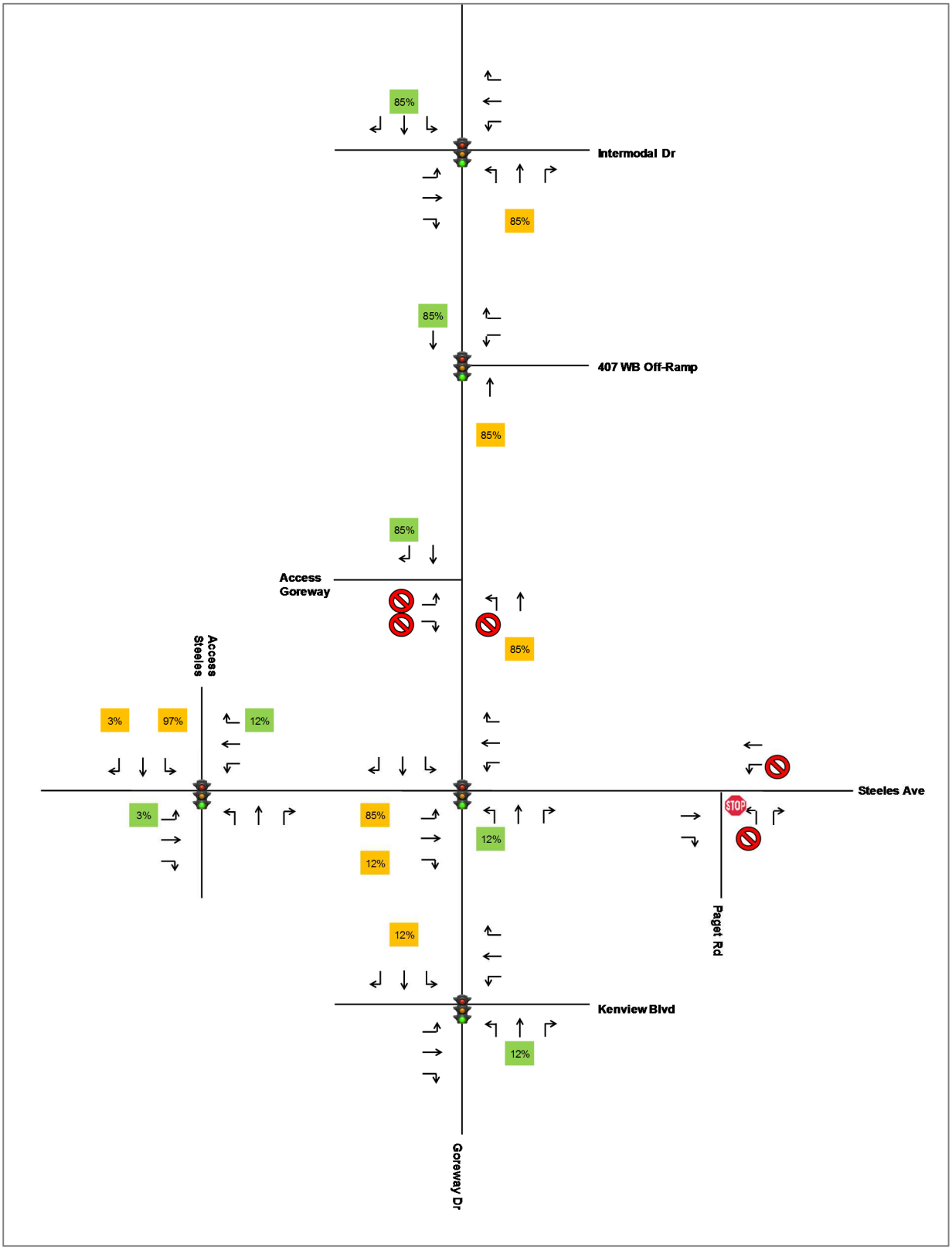


Exhibit 3-5: Site Generated Traffic in AM Peak Hour

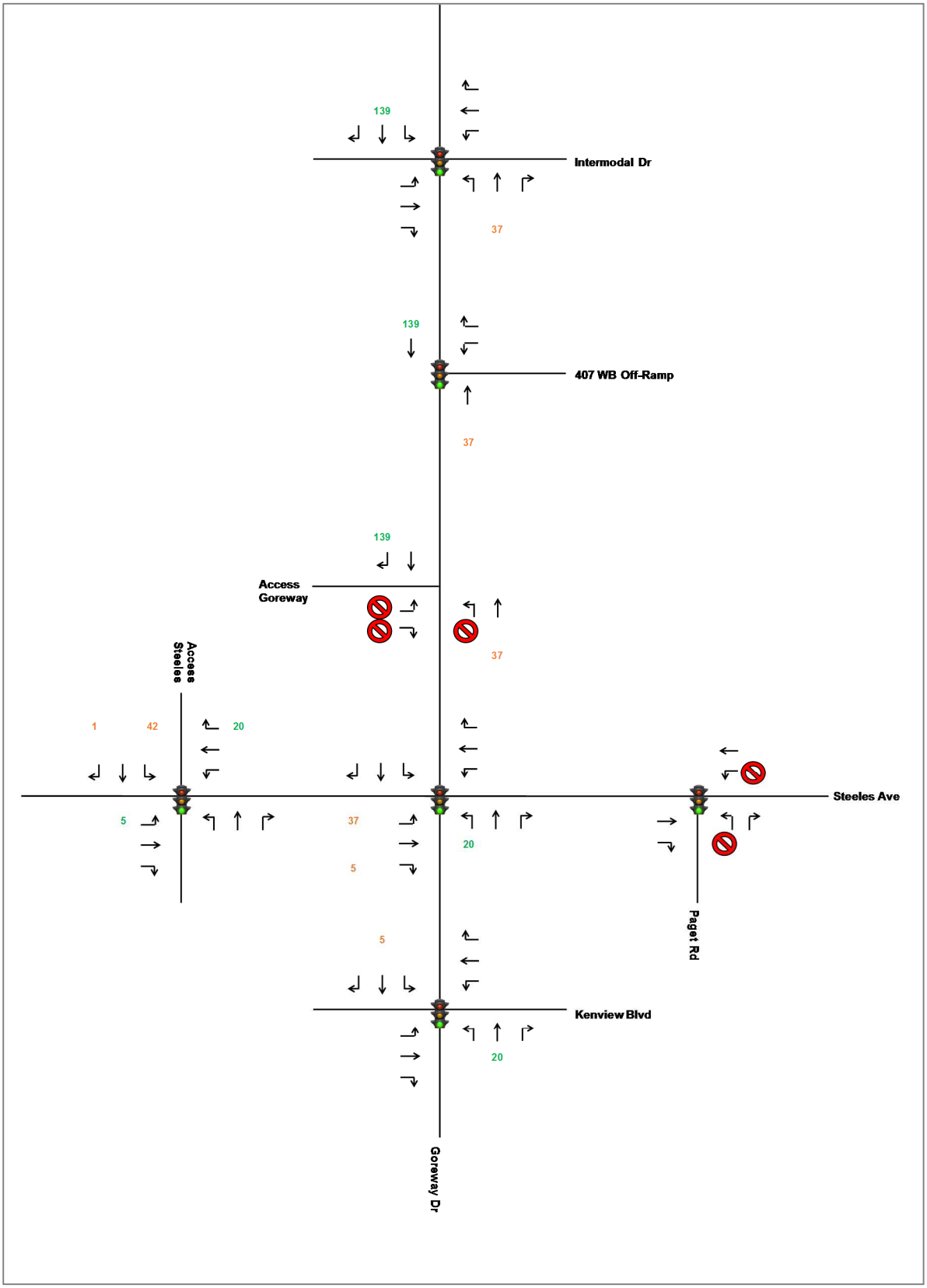
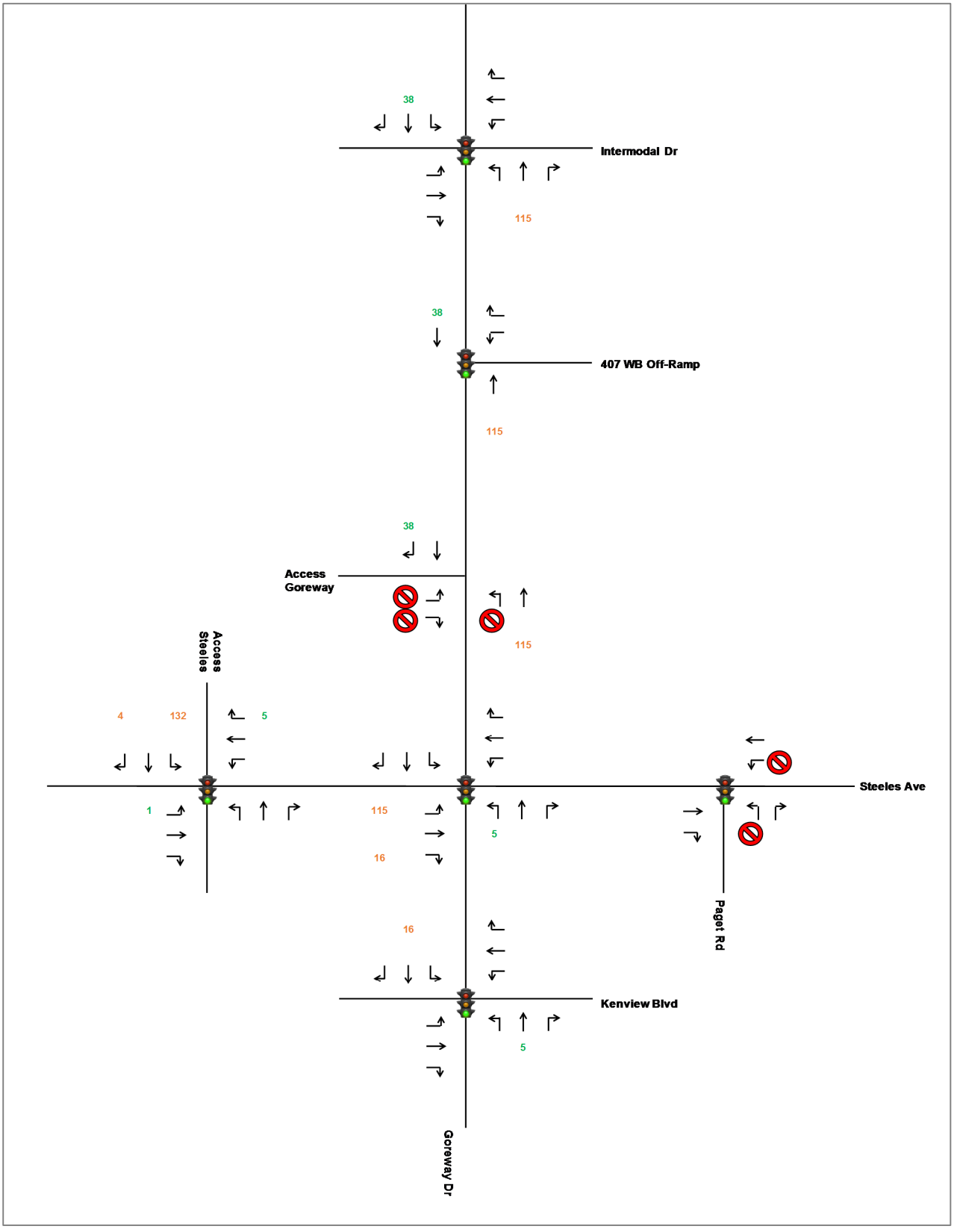


Exhibit 3-6: Site Generated Traffic in PM Peak Hour



3.4 Parking Demands

In order to estimate parking demands at each of the Transitway stations, data from various GO transit stations nearby the study area was analyzed to study the relationship between inbound vehicle trips and average parking lot utilization. Four GO stations were considered, comprising of Brampton, Bramalea, Malton, and Etobicoke North stations.

The average number of inbound vehicle trips made to each of these GO stations during the a.m. peak period (defined as 6:30-9:30 am) were determined using 2011 Transportation Tomorrow Survey (TTS) data. The data was filtered to only include trips made via the auto driver mode, as this corresponds directly to number of inbound passenger vehicles.

Parking data for the GO transit stations was obtained from the *GO Transit Rail Parking and Station Access Plan (2013)* prepared for Metrolinx. The report notes the total capacity and average utilization of each GO station parking lot, which were used to calculate average parking demands. Note that the parking data from this report is dated May-2012, which is similar to the time period covered by the 2011 TTS.

By comparing the number of inbound auto drivers during the a.m. peak period to the average parking lot demand at each station, a representative “parking factor” was determined. These values are indicated in the below Exhibit 3-7.

Exhibit 3-7: Parking Demand Factors for nearby GO Transit Stations

2011 TTS AM PEAK PERIOD *		2012 GO STATION PARKING **			PARKING FACTOR
GO Station	Auto Drivers	Capacity	Utilization	Demand	
Brampton	860	891	101%	900	1.046
Bramalea	1,360	2,381	81%	1,929	1.418
Malton	580	731	95%	694	1.197
Etobicoke North	410	532	97%	516	1.259
Total	*3,210*	*4,535*	*89%*	*4,039*	***1.258***

** AM peak period inbound vehicles estimated using 2011 TTS data, and rounded to the nearest 10.*

*** GO parking data obtained from the "GO Transit Rail Parking and Station Access Plan" (2013), and is dated May-2012.*

This “parking factor” was then applied to the a.m. peak period inbound trips estimated at each Transitway station. Note that park-and-ride forecasts (and congruently, estimated inbound vehicle trips) for the a.m. peak hour can be converted to a.m. peak period forecasts by applying a factor of 2.174, as analysis of the TTS indicated that 46% of 3-hour a.m. peak period trips occur within the single a.m. peak hour.

The resulting estimated parking demands at each Transitway station are provided in Exhibit 3-8. Parking demands are provided for both the 2031 horizon used for the purposes of this traffic study, as well as for the 2051 horizon established to represent “ultimate” conditions.

Exhibit 3-8: Estimated Parking Demands for each Transitway Station

STATION	GGHM INBOUND TRIPS *				PARKING DEMAND ***	
	AM Peak Hour		AM Peak Period **			
	2031	2051	2031	2051	2031	2051
Pine Valley	118	164	257	356	323	448
Martin Grove	155	227	336	494	423	622
Highway 27	155	236	336	514	423	646
Highway 50	236	409	514	889	646	1119
Goreway	**164**	**291**	**356**	**632**	**448**	**796**
Airport	109	191	237	415	298	522
Dixie	100	164	217	356	273	448
Hurontario	155	245	336	534	423	671

** Calculated based on forecasted a.m. park-and-ride boardings, at a factor 1.0 inbound vehicles per 1.1 boardings.*

*** Peak hour trips can be converted to peak period trips at a factor of 2.174.*

**** Parking demands calculated by multiplying estimated a.m. peak period inbound trips by a factor of 1.258.*

4 Future Conditions

4.1 Future Background Operations

Future conditions analysis were undertaken for horizon year 2031. The City of Mississauga and Region of Peel population and trip-end growth forecasts were considered in the preparation of the traffic growth forecast. Relevant documents are listed as follows:

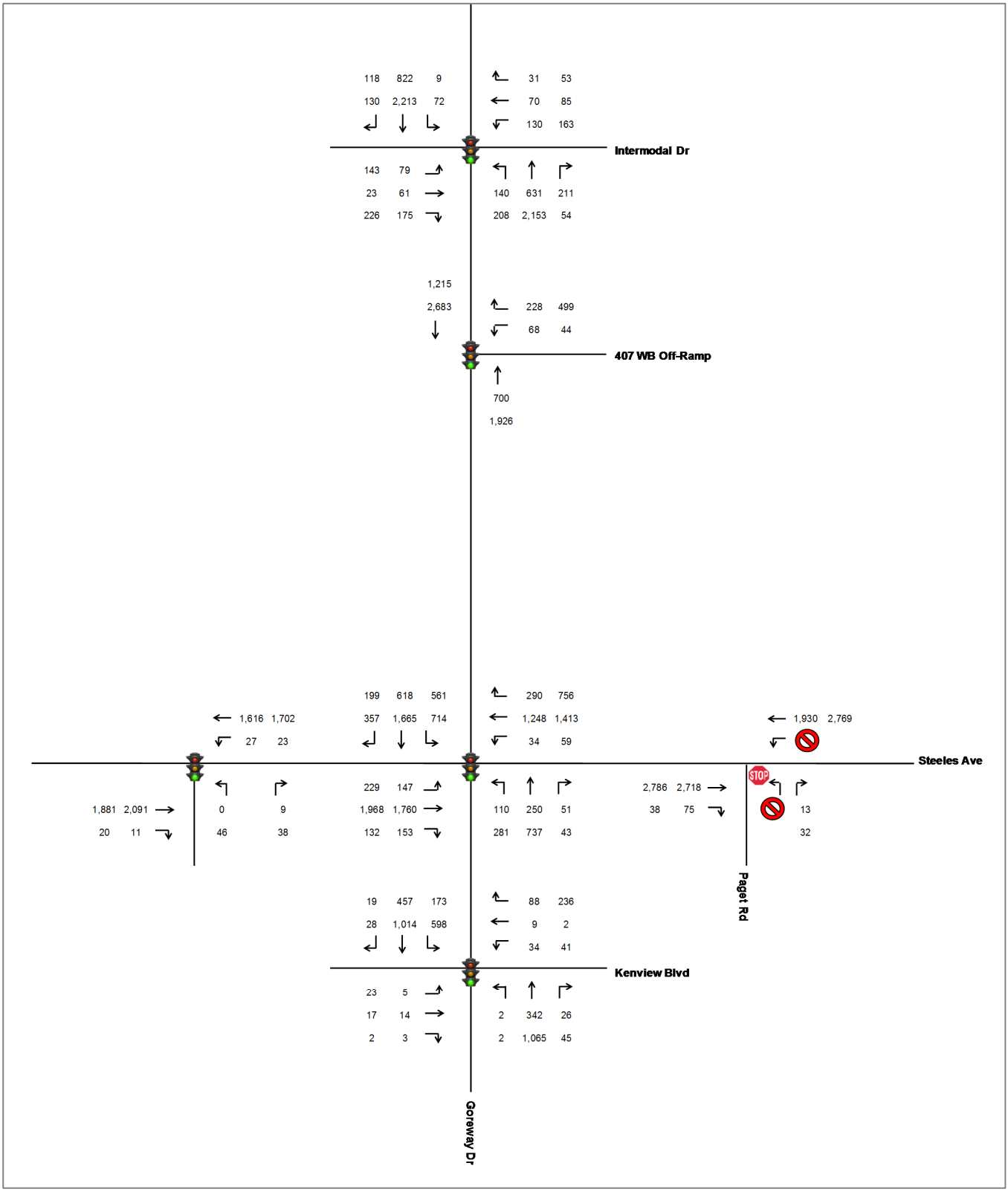
- Greater Toronto and Hamilton Area – "Growth Plan for the Greater Golden Horseshoe" (2017);
- City of Mississauga – "Mississauga Official Plan" (2016); "Population, Demographics & Housing" (2013); and "Moving Mississauga" (2011); and,
- Region of Peel – "Long Range Transportation Plan" (2012).

Review of the above documents showed that population growth is estimated to be 0.5% to 0.6% per year between 2011 and 2031, while trip ends are forecasted to increase by 0.9% to 1.0% per year during that same period time.

However, many major intersections nearby the Transitway are already operating at or above capacity during peak times, suggesting that there is limited remaining capacity available to serve added future demands. While trip ends are forecasted to increase up to 1.0% per year, it is expected that some "peak spreading" will occur – where some motorists alter their departure times to avoid congestion during the peak hours. Rather than growth occurring uniformly throughout the day, this results in less growth during the peak hours and greater growth during off-peak times.

Given the above, an annual compound growth rate of 0.5% per year was used to represent background growth (unrelated to the implementation of the Transitway) during the a.m. and p.m. peak hours. Future traffic volumes with background growth applied are illustrated in Exhibit 4-1.

Exhibit 4-1: Future Background Volumes in AM (PM) Peak Hours



A summary of critical movements identified during the future background conditions analysis is provided in Exhibit 4-2, with a detailed output of the Synchro analysis provided in the Appendix.

Exhibit 4-2: Future Background Critical Movements Summary

INTERSECTION	AM PEAK					PM PEAK				
	LOS	Critical Movements				LOS	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Goreway Dr & Intermodal Dr	C	EBL	E	0.48	36.5	B	EBL	E	0.78	55.7
		WBL	F	0.84	59.6		WBL	E	0.75	60.4
		NBL	E	0.85	59.6					
Goreway Rd & 407 WB Off-Ramp	B	WBL	E	0.38	22.1	B	WBR	E	0.81	91.8
		WBR	E	0.09	21.3					
Goreway Dr & Steeles Ave	E	EBL	F	1.12	78.7	E	EBL	F	1.21	111.2
		EBT	E	0.98	199.2		EBT	D	0.97	206.3
		WBT	E	0.90	142.1		WBT	D	0.91	151.9
		NBL	E	0.63	25.9		WBR	F	1.09	231.5
		SBL	F	0.98	141.6		NBL	E	0.72	52.0
		SBT	F	1.06	293.7		NBT	E	0.83	122.0
							SBL	F	1.05	122.2
							SBR	F	0.20	48.3
Goreway Dr & Kenview Blvd	B	SBL	C	0.87	138.9	B	SBL	E	0.91	63.0
Access located at 3389 Steeles Ave	N/A	(no critical movements)				N/A	(no critical movements)			
Steeles Ave & Paget Rd	N/A	(no critical movements)				N/A	(no critical movements)			

With background growth added, the study intersections are expected to operate as follows:

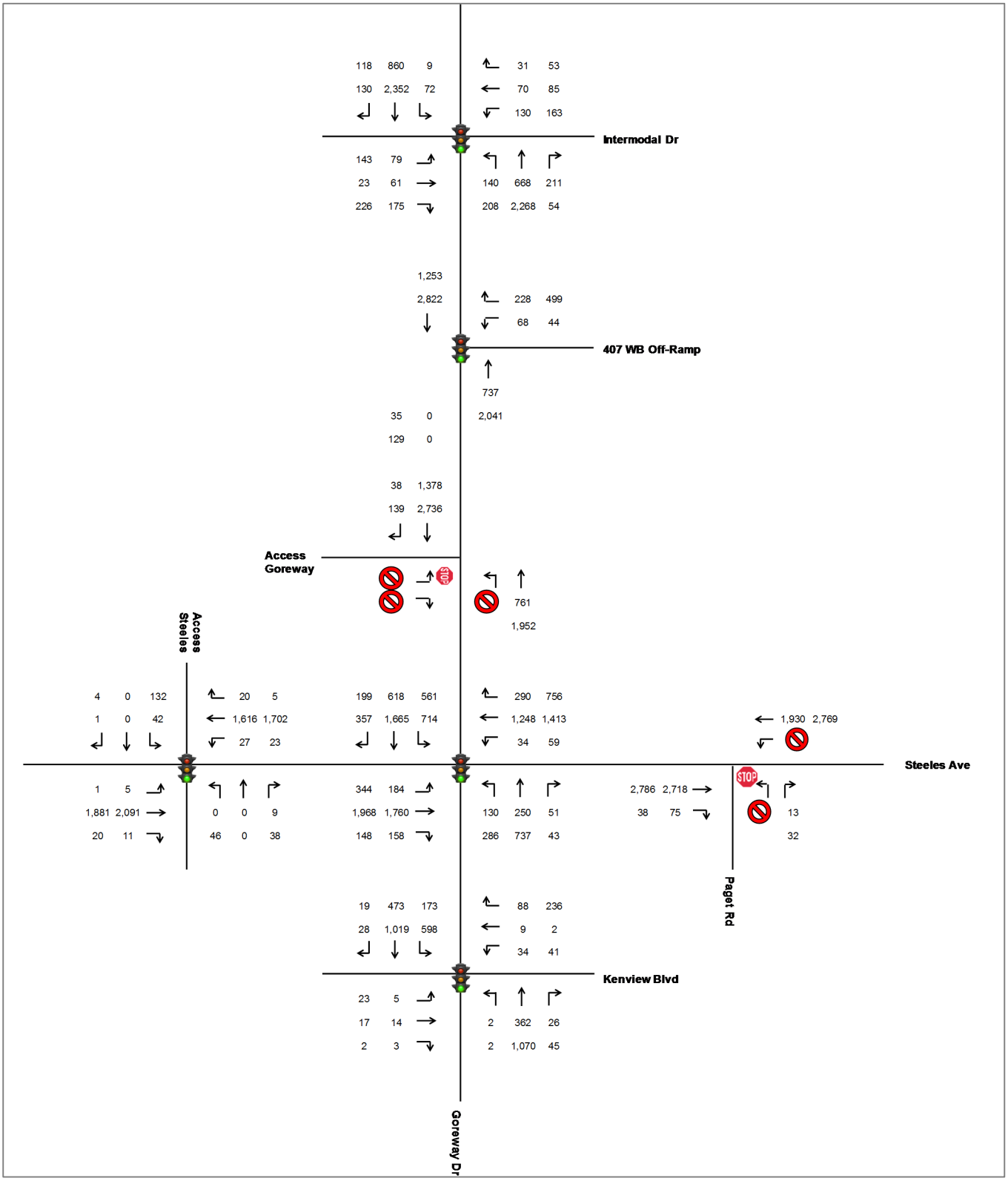
- Goreway Drive & Intermodal Drive continues to operate satisfactorily in both peak hours, remaining at LOS C in the a.m. peak and LOS B in the p.m. peak. As was the case in the existing conditions analysis, the left-turn movements on the minor approaches experience delays as a result of having limited green-time.
- The intersection of Goreway Road and the Highway 407 westbound off-ramp continues to operate well and remains at LOS B during both peak hours.
- Goreway Drive & Steeles Avenue remains congested as was the case for the existing conditions analysis. In the a.m. peak, while traffic volumes increase, overall operations actually improve from LOS F to LOS E following optimization of signal splits (which resulted in more green-time being dedicated to the north-south phase at the expense of the east-west phases). In the p.m. peak, overall operations remain at LOS E while conditions for individual movements worsen slightly.
- Goreway Drive & Kenview Boulevard continues to operate well during both peak hours, however the SBL movement is approaching capacity in the p.m. peak hour. Given that Kenview Boulevard is not a through-street, it is possible a portion of these p.m. volumes represent cut-through attempting to avoid congestion on Steeles Avenue and Finch Avenue.
- Both unsignalized intersections located on Steeles Avenue at 3389 Steeles Avenue Access and at Paget Road continue to operate well with background growth added, and limited delays are observed in either peak hour.

4.2 Future Total Operations

Future total volumes were calculated adding the site-generated traffic to the future volumes with background growth applied. This future total scenario accounts for all vehicular traffic that is estimated in year 2031 following implementation of the Transitway.

Future total volumes, which include background growth in addition to the traffic generated by Goreway Station, are illustrated in Exhibit 4-3.

Exhibit 4-3: Future Total Volumes in AM (PM) Peak Hours



A summary of critical movements identified during the future total conditions analysis is provided in Exhibit 4-4, with a detailed output of the Synchro analysis provided in the Appendix.

Exhibit 4-4: Future Total Critical Movements Summary

INTERSECTION	AM PEAK					PM PEAK				
	LOS	Critical Movements				LOS	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Goreway Dr & Intermodal Dr	C	EBL WBL NBL	E F E	0.48 0.85 0.85	36.8 60.9 62.5	B	EBL WBL	E E	0.78 0.75	55.8 60.5
Goreway Rd & 407 WB Off-Ramp	B	WBL WBR	E E	0.38 0.09	22.1 21.3	B	WBR	E	0.81	92.5
Goreway Dr & Steeles Ave	E	EBL EBT WBT NBL SBL SBT	F E E F F F	1.17 0.98 0.97 0.74 0.98 1.07	96.5 199.2 157.3 34.0 141.6 294.6	F	EBL EBT WBT WBR NBL NBT SBL SBT SBR	F D E F E E F E F	1.40 0.92 0.95 1.17 0.73 0.83 1.21 0.65 0.14	168.1 187.9 164.8 244.9 52.9 122.0 133.3 112.0 42.2
Goreway Dr & Kenview Blvd	B	SBL	C	0.88	140.8	B	SBL	E	0.91	63.2
Access located at 3389 Steeles Ave	B	(no critical movements)				B	(no critical movements)			
Steeles Ave & Paget Rd	N/A	(no critical movements)				N/A	(no critical movements)			

With Goreway demands added to future background growth conditions, the study intersections are expected to operate as follows:

- Northbound and southbound traffic is added to Goreway Drive & Intermodal Drive, however the intersection continues to operate at LOS C in the a.m. peak and LOS B in the p.m. peak. As was the case in the existing and background conditions analyses, the left-turn movements on the minor approaches experience delays as a result of having limited green-time.
- While northbound and southbound traffic is added to the intersection between Goreway Road and the Highway 407 westbound off-ramp, the intersection continues to operate well and remains at LOS B during both peak hours.
- A small amount of site traffic is added to Goreway Drive & Steeles Avenue in the a.m. peak, however the intersection remains operating at LOS E as was the case in the background conditions analysis. In the p.m. peak, site traffic affects a handful of movements, however the majority of traffic is added to the already critical EBL movement. This added traffic cannot be sufficiently accommodated, and overall intersection operations deteriorate from LOS E to LOS F in the p.m. peak.
- Goreway Drive & Kenview Boulevard continues to operate well during both peak hours. The SBL movement is still shown to be approaching demand in the p.m. peak hour, however is not anticipated to be affected by site traffic.
- The west access to the Transitway station will be located opposite the existing unsignalized 3389 Steeles Avenue Access, and the resulting intersection will be

signalized. The newly signalized was is observed to operate well during both peak hours, at LOS B for each.

- Limited site traffic is expected to be added to Steeles Avenue & Paget Road, and the unsignalized intersection continues to operate well during both peak hours.

Two accesses to the park-and-ride lot are proposed: a signalized access located on Steeles Avenue, and an unsignalized access located on Goreway Road. While initially intended to operate as a right-in/right-out access, it is recommended the Goreway Road access be restricted to right-in movements only, since a right-out would introduce weaving conflicts and present safety concerns. Both accesses are anticipated to operate well, as indicated in Exhibit 4-5.

Exhibit 4-5: Station Access Operations Summary

ACCESS	AM Peak					PM Peak				
	LOS	Inbound/Outbound Movement				LOS	Inbound/Outbound Movement			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Goreway Rd access (right-in only)	A	SBR (in)	A	0	0	A	SBR (in)	A	0	0
		EBR (out)	(right-out not permitted given weaving conflicts)				EBR (out)	(right-out not permitted given weaving conflicts)		
Steeles Ave access (signalized)	B	EBL (in)	A	0.04	1.5	B	EBL (in)	A	0.01	0.6
		WBR (in)	A	0.02	1.9		WBR (in)	A	0.01	0.1
		SBL (out)	B	0.07	8.8		SBL (out)	B	0.21	18.5
		SBR (out)	A	0	0		SBR (out)	A	0.01	0

As shown, both accesses are expected to operate satisfactorily during both the a.m. peak and p.m. peak hour. No individual movements are expected to exceed critical thresholds.

4.3 Future Model Calibration

The Future Synchro models were calibrated to better reflect measured field conditions accomplished by adjusting either the Lane Utilization Factor (LUF) or Lost Time Adjustment (LTA) for certain movements.

Adjustments made to the existing traffic models are outlined in Exhibit 4-6.

Exhibit 4-6: Future Background Model Calibration Parameters

PERIOD	INTERSECTION	MOVEMENT	ADJUSTED PARAMETER	ADJUSTMENT VALUE
AM Peak	Goreway & Steeles	SBT	LUF	1.0
		SBL	LTA	-
		EBT	LUF	1.0
PM Peak	Goreway & Steeles	SBL	LTA	- 1 sec
		EBT	LUF	1.0

These adjustments were applied using the methodologies outlined in Section 1.5.

5 Potential Improvement Measures

Goreway Drive & Steeles Avenue

The below improvement measures were analyzed in Synchro (given Future Total volumes), with results presented in Exhibit 5-1:

- Dual EBL lanes (protected).

Exhibit 5-1: Analysis of Improvements to Goreway Dr & Steeles Ave

INTERSECTION	AM PEAK					PM PEAK				
	Avg. v/c	Critical Movements				Avg. v/c	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Goreway Dr & Steeles Ave (current configuration)	1.15	EBL	F	1.17	96.5	1.22	EBL	F	1.40	168.1
		EBT	E	0.98	199.2		EBT	D	0.92	187.9
		EBR	C	0.11	15.3		EBR	C	0.10	12.8
		WBL	D	0.41	12.6		WBL	D	0.52	15.6
		WBT	E	0.97	157.3		WBT	E	0.95	164.8
		WBR	D	0.21	22.9		WBR	F	1.17	244.9
		NBL	F	0.74	34.0		NBL	E	0.73	52.9
		NBT	D	0.30	42.2		NBT	E	0.83	122.0
		NBR	D	0.03	-		NBR	D	0.03	-
		SBL	F	0.98	141.6		SBL	F	1.21	133.3
		SBT	F	1.07	294.6		SBT	E	0.65	112
		SBR	C	0.41	56.8		SBR	F	0.14	42.2
Goreway Dr & Steeles Ave (with improvements)	1.06	EBL	F	0.92	49.3	1.04	EBL	F	1.15	85.9
		EBT	E	0.98	199.2		EBT	D	0.95	202.8
		EBR	C	0.11	15.3		EBR	C	0.10	13.2
		WBL	D	0.41	12.6		WBL	D	0.51	16.1
		WBT	E	0.92	150.1		WBT	D	0.91	151.9
		WBR	D	0.21	22.3		WBR	F	1.12	239.1
		NBL	F	0.74	34.0		NBL	E	0.73	52.9
		NBT	D	0.30	42.2		NBT	E	0.83	122.0
		NBR	D	0.03	-		NBR	D	0.03	-
		SBL	F	0.98	141.6		SBL	F	1.10	126.0
		SBT	F	1.07	294.6		SBT	E	0.62	111.8
		SBR	C	0.44	63.7		SBR	F	0.18	45.7

The following was observed:

- Implementing dual EBL lanes (protected) reduces EBL delays.
- In the p.m. peak hour, a shorter required signal phase for the EBL movement allows additional green-time to be allocated to the N-S approaches and results in an improvement to the SBL movement
- No movements significantly deteriorate following this change, and average v/c is reduced in both peak hours.

Implementing dual EBL lanes would improve operations, however would present major hydro impacts (corridor along the north boulevard, and pole at the southwest intersection quadrant).

Despite these impacts, because the EBL movement is directly impacted by Transitway traffic, it is recommended this improvement measure be implemented with construction of the Transitway.

Goreway Drive & Steeles Avenue (alternative option)

The below alternative improvement measures were also analyzed in Synchro (given Future Total volumes) at this intersection, with results presented in Exhibit 5-2:

- Dual WBR lanes (protected).

Exhibit 5-2: Analysis of Improvements to Goreway Dr & Steeles Ave (alternative option)

INTERSECTION	AM PEAK					PM PEAK				
	Avg. v/c	Critical Movements				Avg. v/c	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Goreway Dr & Steeles Ave (current configuration)	1.15	EBL	F	1.17	96.5	1.22	EBL	F	1.40	168.1
		EBT	E	0.98	199.2		EBT	D	0.92	187.9
		EBR	C	0.11	15.3		EBR	C	0.10	12.8
		WBL	D	0.41	12.6		WBL	D	0.52	15.6
		WBT	E	0.97	157.3		WBT	E	0.95	164.8
		WBR	D	0.21	22.9		WBR	F	1.17	244.9
		NBL	F	0.74	34.0		NBL	E	0.73	52.9
		NBT	D	0.30	42.2		NBT	E	0.83	122.0
		NBR	D	0.03	-		NBR	D	0.03	-
		SBL	F	0.98	141.6		SBL	F	1.21	133.3
		SBT	F	1.07	294.6		SBT	E	0.65	112
		SBR	C	0.41	56.8		SBR	F	0.14	42.2
Goreway Dr & Steeles Ave (with improvements)	1.11	EBL	F	1.12	106.3	1.08	EBL	F	1.30	176.5
		EBT	E	0.95	194.2		EBT	D	0.92	187.9
		EBR	C	0.11	15.0		EBR	C	0.10	12.8
		WBL	D	0.41	12.4		WBL	D	0.52	15.6
		WBT	F	1.08	170.4		WBT	F	1.10	186.1
		WBR	D	0.12	12.3		WBR	D	0.53	55.1
		NBL	F	0.74	34.0		NBL	E	0.73	52.9
		NBT	D	0.32	42.7		NBT	E	0.83	122.0
		NBR	D	0.03	-		NBR	D	0.03	-
		SBL	F	0.98	141.6		SBL	F	1.21	131.2
		SBT	F	1.09	299.9		SBT	E	0.65	112
		SBR	C	0.42	59		SBR	F	0.14	42.2

The following was observed:

- Implementing dual WBR lanes (protected) reduces WBR delays, however causes WBT operations to deteriorate slightly.
- In the p.m. peak hour, more additional green-time can be allocated to the protected EBL phase, improving operations for this movement.
- Average v/c is reduced during both peak hours, but to a lesser extent as compared to the dual EBL improvement scenario.

Implementing dual WBR lanes would present similar hydro impacts as implementing dual EBL lanes. Based on improvement to average v/c ratio, this dual WBR improvement scenario is not preferred over the dual EBL improvement scenario analyzed previously.

6 Summary and Recommendations

This report provides an analysis of traffic operations for the proposed Highway 407 Transitway Station located on Goreway Drive. Goreway Station was not identified as a priority station based on 2041 transit ridership projections, however was carried forward conditionally pending demands and operations at the adjacent Airport Station. Future conditions during the a.m. and p.m. peak hours were modelled and analyzed based on a horizon year of 2031.

Assuming construction of Goreway Station, this study indicates that future 2031 background traffic operations have several movements nearing or at capacity at Goreway Drive and Intermodal Drive, and at Goreway Drive and Steeles Avenue.

Site traffic for this station is generally originating from / destined to the north. The majority of inbound site traffic accesses Goreway Station via the right-in access located on Goreway Road, and therefore does not travel through the congested Goreway Road & Steeles Avenue intersection. Exiting traffic is not permitted to make a left-turn directly onto Goreway Road, and instead must travel to Goreway Road via Steeles Avenue – impacting the SBL movement at the Steeles Avenue access and the already critical EBL movement at the Goreway Road & Steeles Avenue intersection.

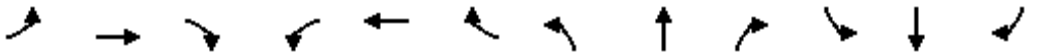
Analysis of efforts to mitigate eastbound left turn capacity concerns revealed that conversion of the single eastbound left turn lane to a dual left turn lane configuration reduces both delay and movement v/c ratio. In addition, dual left turn lanes require a shorter phase length to achieve the same capacity, allowing green time to be re-allocated without increasing the cycle length. However, the necessary road widening to implement dual left turn lanes may impact an existing hydro corridor located alongside Steeles Avenue.

Appendix A – Existing (2017) Conditions Synchro Output

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	74	57	163	121	94	131	588	197	67	2063	121
v/c Ratio	0.45	0.21	0.50	0.80	0.20	0.74	0.17	0.20	0.16	0.67	0.16
Control Delay	61.5	51.1	11.6	91.8	34.3	56.8	8.5	4.1	17.4	22.8	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.5	51.1	11.6	91.8	34.3	56.8	8.5	4.1	17.4	22.8	3.4
Queue Length 50th (m)	19.9	14.6	0.0	34.9	8.6	24.3	21.0	0.0	8.5	146.3	0.0
Queue Length 95th (m)	33.4	25.3	19.0	54.0	15.5	#49.5	37.3	17.9	20.8	202.9	10.4
Internal Link Dist (m)		365.9			204.7		404.8			329.5	
Turn Bay Length (m)	97.3			74.0		142.0		100.0	160.0		116.0
Base Capacity (vph)	269	458	438	250	771	187	3475	982	427	3077	764
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.12	0.37	0.48	0.12	0.70	0.17	0.20	0.16	0.67	0.16

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)	74	57	163	121	65	29	131	588	197	67	2063	121
Future Volume (vph)	74	57	163	121	65	29	131	588	197	67	2063	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		3.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1259	1562	1103	1127	2560		1201	4683	1256	1587	5043	1175
Flt Permitted	0.69	1.00	1.00	0.72	1.00		0.05	1.00	1.00	0.42	1.00	1.00
Satd. Flow (perm)	918	1562	1103	854	2560		65	4683	1256	701	5043	1175
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	74	57	163	121	65	29	131	588	197	67	2063	121
RTOR Reduction (vph)	0	0	134	0	24	0	0	0	51	0	0	47
Lane Group Flow (vph)	74	57	29	121	70	0	131	588	146	67	2063	74
Heavy Vehicles (%)	45%	23%	48%	62%	44%	18%	52%	12%	30%	15%	4%	39%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		8			4		5	2			6	
Permitted Phases	8		8	4			2		2	6		6
Actuated Green, G (s)	26.7	26.7	26.7	26.7	26.7		111.3	111.3	111.3	91.5	91.5	91.5
Effective Green, g (s)	26.7	26.7	26.7	26.7	26.7		111.3	111.3	111.3	91.5	91.5	91.5
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.18		0.74	0.74	0.74	0.61	0.61	0.61
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		3.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	163	278	196	152	455		175	3474	931	427	3076	716
v/s Ratio Prot		0.04			0.03		c0.08	0.13			0.41	
v/s Ratio Perm	0.08		0.03	c0.14			c0.47		0.12	0.10		0.06
v/c Ratio	0.45	0.21	0.15	0.80	0.15		0.75	0.17	0.16	0.16	0.67	0.10
Uniform Delay, d1	55.1	52.6	52.0	59.0	52.1		41.4	5.7	5.7	12.6	19.3	12.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.94	1.29	3.38	1.00	1.00	1.00
Incremental Delay, d2	2.0	0.4	0.4	24.3	0.2		15.9	0.1	0.4	0.8	1.2	0.3
Delay (s)	57.1	53.0	52.4	83.4	52.3		54.8	7.5	19.4	13.4	20.5	12.5
Level of Service	E	D	D	F	D		D	A	B	B	C	B
Approach Delay (s)		53.7			69.8			16.8			19.8	
Approach LOS		D			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	24.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	170	106	653	2502
v/c Ratio	0.58	0.57	0.18	0.61
Control Delay	34.3	23.7	2.1	11.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	34.3	23.7	2.1	11.1
Queue Length 50th (m)	9.4	0.0	8.7	116.9
Queue Length 95th (m)	21.0	20.5	14.2	206.2
Internal Link Dist (m)	326.5		498.1	404.8
Turn Bay Length (m)		207.0		
Base Capacity (vph)	955	464	3647	4115
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	0.18	0.23	0.18	0.61

Intersection Summary

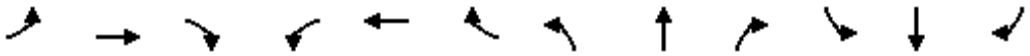
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	63	213	653	0	0	2502
Future Volume (vph)	63	213	653	0	0	2502
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0			6.0
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.91	0.85	1.00			1.00
Flt Protected	0.98	1.00	1.00			1.00
Satd. Flow (prot)	2998	1327	4264			4812
Flt Permitted	0.98	1.00	1.00			1.00
Satd. Flow (perm)	2998	1327	4264			4812
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	63	213	653	0	0	2502
RTOR Reduction (vph)	100	99	0	0	0	0
Lane Group Flow (vph)	70	7	653	0	0	2502
Heavy Vehicles (%)	8%	12%	23%	0%	0%	9%
Turn Type	Prot	Perm	NA			NA
Protected Phases	4		2			6
Permitted Phases		4				
Actuated Green, G (s)	9.7	9.7	128.3			128.3
Effective Green, g (s)	9.7	9.7	128.3			128.3
Actuated g/C Ratio	0.06	0.06	0.86			0.86
Clearance Time (s)	6.0	6.0	6.0			6.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	193	85	3647			4115
v/s Ratio Prot	c0.02		0.15			c0.52
v/s Ratio Perm		0.01				
v/c Ratio	0.36	0.08	0.18			0.61
Uniform Delay, d1	67.2	66.0	1.9			3.3
Progression Factor	1.00	1.00	1.00			3.05
Incremental Delay, d2	1.2	0.4	0.1			0.5
Delay (s)	68.3	66.4	2.0			10.5
Level of Service	E	E	A			B
Approach Delay (s)	67.6		2.0			10.5
Approach LOS	E		A			B

Intersection Summary			
HCM 2000 Control Delay	13.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1950	10	25	1507	0	8
Future Volume (Veh/h)	1950	10	25	1507	0	8
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1950	10	25	1507	0	8
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)				281		
pX, platoon unblocked					0.80	
vC, conflicting volume			1960		2502	650
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1960		1996	650
tC, single (s)			4.1		6.8	7.7
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.7
p0 queue free %			92		100	98
cM capacity (veh/h)			301		39	336

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2
Volume Total	650	650	650	10	25	502	502	502	0	8
Volume Left	0	0	0	0	25	0	0	0	0	0
Volume Right	0	0	0	10	0	0	0	0	0	8
cSH	1700	1700	1700	1700	301	1700	1700	1700	1700	336
Volume to Capacity	0.38	0.38	0.38	0.01	0.08	0.30	0.30	0.30	0.00	0.02
Queue Length 95th (m)	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.6
Control Delay (s)	0.0	0.0	0.0	0.0	18.0	0.0	0.0	0.0	0.0	16.0
Lane LOS					C				A	C
Approach Delay (s)	0.0				0.3				16.0	
Approach LOS									C	

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	47.7%	ICU Level of Service	A
Analysis Period (min)	15		

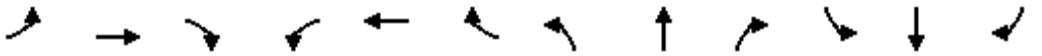


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	137	1641	143	32	1164	270	103	233	48	666	1553	333
v/c Ratio	0.80	0.87	0.21	0.24	0.75	0.43	0.50	0.29	0.09	1.17	1.18	0.55
Control Delay	59.6	45.3	5.3	25.1	45.9	6.1	71.7	44.2	0.4	143.6	128.8	19.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.6	45.3	5.3	25.1	45.9	6.1	71.7	44.2	0.4	143.6	128.8	19.0
Queue Length 50th (m)	22.2	158.6	0.0	4.7	106.5	0.0	14.3	27.7	0.0	~112.8	~259.2	31.4
Queue Length 95th (m)	#55.3	#192.6	14.0	10.7	124.1	20.1	24.1	39.8	0.0	#150.4	#299.7	62.4
Internal Link Dist (m)		256.7			251.4			415.8			498.1	
Turn Bay Length (m)	125.0		170.0	160.0		138.0	176.0		106.0	167.0		
Base Capacity (vph)	180	1889	673	144	1562	635	219	798	508	569	1317	605
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.87	0.21	0.22	0.75	0.43	0.47	0.29	0.09	1.17	1.18	0.55

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	137	1641	143	32	1164	270	103	233	48	666	1553	333
Future Volume (vph)	137	1641	143	32	1164	270	103	233	48	666	1553	333
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.7	6.7	3.0	6.7	6.7	5.0	6.7	6.7	5.0	6.7	6.7
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.95	1.00	0.97	*1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1209	4725	1471	1615	4812	1396	3079	3259	1601	3190	3694	1361
Flt Permitted	0.11	1.00	1.00	0.09	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	139	4725	1471	149	4812	1396	3079	3259	1601	3190	3694	1361
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	137	1641	143	32	1164	270	103	233	48	666	1553	333
RTOR Reduction (vph)	0	0	87	0	0	182	0	0	36	0	0	120
Lane Group Flow (vph)	137	1641	56	32	1164	88	103	233	12	666	1553	213
Heavy Vehicles (%)	51%	11%	11%	13%	9%	17%	15%	12%	2%	11%	4%	20%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6			4			8
Actuated Green, G (s)	62.3	54.8	54.8	50.0	45.5	45.5	9.4	34.3	34.3	25.0	49.9	49.9
Effective Green, g (s)	62.3	54.8	54.8	50.0	45.5	45.5	9.4	34.3	34.3	25.0	49.9	49.9
Actuated g/C Ratio	0.44	0.39	0.39	0.36	0.32	0.32	0.07	0.24	0.24	0.18	0.36	0.36
Clearance Time (s)	3.0	6.7	6.7	3.0	6.7	6.7	5.0	6.7	6.7	5.0	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	167	1849	575	100	1563	453	206	798	392	569	1316	485
v/s Ratio Prot	c0.08	c0.35		0.01	0.24		0.03	0.07		c0.21	c0.42	
v/s Ratio Perm	0.28		0.04	0.10		0.06			0.01			0.16
v/c Ratio	0.82	0.89	0.10	0.32	0.74	0.19	0.50	0.29	0.03	1.17	1.18	0.44
Uniform Delay, d1	28.7	39.7	27.0	32.3	42.1	34.0	63.0	43.0	40.2	57.5	45.0	34.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	26.4	6.8	0.3	1.9	3.3	1.0	1.9	0.2	0.0	94.4	89.2	0.6
Delay (s)	55.1	46.5	27.3	34.2	45.3	35.0	64.9	43.2	40.2	151.9	134.2	35.0
Level of Service	E	D	C	C	D	C	E	D	D	F	F	C
Approach Delay (s)		45.7			43.2			48.6			125.9	
Approach LOS		D			D			D			F	

Intersection Summary			
HCM 2000 Control Delay	77.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.4
Intersection Capacity Utilization	104.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2535	70	0	1800	0	12
Future Volume (Veh/h)	2535	70	0	1800	0	12
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2535	70	0	1800	0	12
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	276					
pX, platoon unblocked			0.68		0.68	0.68
vC, conflicting volume			2605		3135	845
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1730		2504	0
tC, single (s)			4.1		6.8	7.4
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.5
p0 queue free %			100		100	98
cM capacity (veh/h)			253		17	694

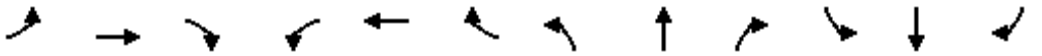
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1
Volume Total	845	845	845	70	600	600	600	12
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	70	0	0	0	12
cSH	1700	1700	1700	1700	1700	1700	1700	694
Volume to Capacity	0.50	0.50	0.50	0.04	0.35	0.35	0.35	0.02
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.3
Lane LOS								B
Approach Delay (s)	0.0				0.0			10.3
Approach LOS								B

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	21	32	8	82	2	343	558	946	26
v/c Ratio	0.07	0.20	0.04	0.39	0.00	0.13	0.75	0.34	0.02
Control Delay	26.4	32.2	28.9	13.4	3.0	3.0	16.1	3.9	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.4	32.2	28.9	13.4	3.0	3.0	16.1	3.9	0.7
Queue Length 50th (m)	1.2	4.2	1.0	0.0	0.1	5.7	39.8	20.0	0.0
Queue Length 95th (m)	4.2	11.2	4.5	11.1	0.6	10.4	#122.7	32.0	1.2
Internal Link Dist (m)	199.1		507.4			227.2		415.8	
Turn Bay Length (m)		85.6			122.0		209.0		92.0
Base Capacity (vph)	1101	636	758	589	442	2707	740	2778	1103
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.05	0.01	0.14	0.00	0.13	0.75	0.34	0.02

Intersection Summary

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



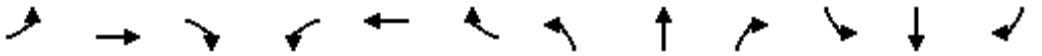
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	13	3	32	8	82	2	319	24	558	946	26
Future Volume (vph)	5	13	3	32	8	82	2	319	24	558	946	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lane Util. Factor		0.95		1.00	1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frt		0.98		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected		0.99		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		2751		1825	1700	1219	1825	3482		1659	3579	1408
Flt Permitted		0.89		0.74	1.00	1.00	0.30	1.00		0.55	1.00	1.00
Satd. Flow (perm)		2465		1427	1700	1219	568	3482		953	3579	1408
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	5	13	3	32	8	82	2	319	24	558	946	26
RTOR Reduction (vph)	0	3	0	0	0	74	0	3	0	0	0	7
Lane Group Flow (vph)	0	18	0	32	8	8	2	340	0	558	946	19
Heavy Vehicles (%)	80%	15%	0%	0%	13%	34%	0%	4%	0%	10%	2%	16%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		6
Actuated Green, G (s)		6.9		6.9	6.9	6.9	55.1	55.1		55.1	55.1	55.1
Effective Green, g (s)		6.9		6.9	6.9	6.9	55.1	55.1		55.1	55.1	55.1
Actuated g/C Ratio		0.09		0.09	0.09	0.09	0.74	0.74		0.74	0.74	0.74
Clearance Time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		229		133	158	113	422	2592		709	2664	1048
v/s Ratio Prot					0.00			0.10			0.26	
v/s Ratio Perm		0.01		c0.02		0.01	0.00			c0.59		0.01
v/c Ratio		0.08		0.24	0.05	0.07	0.00	0.13		0.79	0.36	0.02
Uniform Delay, d1		30.6		31.1	30.6	30.6	2.4	2.7		5.8	3.3	2.4
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.1		0.9	0.1	0.3	0.0	0.1		8.6	0.4	0.0
Delay (s)		30.8		32.1	30.7	30.9	2.4	2.8		14.4	3.7	2.5
Level of Service		C		C	C	C	A	A		B	A	A
Approach Delay (s)		30.8			31.2			2.8			7.6	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	74.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	63.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	133	21	211	152	128	194	2008	50	8	767	110
v/c Ratio	0.77	0.09	0.49	0.75	0.23	0.50	0.55	0.06	0.11	0.26	0.14
Control Delay	78.4	42.7	9.0	73.2	42.0	8.9	6.2	1.3	20.9	13.7	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.4	42.7	9.0	73.2	42.0	8.9	6.2	1.3	20.9	13.7	3.4
Queue Length 50th (m)	34.1	4.7	0.0	38.9	14.1	11.5	55.3	0.3	0.8	31.7	0.0
Queue Length 95th (m)	52.4	11.1	19.1	57.4	21.2	18.9	60.8	m1.9	5.1	54.6	9.8
Internal Link Dist (m)		365.9			204.7		404.8			329.5	
Turn Bay Length (m)	97.3			74.0		142.0		100.0	160.0		116.0
Base Capacity (vph)	299	403	598	350	942	407	3684	773	76	2939	804
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.05	0.35	0.43	0.14	0.48	0.55	0.06	0.11	0.26	0.14

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	21	211	152	79	49	194	2008	50	8	767	110
Future Volume (vph)	133	21	211	152	79	49	194	2008	50	8	767	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		3.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1362	1298	1458	1437	3005		1225	5043	1040	1323	4768	1237
Flt Permitted	0.67	1.00	1.00	0.74	1.00		0.32	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	962	1298	1458	1125	3005		416	5043	1040	125	4768	1237
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	133	21	211	152	79	49	194	2008	50	8	767	110
RTOR Reduction (vph)	0	0	173	0	9	0	0	0	13	0	0	42
Lane Group Flow (vph)	133	21	38	152	119	0	194	2008	37	8	767	68
Heavy Vehicles (%)	34%	48%	12%	27%	21%	4%	49%	4%	57%	38%	10%	32%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		8			4		5	2			6	
Permitted Phases	8		8	4			2		2	6		6
Actuated Green, G (s)	24.4	24.4	24.4	24.4	24.4		98.6	98.6	98.6	83.2	83.2	83.2
Effective Green, g (s)	24.4	24.4	24.4	24.4	24.4		98.6	98.6	98.6	83.2	83.2	83.2
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.18		0.73	0.73	0.73	0.62	0.62	0.62
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		3.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	173	234	263	203	543		378	3683	759	77	2938	762
v/s Ratio Prot		0.02			0.04		0.05	c0.40			0.16	
v/s Ratio Perm	c0.14		0.03	0.14			0.33		0.04	0.06		0.05
v/c Ratio	0.77	0.09	0.15	0.75	0.22		0.51	0.55	0.05	0.10	0.26	0.09
Uniform Delay, d1	52.6	46.1	46.5	52.4	47.2		6.1	8.2	5.1	10.6	11.8	10.5
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.79	0.62	0.53	1.00	1.00	1.00
Incremental Delay, d2	18.4	0.2	0.3	14.0	0.2		1.0	0.5	0.1	2.7	0.2	0.2
Delay (s)	71.0	46.2	46.8	66.4	47.4		5.9	5.6	2.8	13.3	12.1	10.7
Level of Service	E	D	D	E	D		A	A	A	B	B	B
Approach Delay (s)		55.6			57.7			5.6			11.9	
Approach LOS		E			E			A			B	

Intersection Summary			
HCM 2000 Control Delay	15.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	80.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	274	232	1796	1133
v/c Ratio	0.46	0.81	0.52	0.34
Control Delay	45.0	67.3	7.9	6.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	45.0	67.3	7.9	6.6
Queue Length 50th (m)	30.7	59.7	54.0	29.1
Queue Length 95th (m)	40.1	84.5	m60.4	46.5
Internal Link Dist (m)	326.5		498.1	404.8
Turn Bay Length (m)		207.0		
Base Capacity (vph)	872	409	3436	3374
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	0.31	0.57	0.52	0.34

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

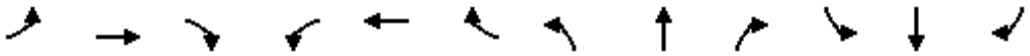
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	41	465	1796	0	0	1133
Future Volume (vph)	41	465	1796	0	0	1133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0			6.0
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.87	0.85	1.00			1.00
Flt Protected	0.99	1.00	1.00			1.00
Satd. Flow (prot)	2965	1363	4812			4725
Flt Permitted	0.99	1.00	1.00			1.00
Satd. Flow (perm)	2965	1363	4812			4725
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	41	465	1796	0	0	1133
RTOR Reduction (vph)	18	18	0	0	0	0
Lane Group Flow (vph)	256	214	1796	0	0	1133
Heavy Vehicles (%)	8%	9%	9%	0%	0%	11%
Turn Type	Prot	Perm	NA			NA
Protected Phases	4		2			6
Permitted Phases		4				
Actuated Green, G (s)	26.6	26.6	96.4			96.4
Effective Green, g (s)	26.6	26.6	96.4			96.4
Actuated g/C Ratio	0.20	0.20	0.71			0.71
Clearance Time (s)	6.0	6.0	6.0			6.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	584	268	3436			3374
v/s Ratio Prot	0.09		c0.37			0.24
v/s Ratio Perm		c0.16				
v/c Ratio	0.44	0.80	0.52			0.34
Uniform Delay, d1	47.6	51.7	8.8			7.3
Progression Factor	1.00	1.00	0.78			0.79
Incremental Delay, d2	0.5	15.3	0.3			0.3
Delay (s)	48.2	66.9	7.1			6.0
Level of Service	D	E	A			A
Approach Delay (s)	56.8		7.1			6.0
Approach LOS	E		A			A

Intersection Summary			
HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	63.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1754	19	21	1587	43	35
Future Volume (Veh/h)	1754	19	21	1587	43	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1754	19	21	1587	43	35
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)				281		
pX, platoon unblocked					0.76	
vC, conflicting volume			1773		2325	585
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1773		1637	585
tC, single (s)			4.2		6.8	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			94		34	92
cM capacity (veh/h)			335		65	452

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2
Volume Total	585	585	585	19	21	529	529	529	43	35
Volume Left	0	0	0	0	21	0	0	0	43	0
Volume Right	0	0	0	19	0	0	0	0	0	35
cSH	1700	1700	1700	1700	335	1700	1700	1700	65	452
Volume to Capacity	0.34	0.34	0.34	0.01	0.06	0.31	0.31	0.31	0.66	0.08
Queue Length 95th (m)	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0	21.8	1.9
Control Delay (s)	0.0	0.0	0.0	0.0	16.5	0.0	0.0	0.0	133.0	13.6
Lane LOS					C				F	B
Approach Delay (s)	0.0				0.2				79.5	
Approach LOS									F	

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	43.9%	ICU Level of Service	A
Analysis Period (min)	15		

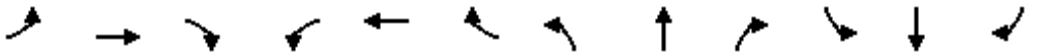


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	214	1835	123	55	1318	705	262	687	40	528	576	186
v/c Ratio	1.08	0.93	0.19	0.35	0.85	1.01	0.71	0.76	0.08	1.27	0.61	0.37
Control Delay	139.3	47.4	5.0	24.2	48.6	61.9	68.8	53.1	0.3	178.8	60.3	21.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	139.3	47.4	5.0	24.2	48.6	61.9	68.8	53.1	0.3	178.8	60.3	21.5
Queue Length 50th (m)	~63.2	172.3	0.0	7.2	119.7	~129.0	35.0	89.7	0.0	~92.3	81.6	9.2
Queue Length 95th (m)	#113.0	#214.5	12.3	14.3	138.7	#210.2	49.1	112.0	0.0	#128.9	104.0	39.2
Internal Link Dist (m)		256.7			251.4			415.8			498.1	
Turn Bay Length (m)	125.0		170.0	160.0		138.0	176.0		106.0	167.0		
Base Capacity (vph)	199	1973	654	198	1550	696	412	900	491	417	938	509
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.08	0.93	0.19	0.28	0.85	1.01	0.64	0.76	0.08	1.27	0.61	0.37

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	214	1835	123	55	1318	705	262	687	40	528	576	186
Future Volume (vph)	214	1835	123	55	1318	705	262	687	40	528	576	186
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.7	6.7	3.0	6.7	6.7	5.0	6.7	6.7	4.0	6.7	6.7
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1496	4725	1396	1722	4725	1458	3278	3544	1585	3133	3510	1396
Flt Permitted	0.95	1.00	1.00	0.09	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1496	4725	1396	164	4725	1458	3278	3544	1585	3133	3510	1396
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	214	1835	123	55	1318	705	262	687	40	528	576	186
RTOR Reduction (vph)	0	0	72	0	0	218	0	0	30	0	0	136
Lane Group Flow (vph)	214	1835	51	55	1318	487	262	687	10	528	576	50
Heavy Vehicles (%)	22%	11%	17%	6%	11%	12%	8%	3%	3%	13%	4%	17%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6			4			8
Actuated Green, G (s)	18.0	55.8	55.8	50.8	44.3	44.3	15.2	34.3	34.3	17.0	36.1	36.1
Effective Green, g (s)	18.0	55.8	55.8	50.8	44.3	44.3	15.2	34.3	34.3	18.0	36.1	36.1
Actuated g/C Ratio	0.13	0.41	0.41	0.38	0.33	0.33	0.11	0.25	0.25	0.13	0.27	0.27
Clearance Time (s)	3.0	6.7	6.7	3.0	6.7	6.7	5.0	6.7	6.7	5.0	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	199	1953	577	136	1550	478	369	900	402	417	938	373
v/s Ratio Prot	c0.14	0.39		0.02	0.28		0.08	c0.19		c0.17	0.16	
v/s Ratio Perm			0.04	0.13		c0.33			0.01			0.04
v/c Ratio	1.08	0.94	0.09	0.40	0.85	1.02	0.71	0.76	0.03	1.27	0.61	0.13
Uniform Delay, d1	58.5	38.0	24.1	30.6	42.3	45.4	57.8	46.6	37.8	58.5	43.3	37.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.87	1.30	3.57
Incremental Delay, d2	85.3	10.4	0.3	2.0	6.1	46.2	6.3	6.1	0.1	137.1	2.9	0.7
Delay (s)	143.8	48.4	24.4	32.6	48.3	91.5	64.1	52.7	37.9	187.9	59.4	135.0
Level of Service	F	D	C	C	D	F	E	D	D	F	E	F
Approach Delay (s)		56.4			62.6			55.1			122.9	
Approach LOS		E			E			E			F	

Intersection Summary			
HCM 2000 Control Delay	71.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	21.4
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2598	35	0	2607	0	30
Future Volume (Veh/h)	2598	35	0	2607	0	30
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2598	35	0	2607	0	30
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	276					
pX, platoon unblocked			0.63		0.63	0.63
vC, conflicting volume			2633		3467	866
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1545		2865	0
tC, single (s)			4.1		6.8	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.4
p0 queue free %			100		100	96
cM capacity (veh/h)			275		9	675

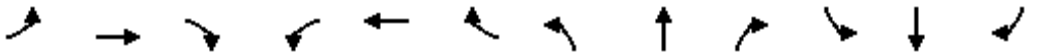
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1
Volume Total	866	866	866	35	869	869	869	30
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	35	0	0	0	30
cSH	1700	1700	1700	1700	1700	1700	1700	675
Volume to Capacity	0.51	0.51	0.51	0.02	0.51	0.51	0.51	0.04
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.6
Lane LOS								B
Approach Delay (s)	0.0				0.0			10.6
Approach LOS								B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	60.2%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	39	38	2	220	2	1035	161	426	18
v/c Ratio	0.07	0.14	0.01	0.68	0.00	0.45	0.73	0.19	0.02
Control Delay	21.3	23.4	20.5	32.5	7.0	8.4	35.4	6.6	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.3	23.4	20.5	32.5	7.0	8.4	35.4	6.6	0.9
Queue Length 50th (m)	2.3	4.5	0.3	23.5	0.1	33.7	13.4	11.3	0.0
Queue Length 95th (m)	5.3	10.5	1.6	39.8	1.0	60.9	#54.8	22.6	1.0
Internal Link Dist (m)	199.1		507.4			227.2		415.8	
Turn Bay Length (m)		85.6			122.0		250.0		92.0
Base Capacity (vph)	1183	627	573	670	622	2312	222	2255	875
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.06	0.00	0.33	0.00	0.45	0.73	0.19	0.02

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)	21	16	2	38	2	220	2	993	42	161	426	18
Future Volume (vph)	21	16	2	38	2	220	2	993	42	161	426	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lane Util. Factor		0.95		1.00	1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frt		0.99		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected		0.97		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3052		1825	1281	1445	1825	3593		1352	3510	1338
Flt Permitted		0.84		0.73	1.00	1.00	0.50	1.00		0.24	1.00	1.00
Satd. Flow (perm)		2646		1403	1281	1445	967	3593		347	3510	1338
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	21	16	2	38	2	220	2	993	42	161	426	18
RTOR Reduction (vph)	0	2	0	0	0	34	0	3	0	0	0	6
Lane Group Flow (vph)	0	37	0	38	2	186	2	1032	0	161	426	12
Heavy Vehicles (%)	19%	13%	0%	0%	50%	13%	0%	1%	0%	35%	4%	22%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		6
Actuated Green, G (s)		15.2		15.2	15.2	15.2	48.8	48.8		48.8	48.8	48.8
Effective Green, g (s)		15.2		15.2	15.2	15.2	48.8	48.8		48.8	48.8	48.8
Actuated g/C Ratio		0.20		0.20	0.20	0.20	0.64	0.64		0.64	0.64	0.64
Clearance Time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		529		280	256	289	620	2307		222	2253	859
v/s Ratio Prot					0.00			0.29			0.12	
v/s Ratio Perm		0.01		0.03		c0.13	0.00			c0.46		0.01
v/c Ratio		0.07		0.14	0.01	0.64	0.00	0.45		0.73	0.19	0.01
Uniform Delay, d1		24.7		25.0	24.4	27.9	4.9	6.8		9.1	5.5	4.9
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.1		0.2	0.0	4.8	0.0	0.6		18.6	0.2	0.0
Delay (s)		24.7		25.2	24.4	32.7	4.9	7.5		27.7	5.7	4.9
Level of Service		C		C	C	C	A	A		C	A	A
Approach Delay (s)		24.7			31.6			7.5			11.6	
Approach LOS		C			C			A			B	

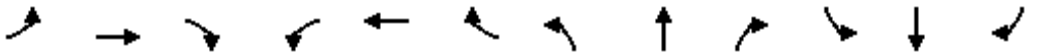
Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Appendix B – Future (2031) Background Conditions Synchro Output

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	79	61	175	130	101	140	631	211	72	2213	130
v/c Ratio	0.48	0.22	0.51	0.84	0.21	0.85	0.18	0.21	0.18	0.72	0.17
Control Delay	62.7	51.4	11.7	98.7	34.6	77.6	7.1	3.0	17.8	24.5	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.7	51.4	11.7	98.7	34.6	77.6	7.1	3.0	17.8	24.5	3.4
Queue Length 50th (m)	21.2	15.5	0.0	37.5	9.2	30.4	22.0	0.0	9.4	167.2	0.1
Queue Length 95th (m)	36.5	27.5	20.6	59.6	16.8	#59.7	36.3	17.3	22.0	225.0	10.7
Internal Link Dist (m)		365.9			204.7		404.8			329.5	
Turn Bay Length (m)	97.3			74.0		142.0		100.0	160.0		116.0
Base Capacity (vph)	218	374	397	204	637	208	3458	982	408	3072	766
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.16	0.44	0.64	0.16	0.67	0.18	0.21	0.18	0.72	0.17

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)	79	61	175	130	70	31	140	631	211	72	2213	130
Future Volume (vph)	79	61	175	130	70	31	140	631	211	72	2213	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		3.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1259	1562	1103	1127	2560		1201	4683	1256	1587	5043	1175
Flt Permitted	0.69	1.00	1.00	0.72	1.00		0.04	1.00	1.00	0.40	1.00	1.00
Satd. Flow (perm)	912	1562	1103	851	2560		54	4683	1256	671	5043	1175
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	79	61	175	130	70	31	140	631	211	72	2213	130
RTOR Reduction (vph)	0	0	143	0	25	0	0	0	55	0	0	50
Lane Group Flow (vph)	79	61	32	130	76	0	140	631	156	72	2213	80
Heavy Vehicles (%)	45%	23%	48%	62%	44%	18%	52%	12%	30%	15%	4%	39%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		8			4		5	2			6	
Permitted Phases	8		8	4			2		2	6		6
Actuated Green, G (s)	27.2	27.2	27.2	27.2	27.2		110.8	110.8	110.8	91.4	91.4	91.4
Effective Green, g (s)	27.2	27.2	27.2	27.2	27.2		110.8	110.8	110.8	91.4	91.4	91.4
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.18		0.74	0.74	0.74	0.61	0.61	0.61
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		3.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	165	283	200	154	464		165	3459	927	408	3072	715
v/s Ratio Prot		0.04			0.03		c0.09	0.13			0.44	
v/s Ratio Perm	0.09		0.03	c0.15			c0.54		0.12	0.11		0.07
v/c Ratio	0.48	0.22	0.16	0.84	0.16		0.85	0.18	0.17	0.18	0.72	0.11
Uniform Delay, d1	55.0	52.3	51.8	59.4	51.8		48.3	5.9	5.8	12.8	20.4	12.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.94	1.06	2.54	1.00	1.00	1.00
Incremental Delay, d2	2.2	0.4	0.4	32.3	0.2		30.9	0.1	0.4	0.9	1.5	0.3
Delay (s)	57.2	52.7	52.1	91.6	52.0		76.2	6.4	15.2	13.8	21.9	12.6
Level of Service	E	D	D	F	D		E	A	B	B	C	B
Approach Delay (s)		53.5			74.3			18.2			21.2	
Approach LOS		D			E			B			C	

Intersection Summary			
HCM 2000 Control Delay	26.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	77.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	182	114	700	2683
v/c Ratio	0.60	0.59	0.19	0.65
Control Delay	34.7	23.5	2.1	11.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	34.7	23.5	2.1	11.2
Queue Length 50th (m)	10.2	0.0	9.6	126.0
Queue Length 95th (m)	22.1	21.3	15.4	195.3
Internal Link Dist (m)	326.5		498.1	404.8
Turn Bay Length (m)		207.0		
Base Capacity (vph)	652	340	3643	4111
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	0.28	0.34	0.19	0.65

Intersection Summary

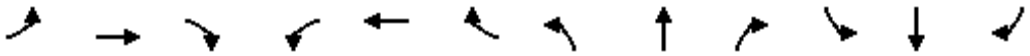
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	68	228	700	0	0	2683
Future Volume (vph)	68	228	700	0	0	2683
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0			6.0
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.91	0.85	1.00			1.00
Flt Protected	0.98	1.00	1.00			1.00
Satd. Flow (prot)	3000	1327	4264			4812
Flt Permitted	0.98	1.00	1.00			1.00
Satd. Flow (perm)	3000	1327	4264			4812
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	68	228	700	0	0	2683
RTOR Reduction (vph)	107	107	0	0	0	0
Lane Group Flow (vph)	75	7	700	0	0	2683
Heavy Vehicles (%)	8%	12%	23%	0%	0%	9%
Turn Type	Prot	Perm	NA			NA
Protected Phases	4		2			6
Permitted Phases		4				
Actuated Green, G (s)	9.8	9.8	128.2			128.2
Effective Green, g (s)	9.8	9.8	128.2			128.2
Actuated g/C Ratio	0.07	0.07	0.85			0.85
Clearance Time (s)	6.0	6.0	6.0			6.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	196	86	3644			4112
v/s Ratio Prot	c0.03		0.16			c0.56
v/s Ratio Perm		0.01				
v/c Ratio	0.38	0.09	0.19			0.65
Uniform Delay, d1	67.2	65.9	1.9			3.6
Progression Factor	1.00	1.00	1.00			2.77
Incremental Delay, d2	1.3	0.4	0.1			0.6
Delay (s)	68.5	66.3	2.0			10.5
Level of Service	E	E	A			B
Approach Delay (s)	67.6		2.0			10.5
Approach LOS	E		A			B

Intersection Summary			
HCM 2000 Control Delay	13.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	150.0	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	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2091	11	27	1616	0	9
Future Volume (Veh/h)	2091	11	27	1616	0	9
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2091	11	27	1616	0	9
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)				281		
pX, platoon unblocked					0.76	
vC, conflicting volume			2102		2684	697
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2102		2120	697
tC, single (s)			4.1		6.8	7.7
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.7
p0 queue free %			90		100	97
cM capacity (veh/h)			265		30	310

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2
Volume Total	697	697	697	11	27	539	539	539	0	9
Volume Left	0	0	0	0	27	0	0	0	0	0
Volume Right	0	0	0	11	0	0	0	0	0	9
cSH	1700	1700	1700	1700	265	1700	1700	1700	1700	310
Volume to Capacity	0.41	0.41	0.41	0.01	0.10	0.32	0.32	0.32	0.00	0.03
Queue Length 95th (m)	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	0.0	0.7
Control Delay (s)	0.0	0.0	0.0	0.0	20.1	0.0	0.0	0.0	0.0	16.9
Lane LOS					C				A	C
Approach Delay (s)	0.0				0.3				16.9	
Approach LOS									C	

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	50.4%	ICU Level of Service	A
Analysis Period (min)	15		

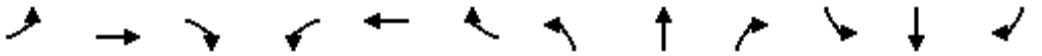


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	147	1760	153	34	1248	290	110	250	51	714	1665	357
v/c Ratio	1.10	0.96	0.25	0.31	0.90	0.48	0.63	0.30	0.10	0.98	1.06	0.53
Control Delay	139.1	57.6	5.8	32.4	57.8	6.8	80.8	43.6	0.4	82.0	81.0	18.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	139.1	57.6	5.8	32.4	57.8	6.8	80.8	43.6	0.4	82.0	81.0	18.2
Queue Length 50th (m)	~34.4	~172.6	0.0	5.6	122.1	0.0	15.6	29.6	0.0	102.1	~253.5	37.3
Queue Length 95th (m)	#78.7	#199.2	15.0	12.6	#142.1	22.1	#25.9	42.2	0.0	#141.6	#293.7	67.4
Internal Link Dist (m)		256.7			251.4			415.8			498.1	
Turn Bay Length (m)	125.0		170.0	160.0		138.0	176.0		106.0	167.0		
Base Capacity (vph)	134	1835	618	110	1385	608	175	821	518	729	1564	673
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.10	0.96	0.25	0.31	0.90	0.48	0.63	0.30	0.10	0.98	1.06	0.53

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	147	1760	153	34	1248	290	110	250	51	714	1665	357
Future Volume (vph)	147	1760	153	34	1248	290	110	250	51	714	1665	357
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.7	6.7	3.0	6.7	6.7	5.0	6.7	6.7	5.0	6.7	6.7
Lane Util. Factor	1.00	*1.00	1.00	1.00	0.91	1.00	0.97	0.95	1.00	0.97	*1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1209	5192	1471	1615	4812	1396	3079	3259	1601	3190	3694	1361
Flt Permitted	0.09	1.00	1.00	0.10	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	118	5192	1471	169	4812	1396	3079	3259	1601	3190	3694	1361
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	147	1760	153	34	1248	290	110	250	51	714	1665	357
RTOR Reduction (vph)	0	0	100	0	0	207	0	0	38	0	0	97
Lane Group Flow (vph)	147	1760	53	34	1248	83	110	250	13	714	1665	260
Heavy Vehicles (%)	51%	11%	11%	13%	9%	17%	15%	12%	2%	11%	4%	20%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6			4			8
Actuated Green, G (s)	54.3	48.3	48.3	43.3	40.3	40.3	8.0	35.3	35.3	32.0	59.3	59.3
Effective Green, g (s)	54.3	48.3	48.3	43.3	40.3	40.3	8.0	35.3	35.3	32.0	59.3	59.3
Actuated g/C Ratio	0.39	0.34	0.34	0.31	0.29	0.29	0.06	0.25	0.25	0.23	0.42	0.42
Clearance Time (s)	3.0	6.7	6.7	3.0	6.7	6.7	5.0	6.7	6.7	5.0	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	131	1791	507	83	1385	401	175	821	403	729	1564	576
v/s Ratio Prot	c0.09	0.34		0.01	0.26		0.04	0.08		c0.22	c0.45	
v/s Ratio Perm	c0.35		0.04	0.12		0.06			0.01			0.19
v/c Ratio	1.12	0.98	0.10	0.41	0.90	0.21	0.63	0.30	0.03	0.98	1.06	0.45
Uniform Delay, d1	37.4	45.4	31.2	37.4	47.9	37.8	64.5	42.4	39.5	53.7	40.4	28.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	115.2	17.5	0.4	3.3	9.7	1.2	6.9	0.2	0.0	27.9	42.1	0.6
Delay (s)	152.6	63.0	31.6	40.7	57.7	38.9	71.4	42.6	39.5	81.6	82.5	29.3
Level of Service	F	E	C	D	E	D	E	D	D	F	F	C
Approach Delay (s)		67.0			53.8			49.9			75.3	
Approach LOS		E			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	66.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.4
Intersection Capacity Utilization	109.5%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2718	75	0	1930	0	13
Future Volume (Veh/h)	2718	75	0	1930	0	13
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2718	75	0	1930	0	13
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	276					
pX, platoon unblocked			0.67		0.67	0.67
vC, conflicting volume			2793		3361	906
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1955		2802	0
tC, single (s)			4.1		6.8	7.4
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.5
p0 queue free %			100		100	98
cM capacity (veh/h)			203		10	680

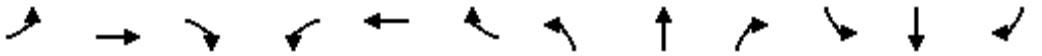
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1
Volume Total	906	906	906	75	643	643	643	13
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	75	0	0	0	13
cSH	1700	1700	1700	1700	1700	1700	1700	680
Volume to Capacity	0.53	0.53	0.53	0.04	0.38	0.38	0.38	0.02
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.4
Lane LOS								B
Approach Delay (s)	0.0				0.0			10.4
Approach LOS								B

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	22	34	9	88	2	368	598	1014	28
v/c Ratio	0.08	0.20	0.05	0.40	0.00	0.14	0.83	0.37	0.03
Control Delay	26.4	32.3	28.8	13.3	3.5	3.1	21.6	4.1	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.4	32.3	28.8	13.3	3.5	3.1	21.6	4.1	0.8
Queue Length 50th (m)	1.2	4.4	1.2	0.0	0.1	6.1	49.7	22.1	0.0
Queue Length 95th (m)	4.2	11.7	4.8	11.5	0.6	11.4	#138.9	35.7	1.3
Internal Link Dist (m)	199.1		507.4			227.2		415.8	
Turn Bay Length (m)		85.6			122.0		209.0		92.0
Base Capacity (vph)	1110	635	758	592	405	2702	721	2775	1101
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.05	0.01	0.15	0.00	0.14	0.83	0.37	0.03

Intersection Summary

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



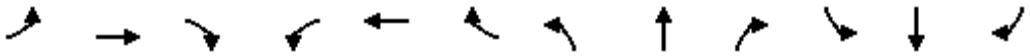
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	14	3	34	9	88	2	342	26	598	1014	28
Future Volume (vph)	5	14	3	34	9	88	2	342	26	598	1014	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lane Util. Factor		0.95		1.00	1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frt		0.98		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected		0.99		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		2768		1825	1700	1219	1825	3482		1659	3579	1408
Flt Permitted		0.89		0.74	1.00	1.00	0.27	1.00		0.53	1.00	1.00
Satd. Flow (perm)		2486		1426	1700	1219	523	3482		930	3579	1408
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	5	14	3	34	9	88	2	342	26	598	1014	28
RTOR Reduction (vph)	0	3	0	0	0	80	0	3	0	0	0	7
Lane Group Flow (vph)	0	19	0	34	9	8	2	365	0	598	1014	21
Heavy Vehicles (%)	80%	15%	0%	0%	13%	34%	0%	4%	0%	10%	2%	16%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		6
Actuated Green, G (s)		7.0		7.0	7.0	7.0	55.0	55.0		55.0	55.0	55.0
Effective Green, g (s)		7.0		7.0	7.0	7.0	55.0	55.0		55.0	55.0	55.0
Actuated g/C Ratio		0.09		0.09	0.09	0.09	0.74	0.74		0.74	0.74	0.74
Clearance Time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		235		134	160	115	388	2587		691	2660	1046
v/s Ratio Prot					0.01			0.10			0.28	
v/s Ratio Perm		0.01		c0.02		0.01	0.00			c0.64		0.01
v/c Ratio		0.08		0.25	0.06	0.07	0.01	0.14		0.87	0.38	0.02
Uniform Delay, d1		30.6		31.1	30.5	30.5	2.4	2.7		6.8	3.4	2.5
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.2		1.0	0.1	0.3	0.0	0.1		13.7	0.4	0.0
Delay (s)		30.7		32.1	30.6	30.8	2.5	2.8		20.5	3.8	2.5
Level of Service		C		C	C	C	A	A		C	A	A
Approach Delay (s)		30.7			31.1			2.8			9.9	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	10.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	74.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	143	23	226	163	138	208	2153	54	9	822	118
v/c Ratio	0.78	0.09	0.49	0.75	0.24	0.56	0.59	0.07	0.15	0.29	0.15
Control Delay	77.8	41.3	8.6	71.5	41.8	10.5	7.2	1.5	26.6	15.4	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.8	41.3	8.6	71.5	41.8	10.5	7.2	1.5	26.6	15.4	3.7
Queue Length 50th (m)	36.7	5.1	0.0	41.6	15.4	12.1	52.6	0.4	1.0	36.2	0.0
Queue Length 95th (m)	55.7	11.8	19.4	60.4	22.4	18.0	56.5	m1.1	6.3	62.1	10.7
Internal Link Dist (m)		365.9			204.7		404.8			329.5	
Turn Bay Length (m)	97.3			74.0		142.0		100.0	160.0		116.0
Base Capacity (vph)	282	384	591	332	896	466	3623	762	60	2846	786
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.06	0.38	0.49	0.15	0.45	0.59	0.07	0.15	0.29	0.15

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	23	226	163	85	53	208	2153	54	9	822	118
Future Volume (vph)	143	23	226	163	85	53	208	2153	54	9	822	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		3.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1362	1298	1458	1437	3005		1225	5043	1040	1323	4768	1237
Flt Permitted	0.66	1.00	1.00	0.74	1.00		0.30	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	953	1298	1458	1123	3005		385	5043	1040	102	4768	1237
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	143	23	226	163	85	53	208	2153	54	9	822	118
RTOR Reduction (vph)	0	0	182	0	7	0	0	0	15	0	0	48
Lane Group Flow (vph)	143	23	44	163	131	0	208	2153	39	9	822	70
Heavy Vehicles (%)	34%	48%	12%	27%	21%	4%	49%	4%	57%	38%	10%	32%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		8			4		5	2			6	
Permitted Phases	8		8	4			2		2	6		6
Actuated Green, G (s)	26.0	26.0	26.0	26.0	26.0		97.0	97.0	97.0	80.6	80.6	80.6
Effective Green, g (s)	26.0	26.0	26.0	26.0	26.0		97.0	97.0	97.0	80.6	80.6	80.6
Actuated g/C Ratio	0.19	0.19	0.19	0.19	0.19		0.72	0.72	0.72	0.60	0.60	0.60
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		3.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	183	249	280	216	578		360	3623	747	60	2846	738
v/s Ratio Prot		0.02			0.04		0.06	c0.43			0.17	
v/s Ratio Perm	c0.15		0.03	0.15			0.36		0.04	0.09		0.06
v/c Ratio	0.78	0.09	0.16	0.75	0.23		0.58	0.59	0.05	0.15	0.29	0.10
Uniform Delay, d1	51.8	44.8	45.4	51.5	46.0		6.9	9.3	5.6	12.0	13.2	11.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.79	0.63	0.59	1.00	1.00	1.00
Incremental Delay, d2	19.2	0.2	0.3	13.9	0.2		1.9	0.6	0.1	5.2	0.3	0.3
Delay (s)	71.0	45.0	45.6	65.4	46.2		7.3	6.5	3.4	17.3	13.5	11.9
Level of Service	E	D	D	E	D		A	A	A	B	B	B
Approach Delay (s)		54.8			56.6			6.5			13.3	
Approach LOS		D			E			A			B	

Intersection Summary			
HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	84.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	294	249	1926	1215
v/c Ratio	0.45	0.82	0.58	0.37
Control Delay	44.8	67.5	10.3	8.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	44.8	67.5	10.3	8.6
Queue Length 50th (m)	33.8	66.9	70.5	36.5
Queue Length 95th (m)	42.8	91.8	m75.6	60.9
Internal Link Dist (m)	326.5		498.1	404.8
Turn Bay Length (m)		207.0		
Base Capacity (vph)	974	452	3338	3278
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	0.30	0.55	0.58	0.37

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

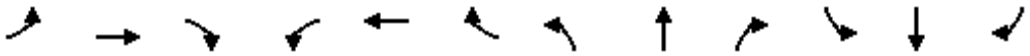
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	44	499	1926	0	0	1215
Future Volume (vph)	44	499	1926	0	0	1215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0			6.0
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.87	0.85	1.00			1.00
Flt Protected	0.99	1.00	1.00			1.00
Satd. Flow (prot)	2965	1363	4812			4725
Flt Permitted	0.99	1.00	1.00			1.00
Satd. Flow (perm)	2965	1363	4812			4725
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	44	499	1926	0	0	1215
RTOR Reduction (vph)	9	9	0	0	0	0
Lane Group Flow (vph)	285	240	1926	0	0	1215
Heavy Vehicles (%)	8%	9%	9%	0%	0%	11%
Turn Type	Prot	Perm	NA			NA
Protected Phases	4		2			6
Permitted Phases		4				
Actuated Green, G (s)	29.3	29.3	93.7			93.7
Effective Green, g (s)	29.3	29.3	93.7			93.7
Actuated g/C Ratio	0.22	0.22	0.69			0.69
Clearance Time (s)	6.0	6.0	6.0			6.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	643	295	3339			3279
v/s Ratio Prot	0.10		c0.40			0.26
v/s Ratio Perm		c0.18				
v/c Ratio	0.44	0.81	0.58			0.37
Uniform Delay, d1	45.8	50.2	10.5			8.5
Progression Factor	1.00	1.00	0.85			0.88
Incremental Delay, d2	0.5	15.5	0.3			0.3
Delay (s)	46.3	65.8	9.3			7.8
Level of Service	D	E	A			A
Approach Delay (s)	55.2		9.3			7.8
Approach LOS	E		A			A

Intersection Summary			
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1881	20	23	1702	46	38
Future Volume (Veh/h)	1881	20	23	1702	46	38
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1881	20	23	1702	46	38
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)				281		
pX, platoon unblocked					0.73	
vC, conflicting volume			1901		2494	627
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1901		1765	627
tC, single (s)			4.2		6.8	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			92		9	91
cM capacity (veh/h)			298		51	424

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2
Volume Total	627	627	627	20	23	567	567	567	46	38
Volume Left	0	0	0	0	23	0	0	0	46	0
Volume Right	0	0	0	20	0	0	0	0	0	38
cSH	1700	1700	1700	1700	298	1700	1700	1700	51	424
Volume to Capacity	0.37	0.37	0.37	0.01	0.08	0.33	0.33	0.33	0.91	0.09
Queue Length 95th (m)	0.0	0.0	0.0	0.0	1.9	0.0	0.0	0.0	29.4	2.2
Control Delay (s)	0.0	0.0	0.0	0.0	18.1	0.0	0.0	0.0	225.7	14.3
Lane LOS					C				F	B
Approach Delay (s)	0.0				0.2				130.1	
Approach LOS									F	

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
Analysis Period (min)	15		

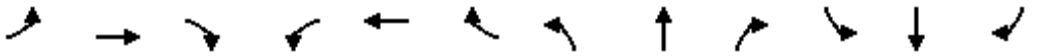


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	229	1968	132	59	1413	756	281	737	43	561	618	199
v/c Ratio	1.18	0.96	0.21	0.44	0.91	1.06	0.72	0.83	0.09	1.05	0.59	0.37
Control Delay	154.0	52.3	5.1	30.5	52.5	75.3	68.3	56.7	0.3	103.3	53.4	22.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	154.0	52.3	5.1	30.5	52.5	75.3	68.3	56.7	0.3	103.3	53.4	22.2
Queue Length 50th (m)	~59.0	172.7	0.0	8.4	131.6	~155.7	37.5	98.2	0.0	~85.4	70.2	13.4
Queue Length 95th (m)	#111.2	#206.3	13.0	16.4	151.9	#231.5	52.0	122.0	0.0	#122.2	110.4	48.3
Internal Link Dist (m)		256.7			251.4			415.8			498.1	
Turn Bay Length (m)	125.0		170.0	160.0		138.0	176.0		106.0	167.0		
Base Capacity (vph)	194	2053	632	134	1561	712	437	892	488	533	1039	531
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.18	0.96	0.21	0.44	0.91	1.06	0.64	0.83	0.09	1.05	0.59	0.37

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	229	1968	132	59	1413	756	281	737	43	561	618	199
Future Volume (vph)	229	1968	132	59	1413	756	281	737	43	561	618	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.7	6.7	3.0	6.7	6.7	5.0	6.7	6.7	4.0	6.7	6.7
Lane Util. Factor	1.00	*1.00	1.00	1.00	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1496	5192	1396	1722	4725	1458	3278	3544	1585	3133	3510	1396
Flt Permitted	0.08	1.00	1.00	0.09	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	132	5192	1396	163	4725	1458	3278	3544	1585	3133	3510	1396
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	229	1968	132	59	1413	756	281	737	43	561	618	199
RTOR Reduction (vph)	0	0	80	0	0	231	0	0	32	0	0	118
Lane Group Flow (vph)	229	1968	52	59	1413	525	281	737	11	561	618	81
Heavy Vehicles (%)	22%	11%	17%	6%	11%	12%	8%	3%	3%	13%	4%	17%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6			4			8
Actuated Green, G (s)	60.6	52.8	52.8	49.4	44.6	44.6	16.0	34.0	34.0	22.0	40.0	40.0
Effective Green, g (s)	60.6	52.8	52.8	49.4	44.6	44.6	16.0	34.0	34.0	23.0	40.0	40.0
Actuated g/C Ratio	0.45	0.39	0.39	0.37	0.33	0.33	0.12	0.25	0.25	0.17	0.30	0.30
Clearance Time (s)	3.0	6.7	6.7	3.0	6.7	6.7	5.0	6.7	6.7	5.0	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	190	2030	545	115	1561	481	388	892	399	533	1040	413
v/s Ratio Prot	c0.12	0.38		0.02	0.30		0.09	c0.21		c0.18	0.18	
v/s Ratio Perm	c0.42		0.04	0.17		0.36			0.01			0.06
v/c Ratio	1.21	0.97	0.09	0.51	0.91	1.09	0.72	0.83	0.03	1.05	0.59	0.20
Uniform Delay, d1	39.3	40.3	26.0	32.4	43.2	45.2	57.4	47.7	38.0	56.0	40.6	35.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.23	2.39
Incremental Delay, d2	131.5	14.0	0.3	3.8	9.1	68.1	6.6	8.6	0.1	52.7	2.4	1.0
Delay (s)	170.7	54.3	26.3	36.2	52.3	113.3	63.9	56.3	38.2	105.7	52.4	85.9
Level of Service	F	D	C	D	D	F	E	E	D	F	D	F
Approach Delay (s)		64.1			72.6			57.6			79.0	
Approach LOS		E			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	68.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	21.4
Intersection Capacity Utilization	96.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2786	38	0	2769	0	32
Future Volume (Veh/h)	2786	38	0	2769	0	32
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2786	38	0	2769	0	32
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	276					
pX, platoon unblocked			0.63		0.63	0.63
vC, conflicting volume			2824		3709	929
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1834		3242	0
tC, single (s)			4.1		6.8	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.4
p0 queue free %			100		100	95
cM capacity (veh/h)			212		5	672

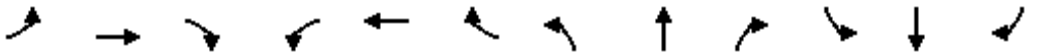
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1
Volume Total	929	929	929	38	923	923	923	32
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	38	0	0	0	32
cSH	1700	1700	1700	1700	1700	1700	1700	672
Volume to Capacity	0.55	0.55	0.55	0.02	0.54	0.54	0.54	0.05
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.6
Lane LOS								B
Approach Delay (s)	0.0				0.0			10.6
Approach LOS								B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	42	41	2	236	2	1110	173	457	19
v/c Ratio	0.07	0.14	0.01	0.69	0.00	0.49	0.91	0.21	0.02
Control Delay	19.8	21.8	18.5	31.2	8.0	9.5	66.2	7.3	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8	21.8	18.5	31.2	8.0	9.5	66.2	7.3	1.1
Queue Length 50th (m)	2.3	4.7	0.2	24.7	0.1	38.2	18.1	12.6	0.0
Queue Length 95th (m)	5.2	10.3	1.5	40.3	1.0	70.8	#63.0	25.5	1.2
Internal Link Dist (m)	199.1		507.4			227.2		415.8	
Turn Bay Length (m)		85.6			122.0		250.0		92.0
Base Capacity (vph)	1179	623	571	668	586	2246	191	2191	851
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.07	0.00	0.35	0.00	0.49	0.91	0.21	0.02

Intersection Summary

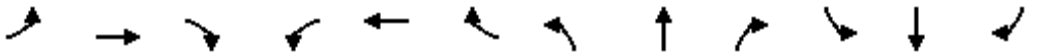
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	17	2	41	2	236	2	1065	45	173	457	19
Future Volume (vph)	23	17	2	41	2	236	2	1065	45	173	457	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lane Util. Factor		0.95		1.00	1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frt		0.99		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected		0.97		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3050		1825	1281	1445	1825	3593		1352	3510	1338
Flt Permitted		0.84		0.73	1.00	1.00	0.49	1.00		0.22	1.00	1.00
Satd. Flow (perm)		2640		1399	1281	1445	939	3593		307	3510	1338
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	23	17	2	41	2	236	2	1065	45	173	457	19
RTOR Reduction (vph)	0	2	0	0	0	35	0	3	0	0	0	7
Lane Group Flow (vph)	0	40	0	41	2	201	2	1107	0	173	457	12
Heavy Vehicles (%)	19%	13%	0%	0%	50%	13%	0%	1%	0%	35%	4%	22%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		6
Actuated Green, G (s)		15.8		15.8	15.8	15.8	46.2	46.2		46.2	46.2	46.2
Effective Green, g (s)		15.8		15.8	15.8	15.8	46.2	46.2		46.2	46.2	46.2
Actuated g/C Ratio		0.21		0.21	0.21	0.21	0.62	0.62		0.62	0.62	0.62
Clearance Time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		563		298	273	308	586	2243		191	2191	835
v/s Ratio Prot					0.00			0.31			0.13	
v/s Ratio Perm		0.02		0.03		c0.14	0.00			c0.56		0.01
v/c Ratio		0.07		0.14	0.01	0.65	0.00	0.49		0.91	0.21	0.01
Uniform Delay, d1		23.2		23.6	22.9	26.6	5.2	7.5		12.0	6.0	5.3
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.1		0.2	0.0	4.9	0.0	0.8		44.3	0.2	0.0
Delay (s)		23.3		23.8	22.9	31.5	5.2	8.3		56.3	6.2	5.3
Level of Service		C		C	C	C	A	A		E	A	A
Approach Delay (s)		23.3			30.3			8.3			19.5	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	74.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Appendix C – Future (2031)
Total Conditions Synchro Output



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	61	175	130	70	31	140	688	211	72	2352	130
Future Volume (vph)	79	61	175	130	70	31	140	688	211	72	2352	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	97.3		0.0	74.0		0.0	142.0		100.0	160.0		116.0
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850		0.954				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1259	1562	1103	1127	2560	0	1201	4683	1256	1587	5043	1175
Flt Permitted	0.688			0.717			0.042			0.379		
Satd. Flow (perm)	912	1562	1103	850	2560	0	53	4683	1256	633	5043	1175
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			175		31				211			126
Link Speed (k/h)		48			48			60			60	
Link Distance (m)		389.9			228.7			428.8			353.5	
Travel Time (s)		29.2			17.2			25.7			21.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	45%	23%	48%	62%	44%	18%	52%	12%	30%	15%	4%	39%
Adj. Flow (vph)	79	61	175	130	70	31	140	688	211	72	2352	130
Shared Lane Traffic (%)												
Lane Group Flow (vph)	79	61	175	130	101	0	140	688	211	72	2352	130
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		8			4		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	8		8	4			2		2	6		6
Detector Phase	8	8	8	4	4		5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		6.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	41.0	41.0	41.0	41.0	41.0		9.0	38.0	38.0	38.0	38.0	38.0
Total Split (s)	41.0	41.0	41.0	41.0	41.0		23.0	109.0	109.0	86.0	86.0	86.0
Total Split (%)	27.3%	27.3%	27.3%	27.3%	27.3%		15.3%	72.7%	72.7%	57.3%	57.3%	57.3%
Maximum Green (s)	35.0	35.0	35.0	35.0	35.0		20.0	103.0	103.0	80.0	80.0	80.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		0.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		3.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag							Lead			Lag	Lag	Lag
Lead-Lag Optimize?							Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	8.0	8.0	8.0	8.0	8.0			8.0	8.0	8.0	8.0	8.0
Flash Dont Walk (s)	27.0	27.0	27.0	27.0	27.0			24.0	24.0	24.0	24.0	24.0
Pedestrian Calls (#/hr)	0	0	0	0	0			0	0	0	0	0
Act Effct Green (s)	27.1	27.1	27.1	27.1	27.1		113.9	110.9	110.9	91.4	91.4	91.4
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.18		0.76	0.74	0.74	0.61	0.61	0.61
v/c Ratio	0.48	0.22	0.51	0.85	0.21		0.85	0.20	0.21	0.19	0.77	0.17
Control Delay	63.1	51.6	11.8	99.2	34.8		77.4	7.0	2.8	17.6	25.7	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.1	51.6	11.8	99.2	34.8		77.4	7.0	2.8	17.6	25.7	3.5
LOS	E	D	B	F	C		E	A	A	B	C	A
Approach Delay		32.4			71.1			15.6			24.4	
Approach LOS		C			E			B			C	

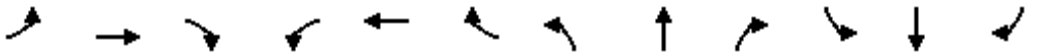
Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Offset: 23 (15%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 25.4		Intersection LOS: C	
Intersection Capacity Utilization 80.4%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Goreway Dr & Intermodal Dr

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	79	61	175	130	101	140	688	211	72	2352	130
v/c Ratio	0.48	0.22	0.51	0.85	0.21	0.85	0.20	0.21	0.19	0.77	0.17
Control Delay	63.1	51.6	11.8	99.2	34.8	77.4	7.0	2.8	17.6	25.7	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.1	51.6	11.8	99.2	34.8	77.4	7.0	2.8	17.6	25.7	3.5
Queue Length 50th (m)	21.1	15.5	0.0	37.5	9.2	30.4	24.1	0.0	9.5	189.5	0.5
Queue Length 95th (m)	36.8	27.8	20.8	#60.9	17.0	#62.5	38.7	16.5	21.3	239.5	10.7
Internal Link Dist (m)		365.9			204.7		404.8			329.5	
Turn Bay Length (m)	97.3			74.0		142.0		100.0	160.0		116.0
Base Capacity (vph)	212	364	391	198	621	195	3461	983	385	3074	765
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.17	0.45	0.66	0.16	0.72	0.20	0.21	0.19	0.77	0.17

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)	79	61	175	130	70	31	140	688	211	72	2352	130
Future Volume (vph)	79	61	175	130	70	31	140	688	211	72	2352	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		3.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1259	1562	1103	1127	2560		1201	4683	1256	1587	5043	1175
Flt Permitted	0.69	1.00	1.00	0.72	1.00		0.04	1.00	1.00	0.38	1.00	1.00
Satd. Flow (perm)	912	1562	1103	851	2560		53	4683	1256	633	5043	1175
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	79	61	175	130	70	31	140	688	211	72	2352	130
RTOR Reduction (vph)	0	0	143	0	25	0	0	0	55	0	0	49
Lane Group Flow (vph)	79	61	32	130	76	0	140	688	156	72	2352	81
Heavy Vehicles (%)	45%	23%	48%	62%	44%	18%	52%	12%	30%	15%	4%	39%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		8			4		5	2			6	
Permitted Phases	8		8	4			2		2	6		6
Actuated Green, G (s)	27.1	27.1	27.1	27.1	27.1		110.9	110.9	110.9	91.5	91.5	91.5
Effective Green, g (s)	27.1	27.1	27.1	27.1	27.1		110.9	110.9	110.9	91.5	91.5	91.5
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.18		0.74	0.74	0.74	0.61	0.61	0.61
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		3.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	164	282	199	153	462		164	3462	928	386	3076	716
v/s Ratio Prot		0.04			0.03		c0.09	0.15			0.47	
v/s Ratio Perm	0.09		0.03	c0.15			c0.53		0.12	0.11		0.07
v/c Ratio	0.48	0.22	0.16	0.85	0.16		0.85	0.20	0.17	0.19	0.76	0.11
Uniform Delay, d1	55.1	52.4	51.8	59.5	51.9		49.0	6.0	5.8	12.9	21.4	12.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.93	1.04	2.45	1.00	1.00	1.00
Incremental Delay, d2	2.2	0.4	0.4	33.2	0.2		32.3	0.1	0.4	1.1	1.9	0.3
Delay (s)	57.4	52.8	52.2	92.7	52.0		78.0	6.3	14.6	13.9	23.2	12.6
Level of Service	E	D	D	F	D		E	A	B	B	C	B
Approach Delay (s)		53.6			74.9			17.7			22.4	
Approach LOS		D			E			B			C	

Intersection Summary			
HCM 2000 Control Delay	26.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	68	228	737	0	0	2882
Future Volume (vph)	68	228	737	0	0	2882
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	207.0		0.0	0.0	
Storage Lanes	2	1		0	0	
Taper Length (m)	7.6				7.6	
Lane Util. Factor	0.97	0.91	0.91	1.00	1.00	0.91
Frt	0.906	0.850				
Flt Protected	0.982					
Satd. Flow (prot)	3001	1327	4264	0	0	4812
Flt Permitted	0.982					
Satd. Flow (perm)	3001	1327	4264	0	0	4812
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	114	114				
Link Speed (k/h)	48		60			60
Link Distance (m)	350.5		325.7			428.8
Travel Time (s)	26.3		19.5			25.7
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	8%	12%	23%	0%	0%	9%
Adj. Flow (vph)	68	228	737	0	0	2882
Shared Lane Traffic (%)		50%				
Lane Group Flow (vph)	182	114	737	0	0	2882
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	7.4		3.7			3.7
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.9		4.9			4.9
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2			2
Detector Template	Left	Right	Thru			Thru
Leading Detector (m)	6.1	6.1	30.5			30.5
Trailing Detector (m)	0.0	0.0	0.0			0.0
Detector 1 Position(m)	0.0	0.0	0.0			0.0
Detector 1 Size(m)	6.1	6.1	1.8			1.8
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0			0.0
Detector 1 Queue (s)	0.0	0.0	0.0			0.0
Detector 1 Delay (s)	0.0	0.0	0.0			0.0
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA			NA
Protected Phases	4		2			6

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Permitted Phases		4				
Detector Phase	4	4	2			6
Switch Phase						
Minimum Initial (s)	8.0	8.0	8.0			8.0
Minimum Split (s)	33.0	33.0	26.0			26.0
Total Split (s)	33.0	33.0	117.0			117.0
Total Split (%)	22.0%	22.0%	78.0%			78.0%
Maximum Green (s)	27.0	27.0	111.0			111.0
Yellow Time (s)	4.0	4.0	4.0			4.0
All-Red Time (s)	2.0	2.0	2.0			2.0
Lost Time Adjust (s)	0.0	0.0	0.0			0.0
Total Lost Time (s)	6.0	6.0	6.0			6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Recall Mode	None	None	C-Max			C-Max
Walk Time (s)	8.0	8.0	8.0			8.0
Flash Dont Walk (s)	18.0	18.0	11.0			11.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	9.8	9.8	128.2			128.2
Actuated g/C Ratio	0.07	0.07	0.85			0.85
v/c Ratio	0.60	0.59	0.20			0.70
Control Delay	34.7	23.5	2.1			12.8
Queue Delay	0.0	0.0	0.0			0.0
Total Delay	34.7	23.5	2.1			12.8
LOS	C	C	A			B
Approach Delay	30.4		2.1			12.8
Approach LOS	C		A			B

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Offset: 120 (80%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 12.1		Intersection LOS: B	
Intersection Capacity Utilization 72.4%		ICU Level of Service C	
Analysis Period (min) 15			

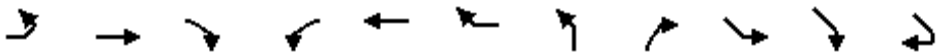
Splits and Phases: 2: 407 WB Off & Goreway Dr

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	182	114	737	2882
v/c Ratio	0.60	0.59	0.20	0.70
Control Delay	34.7	23.5	2.1	12.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	34.7	23.5	2.1	12.8
Queue Length 50th (m)	10.2	0.0	10.2	152.7
Queue Length 95th (m)	22.1	21.3	16.3	207.9
Internal Link Dist (m)	326.5		301.7	404.8
Turn Bay Length (m)		207.0		
Base Capacity (vph)	633	332	3643	4111
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	0.29	0.34	0.20	0.70

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	68	228	737	0	0	2882
Future Volume (vph)	68	228	737	0	0	2882
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0			6.0
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.91	0.85	1.00			1.00
Flt Protected	0.98	1.00	1.00			1.00
Satd. Flow (prot)	3000	1327	4264			4812
Flt Permitted	0.98	1.00	1.00			1.00
Satd. Flow (perm)	3000	1327	4264			4812
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	68	228	737	0	0	2882
RTOR Reduction (vph)	107	107	0	0	0	0
Lane Group Flow (vph)	75	7	737	0	0	2882
Heavy Vehicles (%)	8%	12%	23%	0%	0%	9%
Turn Type	Prot	Perm	NA			NA
Protected Phases	4		2			6
Permitted Phases		4				
Actuated Green, G (s)	9.8	9.8	128.2			128.2
Effective Green, g (s)	9.8	9.8	128.2			128.2
Actuated g/C Ratio	0.07	0.07	0.85			0.85
Clearance Time (s)	6.0	6.0	6.0			6.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	196	86	3644			4112
v/s Ratio Prot	c0.03		0.17			c0.60
v/s Ratio Perm		0.01				
v/c Ratio	0.38	0.09	0.20			0.70
Uniform Delay, d1	67.2	65.9	1.9			4.0
Progression Factor	1.00	1.00	1.00			2.83
Incremental Delay, d2	1.3	0.4	0.1			0.7
Delay (s)	68.5	66.3	2.0			11.9
Level of Service	E	E	A			B
Approach Delay (s)	67.6		2.0			11.9
Approach LOS	E		A			B

Intersection Summary			
HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



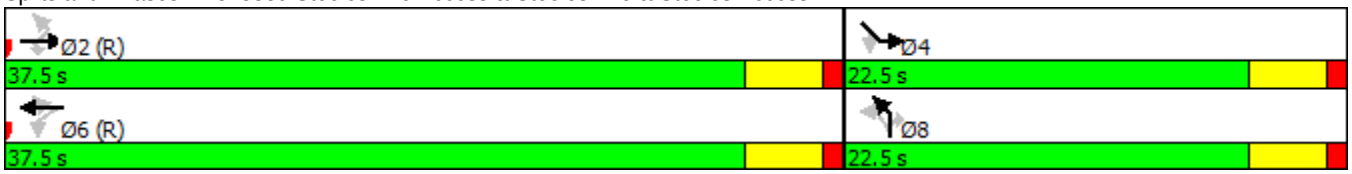
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER	SER2
Lane Configurations											
Traffic Volume (vph)	5	2091	11	27	1616	20	0	9	40	0	1
Future Volume (vph)	5	2091	11	27	1616	20	0	9	40	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		90.0	98.0		50.0	0.0	0.0	0.0	0.0	
Storage Lanes	1		1	1		1	1	1	1	1	
Taper Length (m)	7.6			7.6			7.6		2.5		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.850		0.850	
Flt Protected	0.950			0.950					0.950		
Satd. Flow (prot)	1789	4641	1484	1825	4683	1601	1883	1183	1789	1601	0
Flt Permitted	0.121			0.121					0.950		
Satd. Flow (perm)	228	4641	1484	232	4683	1601	1883	1183	1789	1601	0
Right Turn on Red			Yes			Yes		Yes			Yes
Satd. Flow (RTOR)			27			27		27		27	
Link Speed (k/h)		80			80		48		48		
Link Distance (m)		330.9			280.7		318.7		99.8		
Travel Time (s)		14.9			12.6		23.9		7.5		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	13%	10%	0%	12%	2%	2%	38%	2%	2%	2%
Adj. Flow (vph)	5	2091	11	27	1616	20	0	9	40	0	1
Shared Lane Traffic (%)											
Lane Group Flow (vph)	5	2091	11	27	1616	20	0	9	40	1	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Right	Left	Right	Right
Median Width(m)		3.7			3.7		3.7		3.7		
Link Offset(m)		0.0			0.0		0.0		0.0		
Crosswalk Width(m)		4.9			4.9		4.9		1.6		
Two way Left Turn Lane											
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24	14	24	14	14
Number of Detectors	1	2	1	1	2	1	1	1	1	1	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Right	Left	Right	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	6.1	6.1	6.1	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	6.1	6.1	6.1	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel											
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7						
Detector 2 Size(m)		1.8			1.8						
Detector 2 Type		Cl+Ex			Cl+Ex						
Detector 2 Channel											
Detector 2 Extend (s)		0.0			0.0						
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	Perm	Prot	Perm	
Protected Phases		2			6		8!		4!		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER	SER2
Permitted Phases	2		2	6		6		8		4	
Detector Phase	2	2	2	6	6	6	8	8	4	4	
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	
Total Split (s)	37.5	37.5	37.5	37.5	37.5	37.5	22.5	22.5	22.5	22.5	
Total Split (%)	62.5%	62.5%	62.5%	62.5%	62.5%	62.5%	37.5%	37.5%	37.5%	37.5%	
Maximum Green (s)	33.0	33.0	33.0	33.0	33.0	33.0	18.0	18.0	18.0	18.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lead/Lag											
Lead-Lag Optimize?											
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	
Act Effct Green (s)	33.0	33.0	33.0	33.0	33.0	33.0		18.0	18.0	18.0	
Actuated g/C Ratio	0.55	0.55	0.55	0.55	0.55	0.55		0.30	0.30	0.30	
v/c Ratio	0.04	0.82	0.01	0.21	0.63	0.02		0.02	0.07	0.00	
Control Delay	7.2	14.5	1.4	12.0	10.6	2.5		2.7	15.6	0.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay	7.2	14.5	1.4	12.0	10.6	2.5		2.7	15.6	0.0	
LOS	A	B	A	B	B	A		A	B	A	
Approach Delay		14.4			10.6		2.7		15.2		
Approach LOS		B			B		A		B		

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 23 (38%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 12.7		Intersection LOS: B	
Intersection Capacity Utilization 52.1%		ICU Level of Service A	
Analysis Period (min) 15			

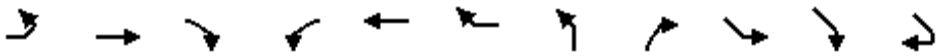
! Phase conflict between lane groups.

Splits and Phases: 3: 3389 Steeles Ave Access & Steeles Ave & Steeles Access



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBR	SEL	SER
Lane Group Flow (vph)	5	2091	11	27	1616	20	9	40	1
v/c Ratio	0.04	0.82	0.01	0.21	0.63	0.02	0.02	0.07	0.00
Control Delay	7.2	14.5	1.4	12.0	10.6	2.5	2.7	15.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.2	14.5	1.4	12.0	10.6	2.5	2.7	15.6	0.0
Queue Length 50th (m)	0.2	61.8	0.0	1.4	40.1	0.0	0.0	3.1	0.0
Queue Length 95th (m)	1.5	81.2	1.0	5.9	52.6	1.9	1.2	8.8	0.0
Internal Link Dist (m)		306.9			256.7			75.8	
Turn Bay Length (m)	50.0		90.0	98.0		50.0			
Base Capacity (vph)	125	2552	828	127	2575	892	373	536	499
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.82	0.01	0.21	0.63	0.02	0.02	0.07	0.00

Intersection Summary

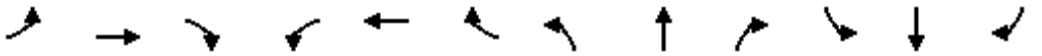


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER	SER2
Lane Configurations											
Traffic Volume (vph)	5	2091	11	27	1616	20	0	9	40	0	1
Future Volume (vph)	5	2091	11	27	1616	20	0	9	40	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00		1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.85	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		1.00	0.95	1.00	
Satd. Flow (prot)	1789	4641	1484	1825	4683	1601		1183	1789	1601	
Flt Permitted	0.12	1.00	1.00	0.12	1.00	1.00		1.00	0.95	1.00	
Satd. Flow (perm)	228	4641	1484	233	4683	1601		1183	1789	1601	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	5	2091	11	27	1616	20	0	9	40	0	1
RTOR Reduction (vph)	0	0	5	0	0	9	0	6	0	1	0
Lane Group Flow (vph)	5	2091	6	27	1616	11	0	3	40	0	0
Heavy Vehicles (%)	2%	13%	10%	0%	12%	2%	2%	38%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	Perm	Prot	Perm	
Protected Phases		2			6		8!		4!		
Permitted Phases	2		2	6		6		8		4	
Actuated Green, G (s)	33.0	33.0	33.0	33.0	33.0	33.0		18.0	18.0	18.0	
Effective Green, g (s)	33.0	33.0	33.0	33.0	33.0	33.0		18.0	18.0	18.0	
Actuated g/C Ratio	0.55	0.55	0.55	0.55	0.55	0.55		0.30	0.30	0.30	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	125	2552	816	128	2575	880		354	536	480	
v/s Ratio Prot		c0.45			0.35				c0.02		
v/s Ratio Perm	0.02		0.00	0.12		0.01		0.00		0.00	
v/c Ratio	0.04	0.82	0.01	0.21	0.63	0.01		0.01	0.07	0.00	
Uniform Delay, d1	6.2	11.1	6.1	6.9	9.3	6.1		14.7	15.0	14.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.6	3.1	0.0	3.7	1.2	0.0		0.0	0.3	0.0	
Delay (s)	6.8	14.1	6.1	10.6	10.4	6.1		14.8	15.3	14.7	
Level of Service	A	B	A	B	B	A		B	B	B	
Approach Delay (s)		14.1			10.4		14.8		15.3		
Approach LOS		B			B		B		B		

Intersection Summary			
HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	52.1%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group



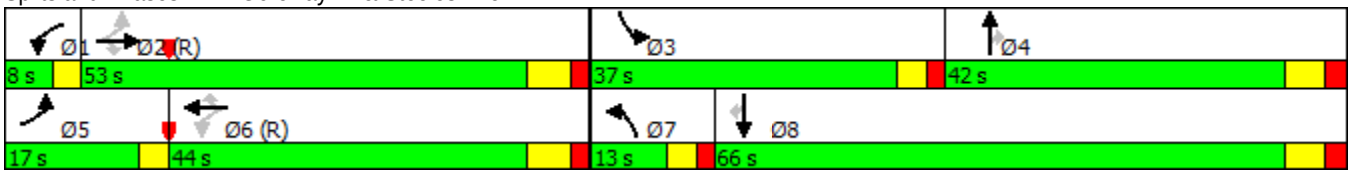
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	184	1760	156	34	1248	290	130	250	51	714	1668	357
Future Volume (vph)	184	1760	156	34	1248	290	130	250	51	714	1668	357
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		170.0	160.0		138.0	176.0		106.0	167.0		0.0
Storage Lanes	1		1	1		1	2		1	2		1
Taper Length (m)	7.6			7.6			7.6			7.6		
Lane Util. Factor	1.00	*1.00	1.00	1.00	0.91	1.00	0.97	0.95	1.00	0.97	*1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1209	5192	1471	1615	4812	1396	3079	3259	1601	3190	3694	1361
Flt Permitted	0.099			0.107			0.950			0.950		
Satd. Flow (perm)	126	5192	1471	182	4812	1396	3079	3259	1601	3190	3694	1361
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			156			290			154			210
Link Speed (k/h)		80			80			60			60	
Link Distance (m)		280.7			275.4			439.8			196.4	
Travel Time (s)		12.6			12.4			26.4			11.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	51%	11%	11%	13%	9%	17%	15%	12%	2%	11%	4%	20%
Adj. Flow (vph)	184	1760	156	34	1248	290	130	250	51	714	1668	357
Shared Lane Traffic (%)												
Lane Group Flow (vph)	184	1760	156	34	1248	290	130	250	51	714	1668	357
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	

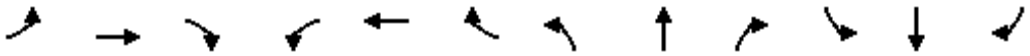
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2		2	6		6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	12.0	12.0	5.0	12.0	12.0	8.0	8.0	8.0	8.0	5.0	5.0
Minimum Split (s)	8.0	34.7	34.7	8.0	34.7	34.7	13.0	39.7	39.7	13.0	39.7	39.7
Total Split (s)	17.0	53.0	53.0	8.0	44.0	44.0	13.0	42.0	42.0	37.0	66.0	66.0
Total Split (%)	12.1%	37.9%	37.9%	5.7%	31.4%	31.4%	9.3%	30.0%	30.0%	26.4%	47.1%	47.1%
Maximum Green (s)	14.0	46.3	46.3	5.0	37.3	37.3	8.0	35.3	35.3	32.0	59.3	59.3
Yellow Time (s)	3.0	4.6	4.6	3.0	4.6	4.6	3.0	4.2	4.2	3.0	4.2	4.2
All-Red Time (s)	0.0	2.1	2.1	0.0	2.1	2.1	2.0	2.5	2.5	2.0	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	6.7	6.7	3.0	6.7	6.7	5.0	6.7	6.7	5.0	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0
Flash Dont Walk (s)		20.0	20.0		20.0	20.0		25.0	25.0		25.0	25.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	58.0	49.5	49.5	46.0	37.3	37.3	8.0	35.3	35.3	32.0	59.3	59.3
Actuated g/C Ratio	0.41	0.35	0.35	0.33	0.27	0.27	0.06	0.25	0.25	0.23	0.42	0.42
v/c Ratio	1.15	0.96	0.25	0.31	0.97	0.50	0.74	0.30	0.10	0.98	1.07	0.51
Control Delay	151.3	57.6	5.8	32.7	70.2	7.4	89.4	43.6	0.4	82.0	81.7	14.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	151.3	57.6	5.8	32.7	70.2	7.4	89.4	43.6	0.4	82.0	81.7	14.3
LOS	F	E	A	C	E	A	F	D	A	F	F	B
Approach Delay		62.0			57.8			52.3			73.0	
Approach LOS		E			E			D			E	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 112 (80%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.15			
Intersection Signal Delay: 64.8		Intersection LOS: E	
Intersection Capacity Utilization 109.6%		ICU Level of Service H	
Analysis Period (min) 15			

* User Entered Value

Splits and Phases: 4: Goreway Dr & Steeles Ave



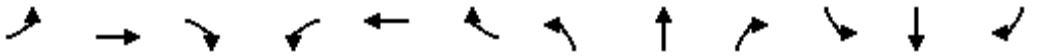


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	184	1760	156	34	1248	290	130	250	51	714	1668	357
v/c Ratio	1.15	0.96	0.25	0.31	0.97	0.50	0.74	0.30	0.10	0.98	1.07	0.51
Control Delay	151.3	57.6	5.8	32.7	70.2	7.4	89.4	43.6	0.4	82.0	81.7	14.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	151.3	57.6	5.8	32.7	70.2	7.4	89.4	43.6	0.4	82.0	81.7	14.3
Queue Length 50th (m)	~48.1	~172.6	0.0	5.6	126.0	0.0	18.6	29.6	0.0	102.1	~254.4	27.9
Queue Length 95th (m)	#96.5	#199.2	15.3	12.6	#157.3	22.9	#34.0	42.2	0.0	#141.6	#294.6	56.8
Internal Link Dist (m)		256.7			251.4			415.8			172.4	
Turn Bay Length (m)	125.0		170.0	160.0		138.0	176.0		106.0	167.0		
Base Capacity (vph)	160	1835	620	110	1282	584	175	821	518	729	1564	697
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.15	0.96	0.25	0.31	0.97	0.50	0.74	0.30	0.10	0.98	1.07	0.51

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	184	1760	156	34	1248	290	130	250	51	714	1668	357
Future Volume (vph)	184	1760	156	34	1248	290	130	250	51	714	1668	357
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.7	6.7	3.0	6.7	6.7	5.0	6.7	6.7	5.0	6.7	6.7
Lane Util. Factor	1.00	*1.00	1.00	1.00	0.91	1.00	0.97	0.95	1.00	0.97	*1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1209	5192	1471	1615	4812	1396	3079	3259	1601	3190	3694	1361
Flt Permitted	0.10	1.00	1.00	0.11	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	126	5192	1471	182	4812	1396	3079	3259	1601	3190	3694	1361
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	184	1760	156	34	1248	290	130	250	51	714	1668	357
RTOR Reduction (vph)	0	0	102	0	0	213	0	0	38	0	0	121
Lane Group Flow (vph)	184	1760	54	34	1248	77	130	250	13	714	1668	236
Heavy Vehicles (%)	51%	11%	11%	13%	9%	17%	15%	12%	2%	11%	4%	20%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6			4			8
Actuated Green, G (s)	54.3	48.3	48.3	40.3	37.3	37.3	8.0	35.3	35.3	32.0	59.3	59.3
Effective Green, g (s)	54.3	48.3	48.3	40.3	37.3	37.3	8.0	35.3	35.3	32.0	59.3	59.3
Actuated g/C Ratio	0.39	0.34	0.34	0.29	0.27	0.27	0.06	0.25	0.25	0.23	0.42	0.42
Clearance Time (s)	3.0	6.7	6.7	3.0	6.7	6.7	5.0	6.7	6.7	5.0	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	157	1791	507	83	1282	371	175	821	403	729	1564	576
v/s Ratio Prot	c0.12	0.34		0.01	0.26		0.04	0.08		c0.22	c0.45	
v/s Ratio Perm	c0.34		0.04	0.11		0.06			0.01			0.17
v/c Ratio	1.17	0.98	0.11	0.41	0.97	0.21	0.74	0.30	0.03	0.98	1.07	0.41
Uniform Delay, d1	40.5	45.4	31.2	38.9	50.9	39.9	65.0	42.4	39.5	53.7	40.4	28.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	125.5	17.5	0.4	3.3	19.5	1.3	15.6	0.2	0.0	27.9	42.8	0.5
Delay (s)	166.0	63.0	31.6	42.2	70.4	41.2	80.6	42.6	39.5	81.6	83.2	28.6
Level of Service	F	E	C	D	E	D	F	D	D	F	F	C
Approach Delay (s)		69.7			64.4			53.7			75.6	
Approach LOS		E			E			D			E	

Intersection Summary			
HCM 2000 Control Delay	69.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.4
Intersection Capacity Utilization	109.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

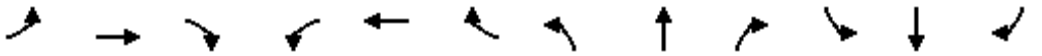
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2718	75	0	1930	0	13
Future Volume (vph)	2718	75	0	1930	0	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		70.9	0.0		0.0	0.0
Storage Lanes		1	0		0	1
Taper Length (m)			7.6		7.6	
Lane Util. Factor	0.91	1.00	1.00	0.91	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	4196	1420	0	4230	0	1329
Flt Permitted						
Satd. Flow (perm)	4196	1420	0	4230	0	1329
Link Speed (k/h)	80			80	48	
Link Distance (m)	275.4			288.4	304.2	
Travel Time (s)	12.4			13.0	22.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	25%	15%	0%	24%	0%	25%
Adj. Flow (vph)	2718	75	0	1930	0	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2718	75	0	1930	0	13
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 62.5%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2718	75	0	1930	0	13
Future Volume (Veh/h)	2718	75	0	1930	0	13
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2718	75	0	1930	0	13
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	276					
pX, platoon unblocked			0.67		0.67	0.67
vC, conflicting volume			2793		3361	906
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1955		2802	0
tC, single (s)			4.1		6.8	7.4
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.5
p0 queue free %			100		100	98
cM capacity (veh/h)			203		10	680

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1
Volume Total	906	906	906	75	643	643	643	13
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	75	0	0	0	13
cSH	1700	1700	1700	1700	1700	1700	1700	680
Volume to Capacity	0.53	0.53	0.53	0.04	0.38	0.38	0.38	0.02
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.4
Lane LOS								B
Approach Delay (s)	0.0				0.0			10.4
Approach LOS								B

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		

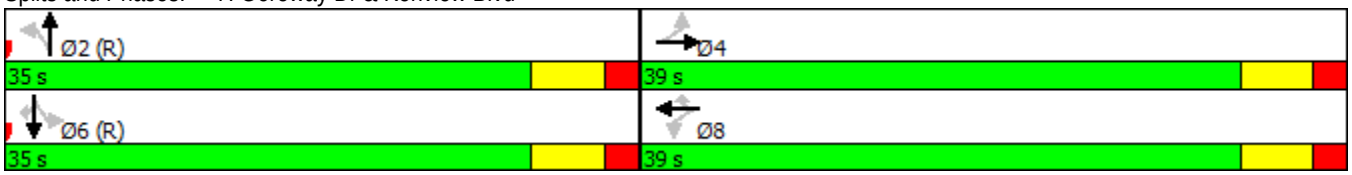


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	14	3	34	9	88	2	362	26	598	1019	28
Future Volume (vph)	5	14	3	34	9	88	2	362	26	598	1019	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	85.6		0.0	122.0		0.0	209.0		92.0
Storage Lanes	0		0	1		1	1		0	1		1
Taper Length (m)	2.5			7.6			7.6			7.6		
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.980				0.850		0.990				0.850
Flt Protected		0.989		0.950			0.950			0.950		
Satd. Flow (prot)	0	2770	0	1825	1700	1219	1825	3484	0	1659	3579	1408
Flt Permitted		0.888		0.742			0.271			0.522		
Satd. Flow (perm)	0	2487	0	1425	1700	1219	521	3484	0	912	3579	1408
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				88		12				44
Link Speed (k/h)		48			48			60			60	
Link Distance (m)		223.1			531.4			251.2			439.8	
Travel Time (s)		16.7			39.9			15.1			26.4	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	80%	15%	0%	0%	13%	34%	0%	4%	0%	10%	2%	16%
Adj. Flow (vph)	5	14	3	34	9	88	2	362	26	598	1019	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	22	0	34	9	88	2	388	0	598	1019	28
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			7.4			7.4	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2			6		6
Detector Phase	4	4		8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	8.0	8.0		8.0	8.0	8.0
Minimum Split (s)	40.0	40.0		40.0	40.0	40.0	36.0	36.0		36.0	36.0	36.0
Total Split (s)	39.0	39.0		39.0	39.0	39.0	35.0	35.0		35.0	35.0	35.0
Total Split (%)	52.7%	52.7%		52.7%	52.7%	52.7%	47.3%	47.3%		47.3%	47.3%	47.3%
Maximum Green (s)	33.0	33.0		33.0	33.0	33.0	29.0	29.0		29.0	29.0	29.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)	8.0	8.0		8.0	8.0	8.0	8.0	8.0		8.0	8.0	8.0
Flash Dont Walk (s)	25.0	25.0		25.0	25.0	25.0	21.0	21.0		21.0	21.0	21.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	0
Act Effct Green (s)		8.6		8.6	8.6	8.6	57.4	57.4		57.4	57.4	57.4
Actuated g/C Ratio		0.12		0.12	0.12	0.12	0.78	0.78		0.78	0.78	0.78
v/c Ratio		0.08		0.20	0.05	0.40	0.00	0.14		0.85	0.37	0.03
Control Delay		26.4		32.3	28.8	13.3	3.5	3.1		23.5	4.1	0.8
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		26.4		32.3	28.8	13.3	3.5	3.1		23.5	4.1	0.8
LOS		C		C	C	B	A	A		C	A	A
Approach Delay		26.4			19.3			3.1			11.1	
Approach LOS		C			B			A			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 74			
Actuated Cycle Length: 74			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 130			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 10.3		Intersection LOS: B	
Intersection Capacity Utilization 67.5%		ICU Level of Service C	
Analysis Period (min) 15			

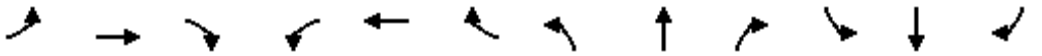
Splits and Phases: 7: Goreway Dr & Kenview Blvd



Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	22	34	9	88	2	388	598	1019	28
v/c Ratio	0.08	0.20	0.05	0.40	0.00	0.14	0.85	0.37	0.03
Control Delay	26.4	32.3	28.8	13.3	3.5	3.1	23.5	4.1	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.4	32.3	28.8	13.3	3.5	3.1	23.5	4.1	0.8
Queue Length 50th (m)	1.2	4.4	1.2	0.0	0.1	6.5	51.5	22.2	0.0
Queue Length 95th (m)	4.2	11.7	4.8	11.5	0.6	12.0	#140.8	35.9	1.3
Internal Link Dist (m)	199.1		507.4			227.2		415.8	
Turn Bay Length (m)		85.6			122.0		209.0		92.0
Base Capacity (vph)	1110	635	758	592	404	2704	707	2775	1101
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.05	0.01	0.15	0.00	0.14	0.85	0.37	0.03

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)	5	14	3	34	9	88	2	362	26	598	1019	28
Future Volume (vph)	5	14	3	34	9	88	2	362	26	598	1019	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lane Util. Factor		0.95		1.00	1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frt		0.98		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected		0.99		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		2768		1825	1700	1219	1825	3483		1659	3579	1408
Flt Permitted		0.89		0.74	1.00	1.00	0.27	1.00		0.52	1.00	1.00
Satd. Flow (perm)		2486		1426	1700	1219	520	3483		912	3579	1408
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	5	14	3	34	9	88	2	362	26	598	1019	28
RTOR Reduction (vph)	0	3	0	0	0	80	0	3	0	0	0	7
Lane Group Flow (vph)	0	19	0	34	9	8	2	385	0	598	1019	21
Heavy Vehicles (%)	80%	15%	0%	0%	13%	34%	0%	4%	0%	10%	2%	16%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		6
Actuated Green, G (s)		7.0		7.0	7.0	7.0	55.0	55.0		55.0	55.0	55.0
Effective Green, g (s)		7.0		7.0	7.0	7.0	55.0	55.0		55.0	55.0	55.0
Actuated g/C Ratio		0.09		0.09	0.09	0.09	0.74	0.74		0.74	0.74	0.74
Clearance Time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		235		134	160	115	386	2588		677	2660	1046
v/s Ratio Prot					0.01			0.11			0.28	
v/s Ratio Perm		0.01		c0.02		0.01	0.00			c0.66		0.01
v/c Ratio		0.08		0.25	0.06	0.07	0.01	0.15		0.88	0.38	0.02
Uniform Delay, d1		30.6		31.1	30.5	30.5	2.4	2.7		7.1	3.4	2.5
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.2		1.0	0.1	0.3	0.0	0.1		15.5	0.4	0.0
Delay (s)		30.7		32.1	30.6	30.8	2.5	2.9		22.6	3.8	2.5
Level of Service		C		C	C	C	A	A		C	A	A
Approach Delay (s)		30.7			31.1			2.9			10.6	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	74.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	2739	139	0	761	0	0
Future Volume (vph)	2739	139	0	761	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		50.0	0.0		0.0	0.0
Storage Lanes		1	0		0	0
Taper Length (m)			2.5		2.5	
Lane Util. Factor	0.91	1.00	1.00	0.91	1.00	1.00
Frt		0.850				
Flt Protected						
Satd. Flow (prot)	5142	1601	0	5142	0	0
Flt Permitted						
Satd. Flow (perm)	5142	1601	0	5142	0	0
Link Speed (k/h)	60			60	48	
Link Distance (m)	325.7			196.4	104.8	
Travel Time (s)	19.5			11.8	7.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	2739	139	0	761	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2739	139	0	761	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.4			7.4	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

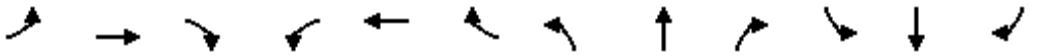
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	56.3%	ICU Level of Service	B
Analysis Period (min)	15		

Intersection Sign configuration not allowed in HCM analysis.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	143	23	226	163	138	208	2268	54	9	860	118
v/c Ratio	0.78	0.09	0.49	0.75	0.24	0.58	0.63	0.07	0.18	0.30	0.15
Control Delay	77.9	41.3	8.6	71.6	42.6	14.7	8.3	1.5	30.1	15.5	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.9	41.3	8.6	71.6	42.6	14.7	8.3	1.5	30.1	15.5	3.7
Queue Length 50th (m)	36.7	5.1	0.0	41.6	15.7	13.9	73.5	0.3	1.0	38.3	0.0
Queue Length 95th (m)	55.8	11.8	19.5	60.5	22.6	31.1	79.3	m1.1	6.9	65.1	10.6
Internal Link Dist (m)		365.9			204.7		404.8			329.5	
Turn Bay Length (m)	97.3			74.0		142.0		100.0	160.0		116.0
Base Capacity (vph)	275	374	581	324	872	437	3624	762	51	2848	786
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.06	0.39	0.50	0.16	0.48	0.63	0.07	0.18	0.30	0.15

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	23	226	163	85	53	208	2268	54	9	860	118
Future Volume (vph)	143	23	226	163	85	53	208	2268	54	9	860	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		3.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1362	1298	1458	1437	3005		1225	5043	1040	1323	4768	1237
Flt Permitted	0.66	1.00	1.00	0.74	1.00		0.28	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	953	1298	1458	1123	3005		367	5043	1040	86	4768	1237
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	143	23	226	163	85	53	208	2268	54	9	860	118
RTOR Reduction (vph)	0	0	182	0	6	0	0	0	15	0	0	48
Lane Group Flow (vph)	143	23	44	163	132	0	208	2268	39	9	860	70
Heavy Vehicles (%)	34%	48%	12%	27%	21%	4%	49%	4%	57%	38%	10%	32%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		8			4		5	2			6	
Permitted Phases	8		8	4			2		2	6		6
Actuated Green, G (s)	26.0	26.0	26.0	26.0	26.0		97.0	97.0	97.0	80.6	80.6	80.6
Effective Green, g (s)	26.0	26.0	26.0	26.0	26.0		97.0	97.0	97.0	80.6	80.6	80.6
Actuated g/C Ratio	0.19	0.19	0.19	0.19	0.19		0.72	0.72	0.72	0.60	0.60	0.60
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		3.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	183	249	280	216	578		348	3623	747	51	2846	738
v/s Ratio Prot		0.02			0.04		0.06	c0.45			0.18	
v/s Ratio Perm	c0.15		0.03	0.15			0.37		0.04	0.10		0.06
v/c Ratio	0.78	0.09	0.16	0.75	0.23		0.60	0.63	0.05	0.18	0.30	0.10
Uniform Delay, d1	51.8	44.8	45.4	51.5	46.0		7.0	9.7	5.6	12.3	13.4	11.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.33	0.69	0.62	1.00	1.00	1.00
Incremental Delay, d2	19.2	0.2	0.3	13.9	0.2		2.3	0.7	0.1	7.4	0.3	0.3
Delay (s)	71.0	45.0	45.6	65.4	46.2		11.6	7.4	3.5	19.7	13.6	11.9
Level of Service	E	D	D	E	D		B	A	A	B	B	B
Approach Delay (s)		54.8			56.6			7.7			13.5	
Approach LOS		D			E			A			B	

Intersection Summary			
HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

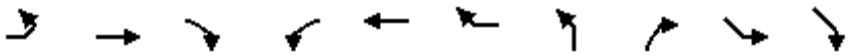
Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	294	249	2041	1253
v/c Ratio	0.45	0.82	0.61	0.38
Control Delay	45.2	68.4	10.1	7.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	45.2	68.4	10.1	7.8
Queue Length 50th (m)	34.0	67.4	70.2	35.3
Queue Length 95th (m)	43.0	92.5	m71.0	53.8
Internal Link Dist (m)	326.5		301.7	404.8
Turn Bay Length (m)		207.0		
Base Capacity (vph)	929	430	3337	3276
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	0.32	0.58	0.61	0.38

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

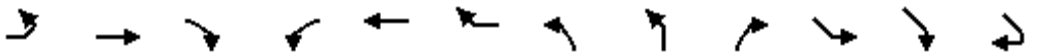
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	44	499	2041	0	0	1253
Future Volume (vph)	44	499	2041	0	0	1253
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0			6.0
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.87	0.85	1.00			1.00
Flt Protected	0.99	1.00	1.00			1.00
Satd. Flow (prot)	2965	1363	4812			4725
Flt Permitted	0.99	1.00	1.00			1.00
Satd. Flow (perm)	2965	1363	4812			4725
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	44	499	2041	0	0	1253
RTOR Reduction (vph)	8	8	0	0	0	0
Lane Group Flow (vph)	286	241	2041	0	0	1253
Heavy Vehicles (%)	8%	9%	9%	0%	0%	11%
Turn Type	Prot	Perm	NA			NA
Protected Phases	4		2			6
Permitted Phases		4				
Actuated Green, G (s)	29.4	29.4	93.6			93.6
Effective Green, g (s)	29.4	29.4	93.6			93.6
Actuated g/C Ratio	0.22	0.22	0.69			0.69
Clearance Time (s)	6.0	6.0	6.0			6.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	645	296	3336			3276
v/s Ratio Prot	0.10		c0.42			0.27
v/s Ratio Perm		c0.18				
v/c Ratio	0.44	0.81	0.61			0.38
Uniform Delay, d1	45.7	50.2	11.0			8.6
Progression Factor	1.00	1.00	0.81			0.78
Incremental Delay, d2	0.5	15.7	0.3			0.3
Delay (s)	46.2	65.9	9.2			7.1
Level of Service	D	E	A			A
Approach Delay (s)	55.2		9.2			7.1
Approach LOS	E		A			A

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER
Lane Group Flow (vph)	1	1881	20	23	1702	5	46	38	123	4
v/c Ratio	0.01	0.78	0.03	0.17	0.72	0.01	0.10	0.07	0.21	0.01
Control Delay	7.0	13.9	2.5	11.3	12.7	0.0	13.7	7.1	14.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.0	13.9	2.5	11.3	12.7	0.0	13.7	7.1	14.6	0.0
Queue Length 50th (m)	0.1	50.8	0.0	1.1	43.7	0.0	3.1	0.5	8.7	0.0
Queue Length 95th (m)	0.6	67.6	1.9	5.0	58.5	0.1	8.8	5.4	18.5	0.0
Internal Link Dist (m)		306.9			256.7		294.7		75.2	
Turn Bay Length (m)	50.0		90.0	98.0		50.0				
Base Capacity (vph)	136	2405	763	133	2362	829	465	538	585	544
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.78	0.03	0.17	0.72	0.01	0.10	0.07	0.21	0.01

Intersection Summary

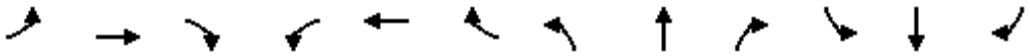


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER	SER2
Lane Configurations												
Traffic Volume (vph)	1	1881	20	23	1702	5	46	0	38	123	0	4
Future Volume (vph)	1	1881	20	23	1702	5	46	0	38	123	0	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00		1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00	0.95	1.00	
Satd. Flow (prot)	1789	4725	1471	1738	4641	1601		1789	1585	1789	1601	
Flt Permitted	0.14	1.00	1.00	0.14	1.00	1.00		0.76	1.00	0.95	1.00	
Satd. Flow (perm)	269	4725	1471	261	4641	1601		1422	1585	1789	1601	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1	1881	20	23	1702	5	46	0	38	123	0	4
RTOR Reduction (vph)	0	0	10	0	0	2	0	0	20	0	3	0
Lane Group Flow (vph)	1	1881	10	23	1702	3	0	46	18	123	1	0
Heavy Vehicles (%)	2%	11%	11%	5%	13%	2%	2%	2%	3%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	D.Pm	Prot	Perm	Prot	Perm	
Protected Phases		2!			6!			8!		4!		
Permitted Phases	2!		2	6!		6	2!		8		4	
Actuated Green, G (s)	28.0	28.0	28.0	28.0	28.0	28.0		18.0	18.0	18.0	18.0	
Effective Green, g (s)	28.0	28.0	28.0	28.0	28.0	28.0		18.0	18.0	18.0	18.0	
Actuated g/C Ratio	0.51	0.51	0.51	0.51	0.51	0.51		0.33	0.33	0.33	0.33	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	136	2405	748	132	2362	815		465	518	585	523	
v/s Ratio Prot		c0.40			0.37					c0.07		
v/s Ratio Perm	0.00		0.01	0.09		0.00		0.03	0.01		0.00	
v/c Ratio	0.01	0.78	0.01	0.17	0.72	0.00		0.10	0.03	0.21	0.00	
Uniform Delay, d1	6.7	11.0	6.7	7.3	10.5	6.6		12.9	12.6	13.4	12.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	2.6	0.0	2.9	1.9	0.0		0.1	0.0	0.8	0.0	
Delay (s)	6.8	13.6	6.7	10.1	12.4	6.6		13.0	12.6	14.2	12.5	
Level of Service	A	B	A	B	B	A		B	B	B	B	
Approach Delay (s)		13.6			12.4			12.8		14.1		
Approach LOS		B			B			B		B		

Intersection Summary			
HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

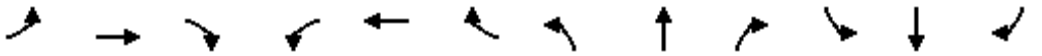


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	344	1968	140	59	1413	756	286	737	43	561	626	199
v/c Ratio	1.38	0.91	0.21	0.44	0.95	1.12	0.73	0.83	0.09	1.21	0.65	0.38
Control Delay	224.2	44.5	4.7	29.8	59.0	95.9	68.7	56.7	0.3	155.6	61.4	21.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	224.2	44.5	4.7	29.8	59.0	95.9	68.7	56.7	0.3	155.6	61.4	21.7
Queue Length 50th (m)	~107.4	165.9	0.0	8.0	134.7	~169.1	38.1	98.2	0.0	~96.4	88.8	12.7
Queue Length 95th (m)	#168.1	#187.9	12.8	15.6	#164.8	#244.9	52.9	122.0	0.0	#133.2	111.9	42.8
Internal Link Dist (m)		256.7			251.4			415.8			172.4	
Turn Bay Length (m)	125.0		170.0	160.0		138.0	176.0		106.0	167.0		
Base Capacity (vph)	250	2168	664	134	1491	678	437	892	488	464	959	526
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.38	0.91	0.21	0.44	0.95	1.12	0.65	0.83	0.09	1.21	0.65	0.38

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	344	1968	140	59	1413	756	286	737	43	561	626	199
Future Volume (vph)	344	1968	140	59	1413	756	286	737	43	561	626	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.7	6.7	3.0	6.7	6.7	5.0	6.7	6.7	4.0	6.7	6.7
Lane Util. Factor	1.00	*1.00	1.00	1.00	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1496	5192	1396	1722	4725	1458	3278	3544	1585	3133	3510	1396
Flt Permitted	0.09	1.00	1.00	0.09	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	138	5192	1396	170	4725	1458	3278	3544	1585	3133	3510	1396
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	344	1968	140	59	1413	756	286	737	43	561	626	199
RTOR Reduction (vph)	0	0	82	0	0	218	0	0	32	0	0	145
Lane Group Flow (vph)	344	1968	58	59	1413	538	286	737	11	561	626	54
Heavy Vehicles (%)	22%	11%	17%	6%	11%	12%	8%	3%	3%	13%	4%	17%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6			4			8
Actuated Green, G (s)	63.6	55.8	55.8	47.4	42.6	42.6	16.1	34.0	34.0	19.0	36.9	36.9
Effective Green, g (s)	63.6	55.8	55.8	47.4	42.6	42.6	16.1	34.0	34.0	20.0	36.9	36.9
Actuated g/C Ratio	0.47	0.41	0.41	0.35	0.32	0.32	0.12	0.25	0.25	0.15	0.27	0.27
Clearance Time (s)	3.0	6.7	6.7	3.0	6.7	6.7	5.0	6.7	6.7	5.0	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	246	2146	577	114	1491	460	390	892	399	464	959	381
v/s Ratio Prot	c0.19	0.38		0.02	0.30		0.09	c0.21		c0.18	c0.18	
v/s Ratio Perm	c0.47		0.04	0.16		0.37			0.01			0.04
v/c Ratio	1.40	0.92	0.10	0.52	0.95	1.17	0.73	0.83	0.03	1.21	0.65	0.14
Uniform Delay, d1	42.1	37.4	24.2	32.2	45.1	46.2	57.4	47.7	38.0	57.5	43.4	37.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.89	1.32	3.78
Incremental Delay, d2	202.1	7.7	0.3	3.9	13.8	97.2	7.0	8.6	0.1	112.1	3.3	0.7
Delay (s)	244.2	45.1	24.6	36.2	58.9	143.4	64.4	56.3	38.2	163.1	60.4	141.0
Level of Service	F	D	C	D	E	F	E	E	D	F	E	F
Approach Delay (s)		71.9			87.0			57.8			113.6	
Approach LOS		E			F			E			F	

Intersection Summary			
HCM 2000 Control Delay	82.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	21.4
Intersection Capacity Utilization	100.7%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2786	38	0	2769	0	30
Future Volume (Veh/h)	2786	38	0	2769	0	30
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2786	38	0	2769	0	30
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	276					
pX, platoon unblocked			0.64		0.64	0.64
vC, conflicting volume			2824		3709	929
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1864		3256	0
tC, single (s)			4.1		6.8	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.4
p0 queue free %			100		100	96
cM capacity (veh/h)			209		5	679

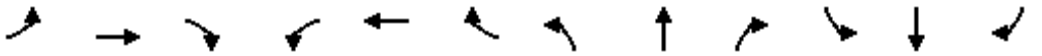
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1
Volume Total	929	929	929	38	923	923	923	30
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	38	0	0	0	30
cSH	1700	1700	1700	1700	1700	1700	1700	679
Volume to Capacity	0.55	0.55	0.55	0.02	0.54	0.54	0.54	0.04
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.5
Lane LOS								B
Approach Delay (s)	0.0				0.0			10.5
Approach LOS								B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	42	41	2	236	2	1115	173	473	19
v/c Ratio	0.07	0.14	0.01	0.69	0.00	0.50	0.91	0.22	0.02
Control Delay	19.8	21.8	18.5	31.2	8.0	9.5	67.6	7.3	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8	21.8	18.5	31.2	8.0	9.5	67.6	7.3	1.1
Queue Length 50th (m)	2.3	4.7	0.2	24.7	0.1	38.5	18.3	13.1	0.0
Queue Length 95th (m)	5.2	10.3	1.5	40.3	1.0	71.2	#63.2	26.5	1.2
Internal Link Dist (m)	199.1		507.4			227.2		415.8	
Turn Bay Length (m)		85.6			122.0		250.0		92.0
Base Capacity (vph)	1179	623	571	668	576	2246	190	2191	851
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.07	0.00	0.35	0.00	0.50	0.91	0.22	0.02

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)	23	17	2	41	2	236	2	1070	45	173	473	19
Future Volume (vph)	23	17	2	41	2	236	2	1070	45	173	473	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lane Util. Factor		0.95		1.00	1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frt		0.99		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected		0.97		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3050		1825	1281	1445	1825	3594		1352	3510	1338
Flt Permitted		0.84		0.73	1.00	1.00	0.48	1.00		0.21	1.00	1.00
Satd. Flow (perm)		2640		1399	1281	1445	924	3594		305	3510	1338
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	23	17	2	41	2	236	2	1070	45	173	473	19
RTOR Reduction (vph)	0	2	0	0	0	35	0	3	0	0	0	7
Lane Group Flow (vph)	0	40	0	41	2	201	2	1112	0	173	473	12
Heavy Vehicles (%)	19%	13%	0%	0%	50%	13%	0%	1%	0%	35%	4%	22%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		6
Actuated Green, G (s)		15.8		15.8	15.8	15.8	46.2	46.2		46.2	46.2	46.2
Effective Green, g (s)		15.8		15.8	15.8	15.8	46.2	46.2		46.2	46.2	46.2
Actuated g/C Ratio		0.21		0.21	0.21	0.21	0.62	0.62		0.62	0.62	0.62
Clearance Time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		563		298	273	308	576	2243		190	2191	835
v/s Ratio Prot					0.00			0.31			0.13	
v/s Ratio Perm		0.02		0.03		c0.14	0.00			c0.57		0.01
v/c Ratio		0.07		0.14	0.01	0.65	0.00	0.50		0.91	0.22	0.01
Uniform Delay, d1		23.2		23.6	22.9	26.6	5.2	7.6		12.1	6.0	5.3
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.1		0.2	0.0	4.9	0.0	0.8		45.3	0.2	0.0
Delay (s)		23.3		23.8	22.9	31.5	5.2	8.4		57.4	6.3	5.3
Level of Service		C		C	C	C	A	A		E	A	A
Approach Delay (s)		23.3			30.3			8.3			19.5	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	74.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

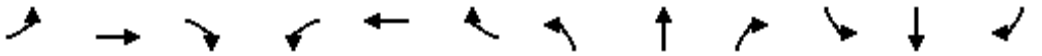
Intersection Sign configuration not allowed in HCM analysis.

Appendix D – Future (2031) Total Conditions Improvement Synchro Output

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	79	61	175	130	101	140	688	211	72	2352	130
v/c Ratio	0.48	0.22	0.51	0.85	0.21	0.85	0.20	0.21	0.19	0.77	0.17
Control Delay	63.1	51.6	11.8	99.2	34.8	77.4	7.0	2.8	17.6	25.7	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.1	51.6	11.8	99.2	34.8	77.4	7.0	2.8	17.6	25.7	3.5
Queue Length 50th (m)	21.1	15.5	0.0	37.5	9.2	30.4	24.1	0.0	9.5	189.5	0.5
Queue Length 95th (m)	36.8	27.8	20.8	#60.9	17.0	#62.5	38.7	16.5	21.3	239.5	10.7
Internal Link Dist (m)		365.9			204.7		404.8			329.5	
Turn Bay Length (m)	97.3			74.0		142.0		100.0	160.0		116.0
Base Capacity (vph)	212	364	391	198	621	195	3461	983	385	3074	765
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.17	0.45	0.66	0.16	0.72	0.20	0.21	0.19	0.77	0.17

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)	79	61	175	130	70	31	140	688	211	72	2352	130
Future Volume (vph)	79	61	175	130	70	31	140	688	211	72	2352	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		3.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1259	1562	1103	1127	2560		1201	4683	1256	1587	5043	1175
Flt Permitted	0.69	1.00	1.00	0.72	1.00		0.04	1.00	1.00	0.38	1.00	1.00
Satd. Flow (perm)	912	1562	1103	851	2560		53	4683	1256	633	5043	1175
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	79	61	175	130	70	31	140	688	211	72	2352	130
RTOR Reduction (vph)	0	0	143	0	25	0	0	0	55	0	0	49
Lane Group Flow (vph)	79	61	32	130	76	0	140	688	156	72	2352	81
Heavy Vehicles (%)	45%	23%	48%	62%	44%	18%	52%	12%	30%	15%	4%	39%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		8			4		5	2			6	
Permitted Phases	8		8	4			2		2	6		6
Actuated Green, G (s)	27.1	27.1	27.1	27.1	27.1		110.9	110.9	110.9	91.5	91.5	91.5
Effective Green, g (s)	27.1	27.1	27.1	27.1	27.1		110.9	110.9	110.9	91.5	91.5	91.5
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.18		0.74	0.74	0.74	0.61	0.61	0.61
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		3.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	164	282	199	153	462		164	3462	928	386	3076	716
v/s Ratio Prot		0.04			0.03		c0.09	0.15			0.47	
v/s Ratio Perm	0.09		0.03	c0.15			c0.53		0.12	0.11		0.07
v/c Ratio	0.48	0.22	0.16	0.85	0.16		0.85	0.20	0.17	0.19	0.76	0.11
Uniform Delay, d1	55.1	52.4	51.8	59.5	51.9		49.0	6.0	5.8	12.9	21.4	12.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.93	1.04	2.45	1.00	1.00	1.00
Incremental Delay, d2	2.2	0.4	0.4	33.2	0.2		32.3	0.1	0.4	1.1	1.9	0.3
Delay (s)	57.4	52.8	52.2	92.7	52.0		78.0	6.3	14.6	13.9	23.2	12.6
Level of Service	E	D	D	F	D		E	A	B	B	C	B
Approach Delay (s)		53.6			74.9			17.7			22.4	
Approach LOS		D			E			B			C	

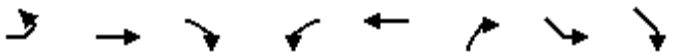
Intersection Summary			
HCM 2000 Control Delay	26.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	182	114	737	2882
v/c Ratio	0.60	0.59	0.20	0.70
Control Delay	34.7	23.5	2.1	12.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	34.7	23.5	2.1	12.8
Queue Length 50th (m)	10.2	0.0	10.2	152.7
Queue Length 95th (m)	22.1	21.3	16.3	207.9
Internal Link Dist (m)	326.5		301.7	404.8
Turn Bay Length (m)		207.0		
Base Capacity (vph)	633	332	3643	4111
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	0.29	0.34	0.20	0.70

Intersection Summary

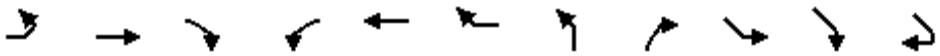
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	68	228	737	0	0	2882
Future Volume (vph)	68	228	737	0	0	2882
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0			6.0
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.91	0.85	1.00			1.00
Flt Protected	0.98	1.00	1.00			1.00
Satd. Flow (prot)	3000	1327	4264			4812
Flt Permitted	0.98	1.00	1.00			1.00
Satd. Flow (perm)	3000	1327	4264			4812
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	68	228	737	0	0	2882
RTOR Reduction (vph)	107	107	0	0	0	0
Lane Group Flow (vph)	75	7	737	0	0	2882
Heavy Vehicles (%)	8%	12%	23%	0%	0%	9%
Turn Type	Prot	Perm	NA			NA
Protected Phases	4		2			6
Permitted Phases		4				
Actuated Green, G (s)	9.8	9.8	128.2			128.2
Effective Green, g (s)	9.8	9.8	128.2			128.2
Actuated g/C Ratio	0.07	0.07	0.85			0.85
Clearance Time (s)	6.0	6.0	6.0			6.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	196	86	3644			4112
v/s Ratio Prot	c0.03		0.17			c0.60
v/s Ratio Perm		0.01				
v/c Ratio	0.38	0.09	0.20			0.70
Uniform Delay, d1	67.2	65.9	1.9			4.0
Progression Factor	1.00	1.00	1.00			2.83
Incremental Delay, d2	1.3	0.4	0.1			0.7
Delay (s)	68.5	66.3	2.0			11.9
Level of Service	E	E	A			B
Approach Delay (s)	67.6		2.0			11.9
Approach LOS	E		A			B

Intersection Summary			
HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	NBR	SEL	SER
Lane Group Flow (vph)	5	2091	11	27	1636	9	40	1
v/c Ratio	0.04	0.82	0.01	0.21	0.64	0.02	0.07	0.00
Control Delay	7.2	14.5	1.4	12.0	10.7	2.7	15.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.2	14.5	1.4	12.0	10.7	2.7	15.6	0.0
Queue Length 50th (m)	0.2	61.8	0.0	1.4	40.6	0.0	3.1	0.0
Queue Length 95th (m)	1.5	81.2	1.0	5.9	53.5	1.2	8.8	0.0
Internal Link Dist (m)		306.9			256.7		75.8	
Turn Bay Length (m)	50.0		90.0	98.0				
Base Capacity (vph)	125	2552	828	127	2575	373	536	499
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	0.04	0.82	0.01	0.21	0.64	0.02	0.07	0.00

Intersection Summary

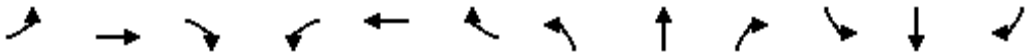


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER	SER2
Lane Configurations											
Traffic Volume (vph)	5	2091	11	27	1616	20	0	9	40	0	1
Future Volume (vph)	5	2091	11	27	1616	20	0	9	40	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5			4.5	4.5	4.5	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91			1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00			0.85	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00			1.00	0.95	1.00	
Satd. Flow (prot)	1789	4641	1484	1825	4679			1183	1789	1601	
Flt Permitted	0.12	1.00	1.00	0.12	1.00			1.00	0.95	1.00	
Satd. Flow (perm)	228	4641	1484	233	4679			1183	1789	1601	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	5	2091	11	27	1616	20	0	9	40	0	1
RTOR Reduction (vph)	0	0	5	0	2	0	0	6	0	1	0
Lane Group Flow (vph)	5	2091	6	27	1634	0	0	3	40	0	0
Heavy Vehicles (%)	2%	13%	10%	0%	12%	2%	2%	38%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Prot	Perm	Prot	Perm	
Protected Phases		2			6		8!		4!		
Permitted Phases	2		2	6				8		4	
Actuated Green, G (s)	33.0	33.0	33.0	33.0	33.0			18.0	18.0	18.0	
Effective Green, g (s)	33.0	33.0	33.0	33.0	33.0			18.0	18.0	18.0	
Actuated g/C Ratio	0.55	0.55	0.55	0.55	0.55			0.30	0.30	0.30	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5			4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0	3.0	
Lane Grp Cap (vph)	125	2552	816	128	2573			354	536	480	
v/s Ratio Prot		c0.45			0.35				c0.02		
v/s Ratio Perm	0.02		0.00	0.12				0.00		0.00	
v/c Ratio	0.04	0.82	0.01	0.21	0.63			0.01	0.07	0.00	
Uniform Delay, d1	6.2	11.1	6.1	6.9	9.3			14.7	15.0	14.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00	
Incremental Delay, d2	0.6	3.1	0.0	3.7	1.2			0.0	0.3	0.0	
Delay (s)	6.8	14.1	6.1	10.6	10.5			14.8	15.3	14.7	
Level of Service	A	B	A	B	B			B	B	B	
Approach Delay (s)		14.1			10.5		14.8		15.3		
Approach LOS		B			B		B		B		

Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	52.1%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

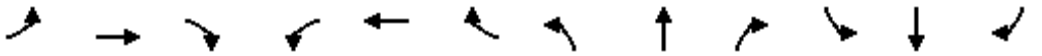


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	184	1760	156	34	1248	290	130	250	51	714	1668	357
v/c Ratio	0.92	0.96	0.25	0.31	0.92	0.48	0.74	0.30	0.10	0.98	1.07	0.52
Control Delay	107.6	57.6	5.8	32.5	61.0	7.0	89.4	43.6	0.4	82.0	81.7	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	107.6	57.6	5.8	32.5	61.0	7.0	89.4	43.6	0.4	82.0	81.7	16.8
Queue Length 50th (m)	26.4	~172.6	0.0	5.6	123.4	0.0	18.6	29.6	0.0	102.1	~254.4	34.1
Queue Length 95th (m)	#49.3	#199.2	15.3	12.6	#150.1	22.3	#34.0	42.2	0.0	#141.6	#294.6	63.7
Internal Link Dist (m)		256.7			251.4			415.8			172.4	
Turn Bay Length (m)	125.0		170.0	160.0		138.0	176.0		106.0	167.0		
Base Capacity (vph)	201	1835	620	110	1350	600	175	821	518	729	1564	681
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.96	0.25	0.31	0.92	0.48	0.74	0.30	0.10	0.98	1.07	0.52

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	184	1760	156	34	1248	290	130	250	51	714	1668	357
Future Volume (vph)	184	1760	156	34	1248	290	130	250	51	714	1668	357
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.7	6.7	3.0	6.7	6.7	5.0	6.7	6.7	5.0	6.7	6.7
Lane Util. Factor	0.97	*1.00	1.00	1.00	0.91	1.00	0.97	0.95	1.00	0.97	*1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2345	5192	1471	1615	4812	1396	3079	3259	1601	3190	3694	1361
Flt Permitted	0.95	1.00	1.00	0.10	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2345	5192	1471	173	4812	1396	3079	3259	1601	3190	3694	1361
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	184	1760	156	34	1248	290	130	250	51	714	1668	357
RTOR Reduction (vph)	0	0	102	0	0	209	0	0	38	0	0	105
Lane Group Flow (vph)	184	1760	54	34	1248	81	130	250	13	714	1668	252
Heavy Vehicles (%)	51%	11%	11%	13%	9%	17%	15%	12%	2%	11%	4%	20%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6			4			8
Actuated Green, G (s)	12.0	48.3	48.3	42.3	39.3	39.3	8.0	35.3	35.3	32.0	59.3	59.3
Effective Green, g (s)	12.0	48.3	48.3	42.3	39.3	39.3	8.0	35.3	35.3	32.0	59.3	59.3
Actuated g/C Ratio	0.09	0.34	0.34	0.30	0.28	0.28	0.06	0.25	0.25	0.23	0.42	0.42
Clearance Time (s)	3.0	6.7	6.7	3.0	6.7	6.7	5.0	6.7	6.7	5.0	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	201	1791	507	83	1350	391	175	821	403	729	1564	576
v/s Ratio Prot	c0.08	c0.34		0.01	0.26		0.04	0.08		c0.22	c0.45	
v/s Ratio Perm			0.04	0.11		0.06			0.01			0.18
v/c Ratio	0.92	0.98	0.11	0.41	0.92	0.21	0.74	0.30	0.03	0.98	1.07	0.44
Uniform Delay, d1	63.5	45.4	31.2	37.9	48.9	38.5	65.0	42.4	39.5	53.7	40.4	28.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	40.3	17.5	0.4	3.3	12.0	1.2	15.6	0.2	0.0	27.9	42.8	0.5
Delay (s)	103.8	63.0	31.6	41.2	61.0	39.7	80.6	42.6	39.5	81.6	83.2	29.1
Level of Service	F	E	C	D	E	D	F	D	D	F	F	C
Approach Delay (s)		64.2			56.6			53.7			75.7	
Approach LOS		E			E			D			E	

Intersection Summary			
HCM 2000 Control Delay	66.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.4
Intersection Capacity Utilization	109.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2718	75	0	1930	0	13
Future Volume (Veh/h)	2718	75	0	1930	0	13
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2718	75	0	1930	0	13
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	276					
pX, platoon unblocked			0.67		0.67	0.67
vC, conflicting volume			2793		3361	906
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1955		2802	0
tC, single (s)			4.1		6.8	7.4
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.5
p0 queue free %			100		100	98
cM capacity (veh/h)			203		10	680

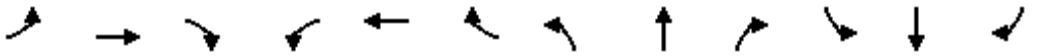
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1
Volume Total	906	906	906	75	643	643	643	13
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	75	0	0	0	13
cSH	1700	1700	1700	1700	1700	1700	1700	680
Volume to Capacity	0.53	0.53	0.53	0.04	0.38	0.38	0.38	0.02
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.4
Lane LOS								B
Approach Delay (s)	0.0				0.0			10.4
Approach LOS								B

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	22	34	9	88	2	388	598	1019	28
v/c Ratio	0.08	0.20	0.05	0.40	0.00	0.14	0.85	0.37	0.03
Control Delay	26.4	32.3	28.8	13.3	3.5	3.1	23.5	4.1	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.4	32.3	28.8	13.3	3.5	3.1	23.5	4.1	0.8
Queue Length 50th (m)	1.2	4.4	1.2	0.0	0.1	6.5	51.5	22.2	0.0
Queue Length 95th (m)	4.2	11.7	4.8	11.5	0.6	12.0	#140.8	35.9	1.3
Internal Link Dist (m)	199.1		507.4			227.2		415.8	
Turn Bay Length (m)		85.6			122.0		209.0		92.0
Base Capacity (vph)	1110	635	758	592	404	2704	707	2775	1101
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.05	0.01	0.15	0.00	0.14	0.85	0.37	0.03

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)	5	14	3	34	9	88	2	362	26	598	1019	28
Future Volume (vph)	5	14	3	34	9	88	2	362	26	598	1019	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lane Util. Factor		0.95		1.00	1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frt		0.98		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected		0.99		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		2768		1825	1700	1219	1825	3483		1659	3579	1408
Flt Permitted		0.89		0.74	1.00	1.00	0.27	1.00		0.52	1.00	1.00
Satd. Flow (perm)		2486		1426	1700	1219	520	3483		912	3579	1408
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	5	14	3	34	9	88	2	362	26	598	1019	28
RTOR Reduction (vph)	0	3	0	0	0	80	0	3	0	0	0	7
Lane Group Flow (vph)	0	19	0	34	9	8	2	385	0	598	1019	21
Heavy Vehicles (%)	80%	15%	0%	0%	13%	34%	0%	4%	0%	10%	2%	16%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		6
Actuated Green, G (s)		7.0		7.0	7.0	7.0	55.0	55.0		55.0	55.0	55.0
Effective Green, g (s)		7.0		7.0	7.0	7.0	55.0	55.0		55.0	55.0	55.0
Actuated g/C Ratio		0.09		0.09	0.09	0.09	0.74	0.74		0.74	0.74	0.74
Clearance Time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		235		134	160	115	386	2588		677	2660	1046
v/s Ratio Prot					0.01			0.11			0.28	
v/s Ratio Perm		0.01		c0.02		0.01	0.00			c0.66		0.01
v/c Ratio		0.08		0.25	0.06	0.07	0.01	0.15		0.88	0.38	0.02
Uniform Delay, d1		30.6		31.1	30.5	30.5	2.4	2.7		7.1	3.4	2.5
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.2		1.0	0.1	0.3	0.0	0.1		15.5	0.4	0.0
Delay (s)		30.7		32.1	30.6	30.8	2.5	2.9		22.6	3.8	2.5
Level of Service		C		C	C	C	A	A		C	A	A
Approach Delay (s)		30.7			31.1			2.9			10.6	
Approach LOS		C			C			A			B	

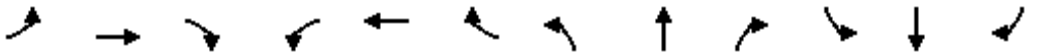
Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	74.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection Sign configuration not allowed in HCM analysis.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	143	23	226	163	138	208	2268	54	9	860	118
v/c Ratio	0.78	0.09	0.49	0.75	0.24	0.58	0.63	0.07	0.18	0.30	0.15
Control Delay	77.9	41.3	8.6	71.6	42.6	14.9	11.1	2.9	30.1	15.5	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.9	41.3	8.6	71.6	42.6	14.9	11.1	2.9	30.1	15.5	3.7
Queue Length 50th (m)	36.7	5.1	0.0	41.6	15.7	16.4	86.3	0.5	1.0	38.3	0.0
Queue Length 95th (m)	55.8	11.8	19.5	60.5	22.6	31.1	92.0	m2.0	6.9	65.1	10.6
Internal Link Dist (m)		365.9			204.7		404.8			329.5	
Turn Bay Length (m)	97.3			74.0		142.0		100.0	160.0		116.0
Base Capacity (vph)	275	374	581	324	872	437	3624	762	51	2848	786
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.06	0.39	0.50	0.16	0.48	0.63	0.07	0.18	0.30	0.15

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



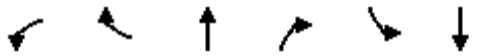
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	23	226	163	85	53	208	2268	54	9	860	118
Future Volume (vph)	143	23	226	163	85	53	208	2268	54	9	860	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		3.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1362	1298	1458	1437	3005		1225	5043	1040	1323	4768	1237
Flt Permitted	0.66	1.00	1.00	0.74	1.00		0.28	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	953	1298	1458	1123	3005		367	5043	1040	86	4768	1237
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	143	23	226	163	85	53	208	2268	54	9	860	118
RTOR Reduction (vph)	0	0	182	0	6	0	0	0	15	0	0	48
Lane Group Flow (vph)	143	23	44	163	132	0	208	2268	39	9	860	70
Heavy Vehicles (%)	34%	48%	12%	27%	21%	4%	49%	4%	57%	38%	10%	32%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		8			4		5	2			6	
Permitted Phases	8		8	4			2		2	6		6
Actuated Green, G (s)	26.0	26.0	26.0	26.0	26.0		97.0	97.0	97.0	80.6	80.6	80.6
Effective Green, g (s)	26.0	26.0	26.0	26.0	26.0		97.0	97.0	97.0	80.6	80.6	80.6
Actuated g/C Ratio	0.19	0.19	0.19	0.19	0.19		0.72	0.72	0.72	0.60	0.60	0.60
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		3.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	183	249	280	216	578		348	3623	747	51	2846	738
v/s Ratio Prot		0.02			0.04		0.06	c0.45			0.18	
v/s Ratio Perm	c0.15		0.03	0.15			0.37		0.04	0.10		0.06
v/c Ratio	0.78	0.09	0.16	0.75	0.23		0.60	0.63	0.05	0.18	0.30	0.10
Uniform Delay, d1	51.8	44.8	45.4	51.5	46.0		7.0	9.7	5.6	12.3	13.4	11.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.37	0.95	1.26	1.00	1.00	1.00
Incremental Delay, d2	19.2	0.2	0.3	13.9	0.2		2.3	0.7	0.1	7.4	0.3	0.3
Delay (s)	71.0	45.0	45.6	65.4	46.2		11.9	10.0	7.1	19.7	13.6	11.9
Level of Service	E	D	D	E	D		B	A	A	B	B	B
Approach Delay (s)		54.8			56.6			10.1			13.5	
Approach LOS		D			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	294	249	2041	1253
v/c Ratio	0.45	0.82	0.61	0.38
Control Delay	45.2	68.4	8.7	7.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	45.2	68.4	8.7	7.8
Queue Length 50th (m)	34.0	67.4	63.1	35.3
Queue Length 95th (m)	43.0	92.5	m66.9	53.8
Internal Link Dist (m)	326.5		301.7	404.8
Turn Bay Length (m)		207.0		
Base Capacity (vph)	929	430	3337	3276
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	0.32	0.58	0.61	0.38

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

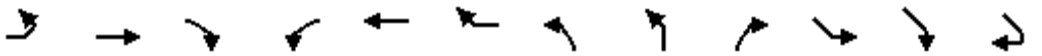


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	44	499	2041	0	0	1253
Future Volume (vph)	44	499	2041	0	0	1253
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0			6.0
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.87	0.85	1.00			1.00
Flt Protected	0.99	1.00	1.00			1.00
Satd. Flow (prot)	2965	1363	4812			4725
Flt Permitted	0.99	1.00	1.00			1.00
Satd. Flow (perm)	2965	1363	4812			4725
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	44	499	2041	0	0	1253
RTOR Reduction (vph)	8	8	0	0	0	0
Lane Group Flow (vph)	286	241	2041	0	0	1253
Heavy Vehicles (%)	8%	9%	9%	0%	0%	11%
Turn Type	Prot	Perm	NA			NA
Protected Phases	4		2			6
Permitted Phases		4				
Actuated Green, G (s)	29.4	29.4	93.6			93.6
Effective Green, g (s)	29.4	29.4	93.6			93.6
Actuated g/C Ratio	0.22	0.22	0.69			0.69
Clearance Time (s)	6.0	6.0	6.0			6.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	645	296	3336			3276
v/s Ratio Prot	0.10		c0.42			0.27
v/s Ratio Perm		c0.18				
v/c Ratio	0.44	0.81	0.61			0.38
Uniform Delay, d1	45.7	50.2	11.0			8.6
Progression Factor	1.00	1.00	0.69			0.78
Incremental Delay, d2	0.5	15.7	0.4			0.3
Delay (s)	46.2	65.9	8.0			7.1
Level of Service	D	E	A			A
Approach Delay (s)	55.2		8.0			7.1
Approach LOS	E		A			A

Intersection Summary			
HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBR	SEL	SER
Lane Group Flow (vph)	1	1881	20	23	1707	46	38	123	4
v/c Ratio	0.01	0.78	0.03	0.17	0.72	0.10	0.07	0.21	0.01
Control Delay	7.0	13.9	2.5	11.3	12.7	13.7	7.1	14.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.0	13.9	2.5	11.3	12.7	13.7	7.1	14.6	0.0
Queue Length 50th (m)	0.1	50.8	0.0	1.1	43.8	3.1	0.5	8.7	0.0
Queue Length 95th (m)	0.6	67.6	1.9	5.0	58.6	8.8	5.4	18.5	0.0
Internal Link Dist (m)		306.9			256.7	294.7		75.2	
Turn Bay Length (m)	50.0		90.0	98.0					
Base Capacity (vph)	136	2405	763	133	2364	465	538	585	544
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.78	0.03	0.17	0.72	0.10	0.07	0.21	0.01

Intersection Summary

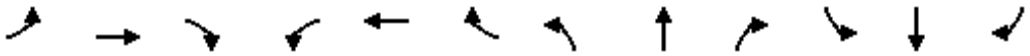


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER	SER2
Lane Configurations												
Traffic Volume (vph)	1	1881	20	23	1702	5	46	0	38	123	0	4
Future Volume (vph)	1	1881	20	23	1702	5	46	0	38	123	0	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5			4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91			1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00	0.95	1.00	
Satd. Flow (prot)	1789	4725	1471	1738	4641			1789	1585	1789	1601	
Flt Permitted	0.14	1.00	1.00	0.14	1.00			0.76	1.00	0.95	1.00	
Satd. Flow (perm)	269	4725	1471	261	4641			1422	1585	1789	1601	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1	1881	20	23	1702	5	46	0	38	123	0	4
RTOR Reduction (vph)	0	0	10	0	0	0	0	0	20	0	3	0
Lane Group Flow (vph)	1	1881	10	23	1707	0	0	46	18	123	1	0
Heavy Vehicles (%)	2%	11%	11%	5%	13%	2%	2%	2%	3%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		D.Pm	Prot	Perm	Prot	Perm	
Protected Phases		2!			6!			8!		4!		
Permitted Phases	2!		2	6!			2!		8		4	
Actuated Green, G (s)	28.0	28.0	28.0	28.0	28.0			18.0	18.0	18.0	18.0	
Effective Green, g (s)	28.0	28.0	28.0	28.0	28.0			18.0	18.0	18.0	18.0	
Actuated g/C Ratio	0.51	0.51	0.51	0.51	0.51			0.33	0.33	0.33	0.33	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5			4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	136	2405	748	132	2362			465	518	585	523	
v/s Ratio Prot		c0.40			0.37					c0.07		
v/s Ratio Perm	0.00		0.01	0.09				0.03	0.01		0.00	
v/c Ratio	0.01	0.78	0.01	0.17	0.72			0.10	0.03	0.21	0.00	
Uniform Delay, d1	6.7	11.0	6.7	7.3	10.5			12.9	12.6	13.4	12.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	2.6	0.0	2.9	2.0			0.1	0.0	0.8	0.0	
Delay (s)	6.8	13.6	6.7	10.1	12.4			13.0	12.6	14.2	12.5	
Level of Service	A	B	A	B	B			B	B	B	B	
Approach Delay (s)		13.6			12.4			12.8		14.1		
Approach LOS		B			B			B		B		

Intersection Summary			
HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

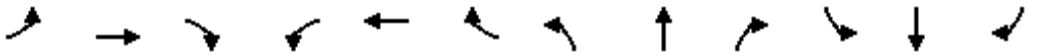


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	344	1968	140	59	1413	756	286	737	43	561	626	199
v/c Ratio	1.15	0.94	0.22	0.44	0.91	1.08	0.73	0.83	0.09	1.10	0.62	0.38
Control Delay	150.1	49.2	4.9	30.1	52.5	83.1	68.7	56.7	0.3	117.5	56.0	22.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	150.1	49.2	4.9	30.1	52.5	83.1	68.7	56.7	0.3	117.5	56.0	22.5
Queue Length 50th (m)	~55.2	170.4	0.0	8.2	131.6	~163.3	38.1	98.2	0.0	~89.1	79.2	10.7
Queue Length 95th (m)	#85.9	#202.8	13.2	16.1	151.9	#239.1	52.9	122.0	0.0	#126.0	111.8	45.7
Internal Link Dist (m)		256.7			251.4			415.8			172.4	
Turn Bay Length (m)	125.0		170.0	160.0		138.0	176.0		106.0	167.0		
Base Capacity (vph)	300	2091	646	134	1561	699	437	892	488	510	1011	530
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.15	0.94	0.22	0.44	0.91	1.08	0.65	0.83	0.09	1.10	0.62	0.38

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	344	1968	140	59	1413	756	286	737	43	561	626	199
Future Volume (vph)	344	1968	140	59	1413	756	286	737	43	561	626	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.7	6.7	3.0	6.7	6.7	5.0	6.7	6.7	4.0	6.7	6.7
Lane Util. Factor	0.97	*1.00	1.00	1.00	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	2902	5192	1396	1722	4725	1458	3278	3544	1585	3133	3510	1396
Flt Permitted	0.95	1.00	1.00	0.09	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	2902	5192	1396	163	4725	1458	3278	3544	1585	3133	3510	1396
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	344	1968	140	59	1413	756	286	737	43	561	626	199
RTOR Reduction (vph)	0	0	84	0	0	218	0	0	32	0	0	128
Lane Group Flow (vph)	344	1968	56	59	1413	538	286	737	11	561	626	71
Heavy Vehicles (%)	22%	11%	17%	6%	11%	12%	8%	3%	3%	13%	4%	17%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6			4			8
Actuated Green, G (s)	14.0	53.8	53.8	49.4	44.6	44.6	16.1	34.0	34.0	21.0	38.9	38.9
Effective Green, g (s)	14.0	53.8	53.8	49.4	44.6	44.6	16.1	34.0	34.0	22.0	38.9	38.9
Actuated g/C Ratio	0.10	0.40	0.40	0.37	0.33	0.33	0.12	0.25	0.25	0.16	0.29	0.29
Clearance Time (s)	3.0	6.7	6.7	3.0	6.7	6.7	5.0	6.7	6.7	5.0	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	300	2069	556	115	1561	481	390	892	399	510	1011	402
v/s Ratio Prot	c0.12	0.38		0.02	0.30		0.09	c0.21		c0.18	0.18	
v/s Ratio Perm			0.04	0.17		c0.37			0.01			0.05
v/c Ratio	1.15	0.95	0.10	0.51	0.91	1.12	0.73	0.83	0.03	1.10	0.62	0.18
Uniform Delay, d1	60.5	39.3	25.4	32.0	43.2	45.2	57.4	47.7	38.0	56.5	41.6	36.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.93	1.26	2.85
Incremental Delay, d2	97.7	11.2	0.4	3.8	9.1	77.9	7.0	8.6	0.1	69.1	2.7	0.9
Delay (s)	158.2	50.5	25.8	35.9	52.3	123.1	64.4	56.3	38.2	121.7	55.1	103.7
Level of Service	F	D	C	D	D	F	E	E	D	F	E	F
Approach Delay (s)		64.2			75.9			57.8			89.0	
Approach LOS		E			E			E			F	

Intersection Summary			
HCM 2000 Control Delay	71.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	21.4
Intersection Capacity Utilization	96.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2786	38	0	2769	0	30
Future Volume (Veh/h)	2786	38	0	2769	0	30
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2786	38	0	2769	0	30
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	276					
pX, platoon unblocked			0.63		0.63	0.63
vC, conflicting volume			2824		3709	929
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1826		3238	0
tC, single (s)			4.1		6.8	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.4
p0 queue free %			100		100	96
cM capacity (veh/h)			213		5	670

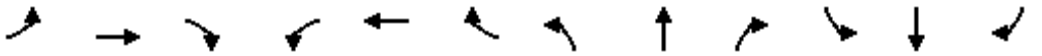
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1
Volume Total	929	929	929	38	923	923	923	30
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	38	0	0	0	30
cSH	1700	1700	1700	1700	1700	1700	1700	670
Volume to Capacity	0.55	0.55	0.55	0.02	0.54	0.54	0.54	0.04
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.6
Lane LOS								B
Approach Delay (s)	0.0				0.0			10.6
Approach LOS								B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	42	41	2	236	2	1115	173	473	19
v/c Ratio	0.07	0.14	0.01	0.69	0.00	0.50	0.91	0.22	0.02
Control Delay	19.8	21.8	18.5	31.2	8.0	9.5	67.6	7.3	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8	21.8	18.5	31.2	8.0	9.5	67.6	7.3	1.1
Queue Length 50th (m)	2.3	4.7	0.2	24.7	0.1	38.5	18.3	13.1	0.0
Queue Length 95th (m)	5.2	10.3	1.5	40.3	1.0	71.2	#63.2	26.5	1.2
Internal Link Dist (m)	199.1		507.4			227.2		415.8	
Turn Bay Length (m)		85.6			122.0		250.0		92.0
Base Capacity (vph)	1179	623	571	668	576	2246	190	2191	851
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.07	0.00	0.35	0.00	0.50	0.91	0.22	0.02

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)	23	17	2	41	2	236	2	1070	45	173	473	19
Future Volume (vph)	23	17	2	41	2	236	2	1070	45	173	473	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lane Util. Factor		0.95		1.00	1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frt		0.99		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected		0.97		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3050		1825	1281	1445	1825	3594		1352	3510	1338
Flt Permitted		0.84		0.73	1.00	1.00	0.48	1.00		0.21	1.00	1.00
Satd. Flow (perm)		2640		1399	1281	1445	924	3594		305	3510	1338
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	23	17	2	41	2	236	2	1070	45	173	473	19
RTOR Reduction (vph)	0	2	0	0	0	35	0	3	0	0	0	7
Lane Group Flow (vph)	0	40	0	41	2	201	2	1112	0	173	473	12
Heavy Vehicles (%)	19%	13%	0%	0%	50%	13%	0%	1%	0%	35%	4%	22%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		6
Actuated Green, G (s)		15.8		15.8	15.8	15.8	46.2	46.2		46.2	46.2	46.2
Effective Green, g (s)		15.8		15.8	15.8	15.8	46.2	46.2		46.2	46.2	46.2
Actuated g/C Ratio		0.21		0.21	0.21	0.21	0.62	0.62		0.62	0.62	0.62
Clearance Time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		563		298	273	308	576	2243		190	2191	835
v/s Ratio Prot					0.00			0.31			0.13	
v/s Ratio Perm		0.02		0.03		c0.14	0.00			c0.57		0.01
v/c Ratio		0.07		0.14	0.01	0.65	0.00	0.50		0.91	0.22	0.01
Uniform Delay, d1		23.2		23.6	22.9	26.6	5.2	7.6		12.1	6.0	5.3
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.1		0.2	0.0	4.9	0.0	0.8		45.3	0.2	0.0
Delay (s)		23.3		23.8	22.9	31.5	5.2	8.4		57.4	6.3	5.3
Level of Service		C		C	C	C	A	A		E	A	A
Approach Delay (s)		23.3			30.3			8.3			19.5	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	74.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

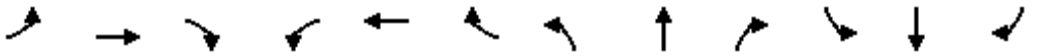
Intersection Sign configuration not allowed in HCM analysis.

Appendix E – Future (2031)
Total Conditions Improvement “B”
Synchro Output

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	79	61	175	130	101	140	688	211	72	2352	130
v/c Ratio	0.48	0.22	0.51	0.85	0.21	0.85	0.20	0.21	0.19	0.77	0.17
Control Delay	63.1	51.6	11.8	99.2	34.8	77.4	7.0	2.8	17.6	25.7	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.1	51.6	11.8	99.2	34.8	77.4	7.0	2.8	17.6	25.7	3.5
Queue Length 50th (m)	21.1	15.5	0.0	37.5	9.2	30.4	24.1	0.0	9.5	189.5	0.5
Queue Length 95th (m)	36.8	27.8	20.8	#60.9	17.0	#62.5	38.7	16.5	21.3	239.5	10.7
Internal Link Dist (m)		365.9			204.7		404.8			329.5	
Turn Bay Length (m)	97.3			74.0		142.0		100.0	160.0		116.0
Base Capacity (vph)	212	364	391	198	621	195	3461	983	385	3074	765
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.17	0.45	0.66	0.16	0.72	0.20	0.21	0.19	0.77	0.17

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)	79	61	175	130	70	31	140	688	211	72	2352	130
Future Volume (vph)	79	61	175	130	70	31	140	688	211	72	2352	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		3.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1259	1562	1103	1127	2560		1201	4683	1256	1587	5043	1175
Flt Permitted	0.69	1.00	1.00	0.72	1.00		0.04	1.00	1.00	0.38	1.00	1.00
Satd. Flow (perm)	912	1562	1103	851	2560		53	4683	1256	633	5043	1175
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	79	61	175	130	70	31	140	688	211	72	2352	130
RTOR Reduction (vph)	0	0	143	0	25	0	0	0	55	0	0	49
Lane Group Flow (vph)	79	61	32	130	76	0	140	688	156	72	2352	81
Heavy Vehicles (%)	45%	23%	48%	62%	44%	18%	52%	12%	30%	15%	4%	39%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		8			4		5	2			6	
Permitted Phases	8		8	4			2		2	6		6
Actuated Green, G (s)	27.1	27.1	27.1	27.1	27.1		110.9	110.9	110.9	91.5	91.5	91.5
Effective Green, g (s)	27.1	27.1	27.1	27.1	27.1		110.9	110.9	110.9	91.5	91.5	91.5
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.18		0.74	0.74	0.74	0.61	0.61	0.61
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		3.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	164	282	199	153	462		164	3462	928	386	3076	716
v/s Ratio Prot		0.04			0.03		c0.09	0.15			0.47	
v/s Ratio Perm	0.09		0.03	c0.15			c0.53		0.12	0.11		0.07
v/c Ratio	0.48	0.22	0.16	0.85	0.16		0.85	0.20	0.17	0.19	0.76	0.11
Uniform Delay, d1	55.1	52.4	51.8	59.5	51.9		49.0	6.0	5.8	12.9	21.4	12.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.93	1.04	2.45	1.00	1.00	1.00
Incremental Delay, d2	2.2	0.4	0.4	33.2	0.2		32.3	0.1	0.4	1.1	1.9	0.3
Delay (s)	57.4	52.8	52.2	92.7	52.0		78.0	6.3	14.6	13.9	23.2	12.6
Level of Service	E	D	D	F	D		E	A	B	B	C	B
Approach Delay (s)		53.6			74.9			17.7			22.4	
Approach LOS		D			E			B			C	

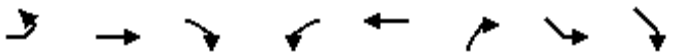
Intersection Summary			
HCM 2000 Control Delay	26.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	182	114	737	2882
v/c Ratio	0.60	0.59	0.20	0.70
Control Delay	34.7	23.5	2.1	12.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	34.7	23.5	2.1	12.8
Queue Length 50th (m)	10.2	0.0	10.2	152.7
Queue Length 95th (m)	22.1	21.3	16.3	207.9
Internal Link Dist (m)	326.5		301.7	404.8
Turn Bay Length (m)		207.0		
Base Capacity (vph)	633	332	3643	4111
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	0.29	0.34	0.20	0.70

Intersection Summary

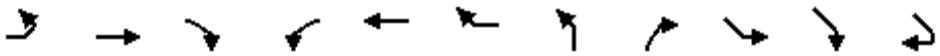
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	68	228	737	0	0	2882
Future Volume (vph)	68	228	737	0	0	2882
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0			6.0
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.91	0.85	1.00			1.00
Flt Protected	0.98	1.00	1.00			1.00
Satd. Flow (prot)	3000	1327	4264			4812
Flt Permitted	0.98	1.00	1.00			1.00
Satd. Flow (perm)	3000	1327	4264			4812
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	68	228	737	0	0	2882
RTOR Reduction (vph)	107	107	0	0	0	0
Lane Group Flow (vph)	75	7	737	0	0	2882
Heavy Vehicles (%)	8%	12%	23%	0%	0%	9%
Turn Type	Prot	Perm	NA			NA
Protected Phases	4		2			6
Permitted Phases		4				
Actuated Green, G (s)	9.8	9.8	128.2			128.2
Effective Green, g (s)	9.8	9.8	128.2			128.2
Actuated g/C Ratio	0.07	0.07	0.85			0.85
Clearance Time (s)	6.0	6.0	6.0			6.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	196	86	3644			4112
v/s Ratio Prot	c0.03		0.17			c0.60
v/s Ratio Perm		0.01				
v/c Ratio	0.38	0.09	0.20			0.70
Uniform Delay, d1	67.2	65.9	1.9			4.0
Progression Factor	1.00	1.00	1.00			2.83
Incremental Delay, d2	1.3	0.4	0.1			0.7
Delay (s)	68.5	66.3	2.0			11.9
Level of Service	E	E	A			B
Approach Delay (s)	67.6		2.0			11.9
Approach LOS	E		A			B

Intersection Summary			
HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	NBR	SEL	SER
Lane Group Flow (vph)	5	2091	11	27	1636	9	40	1
v/c Ratio	0.04	0.82	0.01	0.21	0.64	0.02	0.07	0.00
Control Delay	7.2	14.5	1.4	12.0	10.7	2.7	15.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.2	14.5	1.4	12.0	10.7	2.7	15.6	0.0
Queue Length 50th (m)	0.2	61.8	0.0	1.4	40.6	0.0	3.1	0.0
Queue Length 95th (m)	1.5	81.2	1.0	5.9	53.5	1.2	8.8	0.0
Internal Link Dist (m)		306.9			256.7		75.8	
Turn Bay Length (m)	50.0		90.0	98.0				
Base Capacity (vph)	125	2552	828	127	2575	373	536	499
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	0.04	0.82	0.01	0.21	0.64	0.02	0.07	0.00

Intersection Summary

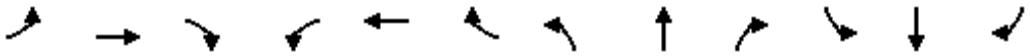


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER	SER2
Lane Configurations											
Traffic Volume (vph)	5	2091	11	27	1616	20	0	9	40	0	1
Future Volume (vph)	5	2091	11	27	1616	20	0	9	40	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5			4.5	4.5	4.5	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91			1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00			0.85	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00			1.00	0.95	1.00	
Satd. Flow (prot)	1789	4641	1484	1825	4679			1183	1789	1601	
Flt Permitted	0.12	1.00	1.00	0.12	1.00			1.00	0.95	1.00	
Satd. Flow (perm)	228	4641	1484	233	4679			1183	1789	1601	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	5	2091	11	27	1616	20	0	9	40	0	1
RTOR Reduction (vph)	0	0	5	0	2	0	0	6	0	1	0
Lane Group Flow (vph)	5	2091	6	27	1634	0	0	3	40	0	0
Heavy Vehicles (%)	2%	13%	10%	0%	12%	2%	2%	38%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		Prot	Perm	Prot	Perm	
Protected Phases		2			6		8!		4!		
Permitted Phases	2		2	6				8		4	
Actuated Green, G (s)	33.0	33.0	33.0	33.0	33.0			18.0	18.0	18.0	
Effective Green, g (s)	33.0	33.0	33.0	33.0	33.0			18.0	18.0	18.0	
Actuated g/C Ratio	0.55	0.55	0.55	0.55	0.55			0.30	0.30	0.30	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5			4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0	3.0	
Lane Grp Cap (vph)	125	2552	816	128	2573			354	536	480	
v/s Ratio Prot		c0.45			0.35				c0.02		
v/s Ratio Perm	0.02		0.00	0.12				0.00		0.00	
v/c Ratio	0.04	0.82	0.01	0.21	0.63			0.01	0.07	0.00	
Uniform Delay, d1	6.2	11.1	6.1	6.9	9.3			14.7	15.0	14.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00	
Incremental Delay, d2	0.6	3.1	0.0	3.7	1.2			0.0	0.3	0.0	
Delay (s)	6.8	14.1	6.1	10.6	10.5			14.8	15.3	14.7	
Level of Service	A	B	A	B	B			B	B	B	
Approach Delay (s)		14.1			10.5		14.8		15.3		
Approach LOS		B			B		B		B		

Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	52.1%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

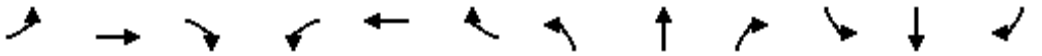


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	184	1760	156	34	1248	290	130	250	51	714	1668	357
v/c Ratio	1.12	0.93	0.25	0.31	1.08	0.36	0.74	0.32	0.10	0.98	1.09	0.52
Control Delay	160.1	53.2	5.6	32.4	99.6	5.8	89.4	44.9	0.4	82.0	91.5	15.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	160.1	53.2	5.6	32.4	99.6	5.8	89.4	44.9	0.4	82.0	91.5	15.2
Queue Length 50th (m)	~58.6	161.8	0.0	5.5	~140.7	0.0	18.6	30.1	0.0	102.1	~259.7	29.4
Queue Length 95th (m)	#106.3	#194.2	15.0	12.4	#170.4	12.3	#34.0	42.7	0.0	#141.6	#299.9	59.0
Internal Link Dist (m)		256.7			251.4			415.8			172.4	
Turn Bay Length (m)	125.0		170.0	160.0		138.0	176.0		106.0	167.0		
Base Capacity (vph)	164	1887	634	111	1158	811	175	789	504	729	1527	683
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.12	0.93	0.25	0.31	1.08	0.36	0.74	0.32	0.10	0.98	1.09	0.52

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	184	1760	156	34	1248	290	130	250	51	714	1668	357
Future Volume (vph)	184	1760	156	34	1248	290	130	250	51	714	1668	357
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.7	6.7	3.0	6.7	6.7	5.0	6.7	6.7	5.0	6.7	6.7
Lane Util. Factor	1.00	*1.00	1.00	1.00	0.91	0.88	0.97	0.95	1.00	0.97	*1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1209	5192	1471	1615	4812	2456	3079	3259	1601	3190	3694	1361
Flt Permitted	0.95	1.00	1.00	0.12	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1209	5192	1471	202	4812	2456	3079	3259	1601	3190	3694	1361
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	184	1760	156	34	1248	290	130	250	51	714	1668	357
RTOR Reduction (vph)	0	0	101	0	0	220	0	0	39	0	0	121
Lane Group Flow (vph)	184	1760	55	34	1248	70	130	250	12	714	1668	236
Heavy Vehicles (%)	51%	11%	11%	13%	9%	17%	15%	12%	2%	11%	4%	20%
Turn Type	Prot	NA	Perm	pm+pt	NA	Prot	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6	6	7	4		3	8	
Permitted Phases			2	6					4			8
Actuated Green, G (s)	19.0	49.7	49.7	36.7	33.7	33.7	8.0	33.9	33.9	32.0	57.9	57.9
Effective Green, g (s)	19.0	49.7	49.7	36.7	33.7	33.7	8.0	33.9	33.9	32.0	57.9	57.9
Actuated g/C Ratio	0.14	0.36	0.36	0.26	0.24	0.24	0.06	0.24	0.24	0.23	0.41	0.41
Clearance Time (s)	3.0	6.7	6.7	3.0	6.7	6.7	5.0	6.7	6.7	5.0	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	164	1843	522	83	1158	591	175	789	387	729	1527	562
v/s Ratio Prot	c0.15	0.34		0.01	c0.26	0.03	0.04	0.08		c0.22	c0.45	
v/s Ratio Perm			0.04	0.10					0.01			0.17
v/c Ratio	1.12	0.95	0.11	0.41	1.08	0.12	0.74	0.32	0.03	0.98	1.09	0.42
Uniform Delay, d1	60.5	44.1	30.3	40.6	53.1	41.5	65.0	43.5	40.5	53.7	41.0	29.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	106.8	12.7	0.4	3.3	50.0	0.4	15.6	0.2	0.0	27.9	52.6	0.5
Delay (s)	167.3	56.8	30.7	43.9	103.2	41.9	80.6	43.8	40.6	81.6	93.6	29.6
Level of Service	F	E	C	D	F	D	F	D	D	F	F	C
Approach Delay (s)		64.5			90.6			54.5			82.1	
Approach LOS		E			F			D			F	

Intersection Summary			
HCM 2000 Control Delay	76.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.4
Intersection Capacity Utilization	109.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2718	75	0	1930	0	13
Future Volume (Veh/h)	2718	75	0	1930	0	13
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2718	75	0	1930	0	13
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	276					
pX, platoon unblocked			0.67		0.67	0.67
vC, conflicting volume			2793		3361	906
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1946		2796	0
tC, single (s)			4.1		6.8	7.4
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.5
p0 queue free %			100		100	98
cM capacity (veh/h)			204		10	678

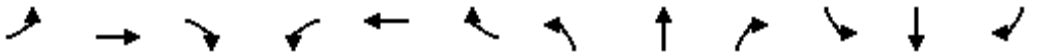
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1
Volume Total	906	906	906	75	643	643	643	13
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	75	0	0	0	13
cSH	1700	1700	1700	1700	1700	1700	1700	678
Volume to Capacity	0.53	0.53	0.53	0.04	0.38	0.38	0.38	0.02
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.4
Lane LOS								B
Approach Delay (s)	0.0				0.0			10.4
Approach LOS								B

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	22	34	9	88	2	388	598	1019	28
v/c Ratio	0.08	0.20	0.05	0.40	0.00	0.14	0.85	0.37	0.03
Control Delay	26.4	32.3	28.8	13.3	3.5	3.1	23.5	4.1	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.4	32.3	28.8	13.3	3.5	3.1	23.5	4.1	0.8
Queue Length 50th (m)	1.2	4.4	1.2	0.0	0.1	6.5	51.5	22.2	0.0
Queue Length 95th (m)	4.2	11.7	4.8	11.5	0.6	12.0	#140.8	35.9	1.3
Internal Link Dist (m)	199.1		507.4			227.2		415.8	
Turn Bay Length (m)		85.6			122.0		209.0		92.0
Base Capacity (vph)	1110	635	758	592	404	2704	707	2775	1101
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.05	0.01	0.15	0.00	0.14	0.85	0.37	0.03

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)	5	14	3	34	9	88	2	362	26	598	1019	28
Future Volume (vph)	5	14	3	34	9	88	2	362	26	598	1019	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lane Util. Factor		0.95		1.00	1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frt		0.98		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected		0.99		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		2768		1825	1700	1219	1825	3483		1659	3579	1408
Flt Permitted		0.89		0.74	1.00	1.00	0.27	1.00		0.52	1.00	1.00
Satd. Flow (perm)		2486		1426	1700	1219	520	3483		912	3579	1408
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	5	14	3	34	9	88	2	362	26	598	1019	28
RTOR Reduction (vph)	0	3	0	0	0	80	0	3	0	0	0	7
Lane Group Flow (vph)	0	19	0	34	9	8	2	385	0	598	1019	21
Heavy Vehicles (%)	80%	15%	0%	0%	13%	34%	0%	4%	0%	10%	2%	16%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		6
Actuated Green, G (s)		7.0		7.0	7.0	7.0	55.0	55.0		55.0	55.0	55.0
Effective Green, g (s)		7.0		7.0	7.0	7.0	55.0	55.0		55.0	55.0	55.0
Actuated g/C Ratio		0.09		0.09	0.09	0.09	0.74	0.74		0.74	0.74	0.74
Clearance Time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		235		134	160	115	386	2588		677	2660	1046
v/s Ratio Prot					0.01			0.11			0.28	
v/s Ratio Perm		0.01		c0.02		0.01	0.00			c0.66		0.01
v/c Ratio		0.08		0.25	0.06	0.07	0.01	0.15		0.88	0.38	0.02
Uniform Delay, d1		30.6		31.1	30.5	30.5	2.4	2.7		7.1	3.4	2.5
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.2		1.0	0.1	0.3	0.0	0.1		15.5	0.4	0.0
Delay (s)		30.7		32.1	30.6	30.8	2.5	2.9		22.6	3.8	2.5
Level of Service		C		C	C	C	A	A		C	A	A
Approach Delay (s)		30.7			31.1			2.9			10.6	
Approach LOS		C			C			A			B	

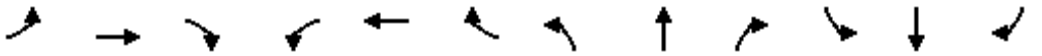
Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	74.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection Sign configuration not allowed in HCM analysis.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	143	23	226	163	138	208	2268	54	9	860	118
v/c Ratio	0.78	0.09	0.49	0.75	0.24	0.58	0.63	0.07	0.18	0.30	0.15
Control Delay	77.9	41.3	8.6	71.6	42.6	14.7	8.4	1.5	30.1	15.5	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.9	41.3	8.6	71.6	42.6	14.7	8.4	1.5	30.1	15.5	3.7
Queue Length 50th (m)	36.7	5.1	0.0	41.6	15.7	14.3	75.1	0.3	1.0	38.3	0.0
Queue Length 95th (m)	55.8	11.8	19.5	60.5	22.6	31.1	78.9	m1.1	6.9	65.1	10.6
Internal Link Dist (m)		365.9			204.7		404.8			329.5	
Turn Bay Length (m)	97.3			74.0		142.0		100.0	160.0		116.0
Base Capacity (vph)	275	374	581	324	872	437	3624	762	51	2848	786
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.06	0.39	0.50	0.16	0.48	0.63	0.07	0.18	0.30	0.15

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



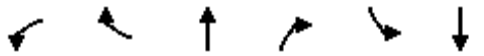
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	23	226	163	85	53	208	2268	54	9	860	118
Future Volume (vph)	143	23	226	163	85	53	208	2268	54	9	860	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		3.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1362	1298	1458	1437	3005		1225	5043	1040	1323	4768	1237
Flt Permitted	0.66	1.00	1.00	0.74	1.00		0.28	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	953	1298	1458	1123	3005		367	5043	1040	86	4768	1237
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	143	23	226	163	85	53	208	2268	54	9	860	118
RTOR Reduction (vph)	0	0	182	0	6	0	0	0	15	0	0	48
Lane Group Flow (vph)	143	23	44	163	132	0	208	2268	39	9	860	70
Heavy Vehicles (%)	34%	48%	12%	27%	21%	4%	49%	4%	57%	38%	10%	32%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		8			4		5	2			6	
Permitted Phases	8		8	4			2		2	6		6
Actuated Green, G (s)	26.0	26.0	26.0	26.0	26.0		97.0	97.0	97.0	80.6	80.6	80.6
Effective Green, g (s)	26.0	26.0	26.0	26.0	26.0		97.0	97.0	97.0	80.6	80.6	80.6
Actuated g/C Ratio	0.19	0.19	0.19	0.19	0.19		0.72	0.72	0.72	0.60	0.60	0.60
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		3.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	183	249	280	216	578		348	3623	747	51	2846	738
v/s Ratio Prot		0.02			0.04		0.06	c0.45			0.18	
v/s Ratio Perm	c0.15		0.03	0.15			0.37		0.04	0.10		0.06
v/c Ratio	0.78	0.09	0.16	0.75	0.23		0.60	0.63	0.05	0.18	0.30	0.10
Uniform Delay, d1	51.8	44.8	45.4	51.5	46.0		7.0	9.7	5.6	12.3	13.4	11.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.34	0.71	0.61	1.00	1.00	1.00
Incremental Delay, d2	19.2	0.2	0.3	13.9	0.2		2.3	0.7	0.1	7.4	0.3	0.3
Delay (s)	71.0	45.0	45.6	65.4	46.2		11.6	7.6	3.5	19.7	13.6	11.9
Level of Service	E	D	D	E	D		B	A	A	B	B	B
Approach Delay (s)		54.8			56.6			7.8			13.5	
Approach LOS		D			E			A			B	

Intersection Summary			
HCM 2000 Control Delay	17.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	294	249	2041	1253
v/c Ratio	0.45	0.82	0.61	0.38
Control Delay	45.2	68.4	8.1	7.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	45.2	68.4	8.1	7.8
Queue Length 50th (m)	34.0	67.4	48.2	35.3
Queue Length 95th (m)	43.0	92.5	m64.1	53.8
Internal Link Dist (m)	326.5		301.7	404.8
Turn Bay Length (m)		207.0		
Base Capacity (vph)	929	430	3337	3276
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	0.32	0.58	0.61	0.38

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

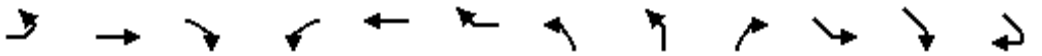


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	44	499	2041	0	0	1253
Future Volume (vph)	44	499	2041	0	0	1253
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0			6.0
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.87	0.85	1.00			1.00
Flt Protected	0.99	1.00	1.00			1.00
Satd. Flow (prot)	2965	1363	4812			4725
Flt Permitted	0.99	1.00	1.00			1.00
Satd. Flow (perm)	2965	1363	4812			4725
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	44	499	2041	0	0	1253
RTOR Reduction (vph)	8	8	0	0	0	0
Lane Group Flow (vph)	286	241	2041	0	0	1253
Heavy Vehicles (%)	8%	9%	9%	0%	0%	11%
Turn Type	Prot	Perm	NA			NA
Protected Phases	4		2			6
Permitted Phases		4				
Actuated Green, G (s)	29.4	29.4	93.6			93.6
Effective Green, g (s)	29.4	29.4	93.6			93.6
Actuated g/C Ratio	0.22	0.22	0.69			0.69
Clearance Time (s)	6.0	6.0	6.0			6.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	645	296	3336			3276
v/s Ratio Prot	0.10		c0.42			0.27
v/s Ratio Perm		c0.18				
v/c Ratio	0.44	0.81	0.61			0.38
Uniform Delay, d1	45.7	50.2	11.0			8.6
Progression Factor	1.00	1.00	0.62			0.78
Incremental Delay, d2	0.5	15.7	0.5			0.3
Delay (s)	46.2	65.9	7.4			7.1
Level of Service	D	E	A			A
Approach Delay (s)	55.2		7.4			7.1
Approach LOS	E		A			A

Intersection Summary			
HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBR	SEL	SER
Lane Group Flow (vph)	1	1881	20	23	1707	46	38	123	4
v/c Ratio	0.01	0.78	0.03	0.17	0.72	0.10	0.07	0.21	0.01
Control Delay	7.0	13.9	2.5	11.3	12.7	13.7	7.1	14.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.0	13.9	2.5	11.3	12.7	13.7	7.1	14.6	0.0
Queue Length 50th (m)	0.1	50.8	0.0	1.1	43.8	3.1	0.5	8.7	0.0
Queue Length 95th (m)	0.6	67.6	1.9	5.0	58.6	8.8	5.4	18.5	0.0
Internal Link Dist (m)		306.9			256.7	294.7		75.2	
Turn Bay Length (m)	50.0		90.0	98.0					
Base Capacity (vph)	136	2405	763	133	2364	465	538	585	544
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.78	0.03	0.17	0.72	0.10	0.07	0.21	0.01

Intersection Summary

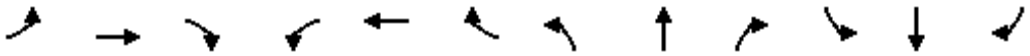


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER	SER2
Lane Configurations												
Traffic Volume (vph)	1	1881	20	23	1702	5	46	0	38	123	0	4
Future Volume (vph)	1	1881	20	23	1702	5	46	0	38	123	0	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5			4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91			1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00	0.95	1.00	
Satd. Flow (prot)	1789	4725	1471	1738	4641			1789	1585	1789	1601	
Flt Permitted	0.14	1.00	1.00	0.14	1.00			0.76	1.00	0.95	1.00	
Satd. Flow (perm)	269	4725	1471	261	4641			1422	1585	1789	1601	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1	1881	20	23	1702	5	46	0	38	123	0	4
RTOR Reduction (vph)	0	0	10	0	0	0	0	0	20	0	3	0
Lane Group Flow (vph)	1	1881	10	23	1707	0	0	46	18	123	1	0
Heavy Vehicles (%)	2%	11%	11%	5%	13%	2%	2%	2%	3%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA		D.Pm	Prot	Perm	Prot	Perm	
Protected Phases		2!			6!			8!		4!		
Permitted Phases	2!		2	6!			2!		8		4	
Actuated Green, G (s)	28.0	28.0	28.0	28.0	28.0			18.0	18.0	18.0	18.0	
Effective Green, g (s)	28.0	28.0	28.0	28.0	28.0			18.0	18.0	18.0	18.0	
Actuated g/C Ratio	0.51	0.51	0.51	0.51	0.51			0.33	0.33	0.33	0.33	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5			4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	136	2405	748	132	2362			465	518	585	523	
v/s Ratio Prot		c0.40			0.37					c0.07		
v/s Ratio Perm	0.00		0.01	0.09				0.03	0.01		0.00	
v/c Ratio	0.01	0.78	0.01	0.17	0.72			0.10	0.03	0.21	0.00	
Uniform Delay, d1	6.7	11.0	6.7	7.3	10.5			12.9	12.6	13.4	12.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	2.6	0.0	2.9	2.0			0.1	0.0	0.8	0.0	
Delay (s)	6.8	13.6	6.7	10.1	12.4			13.0	12.6	14.2	12.5	
Level of Service	A	B	A	B	B			B	B	B	B	
Approach Delay (s)		13.6			12.4			12.8		14.1		
Approach LOS		B			B			B		B		

Intersection Summary			
HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

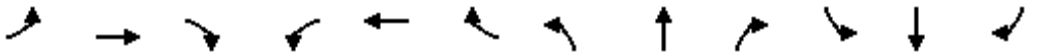


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	344	1968	140	59	1413	756	286	737	43	561	626	199
v/c Ratio	1.30	0.91	0.21	0.44	1.10	0.70	0.73	0.83	0.09	1.21	0.65	0.38
Control Delay	202.5	44.5	4.7	30.7	103.8	16.2	68.7	56.7	0.3	152.5	61.5	21.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	202.5	44.5	4.7	30.7	103.8	16.2	68.7	56.7	0.3	152.5	61.5	21.2
Queue Length 50th (m)	~116.8	165.9	0.0	8.0	~156.5	29.7	38.1	98.2	0.0	~94.6	92.3	15.1
Queue Length 95th (m)	#176.5	#187.9	12.8	15.6	#186.1	55.1	52.9	122.0	0.0	#131.2	112.0	42.2
Internal Link Dist (m)		256.7			251.4			415.8			172.4	
Turn Bay Length (m)	125.0		170.0	160.0		138.0	176.0		106.0	167.0		
Base Capacity (vph)	265	2168	664	135	1281	1083	437	892	488	464	959	526
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.30	0.91	0.21	0.44	1.10	0.70	0.65	0.83	0.09	1.21	0.65	0.38

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	344	1968	140	59	1413	756	286	737	43	561	626	199
Future Volume (vph)	344	1968	140	59	1413	756	286	737	43	561	626	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.7	6.7	3.0	6.7	6.7	5.0	6.7	6.7	4.0	6.7	6.7
Lane Util. Factor	1.00	*1.00	1.00	1.00	0.91	0.88	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1496	5192	1396	1722	4725	2566	3278	3544	1585	3133	3510	1396
Flt Permitted	0.95	1.00	1.00	0.11	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1496	5192	1396	198	4725	2566	3278	3544	1585	3133	3510	1396
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	344	1968	140	59	1413	756	286	737	43	561	626	199
RTOR Reduction (vph)	0	0	82	0	0	388	0	0	32	0	0	145
Lane Group Flow (vph)	344	1968	58	59	1413	368	286	737	11	561	626	54
Heavy Vehicles (%)	22%	11%	17%	6%	11%	12%	8%	3%	3%	13%	4%	17%
Turn Type	Prot	NA	Perm	pm+pt	NA	Prot	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6	6	7	4		3	8	
Permitted Phases			2	6					4			8
Actuated Green, G (s)	24.0	55.8	55.8	41.4	36.6	36.6	16.1	34.0	34.0	19.0	36.9	36.9
Effective Green, g (s)	24.0	55.8	55.8	41.4	36.6	36.6	16.1	34.0	34.0	20.0	36.9	36.9
Actuated g/C Ratio	0.18	0.41	0.41	0.31	0.27	0.27	0.12	0.25	0.25	0.15	0.27	0.27
Clearance Time (s)	3.0	6.7	6.7	3.0	6.7	6.7	5.0	6.7	6.7	5.0	6.7	6.7
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	265	2146	577	114	1281	695	390	892	399	464	959	381
v/s Ratio Prot	c0.23	0.38		0.02	c0.30	0.14	0.09	c0.21		c0.18	c0.18	
v/s Ratio Perm			0.04	0.14					0.01			0.04
v/c Ratio	1.30	0.92	0.10	0.52	1.10	0.53	0.73	0.83	0.03	1.21	0.65	0.14
Uniform Delay, d1	55.5	37.4	24.2	35.2	49.2	41.9	57.4	47.7	38.0	57.5	43.4	37.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81	1.32	3.69
Incremental Delay, d2	159.1	7.7	0.3	3.9	58.3	2.9	7.0	8.6	0.1	112.1	3.3	0.8
Delay (s)	214.6	45.1	24.6	39.2	107.5	44.8	64.4	56.3	38.2	158.5	60.5	137.5
Level of Service	F	D	C	D	F	D	E	E	D	F	E	F
Approach Delay (s)		67.7			84.4			57.8			111.2	
Approach LOS		E			F			E			F	

Intersection Summary			
HCM 2000 Control Delay	79.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	21.4
Intersection Capacity Utilization	100.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2786	38	0	2769	0	30
Future Volume (Veh/h)	2786	38	0	2769	0	30
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2786	38	0	2769	0	30
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	276					
pX, platoon unblocked			0.64		0.64	0.64
vC, conflicting volume			2824		3709	929
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1864		3256	0
tC, single (s)			4.1		6.8	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.4
p0 queue free %			100		100	96
cM capacity (veh/h)			209		5	679

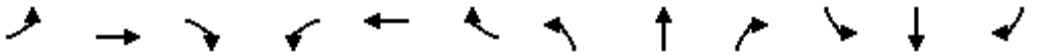
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1
Volume Total	929	929	929	38	923	923	923	30
Volume Left	0	0	0	0	0	0	0	0
Volume Right	0	0	0	38	0	0	0	30
cSH	1700	1700	1700	1700	1700	1700	1700	679
Volume to Capacity	0.55	0.55	0.55	0.02	0.54	0.54	0.54	0.04
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.5
Lane LOS								B
Approach Delay (s)	0.0				0.0			10.5
Approach LOS								B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	42	41	2	236	2	1115	173	473	19
v/c Ratio	0.07	0.14	0.01	0.69	0.00	0.50	0.91	0.22	0.02
Control Delay	19.8	21.8	18.5	31.2	8.0	9.5	67.6	7.3	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8	21.8	18.5	31.2	8.0	9.5	67.6	7.3	1.1
Queue Length 50th (m)	2.3	4.7	0.2	24.7	0.1	38.5	18.3	13.1	0.0
Queue Length 95th (m)	5.2	10.3	1.5	40.3	1.0	71.2	#63.2	26.5	1.2
Internal Link Dist (m)	199.1		507.4			227.2		415.8	
Turn Bay Length (m)		85.6			122.0		250.0		92.0
Base Capacity (vph)	1179	623	571	668	576	2246	190	2191	851
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.07	0.00	0.35	0.00	0.50	0.91	0.22	0.02

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)	23	17	2	41	2	236	2	1070	45	173	473	19
Future Volume (vph)	23	17	2	41	2	236	2	1070	45	173	473	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lane Util. Factor		0.95		1.00	1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frt		0.99		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected		0.97		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3050		1825	1281	1445	1825	3594		1352	3510	1338
Flt Permitted		0.84		0.73	1.00	1.00	0.48	1.00		0.21	1.00	1.00
Satd. Flow (perm)		2640		1399	1281	1445	924	3594		305	3510	1338
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	23	17	2	41	2	236	2	1070	45	173	473	19
RTOR Reduction (vph)	0	2	0	0	0	35	0	3	0	0	0	7
Lane Group Flow (vph)	0	40	0	41	2	201	2	1112	0	173	473	12
Heavy Vehicles (%)	19%	13%	0%	0%	50%	13%	0%	1%	0%	35%	4%	22%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		6
Actuated Green, G (s)		15.8		15.8	15.8	15.8	46.2	46.2		46.2	46.2	46.2
Effective Green, g (s)		15.8		15.8	15.8	15.8	46.2	46.2		46.2	46.2	46.2
Actuated g/C Ratio		0.21		0.21	0.21	0.21	0.62	0.62		0.62	0.62	0.62
Clearance Time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		563		298	273	308	576	2243		190	2191	835
v/s Ratio Prot					0.00			0.31			0.13	
v/s Ratio Perm		0.02		0.03		c0.14	0.00			c0.57		0.01
v/c Ratio		0.07		0.14	0.01	0.65	0.00	0.50		0.91	0.22	0.01
Uniform Delay, d1		23.2		23.6	22.9	26.6	5.2	7.6		12.1	6.0	5.3
Progression Factor		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		0.1		0.2	0.0	4.9	0.0	0.8		45.3	0.2	0.0
Delay (s)		23.3		23.8	22.9	31.5	5.2	8.4		57.4	6.3	5.3
Level of Service		C		C	C	C	A	A		E	A	A
Approach Delay (s)		23.3			30.3			8.3			19.5	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	74.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection Sign configuration not allowed in HCM analysis.

Appendix F – Turning Movement Counts

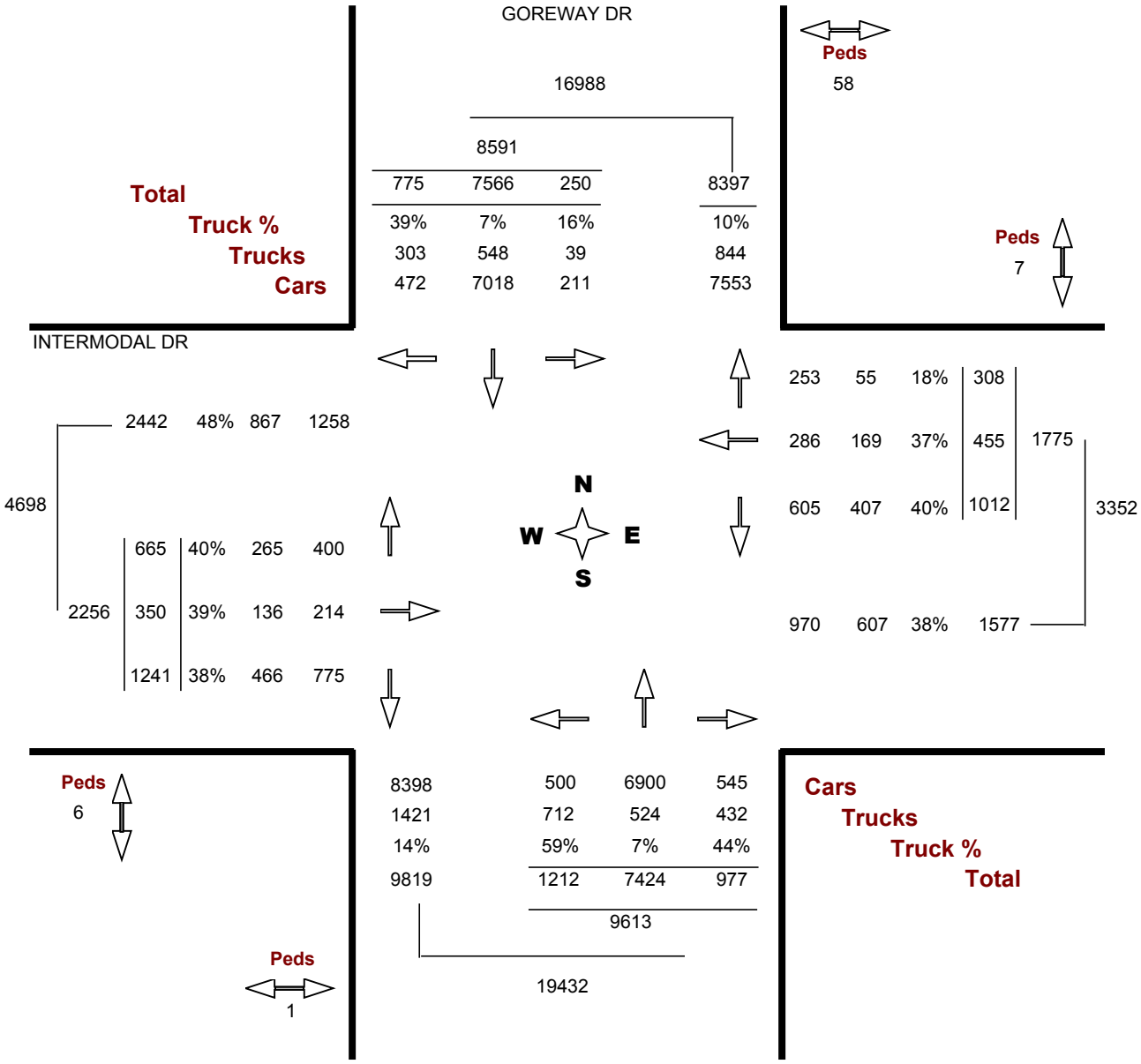
Turning Movements Count - Full Study Report

Location..... GOREWAY DR @ INTERMODAL DR

Municipality..... Brampton

GeoID..... 3030

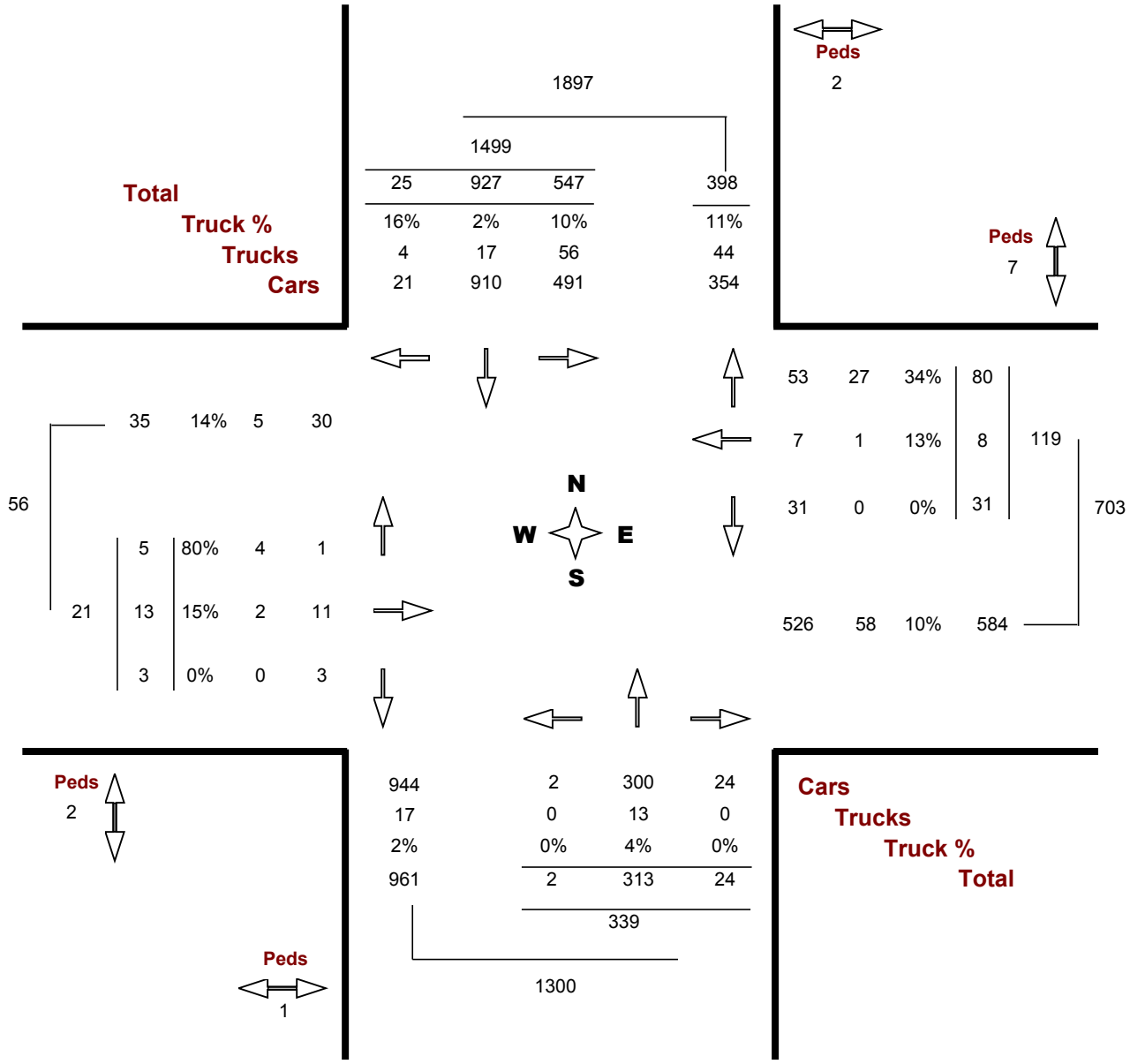
Count Date..... Thursday, 18 June, 2015



Turning Movements Report - AM Period

Location..... GOREWAY DR @ KENVIEW BLVD
Municipality. Brampton
Traffic Cont. Traffic signal
Major Dir..... None

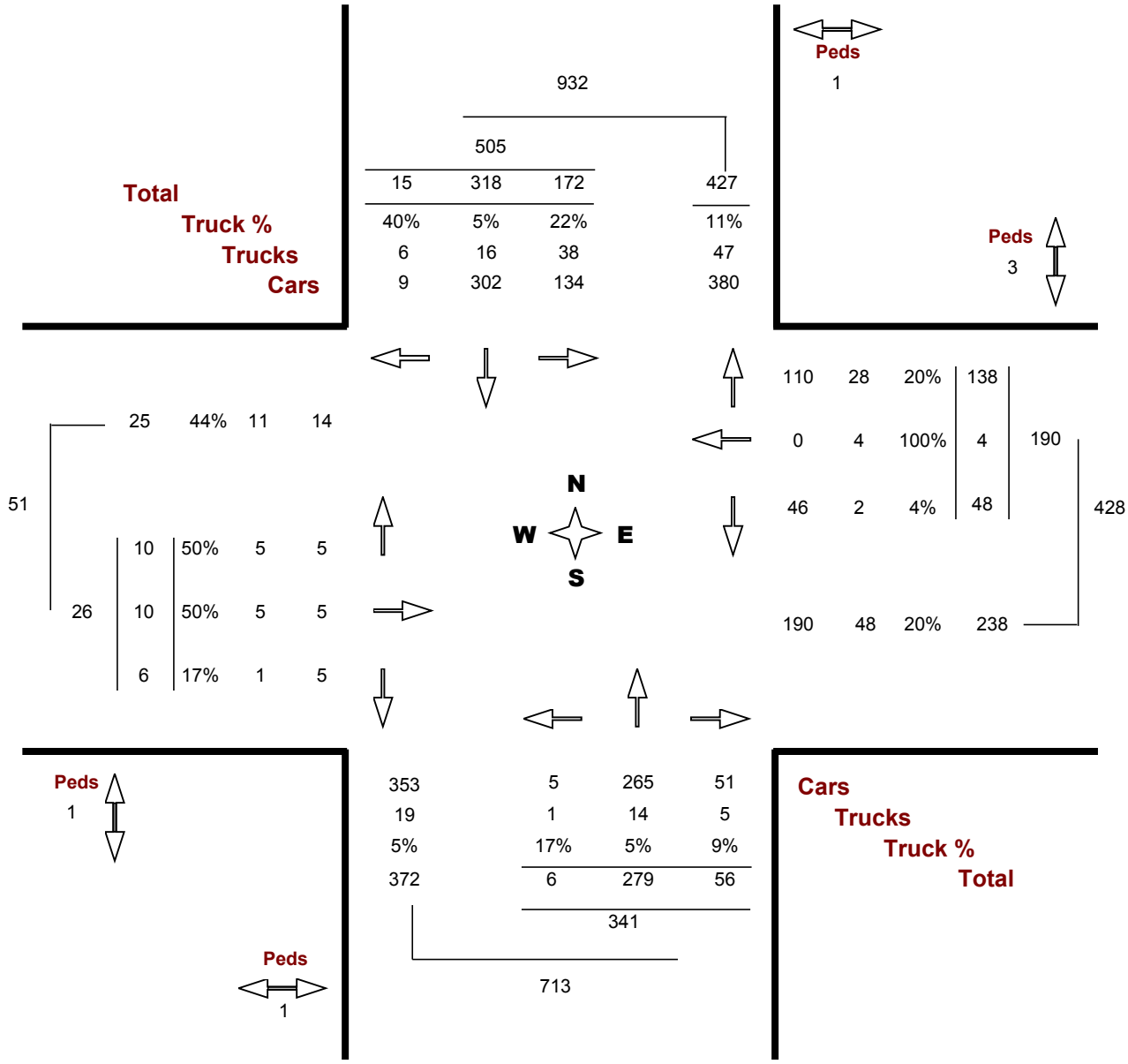
GeoID..... 3033
Count Date. Thursday, 18 June, 2015
Count Time. 07:00 AM — 09:00 AM
Peak Hour.. 07:30 AM — 08:30 AM



Turning Movements Report - MD Period

Location..... GOREWAY DR @ KENVIEW BLVD
Municipality. Brampton
Traffic Cont. Traffic signal
Major Dir..... None

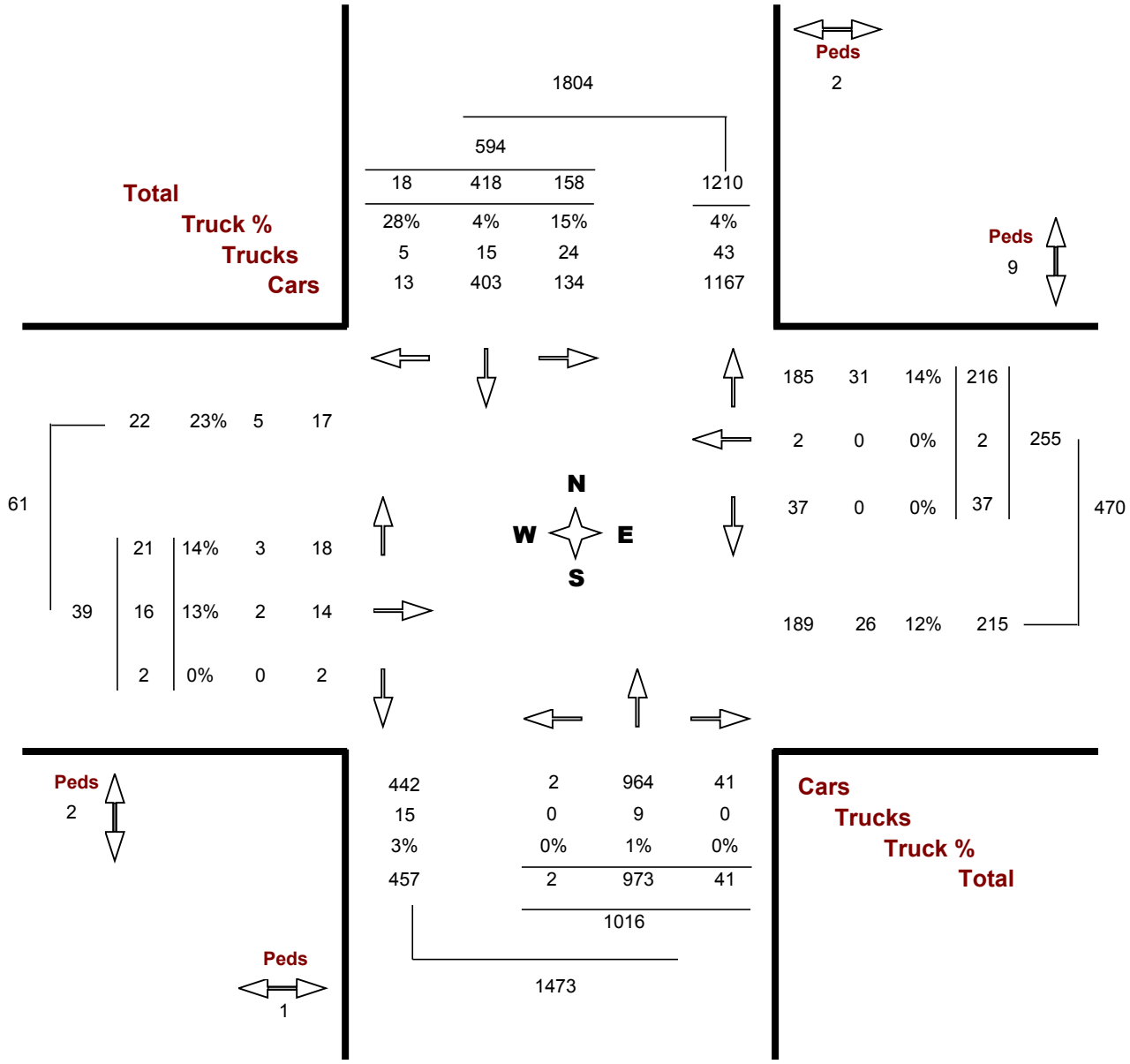
GeoID..... 3033
Count Date. Thursday, 18 June, 2015
Count Time. 11:00 AM — 02:00 PM
Peak Hour.. 11:45 AM — 12:45 PM



Turning Movements Report - PM Period

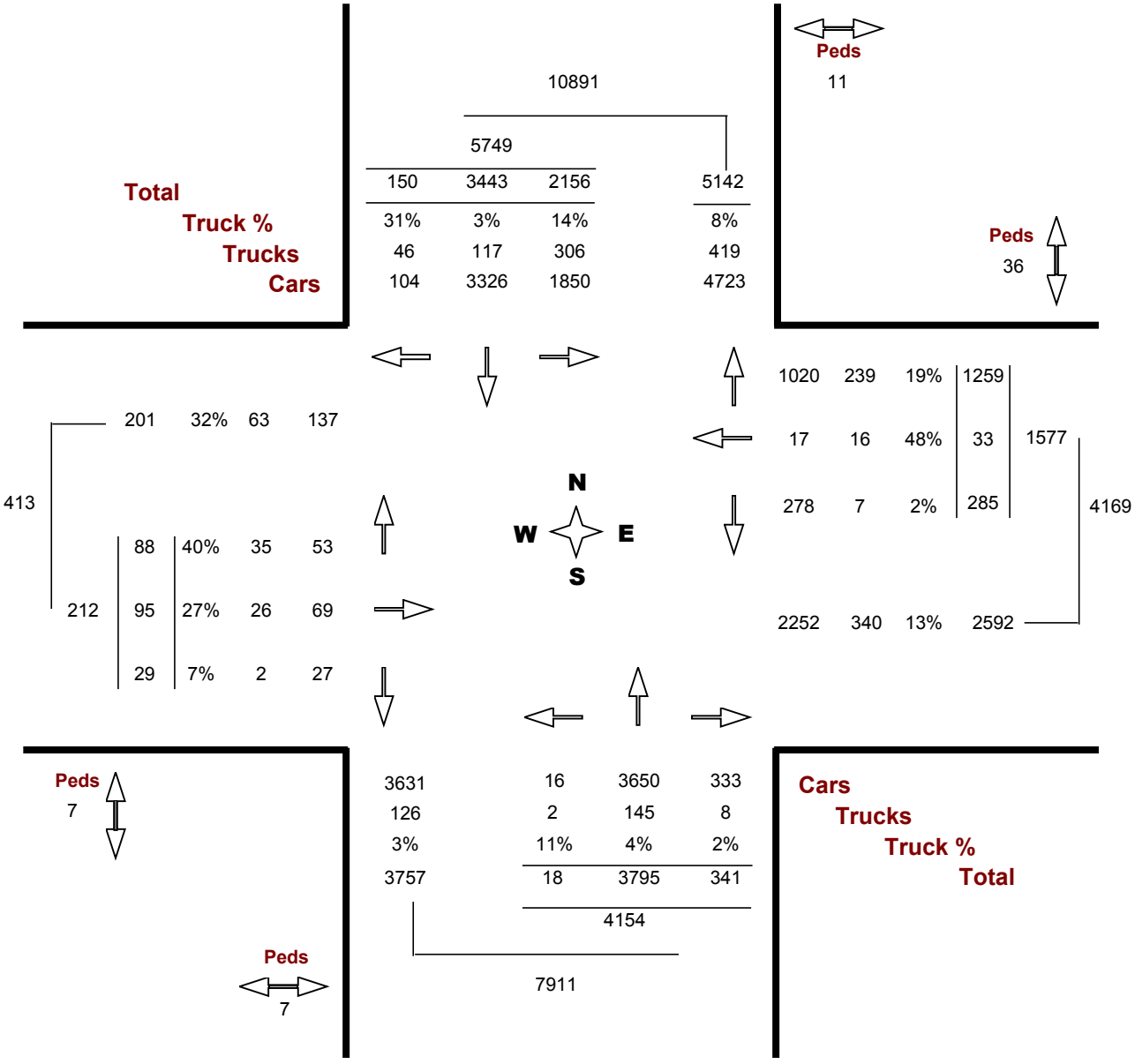
Location..... GOREWAY DR @ KENVIEW BLVD
Municipality. Brampton
Traffic Cont. Traffic signal
Major Dir..... None

GeoID..... 3033
Count Date. Thursday, 18 June, 2015
Count Time. 03:00 PM — 06:00 PM
Peak Hour.. 04:45 PM — 05:45 PM



Turning Movements Count - Full Study Report

Location..... GOREWAY DR @ KENVIEW BLVD
Municipality..... Brampton
GeoID..... 3033
Count Date..... Thursday, 18 June, 2015



Region of Peel
10 Peel Centre Drive
Suite B - 4th Floor
Brampton, Ontario, Canada L6T 4B9
(905) 791-7800 Josh.DiRocco@peelregion.ca

Count Name: Steeles Ave at Castleview Dr
Site Code: 01501827
Start Date: 07/07/2015

Turning Movement Data

Start Time	Steeles Avenue Westbound				Castleview Drive Northbound				Steeles Avenue Eastbound				Int. Total
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	
7:00 AM	369	13	0	382	3	1	0	4	10	469	0	479	865
7:15 AM	415	17	0	432	4	1	0	5	15	505	0	520	957
7:30 AM	338	16	2	356	2	0	0	2	12	464	0	476	834
7:45 AM	421	15	1	437	5	0	0	5	12	484	0	496	938
Hourly Total	1543	61	3	1607	14	2	0	16	49	1922	0	1971	3594
8:00 AM	308	12	1	321	7	0	0	7	13	427	0	440	768
8:15 AM	347	11	0	358	2	2	0	4	16	503	0	519	881
8:30 AM	344	10	1	355	7	1	0	8	13	436	0	449	812
8:45 AM	319	14	0	333	2	2	0	4	19	376	0	395	732
Hourly Total	1318	47	2	1367	18	5	0	23	61	1742	0	1803	3193
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	266	6	0	272	1	0	0	1	2	281	0	283	556
11:15 AM	237	2	0	239	11	4	0	15	3	278	0	281	535
11:30 AM	280	0	1	281	4	1	0	5	8	289	0	297	583
11:45 AM	275	4	0	279	3	6	0	9	6	288	1	295	583
Hourly Total	1058	12	1	1071	19	11	0	30	19	1136	1	1156	2257
12:00 PM	237	1	0	238	7	1	0	8	5	328	0	333	579
12:15 PM	274	3	0	277	5	5	0	10	6	276	0	282	569
12:30 PM	292	2	0	294	3	4	0	7	5	303	0	308	609
12:45 PM	290	5	0	295	6	0	0	6	9	288	0	297	598
Hourly Total	1093	11	0	1104	21	10	0	31	25	1195	0	1220	2355
1:00 PM	343	3	0	346	6	2	0	8	6	310	0	316	670
1:15 PM	290	1	1	292	3	3	0	6	4	290	0	294	592
1:30 PM	345	3	1	349	4	3	0	7	4	330	0	334	690
1:45 PM	304	7	1	312	4	5	0	9	8	307	0	315	636
Hourly Total	1282	14	3	1299	17	13	0	30	22	1237	0	1259	2588
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	468	3	0	471	3	4	0	7	2	342	0	344	822
3:15 PM	437	2	0	439	6	1	0	7	7	373	0	380	826
3:30 PM	411	1	0	412	3	2	0	5	4	431	0	435	852
3:45 PM	420	7	0	427	7	0	0	7	6	456	0	462	896
Hourly Total	1736	13	0	1749	19	7	0	26	19	1602	0	1621	3396
4:00 PM	400	4	0	404	14	4	0	18	5	422	0	427	849
4:15 PM	412	7	0	419	12	6	0	18	6	437	0	443	880
4:30 PM	428	2	0	430	7	4	0	11	9	436	0	445	886
4:45 PM	481	6	0	487	6	6	0	12	3	412	0	415	914
Hourly Total	1721	19	0	1740	39	20	0	59	23	1707	0	1730	3529
5:00 PM	463	2	1	466	9	9	0	18	3	499	0	502	986
5:15 PM	533	1	0	534	5	2	0	7	6	441	0	447	988
5:30 PM	526	2	0	528	2	2	0	4	5	404	0	409	941
5:45 PM	446	2	0	448	3	2	0	5	3	369	0	372	825

Hourly Total	1968	7	1	1976	19	15	0	34	17	1713	0	1730	3740
Grand Total	11719	184	10	11913	166	83	0	249	235	12254	1	12490	24652
Approach %	98.4	1.5	0.1	-	66.7	33.3	0.0	-	1.9	98.1	0.0	-	-
Total %	47.5	0.7	0.0	48.3	0.7	0.3	0.0	1.0	1.0	49.7	0.0	50.7	-
Lights	9777	170	10	9957	123	76	0	199	202	10250	1	10453	20609
% Lights	83.4	92.4	100.0	83.6	74.1	91.6	-	79.9	86.0	83.6	100.0	83.7	83.6
Mediums	827	6	0	833	35	7	0	42	15	832	0	847	1722
% Mediums	7.1	3.3	0.0	7.0	21.1	8.4	-	16.9	6.4	6.8	0.0	6.8	7.0
Articulated Trucks	1115	8	0	1123	8	0	0	8	18	1172	0	1190	2321
% Articulated Trucks	9.5	4.3	0.0	9.4	4.8	0.0	-	3.2	7.7	9.6	0.0	9.5	9.4

Region of Peel
10 Peel Centre Drive
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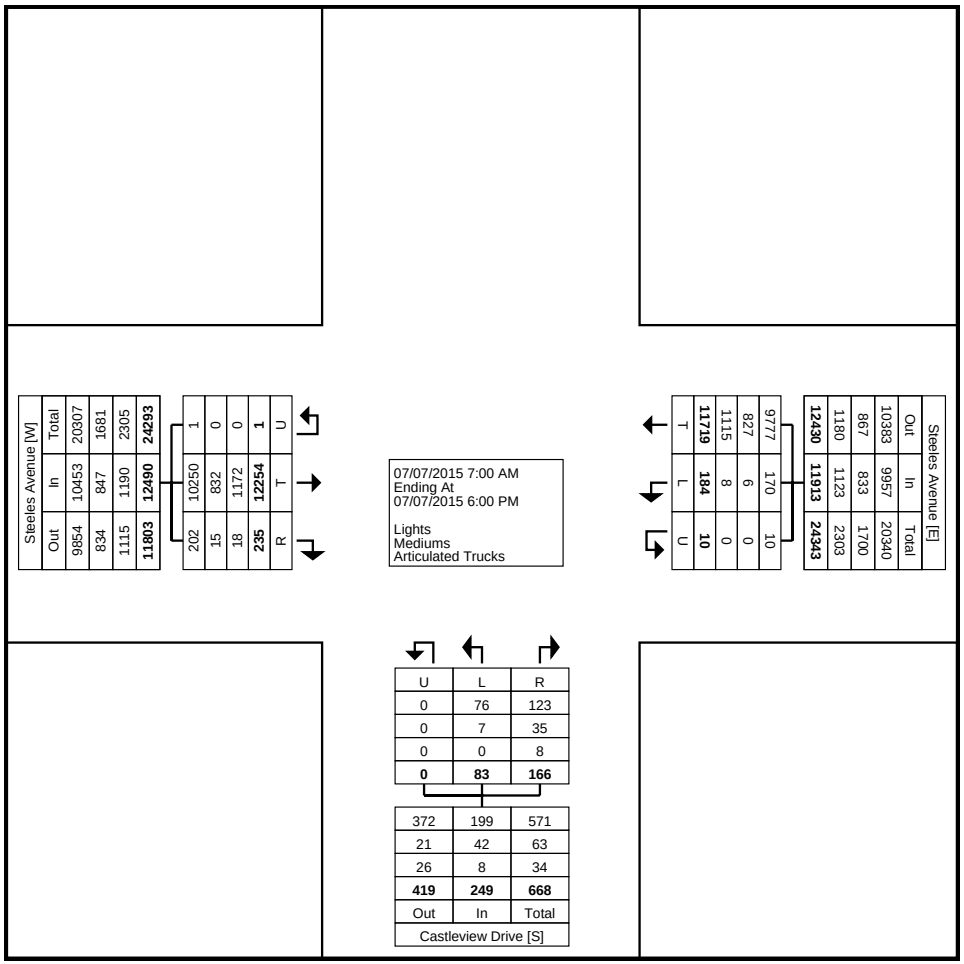
Count Name: Steeles Ave at Castleview Dr
Site Code: 01501827
Start Date: 07/07/2015



Turning Movement Data Plot

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Count Name: Steeles Ave at Castleview Dr
Site Code: 01501827
Start Date: 07/07/2015

Turning Movement Peak Hour Data (7:00 AM)

Start Time	Steeles Avenue Westbound				Castleview Drive Northbound				Steeles Avenue Eastbound				
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
7:00 AM	369	13	0	382	3	1	0	4	10	469	0	479	865
7:15 AM	415	17	0	432	4	1	0	5	15	505	0	520	957
7:30 AM	338	16	2	356	2	0	0	2	12	464	0	476	834
7:45 AM	421	15	1	437	5	0	0	5	12	484	0	496	938
Total	1543	61	3	1607	14	2	0	16	49	1922	0	1971	3594
Approach %	96.0	3.8	0.2	-	87.5	12.5	0.0	-	2.5	97.5	0.0	-	-
Total %	42.9	1.7	0.1	44.7	0.4	0.1	0.0	0.4	1.4	53.5	0.0	54.8	-
PHF	0.916	0.897	0.375	0.919	0.700	0.500	0.000	0.800	0.817	0.951	0.000	0.948	0.939
Lights	1349	59	3	1411	8	2	0	10	44	1647	0	1691	3112
% Lights	87.4	96.7	100.0	87.8	57.1	100.0	-	62.5	89.8	85.7	-	85.8	86.6
Mediums	79	0	0	79	5	0	0	5	1	109	0	110	194
% Mediums	5.1	0.0	0.0	4.9	35.7	0.0	-	31.3	2.0	5.7	-	5.6	5.4
Articulated Trucks	115	2	0	117	1	0	0	1	4	166	0	170	288
% Articulated Trucks	7.5	3.3	0.0	7.3	7.1	0.0	-	6.3	8.2	8.6	-	8.6	8.0

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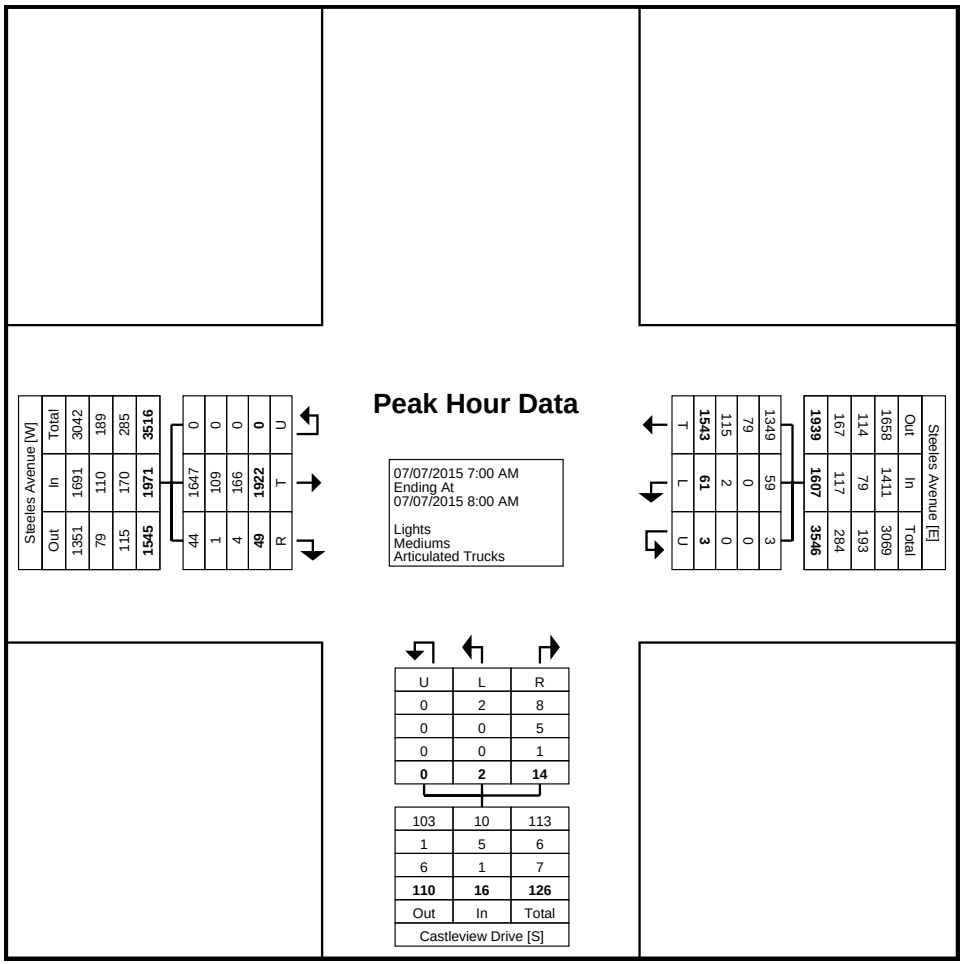
Site Code: 01501827
Start Date: 07/07/2015



Turning Movement Peak Hour Data Plot (7:00 AM)

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Count Name: Steeles Ave at Castleview Dr
Site Code: 01501827
Start Date: 07/07/2015

Turning Movement Peak Hour Data (11:00 AM)

Start Time	Steeles Avenue Westbound				Castleview Drive Northbound				Steeles Avenue Eastbound				
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
11:00 AM	266	6	0	272	1	0	0	1	2	281	0	283	556
11:15 AM	237	2	0	239	11	4	0	15	3	278	0	281	535
11:30 AM	280	0	1	281	4	1	0	5	8	289	0	297	583
11:45 AM	275	4	0	279	3	6	0	9	6	288	1	295	583
Total	1058	12	1	1071	19	11	0	30	19	1136	1	1156	2257
Approach %	98.8	1.1	0.1	-	63.3	36.7	0.0	-	1.6	98.3	0.1	-	-
Total %	46.9	0.5	0.0	47.5	0.8	0.5	0.0	1.3	0.8	50.3	0.0	51.2	-
PHF	0.945	0.500	0.250	0.953	0.432	0.458	0.000	0.500	0.594	0.983	0.250	0.973	0.968
Lights	773	10	1	784	12	8	0	20	15	869	1	885	1689
% Lights	73.1	83.3	100.0	73.2	63.2	72.7	-	66.7	78.9	76.5	100.0	76.6	74.8
Mediums	103	1	0	104	7	3	0	10	1	110	0	111	225
% Mediums	9.7	8.3	0.0	9.7	36.8	27.3	-	33.3	5.3	9.7	0.0	9.6	10.0
Articulated Trucks	182	1	0	183	0	0	0	0	3	157	0	160	343
% Articulated Trucks	17.2	8.3	0.0	17.1	0.0	0.0	-	0.0	15.8	13.8	0.0	13.8	15.2

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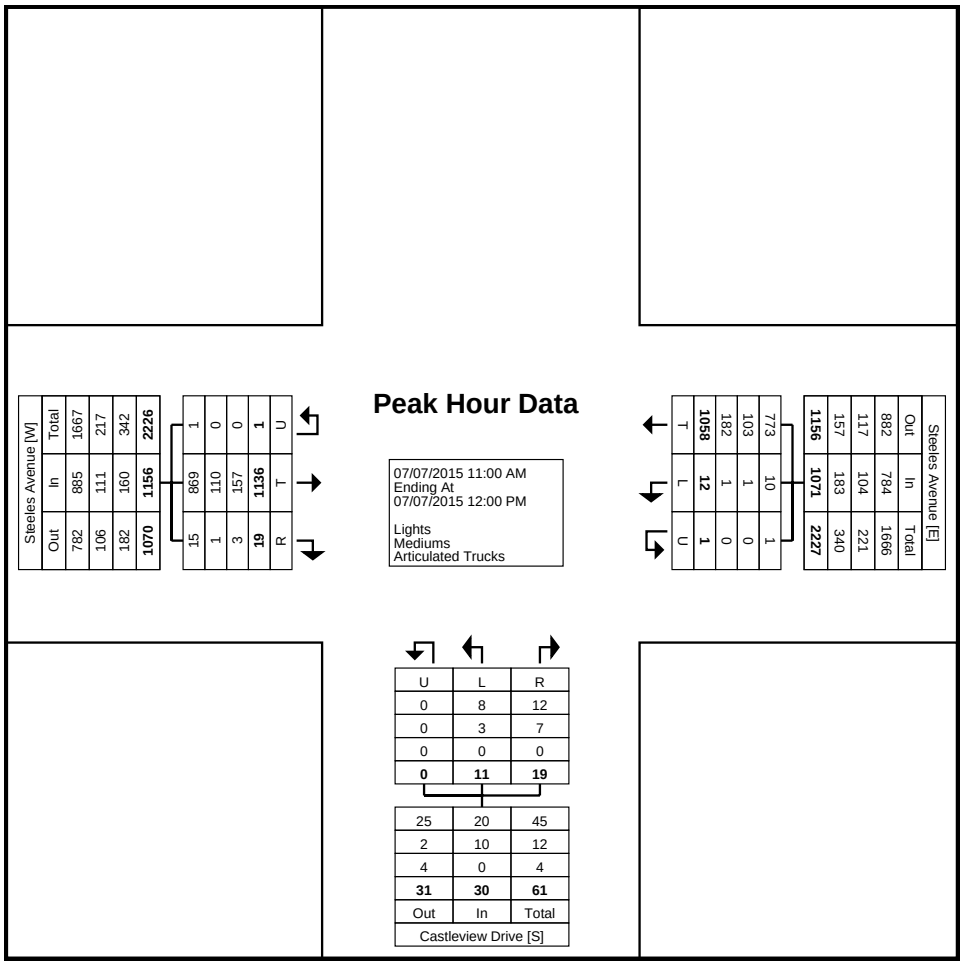

Turning Movement Peak Hour Data Plot (11:00 AM)

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Count Name: Steeles Ave at Castleview Dr
Site Code: 01501827
Start Date: 07/07/2015

Turning Movement Peak Hour Data (1:00 PM)

Start Time	Steeles Avenue Westbound				Castleview Drive Northbound				Steeles Avenue Eastbound				
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
1:00 PM	343	3	0	346	6	2	0	8	6	310	0	316	670
1:15 PM	290	1	1	292	3	3	0	6	4	290	0	294	592
1:30 PM	345	3	1	349	4	3	0	7	4	330	0	334	690
1:45 PM	304	7	1	312	4	5	0	9	8	307	0	315	636
Total	1282	14	3	1299	17	13	0	30	22	1237	0	1259	2588
Approach %	98.7	1.1	0.2	-	56.7	43.3	0.0	-	1.7	98.3	0.0	-	-
Total %	49.5	0.5	0.1	50.2	0.7	0.5	0.0	1.2	0.9	47.8	0.0	48.6	-
PHF	0.929	0.500	0.750	0.931	0.708	0.650	0.000	0.833	0.688	0.937	0.000	0.942	0.938
Lights	1016	13	3	1032	10	12	0	22	19	971	0	990	2044
% Lights	79.3	92.9	100.0	79.4	58.8	92.3	-	73.3	86.4	78.5	-	78.6	79.0
Mediums	124	0	0	124	6	1	0	7	2	118	0	120	251
% Mediums	9.7	0.0	0.0	9.5	35.3	7.7	-	23.3	9.1	9.5	-	9.5	9.7
Articulated Trucks	142	1	0	143	1	0	0	1	1	148	0	149	293
% Articulated Trucks	11.1	7.1	0.0	11.0	5.9	0.0	-	3.3	4.5	12.0	-	11.8	11.3

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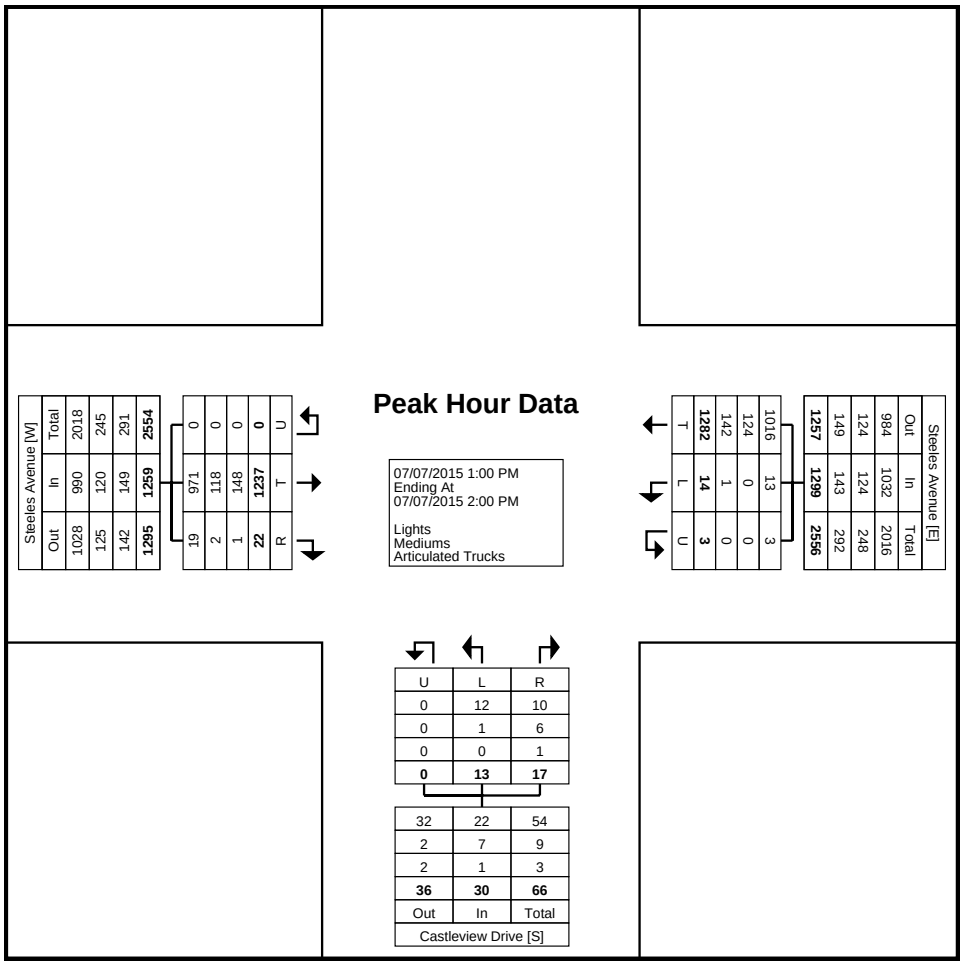

Turning Movement Peak Hour Data Plot (1:00 PM)

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Count Name: Steeles Ave at Castleview Dr
Site Code: 01501827
Start Date: 07/07/2015

Turning Movement Peak Hour Data (4:45 PM)

Start Time	Steeles Avenue Westbound				Castleview Drive Northbound				Steeles Avenue Eastbound				
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
4:45 PM	481	6	0	487	6	6	0	12	3	412	0	415	914
5:00 PM	463	2	1	466	9	9	0	18	3	499	0	502	986
5:15 PM	533	1	0	534	5	2	0	7	6	441	0	447	988
5:30 PM	526	2	0	528	2	2	0	4	5	404	0	409	941
Total	2003	11	1	2015	22	19	0	41	17	1756	0	1773	3829
Approach %	99.4	0.5	0.0	-	53.7	46.3	0.0	-	1.0	99.0	0.0	-	-
Total %	52.3	0.3	0.0	52.6	0.6	0.5	0.0	1.1	0.4	45.9	0.0	46.3	-
PHF	0.939	0.458	0.250	0.943	0.611	0.528	0.000	0.569	0.708	0.880	0.000	0.883	0.969
Lights	1791	10	1	1802	22	19	0	41	16	1576	0	1592	3435
% Lights	89.4	90.9	100.0	89.4	100.0	100.0	-	100.0	94.1	89.7	-	89.8	89.7
Mediums	85	0	0	85	0	0	0	0	0	61	0	61	146
% Mediums	4.2	0.0	0.0	4.2	0.0	0.0	-	0.0	0.0	3.5	-	3.4	3.8
Articulated Trucks	127	1	0	128	0	0	0	0	1	119	0	120	248
% Articulated Trucks	6.3	9.1	0.0	6.4	0.0	0.0	-	0.0	5.9	6.8	-	6.8	6.5

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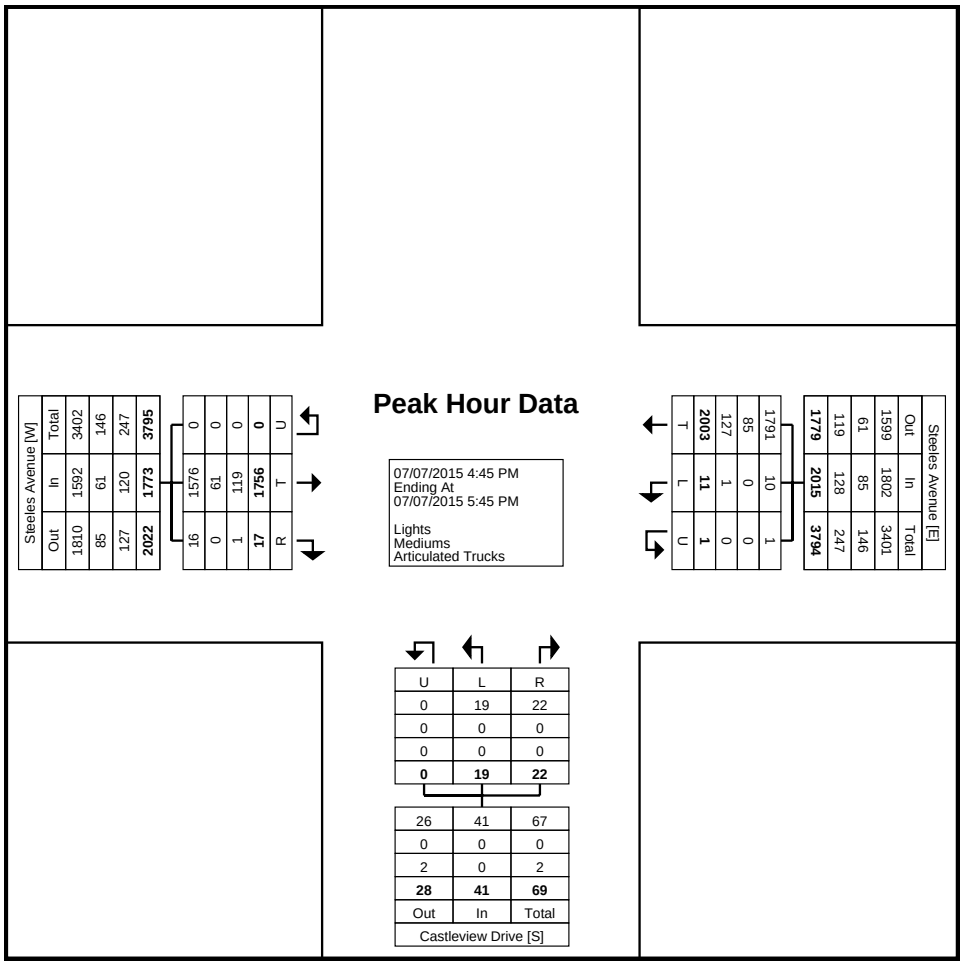

Turning Movement Peak Hour Data Plot (4:45 PM)

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10 Peel Centre Drive
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(905) 791-7800 Josh.DiRocco@peelregion.ca

TMC - Intersection Count Summary

Company name: Trans-Plan Inc.
Company address: 200-1920 Yonge Street,Toronto, Ontario, Canada
Company phone: 647-931-7383

Site: 01502397
Location: Steeles Avenue East at Goreway Drive, Brampton
N/S Street: Goreway Drive
E/W Street: Steeles Avenue East
GPS Coordinates: 43.733155, -79.658164
Date: 11 November 2014
Day of week: Tuesday
Analyst(s): Charles Chung, Mark Montemayor

VEHICLE TRAFFIC

Interval	SouthBound				WestBound				NorthBound				EastBound				Total
	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	
11/11/2014 07:00	37	126	35	198	6	101	24	131	7	38	4	49	19	145	8	172	550
11/11/2014 07:15	212	401	105	718	3	263	65	331	23	69	19	111	26	484	34	544	1704
11/11/2014 07:30	157	364	78	599	3	313	67	383	23	46	10	79	23	460	37	520	1581
11/11/2014 07:45	130	406	81	617	20	309	63	392	23	60	9	92	47	337	33	417	1518
Hourly Total	536	1297	299	2132	32	986	219	1237	76	213	42	331	115	1426	112	1653	5353
11/11/2014 08:00	147	336	59	542	5	245	67	317	31	51	9	91	37	312	35	384	1334
11/11/2014 08:15	158	306	72	536	10	317	57	384	28	47	20	95	44	363	26	433	1448
11/11/2014 08:30	169	249	64	482	11	234	59	304	40	55	18	113	39	281	31	351	1250
11/11/2014 08:45	101	164	56	321	9	280	66	355	13	28	6	47	30	254	16	300	1023
Hourly Total	575	1055	251	1881	35	1076	249	1360	112	181	53	346	150	1210	108	1468	5055
11/11/2014 09:00	35	4	3	42	0	1	0	1	0	0	0	0	1	7	3	11	54
11/11/2014 09:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	35	4	3	42	0	1	0	1	0	0	0	0	1	7	3	11	54
Grand Total	1146	2356	553	4055	67	2063	468	2598	188	394	95	677	266	2643	223	3132	10462
Approach %	28	58	14	100	3	79	18	100	28	58	14	100	8	84	7	99	-
Total %	11	23	5	39	1	20	4	25	2	4	1	7	3	25	2	30	-

AM Peak Hour 7:15 AM - 8:15 AM

Vehicle Total	646	1507	323	2476	31	1130	262	1423	100	226	47	373	133	1593	139	1865	6137
Car	574	1450	258	2282	27	1023	217	1267	85	198	46	329	65	1418	124	1607	5485
Truck	72	57	65	194	4	107	45	156	15	27	1	43	68	174	15	257	650
Bicycle	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	2

Interval	SouthBound				WestBound				NorthBound				EastBound				Total
	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	
11/11/2014 11:00	58	50	36	144	12	154	55	221	32	23	4	59	41	228	16	285	709
11/11/2014 11:15	66	63	37	166	11	207	59	277	26	26	11	63	35	238	25	298	804
11/11/2014 11:30	85	79	56	220	8	164	76	248	34	45	13	92	26	205	21	252	812
11/11/2014 11:45	53	48	37	138	17	199	65	281	34	45	13	92	53	283	16	352	863
Hourly Total	262	240	166	668	48	724	255	1027	126	139	41	306	155	954	78	1187	3188
11/11/2014 12:00	94	77	36	207	8	171	78	257	49	82	12	143	37	208	23	268	875
11/11/2014 12:15	54	91	17	162	10	232	69	311	31	55	15	101	63	290	24	377	951
11/11/2014 12:30	89	86	39	214	8	212	73	293	41	51	9	101	33	211	30	274	882
11/11/2014 12:45	90	61	36	187	10	206	74	290	32	43	8	83	51	276	29	356	916
Hourly Total	327	315	128	770	36	821	294	1151	153	231	44	428	184	985	106	1275	3624
11/11/2014 13:00	107	72	27	206	6	213	85	304	51	67	13	131	44	229	28	301	942
11/11/2014 13:15	99	63	31	193	10	260	93	363	28	45	9	82	51	270	21	342	980
11/11/2014 13:30	98	83	60	241	11	213	81	305	47	65	10	122	49	233	18	300	968
11/11/2014 13:45	67	78	61	206	9	277	99	385	33	46	15	94	63	279	22	364	1049
Hourly Total	371	296	179	846	36	963	358	1357	159	223	47	429	207	1011	89	1307	3939
11/11/2014 14:00	15	4	4	23	0	1	1	2	0	0	0	0	2	0	1	3	28
11/11/2014 14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/11/2014 14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/11/2014 14:45	8	15	8	31	0	0	0	0	0	0	0	0	10	55	7	72	103
Hourly Total	23	19	12	54	0	1	1	2	0	0	0	0	12	55	8	75	131
11/11/2014 15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	983	870	485	2338	120	2509	908	3537	438	593	132	1163	558	3005	281	3844	10882
Approach %	42	37	21	100	3	71	26	100	38	51	11	100	15	78	7	100	-
Total %	9	8	4	21	1	23	8	32	4	5	1	10	5	28	3	36	-

Midday Peak Hour 1:00 PM - 2:00 PM

Vehicle Total	371	296	179	846	36	963	358	1357	159	223	47	429	207	1011	89	1307	3939
Car	292	257	140	689	30	814	242	1086	141	212	41	394	118	801	76	995	3164
Truck	79	39	39	157	6	149	116	271	18	11	6	35	89	210	13	312	775
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Interval	SouthBound				WestBound				NorthBound				EastBound				Total
	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	
11/11/2014 15:00	83	106	42	231	11	289	115	415	41	64	3	108	55	340	27	422	1176
11/11/2014 15:15	79	106	33	218	9	204	117	330	62	166	14	242	46	286	35	367	1157
11/11/2014 15:30	117	134	40	291	9	225	97	331	47	124	15	186	49	299	34	382	1190
11/11/2014 15:45	84	85	44	213	14	268	117	399	46	122	13	181	48	400	38	486	1279
Hourly Total	363	431	159	953	43	986	446	1475	196	476	45	717	198	1325	134	1657	4802
11/11/2014 16:00	105	151	65	321	12	259	166	437	62	152	7	221	58	367	41	466	1445
11/11/2014 16:15	109	112	40	261	15	311	175	501	46	84	8	138	45	421	35	501	1401
11/11/2014 16:30	84	137	39	260	12	369	172	553	53	201	12	266	51	481	29	561	1640
11/11/2014 16:45	99	139	52	290	13	291	165	469	72	140	11	223	50	414	24	488	1470
Hourly Total	397	539	196	1132	52	1230	678	1960	233	577	38	848	204	1683	129	2016	5956
11/11/2014 17:00	216	171	50	437	13	308	172	493	83	242	8	333	62	465	31	558	1821
11/11/2014 17:15	92	150	42	284	17	320	196	533	28	58	10	96	44	391	41	476	1389
11/11/2014 17:30	70	73	34	177	16	306	134	456	57	239	15	311	38	387	34	459	1403
11/11/2014 17:45	104	74	26	204	15	318	149	482	49	164	9	222	43	335	51	429	1337
Hourly Total	482	468	152	1102	61	1252	651	1964	217	703	42	962	187	1578	157	1922	5950
11/11/2014 18:00	1	10	1	12	0	11	10	21	0	3	2	5	0	0	0	0	38
11/11/2014 18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	1	10	1	12	0	11	10	21	0	3	2	5	0	0	0	0	38
Grand Total	1243	1448	508	3199	156	3479	1785	5420	646	1759	127	2532	589	4586	420	5595	16746
Approach %	39	45	16	100	3	64	33	100	26	69	5	100	11	82	8	101	-
Total %	7	9	3	19	1	21	11	33	4	11	1	16	4	27	3	34	-

PM Peak Hour 4:15 PM - 5:15 PM

Vehicle Total	508	559	181	1248	53	1279	684	2016	254	667	39	960	208	1781	119	2108	6332
Car	440	536	151	1127	50	1142	605	1797	233	644	38	915	163	1585	99	1847	5686
Truck	68	23	30	121	3	137	79	219	21	23	1	45	45	196	20	261	646
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PEDESTRIAN CROSSING

	North East			North West			South West			South East			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
11/11/2014 07:00:00	0	0	0	0	1	1	0	1	1	1	0	1	3
11/11/2014 07:15:00	10	0	10	15	5	20	1	2	3	0	0	0	33
11/11/2014 07:30:00	0	0	0	0	1	1	1	1	2	0	1	1	4
11/11/2014 07:45:00	1	0	1	0	14	14	1	5	6	2	0	2	23
Hourly Total	11	0	11	15	21	36	3	9	12	3	1	4	63
11/11/2014 08:00:00	0	0	0	1	0	1	0	1	1	1	0	1	3
11/11/2014 08:15:00	2	0	2	1	0	1	0	0	0	0	0	0	3
11/11/2014 08:30:00	0	0	0	0	0	0	1	1	2	1	0	1	3
11/11/2014 08:45:00	4	0	4	4	0	4	0	0	0	2	0	2	10
Hourly Total	6	0	6	6	0	6	1	2	3	4	0	4	19
11/11/2014 09:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
11/11/2014 09:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	17	0	17	21	21	42	4	11	15	7	1	8	82

AM Peak Hour 7:00 AM - 8:00 AM

Pedestrians	11	0	11	15	21	36	3	9	12	3	1	4	63

11/11/2014 11:00:00	1	0	1	1	1	2	0	0	0	0	0	0	3
11/11/2014 11:15:00	0	0	0	0	0	0	1	0	1	0	0	0	1
11/11/2014 11:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0
11/11/2014 11:45:00	0	0	0	0	9	9	0	10	10	0	0	0	19
Hourly Total	1	0	1	1	10	11	1	10	11	0	0	0	23
11/11/2014 12:00:00	0	0	0	0	0	0	1	0	1	0	0	0	1
11/11/2014 12:15:00	0	0	0	0	0	0	0	0	0	1	0	1	1
11/11/2014 12:30:00	3	0	3	2	1	3	1	1	2	1	0	1	9
11/11/2014 12:45:00	1	0	1	0	0	0	0	0	0	0	1	1	2
Hourly Total	4	0	4	2	1	3	2	1	3	2	1	3	13
11/11/2014 13:00:00	3	0	3	7	0	7	0	1	1	1	0	1	12
11/11/2014 13:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0
11/11/2014 13:30:00	0	0	0	0	5	5	1	5	6	1	0	1	12
11/11/2014 13:45:00	1	0	1	0	3	3	0	0	0	0	0	0	4
Hourly Total	4	0	4	7	8	15	1	6	7	2	0	2	28
11/11/2014 14:00:00	0	0	0	1	2	3	0	0	0	0	0	0	3
11/11/2014 14:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0
11/11/2014 14:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0
11/11/2014 14:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	1	2	3	0	0	0	0	0	0	3
11/11/2014 15:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	9	0	9	11	21	32	4	17	21	4	1	5	67

Midday Peak Hour 11:45 AM - 12:45 PM

Pedestrians	3	0	3	2	10	12	2	11	13	2	0	2	30

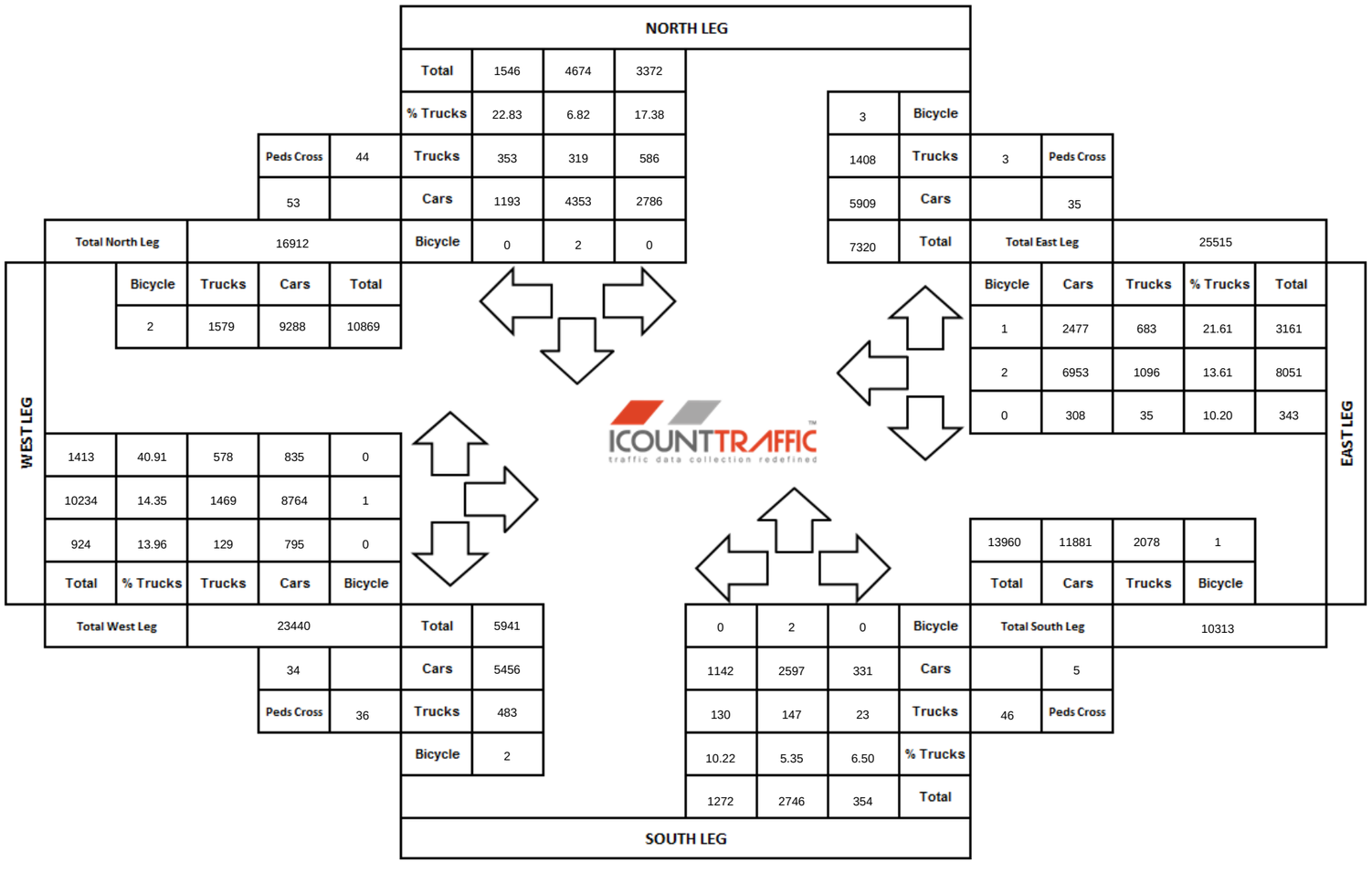
	North East			North West			South West			South East			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
11/11/2014 15:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
11/11/2014 15:15:00	0	0	0	0	0	0	1	0	1	3	0	3	4
11/11/2014 15:30:00	4	1	5	5	0	5	2	2	4	4	0	4	18
11/11/2014 15:45:00	2	0	2	4	2	6	1	0	1	2	1	3	12
Hourly Total	6	1	7	9	2	11	4	2	6	9	1	10	34
11/11/2014 16:00:00	0	2	2	0	2	2	11	1	12	11	1	12	28
11/11/2014 16:15:00	2	0	2	2	2	4	2	0	2	2	0	2	10
11/11/2014 16:30:00	0	0	0	0	1	1	0	2	2	1	0	1	4
11/11/2014 16:45:00	0	0	0	0	1	1	0	1	1	0	0	0	2
Hourly Total	2	2	4	2	6	8	13	4	17	14	1	15	44
11/11/2014 17:00:00	1	0	1	1	2	3	6	1	7	8	1	9	20
11/11/2014 17:15:00	0	0	0	0	0	0	0	0	0	3	0	3	3
11/11/2014 17:30:00	0	0	0	0	1	1	3	1	4	1	0	1	6
11/11/2014 17:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	1	0	1	1	3	4	9	2	11	12	1	13	29
11/11/2014 18:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
11/11/2014 18:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	9	3	12	12	11	23	26	8	34	35	3	38	107

PM Peak Hour 3:30 PM - 4:30 PM

Pedestrians	8	3	11	11	6	17	16	3	19	19	2	21	68

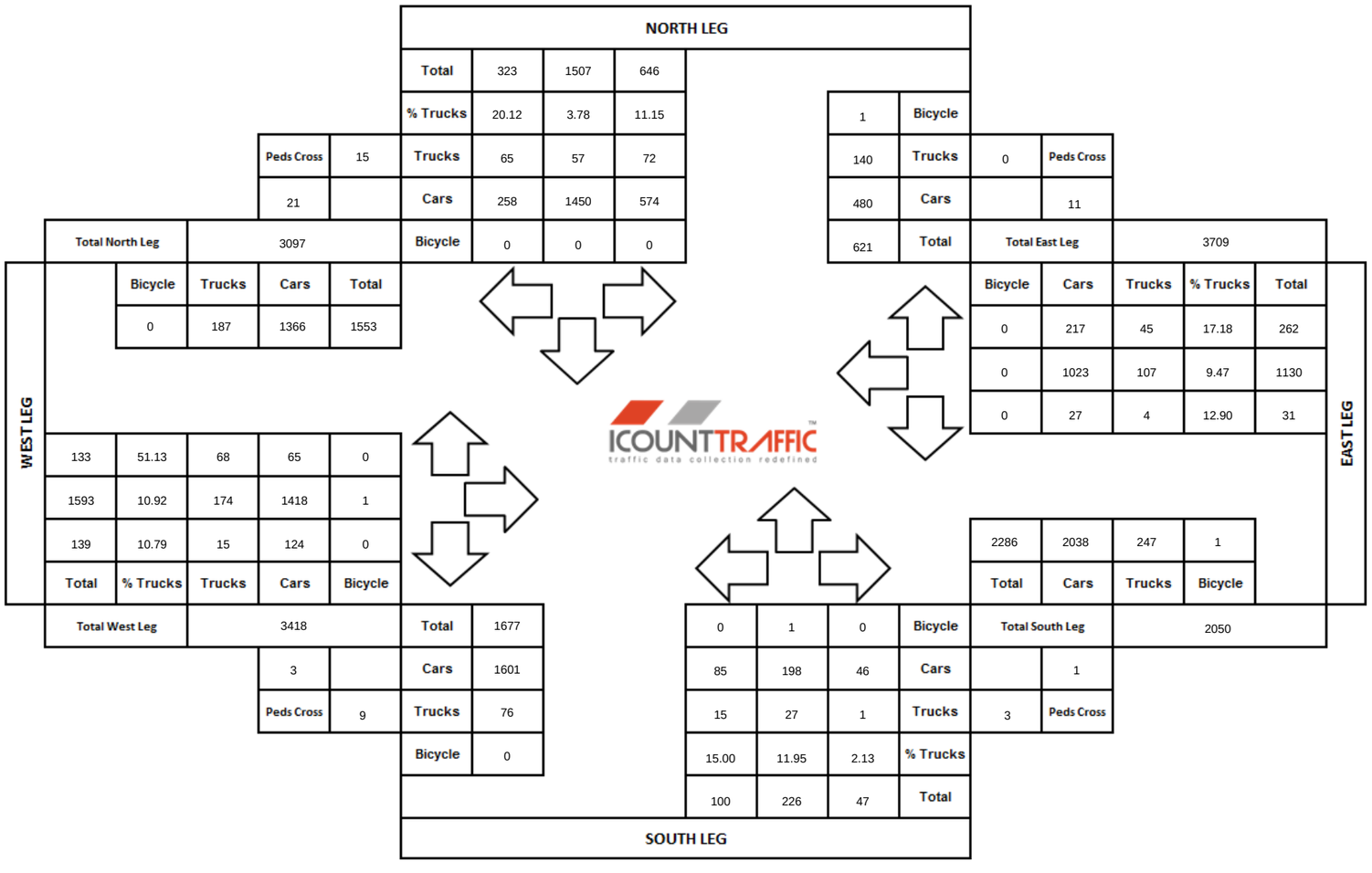
TOTAL TMC COUNT DIAGRAM

City:	**Brampton**	**Weather:**	**Mostly Cloudy**
North/South Street:	**Goreway Drive**	**Count Date:**	**11/11/2014**
East/West Street:	**Steeles Avenue East**	**Count Period:**	**AM, Noon, PM**
GPS Coordinates:	**43.733155, -79.658164**	**Peak Period:**	**7:15 AM - 8:15 AM, 1:00 PM - 2:00 PM, 4:15 PM - 5:15 PM**
Site Number:	**01502397**	**Major Road:**	**Steeles Avenue East**
Control:	**Signalized**	**Surveyor:**	**Charles Chung, Mark Montemayor**



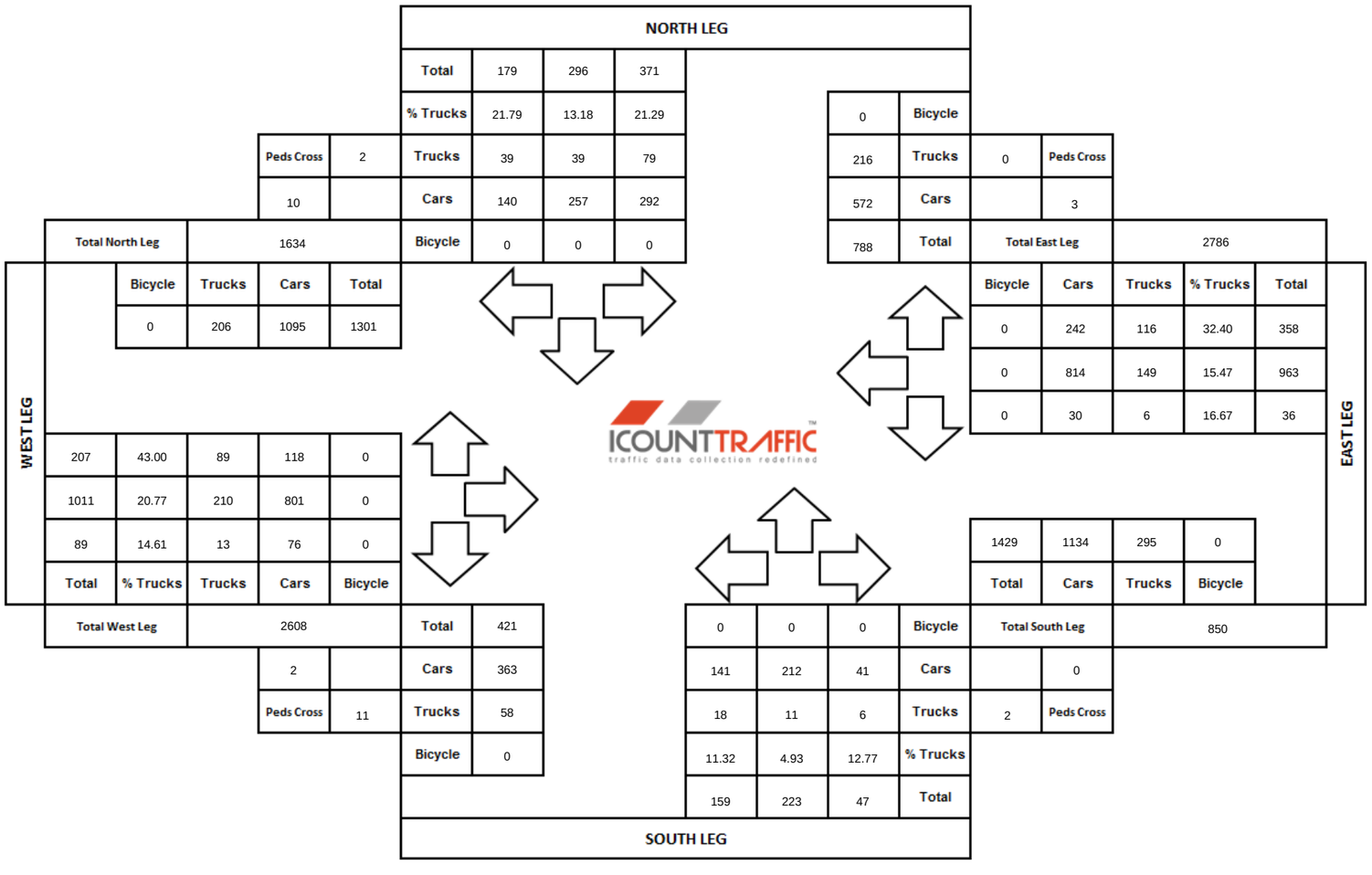
AM Peak Hour Count Diagram

City:	**Brampton**	**Weather:**	**Mostly Cloudy**
North/South Street:	**Goreway Drive**	**Count Date:**	**11/11/2014**
East/West Street:	**Steeles Avenue East**	**Count Period:**	**AM**
GPS Coordinates:	**43.733155, -79.658164**	**Peak Period:**	**7:15 AM - 8:15 AM**
Site Number:	**01502397**	**Major Road:**	**Steeles Avenue East**
Control:	**Signalized**	**Surveyor:**	**Charles Chung, Mark Montemayor**



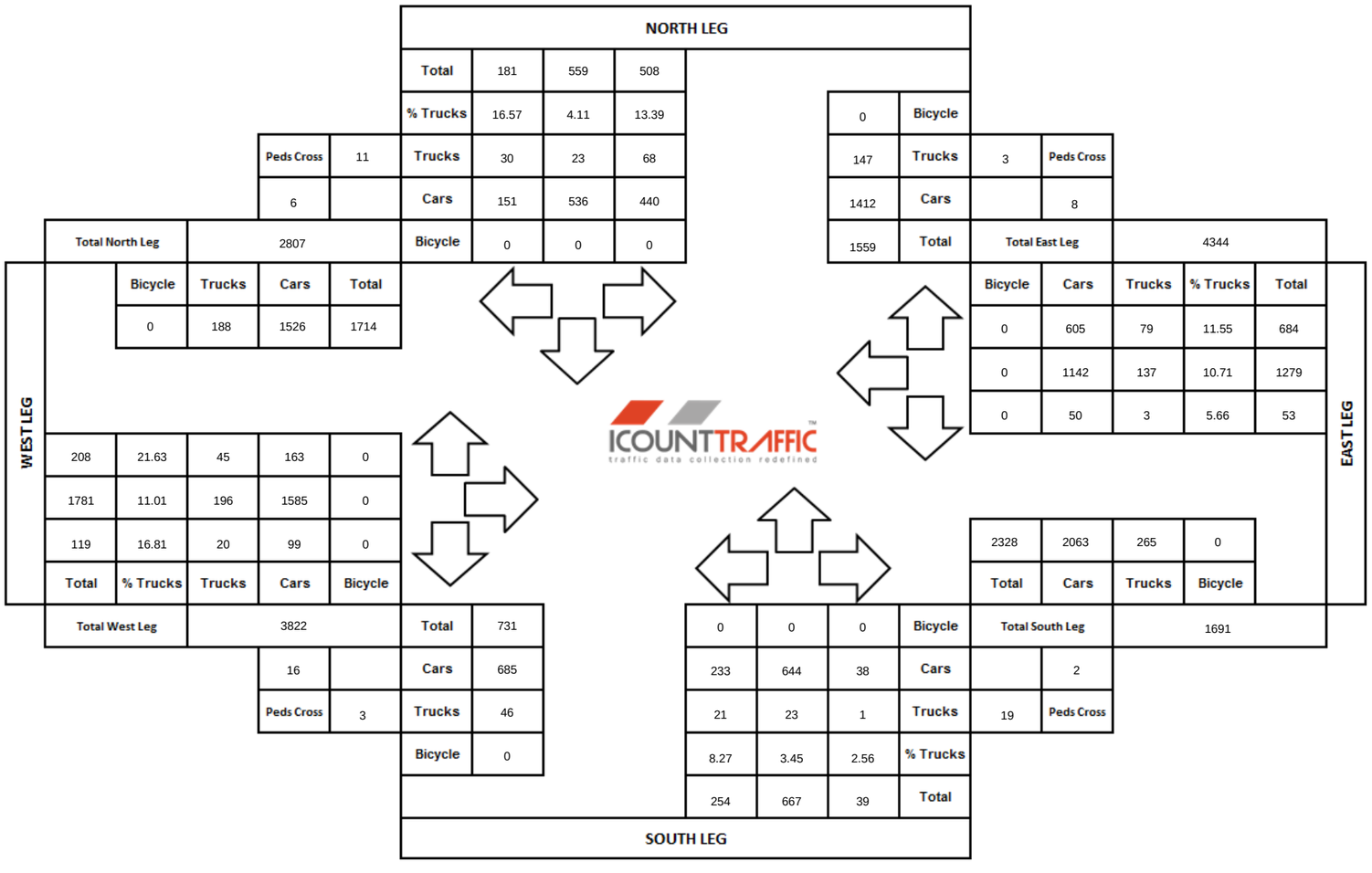
Noon Peak Hour Count Diagram

City:	**Brampton**	**Weather:**	**Mostly Cloudy**
North/South Street:	**Goreway Drive**	**Count Date:**	**11/11/2014**
East/West Street:	**Steeles Avenue East**	**Count Period:**	**Noon**
GPS Coordinates:	**43.733155, -79.658164**	**Peak Period:**	**1:00 PM - 2:00 PM**
Site Number:	**01502397**	**Major Road:**	**Steeles Avenue East**
Control:	**Signalized**	**Surveyor:**	**Charles Chung, Mark Montemayor**



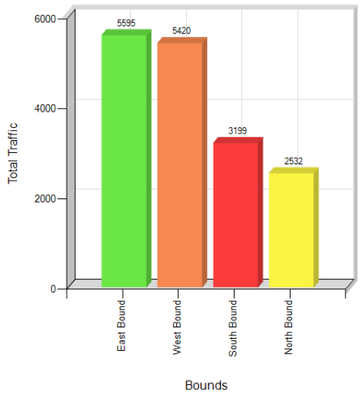
PM Peak Hour Count Diagram

City:	**Brampton**	**Weather:**	**Mostly Cloudy**
North/South Street:	**Goreway Drive**	**Count Date:**	**11/11/2014**
East/West Street:	**Steeles Avenue East**	**Count Period:**	**PM**
GPS Coordinates:	**43.733155, -79.658164**	**Peak Period:**	**4:15 PM - 5:15 PM**
Site Number:	**01502397**	**Major Road:**	**Steeles Avenue East**
Control:	**Signalized**	**Surveyor:**	**Charles Chung, Mark Montemayor**

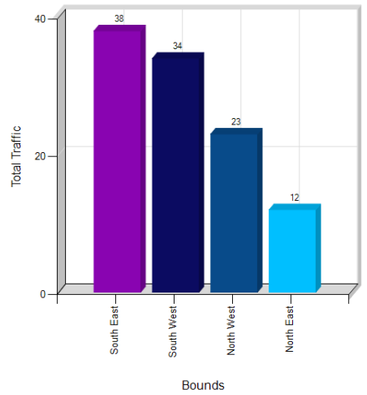


TMC chart data

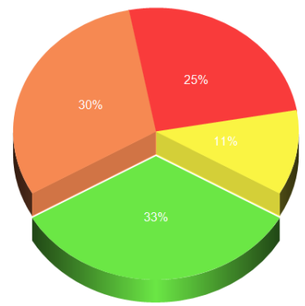
Total Traffic



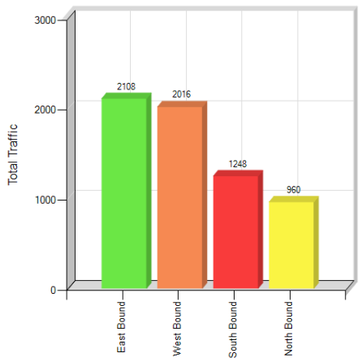
Total Pedestrians



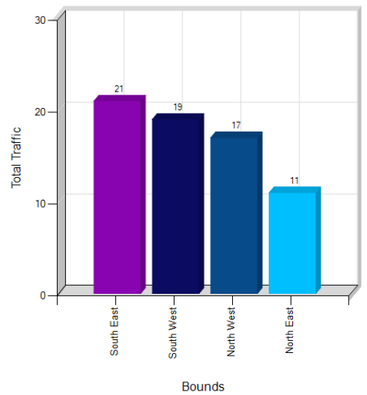
Total Approach



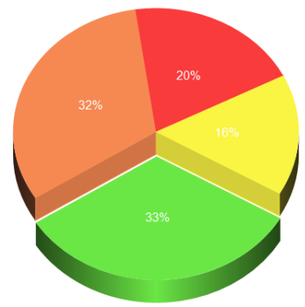
Total Traffic at Peak Hour



Total Pedestrians at Peak Hour



Total Approach at Peak Hour



	SouthBound		NorthEast
	WestBound		NorthWest
	NorthBound		SouthWest
	EastBound		SouthEast

NOTES & IMAGES

TMC - Intersection Count Summary

Company name: Trans-Plan Inc
Company address: 200-1920 Yonge Street,Toronto, Ontario, Canada
Company phone: (647) 931-7383

Location: Paget Road at Steeles Avenue East, Brampton
N/S Street: Paget Road
E/W Street: Steeles Avenue East
GPS Coordinates: 43.734048, -79.655576
Date: 10 September 2014
Day of week: Wednesday
Analyst(s): Amir Abbasi

VEHICLE TRAFFIC

Interval	SouthBound				WestBound				NorthBound				EastBound				Total
	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	Left	Thru	Right	B. Total	
10/09/2014 07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/09/2014 07:15	0	0	0	0	0	133	0	133	0	0	3	3	0	149	4	153	289
10/09/2014 07:30	0	0	0	0	0	452	0	452	0	0	1	1	0	476	1	477	930
10/09/2014 07:45	0	0	0	0	0	265	0	265	0	0	13	13	0	259	12	271	549
Hourly Total	0	0	0	0	0	850	0	850	0	0	17	17	0	884	17	901	1768
10/09/2014 08:00	0	0	0	0	0	397	0	397	0	0	1	1	0	665	16	681	1079
10/09/2014 08:15	0	0	1	1	0	402	0	402	0	1	2	3	0	587	17	604	1010
10/09/2014 08:30	0	0	0	0	0	509	1	510	0	0	1	1	0	563	15	578	1089
10/09/2014 08:45	0	0	0	0	0	439	0	439	0	0	8	8	2	645	20	667	1114
Hourly Total	0	0	1	1	0	1747	1	1748	0	1	12	13	2	2460	68	2530	4292
10/09/2014 09:00	0	0	0	0	0	330	0	330	0	0	6	6	0	465	13	478	814
10/09/2014 09:15	0	0	0	0	0	33	0	33	0	0	0	0	0	23	0	23	56
10/09/2014 09:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	363	0	363	0	0	6	6	0	488	13	501	870
Grand Total	0	0	1	1	0	2960	1	2961	0	1	35	36	2	3832	98	3932	6930
Approach %	0	0	100	100	0	100	0	100	0	3	97	100	0	97	2	99	-
Total %	0	0	0	0	0	43	0	43	0	0	1	1	0	55	1	56	-

AM Peak Hour 8:00 AM - 9:00 AM

Vehicle Total	0	0	1	1	0	1747	1	1748	0	1	12	13	2	2460	68	2530	4292
Car	0	0	1	1	0	1331	1	1332	0	1	9	10	2	1835	58	1895	3238
Truck	0	0	0	0	0	416	0	416	0	0	3	3	0	625	10	635	1054
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

10/09/2014 11:00	0	0	0	0	0	301	0	301	0	0	0	0	0	351	9	360	661
10/09/2014 11:15	0	0	0	0	0	362	0	362	0	0	1	1	0	445	7	452	815
10/09/2014 11:30	0	0	0	0	0	326	0	326	0	0	0	0	0	310	2	312	638
10/09/2014 11:45	0	0	0	0	0	282	0	282	0	0	3	3	0	212	4	216	501
Hourly Total	0	0	0	0	0	1271	0	1271	0	0	4	4	0	1318	22	1340	2615
10/09/2014 12:00	0	0	0	0	0	239	0	239	0	0	6	6	0	409	6	415	660
10/09/2014 12:15	0	0	0	0	0	418	0	418	0	0	2	2	0	439	12	451	871
10/09/2014 12:30	0	0	0	0	0	411	0	411	0	0	1	1	0	405	3	408	820
10/09/2014 12:45	0	0	0	0	0	214	0	214	0	0	4	4	0	223	4	227	445
Hourly Total	0	0	0	0	0	1282	0	1282	0	0	13	13	0	1476	25	1501	2796
10/09/2014 13:00	0	0	0	0	0	89	0	89	0	0	3	3	0	91	4	95	187
10/09/2014 13:15	0	0	0	0	0	221	0	221	0	0	6	6	0	327	4	331	558
10/09/2014 13:30	0	0	0	0	0	214	0	214	0	0	3	3	0	435	10	445	662

10/09/2014 13:45	0	0	0	0	0	199	0	199	0	0	3	3	0	265	7	272	474
Hourly Total	0	0	0	0	0	723	0	723	0	0	15	15	0	1118	25	1143	1881
10/09/2014 14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	3276	0	3276	0	0	32	32	0	3912	72	3984	7292
Approach %	0	0	0	0	0	100	0	100	0	0	100	100	0	98	2	100	-
Total %	0	0	0	0	0	45	0	45	0	0	0	0	0	54	1	55	-

Midday Peak Hour 11:45 AM - 12:45 PM

Vehicle Total	0	0	0	0	0	1350	0	1350	0	0	12	12	0	1465	25	1490	2852
Car	0	0	0	0	0	1066	0	1066	0	0	9	9	0	1232	21	1253	2328
Truck	0	0	0	0	0	283	0	283	0	0	3	3	0	233	4	237	523
Bicycle	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1

10/09/2014 15:00	0	0	0	0	0	327	0	327	1	0	2	3	0	425	5	430	760
10/09/2014 15:15	0	0	1	1	0	440	0	440	0	0	3	3	0	538	9	547	991
10/09/2014 15:30	0	0	0	0	0	496	0	496	0	0	1	1	0	503	5	508	1005
10/09/2014 15:45	0	0	0	0	0	743	0	743	0	0	1	1	0	825	10	835	1579
Hourly Total	0	0	1	1	0	2006	0	2006	1	0	7	8	0	2291	29	2320	4335
10/09/2014 16:00	0	0	0	0	0	631	0	631	0	0	16	16	0	622	7	629	1276
10/09/2014 16:15	0	0	0	0	0	560	0	560	0	0	2	2	0	458	9	467	1029
10/09/2014 16:30	0	0	0	0	0	572	0	572	0	0	10	10	0	617	8	625	1207
10/09/2014 16:45	0	0	0	0	0	638	0	638	0	0	5	5	0	668	6	674	1317
Hourly Total	0	0	0	0	0	2401	0	2401	0	0	33	33	0	2365	30	2395	4829
10/09/2014 17:00	0	0	0	0	0	490	0	490	0	0	1	1	0	408	3	411	902
10/09/2014 17:15	0	0	0	0	0	638	0	638	0	0	9	9	0	522	9	531	1178
10/09/2014 17:30	0	0	0	0	0	455	0	455	0	0	2	2	0	428	6	434	891
10/09/2014 17:45	0	0	0	0	0	610	0	610	0	0	6	6	0	526	2	528	1144
Hourly Total	0	0	0	0	0	2193	0	2193	0	0	18	18	0	1884	20	1904	4115
10/09/2014 18:00	0	0	0	0	0	21	0	21	0	0	0	0	0	9	0	9	30
10/09/2014 18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	21	0	21	0	0	0	0	0	9	0	9	30
Grand Total	0	0	1	1	0	6621	0	6621	1	0	58	59	0	6549	79	6628	13309
Approach %	0	0	100	100	0	100	0	100	2	0	98	100	0	99	1	100	-
Total %	0	0	0	0	0	50	0	50	0	0	0	0	0	49	1	50	-

PM Peak Hour 3:45 PM - 4:45 PM

Vehicle Total	0	0	0	0	0	2506	0	2506	0	0	29	29	0	2522	34	2556	5091
Car	0	0	0	0	0	1781	0	1781	0	0	27	27	0	2039	26	2065	3873
Truck	0	0	0	0	0	725	0	725	0	0	2	2	0	483	8	491	1218
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PEDESTRIAN CROSSING

	North East			North West			South West			South East			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
10/09/2014 07:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
10/09/2014 07:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0
10/09/2014 07:30:00	0	0	0	0	0	0	0	1	1	0	0	0	1
10/09/2014 07:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	1	1	0	0	0	1
10/09/2014 08:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
10/09/2014 08:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0
10/09/2014 08:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0
10/09/2014 08:45:00	0	2	2	0	0	0	0	1	1	0	0	0	3
Hourly Total	0	2	2	0	0	0	0	1	1	0	0	0	3
10/09/2014 09:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
10/09/2014 09:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0

10/09/2014 09:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	2	2	0	0	0	0	2	2	0	0	0	4

AM Peak Hour 8:00 AM - 9:00 AM

Pedestrians	0	2	2	0	0	0	0	1	1	0	0	0	3

10/09/2014 11:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
10/09/2014 11:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0
10/09/2014 11:30:00	0	1	1	0	0	0	0	0	0	1	0	1	2
10/09/2014 11:45:00	0	0	0	0	0	0	0	1	1	0	1	1	2
Hourly Total	0	1	1	0	0	0	0	1	1	1	1	2	4
10/09/2014 12:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
10/09/2014 12:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0
10/09/2014 12:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0
10/09/2014 12:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0
10/09/2014 13:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
10/09/2014 13:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0
10/09/2014 13:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0
10/09/2014 13:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0
10/09/2014 14:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	1	1	0	0	0	0	1	1	1	1	2	4

Midday Peak Hour 11:00 AM - 12:00 PM

Pedestrians	0	1	1	0	0	0	0	1	1	1	1	2	4

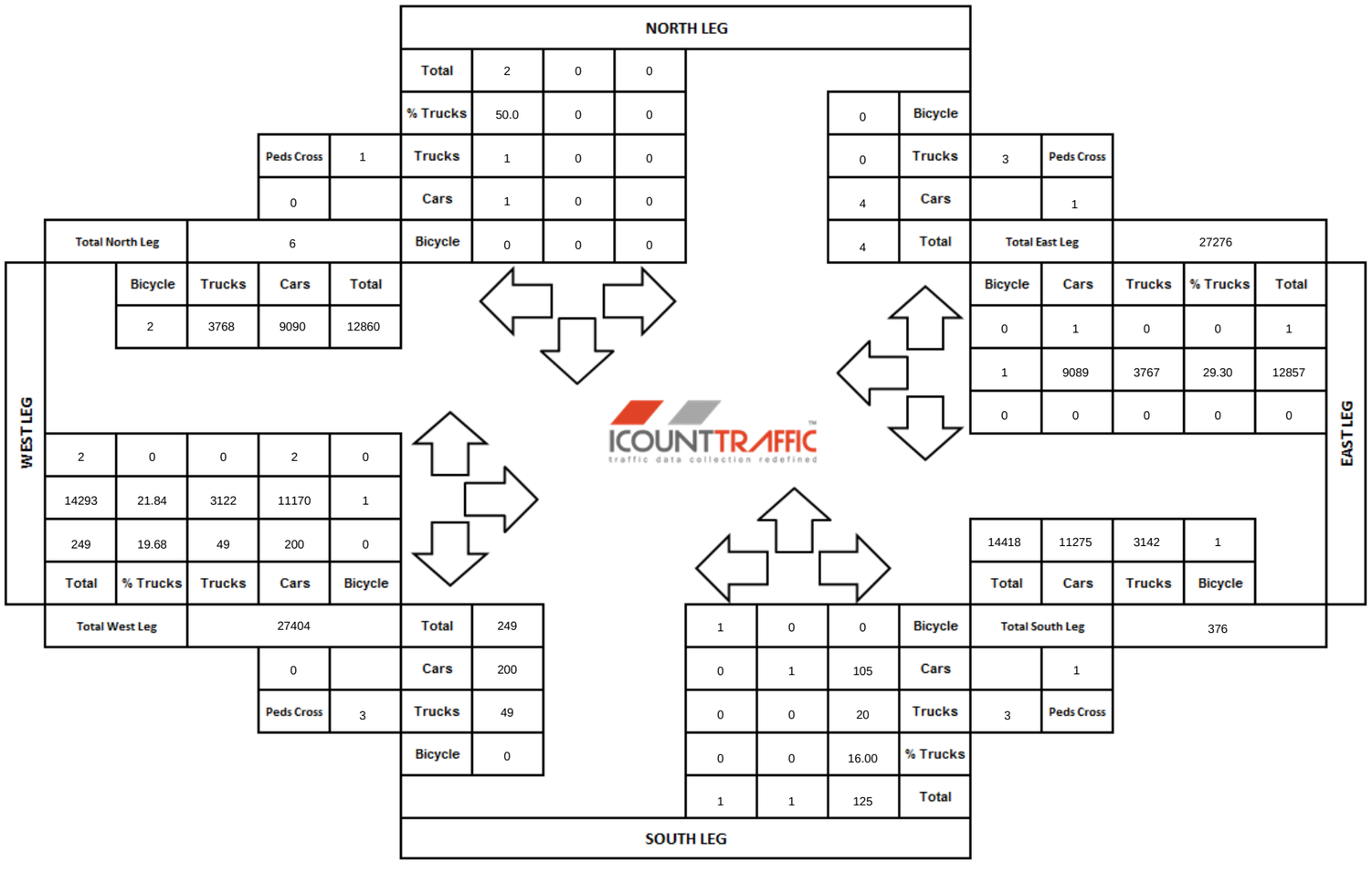
10/09/2014 15:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
10/09/2014 15:15:00	0	0	0	0	0	0	0	0	0	1	0	1	1
10/09/2014 15:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0
10/09/2014 15:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	1	0	1	1
10/09/2014 16:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
10/09/2014 16:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0
10/09/2014 16:30:00	1	0	1	0	0	0	0	0	0	0	0	0	1
10/09/2014 16:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	1	0	1	0	0	0	0	0	0	0	0	0	1
10/09/2014 17:00:00	0	0	0	0	0	0	0	0	0	1	0	1	1
10/09/2014 17:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0
10/09/2014 17:30:00	0	0	0	1	0	1	0	0	0	0	0	0	1
10/09/2014 17:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	1	0	1	0	0	0	1	0	1	2
10/09/2014 18:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
10/09/2014 18:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	1	0	1	1	0	1	0	0	0	2	0	2	4

PM Peak Hour 4:15 PM - 5:15 PM

Pedestrians	1	0	1	0	0	0	0	0	0	1	0	1	2

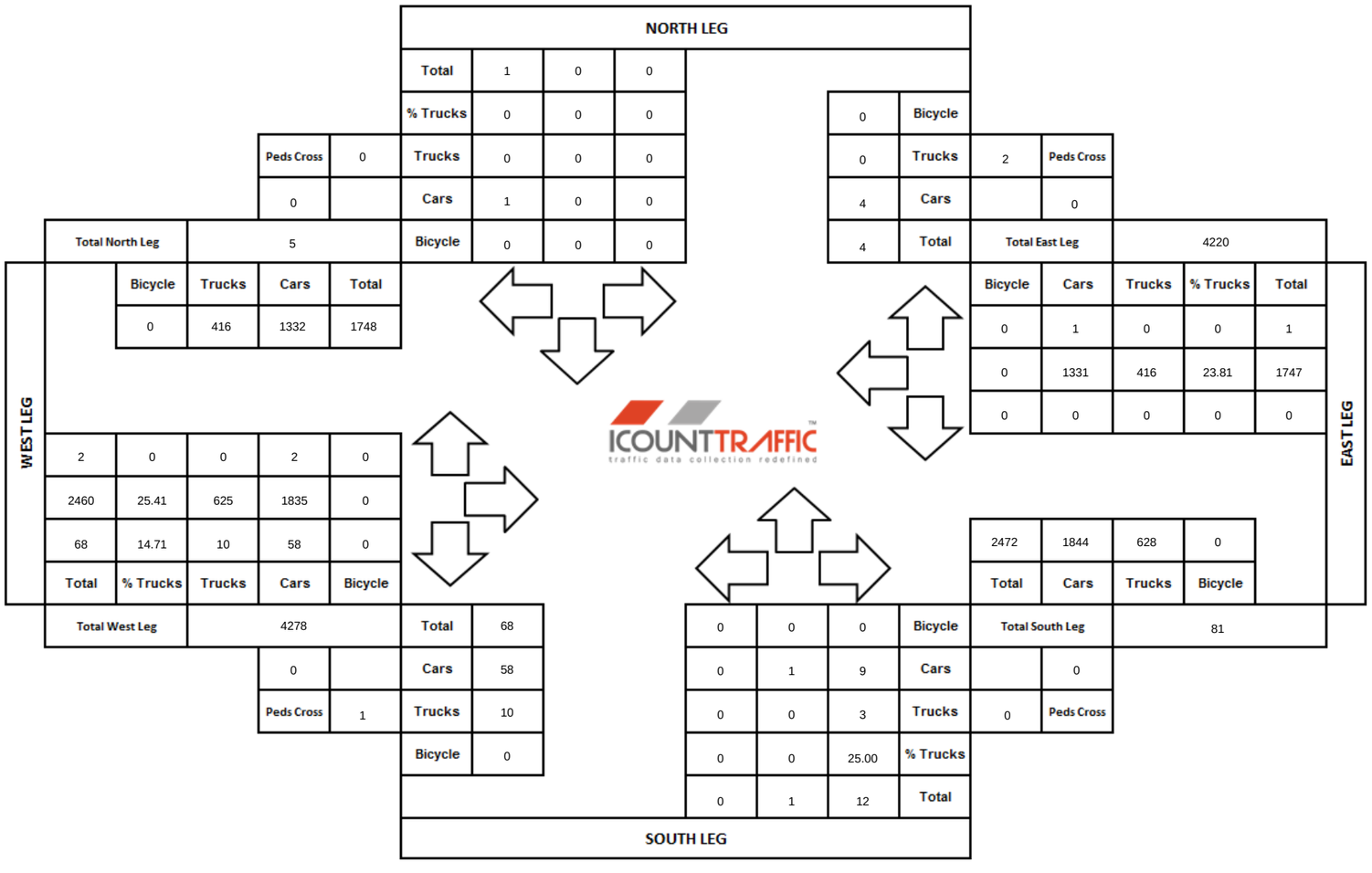
TOTAL TMC COUNT DIAGRAM

City:	**Brampton**	**Weather:**	**Mostly Cloudy**
North/South Street:	**Paget Road**	**Count Date:**	**10/09/2014**
East/West Street:	**Steeles Avenue East**	**Count Period:**	**AM, Noon, PM**
GPS Coordinates:	**43.734048, -79.655576**	**Peak Period:**	**8:00 AM - 9:00 AM, 11:45 AM - 12:45 PM, 3:45 PM - 4:45 PM**
Site Number:	**01502127**	**Major Road:**	**Steeles Avenue East**
Control:		**Surveyor:**	**Amir Abbasi**



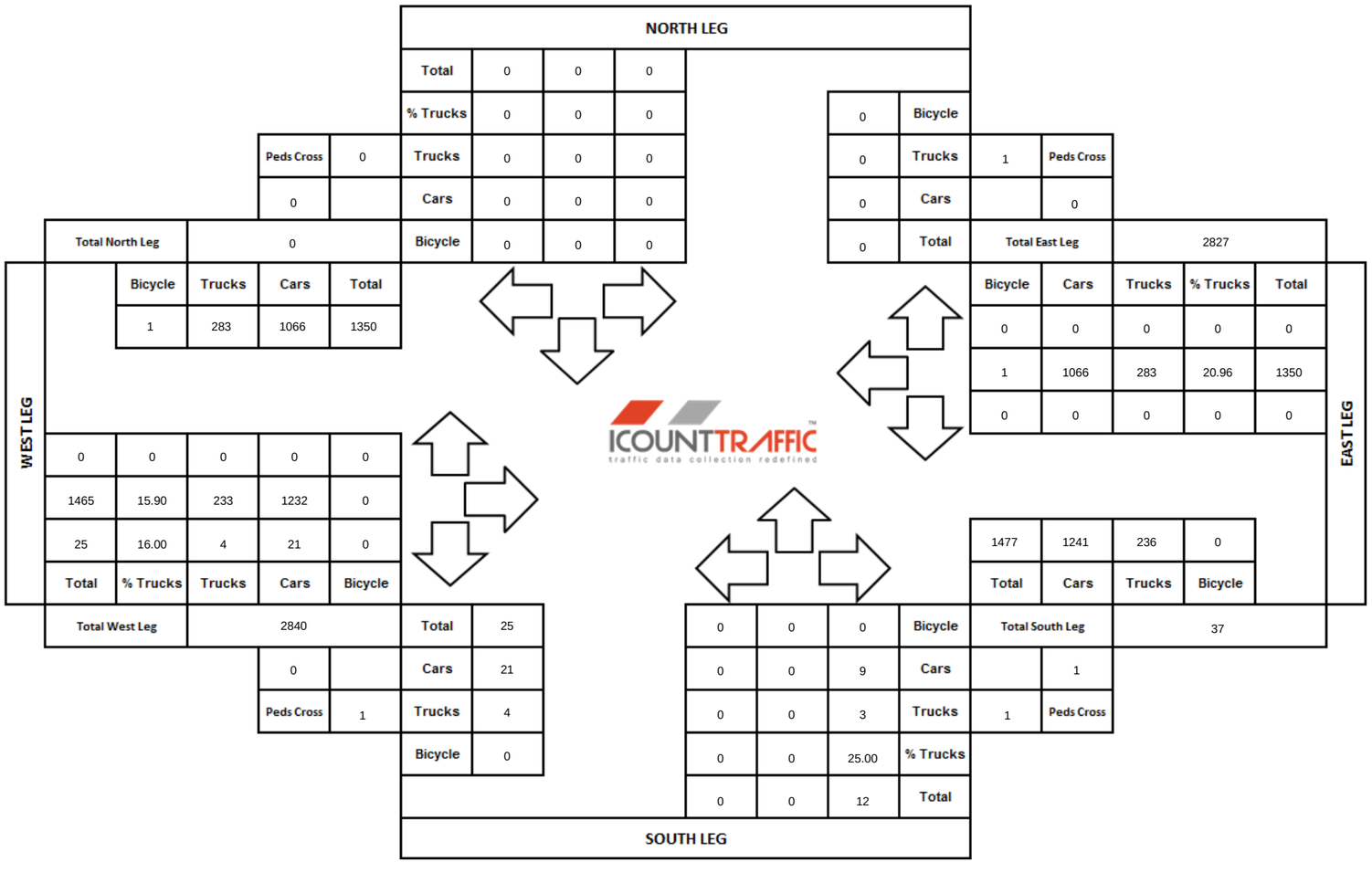
AM Peak Hour Count Diagram

City:	**Brampton**	**Weather:**	**Mostly Cloudy**
North/South Street:	**Paget Road**	**Count Date:**	**10/09/2014**
East/West Street:	**Steeles Avenue East**	**Count Period:**	**AM**
GPS Coordinates:	**43.734048, -79.655576**	**Peak Period:**	**8:00 AM - 9:00 AM**
Site Number:	**01502127**	**Major Road:**	**Steeles Avenue East**
Control:		**Surveyor:**	**Amir Abbasi**



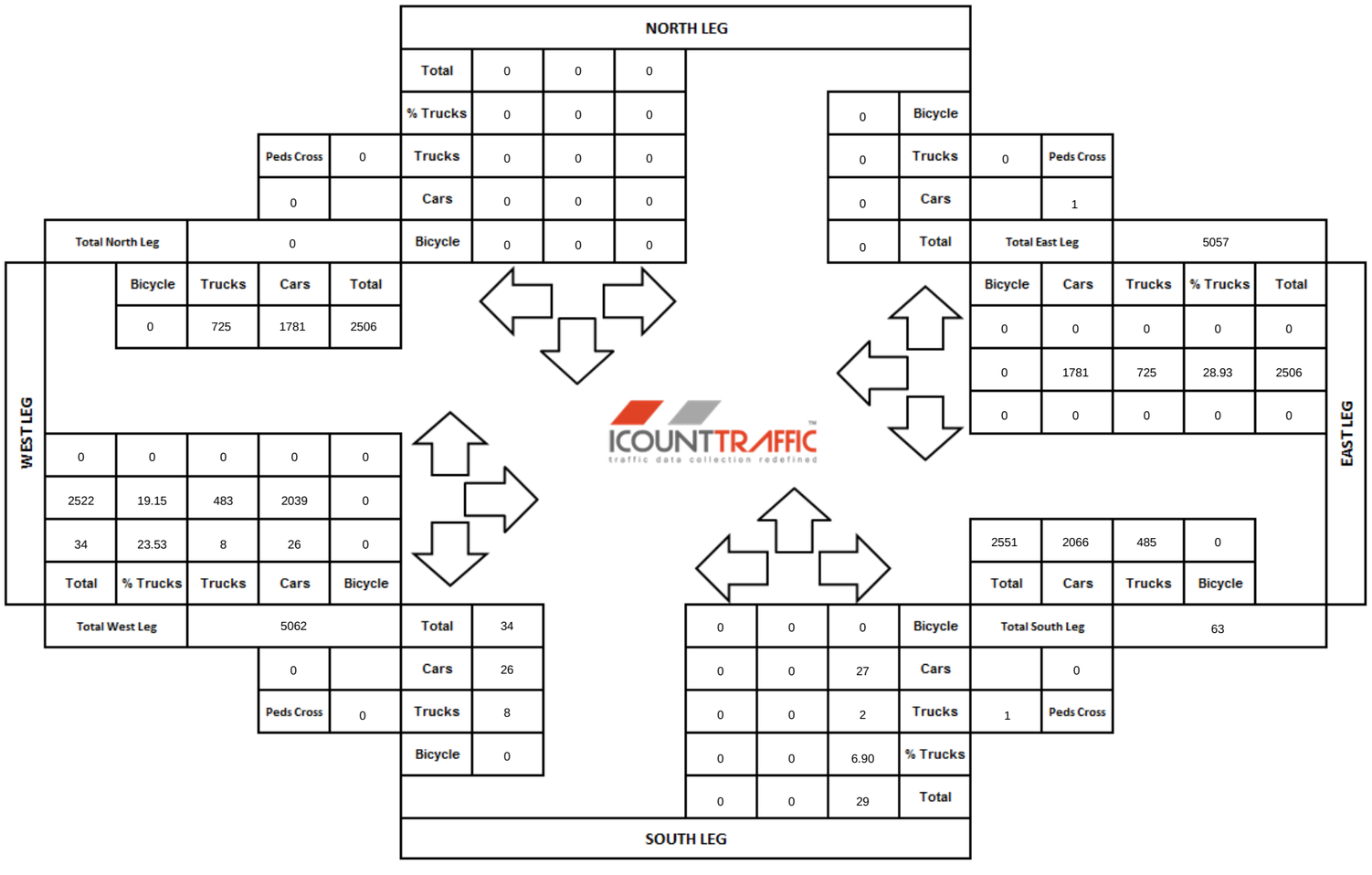
Noon Peak Hour Count Diagram

City:	**Brampton**	**Weather:**	**Mostly Cloudy**
North/South Street:	**Paget Road**	**Count Date:**	**10/09/2014**
East/West Street:	**Steeles Avenue East**	**Count Period:**	**Noon**
GPS Coordinates:	**43.734048, -79.655576**	**Peak Period:**	**11:45 AM - 12:45 PM**
Site Number:	**01502127**	**Major Road:**	**Steeles Avenue East**
Control:		**Surveyor:**	**Amir Abbasi**



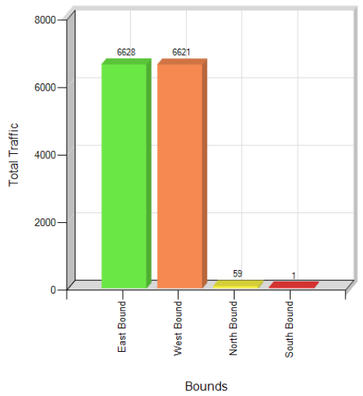
PM Peak Hour Count Diagram

City:	**Brampton**	**Weather:**	**Mostly Cloudy**
North/South Street:	**Paget Road**	**Count Date:**	**10/09/2014**
East/West Street:	**Steeles Avenue East**	**Count Period:**	**PM**
GPS Coordinates:	**43.734048, -79.655576**	**Peak Period:**	**3:45 PM - 4:45 PM**
Site Number:	**01502127**	**Major Road:**	**Steeles Avenue East**
Control:		**Surveyor:**	**Amir Abbasi**

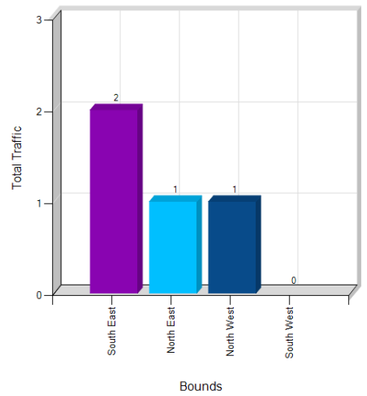


TMC chart data

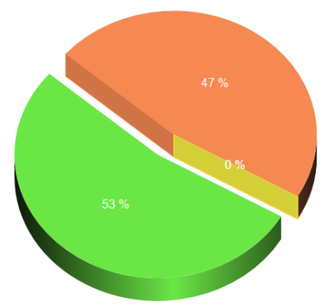
Total Traffic



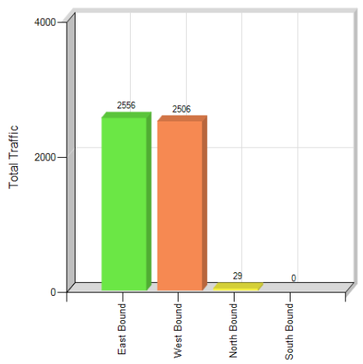
Total Pedestrians



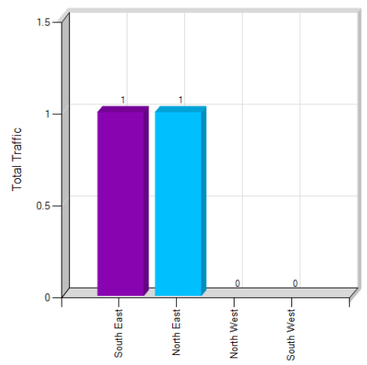
Total Approach



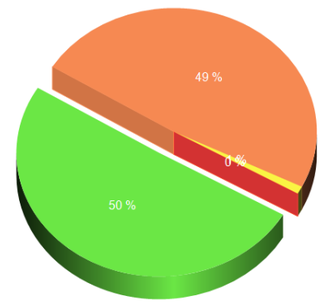
Total Traffic at Peak Hour



Total Pedestrians at Peak Hour

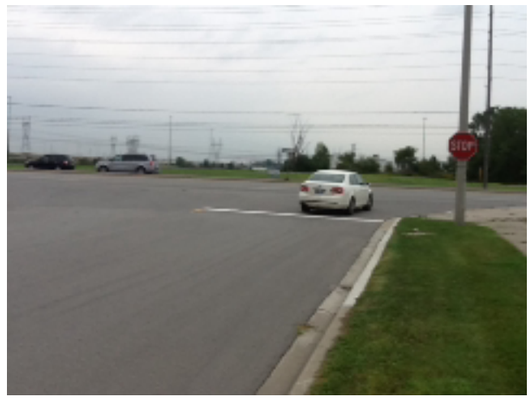


Total Approach at Peak Hour



	SouthBound		NorthEast
	WestBound		NorthWest
	NorthBound		SouthWest
	EastBound		SouthEast

NOTES & IMAGES



3389 Steeles Avenue Access & Steeles Avenue

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

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

Municipality: Mississauga
Site #: 0000008707
Intersection: Steeles Avenue & 3389 Steeles Ave
TFR File #: 1
Count date: 8-Nov-2016

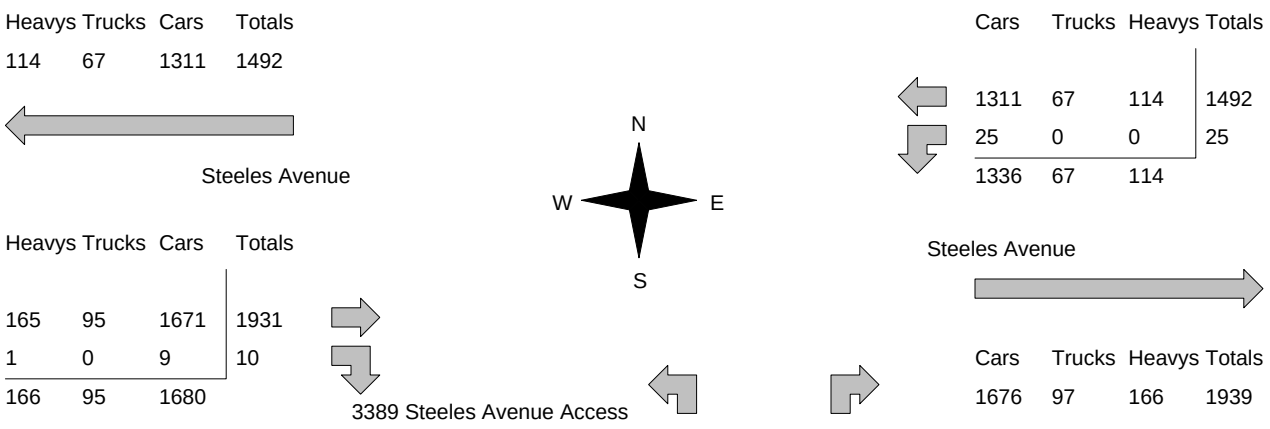
Weather conditions:
Clear / Cloudy

Person(s) who counted:

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

Major Road: Steeles Avenue runs W/E

East Leg Total: 3456
East Entering: 1517
East Peds: 0
Peds Cross:



Peds Cross:
West Peds: 0
West Entering: 1941
West Leg Total: 3433

Cars 34
Trucks 0
Heavys 1
Totals 35

Cars 0 5 5
Trucks 0 2 2
Heavys 0 1 1
Totals 0 8

Peds Cross:
South Peds: 0
South Entering: 8
South Leg Total: 43

Comments

3389 Steeles Avenue Access & Steeles Avenue

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 13:00:00
To: 14:00:00

Municipality: Mississauga
Site #: 0000008707
Intersection: Steeles Avenue & 3389 Steeles Ave
TFR File #: 1
Count date: 8-Nov-2016

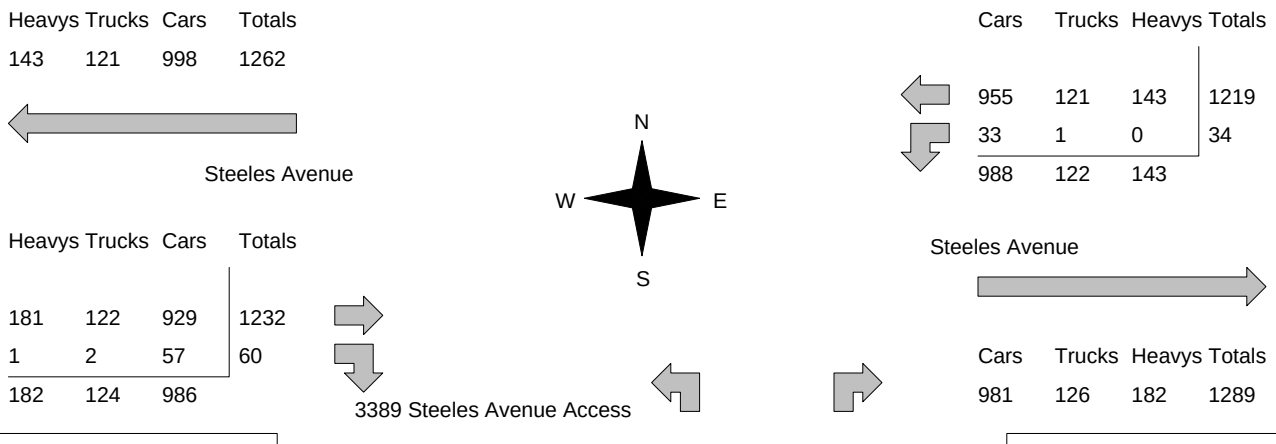
Weather conditions:
Clear / Cloudy

Person(s) who counted:

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

Major Road: Steeles Avenue runs W/E

East Leg Total: 2542
East Entering: 1253
East Peds: 0
Peds Cross:



Peds Cross:
West Peds: 0
West Entering: 1292
West Leg Total: 2554

Cars 90
Trucks 3
Heavys 1
Totals 94

Cars 43 52 95
Trucks 0 4 4
Heavys 0 1 1
Totals 43 57

Peds Cross:
South Peds: 0
South Entering: 100
South Leg Total: 194

Comments

3389 Steeles Avenue Access & Steeles Avenue

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

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

Municipality: Mississauga
Site #: 0000008707
Intersection: Steeles Avenue & 3389 Steeles Ave
TFR File #: 1
Count date: 8-Nov-2016

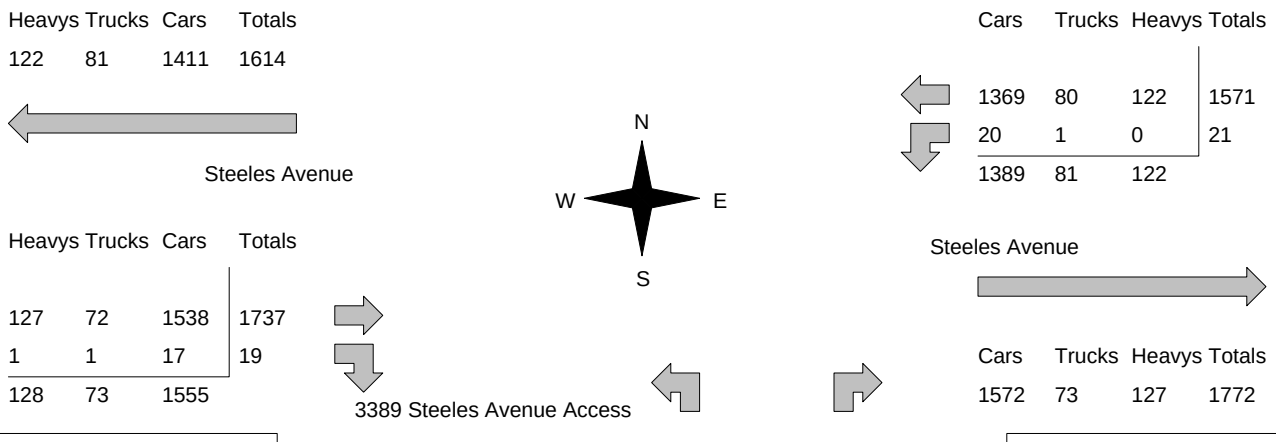
Weather conditions:
Clear / Cloudy

Person(s) who counted:

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

Major Road: Steeles Avenue runs W/E

East Leg Total: 3364
East Entering: 1592
East Peds: 0
Peds Cross:



Peds Cross:
West Peds: 0
West Entering: 1756
West Leg Total: 3370

Cars 37
Trucks 2
Heavys 1
Totals 40

Cars 42 34 76
Trucks 1 1 2
Heavys 0 0 0
Totals 43 35

Peds Cross:
South Peds: 0
South Entering: 78
South Leg Total: 118

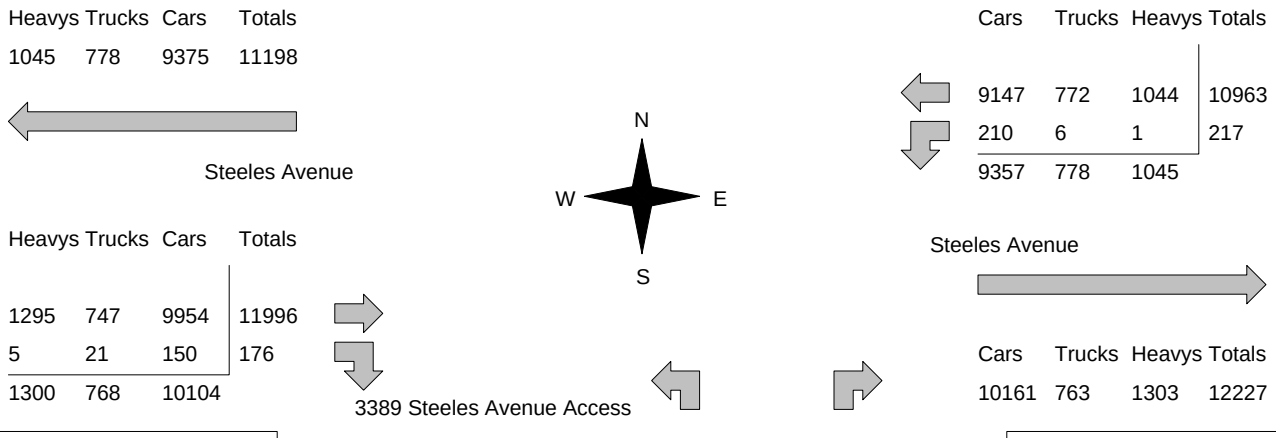
Comments

3389 Steeles Avenue Access & Steeles Avenue

Total Count Diagram

Municipality: Mississauga	**Weather conditions:** Clear / Cloudy
Site #: 0000008707	**Person(s) who counted:**
Intersection: Steeles Avenue & 3389 Steeles Ave	
TFR File #: 1	
Count date: 8-Nov-2016	
**** Non-Signalized Intersection ****	**Major Road:** Steeles Avenue runs W/E

East Leg Total: 23407
East Entering: 11180
East Peds: 2
Peds Cross: ⧖



Peds Cross:	⧖		Cars	360		Cars	228	207	435	Peds Cross:	⋈
West Peds:	0		Trucks	27		Trucks	6	16	22	South Peds:	0
West Entering:	12172		Heavys	6		Heavys	1	8	9	South Entering:	466
West Leg Total:	23370		Totals	393		Totals	235	231		South Leg Total:	859

Comments

3389 Steeles Avenue Access & Steeles Avenue
Traffic Count Summary

Intersection: Steeles Avenue & 3389 Steeles Av | **Count Date:** 8-Nov-2016 | **Municipality:** Mississauga

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	0	0	0	0	0	6
9:00:00	0	0	0	0	0	13
11:00:00	0	0	0	0	0	0
12:00:00	0	0	0	0	0	67
13:00:00	0	0	0	0	0	87
14:00:00	0	0	0	0	0	100
15:00:00	0	0	0	0	0	0
16:00:00	0	0	0	0	0	59
17:00:00	0	0	0	0	0	67
18:00:00	0	0	0	0	0	67
Totals:	0	0	0	0	0	466

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	0	6	6	0
9:00:00	5	0	8	13	0
11:00:00	0	0	0	0	0
12:00:00	32	0	35	67	0
13:00:00	45	0	42	87	0
14:00:00	43	0	57	100	0
15:00:00	0	0	0	0	0
16:00:00	26	0	33	59	0
17:00:00	46	0	21	67	0
18:00:00	38	0	29	67	0
Totals:	235	0	231	466	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	24	1455	0	1479	0	3414
9:00:00	11	1463	0	1474	0	3158
11:00:00	0	0	0	0	0	0
12:00:00	36	1138	0	1174	0	2342
13:00:00	55	1151	0	1206	0	2410
14:00:00	34	1219	0	1253	0	2545
15:00:00	0	0	0	0	0	0
16:00:00	20	1488	0	1508	1	3040
17:00:00	19	1521	0	1540	1	3175
18:00:00	18	1528	0	1546	0	3268
Totals:	217	10963	0	11180	2	23352

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	1926	9	1935	0
9:00:00	0	1677	7	1684	0
11:00:00	0	0	0	0	0
12:00:00	0	1148	20	1168	0
13:00:00	0	1172	32	1204	0
14:00:00	0	1232	60	1292	0
15:00:00	0	0	0	0	0
16:00:00	0	1511	21	1532	0
17:00:00	0	1619	16	1635	0
18:00:00	0	1711	11	1722	0
Totals:	0	11996	176	12172	0

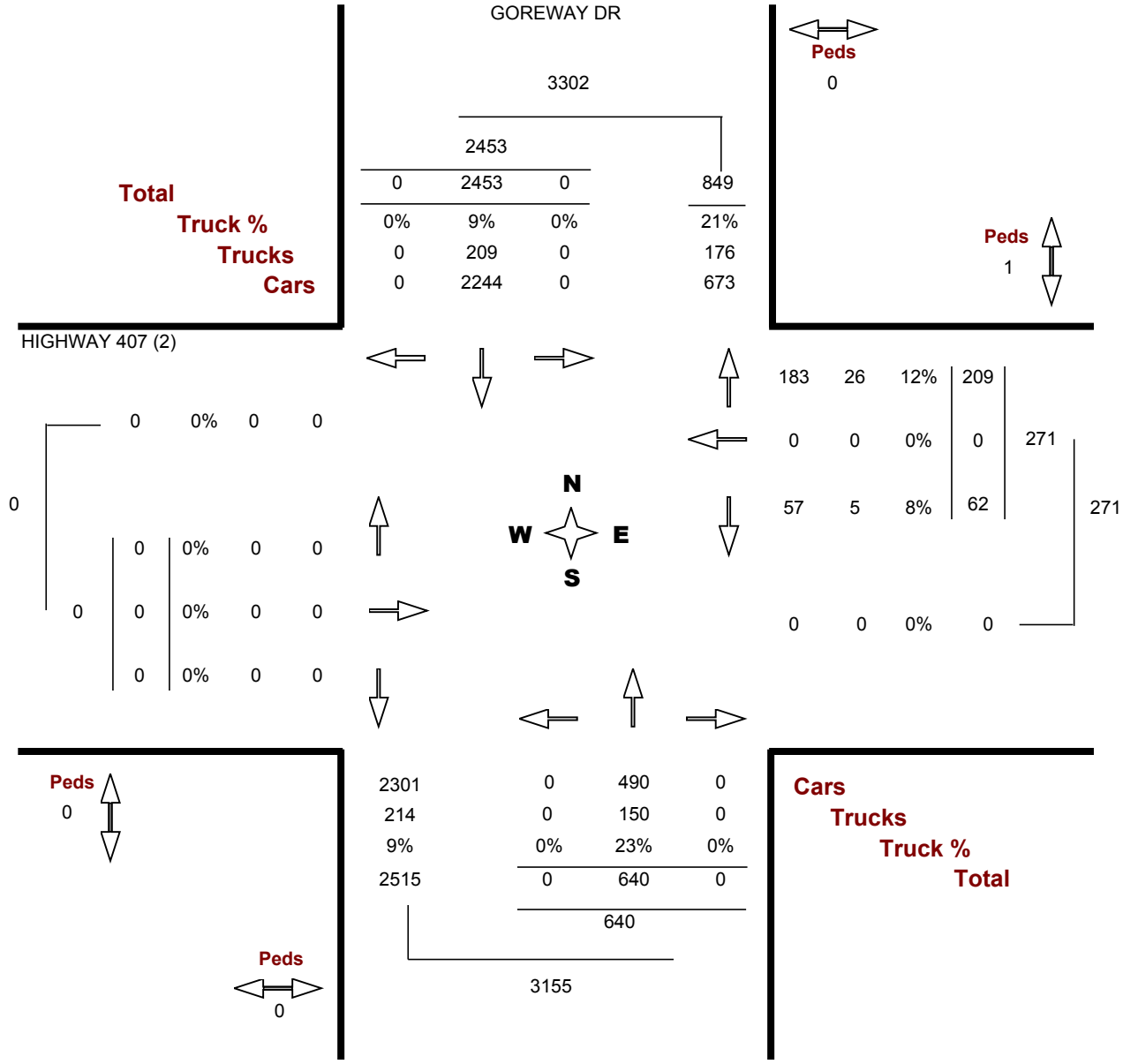
Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	0	5	32	45	43	27	47	38

Turning Movements Report - AM Period

Location..... GOREWAY DR @ HIGHWAY 407 (2)
Municipality. Brampton
Traffic Cont. Traffic signal
Major Dir..... None

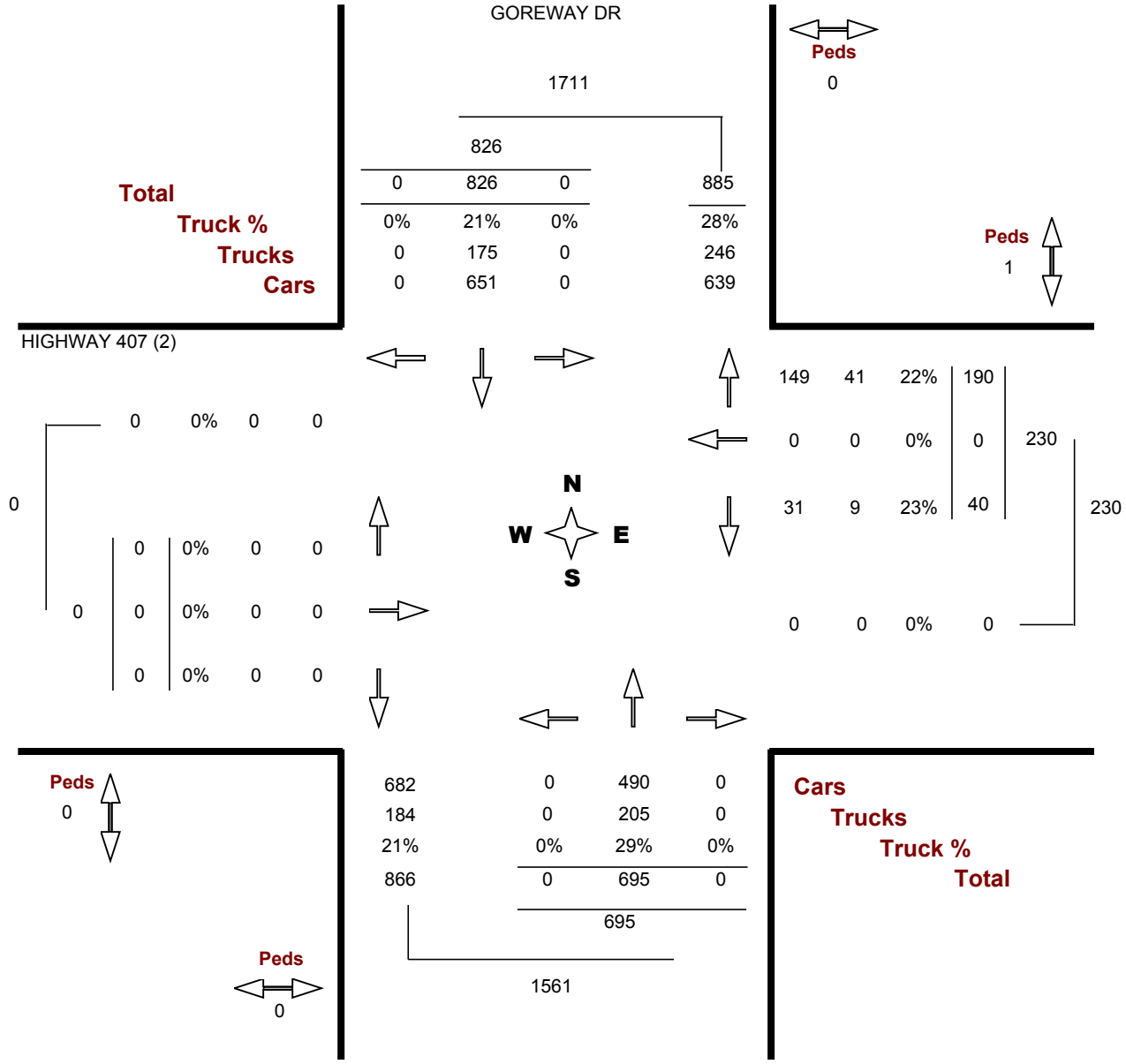
GeoID..... 115
Count Date. Thursday, 18 June, 2015
Count Time. 07:00 AM — 09:00 AM
Peak Hour.. 07:30 AM — 08:30 AM



Turning Movements Report - MD Period

Location..... GOREWAY DR @ HIGHWAY 407 (2)
Municipality. Brampton
Traffic Cont. Traffic signal
Major Dir..... None

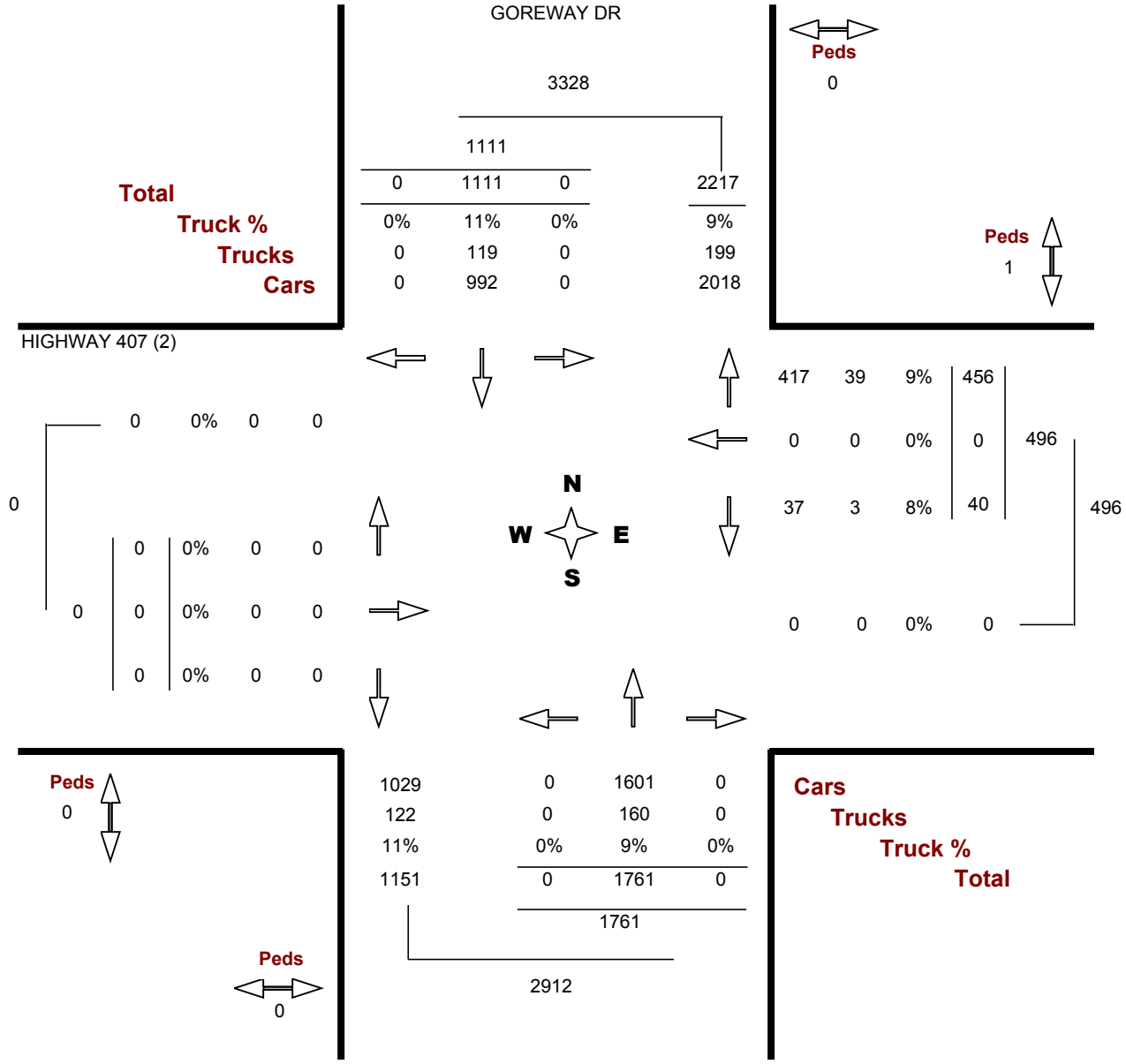
GeoID..... 115
Count Date. Thursday, 18 June, 2015
Count Time. 11:00 AM — 02:00 PM
Peak Hour.. 01:00 PM — 02:00 PM



Turning Movements Report - PM Period

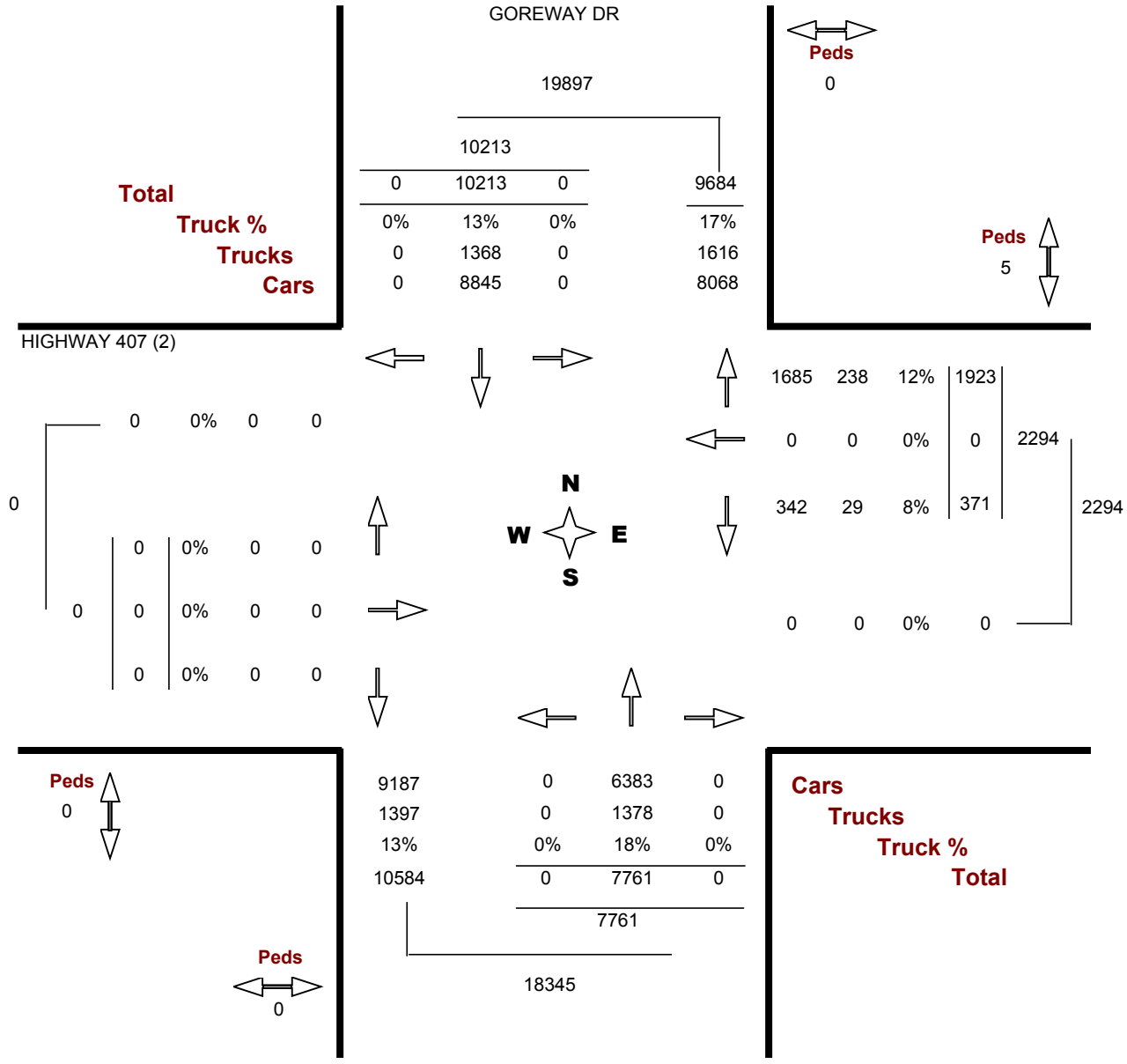
Location..... GOREWAY DR @ HIGHWAY 407 (2)
Municipality. Brampton
Traffic Cont. Traffic signal
Major Dir..... None

GeoID..... 115
Count Date. Thursday, 18 June, 2015
Count Time. 03:00 PM — 06:00 PM
Peak Hour.. 04:30 PM — 05:30 PM



Turning Movements Count - Full Study Report

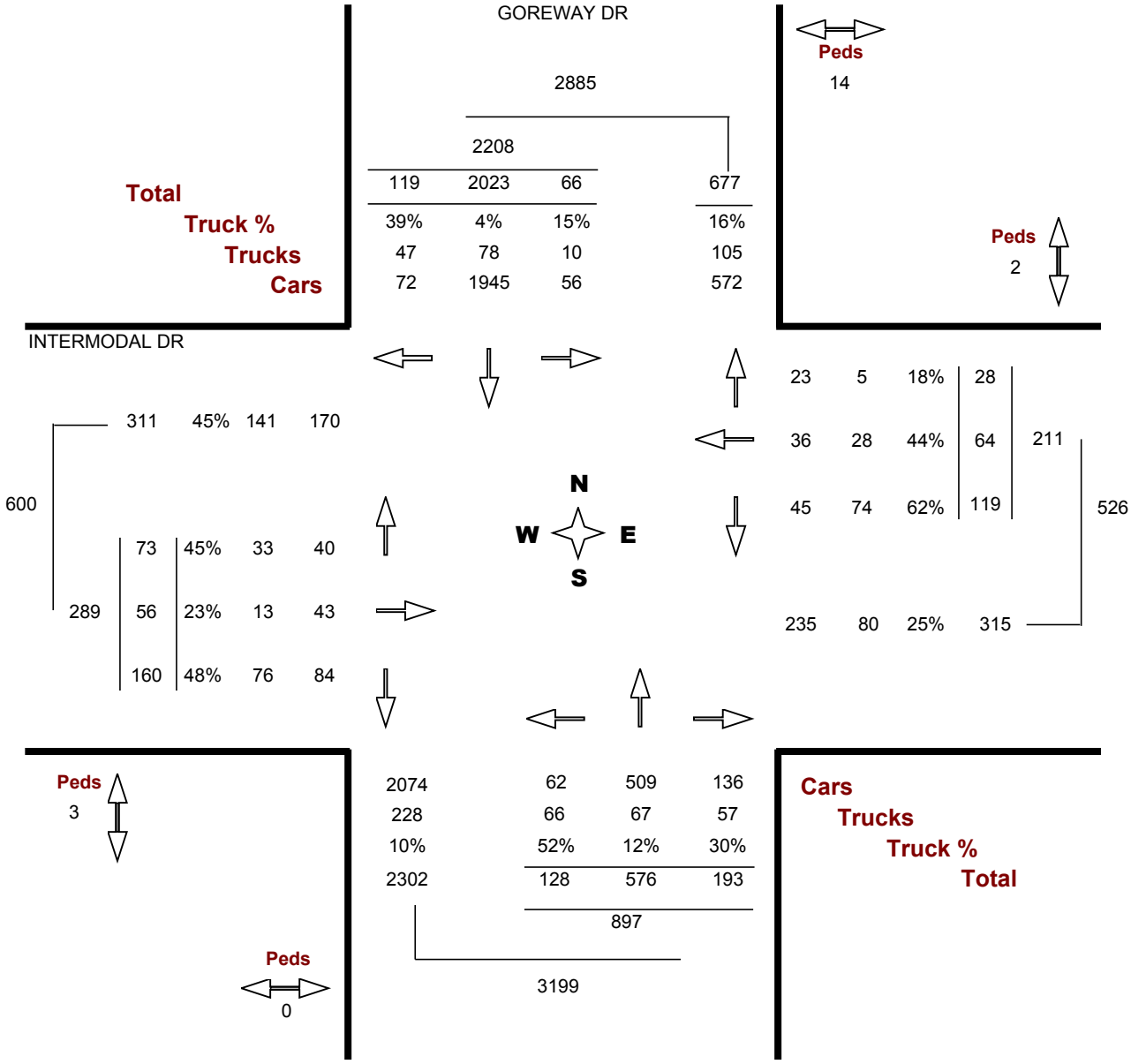
Location..... GOREWAY DR @ HIGHWAY 407 (2)
Municipality..... Brampton
GeoID..... 115
Count Date..... Thursday, 18 June, 2015



Turning Movements Report - AM Period

Location..... GOREWAY DR @ INTERMODAL DR
Municipality. Brampton
Traffic Cont. Traffic signal
Major Dir..... None

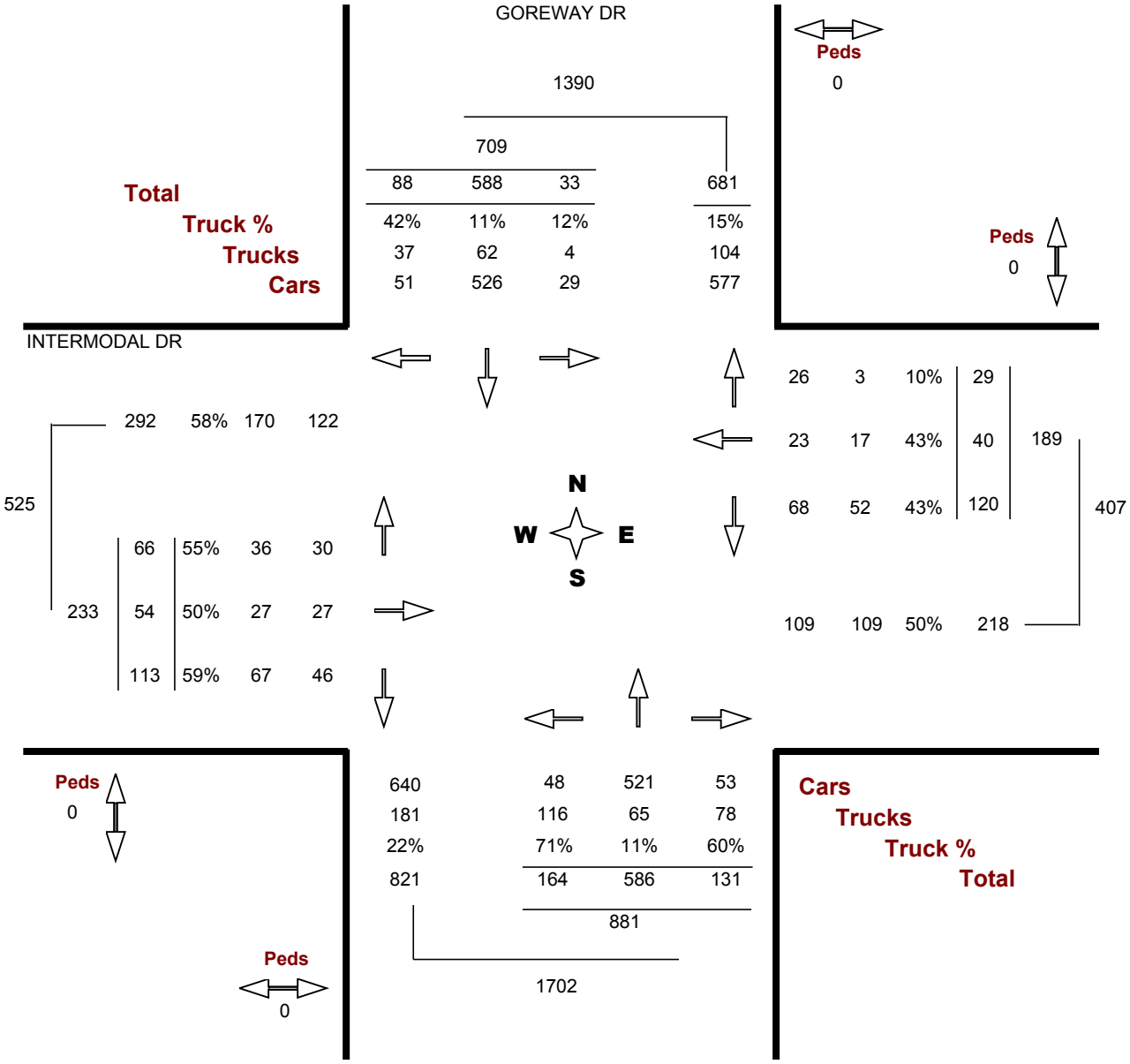
GeoID..... 3030
Count Date. Thursday, 18 June, 2015
Count Time. 07:00 AM — 09:00 AM
Peak Hour.. 07:15 AM — 08:15 AM



Turning Movements Report - MD Period

Location..... GOREWAY DR @ INTERMODAL DR
Municipality. Brampton
Traffic Cont. Traffic signal
Major Dir..... None

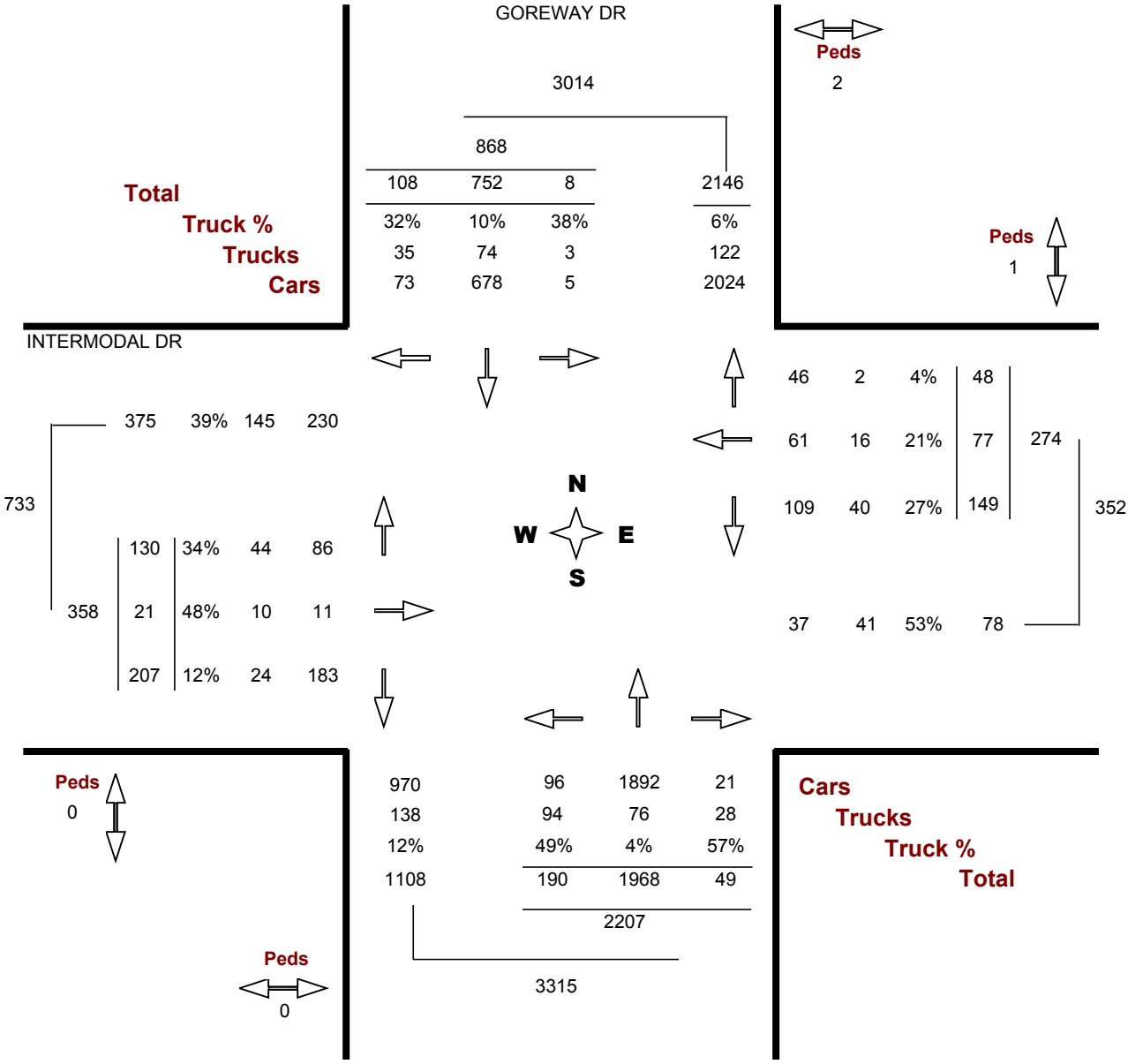
GeoID..... 3030
Count Date. Thursday, 18 June, 2015
Count Time. 11:00 AM — 02:00 PM
Peak Hour.. 01:00 PM — 02:00 PM



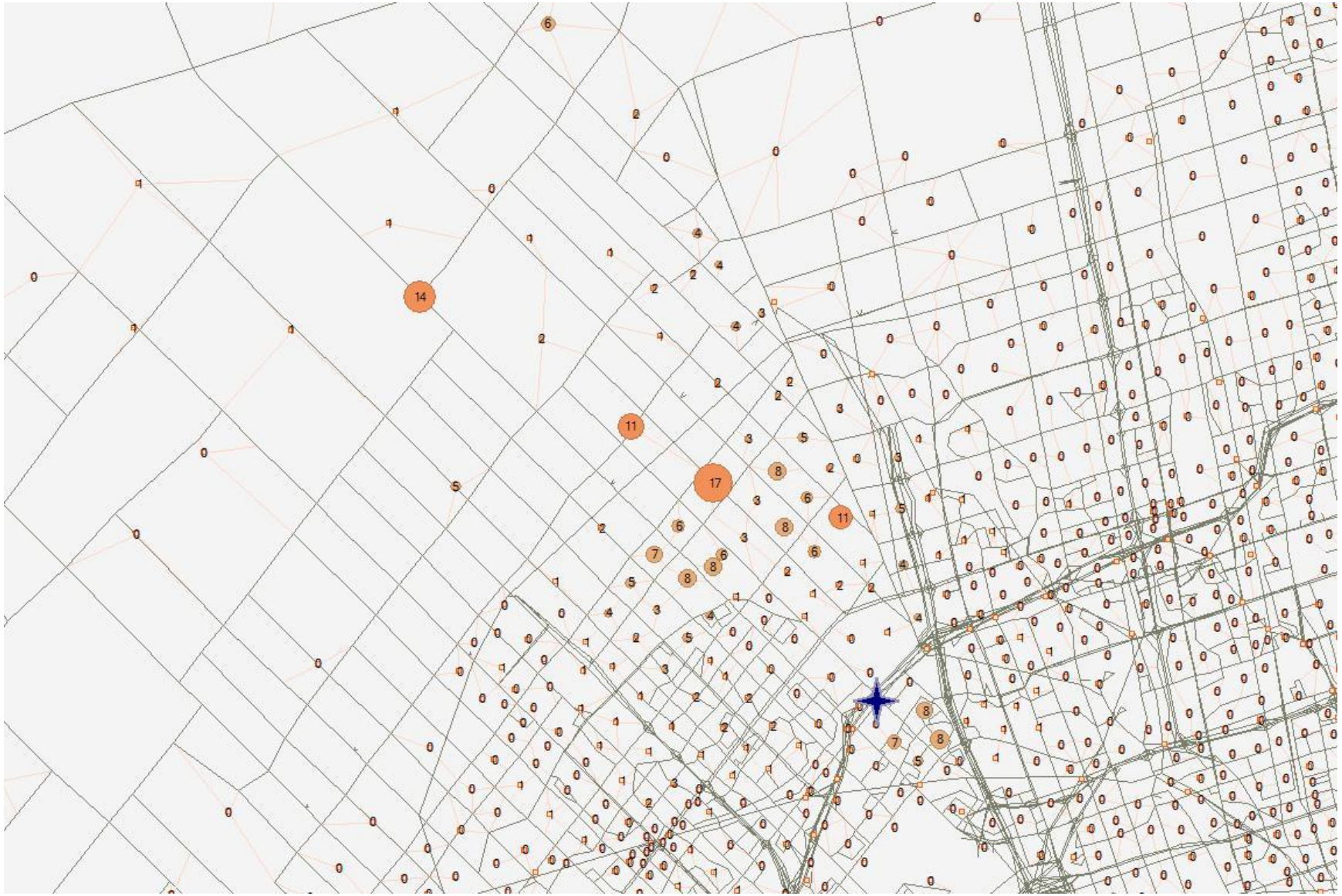
Turning Movements Report - PM Period

Location..... GOREWAY DR @ INTERMODAL DR
Municipality. Brampton
Traffic Cont. Traffic signal
Major Dir..... None

GeoID..... 3030
Count Date. Thursday, 18 June, 2015
Count Time. 03:00 PM — 06:00 PM
Peak Hour.. 04:30 PM — 05:30 PM



Appendix G – EMME Origin/Destination Output



Report

Highway 50 Station Traffic Impact Study

Highway 407 Transitway-3

Prepared for the Ministry of Transportation, Ontario
by IBI Group

July 27, 2018

Document Control Page

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1 Introduction

1.1 Project Overview

The Highway 407 Transitway is a rapid transit facility planned within the Greater Toronto and Hamilton Area (GTHA). The Transitway operate on a dedicated, grade-separated right-of-way providing users fast travel speeds and good travel time reliability. The Highway 407 Transitway project supports the Province's Growth Plan by meeting increased travel demands through alternative transportation modes, providing increased mobility for a wide variety of users, and supporting transit-oriented development and associated land uses.

Building upon previous work IBI Group completed for the 'Central' and 'East' sections of the Transitway, the 'Transitway-3' section spans approximately 23 kilometres between Hurontario Street and Highway 400. This section of the Transitway provides opportunities to connect to the GO Rail system at Bramalea Station (Kitchener Line) as well as to a number of other higher order transit systems, supporting development within both the York and Peel Regions.

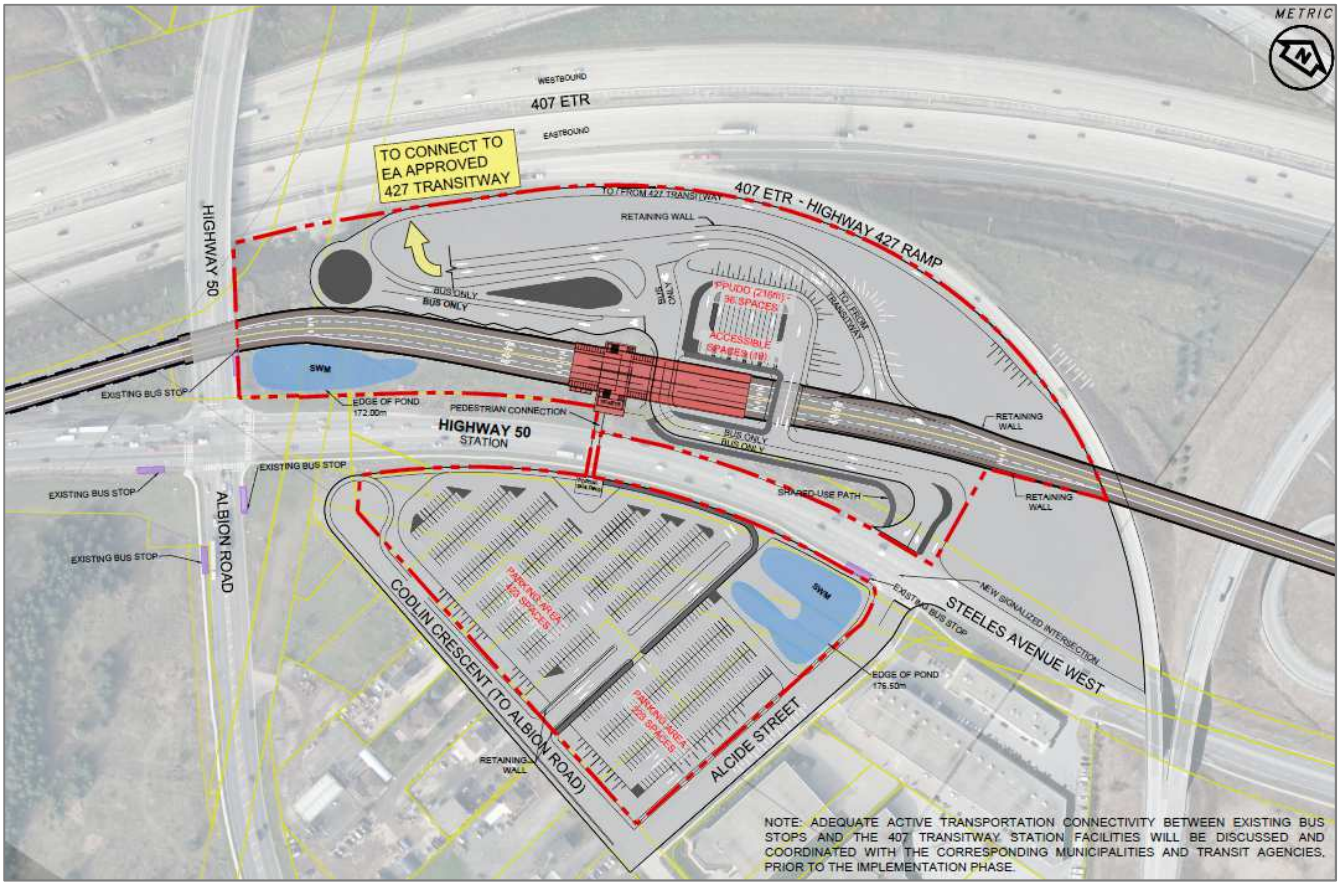
1.2 Study Area

Highway 50 station was recommended in large part due to its capability to integrate with the future Highway 427 Transitway, with the station in effect serving as a Transit Hub. The station also serves as a park-and-ride lot for the surrounding area, which is predominantly industrial or commercial in land use with residential areas located further north.

In the proposed station layout, the Transitway station and the pick-up/drop-off areas are located north of Steeles Avenue, while the park-and-ride lot is located south of Steeles Avenue. A pedestrian tunnel is included in the plans to accommodate the high pedestrian crossing demands that will result. The proposed layout is provided in Exhibit 1-1.

This study considers traffic operations at the Highway 50 station under two scenarios – first with 8-station operation of the West Transitway, and second with a 7-station operation assuming that Martin Grove Road station is not carried forward.

Exhibit 1-1: Proposed Highway 50 Station Layout

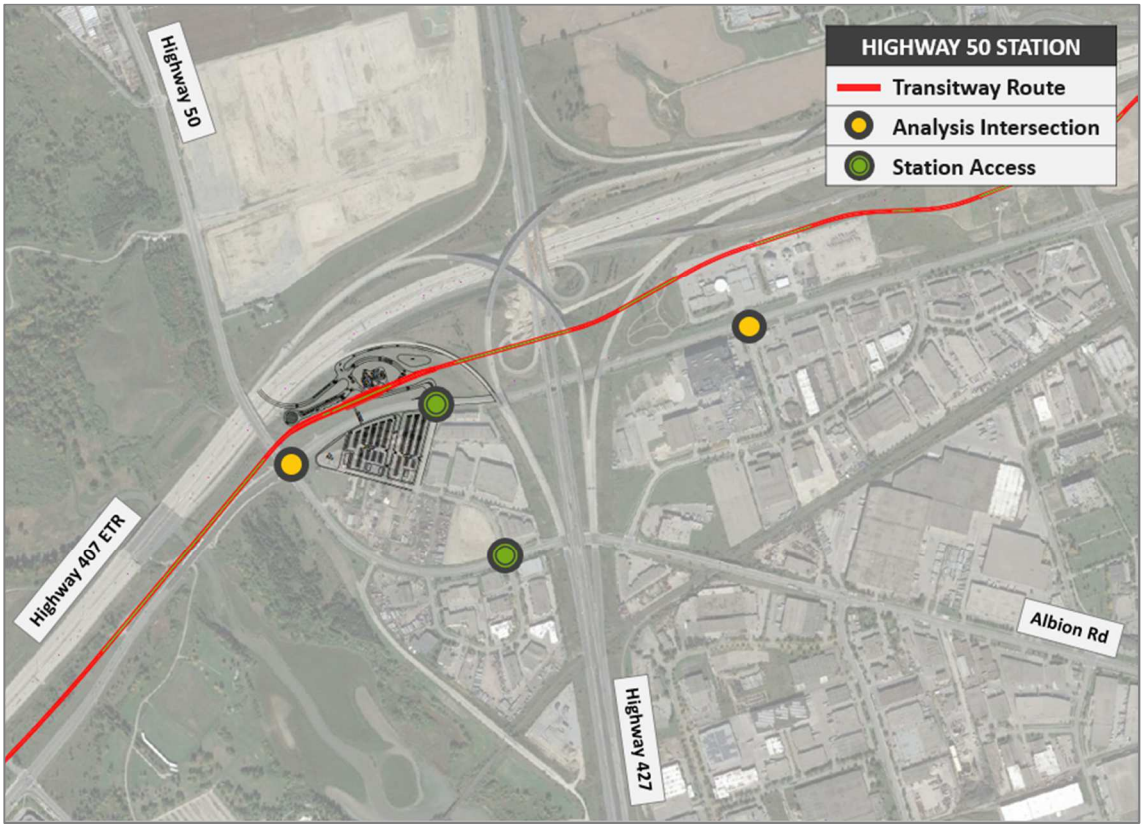


In addition to the future station accesses, the study area includes the following intersections:

- Albion Road / Highway 50 & Steeles Avenue W;
- Albion Road & Claireport Crescent / Codlin Crescent;
- Steeles Avenue W & Alcide Street (unsignalized); and,
- Steeles Avenue & Signal Hill Avenue.

The study area is illustrated in Exhibit 1-2.

Exhibit 1-2: Highway 50 Station Study Area



1.3 Study Objective

The purpose of this Highway 50 Station TIS is to assess existing and future traffic operations in order to identify possible deficiencies in the road network and consider potential improvement options. The study is organized as follows:

- Section 2 provides an overview of the current transportation network and assesses existing traffic conditions;
- Section 3 outlines the process used to estimate peak hour traffic generated at this Transitway station, and how this traffic will be distributed on the road network;
- Section 4 assesses of future traffic conditions by considering background traffic growth in addition to traffic generated from the Transitway station;
- Section 5 evaluates potential improvement options that to address any future network deficiencies that have been identified; and,
- Section 6 provides a summary of traffic operations and recommended improvement measures.

1.4 Traffic Analysis Approach

This study documents existing traffic conditions, and assesses anticipated future conditions with consideration of background traffic growth and additional traffic generated from the proposed Transitway. Traffic analysis is conducted using Synchro (version 9) following Highway Capacity Manual (HCM 2000) methodologies of intersection analysis.

All critical traffic movements identified through the Synchro analysis are outlined and discussed, as per the following conditions:

- For signalized intersections,
  - V/C ratios for overall intersections operations, through movements or shared through/turning movements equal 0.80 or above;
  - V/C ratios for exclusive movements equal 0.85 or above; or,
  - Queues for an individual movement are projected to exceed available turning lane storage.
- For unsignalized intersections,
  - Level of service, based on average delay per vehicle or on individual movements is LOS "D" or greater; or,
  - The estimated 95th percentile queue length for an individual movement exceeds the available queue storage.

Level-of-service (LOS) is a measure of performance based on the control delay, defined as follows in Exhibit 1-3.

Exhibit 1-3: Intersection LOS Reference

HCM	CONTROL DELAY PER VEHICLE (S)	
LOS	Signalized	Unsignalized
A	≤10	≤10
B	>10 and ≤20	>10 and ≤15
C	>20 and ≤35	>15 and ≤25
D	>35 and ≤55	>25 and ≤35
E	>55 and ≤80	>35 and ≤50
F	>80	>50

Operational concerns or deficiencies noted in the studied horizon years are identified and addressed through recommendations on potential mitigation measures and/or operational improvements.

1.5 Synchro Model Calibration

The Synchro traffic models were calibrated to better reflect measured field conditions. This was accomplished by adjusting the following parameters detailed below.

Lane Utilization Factor

The "lane utilization factor" (LUF) was altered when calibrating through movements. This parameter is used to dictate the distribution of traffic across the available lanes, with a value of '1.0' representing a uniform distribution across all lanes.

During non-congested periods, there is often more traffic distributed amongst the right-most lanes as compared to the left-most lanes. However, in oversaturated conditions, the distribution of traffic is typically split more evenly across all lanes, as drivers quickly fill any available gap in traffic.

In the existing models, the LUF was adjusted to a value of '1.0' for all through movements initially identified as having a v/c ratio greater than '1.0'. These adjustments were also carried forward to those same movements in the future models (for the same peak period). Additionally, because the above-mentioned driver behaviour is quite predictable, this adjustment was also

made to any “new” critical through movements (having a v/c ratio > ‘1.0’) identified in the future models.

Lost Time Adjustment

Lost Time Adjustment (LTA) was altered in order to calibrate left-turn movements. Adjusting this parameter to a negative value effectively increases the clearance time available for left-turning traffic to clear the intersection during the amber and/or all-red signal phases.

During oversaturated conditions where left-turn queues are excessively long and/or there are limited gaps available in the opposing traffic to make the left-turn (under permissive phasing), drivers are typically more aggressive and willing to turn during the amber/all-red phases.

In the existing models, the LTA was changed for all left-turn movements identified as being well over capacity – defined as having a v/c ratio greater than ‘1.2’ – since these turning volumes were explicitly measured in the field. Values were assigned based on the initial v/c ratio for that movement:

- If the v/c ratio was between 1.2 and 1.5, the LTA was set to ‘-1’; and,
- If the v/c ratio exceeded 1.5, the LTA was set to ‘-2’.

All changes to the LTA made in the existing models were carried forward to those same movements in the future models (for the same peak period). However, because this driver behaviour is believed to be less predictable, no additional LTA changes were made to “new” critical left-turn movements (having a v/c ratio > ‘1.1) identified in the future models, which did not exist in the existing models.

2 Existing Conditions

2.1 Existing Road Network

Highway 50 is a four lane north-south arterial road that connects Steeles Avenue West to the community of Bolton and is the border between Peel Region and York Region. Southbound past Steeles Avenue West, it turns into Albion Road, a four lane northwest-southeast arterial road that connects Steeles Avenue West to Weston Road in the City of Toronto. Both Highway 50 and Albion Road have posted speed limits of 60 km/h.

Highway 407 is a tolled 400-series highway with an eight lane cross section. It connects the City of Burlington to the City of Pickering. 400-series highways have a speed limit of 100 km/h. There is currently no interchange at Highway 50.

Highway 427 is a north-south 400 series highway that connects the Gardiner Expressway to Highway 7. Within the study area, it has a four lane cross section. There is currently no interchange at Albion Road or Steeles Avenue.

Steeles Avenue West is an arterial east-west road that connects the Town of Milton to Scarborough, Toronto. Within the study area, it is under the jurisdiction of the City of Toronto and has 4 lanes. It also has a posted speed limit of 70 km/h.

Alcide Street is a local two lane north-south road within the City of Toronto. It connects Steeles Avenue West and Codlin Crescent and serves an industrial area. Alcide Street will provide access to parking spaces for Highway 50 Station and a new north leg will be the access point for the passenger pick-up drop off (PPUDO) area as well as busses. A speed limit of 50 km/h is assumed.

Codlin Crescent/Claireport Crescent is a local two lane road that connects Albion Road to an industrial area. A speed limit of 50 km/h is assumed.

Signal Hill Avenue is a local two lane road that serves an employment area. It connects Steeles Avenue West to Steinway Boulevard. A speed limit of 50 km/h is assumed.

2.2 Traffic Counts & Signal Timing Data

Traffic count data and signal timing information was collected from City of Brampton, City of Mississauga, and Region of Peel. All turning movement counts modelled for the purposes of this study were conducted recently (within the past five years) and so should reflect current traffic patterns within the study area. Exhibit 2-1 provides a summary of dates on which this information was collected/recorded.

Exhibit 2-1: Traffic Count and Signal Timing Data

INTERSECTION	CONTROL TYPE	DATE OF TMC	DATE OF SIGNAL DATA
Albion Rd / Hwy 50 & Steeles Ave	Signalized	15-May-15	4-Sep-13
Albion Rd & Codlin Cr / Clairport Cr	Signalized	24-May-16	27-Oct-14
Steeles Ave W & Signal Hill Ave / Private Access	Signalized	15-May-15	17-Feb-16

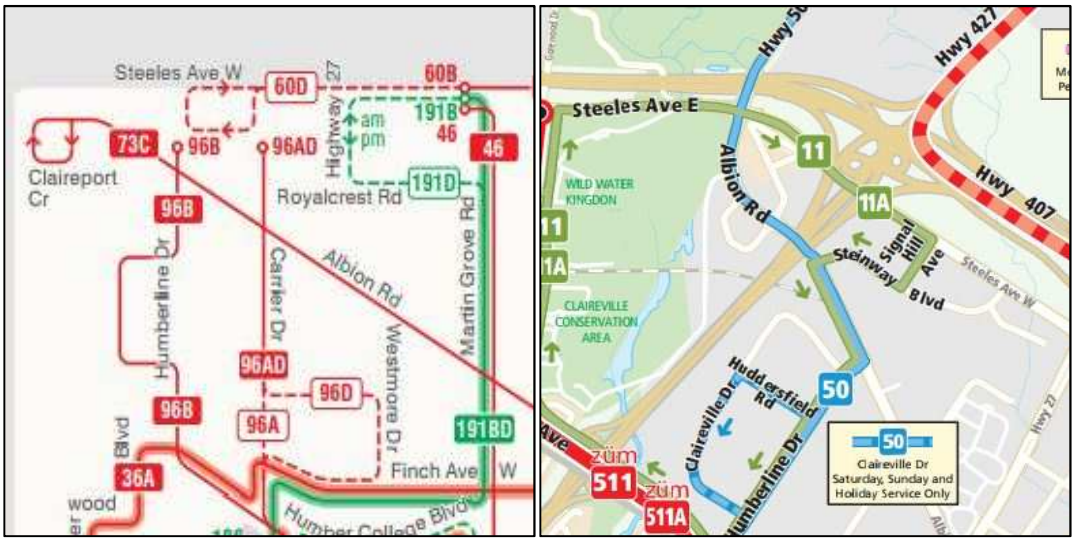
2.3 Existing Transit Network

Brampton Transit (BT), Toronto Transit Commission (TTC), and GO Transit provide transit services in the study area. The following routes are currently operating:

- **BT Route 11 (Steeles)** is a local route that connects Lisgar GO Station in the City of Mississauga to Humber College along Steeles Ave with frequencies of 10 minutes during peak hours;
- **BT Route 50 (Gore Road)** is a local route operating on The Gore Road and Albion Road, connecting Gore Meadows Community Centre to Humber College on 15 minute headways during peak hours;
- **TTC Route 73C (Royal York)** is a local route that connects Claireport Crescent to Royal York Subway Station via Albion Road and Royal York Road with 15 minute frequencies during peak hours;
- **TTC Route 60D (Steeles West)** is a local route that travels along Steeles Avenue, connecting Signal Hill Avenue to Finch Subway Station at seven minute headways during peak hours.
- **GO Bus Route 38 (Bolton/Malton/North York)** is a regional route that connects the community of Bolton (in Caledon, Region of Peel) to Malton GO Station in Mississauga via Highway 50, providing designated bus connection to a commuter train service to Union Station (in Toronto) based on scheduled times.

Exhibit 2-2 illustrates the transit services within the study area.

Exhibit 2-2: TTC (left) and BT (right) in the Study Area



2.4 Existing Traffic Operations

The existing conditions analysis represents traffic operations during base year 2017. An annual compound growth rate of 1.0% was applied to all count volumes obtained in years prior to 2017 in order to bring all counts to a consistent base year.

Existing conditions traffic volumes are illustrated in Exhibit 2-3.

Exhibit 2-3: Existing Volumes in AM (PM) Peak Hours

A summary of critical movements identified during the existing conditions analysis is provided in Exhibit 2-4, with a detailed output of the Synchro analysis provided in the Appendix.

Exhibit 2-4: Existing Critical Movements Summary

INTERSECTION	AM PEAK					PM PEAK				
	LOS	Critical Movements				LOS	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Albion Rd / Highway 50 & Steeles Ave W	D	SBT	D	0.96	178.7	D	EBL WBT WBR NBL NBT SBL	E E D F D F	0.95 0.95 0.66 1.01 0.89 1.11	97.1 128.4 84.0 91.0 151.6 95.3
Albion Rd & Claireport Cres / Codlin Cres	A	(no critical movements)				A	(no critical movements)			
Steeles Ave W & Alcide St	N/A	NB	D	0.10	2.4	N/A	NB	E	0.37	11.4
Steeles Ave W & Signal Hill Ave	A	(no critical movements)				B	(no critical movements)			

The study intersections are currently operating as follows:

- Albion Road / Highway 50 & Steeles Avenue is operating satisfactorily at LOS D during both peak hours. However, the SBT movement is approaching capacity in the a.m. peak, and any widening of the southbound approach necessitates widening of the bridge over Highway 407. In the p.m. peak, the NBT and WBT movements are approaching capacity, and there are limited gaps available for the opposing EBL and SBL permitted movements to be made. The NBL movement is also at capacity during the p.m. peak hour.
- Both Albion Road & Claireport Crescent / Codlin Crescent and Steeles Avenue & Signal Hill Avenue are operating well during both peak hours.
- The three-legged intersection between Steeles Avenue and Alcide Street is unsignalized. While northbound volumes on the Alcide Street approach are quite low, this approach is experiencing delays due to limited gaps being available in the east-west traffic for vehicles to make the left-turn onto Steeles Avenue.

2.5 Existing Model Calibration

The Existing traffic models were calibrated to better reflect measured field conditions accomplished by adjusting either the Lane Utilization Factor (LUF) or Lost Time Adjustment (LTA) for certain movements.

Adjustments made to the existing traffic models are outlined in Exhibit 2-5.

Exhibit 2-5: Existing Model Calibration Parameters

PERIOD	INTERSECTION	MOVEMENT	ADJUSTED PARAMETER	EXISTING ADJ. VALUE
AM Peak	Highway 50 & Steeles	SBT	LUF	1.0
PM Peak	(no adjustments)	-	-	-

These adjustments were applied using the methodologies outlined in Section 1.5.

3 Site Traffic & Parking

3.1 Ridership Forecasts

Ridership forecasts were developed using the Greater Golden Horseshoe Model (GGHM), a state-of-practice multi-modal travel demand model that estimates future travel demands within the Greater Golden Horseshoe. The GGHM was developed to forecast peak period demand in support of Growth Plan policies and has the capability of predicting mode shifts resulting from new public transit infrastructure. It can also be used to test network responses to changes in link characteristics such as transit vehicle frequency, operating speed, station location, and parking availability.

Future year forecasts were previously developed for a number of horizon years including 2031, 2041, and 2051. A number of road network improvements and expansions are also included in the future year models, including numerous widenings along the 400-series highways and major arterial roads. Transit infrastructure included in future models represent projects that are currently committed and funded. While is possible that additional projects will be funded over the upcoming years, this method represents a conservative approach. The following is a list of rapid transit projects that were included in the future year models:

- Toronto-York Spadina Subway Extension (TYSSE);
- 407 Transitway Central Section (Jane Street to Kennedy Road);
- VIVA routes and busways;
- Mississauga 403 Transitway;
- Eglinton Crosstown LRT;
- Sheppard LRT;
- Finch West LRT;
- Yonge Subway Extension to Richmond Hill;
- Two-way all-day GO Rail service (Regional Express Rail);
- Scarborough RT Extension;
- Hurontario-Main LRT; and,
- Highway 427 Transitway.

In addition to developing separate scenarios for the horizon years studied, alternative GGHM scenarios were also developed to represent different levels of funding for the Transitway-3 project: one representing an eleven-station structure and a second representing a reduced eight-station structure. It should also be noted that forecasts were developed only for the a.m. peak period, and so adjustment factors will be used to estimate p.m. peak demands.

With input from the MTO, a horizon year of 2031 was selected as the baseline for determining road and intersection requirements as part of this traffic impact study. The ridership forecasts used for the purposes of this study were taken from the 2031 GGHM model showing the reduced eight-station structure. Demands corresponding to the eight-station scenario for year 2031 are outlined in Exhibit 3-1.

Exhibit 3-1: 2031 AM Peak Hour Boardings

STATION	TOTAL BOARDINGS	PARK-AND-RIDE	WALK / TRANSIT	% PARK-AND-RIDE	% WALK / TRANSIT
Pine Valley	210	130	80	62%	38%
Martin Grove	420	170	250	40%	60%
Highway 27	400	170	230	43%	58%
Highway 50	**790**	**260**	**530**	**33%**	**67%**
Goreway	320	180	140	56%	44%
Airport	610	120	490	20%	80%
Dixie	1,770	110	1,660	6%	94%
Hurontario	1,320	170	1,150	13%	87%
Total:	*5,840*	*1,310*	*4,530*	*22%*	*78%*

Note that a ninth station may also be included at Bramalea (between Dixie and Airport), however this station would operate solely as a transit interlining/transfer station and therefore generate no park-and-ride demand.

3.2 Trip Generation

Peak hour trips to and from the station were estimated using the GGHM ridership forecasts presented in Exhibit 3-1. Because walk/transit boardings do not translate into vehicle trips generated, only park-and-ride demands were considered at this stage.

Park-and-ride boardings were equated to inbound vehicle trips at an assumed factor of 10:11, or 1.1 riders per park-and-ride vehicle. However, this only provides an indication of inbound trips to the station, and not of outbound trips leaving the station. Furthermore, the park-and-ride demands were developed only for the a.m. peak hour and not for the p.m. peak hour.

The ITE Trip Generation Manual (9th edition) was used to estimate a.m. peak outbound trips, as well as p.m. peak inbound and outbound trips. Average trip generation rates for bus stations with park-and-ride lots are indicated in Exhibit 3-2.

Exhibit 3-2: ITE Trip Generation Rates for Park-and-Ride Lots

LAND USE (CODE)	UNITS	AM PEAK HOUR		PM PEAK HOUR	
		Trip Rate	Inbound / Outbound	Trip Rate	Inbound / Outbound
Park-and-ride with bus service (090)	/ parking space	0.71	79% / 21%	0.62	25% / 75%

The 2031 GGHM forecasts indicate a demand of 260 park-and-ride boardings at Highway 50 Station during the a.m. peak hour. Exhibit 3-3 lists the estimated site traffic generated given the above assumptions.

Exhibit 3-3: Estimated Vehicle Trips Generated by Highway 50 Station (8-Station Structure)

AM PEAK TRIPS		PM PEAK TRIPS	
Inbound	Outbound	Inbound	Outbound
236*	63	65	196

** Calculated based on forecasted 2031 a.m. park-and-ride boardings, at a factor 1.0 inbound vehicles per 1.1 boardings.*

Sensitivity Analysis (7-Station structure assuming no Martin Grove Station)

The ridership forecasts included in Section 3.1 were generated using EMME based on an eight-station structure for the 407 Transitway-3. An EMME model was also developed showing a 7-station structure, where Martin Grove Station is omitted.

The 7-station model has only been developed for year 2041, consistent with the horizon year adopted in the Systems Planning report. A model will also be developed for both 2031 and 2051 horizon years (used for traffic operation analysis and parking lot sizing, respectively), pending further direction/decision on whether Martin Grove Station will ultimately be recommended.

For the purposes of the current study, the 7-station and 8-station outputs (2041 horizon year) were compared to assess impacts on ridership forecasts at the remaining seven stations. It was observed that omitting Martin Grove Station primarily affected demands at Highway 50 and Highway 27 stations.

Park-and-ride demands at Highway 50 were observed to increase by a factor 116%. This factor was applied to the previous trip generation results (Exhibit 3-3) in order to produce new trip generation values to be used in the “sensitivity analysis” scenario, indicated in Exhibit 3-4.

Exhibit 3-4: Estimated Vehicle Trips Generated by Highway 50 Station (7-Station Structure)

AM PEAK TRIPS		PM PEAK TRIPS	
Inbound	Outbound	Inbound	Outbound
275	73	76	228

3.3 Trip Distribution

An origin/destination map showing the origin of park-and-ride trips destined to Highway 50 Station was extracted from the 2031 GGHM and can be found attached in the Appendix. The model runs correspond to 2031 a.m. conditions for the eight-station Transitway structure, and with the assumption that the ‘Central’ and ‘East’ Transitway sections exist. Note that the model does not account for an extension of the Transitway west beyond Hurontario Street (i.e. beyond the ‘Transitway-3’ limits).

Using this map, inbound trips were tabulated in terms of general direction of origin (i.e. north, south, east or west) and assigned to the study area intersections as a percentage of total inbound trips. Distribution of outbound trips was assumed to the same as inbound trips (e.g. the percentage of inbound trips originating from the north is equal to the percentage of outbound trips destined to the north). Trip distribution percentages were assumed to be equal during both the a.m. and p.m. peak hours.

The resulting trip distribution percentages to and from the station are illustrated in Exhibit 3-5, and the trip distribution 7-station structure was assumed to be the same as that shown for the 8-station structure. By then applying the trip generation values to the trip distribution percentages, the site generated traffic was assigned to study area intersections and is indicated in Exhibit 3-6/Exhibit 3-7 (8-station structure) and Exhibit 3-8/Exhibit 3-9 (7-station structure).

Note that the unsignalized Steeles Avenue & Alcide Street intersection was assumed to be operating as a right-in/right-out access for the purposes of trip distribution. While left-turns are currently permitted, excessive delays are anticipated on the northbound approach when background growth is added – as noted later in Section 4.1. Given the significant outbound traffic that will be added following implementation of the Transitway station and park-and-ride lot, the right-in/right-out restriction will be required on a basis of traffic operations and safety.

Exhibit 3-5: Trip Distribution in AM and PM Peak Hours

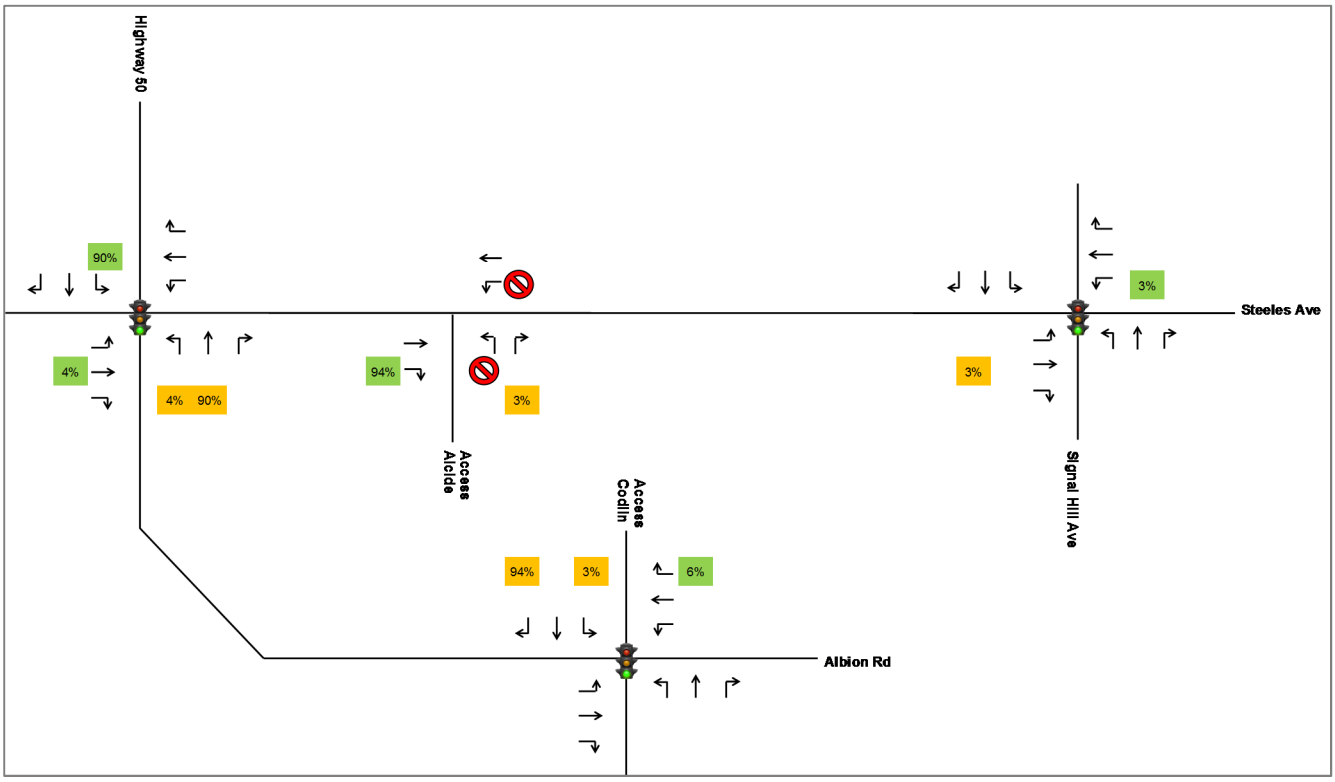


Exhibit 3-6: Site Generated Traffic in AM Peak Hour (8-station structure)

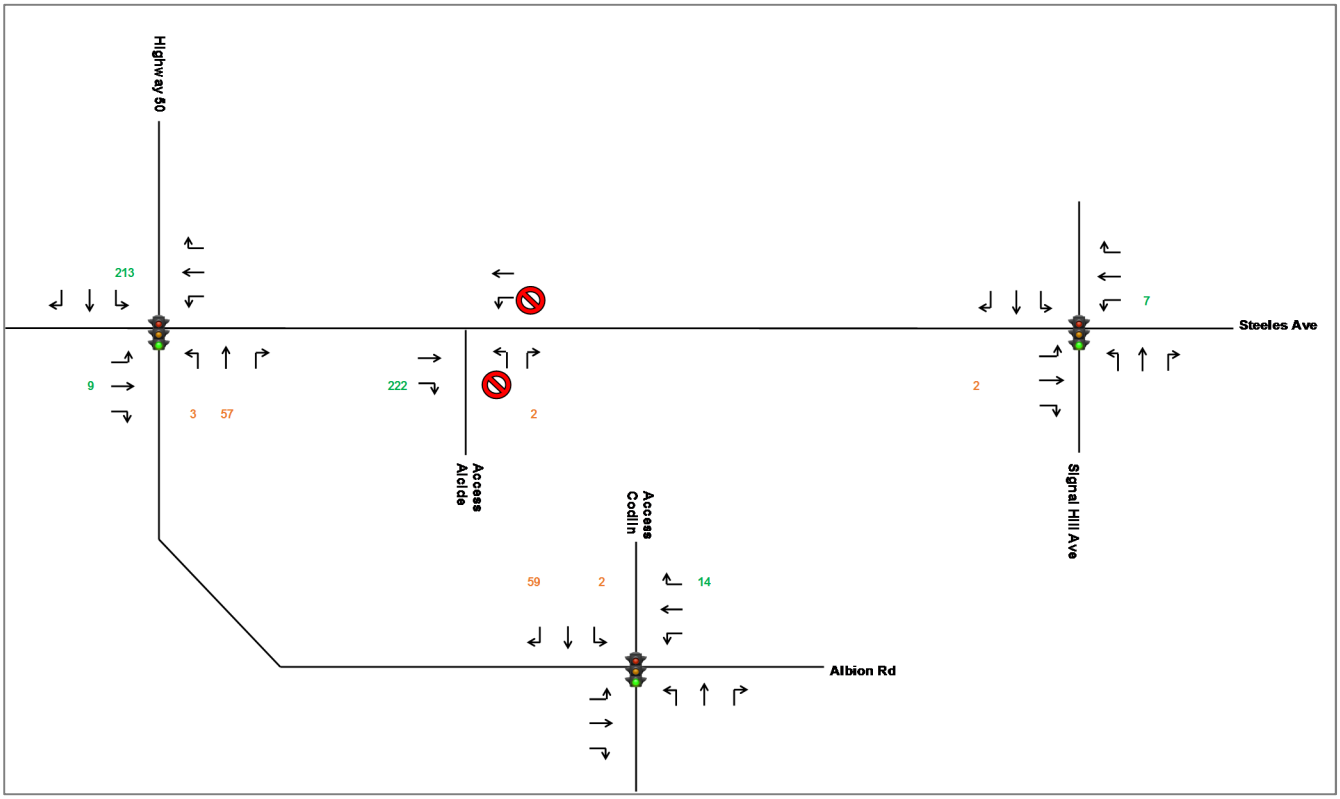


Exhibit 3-7: Site Generated Traffic in PM Peak Hour (8-station structure)

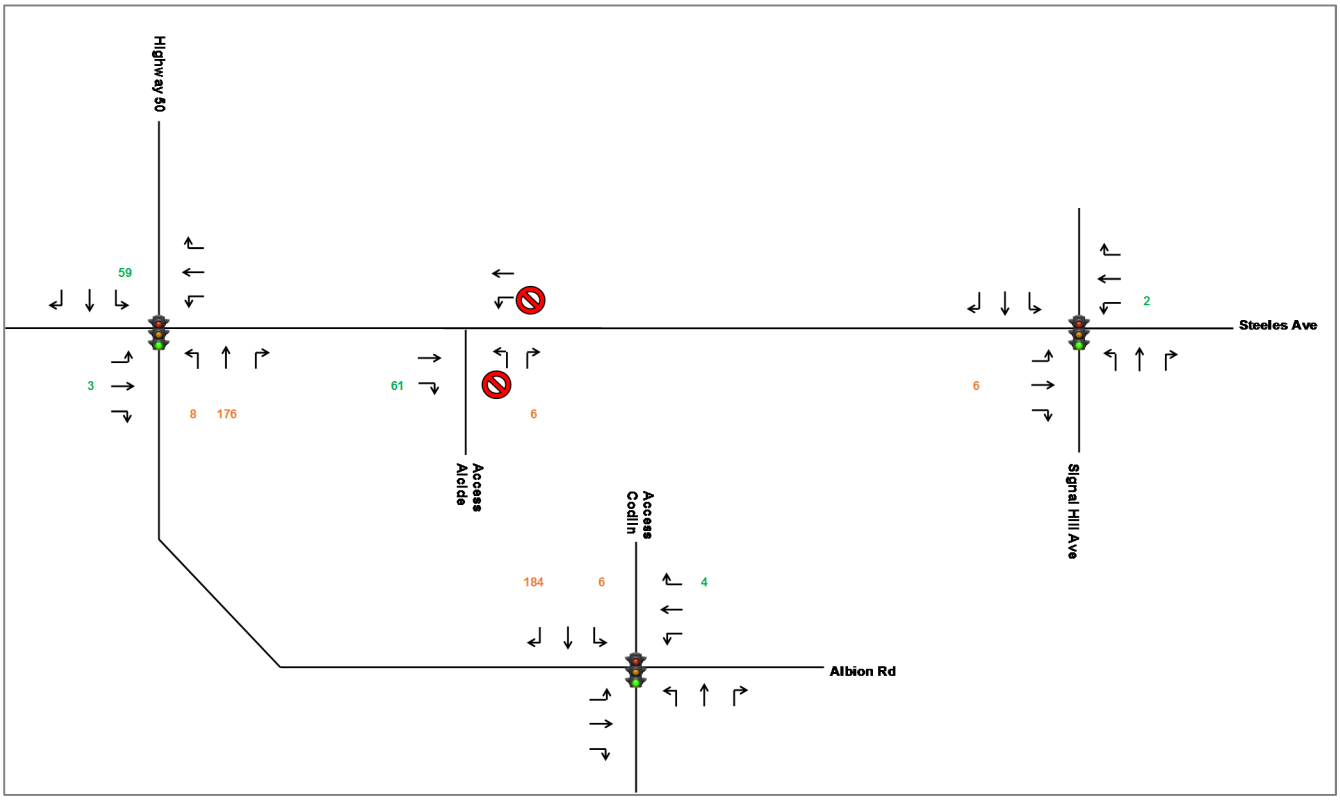


Exhibit 3-8: Site Generated Traffic in AM Peak Hour (7-station structure)

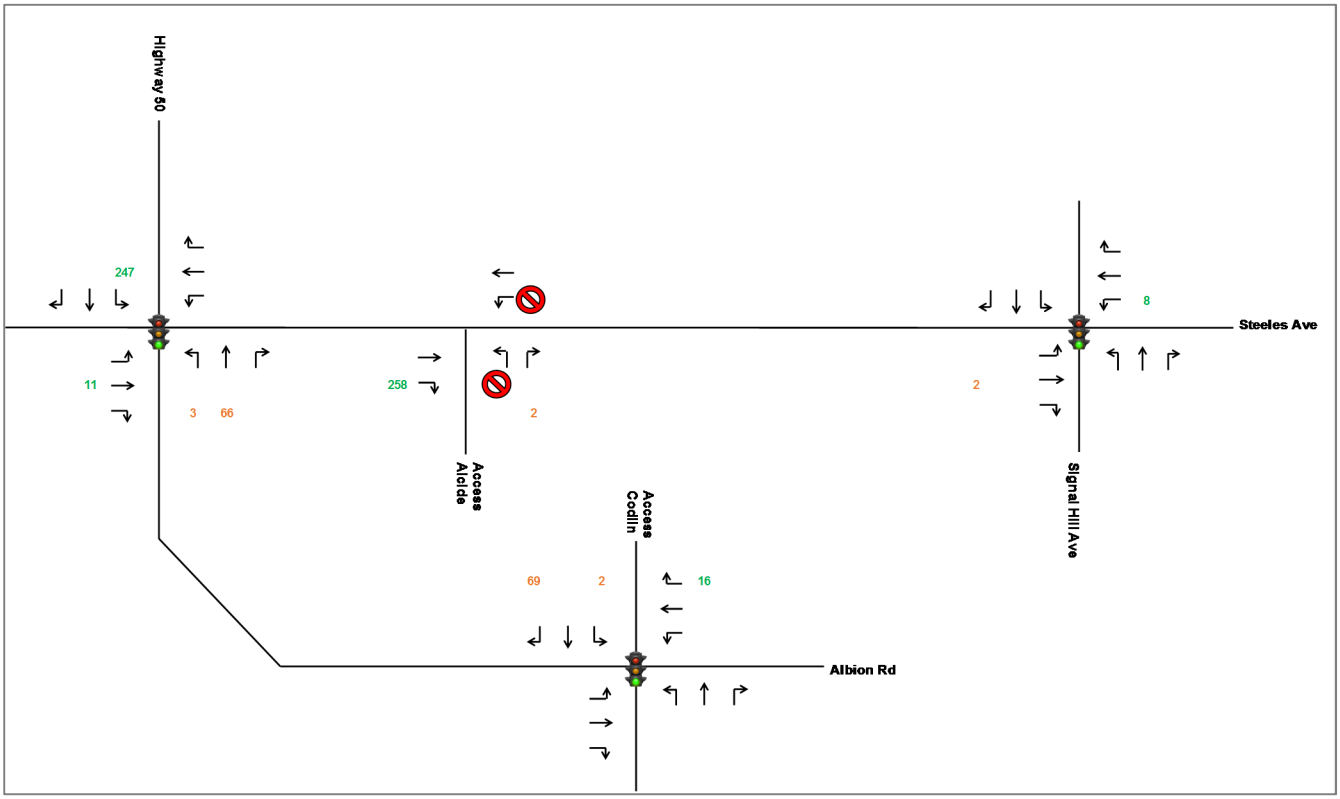
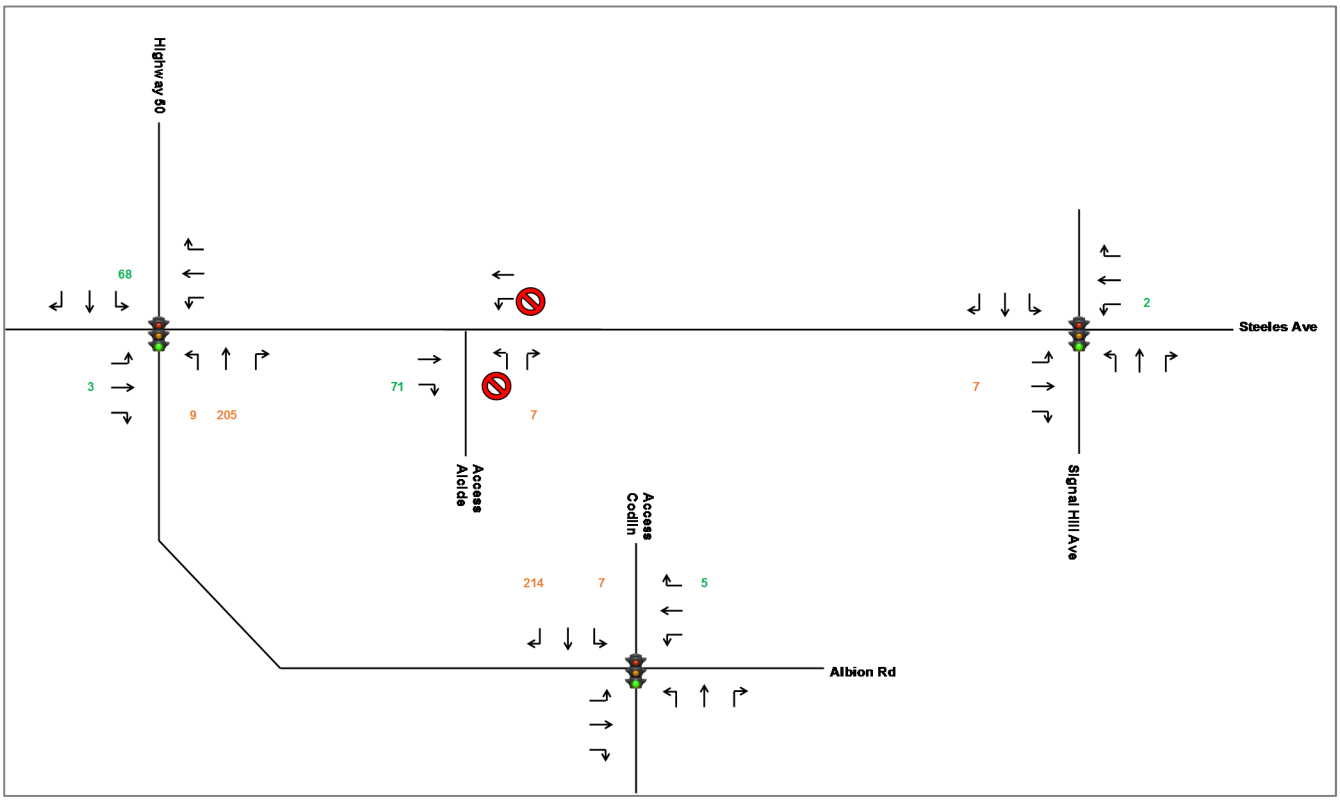


Exhibit 3-9: Site Generated Traffic in AM Peak Hour (7-station structure)



3.4 Parking Demands

In order to estimate parking demands at each of the Transitway stations, data from various GO transit stations nearby the study area was analyzed to study the relationship between inbound vehicle trips and average parking lot utilization. Four GO stations were considered, comprising of Brampton, Bramalea, Malton, and Etobicoke North stations.

The average number of inbound vehicle trips made to each of these GO stations during the a.m. peak period (defined as 6:30-9:30 am) were determined using 2011 Transportation Tomorrow Survey (TTS) data. The data was filtered to only include trips made via the auto driver mode, as this corresponds directly to number of inbound passenger vehicles.

Parking data for the GO transit stations was obtained from the *GO Transit Rail Parking and Station Access Plan (2013)* prepared for Metrolinx. The report notes the total capacity and average utilization of each GO station parking lot, which were used to calculate average parking demands. Note that the parking data from this report is dated May-2012, which is similar to the time period covered by the 2011 TTS.

By comparing the number of inbound auto drivers during the a.m. peak period to the average parking lot demand at each station, a representative "parking factor" was determined. These values are indicated in the below Exhibit 3-10.

Exhibit 3-10: Parking Demand Factors for nearby GO Transit Stations

2011 TTS AM PEAK PERIOD *		2012 GO STATION PARKING **			PARKING FACTOR
GO Station	Auto Drivers	Capacity	Utilization	Demand	
Brampton	860	891	101%	900	1.046
Bramalea	1,360	2,381	81%	1,929	1.418
Malton	580	731	95%	694	1.197
Etobicoke North	410	532	97%	516	1.259
Total	*3,210*	*4,535*	*89%*	*4,039*	***1.258***

** AM peak period inbound vehicles estimated using 2011 TTS data, and rounded to the nearest 10.*

*** GO parking data obtained from the "GO Transit Rail Parking and Station Access Plan" (2013), and is dated May-2012.*

This "parking factor" was then applied to the a.m. peak period inbound trips estimated at each Transitway station. Note that park-and-ride forecasts (and congruently, estimated inbound vehicle trips) for the a.m. peak hour can be converted to a.m. peak period forecasts by applying a factor of 2.174, as analysis of the TTS indicated that 46% of 3-hour a.m. peak period trips occur within the single a.m. peak hour.

The resulting estimated parking demands at each Transitway station are provided in Exhibit 3-11. Parking demands are provided for both the 2031 horizon used for the purposes of this traffic study, as well as for the 2051 horizon established to represent "ultimate" conditions.

Exhibit 3-11: Estimated Parking Demands for each Transitway Station

STATION	GGHM INBOUND TRIPS *				PARKING DEMAND ***	
	AM Peak Hour		AM Peak Period **			
	2031	2051	2031	2051	2031	2051
Pine Valley	118	164	257	356	323	448
Martin Grove	155	227	336	494	423	622
Highway 27	155	236	336	514	423	646
Highway 50	**236**	**409**	**514**	**889**	**646**	**1119**
Goreway	164	291	356	632	448	796
Airport	109	191	237	415	298	522
Dixie	100	164	217	356	273	448
Hurontario	155	245	336	534	423	671

** Calculated based on forecasted a.m. park-and-ride boardings, at a factor 1.0 inbound vehicles per 1.1 boardings.*

*** Peak hour trips can be converted to peak period trips at a factor of 2.174.*

**** Parking demands calculated by multiplying estimated a.m. peak period inbound trips by a factor of 1.258.*

Note that in the event that Martin Grove Station is not implemented and the 407 Transitway-3 section operates under the 7-station structure, parking demands at Highway 50 Station are expected to be 15-20% higher than those indicated in Exhibit 3-9.

4 Future Conditions

4.1 Future Background Operations

Future conditions analysis were undertaken for horizon year 2031. The City of Mississauga and Region of Peel population and trip-end growth forecasts were considered in the preparation of the traffic growth forecast. Relevant documents are listed as follows:

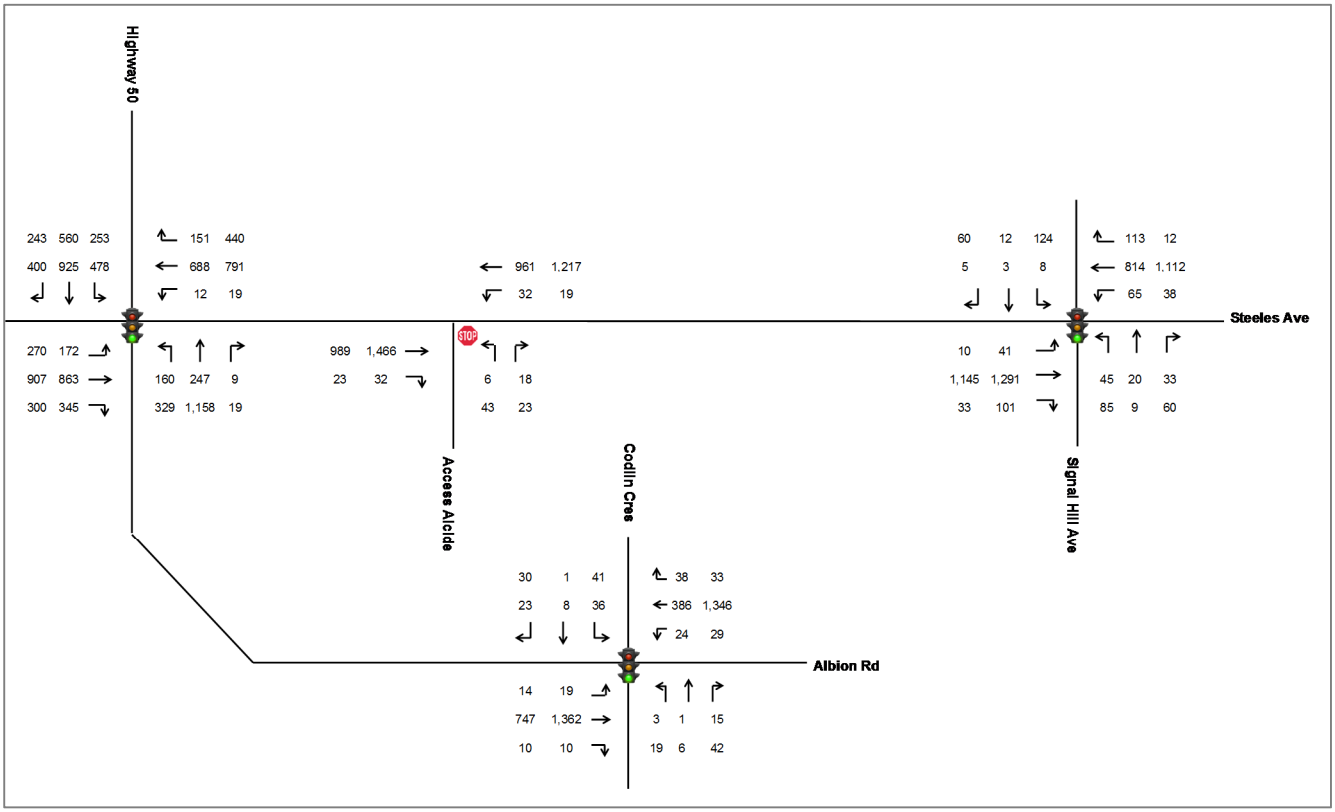
- Greater Toronto and Hamilton Area – "Growth Plan for the Greater Golden Horseshoe" (2017);
- City of Mississauga – "Mississauga Official Plan" (2016); "Population, Demographics & Housing" (2013); and "Moving Mississauga" (2011); and,
- Region of Peel – "Long Range Transportation Plan" (2012).

Review of the above documents showed that population growth is estimated to be 0.5% to 0.6% per year between 2011 and 2031, while trip ends are forecasted to increase by 0.9% to 1.0% per year during that same period time.

However, many major intersections nearby the Transitway are already operating at or above capacity during peak times, suggesting that there is limited remaining capacity available to serve added future demands. While trip ends are forecasted to increase up to 1.0% per year, it is expected that some "peak spreading" will occur – where some motorists alter their departure times to avoid congestion during the peak hours. Rather than growth occurring uniformly throughout the day, this results in less growth during the peak hours and greater growth during off-peak times.

Given the above, an annual compound growth rate of 0.5% per year was used to represent background growth (unrelated to the implementation of the Transitway) during the a.m. and p.m. peak hours. Future traffic volumes with background growth applied are illustrated in Exhibit 4-1.

Exhibit 4-1: Future Background Volumes in AM (PM) Peak Hours



A summary of critical movements identified during the future background conditions analysis is provided in Exhibit 4-2, with a detailed output of the Synchro analysis provided in the Appendix.

Exhibit 4-2: Future Background Critical Movements Summary

INTERSECTION	AM PEAK					PM PEAK				
	LOS	Critical Movements				LOS	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Albion Rd / Highway 50 & Steeles Ave W	D	EBL NBL SBT	E F E	0.91 0.99 1.02	61.0 64.8 210.3	E	EBL WBR NBL NBT SBL SBT	F D F F F D	1.08 0.55 1.13 1.10 1.11 0.90	100.6 73.1 127.4 206.4 101.5 124.4
Albion Rd & Claireport Cres / Codlin Cres	A	(no critical movements)				A	(no critical movements)			
Steeles Ave W & Alcide St	N/A	NB	D	0.12	3.0	N/A	NB	F	0.47	15.3
Steeles Ave W & Signal Hill Ave	A	(no critical movements)				B	(no critical movements)			

With background growth added, the study intersections are expected to operate as follows:

- Albion Road / Highway 50 & Steeles Avenue continues to operate at LOS D in the a.m. peak hour, but deteriorates from LOS D to LOS E in the p.m. peak hour. The

SBT movement is now expected to be at capacity in the a.m. peak. In the p.m. peak, the NBT, NBL, EBL, and WBL movements all operate above capacity, while the SBT movement is approaching capacity.

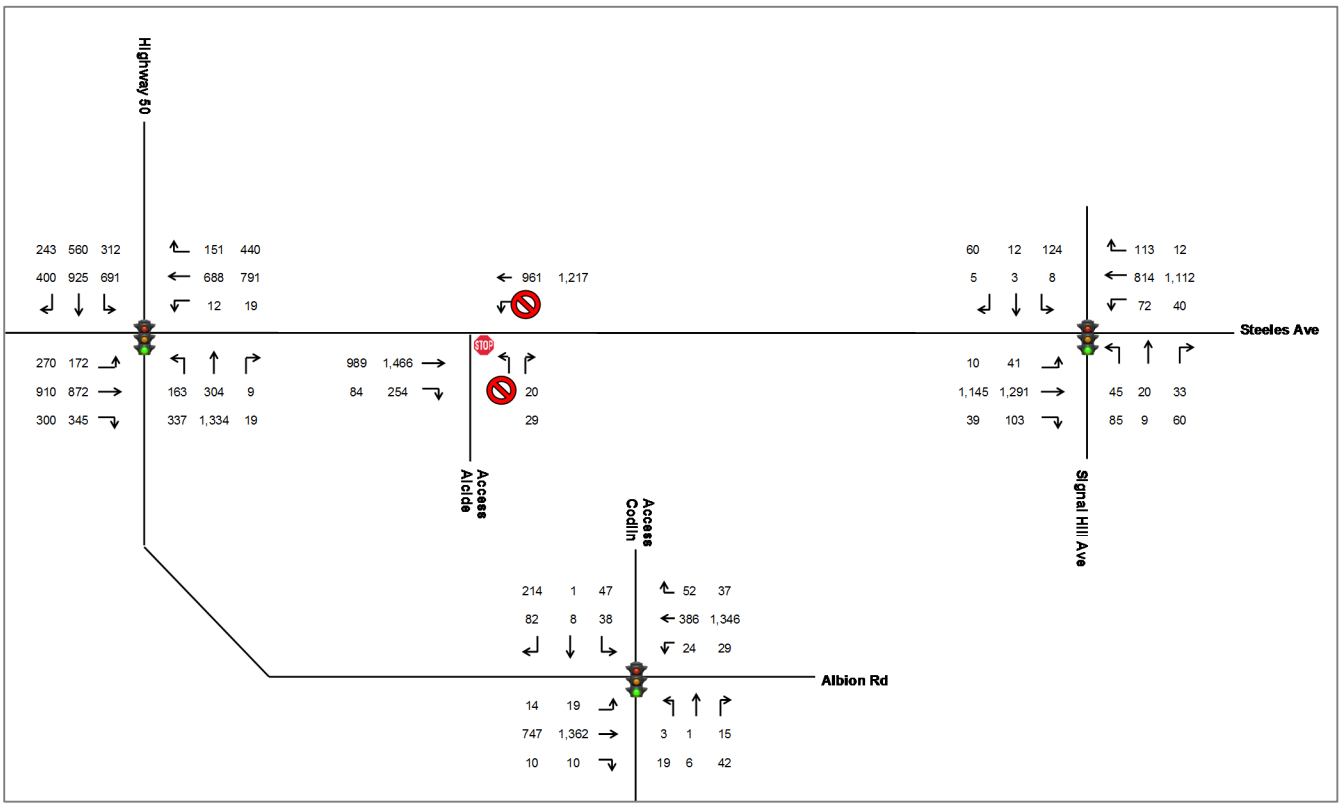
- Both Albion Road & Claireport Crescent / Codlin Crescent and Steeles Avenue & Signal Hill Avenue continue to operate well during both peak hours.
- The three-legged intersection between Steeles Avenue and Alcide Street is unsignalized. While northbound volumes on the Alcide Street approach are quite low, this approach is experiencing delays due to limited gaps being available in the east-west traffic for vehicles to make the left-turn onto Steeles Avenue.

4.2 Future Total Operations

Future total volumes were calculated adding the site-generated traffic to the future volumes with background growth applied. This future total scenario accounts for all vehicular traffic that is estimated in year 2031 following implementation of the Transitway.

Future total volumes, which include background growth in addition to the traffic generated by Highway 50 Station (8-station structure), are illustrated in Exhibit 4-3.

Exhibit 4-3: Future Total Volumes in AM (PM) Peak Hours (8-station structure)



A summary of critical movements identified during the future total conditions analysis is provided in Exhibit 4-4, with a detailed output of the Synchro analysis provided in the Appendix.

Exhibit 4-4: Future Total Critical Movements Summary (8-station structure)

INTERSECTION	AM PEAK					PM PEAK				
	LOS	Critical Movements				LOS	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Albion Rd / Highway 50 & Steeles Ave W	D	EBL NBL SBL SBT	F E F D	0.96 0.93 1.13 0.95	66.0 62.8 250.9 186.5	F	EBL WBR NBL NBT SBL SBT	F D F F F D	1.30 0.50 1.03 1.17 1.22 0.87	109.9 65.8 121.1 229.3 128.2 120.8
Albion Rd & Claireport Cres / Codlin Cres	A	(no critical movements)				B	(no critical movements)			
Steeles Ave W & Alcide St	N/A	(no critical movements)				N/A	(no critical movements)			
Steeles Ave W & Signal Hill Ave	A	(no critical movements)				B	(no critical movements)			

With Highway 50 demands (8-station structure) added to background growth conditions, the study intersections are expected to operate as follows:

- Albion Road / Highway 50 & Steeles Avenue continues to operate at LOS D in the a.m. peak, but deteriorates from LOS E to LOS F in the p.m. peak as compared to the background growth conditions analysis. Volumes on the SBL movement

increase with the addition of site traffic, and the movement now operates above capacity during both peak hours. Any widening of the southbound approach at this intersection would necessitate bridge widening. Added NBT traffic also causes the already critical movement to deteriorate further beyond capacity during the p.m. peak hour.

- Both Albion Road & Claireport Crescent / Codlin Crescent and Steeles Avenue & Signal Hill Avenue continue to operate well during both peak hours, even with the addition of site traffic.
- In the Future Total scenario, the three-legged intersection between Steeles Avenue and Alcide Street (unsignalized) was modelled as right-in/right-out, since the northbound approach already operated poorly without site traffic added. Converting this intersection to right-in/right-out affects the distribution of inbound and outbound trips to/from the Transitway station. Following this restriction, excessive delays are no longer observed on the northbound approach.

Two accesses to the park-and-ride lot are proposed. The existing unsignalized intersection at Steeles Avenue & Alcide Street will be used as one site access, with the Alcide Street approach leading to the proposed park-and-ride lot. While left-turns are currently permitted at this intersection, the background conditions analysis indicated significant delays are incurred to NBL traffic, since limited gaps are available in the east/west traffic to make the left-turn. As a result, it is recommended that this intersection be converted to right-in/right-out when the Transitway station is implemented. A second signalized access located at Albion Road & Codlin Street will also serve the lot. Under this proposed configuration, both accesses are anticipated to operate well as indicated in Exhibit 4-5.

Exhibit 4-5: Station Access Operations Summary (8-station structure)

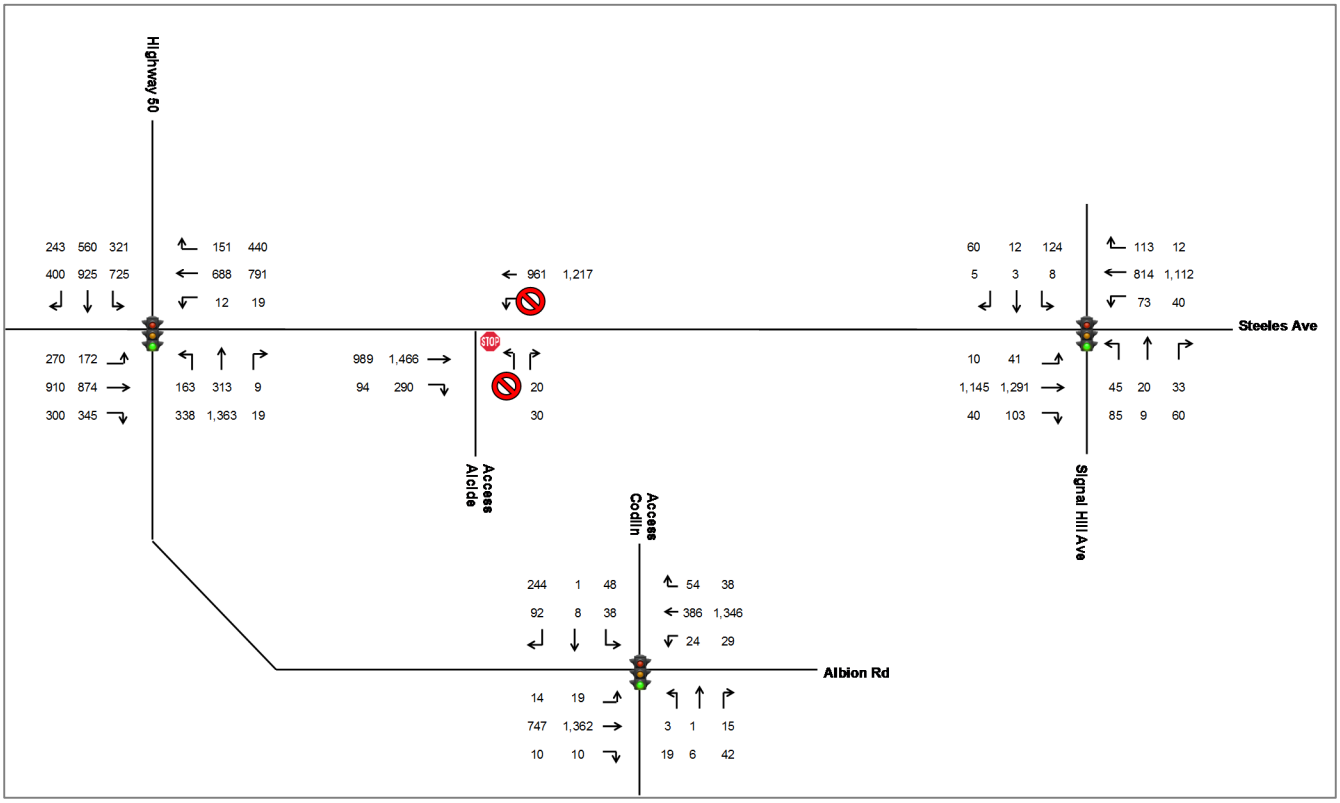
ACCESS	AM Peak					PM Peak				
	LOS	Inbound/Outbound Movement				LOS	Inbound/Outbound Movement			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Alcide St access (right-in/right-out)	A	EBR (in)	A	0.15	0.0	A	EBR (in)	A	0.05	0.0
		NBR (out)	C	0.05	1.3		NBR (out)	B	0.06	1.3
Codlin Cres access (signalized)	A	EBL (in)	A	0.03	2.5	B	EBL (in)	A	0.09	4.0
		WBR (in)	A	0.03	2.6		WBR (in)	A	0.03	2.6
		SBL (out)	D	0.35	15.2		SBL (out)	C	0.19	13.4
		SBTR (out)	D	0.13	14.5		SBTR (out)	C	0.66	44.5

As shown, both access are expected to operate satisfactorily during both the a.m. peak and p.m. peak hour. No individual movements are expected to exceed critical thresholds.

Sensitivity Analysis (7-station structure)

In this scenario, it is assumed that the nearby Martin Grove Station is not implemented, and therefore additional demands shift to Highway 50 Station. Future total volumes, which include background growth in addition to the traffic generated by Highway 50 Station (7-station structure), are illustrated in Exhibit 4-6.

Exhibit 4-6: Future Total Volumes in AM (PM) Peak Hours (7-station structure)



A summary of critical movements identified during the future total conditions analysis (assuming the nearby Martin Grove Station is not implemented) is provided in Exhibit 4-7, with a detailed output of the Synchro analysis provided in the Appendix.

Exhibit 4-7: Future Total Critical Movements Summary (7-station structure)

INTERSECTION	AM PEAK					PM PEAK				
	LOS	Critical Movements				LOS	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Albion Rd / Highway 50 & Steeles Ave W	E	EBL NBL SBL SBT	F E F D	0.96 0.93 1.19 0.95	66.0 62.8 269.7 186.5	F	EBL WBR NBL NBT SBL SBT	F D F F F D	1.26 0.51 1.06 1.19 1.33 0.90	106.9 68.4 125.2 236.5 136.5 124.4
Albion Rd & Claireport Cres / Codlin Cres	A	(no critical movements)				B	(no critical movements)			
Steeles Ave W & Alcide St	N/A	(no critical movements)				N/A	(no critical movements)			
Steeles Ave W & Signal Hill Ave	A	(no critical movements)				B	(no critical movements)			

With Highway 50 demands (7-station structure) added to future background growth conditions, the study intersections are expected to operate as follows:

- Operations worsen at Albion Rd / Highway 50 & Steeles Ave W, since a greater amount of site traffic is added to the already critical SBL and NBT movements

under the 7-station structure. The intersection operates at LOS E & F (during a.m. & p.m. peak, respectively) with the 7-station structure, as compared to LOS D & F with the 8-station structure.

- Both Albion Road & Claireport Crescent / Codlin Crescent and Steeles Avenue & Signal Hill Avenue continue to operate well during both peak hours, even with the additional site traffic.
- The three-legged intersection between Steeles Avenue and Alcide Street (unsignalized), which is recommended to be restricted to right-in/right-out, is still expected to operate well following this conversion.

The same two accesses are proposed for this sensitivity analysis scenario, and the below Exhibit 4-8 indicates that the west access will continue to operate satisfactorily and the east access will operate well under this proposed configuration.

Exhibit 4-8: Station Access Operations Summary (7-station structure)

ACCESS	AM Peak					PM Peak				
	LOS	Inbound/Outbound Movement				LOS	Inbound/Outbound Movement			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Alcide St access (right-in/right-out)	A	EBR (in)	A	0.17	0.0	A	EBR (in)	A	0.06	0.0
		NBR (out)	C	0.05	1.3		NBR (out)	B	0.06	1.4
Codlin Cres access (signalized)	A	EBL (in)	A	0.03	2.5	B	EBL (in)	A	0.10	4.4
		WBR (in)	A	0.04	2.7		WBR (in)	A	0.03	2.9
		SBL (out)	D	0.35	15.2		SBL (out)	C	0.18	12.8
		SBTR (out)	D	0.13	14.5		SBTR (out)	C	0.68	48.5

As shown, both access are still expected to operate satisfactorily during both the a.m. peak and p.m. peak hour. No individual movements are expected to exceed critical thresholds.

4.3 Future Model Calibration

The Future Synchro models were calibrated to better reflect measured field conditions accomplished by adjusting either the Lane Utilization Factor (LUF) or Lost Time Adjustment (LTA) for certain movements.

Adjustments made to the existing traffic models are outlined in Exhibit 4-9.

Exhibit 4-9: Future Background Model Calibration Parameters

PERIOD	INTERSECTION	MOVEMENT	ADJUSTED PARAMETER	EXISTING ADJ. VALUE
AM Peak	Highway 50 & Steeles	SBT	LUF	1.0
PM Peak	Highway 50 & Steeles	NBT	LUF	1.0

These adjustments were applied using the methodologies outlined in Section 1.5.

5 Potential Improvement Measures

5.1 Highway 50 & Steeles Avenue

The below improvement measures were analyzed in Synchro given the 8-station scenario, with results presented in Exhibit 5-1:

- Dual SBL lanes; and,
- Dedicated SBR lane.

Exhibit 5-1: Analysis of Improvements to Highway 50 & Steeles Ave (8-station structure)

INTERSECTION	AM PEAK					PM PEAK				
	Avg. v/c	Critical Movements				Avg. v/c	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Highway 50 / Albion Rd & Steeles Ave (current configuration)	1.12	EBL	F	0.96	66.0	1.28	EBL	F	1.30	109.9
		EBT	C	0.72	113.9		EBT	C	0.65	109.8
		EBR	C	0.36	44.5		EBR	C	0.21	16.0
		WBL	C	0.09	7.0		WBL	C	0.14	9.6
		WBT	D	0.72	97.0		WBT	D	0.77	111.6
		WBR	C	0.11	15.0		WBR	D	0.50	65.8
		NBL	E	0.93	62.8		NBL	F	1.03	121.1
		NBT	D	0.35	43.7		NBT	F	1.17	229.3
		SBL	F	1.13	250.9		SBL	F	1.22	128.2
		SBT	D	0.95	186.5		SBT	D	0.87	120.8
Highway 50 / Albion Rd & Steeles Ave (with improvements)	0.78	EBL	C	0.66	38.6	1.17	EBL	F	1.16	103.7
		EBT	C	0.59	100.5		EBT	C	0.63	106.3
		EBR	C	0.25	19.0		EBR	C	0.21	15.5
		WBL	C	0.06	6.6		WBL	C	0.13	9.5
		WBT	D	0.63	93.3		WBT	D	0.77	111.6
		WBR	C	0.11	14.4		WBR	D	0.60	83.8
		NBL	D	0.74	48.1		NBL	D	0.88	83.3
		NBT	D	0.36	43.7		NBT	F	1.11	221.5
		SBL	C	0.73	70.0		SBL	F	1.15	72.2
		SBT	D	0.86	125.2		SBT	D	0.60	78.4
		SBR	D	0.50	58.1		SBR	C	0.18	19.6

The following was observed:

- In the a.m. peak, operations of the southbound movements are greatly improved and additional green-time can be allocated to the east/west phase. This results in a drastic improvement of conditions.
- In the p.m. peak, high northbound volumes still necessitate significant green-time for the north/south phase, and so eastbound and westbound movements see limited benefit. As such, the intersection still operates well above capacity.

Implementing dual SBL lanes and a dedicated SBR lane would greatly improve operations at this intersection in the a.m. peak, during which time the SBL movement significantly impacted by Transitway traffic and operates poorly if the existing intersection configuration is maintained. However, operational benefits are less pronounced in the p.m. peak.

Widening the southbound approach would be very costly, as it would necessitate widening the bridge over Highway 407.

Sensitivity Analysis (7-station structure)

The same observations are observed when analyzing these improvements under the 7-station scenario, notwithstanding a minor worsening of overall intersection operations due to the additional site traffic accessing this station. Results of this analysis are presented in Exhibit 5-2.

Exhibit 5-2: Analysis of Improvements to Highway 50 & Steeles Ave (7-station structure)

INTERSECTION	AM PEAK					PM PEAK				
	Avg. v/c	Critical Movements				Avg. v/c	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Highway 50 / Albion Rd & Steeles Ave (current configuration)	1.16	EBL	F	0.96	66.0	1.30	EBL	F	1.26	106.9
		EBT	D	0.72	114.2		EBT	C	0.64	108.1
		EBR	C	0.36	44.5		EBR	C	0.21	15.8
		WBL	C	0.09	7.1		WBL	C	0.14	9.4
		WBT	D	0.72	97.0		WBT	D	0.75	110.1
		WBR	C	0.11	15.0		WBR	D	0.51	68.4
		NBL	E	0.93	62.8		NBL	F	1.06	125.2
		NBT	D	0.36	44.8		NBT	F	1.19	236.5
		SBL	F	1.19	269.7		SBL	F	1.33	136.5
		SBT	D	0.95	186.5		SBT	D	0.90	124.4
Highway 50 / Albion Rd & Steeles Ave (with improvements)	0.79	EBL	C	0.66	38.6	1.18	EBL	F	1.13	100.6
		EBT	C	0.60	100.8		EBT	C	0.62	104.5
		EBR	C	0.25	19.0		EBR	C	0.21	15.3
		WBL	C	0.06	6.7		WBL	C	0.13	9.4
		WBT	D	0.63	93.3		WBT	D	0.75	110.1
		WBR	C	0.11	14.4		WBR	D	0.58	81.4
		NBL	D	0.74	48.1		NBL	D	0.91	87.4
		NBT	D	0.37	44.8		NBT	F	1.16	232.6
		SBL	C	0.78	74.0		SBL	F	1.18	74.7
		SBT	D	0.86	125.2		SBT	D	0.60	78.4
		SBR	D	0.50	58.1		SBR	C	0.18	19.6

5.2 Highway 50 & Steeles Avenue – Alternative Option

The below improvement measures were analyzed in Synchro given the 8-station scenario, with results presented in Exhibit 5-3:

- Dual EBL lanes.

Exhibit 5-3: Analysis of Improvements to Highway 50 & Steeles Ave (8-station Structure) – Alternative Option

INTERSECTION	AM PEAK					PM PEAK				
	Avg. v/c	Critical Movements				Avg. v/c	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Highway 50 / Albion Rd & Steeles Ave (current configuration)	1.12	EBL	F	0.96	66.0	1.28	EBL	F	1.30	109.9
		EBT	C	0.72	113.9		EBT	C	0.65	109.8
		EBR	C	0.36	44.5		EBR	C	0.21	16.0
		WBL	C	0.09	7.0		WBL	C	0.14	9.6
		WBT	D	0.72	97.0		WBT	D	0.77	111.6
		WBR	C	0.11	15.0		WBR	D	0.50	65.8
		NBL	E	0.93	62.8		NBL	F	1.03	121.1
		NBT	D	0.35	43.7		NBT	F	1.17	229.3
		SBL	F	1.13	250.9		SBL	F	1.22	128.2
		SBT	D	0.95	186.5		SBT	D	0.87	120.8
Highway 50 / Albion Rd & Steeles Ave (with improvements)	1.04	EBL	F	1.05	45.0	1.03	EBL	F	1.24	67.1
		EBT	C	0.70	112.2		EBT	C	0.65	109.8
		EBR	C	0.35	43.7		EBR	C	0.21	16.0
		WBL	C	0.09	7.0		WBL	C	0.14	9.5
		WBT	D	0.72	97.0		WBT	D	0.75	110.1
		WBR	C	0.11	15.0		WBR	D	0.51	67.3
		NBL	E	0.93	63.0		NBL	F	1.03	121.1
		NBT	D	0.35	43.7		NBT	F	1.17	229.3
		SBL	F	1.15	254.3		SBL	F	1.22	128.2
		SBT	D	0.97	190.1		SBT	D	0.87	120.8

The following was observed:

- Improvements to individual movements are not particularly significant, with exception to a large reduction in EBL queue lengths. However, conditions are improved during both peak
- The average v/c ratio is reduced, however the intersection continues to operate above capacity during both peak hours.

The EBL movement is not directly impacted by Transitway traffic, however dual EBL lanes were tested to determine whether significant green-time was made available for other movements. This was not observed, and operations of movements on the other approaches – including the SBL and NBT movements which are most affected by site traffic – did not see significant benefit.

However, this improvement alternative may be far less costly than the previous scenario identified (widening the southbound approach) as it likely does not necessitate bridge widening – although further design review is required to confirm this.

Sensitivity Analysis (7-station structure)

The same observations are observed when analyzing these improvements under the 7-station scenario, notwithstanding a minor worsening of overall intersection operations due to the additional site traffic accessing this station. Results of this analysis are presented in Exhibit 5-4.

Exhibit 5-4: Analysis of Improvements to Highway 50 & Steeles Ave (7-station Structure) – Alternative Option

INTERSECTION	AM PEAK					PM PEAK				
	Avg. v/c	Critical Movements				Avg. v/c	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Highway 50 / Albion Rd & Steeles Ave (current configuration)	1.12	EBL	F	0.96	66.0	1.28	EBL	F	1.30	109.9
		EBT	C	0.72	113.9		EBT	C	0.65	109.8
		EBR	C	0.36	44.5		EBR	C	0.21	16.0
		WBL	C	0.09	7.0		WBL	C	0.14	9.6
		WBT	D	0.72	97.0		WBT	D	0.77	111.6
		WBR	C	0.11	15.0		WBR	D	0.50	65.8
		NBL	E	0.93	62.8		NBL	F	1.03	121.1
		NBT	D	0.35	43.7		NBT	F	1.17	229.3
		SBL	F	1.13	250.9		SBL	F	1.22	128.2
		SBT	D	0.95	186.5		SBT	D	0.87	120.8
Highway 50 / Albion Rd & Steeles Ave (with improvements)	1.04	EBL	F	1.05	45.0	1.03	EBL	F	1.24	67.1
		EBT	C	0.70	112.2		EBT	C	0.65	109.8
		EBR	C	0.35	43.7		EBR	C	0.21	16.0
		WBL	C	0.09	7.0		WBL	C	0.14	9.5
		WBT	D	0.72	97.0		WBT	D	0.75	110.1
		WBR	C	0.11	15.0		WBR	D	0.51	67.3
		NBL	E	0.93	63.0		NBL	F	1.03	121.1
		NBT	D	0.35	43.7		NBT	F	1.17	229.3
		SBL	F	1.15	254.3		SBL	F	1.22	128.2
		SBT	D	0.97	190.1		SBT	D	0.87	120.8

6 Summary and Recommendations

This report provides an analysis of traffic operations for the proposed Highway 407 Transitway station located on Highway 50. Future conditions during the a.m. and p.m. peak hours were modelled and analyzed based on a horizon year of 2031. The study includes two scenarios – a base 8-station scenario with Martin Grove Road transitway station in place, and an alternative 7-station scenario without Martin Grove station, to account for the potential shift in demand to the subject Highway 50 station.

The study indicates that future 2031 background traffic operations have several movements nearing or at capacity at Highway 50 & Steeles Avenue West and at Steeles Avenue West & Alcide Street.

Site traffic for this station is generally originating from / destined to the north, and therefore significant volumes are added to the congested Steeles Avenue & Highway 50 / Albion Road intersection. It is expected the majority of inbound traffic will enter via the Alcide Street access, via the SBL movement at Steeles Avenue & Highway 50 / Albion Road. Because it is recommended that the Alcide Street access be converted to right-in/right-out, the majority of outbound traffic will as a result exit using the Codlin Crescent access to the south, and impact the NBT movement at Steeles Avenue & Highway 50 / Alcide Street. Both the SBL and NBT movements were identified as being overcapacity in the future total conditions analysis.

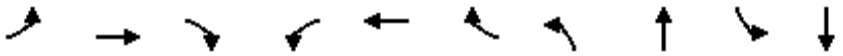
Improvements measures are recommended at Steeles Avenue & Highway 50 / Alcide Street to address these deficiencies. Widening the southbound approach, including implementing dual left-turn lanes and adding a dedicated right-turn lane, would have the greatest benefit to traffic operations, however would be very costly as they would necessitate widening the bridge over Highway 407. Alternatively, while the EBL movement is not directly impacted by Transitway traffic, implementing dual EBL lanes would free up additional green-time to be used by the north/south phases, and represent a far less costly improvement measure. Further design review and consideration is required to evaluate the approximate cost-benefit of these two improvement alternatives.

Appendix A – Existing (2017) Conditions Synchro Output

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1367	20	30	896	6	17
Future Volume (Veh/h)	1367	20	30	896	6	17
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1367	20	30	896	6	17
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1387		1875	684
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1387		1875	684
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			94		90	96
cM capacity (veh/h)			500		61	396

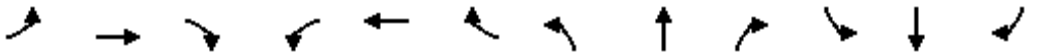
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	684	684	20	30	448	448	6	17
Volume Left	0	0	0	30	0	0	6	0
Volume Right	0	0	20	0	0	0	0	17
cSH	1700	1700	1700	500	1700	1700	61	396
Volume to Capacity	0.40	0.40	0.01	0.06	0.26	0.26	0.10	0.04
Queue Length 95th (m)	0.0	0.0	0.0	1.5	0.0	0.0	2.4	1.0
Control Delay (s)	0.0	0.0	0.0	12.7	0.0	0.0	70.5	14.5
Lane LOS				B			F	B
Approach Delay (s)	0.0			0.4			29.1	
Approach LOS							D	

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	47.8%	ICU Level of Service	A
Analysis Period (min)	15		



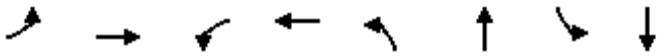
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	38	1204	94	61	759	105	42	50	7	8
v/c Ratio	0.07	0.48	0.09	0.22	0.31	0.08	0.31	0.25	0.04	0.05
Control Delay	4.6	5.8	1.5	7.0	4.6	1.2	35.9	19.0	28.7	21.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.6	5.8	1.5	7.0	4.6	1.2	35.9	19.0	28.7	21.4
Queue Length 50th (m)	1.4	33.5	0.3	2.5	17.7	0.0	5.6	2.5	0.9	0.4
Queue Length 95th (m)	4.7	54.9	4.3	8.8	30.1	4.2	13.8	11.2	4.1	3.9
Internal Link Dist (m)		784.2			211.8			280.3		23.8
Turn Bay Length (m)	50.0		32.0	60.0		30.0				
Base Capacity (vph)	527	2526	1101	282	2415	1257	284	389	333	337
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.48	0.09	0.22	0.31	0.08	0.15	0.13	0.02	0.02

Intersection Summary



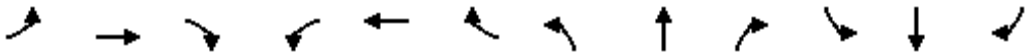
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	1204	94	61	759	105	42	19	31	7	3	5
Future Volume (vph)	38	1204	94	61	759	105	42	19	31	7	3	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91		1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	3349	1432	1659	3202	1633	1496	1524		1825	1393	
Flt Permitted	0.36	1.00	1.00	0.21	1.00	1.00	0.75	1.00		0.72	1.00	
Satd. Flow (perm)	699	3349	1432	374	3202	1633	1185	1524		1392	1393	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	38	1204	94	61	759	105	42	19	31	7	3	5
RTOR Reduction (vph)	0	0	25	0	0	30	0	28	0	0	5	0
Lane Group Flow (vph)	38	1204	69	61	759	75	42	22	0	7	3	0
Heavy Vehicles (%)	0%	9%	14%	10%	14%	0%	22%	5%	20%	0%	0%	40%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	53.8	53.8	53.8	53.8	53.8	53.8	7.2	7.2		7.2	7.2	
Effective Green, g (s)	53.8	53.8	53.8	53.8	53.8	53.8	7.2	7.2		7.2	7.2	
Actuated g/C Ratio	0.72	0.72	0.72	0.72	0.72	0.72	0.10	0.10		0.10	0.10	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	501	2402	1027	268	2296	1171	113	146		133	133	
v/s Ratio Prot		c0.36			0.24			0.01			0.00	
v/s Ratio Perm	0.05		0.05	0.16		0.05	c0.04			0.01		
v/c Ratio	0.08	0.50	0.07	0.23	0.33	0.06	0.37	0.15		0.05	0.03	
Uniform Delay, d1	3.2	4.7	3.1	3.6	3.9	3.1	31.8	31.1		30.8	30.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.8	0.1	2.0	0.4	0.1	2.1	0.5		0.2	0.1	
Delay (s)	3.5	5.4	3.3	5.5	4.3	3.2	33.8	31.6		31.0	30.8	
Level of Service	A	A	A	A	A	A	C	C		C	C	
Approach Delay (s)		5.2			4.3			32.6			30.9	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	6.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



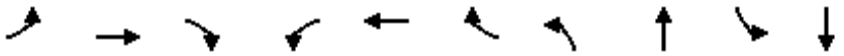
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	18	1279	22	395	3	15	34	28
v/c Ratio	0.03	0.43	0.09	0.14	0.02	0.12	0.27	0.19
Control Delay	3.2	3.8	4.2	2.5	36.3	20.7	42.9	22.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.2	3.8	4.2	2.5	36.3	20.7	42.9	22.3
Queue Length 50th (m)	0.6	35.1	0.8	7.4	0.5	0.2	5.6	1.2
Queue Length 95th (m)	2.4	53.7	3.2	12.9	3.0	5.8	14.2	8.7
Internal Link Dist (m)		633.7		309.4		165.6		225.3
Turn Bay Length (m)	50.0		40.0		40.0		38.0	
Base Capacity (vph)	691	2941	250	2784	490	434	480	497
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	0.03	0.43	0.09	0.14	0.01	0.03	0.07	0.06

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	1270	9	22	360	35	3	1	14	34	7	21
Future Volume (vph)	18	1270	9	22	360	35	3	1	14	34	7	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.86		1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1496	3474		1383	3285		1825	1235		1772	1406	
Flt Permitted	0.52	1.00		0.20	1.00		0.74	1.00		0.75	1.00	
Satd. Flow (perm)	817	3474		295	3285		1423	1235		1395	1406	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	18	1270	9	22	360	35	3	1	14	34	7	21
RTOR Reduction (vph)	0	0	0	0	3	0	0	13	0	0	20	0
Lane Group Flow (vph)	18	1279	0	22	392	0	3	2	0	34	8	0
Heavy Vehicles (%)	22%	5%	0%	32%	10%	6%	0%	100%	29%	3%	43%	14%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	70.6	70.6		70.6	70.6		5.4	5.4		5.4	5.4	
Effective Green, g (s)	70.6	70.6		70.6	70.6		5.4	5.4		5.4	5.4	
Actuated g/C Ratio	0.78	0.78		0.78	0.78		0.06	0.06		0.06	0.06	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	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)	640	2725		231	2576		85	74		83	84	
v/s Ratio Prot		c0.37			0.12			0.00			0.01	
v/s Ratio Perm	0.02			0.07			0.00			c0.02		
v/c Ratio	0.03	0.47		0.10	0.15		0.04	0.02		0.41	0.10	
Uniform Delay, d1	2.1	3.3		2.3	2.4		39.8	39.8		40.8	40.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.6		0.8	0.1		0.2	0.1		3.3	0.5	
Delay (s)	2.2	3.9		3.1	2.5		40.0	40.0		44.0	40.5	
Level of Service	A	A		A	A		D	D		D	D	
Approach Delay (s)		3.9			2.5			40.0			42.4	
Approach LOS		A			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	5.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	160	805	322	11	642	141	149	238	446	1236
v/c Ratio	0.63	0.63	0.43	0.07	0.79	0.32	0.73	0.20	0.75	0.96
Control Delay	34.4	31.8	7.7	37.7	50.2	8.3	44.8	26.4	31.5	53.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.4	31.8	7.7	37.7	50.2	8.3	44.8	26.4	31.5	53.2
Queue Length 50th (m)	24.0	78.8	9.5	2.0	74.7	0.0	18.8	19.6	65.7	134.0
Queue Length 95th (m)	39.7	100.0	30.7	7.2	#105.9	15.9	#48.2	29.1	93.4	#178.7
Internal Link Dist (m)		359.6			381.0			633.7		252.6
Turn Bay Length (m)	113.0		79.0	71.8		62.0	90.0		245.0	
Base Capacity (vph)	278	1270	749	153	816	438	206	1209	591	1283
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.63	0.43	0.07	0.79	0.32	0.72	0.20	0.75	0.96

Intersection Summary

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

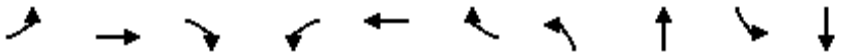
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	805	322	11	642	141	149	230	8	446	863	373
Future Volume (vph)	160	805	322	11	642	141	149	230	8	446	863	373
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	*1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1437	3202	1498	1674	3259	1328	1587	3341		1755	3421	
Flt Permitted	0.20	1.00	1.00	0.35	1.00	1.00	0.09	1.00		0.60	1.00	
Satd. Flow (perm)	296	3202	1498	613	3259	1328	156	3341		1110	3421	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	160	805	322	11	642	141	149	230	8	446	863	373
RTOR Reduction (vph)	0	0	155	0	0	106	0	2	0	0	46	0
Lane Group Flow (vph)	160	805	167	11	642	35	149	236	0	446	1190	0
Heavy Vehicles (%)	27%	14%	9%	9%	12%	23%	15%	9%	0%	4%	3%	17%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2			6		7	4		3	8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	47.2	47.2	47.2	29.8	29.8	29.8	53.6	42.8		54.0	43.0	
Effective Green, g (s)	47.2	47.2	47.2	29.8	29.8	29.8	53.6	42.8		54.0	43.0	
Actuated g/C Ratio	0.40	0.40	0.40	0.25	0.25	0.25	0.45	0.36		0.45	0.36	
Clearance Time (s)	4.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	245	1270	594	153	816	332	200	1201		563	1236	
v/s Ratio Prot	0.07	c0.25			c0.20		0.07	0.07		c0.07	c0.35	
v/s Ratio Perm	0.19		0.11	0.02		0.03	0.27			0.29		
v/c Ratio	0.65	0.63	0.28	0.07	0.79	0.11	0.74	0.20		0.79	0.96	
Uniform Delay, d1	26.1	28.9	24.4	34.0	41.6	34.3	25.6	26.3		25.4	37.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.1	2.4	1.2	0.9	7.5	0.6	14.0	0.1		7.5	17.3	
Delay (s)	32.3	31.4	25.6	35.0	49.2	35.0	39.6	26.3		32.9	54.5	
Level of Service	C	C	C	C	D	C	D	C		C	D	
Approach Delay (s)		30.0			46.5			31.4			48.8	
Approach LOS		C			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	40.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	119.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	115.7%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	922	21	18	1135	40	21
Future Volume (Veh/h)	922	21	18	1135	40	21
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	922	21	18	1135	40	21
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			943		1526	461
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			943		1526	461
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		63	96
cM capacity (veh/h)			736		108	553

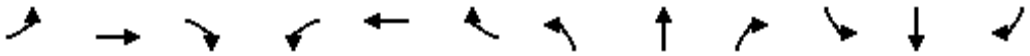
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	461	461	21	18	568	568	40	21
Volume Left	0	0	0	18	0	0	40	0
Volume Right	0	0	21	0	0	0	0	21
cSH	1700	1700	1700	736	1700	1700	108	553
Volume to Capacity	0.27	0.27	0.01	0.02	0.33	0.33	0.37	0.04
Queue Length 95th (m)	0.0	0.0	0.0	0.6	0.0	0.0	11.4	0.9
Control Delay (s)	0.0	0.0	0.0	10.0	0.0	0.0	56.8	11.8
Lane LOS				B			F	B
Approach Delay (s)	0.0			0.2			41.3	
Approach LOS							E	

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	41.4%	ICU Level of Service	A
Analysis Period (min)	15		



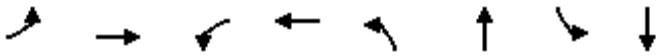
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	9	1068	31	35	1037	11	79	64	116	67
v/c Ratio	0.06	0.68	0.05	0.25	0.66	0.01	0.17	0.12	0.24	0.11
Control Delay	12.3	18.5	1.5	18.1	17.9	0.0	18.4	7.6	19.2	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.3	18.5	1.5	18.1	17.9	0.0	18.4	7.6	19.2	7.0
Queue Length 50th (m)	0.7	59.2	0.0	2.9	56.6	0.0	7.6	1.2	11.5	1.0
Queue Length 95th (m)	3.2	79.8	2.0	9.6	76.3	0.0	16.8	8.6	23.1	8.5
Internal Link Dist (m)		784.2			211.8			280.3		23.8
Turn Bay Length (m)	50.0		32.0	60.0		30.0				
Base Capacity (vph)	156	1562	631	138	1577	793	452	518	476	609
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.68	0.05	0.25	0.66	0.01	0.17	0.12	0.24	0.11

Intersection Summary



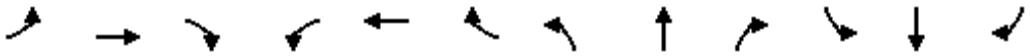
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	1068	31	35	1037	11	79	8	56	116	11	56
Future Volume (vph)	9	1068	31	35	1037	11	79	8	56	116	11	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.87		1.00	0.87	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1644	3349	1286	1547	3380	1633	1738	1400		1825	1653	
Flt Permitted	0.19	1.00	1.00	0.18	1.00	1.00	0.71	1.00		0.72	1.00	
Satd. Flow (perm)	336	3349	1286	297	3380	1633	1305	1400		1374	1653	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	9	1068	31	35	1037	11	79	8	56	116	11	56
RTOR Reduction (vph)	0	0	17	0	0	6	0	33	0	0	37	0
Lane Group Flow (vph)	9	1068	14	35	1037	5	79	31	0	116	30	0
Heavy Vehicles (%)	11%	9%	27%	18%	8%	0%	5%	0%	22%	0%	0%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	35.0	35.0	35.0	35.0	35.0	35.0	26.0	26.0		26.0	26.0	
Effective Green, g (s)	35.0	35.0	35.0	35.0	35.0	35.0	26.0	26.0		26.0	26.0	
Actuated g/C Ratio	0.47	0.47	0.47	0.47	0.47	0.47	0.35	0.35		0.35	0.35	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	156	1562	600	138	1577	762	452	485		476	573	
v/s Ratio Prot		c0.32			0.31			0.02			0.02	
v/s Ratio Perm	0.03		0.01	0.12		0.00	0.06			c0.08		
v/c Ratio	0.06	0.68	0.02	0.25	0.66	0.01	0.17	0.06		0.24	0.05	
Uniform Delay, d1	11.0	15.7	10.8	12.1	15.4	10.7	17.0	16.4		17.5	16.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	2.4	0.1	4.4	2.2	0.0	0.8	0.3		1.2	0.2	
Delay (s)	11.7	18.1	10.9	16.5	17.6	10.7	17.9	16.6		18.7	16.5	
Level of Service	B	B	B	B	B	B	B	B		B	B	
Approach Delay (s)		17.9			17.4			17.3			17.9	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



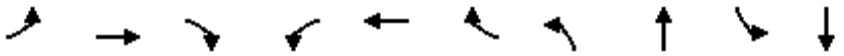
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	13	706	27	1286	18	45	38	29
v/c Ratio	0.05	0.25	0.05	0.45	0.13	0.23	0.29	0.16
Control Delay	4.5	3.4	3.9	4.5	33.8	15.8	38.1	18.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.5	3.4	3.9	4.5	33.8	15.8	38.1	18.3
Queue Length 50th (m)	0.5	15.6	1.0	35.8	2.6	0.8	5.5	1.0
Queue Length 95th (m)	2.3	25.8	3.5	57.1	8.2	9.5	13.7	7.9
Internal Link Dist (m)		633.7		309.4		165.6		225.3
Turn Bay Length (m)	50.0		40.0		40.0		38.0	
Base Capacity (vph)	255	2810	528	2849	494	631	488	626
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	0.05	0.25	0.05	0.45	0.04	0.07	0.08	0.05

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	697	9	27	1255	31	18	6	39	38	1	28
Future Volume (vph)	13	697	9	27	1255	31	18	6	39	38	1	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.87		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1484	3408		1587	3455		1644	1568		1644	1582	
Flt Permitted	0.20	1.00		0.38	1.00		0.74	1.00		0.73	1.00	
Satd. Flow (perm)	309	3408		640	3455		1278	1568		1259	1582	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	13	697	9	27	1255	31	18	6	39	38	1	28
RTOR Reduction (vph)	0	0	0	0	1	0	0	36	0	0	20	0
Lane Group Flow (vph)	13	706	0	27	1285	0	18	9	0	38	9	0
Heavy Vehicles (%)	23%	7%	0%	15%	5%	16%	11%	17%	5%	11%	0%	4%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	60.4	60.4		60.4	60.4		5.6	5.6		5.6	5.6	
Effective Green, g (s)	60.4	60.4		60.4	60.4		5.6	5.6		5.6	5.6	
Actuated g/C Ratio	0.75	0.75		0.75	0.75		0.07	0.07		0.07	0.07	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	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)	233	2573		483	2608		89	109		88	110	
v/s Ratio Prot		0.21			c0.37			0.01			0.01	
v/s Ratio Perm	0.04			0.04			0.01			c0.03		
v/c Ratio	0.06	0.27		0.06	0.49		0.20	0.08		0.43	0.08	
Uniform Delay, d1	2.5	3.0		2.5	3.8		35.1	34.8		35.7	34.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.3		0.2	0.7		1.1	0.3		3.4	0.3	
Delay (s)	3.0	3.3		2.7	4.5		36.2	35.1		39.0	35.1	
Level of Service	A	A		A	A		D	D		D	D	
Approach Delay (s)		3.3			4.5			35.4			37.3	
Approach LOS		A			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	6.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

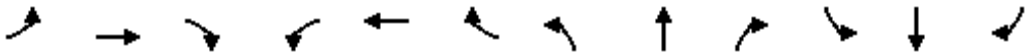


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	252	846	279	18	738	410	307	1098	236	749
v/c Ratio	0.93	0.63	0.37	0.15	0.95	0.77	0.98	0.89	1.08	0.65
Control Delay	71.1	31.0	4.3	40.7	68.6	30.6	68.8	46.3	114.5	32.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.1	31.0	4.3	40.7	68.6	30.6	68.8	46.3	114.5	32.5
Queue Length 50th (m)	44.9	83.3	0.0	3.4	90.1	43.0	41.2	123.7	~44.9	69.3
Queue Length 95th (m)	#97.1	104.7	16.3	10.0	#128.4	#84.0	#91.0	151.6	#95.3	89.8
Internal Link Dist (m)		359.6			381.0			633.7		252.6
Turn Bay Length (m)	113.0		79.0	71.8		62.0	90.0		245.0	
Base Capacity (vph)	270	1349	747	120	773	531	314	1277	218	1184
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.93	0.63	0.37	0.15	0.95	0.77	0.98	0.86	1.08	0.63

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	252	846	279	18	738	410	307	1080	18	236	522	227
Future Volume (vph)	252	846	279	18	738	410	307	1080	18	236	522	227
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1484	3318	1432	1496	3380	1585	1690	3531		1674	3163	
Flt Permitted	0.13	1.00	1.00	0.33	1.00	1.00	0.24	1.00		0.10	1.00	
Satd. Flow (perm)	200	3318	1432	526	3380	1585	422	3531		169	3163	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	252	846	279	18	738	410	307	1080	18	236	522	227
RTOR Reduction (vph)	0	0	166	0	0	169	0	1	0	0	42	0
Lane Group Flow (vph)	252	846	113	18	738	241	307	1097	0	236	707	0
Heavy Vehicles (%)	23%	10%	14%	22%	8%	3%	8%	3%	11%	9%	5%	22%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2			6		7	4		3	8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	48.4	48.4	48.4	27.3	27.3	27.3	52.6	41.6		52.6	41.6	
Effective Green, g (s)	48.4	48.4	48.4	27.3	27.3	27.3	52.6	41.6		52.6	41.6	
Actuated g/C Ratio	0.41	0.41	0.41	0.23	0.23	0.23	0.44	0.35		0.44	0.35	
Clearance Time (s)	4.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	265	1349	582	120	775	363	303	1234		213	1105	
v/s Ratio Prot	c0.14	0.25			0.22		0.09	0.31		c0.10	0.22	
v/s Ratio Perm	c0.25		0.08	0.03		0.15	0.35			c0.38		
v/c Ratio	0.95	0.63	0.19	0.15	0.95	0.66	1.01	0.89		1.11	0.64	
Uniform Delay, d1	33.1	28.1	22.7	36.6	45.2	41.7	28.7	36.5		32.3	32.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	41.8	2.2	0.7	2.6	22.6	9.3	55.1	8.1		93.6	1.3	
Delay (s)	74.9	30.3	23.5	39.2	67.8	50.9	83.8	44.6		125.9	33.7	
Level of Service	E	C	C	D	E	D	F	D		F	C	
Approach Delay (s)		37.1			61.4			53.2			55.8	
Approach LOS		D			E			D			E	

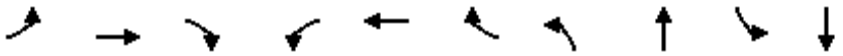
Intersection Summary			
HCM 2000 Control Delay	51.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	119.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	121.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Appendix B – Future (2031) Background Conditions Synchro Output

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1466	32	32	961	6	18
Future Volume (Veh/h)	1466	32	32	961	6	18
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1466	32	32	961	6	18
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1498		2010	733
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1498		2010	733
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			93		88	95
cM capacity (veh/h)			454		49	368

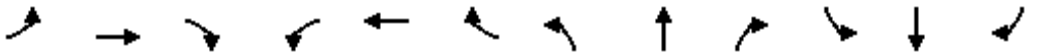
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	733	733	32	32	480	480	6	18
Volume Left	0	0	0	32	0	0	6	0
Volume Right	0	0	32	0	0	0	0	18
cSH	1700	1700	1700	454	1700	1700	49	368
Volume to Capacity	0.43	0.43	0.02	0.07	0.28	0.28	0.12	0.05
Queue Length 95th (m)	0.0	0.0	0.0	1.7	0.0	0.0	3.0	1.2
Control Delay (s)	0.0	0.0	0.0	13.5	0.0	0.0	88.8	15.3
Lane LOS				B			F	C
Approach Delay (s)	0.0			0.4			33.7	
Approach LOS							D	

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	50.5%	ICU Level of Service	A
Analysis Period (min)	15		



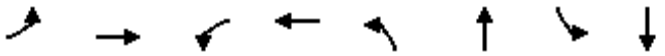
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	41	1291	101	65	814	113	45	53	8	8
v/c Ratio	0.08	0.51	0.09	0.26	0.34	0.09	0.33	0.26	0.05	0.05
Control Delay	4.8	6.2	2.1	8.3	4.9	1.2	36.1	21.2	28.5	21.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.8	6.2	2.1	8.3	4.9	1.2	36.1	21.2	28.5	21.1
Queue Length 50th (m)	1.5	37.9	1.1	2.8	19.6	0.0	6.0	3.5	1.0	0.4
Queue Length 95th (m)	5.2	62.6	5.8	10.4	33.5	4.4	14.4	12.3	4.4	3.8
Internal Link Dist (m)		784.2			211.8			280.3		23.8
Turn Bay Length (m)	50.0		32.0	60.0		30.0				
Base Capacity (vph)	498	2519	1094	249	2408	1256	410	545	480	485
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.51	0.09	0.26	0.34	0.09	0.11	0.10	0.02	0.02

Intersection Summary



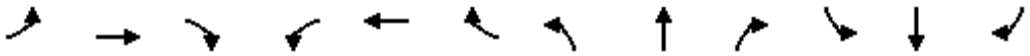
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	1291	101	65	814	113	45	20	33	8	3	5
Future Volume (vph)	41	1291	101	65	814	113	45	20	33	8	3	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91		1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	3349	1432	1659	3202	1633	1496	1523		1825	1393	
Flt Permitted	0.34	1.00	1.00	0.19	1.00	1.00	0.75	1.00		0.72	1.00	
Satd. Flow (perm)	662	3349	1432	332	3202	1633	1185	1523		1388	1393	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	41	1291	101	65	814	113	45	20	33	8	3	5
RTOR Reduction (vph)	0	0	20	0	0	32	0	23	0	0	5	0
Lane Group Flow (vph)	41	1291	81	65	814	81	45	30	0	8	3	0
Heavy Vehicles (%)	0%	9%	14%	10%	14%	0%	22%	5%	20%	0%	0%	40%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	53.6	53.6	53.6	53.6	53.6	53.6	7.4	7.4		7.4	7.4	
Effective Green, g (s)	53.6	53.6	53.6	53.6	53.6	53.6	7.4	7.4		7.4	7.4	
Actuated g/C Ratio	0.71	0.71	0.71	0.71	0.71	0.71	0.10	0.10		0.10	0.10	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	473	2393	1023	237	2288	1167	116	150		136	137	
v/s Ratio Prot		c0.39			0.25			0.02			0.00	
v/s Ratio Perm	0.06		0.06	0.20		0.05	c0.04			0.01		
v/c Ratio	0.09	0.54	0.08	0.27	0.36	0.07	0.39	0.20		0.06	0.03	
Uniform Delay, d1	3.3	5.0	3.2	3.8	4.1	3.2	31.7	31.1		30.6	30.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.9	0.2	2.8	0.4	0.1	2.1	0.6		0.2	0.1	
Delay (s)	3.6	5.8	3.4	6.6	4.5	3.3	33.8	31.7		30.8	30.6	
Level of Service	A	A	A	A	A	A	C	C		C	C	
Approach Delay (s)		5.6			4.5			32.7			30.7	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	6.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



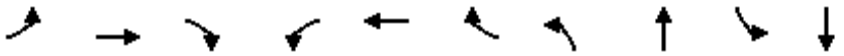
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	19	1372	24	424	3	16	36	31
v/c Ratio	0.03	0.47	0.11	0.15	0.02	0.12	0.28	0.21
Control Delay	3.3	4.1	4.7	2.6	36.3	20.1	43.1	21.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.3	4.1	4.7	2.6	36.3	20.1	43.1	21.9
Queue Length 50th (m)	0.7	39.6	0.9	8.1	0.5	0.2	5.9	1.3
Queue Length 95th (m)	2.5	61.0	3.7	14.1	3.0	5.9	14.5	9.2
Internal Link Dist (m)		633.7		309.4		165.6		225.3
Turn Bay Length (m)	50.0		40.0		40.0		38.0	
Base Capacity (vph)	672	2937	221	2780	503	449	495	514
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	0.03	0.47	0.11	0.15	0.01	0.04	0.07	0.06

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	1362	10	24	386	38	3	1	15	36	8	23
Future Volume (vph)	19	1362	10	24	386	38	3	1	15	36	8	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.86		1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1496	3474		1383	3284		1825	1237		1772	1405	
Flt Permitted	0.50	1.00		0.18	1.00		0.74	1.00		0.75	1.00	
Satd. Flow (perm)	794	3474		263	3284		1416	1237		1393	1405	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	19	1362	10	24	386	38	3	1	15	36	8	23
RTOR Reduction (vph)	0	0	0	0	3	0	0	14	0	0	22	0
Lane Group Flow (vph)	19	1372	0	24	421	0	3	2	0	36	9	0
Heavy Vehicles (%)	22%	5%	0%	32%	10%	6%	0%	100%	29%	3%	43%	14%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	70.5	70.5		70.5	70.5		5.5	5.5		5.5	5.5	
Effective Green, g (s)	70.5	70.5		70.5	70.5		5.5	5.5		5.5	5.5	
Actuated g/C Ratio	0.78	0.78		0.78	0.78		0.06	0.06		0.06	0.06	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	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)	621	2721		206	2572		86	75		85	85	
v/s Ratio Prot		c0.39			0.13			0.00			0.01	
v/s Ratio Perm	0.02			0.09			0.00			c0.03		
v/c Ratio	0.03	0.50		0.12	0.16		0.03	0.03		0.42	0.11	
Uniform Delay, d1	2.2	3.5		2.3	2.4		39.8	39.7		40.7	39.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.7		1.1	0.1		0.2	0.1		3.4	0.6	
Delay (s)	2.3	4.2		3.5	2.6		39.9	39.9		44.1	40.5	
Level of Service	A	A		A	A		D	D		D	D	
Approach Delay (s)		4.1			2.6			39.9			42.4	
Approach LOS		A			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	5.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	58.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

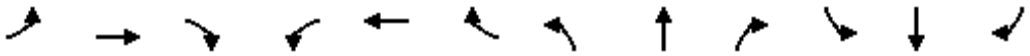


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	172	863	345	12	688	151	160	256	478	1325
v/c Ratio	0.88	0.68	0.48	0.08	0.68	0.29	0.96	0.27	0.76	1.02
Control Delay	67.7	33.2	12.3	31.1	39.9	6.3	87.3	33.3	29.1	65.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.7	33.2	12.3	31.1	39.9	6.3	87.3	33.3	29.1	65.3
Queue Length 50th (m)	26.0	86.6	20.8	2.0	73.6	0.0	22.2	24.0	72.2	~167.6
Queue Length 95th (m)	#61.0	109.2	46.8	6.8	94.5	14.6	#64.8	35.2	102.1	#210.3
Internal Link Dist (m)		359.6			381.0			633.7		252.6
Turn Bay Length (m)	113.0		79.0	71.8		62.0	90.0		245.0	
Base Capacity (vph)	196	1264	719	144	1013	516	167	965	632	1297
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.68	0.48	0.08	0.68	0.29	0.96	0.27	0.76	1.02

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



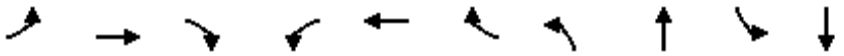
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	172	863	345	12	688	151	160	247	9	478	925	400
Future Volume (vph)	172	863	345	12	688	151	160	247	9	478	925	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1437	3202	1498	1674	3259	1328	1587	3341		1755	3250	
Flt Permitted	0.22	1.00	1.00	0.26	1.00	1.00	0.12	1.00		0.53	1.00	
Satd. Flow (perm)	336	3202	1498	464	3259	1328	195	3341		982	3250	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	172	863	345	12	688	151	160	247	9	478	925	400
RTOR Reduction (vph)	0	0	128	0	0	104	0	2	0	0	40	0
Lane Group Flow (vph)	172	863	217	12	688	47	160	254	0	478	1285	0
Heavy Vehicles (%)	27%	14%	9%	9%	12%	23%	15%	9%	0%	4%	3%	17%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2			6		7	4		3	8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	47.0	47.0	47.0	37.0	37.0	37.0	42.3	34.3		58.0	46.0	
Effective Green, g (s)	47.0	47.0	47.0	37.0	37.0	37.0	42.3	34.3		58.0	46.0	
Actuated g/C Ratio	0.39	0.39	0.39	0.31	0.31	0.31	0.36	0.29		0.49	0.39	
Clearance Time (s)	4.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	188	1264	591	144	1013	412	162	962		606	1256	
v/s Ratio Prot	c0.05	0.27			0.21		c0.07	0.08		0.13	c0.40	
v/s Ratio Perm	c0.31		0.15	0.03		0.04	0.28			0.25		
v/c Ratio	0.91	0.68	0.37	0.08	0.68	0.11	0.99	0.26		0.79	1.02	
Uniform Delay, d1	33.3	29.8	25.5	29.0	35.8	29.3	32.8	32.6		22.2	36.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	42.0	3.0	1.8	1.1	3.7	0.6	66.4	0.1		6.8	31.3	
Delay (s)	75.3	32.8	27.2	30.1	39.5	29.9	99.2	32.8		29.0	67.8	
Level of Service	E	C	C	C	D	C	F	C		C	E	
Approach Delay (s)		36.7			37.6			58.3			57.5	
Approach LOS		D			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	47.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	119.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	118.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	989	23	19	1217	43	23
Future Volume (Veh/h)	989	23	19	1217	43	23
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	989	23	19	1217	43	23
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1012		1636	494
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1012		1636	494
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		53	96
cM capacity (veh/h)			693		91	526

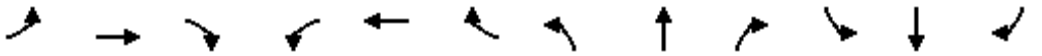
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	494	494	23	19	608	608	43	23
Volume Left	0	0	0	19	0	0	43	0
Volume Right	0	0	23	0	0	0	0	23
cSH	1700	1700	1700	693	1700	1700	91	526
Volume to Capacity	0.29	0.29	0.01	0.03	0.36	0.36	0.47	0.04
Queue Length 95th (m)	0.0	0.0	0.0	0.6	0.0	0.0	15.3	1.0
Control Delay (s)	0.0	0.0	0.0	10.3	0.0	0.0	75.9	12.2
Lane LOS				B			F	B
Approach Delay (s)	0.0			0.2			53.7	
Approach LOS							F	

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	43.6%	ICU Level of Service	A
Analysis Period (min)	15		



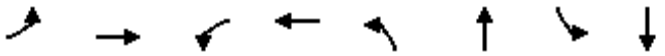
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	10	1145	33	38	1112	12	85	69	124	72
v/c Ratio	0.08	0.73	0.05	0.32	0.71	0.02	0.19	0.13	0.26	0.12
Control Delay	13.0	19.7	1.7	22.1	18.9	0.0	18.6	9.8	19.5	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.0	19.7	1.7	22.1	18.9	0.0	18.6	9.8	19.5	9.2
Queue Length 50th (m)	0.7	65.7	0.0	3.2	62.6	0.0	8.3	2.7	12.4	2.6
Queue Length 95th (m)	3.4	88.5	2.2	11.3	84.2	0.0	17.9	10.6	24.6	10.5
Internal Link Dist (m)		784.2			211.8			280.3		23.8
Turn Bay Length (m)	50.0		32.0	60.0		30.0				
Base Capacity (vph)	133	1562	631	117	1577	793	450	512	474	601
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.73	0.05	0.32	0.71	0.02	0.19	0.13	0.26	0.12

Intersection Summary



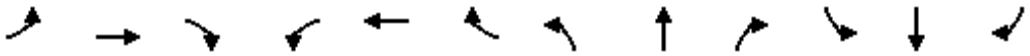
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	1145	33	38	1112	12	85	9	60	124	12	60
Future Volume (vph)	10	1145	33	38	1112	12	85	9	60	124	12	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.87		1.00	0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1644	3349	1286	1547	3380	1633	1738	1402		1825	1653	
Flt Permitted	0.17	1.00	1.00	0.15	1.00	1.00	0.71	1.00		0.71	1.00	
Satd. Flow (perm)	288	3349	1286	252	3380	1633	1299	1402		1368	1653	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	10	1145	33	38	1112	12	85	9	60	124	12	60
RTOR Reduction (vph)	0	0	18	0	0	6	0	26	0	0	29	0
Lane Group Flow (vph)	10	1145	15	38	1112	6	85	43	0	124	43	0
Heavy Vehicles (%)	11%	9%	27%	18%	8%	0%	5%	0%	22%	0%	0%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	35.0	35.0	35.0	35.0	35.0	35.0	26.0	26.0		26.0	26.0	
Effective Green, g (s)	35.0	35.0	35.0	35.0	35.0	35.0	26.0	26.0		26.0	26.0	
Actuated g/C Ratio	0.47	0.47	0.47	0.47	0.47	0.47	0.35	0.35		0.35	0.35	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	134	1562	600	117	1577	762	450	486		474	573	
v/s Ratio Prot		c0.34			0.33			0.03			0.03	
v/s Ratio Perm	0.03		0.01	0.15		0.00	0.07			c0.09		
v/c Ratio	0.07	0.73	0.03	0.32	0.71	0.01	0.19	0.09		0.26	0.08	
Uniform Delay, d1	11.1	16.2	10.8	12.6	15.9	10.7	17.1	16.5		17.6	16.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.1	3.1	0.1	7.2	2.7	0.0	0.9	0.4		1.3	0.3	
Delay (s)	12.1	19.3	10.9	19.8	18.6	10.7	18.1	16.9		18.9	16.7	
Level of Service	B	B	B	B	B	B	B	B		B	B	
Approach Delay (s)		19.0			18.5			17.5			18.1	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



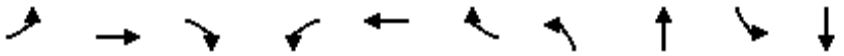
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	14	757	29	1379	19	48	41	31
v/c Ratio	0.06	0.27	0.06	0.49	0.14	0.23	0.31	0.17
Control Delay	4.7	3.5	4.0	4.9	33.7	15.2	38.3	21.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.7	3.5	4.0	4.9	33.7	15.2	38.3	21.3
Queue Length 50th (m)	0.5	17.2	1.0	40.7	2.7	0.8	5.9	1.8
Queue Length 95th (m)	2.5	28.7	3.7	65.2	8.3	9.7	14.5	9.0
Internal Link Dist (m)		633.7		309.4		165.6		225.3
Turn Bay Length (m)	50.0		40.0		40.0		38.0	
Base Capacity (vph)	224	2803	500	2842	478	614	471	604
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	0.06	0.27	0.06	0.49	0.04	0.08	0.09	0.05

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	747	10	29	1346	33	19	6	42	41	1	30
Future Volume (vph)	14	747	10	29	1346	33	19	6	42	41	1	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.87		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1484	3408		1587	3455		1644	1567		1644	1581	
Flt Permitted	0.18	1.00		0.36	1.00		0.74	1.00		0.73	1.00	
Satd. Flow (perm)	274	3408		609	3455		1275	1567		1256	1581	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	14	747	10	29	1346	33	19	6	42	41	1	30
RTOR Reduction (vph)	0	0	0	0	1	0	0	39	0	0	17	0
Lane Group Flow (vph)	14	757	0	29	1378	0	19	9	0	41	14	0
Heavy Vehicles (%)	23%	7%	0%	15%	5%	16%	11%	17%	5%	11%	0%	4%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	60.2	60.2		60.2	60.2		5.8	5.8		5.8	5.8	
Effective Green, g (s)	60.2	60.2		60.2	60.2		5.8	5.8		5.8	5.8	
Actuated g/C Ratio	0.75	0.75		0.75	0.75		0.07	0.07		0.07	0.07	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	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)	206	2564		458	2599		92	113		91	114	
v/s Ratio Prot		0.22			c0.40			0.01			0.01	
v/s Ratio Perm	0.05			0.05			0.01			c0.03		
v/c Ratio	0.07	0.30		0.06	0.53		0.21	0.08		0.45	0.13	
Uniform Delay, d1	2.6	3.1		2.6	4.1		34.9	34.6		35.6	34.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.3		0.3	0.8		1.1	0.3		3.5	0.5	
Delay (s)	3.2	3.4		2.8	4.9		36.1	34.9		39.1	35.2	
Level of Service	A	A		A	A		D	C		D	D	
Approach Delay (s)		3.4			4.8			35.2			37.4	
Approach LOS		A			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	6.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

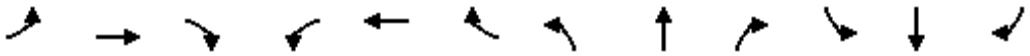


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	270	907	300	19	791	440	329	1177	253	803
v/c Ratio	1.05	0.61	0.37	0.13	0.80	0.68	1.11	1.10	1.09	0.90
Control Delay	96.2	27.4	3.6	33.9	45.7	20.2	115.8	98.7	113.9	53.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	96.2	27.4	3.6	33.9	45.7	20.2	115.8	98.7	113.9	53.3
Queue Length 50th (m)	~47.7	83.3	0.0	3.3	89.5	36.0	~70.6	~164.6	~50.1	89.6
Queue Length 95th (m)	#100.6	104.0	15.3	9.6	113.1	73.1	#127.4	#206.4	#101.5	#124.4
Internal Link Dist (m)		359.6			381.0			633.7		252.6
Turn Bay Length (m)	113.0		79.0	71.8		62.0	90.0		245.0	
Base Capacity (vph)	257	1477	804	145	994	651	296	1069	233	892
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.05	0.61	0.37	0.13	0.80	0.68	1.11	1.10	1.09	0.90

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	270	907	300	19	791	440	329	1158	19	253	560	243
Future Volume (vph)	270	907	300	19	791	440	329	1158	19	253	560	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1484	3318	1432	1496	3380	1585	1690	3531		1674	3164	
Flt Permitted	0.15	1.00	1.00	0.31	1.00	1.00	0.12	1.00		0.12	1.00	
Satd. Flow (perm)	236	3318	1432	495	3380	1585	212	3531		220	3164	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	270	907	300	19	791	440	329	1158	19	253	560	243
RTOR Reduction (vph)	0	0	166	0	0	185	0	1	0	0	41	0
Lane Group Flow (vph)	270	907	134	19	791	255	329	1176	0	253	762	0
Heavy Vehicles (%)	23%	10%	14%	22%	8%	3%	8%	3%	11%	9%	5%	22%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2			6		7	4		3	8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	53.0	53.0	53.0	35.0	35.0	35.0	52.0	36.0		44.0	32.0	
Effective Green, g (s)	53.0	53.0	53.0	35.0	35.0	35.0	52.0	36.0		44.0	32.0	
Actuated g/C Ratio	0.45	0.45	0.45	0.29	0.29	0.29	0.44	0.30		0.37	0.27	
Clearance Time (s)	4.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	251	1477	637	145	994	466	291	1068		227	850	
v/s Ratio Prot	c0.13	0.27			0.23		c0.15	0.33		0.11	0.24	
v/s Ratio Perm	c0.35		0.09	0.04		0.16	c0.34			0.30		
v/c Ratio	1.08	0.61	0.21	0.13	0.80	0.55	1.13	1.10		1.11	0.90	
Uniform Delay, d1	27.4	25.2	20.2	30.8	38.7	35.3	33.6	41.5		31.8	41.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	78.4	1.9	0.7	1.9	6.6	4.6	92.7	59.6		93.9	12.0	
Delay (s)	105.8	27.1	20.9	32.7	45.3	39.9	126.3	101.1		125.7	53.9	
Level of Service	F	C	C	C	D	D	F	F		F	D	
Approach Delay (s)		40.2			43.2			106.6			71.1	
Approach LOS		D			D			F			E	

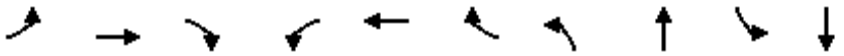
Intersection Summary			
HCM 2000 Control Delay	66.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	119.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	124.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Appendix C – Future (2031) Total Conditions (RI/RO) Synchro Output

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1466	254	0	961	0	20
Future Volume (Veh/h)	1466	254	0	961	0	20
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1466	254	0	961	0	20
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1720		1946	733
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1720		1946	733
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	95
cM capacity (veh/h)			373		58	368

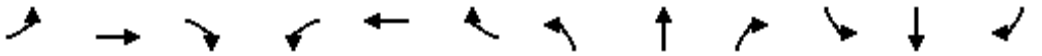
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	733	733	254	480	480	20
Volume Left	0	0	0	0	0	0
Volume Right	0	0	254	0	0	20
cSH	1700	1700	1700	1700	1700	368
Volume to Capacity	0.43	0.43	0.15	0.28	0.28	0.05
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	1.3
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	15.4
Lane LOS						C
Approach Delay (s)	0.0			0.0		15.4
Approach LOS						C

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	50.5%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	41	1291	103	72	814	113	45	53	8	8
v/c Ratio	0.08	0.51	0.09	0.29	0.34	0.09	0.33	0.26	0.05	0.05
Control Delay	4.8	6.2	2.1	8.9	4.9	1.2	36.1	21.2	28.5	21.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.8	6.2	2.1	8.9	4.9	1.2	36.1	21.2	28.5	21.1
Queue Length 50th (m)	1.5	37.9	1.1	3.2	19.6	0.0	6.0	3.5	1.0	0.4
Queue Length 95th (m)	5.2	62.6	5.8	11.9	33.5	4.4	14.4	12.3	4.4	3.8
Internal Link Dist (m)		784.2			211.8			280.3		23.8
Turn Bay Length (m)	50.0		32.0	60.0		30.0				
Base Capacity (vph)	498	2519	1094	249	2408	1256	410	545	480	485
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.51	0.09	0.29	0.34	0.09	0.11	0.10	0.02	0.02

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	1291	103	72	814	113	45	20	33	8	3	5
Future Volume (vph)	41	1291	103	72	814	113	45	20	33	8	3	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91		1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	3349	1432	1659	3202	1633	1496	1523		1825	1393	
Flt Permitted	0.34	1.00	1.00	0.19	1.00	1.00	0.75	1.00		0.72	1.00	
Satd. Flow (perm)	662	3349	1432	332	3202	1633	1185	1523		1388	1393	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	41	1291	103	72	814	113	45	20	33	8	3	5
RTOR Reduction (vph)	0	0	20	0	0	32	0	23	0	0	5	0
Lane Group Flow (vph)	41	1291	83	72	814	81	45	30	0	8	3	0
Heavy Vehicles (%)	0%	9%	14%	10%	14%	0%	22%	5%	20%	0%	0%	40%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	53.6	53.6	53.6	53.6	53.6	53.6	7.4	7.4		7.4	7.4	
Effective Green, g (s)	53.6	53.6	53.6	53.6	53.6	53.6	7.4	7.4		7.4	7.4	
Actuated g/C Ratio	0.71	0.71	0.71	0.71	0.71	0.71	0.10	0.10		0.10	0.10	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	473	2393	1023	237	2288	1167	116	150		136	137	
v/s Ratio Prot		c0.39			0.25			0.02			0.00	
v/s Ratio Perm	0.06		0.06	0.22		0.05	c0.04			0.01		
v/c Ratio	0.09	0.54	0.08	0.30	0.36	0.07	0.39	0.20		0.06	0.03	
Uniform Delay, d1	3.3	5.0	3.2	3.9	4.1	3.2	31.7	31.1		30.6	30.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.9	0.2	3.3	0.4	0.1	2.1	0.6		0.2	0.1	
Delay (s)	3.6	5.8	3.4	7.2	4.5	3.3	33.8	31.7		30.8	30.6	
Level of Service	A	A	A	A	A	A	C	C		C	C	
Approach Delay (s)		5.6			4.6			32.7			30.7	
Approach LOS		A			A			C			C	

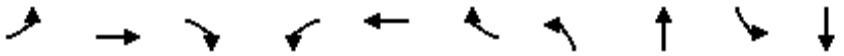
Intersection Summary			
HCM 2000 Control Delay	6.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	19	1372	24	386	52	3	16	38	90
v/c Ratio	0.03	0.50	0.12	0.15	0.04	0.02	0.12	0.29	0.43
Control Delay	3.4	5.0	5.0	3.1	1.1	36.0	19.9	43.4	17.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.4	5.0	5.0	3.1	1.1	36.0	19.9	43.4	17.4
Queue Length 50th (m)	0.7	39.8	0.9	7.6	0.0	0.5	0.2	6.3	1.3
Queue Length 95th (m)	2.5	61.7	3.7	13.4	2.6	3.0	5.9	15.2	14.5
Internal Link Dist (m)		633.7		309.4			165.6		225.3
Turn Bay Length (m)	50.0		40.0		50.0	40.0		38.0	
Base Capacity (vph)	657	2771	205	2647	1239	492	463	510	573
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.50	0.12	0.15	0.04	0.01	0.03	0.07	0.16

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	1362	10	24	386	52	3	1	15	38	8	82
Future Volume (vph)	19	1362	10	24	386	52	3	1	15	38	8	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.86		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1496	3474		1383	3318	1541	1825	1237		1772	1423	
Flt Permitted	0.52	1.00		0.18	1.00	1.00	0.70	1.00		0.75	1.00	
Satd. Flow (perm)	824	3474		258	3318	1541	1342	1237		1393	1423	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	19	1362	10	24	386	52	3	1	15	38	8	82
RTOR Reduction (vph)	0	0	0	0	0	12	0	14	0	0	76	0
Lane Group Flow (vph)	19	1372	0	24	386	40	3	2	0	38	14	0
Heavy Vehicles (%)	22%	5%	0%	32%	10%	6%	0%	100%	29%	3%	43%	14%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	69.0	69.0		69.0	69.0	69.0	7.0	7.0		7.0	7.0	
Effective Green, g (s)	69.0	69.0		69.0	69.0	69.0	7.0	7.0		7.0	7.0	
Actuated g/C Ratio	0.77	0.77		0.77	0.77	0.77	0.08	0.08		0.08	0.08	
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	631	2663		197	2543	1181	104	96		108	110	
v/s Ratio Prot		c0.39			0.12			0.00			0.01	
v/s Ratio Perm	0.02			0.09		0.03	0.00			c0.03		
v/c Ratio	0.03	0.52		0.12	0.15	0.03	0.03	0.02		0.35	0.13	
Uniform Delay, d1	2.5	4.0		2.7	2.8	2.5	38.4	38.3		39.3	38.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.7		1.3	0.1	0.1	0.1	0.1		2.0	0.5	
Delay (s)	2.6	4.8		4.0	2.9	2.6	38.5	38.4		41.3	39.2	
Level of Service	A	A		A	A	A	D	D		D	D	
Approach Delay (s)		4.7			2.9			38.4			39.8	
Approach LOS		A			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	6.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

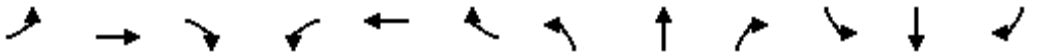


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	172	872	345	12	688	151	163	313	691	1325
v/c Ratio	0.92	0.72	0.49	0.09	0.72	0.30	0.90	0.35	1.08	0.95
Control Delay	79.3	35.5	11.7	33.0	42.6	6.7	74.0	36.3	85.3	48.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.3	35.5	11.7	33.0	42.6	6.7	74.0	36.3	85.3	48.8
Queue Length 50th (m)	26.8	90.5	18.3	2.0	75.5	0.0	22.2	30.8	~139.5	141.3
Queue Length 95th (m)	#66.0	113.9	44.5	7.0	97.0	15.0	#62.8	43.7	#250.9	#186.5
Internal Link Dist (m)		359.6			381.0			633.7		252.6
Turn Bay Length (m)	113.0		79.0	71.8		62.0	90.0		245.0	
Base Capacity (vph)	186	1218	711	130	958	497	181	900	637	1397
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.72	0.49	0.09	0.72	0.30	0.90	0.35	1.08	0.95

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



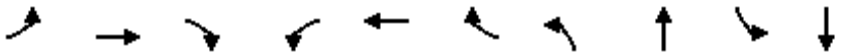
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	172	872	345	12	688	151	163	304	9	691	925	400
Future Volume (vph)	172	872	345	12	688	151	163	304	9	691	925	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	*1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1437	3202	1498	1674	3259	1328	1587	3342		1755	3421	
Flt Permitted	0.21	1.00	1.00	0.25	1.00	1.00	0.13	1.00		0.47	1.00	
Satd. Flow (perm)	315	3202	1498	444	3259	1328	211	3342		869	3421	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	172	872	345	12	688	151	163	304	9	691	925	400
RTOR Reduction (vph)	0	0	141	0	0	107	0	1	0	0	46	0
Lane Group Flow (vph)	172	872	204	12	688	44	163	312	0	691	1279	0
Heavy Vehicles (%)	27%	14%	9%	9%	12%	23%	15%	9%	0%	4%	3%	17%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2			6		7	4		3	8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	45.3	45.3	45.3	35.0	35.0	35.0	40.7	31.7		59.7	46.7	
Effective Green, g (s)	45.3	45.3	45.3	35.0	35.0	35.0	40.7	31.7		59.7	46.7	
Actuated g/C Ratio	0.38	0.38	0.38	0.29	0.29	0.29	0.34	0.27		0.50	0.39	
Clearance Time (s)	4.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	179	1218	570	130	958	390	176	890		614	1342	
v/s Ratio Prot	c0.05	0.27			0.21		0.07	0.09		c0.23	0.37	
v/s Ratio Perm	c0.31		0.14	0.03		0.03	0.25			c0.34		
v/c Ratio	0.96	0.72	0.36	0.09	0.72	0.11	0.93	0.35		1.13	0.95	
Uniform Delay, d1	34.6	31.4	26.4	30.5	37.6	30.7	31.1	35.3		25.7	35.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	55.6	3.6	1.7	1.4	4.6	0.6	46.6	0.2		76.0	14.7	
Delay (s)	90.2	35.0	28.2	31.9	42.2	31.3	77.6	35.6		101.6	49.8	
Level of Service	F	C	C	C	D	C	E	D		F	D	
Approach Delay (s)		40.1			40.1			50.0			67.6	
Approach LOS		D			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	52.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	119.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	119.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	989	84	0	1217	0	29
Future Volume (Veh/h)	989	84	0	1217	0	29
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	989	84	0	1217	0	29
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1073		1598	494
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1073		1598	494
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	94
cM capacity (veh/h)			657		99	526

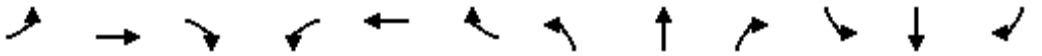
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	494	494	84	608	608	29
Volume Left	0	0	0	0	0	0
Volume Right	0	0	84	0	0	29
cSH	1700	1700	1700	1700	1700	526
Volume to Capacity	0.29	0.29	0.05	0.36	0.36	0.06
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	1.3
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	12.2
Lane LOS						B
Approach Delay (s)	0.0			0.0		12.2
Approach LOS						B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	37.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	10	1145	39	40	1112	12	85	69	124	72
v/c Ratio	0.08	0.73	0.06	0.34	0.71	0.02	0.19	0.13	0.26	0.12
Control Delay	13.0	19.7	2.3	22.8	18.9	0.0	18.6	9.8	19.5	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.0	19.7	2.3	22.8	18.9	0.0	18.6	9.8	19.5	9.2
Queue Length 50th (m)	0.7	65.7	0.0	3.4	62.6	0.0	8.3	2.7	12.4	2.6
Queue Length 95th (m)	3.4	88.5	3.1	12.1	84.2	0.0	17.9	10.6	24.6	10.5
Internal Link Dist (m)		784.2			211.8			280.3		23.8
Turn Bay Length (m)	50.0		32.0	60.0		30.0				
Base Capacity (vph)	133	1562	631	117	1577	793	450	512	474	601
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.73	0.06	0.34	0.71	0.02	0.19	0.13	0.26	0.12

Intersection Summary

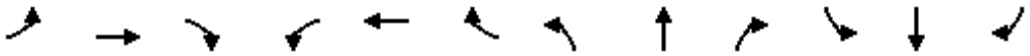


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	1145	39	40	1112	12	85	9	60	124	12	60
Future Volume (vph)	10	1145	39	40	1112	12	85	9	60	124	12	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.87		1.00	0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1644	3349	1286	1547	3380	1633	1738	1402		1825	1653	
Flt Permitted	0.17	1.00	1.00	0.15	1.00	1.00	0.71	1.00		0.71	1.00	
Satd. Flow (perm)	288	3349	1286	252	3380	1633	1299	1402		1368	1653	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	10	1145	39	40	1112	12	85	9	60	124	12	60
RTOR Reduction (vph)	0	0	21	0	0	6	0	26	0	0	29	0
Lane Group Flow (vph)	10	1145	18	40	1112	6	85	43	0	124	43	0
Heavy Vehicles (%)	11%	9%	27%	18%	8%	0%	5%	0%	22%	0%	0%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	35.0	35.0	35.0	35.0	35.0	35.0	26.0	26.0		26.0	26.0	
Effective Green, g (s)	35.0	35.0	35.0	35.0	35.0	35.0	26.0	26.0		26.0	26.0	
Actuated g/C Ratio	0.47	0.47	0.47	0.47	0.47	0.47	0.35	0.35		0.35	0.35	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	134	1562	600	117	1577	762	450	486		474	573	
v/s Ratio Prot		c0.34			0.33			0.03			0.03	
v/s Ratio Perm	0.03		0.01	0.16		0.00	0.07			c0.09		
v/c Ratio	0.07	0.73	0.03	0.34	0.71	0.01	0.19	0.09		0.26	0.08	
Uniform Delay, d1	11.1	16.2	10.8	12.7	15.9	10.7	17.1	16.5		17.6	16.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.1	3.1	0.1	7.8	2.7	0.0	0.9	0.4		1.3	0.3	
Delay (s)	12.1	19.3	10.9	20.5	18.6	10.7	18.1	16.9		18.9	16.7	
Level of Service	B	B	B	C	B	B	B	B		B	B	
Approach Delay (s)		19.0			18.6			17.5			18.1	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

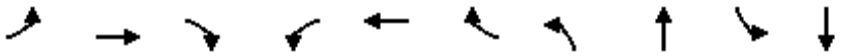
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	14	757	29	1346	37	19	48	47	215
v/c Ratio	0.09	0.35	0.08	0.61	0.04	0.10	0.14	0.19	0.67
Control Delay	9.6	8.3	8.1	11.3	1.6	25.1	10.1	26.7	37.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.6	8.3	8.1	11.3	1.6	25.1	10.1	26.7	37.0
Queue Length 50th (m)	0.8	25.3	1.5	57.5	0.0	2.4	0.8	6.1	27.8
Queue Length 95th (m)	4.0	44.1	5.8	96.2	2.6	7.0	8.0	13.4	44.5
Internal Link Dist (m)		633.7		309.4			165.6		225.3
Turn Bay Length (m)	50.0		40.0		50.0	40.0		38.0	
Base Capacity (vph)	152	2151	373	2194	909	358	614	471	601
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.35	0.08	0.61	0.04	0.05	0.08	0.10	0.36

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	747	10	29	1346	37	19	6	42	47	1	214
Future Volume (vph)	14	747	10	29	1346	37	19	6	42	47	1	214
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.87		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1484	3408		1587	3476	1408	1644	1567		1644	1572	
Flt Permitted	0.15	1.00		0.35	1.00	1.00	0.55	1.00		0.73	1.00	
Satd. Flow (perm)	240	3408		592	3476	1408	957	1567		1256	1572	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	14	747	10	29	1346	37	19	6	42	47	1	214
RTOR Reduction (vph)	0	1	0	0	0	14	0	34	0	0	15	0
Lane Group Flow (vph)	14	756	0	29	1346	23	19	14	0	47	200	0
Heavy Vehicles (%)	23%	7%	0%	15%	5%	16%	11%	17%	5%	11%	0%	4%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	50.5	50.5		50.5	50.5	50.5	15.5	15.5		15.5	15.5	
Effective Green, g (s)	50.5	50.5		50.5	50.5	50.5	15.5	15.5		15.5	15.5	
Actuated g/C Ratio	0.63	0.63		0.63	0.63	0.63	0.19	0.19		0.19	0.19	
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	151	2151		373	2194	888	185	303		243	304	
v/s Ratio Prot		0.22			c0.39			0.01			c0.13	
v/s Ratio Perm	0.06			0.05		0.02	0.02			0.04		
v/c Ratio	0.09	0.35		0.08	0.61	0.03	0.10	0.05		0.19	0.66	
Uniform Delay, d1	5.8	7.0		5.7	8.9	5.5	26.5	26.2		27.0	29.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	0.5		0.4	1.3	0.1	0.2	0.1		0.4	5.0	
Delay (s)	7.0	7.4		6.1	10.2	5.6	26.8	26.3		27.4	34.8	
Level of Service	A	A		A	B	A	C	C		C	C	
Approach Delay (s)		7.4			10.0			26.4			33.5	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

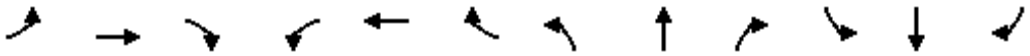


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	270	910	300	19	791	440	337	1353	312	803
v/c Ratio	1.26	0.65	0.39	0.14	0.77	0.65	1.02	1.17	1.20	0.87
Control Delay	174.8	30.3	4.0	33.9	43.9	17.1	83.8	123.2	149.3	49.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	174.8	30.3	4.0	33.9	43.9	17.1	83.8	123.2	149.3	49.9
Queue Length 50th (m)	~57.1	87.8	0.0	3.2	88.3	29.9	~62.0	~188.8	~72.3	88.3
Queue Length 95th (m)	#109.9	109.8	16.0	9.6	111.6	65.8	#121.1	#229.3	#128.2	#120.8
Internal Link Dist (m)		359.6			381.0			633.7		252.6
Turn Bay Length (m)	113.0		79.0	71.8		62.0	90.0		245.0	
Base Capacity (vph)	214	1394	775	132	1022	678	332	1157	261	918
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.26	0.65	0.39	0.14	0.77	0.65	1.02	1.17	1.20	0.87

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	270	910	300	19	791	440	337	1334	19	312	560	243
Future Volume (vph)	270	910	300	19	791	440	337	1334	19	312	560	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	*1.00		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1484	3318	1432	1496	3380	1585	1690	3718		1674	3164	
Flt Permitted	0.16	1.00	1.00	0.28	1.00	1.00	0.13	1.00		0.12	1.00	
Satd. Flow (perm)	248	3318	1432	438	3380	1585	228	3718		214	3164	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	270	910	300	19	791	440	337	1334	19	312	560	243
RTOR Reduction (vph)	0	0	174	0	0	199	0	1	0	0	41	0
Lane Group Flow (vph)	270	910	126	19	791	241	337	1352	0	312	762	0
Heavy Vehicles (%)	23%	10%	14%	22%	8%	3%	8%	3%	11%	9%	5%	22%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2			6		7	4		3	8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	50.0	50.0	50.0	36.0	36.0	36.0	55.0	37.0		47.0	33.0	
Effective Green, g (s)	50.0	50.0	50.0	36.0	36.0	36.0	55.0	37.0		47.0	33.0	
Actuated g/C Ratio	0.42	0.42	0.42	0.30	0.30	0.30	0.46	0.31		0.39	0.28	
Clearance Time (s)	4.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	208	1394	601	132	1022	479	326	1156		256	877	
v/s Ratio Prot	c0.11	0.27			0.23		c0.16	c0.36		c0.14	0.24	
v/s Ratio Perm	c0.44		0.09	0.04		0.15	0.32			0.34		
v/c Ratio	1.30	0.65	0.21	0.14	0.77	0.50	1.03	1.17		1.22	0.87	
Uniform Delay, d1	28.9	27.6	21.9	30.3	37.8	34.1	33.1	41.0		33.7	40.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	164.8	2.4	0.8	2.3	5.7	3.7	58.8	86.0		128.5	9.1	
Delay (s)	193.7	30.0	22.7	32.5	43.5	37.9	92.0	127.0		162.2	50.1	
Level of Service	F	C	C	C	D	D	F	F		F	D	
Approach Delay (s)		58.4			41.4			120.0			81.4	
Approach LOS		E			D			F			F	

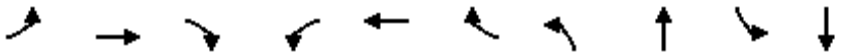
Intersection Summary			
HCM 2000 Control Delay	78.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.28		
Actuated Cycle Length (s)	119.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	132.3%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Appendix D – Future (2031) Total Condition Improvements - A Synchro Output

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1466	254	32	961	6	20
Future Volume (Veh/h)	1466	254	32	961	6	20
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1466	254	32	961	6	20
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1720		2010	733
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1720		2010	733
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			91		88	95
cM capacity (veh/h)			373		48	368

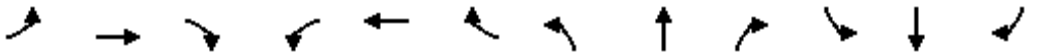
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	733	733	254	32	480	480	6	20
Volume Left	0	0	0	32	0	0	6	0
Volume Right	0	0	254	0	0	0	0	20
cSH	1700	1700	1700	373	1700	1700	48	368
Volume to Capacity	0.43	0.43	0.15	0.09	0.28	0.28	0.12	0.05
Queue Length 95th (m)	0.0	0.0	0.0	2.1	0.0	0.0	3.0	1.3
Control Delay (s)	0.0	0.0	0.0	15.6	0.0	0.0	90.4	15.4
Lane LOS				C			F	C
Approach Delay (s)	0.0			0.5			32.7	
Approach LOS							D	

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	50.5%	ICU Level of Service	A
Analysis Period (min)	15		



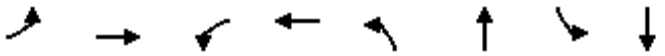
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	41	1291	103	72	814	113	45	53	8	8
v/c Ratio	0.08	0.51	0.09	0.29	0.34	0.09	0.33	0.26	0.05	0.05
Control Delay	4.8	6.2	2.1	8.9	4.9	1.2	36.1	21.2	28.5	21.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.8	6.2	2.1	8.9	4.9	1.2	36.1	21.2	28.5	21.1
Queue Length 50th (m)	1.5	37.9	1.1	3.2	19.6	0.0	6.0	3.5	1.0	0.4
Queue Length 95th (m)	5.2	62.6	5.8	11.9	33.5	4.4	14.4	12.3	4.4	3.8
Internal Link Dist (m)		784.2			211.8			280.3		23.8
Turn Bay Length (m)	50.0		32.0	60.0		30.0				
Base Capacity (vph)	498	2519	1094	249	2408	1256	410	545	480	485
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.51	0.09	0.29	0.34	0.09	0.11	0.10	0.02	0.02

Intersection Summary



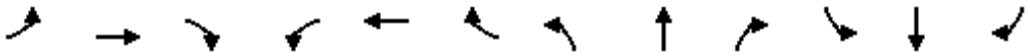
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	1291	103	72	814	113	45	20	33	8	3	5
Future Volume (vph)	41	1291	103	72	814	113	45	20	33	8	3	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91		1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	3349	1432	1659	3202	1633	1496	1523		1825	1393	
Flt Permitted	0.34	1.00	1.00	0.19	1.00	1.00	0.75	1.00		0.72	1.00	
Satd. Flow (perm)	662	3349	1432	332	3202	1633	1185	1523		1388	1393	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	41	1291	103	72	814	113	45	20	33	8	3	5
RTOR Reduction (vph)	0	0	20	0	0	32	0	23	0	0	5	0
Lane Group Flow (vph)	41	1291	83	72	814	81	45	30	0	8	3	0
Heavy Vehicles (%)	0%	9%	14%	10%	14%	0%	22%	5%	20%	0%	0%	40%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	53.6	53.6	53.6	53.6	53.6	53.6	7.4	7.4		7.4	7.4	
Effective Green, g (s)	53.6	53.6	53.6	53.6	53.6	53.6	7.4	7.4		7.4	7.4	
Actuated g/C Ratio	0.71	0.71	0.71	0.71	0.71	0.71	0.10	0.10		0.10	0.10	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	473	2393	1023	237	2288	1167	116	150		136	137	
v/s Ratio Prot		c0.39			0.25			0.02			0.00	
v/s Ratio Perm	0.06		0.06	0.22		0.05	c0.04			0.01		
v/c Ratio	0.09	0.54	0.08	0.30	0.36	0.07	0.39	0.20		0.06	0.03	
Uniform Delay, d1	3.3	5.0	3.2	3.9	4.1	3.2	31.7	31.1		30.6	30.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.9	0.2	3.3	0.4	0.1	2.1	0.6		0.2	0.1	
Delay (s)	3.6	5.8	3.4	7.2	4.5	3.3	33.8	31.7		30.8	30.6	
Level of Service	A	A	A	A	A	A	C	C		C	C	
Approach Delay (s)		5.6			4.6			32.7			30.7	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	6.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	80.7%	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)	19	1372	24	438	3	16	38	90
v/c Ratio	0.03	0.50	0.12	0.17	0.02	0.12	0.29	0.43
Control Delay	3.4	5.0	5.0	3.1	36.0	19.9	43.4	17.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.4	5.0	5.0	3.1	36.0	19.9	43.4	17.4
Queue Length 50th (m)	0.7	39.8	0.9	8.3	0.5	0.2	6.3	1.3
Queue Length 95th (m)	2.5	61.7	3.7	14.6	3.0	5.9	15.2	14.5
Internal Link Dist (m)		633.7		309.4		165.6		225.3
Turn Bay Length (m)	50.0		40.0		40.0		38.0	
Base Capacity (vph)	625	2771	205	2615	492	463	510	573
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	0.03	0.50	0.12	0.17	0.01	0.03	0.07	0.16

Intersection Summary



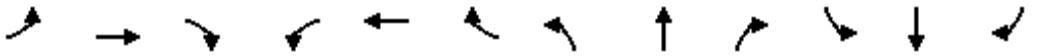
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	1362	10	24	386	52	3	1	15	38	8	82
Future Volume (vph)	19	1362	10	24	386	52	3	1	15	38	8	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.98		1.00	0.86		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1496	3474		1383	3273		1825	1237		1772	1423	
Flt Permitted	0.50	1.00		0.18	1.00		0.70	1.00		0.75	1.00	
Satd. Flow (perm)	784	3474		258	3273		1342	1237		1393	1423	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	19	1362	10	24	386	52	3	1	15	38	8	82
RTOR Reduction (vph)	0	0	0	0	5	0	0	14	0	0	76	0
Lane Group Flow (vph)	19	1372	0	24	433	0	3	2	0	38	14	0
Heavy Vehicles (%)	22%	5%	0%	32%	10%	6%	0%	100%	29%	3%	43%	14%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	69.0	69.0		69.0	69.0		7.0	7.0		7.0	7.0	
Effective Green, g (s)	69.0	69.0		69.0	69.0		7.0	7.0		7.0	7.0	
Actuated g/C Ratio	0.77	0.77		0.77	0.77		0.08	0.08		0.08	0.08	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	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)	601	2663		197	2509		104	96		108	110	
v/s Ratio Prot		c0.39			0.13			0.00			0.01	
v/s Ratio Perm	0.02			0.09			0.00			c0.03		
v/c Ratio	0.03	0.52		0.12	0.17		0.03	0.02		0.35	0.13	
Uniform Delay, d1	2.5	4.0		2.7	2.8		38.4	38.3		39.3	38.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.7		1.3	0.1		0.1	0.1		2.0	0.5	
Delay (s)	2.6	4.8		4.0	3.0		38.5	38.4		41.3	39.2	
Level of Service	A	A		A	A		D	D		D	D	
Approach Delay (s)		4.7			3.0			38.4			39.8	
Approach LOS		A			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	6.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	58.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	172	872	345	12	688	151	163	313	691	925	400
v/c Ratio	0.64	0.59	0.40	0.06	0.63	0.28	0.72	0.37	0.71	0.86	0.67
Control Delay	30.5	26.5	4.2	29.6	37.0	6.0	42.6	37.1	27.3	49.7	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.5	26.5	4.2	29.6	37.0	6.0	42.6	37.1	27.3	49.7	16.8
Queue Length 50th (m)	23.5	80.0	2.4	1.9	72.6	0.0	22.3	30.8	54.7	101.3	22.5
Queue Length 95th (m)	38.6	100.5	19.0	6.6	93.3	14.4	#48.1	43.7	70.0	125.2	58.1
Internal Link Dist (m)		359.6			381.0			633.7		252.6	
Turn Bay Length (m)	113.0		79.0	71.8		62.0	90.0		245.0		50.0
Base Capacity (vph)	275	1467	862	189	1094	546	234	900	976	1098	608
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.59	0.40	0.06	0.63	0.28	0.70	0.35	0.71	0.84	0.66

Intersection Summary

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



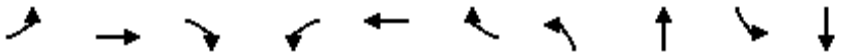
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	172	872	345	12	688	151	163	304	9	691	925	400
Future Volume (vph)	172	872	345	12	688	151	163	304	9	691	925	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0		4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		0.97	*1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1437	3202	1498	1674	3259	1328	1587	3342		3404	3730	1396
Flt Permitted	0.24	1.00	1.00	0.32	1.00	1.00	0.13	1.00		0.47	1.00	1.00
Satd. Flow (perm)	363	3202	1498	565	3259	1328	219	3342		1682	3730	1396
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	172	872	345	12	688	151	163	304	9	691	925	400
RTOR Reduction (vph)	0	0	177	0	0	100	0	1	0	0	0	200
Lane Group Flow (vph)	172	872	168	12	688	51	163	312	0	691	925	200
Heavy Vehicles (%)	27%	14%	9%	9%	12%	23%	15%	9%	0%	4%	3%	17%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2			6		7	4		3	8	
Permitted Phases	2		2	6		6	4			8		8
Actuated Green, G (s)	54.5	54.5	54.5	40.0	40.0	40.0	42.8	30.5		50.2	34.2	34.2
Effective Green, g (s)	54.5	54.5	54.5	40.0	40.0	40.0	42.8	30.5		50.2	34.2	34.2
Actuated g/C Ratio	0.46	0.46	0.46	0.34	0.34	0.34	0.36	0.26		0.42	0.29	0.29
Clearance Time (s)	4.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0		4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	261	1466	686	189	1095	446	220	856		941	1071	401
v/s Ratio Prot	c0.06	0.27			0.21		0.08	0.09		c0.10	c0.25	
v/s Ratio Perm	c0.24		0.11	0.02		0.04	0.19			0.21		0.14
v/c Ratio	0.66	0.59	0.25	0.06	0.63	0.11	0.74	0.36		0.73	0.86	0.50
Uniform Delay, d1	21.5	24.0	19.7	26.8	33.2	27.3	29.2	36.3		25.6	40.2	35.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.9	1.8	0.9	0.6	2.7	0.5	12.6	0.3		3.0	7.4	1.0
Delay (s)	27.5	25.8	20.5	27.4	36.0	27.8	41.8	36.6		28.6	47.6	36.2
Level of Service	C	C	C	C	D	C	D	D		C	D	D
Approach Delay (s)		24.7			34.4			38.4			38.8	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	33.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	119.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	106.3%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	989	84	19	1217	43	29
Future Volume (Veh/h)	989	84	19	1217	43	29
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	989	84	19	1217	43	29
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1073		1636	494
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1073		1636	494
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		53	94
cM capacity (veh/h)			657		91	526

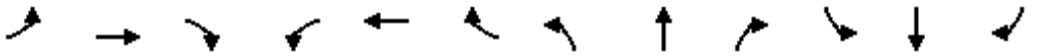
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	494	494	84	19	608	608	43	29
Volume Left	0	0	0	19	0	0	43	0
Volume Right	0	0	84	0	0	0	0	29
cSH	1700	1700	1700	657	1700	1700	91	526
Volume to Capacity	0.29	0.29	0.05	0.03	0.36	0.36	0.47	0.06
Queue Length 95th (m)	0.0	0.0	0.0	0.7	0.0	0.0	15.3	1.3
Control Delay (s)	0.0	0.0	0.0	10.6	0.0	0.0	76.1	12.2
Lane LOS				B			F	B
Approach Delay (s)	0.0			0.2			50.4	
Approach LOS							F	

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	43.6%	ICU Level of Service	A
Analysis Period (min)	15		



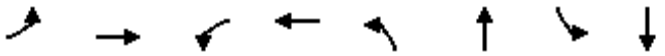
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	10	1145	33	38	1112	12	85	69	124	72
v/c Ratio	0.08	0.73	0.05	0.32	0.71	0.02	0.19	0.13	0.26	0.12
Control Delay	13.0	19.7	1.7	22.1	18.9	0.0	18.6	9.8	19.5	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.0	19.7	1.7	22.1	18.9	0.0	18.6	9.8	19.5	9.2
Queue Length 50th (m)	0.7	65.7	0.0	3.2	62.6	0.0	8.3	2.7	12.4	2.6
Queue Length 95th (m)	3.4	88.5	2.2	11.3	84.2	0.0	17.9	10.6	24.6	10.5
Internal Link Dist (m)		784.2			211.8			280.3		23.8
Turn Bay Length (m)	50.0		32.0	60.0		30.0				
Base Capacity (vph)	133	1562	631	117	1577	793	450	512	474	601
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.73	0.05	0.32	0.71	0.02	0.19	0.13	0.26	0.12

Intersection Summary



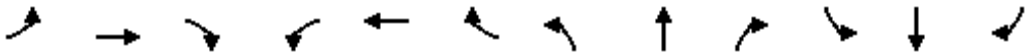
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	1145	33	38	1112	12	85	9	60	124	12	60
Future Volume (vph)	10	1145	33	38	1112	12	85	9	60	124	12	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.87		1.00	0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1644	3349	1286	1547	3380	1633	1738	1402		1825	1653	
Flt Permitted	0.17	1.00	1.00	0.15	1.00	1.00	0.71	1.00		0.71	1.00	
Satd. Flow (perm)	288	3349	1286	252	3380	1633	1299	1402		1368	1653	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	10	1145	33	38	1112	12	85	9	60	124	12	60
RTOR Reduction (vph)	0	0	18	0	0	6	0	26	0	0	29	0
Lane Group Flow (vph)	10	1145	15	38	1112	6	85	43	0	124	43	0
Heavy Vehicles (%)	11%	9%	27%	18%	8%	0%	5%	0%	22%	0%	0%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	35.0	35.0	35.0	35.0	35.0	35.0	26.0	26.0		26.0	26.0	
Effective Green, g (s)	35.0	35.0	35.0	35.0	35.0	35.0	26.0	26.0		26.0	26.0	
Actuated g/C Ratio	0.47	0.47	0.47	0.47	0.47	0.47	0.35	0.35		0.35	0.35	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	134	1562	600	117	1577	762	450	486		474	573	
v/s Ratio Prot		c0.34			0.33			0.03			0.03	
v/s Ratio Perm	0.03		0.01	0.15		0.00	0.07			c0.09		
v/c Ratio	0.07	0.73	0.03	0.32	0.71	0.01	0.19	0.09		0.26	0.08	
Uniform Delay, d1	11.1	16.2	10.8	12.6	15.9	10.7	17.1	16.5		17.6	16.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.1	3.1	0.1	7.2	2.7	0.0	0.9	0.4		1.3	0.3	
Delay (s)	12.1	19.3	10.9	19.8	18.6	10.7	18.1	16.9		18.9	16.7	
Level of Service	B	B	B	B	B	B	B	B		B	B	
Approach Delay (s)		19.0			18.5			17.5			18.1	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	70.0%	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)	14	757	29	1383	19	48	47	215
v/c Ratio	0.10	0.35	0.08	0.63	0.10	0.14	0.19	0.67
Control Delay	9.9	8.3	8.1	11.7	25.0	10.1	26.7	37.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.9	8.3	8.1	11.7	25.0	10.1	26.7	37.2
Queue Length 50th (m)	0.8	25.3	1.5	60.2	2.4	0.8	6.1	27.9
Queue Length 95th (m)	4.1	44.3	5.8	101.2	7.0	8.0	13.4	44.6
Internal Link Dist (m)		633.7		309.4		165.6		225.3
Turn Bay Length (m)	50.0		40.0		40.0		38.0	
Base Capacity (vph)	142	2150	373	2180	358	614	471	600
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	0.10	0.35	0.08	0.63	0.05	0.08	0.10	0.36

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	747	10	29	1346	37	19	6	42	47	1	214
Future Volume (vph)	14	747	10	29	1346	37	19	6	42	47	1	214
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.87		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1484	3408		1587	3453		1644	1567		1644	1572	
Flt Permitted	0.14	1.00		0.35	1.00		0.55	1.00		0.73	1.00	
Satd. Flow (perm)	226	3408		592	3453		957	1567		1256	1572	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	14	747	10	29	1346	37	19	6	42	47	1	214
RTOR Reduction (vph)	0	1	0	0	1	0	0	34	0	0	15	0
Lane Group Flow (vph)	14	756	0	29	1382	0	19	14	0	47	200	0
Heavy Vehicles (%)	23%	7%	0%	15%	5%	16%	11%	17%	5%	11%	0%	4%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	50.5	50.5		50.5	50.5		15.5	15.5		15.5	15.5	
Effective Green, g (s)	50.5	50.5		50.5	50.5		15.5	15.5		15.5	15.5	
Actuated g/C Ratio	0.63	0.63		0.63	0.63		0.19	0.19		0.19	0.19	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	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)	142	2151		373	2179		185	303		243	304	
v/s Ratio Prot		0.22			c0.40			0.01			c0.13	
v/s Ratio Perm	0.06			0.05			0.02			0.04		
v/c Ratio	0.10	0.35		0.08	0.63		0.10	0.05		0.19	0.66	
Uniform Delay, d1	5.8	7.0		5.7	9.1		26.5	26.2		27.0	29.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.4	0.5		0.4	1.4		0.2	0.1		0.4	5.1	
Delay (s)	7.2	7.4		6.1	10.5		26.8	26.3		27.4	34.9	
Level of Service	A	A		A	B		C	C		C	C	
Approach Delay (s)		7.4			10.4			26.4			33.6	
Approach LOS		A			B			C			C	

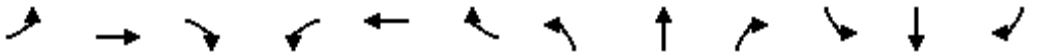
Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	270	910	300	19	791	440	337	1353	312	560	243
v/c Ratio	1.13	0.63	0.38	0.13	0.77	0.70	0.85	1.11	1.15	0.60	0.45
Control Delay	122.3	28.4	3.7	33.3	43.9	24.4	42.7	99.3	148.5	40.9	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	122.3	28.4	3.7	33.3	43.9	24.4	42.7	99.3	148.5	40.9	7.1
Queue Length 50th (m)	~50.8	85.1	0.0	3.2	88.3	45.9	50.6	~181.0	~43.9	60.1	0.0
Queue Length 95th (m)	#103.7	106.3	15.5	9.5	111.6	83.8	#83.3	#221.5	#72.2	78.4	19.6
Internal Link Dist (m)		359.6			381.0			633.7		252.6	
Turn Bay Length (m)	113.0		79.0	71.8		62.0	90.0		245.0		50.0
Base Capacity (vph)	239	1449	794	144	1022	632	399	1219	272	940	539
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.13	0.63	0.38	0.13	0.77	0.70	0.84	1.11	1.15	0.60	0.45

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	270	910	300	19	791	440	337	1334	19	312	560	243
Future Volume (vph)	270	910	300	19	791	440	337	1334	19	312	560	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0		4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	*1.00		0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1484	3318	1432	1496	3380	1585	1690	3718		3248	3476	1338
Flt Permitted	0.16	1.00	1.00	0.30	1.00	1.00	0.27	1.00		0.95	1.00	1.00
Satd. Flow (perm)	248	3318	1432	476	3380	1585	482	3718		3248	3476	1338
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	270	910	300	19	791	440	337	1334	19	312	560	243
RTOR Reduction (vph)	0	0	169	0	0	153	0	1	0	0	0	177
Lane Group Flow (vph)	270	910	131	19	791	287	337	1352	0	312	560	66
Heavy Vehicles (%)	23%	10%	14%	22%	8%	3%	8%	3%	11%	9%	5%	22%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA		Prot	NA	Perm
Protected Phases	5	2			6		7	4		3	8	
Permitted Phases	2		2	6		6	4					8
Actuated Green, G (s)	52.0	52.0	52.0	36.0	36.0	36.0	53.0	39.0		10.0	32.2	32.2
Effective Green, g (s)	52.0	52.0	52.0	36.0	36.0	36.0	53.0	39.0		10.0	32.2	32.2
Actuated g/C Ratio	0.44	0.44	0.44	0.30	0.30	0.30	0.45	0.33		0.08	0.27	0.27
Clearance Time (s)	4.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0		4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	233	1449	625	144	1022	479	385	1218		272	940	362
v/s Ratio Prot	c0.12	0.27			0.23		c0.12	c0.36		c0.10	0.16	
v/s Ratio Perm	c0.39		0.09	0.04		0.18	0.27					0.05
v/c Ratio	1.16	0.63	0.21	0.13	0.77	0.60	0.88	1.11		1.15	0.60	0.18
Uniform Delay, d1	26.7	26.0	20.8	30.1	37.8	35.4	24.3	40.0		54.5	37.7	33.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	108.6	2.1	0.8	1.9	5.7	5.5	19.3	61.6		100.3	1.0	0.2
Delay (s)	135.3	28.1	21.5	32.0	43.5	40.8	43.6	101.6		154.8	38.8	33.5
Level of Service	F	C	C	C	D	D	D	F		F	D	C
Approach Delay (s)		46.3			42.4			90.1			70.1	
Approach LOS		D			D			F			E	

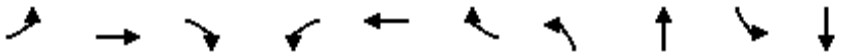
Intersection Summary			
HCM 2000 Control Delay	63.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	119.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	123.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Appendix E – Future (2031) Total Condition Improvements - B Synchro Output

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1466	254	32	961	6	20
Future Volume (Veh/h)	1466	254	32	961	6	20
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1466	254	32	961	6	20
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1720		2010	733
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1720		2010	733
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			91		88	95
cM capacity (veh/h)			373		48	368

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	733	733	254	32	480	480	6	20
Volume Left	0	0	0	32	0	0	6	0
Volume Right	0	0	254	0	0	0	0	20
cSH	1700	1700	1700	373	1700	1700	48	368
Volume to Capacity	0.43	0.43	0.15	0.09	0.28	0.28	0.12	0.05
Queue Length 95th (m)	0.0	0.0	0.0	2.1	0.0	0.0	3.0	1.3
Control Delay (s)	0.0	0.0	0.0	15.6	0.0	0.0	90.4	15.4
Lane LOS				C			F	C
Approach Delay (s)	0.0			0.5			32.7	
Approach LOS							D	

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	50.5%	ICU Level of Service	A
Analysis Period (min)	15		

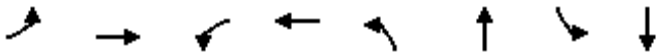


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	41	1291	103	72	814	113	45	53	8	8
v/c Ratio	0.08	0.51	0.09	0.29	0.34	0.09	0.33	0.26	0.05	0.05
Control Delay	4.8	6.2	2.1	8.9	4.9	1.2	36.1	21.2	28.5	21.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.8	6.2	2.1	8.9	4.9	1.2	36.1	21.2	28.5	21.1
Queue Length 50th (m)	1.5	37.9	1.1	3.2	19.6	0.0	6.0	3.5	1.0	0.4
Queue Length 95th (m)	5.2	62.6	5.8	11.9	33.5	4.4	14.4	12.3	4.4	3.8
Internal Link Dist (m)		784.2			211.8			280.3		23.8
Turn Bay Length (m)	50.0		32.0	60.0		30.0				
Base Capacity (vph)	498	2519	1094	249	2408	1256	410	545	480	485
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.51	0.09	0.29	0.34	0.09	0.11	0.10	0.02	0.02

Intersection Summary

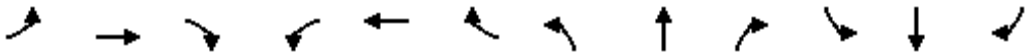
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	1291	103	72	814	113	45	20	33	8	3	5
Future Volume (vph)	41	1291	103	72	814	113	45	20	33	8	3	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91		1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	3349	1432	1659	3202	1633	1496	1523		1825	1393	
Flt Permitted	0.34	1.00	1.00	0.19	1.00	1.00	0.75	1.00		0.72	1.00	
Satd. Flow (perm)	662	3349	1432	332	3202	1633	1185	1523		1388	1393	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	41	1291	103	72	814	113	45	20	33	8	3	5
RTOR Reduction (vph)	0	0	20	0	0	32	0	23	0	0	5	0
Lane Group Flow (vph)	41	1291	83	72	814	81	45	30	0	8	3	0
Heavy Vehicles (%)	0%	9%	14%	10%	14%	0%	22%	5%	20%	0%	0%	40%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	53.6	53.6	53.6	53.6	53.6	53.6	7.4	7.4		7.4	7.4	
Effective Green, g (s)	53.6	53.6	53.6	53.6	53.6	53.6	7.4	7.4		7.4	7.4	
Actuated g/C Ratio	0.71	0.71	0.71	0.71	0.71	0.71	0.10	0.10		0.10	0.10	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	473	2393	1023	237	2288	1167	116	150		136	137	
v/s Ratio Prot		c0.39			0.25			0.02			0.00	
v/s Ratio Perm	0.06		0.06	0.22		0.05	c0.04			0.01		
v/c Ratio	0.09	0.54	0.08	0.30	0.36	0.07	0.39	0.20		0.06	0.03	
Uniform Delay, d1	3.3	5.0	3.2	3.9	4.1	3.2	31.7	31.1		30.6	30.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.9	0.2	3.3	0.4	0.1	2.1	0.6		0.2	0.1	
Delay (s)	3.6	5.8	3.4	7.2	4.5	3.3	33.8	31.7		30.8	30.6	
Level of Service	A	A	A	A	A	A	C	C		C	C	
Approach Delay (s)		5.6			4.6			32.7			30.7	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	6.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



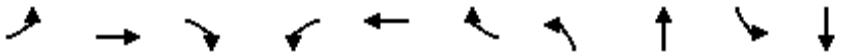
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	19	1372	24	438	3	16	38	90
v/c Ratio	0.03	0.50	0.12	0.17	0.02	0.12	0.29	0.43
Control Delay	3.4	5.0	5.0	3.1	36.0	19.9	43.4	17.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.4	5.0	5.0	3.1	36.0	19.9	43.4	17.4
Queue Length 50th (m)	0.7	39.8	0.9	8.3	0.5	0.2	6.3	1.3
Queue Length 95th (m)	2.5	61.7	3.7	14.6	3.0	5.9	15.2	14.5
Internal Link Dist (m)		633.7		309.4		165.6		225.3
Turn Bay Length (m)	50.0		40.0		40.0		38.0	
Base Capacity (vph)	625	2771	205	2615	492	463	510	573
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	0.03	0.50	0.12	0.17	0.01	0.03	0.07	0.16

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	1362	10	24	386	52	3	1	15	38	8	82
Future Volume (vph)	19	1362	10	24	386	52	3	1	15	38	8	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.98		1.00	0.86		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1496	3474		1383	3273		1825	1237		1772	1423	
Flt Permitted	0.50	1.00		0.18	1.00		0.70	1.00		0.75	1.00	
Satd. Flow (perm)	784	3474		258	3273		1342	1237		1393	1423	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	19	1362	10	24	386	52	3	1	15	38	8	82
RTOR Reduction (vph)	0	0	0	0	5	0	0	14	0	0	76	0
Lane Group Flow (vph)	19	1372	0	24	433	0	3	2	0	38	14	0
Heavy Vehicles (%)	22%	5%	0%	32%	10%	6%	0%	100%	29%	3%	43%	14%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	69.0	69.0		69.0	69.0		7.0	7.0		7.0	7.0	
Effective Green, g (s)	69.0	69.0		69.0	69.0		7.0	7.0		7.0	7.0	
Actuated g/C Ratio	0.77	0.77		0.77	0.77		0.08	0.08		0.08	0.08	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	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)	601	2663		197	2509		104	96		108	110	
v/s Ratio Prot		c0.39			0.13			0.00			0.01	
v/s Ratio Perm	0.02			0.09			0.00			c0.03		
v/c Ratio	0.03	0.52		0.12	0.17		0.03	0.02		0.35	0.13	
Uniform Delay, d1	2.5	4.0		2.7	2.8		38.4	38.3		39.3	38.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.7		1.3	0.1		0.1	0.1		2.0	0.5	
Delay (s)	2.6	4.8		4.0	3.0		38.5	38.4		41.3	39.2	
Level of Service	A	A		A	A		D	D		D	D	
Approach Delay (s)		4.7			3.0			38.4			39.8	
Approach LOS		A			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	6.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	58.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

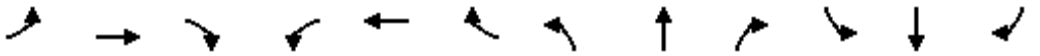


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	172	872	345	12	688	151	163	313	691	1325
v/c Ratio	1.05	0.70	0.48	0.09	0.72	0.30	0.90	0.35	1.11	0.97
Control Delay	137.6	34.6	11.4	32.8	42.6	6.7	73.4	36.2	93.8	52.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	137.6	34.6	11.4	32.8	42.6	6.7	73.4	36.2	93.8	52.0
Queue Length 50th (m)	~22.5	89.3	18.0	2.0	75.5	0.0	22.4	30.8	~147.4	143.6
Queue Length 95th (m)	#45.0	112.2	43.7	7.0	97.0	15.0	#63.0	43.7	#254.3	#190.1
Internal Link Dist (m)		359.6			381.0			633.7		252.6
Turn Bay Length (m)	113.0		79.0	71.8		62.0	90.0		245.0	
Base Capacity (vph)	164	1237	718	134	958	497	181	900	624	1368
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.05	0.70	0.48	0.09	0.72	0.30	0.90	0.35	1.11	0.97

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



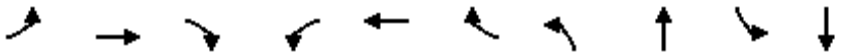
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	172	872	345	12	688	151	163	304	9	691	925	400
Future Volume (vph)	172	872	345	12	688	151	163	304	9	691	925	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0		4.0	7.0	
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	*1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	2788	3202	1498	1674	3259	1328	1587	3342		1755	3421	
Flt Permitted	0.95	1.00	1.00	0.26	1.00	1.00	0.12	1.00		0.47	1.00	
Satd. Flow (perm)	2788	3202	1498	459	3259	1328	209	3342		871	3421	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	172	872	345	12	688	151	163	304	9	691	925	400
RTOR Reduction (vph)	0	0	140	0	0	107	0	1	0	0	46	0
Lane Group Flow (vph)	172	872	205	12	688	44	163	312	0	691	1279	0
Heavy Vehicles (%)	27%	14%	9%	9%	12%	23%	15%	9%	0%	4%	3%	17%
Turn Type	Prot	NA	Perm	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2			6		7	4		3	8	
Permitted Phases			2	6		6	4			8		
Actuated Green, G (s)	7.0	46.0	46.0	35.0	35.0	35.0	41.0	32.0		59.0	46.0	
Effective Green, g (s)	7.0	46.0	46.0	35.0	35.0	35.0	41.0	32.0		59.0	46.0	
Actuated g/C Ratio	0.06	0.39	0.39	0.29	0.29	0.29	0.34	0.27		0.50	0.39	
Clearance Time (s)	4.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	164	1237	579	135	958	390	176	898		602	1322	
v/s Ratio Prot	c0.06	c0.27			0.21		0.07	0.09		c0.22	0.37	
v/s Ratio Perm			0.14	0.03		0.03	0.25			c0.35		
v/c Ratio	1.05	0.70	0.35	0.09	0.72	0.11	0.93	0.35		1.15	0.97	
Uniform Delay, d1	56.0	30.8	25.9	30.4	37.6	30.7	31.1	35.1		26.1	35.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	83.8	3.4	1.7	1.3	4.6	0.6	46.6	0.2		84.8	17.3	
Delay (s)	139.8	34.2	27.6	31.7	42.2	31.3	77.7	35.3		110.9	53.1	
Level of Service	F	C	C	C	D	C	E	D		F	D	
Approach Delay (s)		45.6			40.1			49.8			72.9	
Approach LOS		D			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	56.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	119.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	119.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	989	84	19	1217	43	29
Future Volume (Veh/h)	989	84	19	1217	43	29
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	989	84	19	1217	43	29
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1073		1636	494
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1073		1636	494
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		53	94
cM capacity (veh/h)			657		91	526

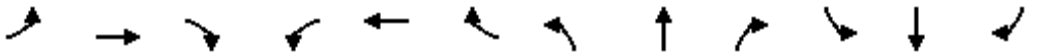
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	494	494	84	19	608	608	43	29
Volume Left	0	0	0	19	0	0	43	0
Volume Right	0	0	84	0	0	0	0	29
cSH	1700	1700	1700	657	1700	1700	91	526
Volume to Capacity	0.29	0.29	0.05	0.03	0.36	0.36	0.47	0.06
Queue Length 95th (m)	0.0	0.0	0.0	0.7	0.0	0.0	15.3	1.3
Control Delay (s)	0.0	0.0	0.0	10.6	0.0	0.0	76.1	12.2
Lane LOS				B			F	B
Approach Delay (s)	0.0			0.2			50.4	
Approach LOS							F	

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	43.6%	ICU Level of Service	A
Analysis Period (min)	15		



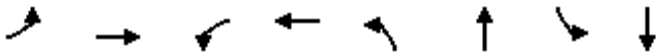
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	10	1145	33	38	1112	12	85	69	124	72
v/c Ratio	0.08	0.73	0.05	0.32	0.71	0.02	0.19	0.13	0.26	0.12
Control Delay	13.0	19.7	1.7	22.1	18.9	0.0	18.6	9.8	19.5	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.0	19.7	1.7	22.1	18.9	0.0	18.6	9.8	19.5	9.2
Queue Length 50th (m)	0.7	65.7	0.0	3.2	62.6	0.0	8.3	2.7	12.4	2.6
Queue Length 95th (m)	3.4	88.5	2.2	11.3	84.2	0.0	17.9	10.6	24.6	10.5
Internal Link Dist (m)		784.2			211.8			280.3		23.8
Turn Bay Length (m)	50.0		32.0	60.0		30.0				
Base Capacity (vph)	133	1562	631	117	1577	793	450	512	474	601
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.73	0.05	0.32	0.71	0.02	0.19	0.13	0.26	0.12

Intersection Summary



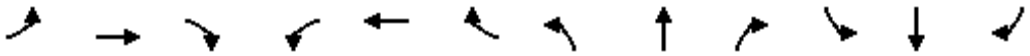
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	1145	33	38	1112	12	85	9	60	124	12	60
Future Volume (vph)	10	1145	33	38	1112	12	85	9	60	124	12	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.87		1.00	0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1644	3349	1286	1547	3380	1633	1738	1402		1825	1653	
Flt Permitted	0.17	1.00	1.00	0.15	1.00	1.00	0.71	1.00		0.71	1.00	
Satd. Flow (perm)	288	3349	1286	252	3380	1633	1299	1402		1368	1653	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	10	1145	33	38	1112	12	85	9	60	124	12	60
RTOR Reduction (vph)	0	0	18	0	0	6	0	26	0	0	29	0
Lane Group Flow (vph)	10	1145	15	38	1112	6	85	43	0	124	43	0
Heavy Vehicles (%)	11%	9%	27%	18%	8%	0%	5%	0%	22%	0%	0%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	35.0	35.0	35.0	35.0	35.0	35.0	26.0	26.0		26.0	26.0	
Effective Green, g (s)	35.0	35.0	35.0	35.0	35.0	35.0	26.0	26.0		26.0	26.0	
Actuated g/C Ratio	0.47	0.47	0.47	0.47	0.47	0.47	0.35	0.35		0.35	0.35	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	134	1562	600	117	1577	762	450	486		474	573	
v/s Ratio Prot		c0.34			0.33			0.03			0.03	
v/s Ratio Perm	0.03		0.01	0.15		0.00	0.07			c0.09		
v/c Ratio	0.07	0.73	0.03	0.32	0.71	0.01	0.19	0.09		0.26	0.08	
Uniform Delay, d1	11.1	16.2	10.8	12.6	15.9	10.7	17.1	16.5		17.6	16.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.1	3.1	0.1	7.2	2.7	0.0	0.9	0.4		1.3	0.3	
Delay (s)	12.1	19.3	10.9	19.8	18.6	10.7	18.1	16.9		18.9	16.7	
Level of Service	B	B	B	B	B	B	B	B		B	B	
Approach Delay (s)		19.0			18.5			17.5			18.1	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



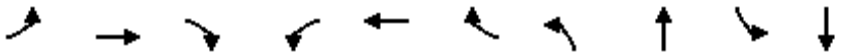
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	14	757	29	1383	19	48	47	215
v/c Ratio	0.10	0.35	0.08	0.63	0.10	0.14	0.19	0.67
Control Delay	9.9	8.3	8.1	11.7	25.0	10.1	26.7	37.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.9	8.3	8.1	11.7	25.0	10.1	26.7	37.2
Queue Length 50th (m)	0.8	25.3	1.5	60.2	2.4	0.8	6.1	27.9
Queue Length 95th (m)	4.1	44.3	5.8	101.2	7.0	8.0	13.4	44.6
Internal Link Dist (m)		633.7		309.4		165.6		225.3
Turn Bay Length (m)	50.0		40.0		40.0		38.0	
Base Capacity (vph)	142	2150	373	2180	358	614	471	600
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	0.10	0.35	0.08	0.63	0.05	0.08	0.10	0.36

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	747	10	29	1346	37	19	6	42	47	1	214
Future Volume (vph)	14	747	10	29	1346	37	19	6	42	47	1	214
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.87		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1484	3408		1587	3453		1644	1567		1644	1572	
Flt Permitted	0.14	1.00		0.35	1.00		0.55	1.00		0.73	1.00	
Satd. Flow (perm)	226	3408		592	3453		957	1567		1256	1572	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	14	747	10	29	1346	37	19	6	42	47	1	214
RTOR Reduction (vph)	0	1	0	0	1	0	0	34	0	0	15	0
Lane Group Flow (vph)	14	756	0	29	1382	0	19	14	0	47	200	0
Heavy Vehicles (%)	23%	7%	0%	15%	5%	16%	11%	17%	5%	11%	0%	4%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	50.5	50.5		50.5	50.5		15.5	15.5		15.5	15.5	
Effective Green, g (s)	50.5	50.5		50.5	50.5		15.5	15.5		15.5	15.5	
Actuated g/C Ratio	0.63	0.63		0.63	0.63		0.19	0.19		0.19	0.19	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	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)	142	2151		373	2179		185	303		243	304	
v/s Ratio Prot		0.22			c0.40			0.01			c0.13	
v/s Ratio Perm	0.06			0.05			0.02			0.04		
v/c Ratio	0.10	0.35		0.08	0.63		0.10	0.05		0.19	0.66	
Uniform Delay, d1	5.8	7.0		5.7	9.1		26.5	26.2		27.0	29.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.4	0.5		0.4	1.4		0.2	0.1		0.4	5.1	
Delay (s)	7.2	7.4		6.1	10.5		26.8	26.3		27.4	34.9	
Level of Service	A	A		A	B		C	C		C	C	
Approach Delay (s)		7.4			10.4			26.4			33.6	
Approach LOS		A			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	270	910	300	19	791	440	337	1353	312	803
v/c Ratio	1.24	0.65	0.39	0.14	0.75	0.64	1.02	1.17	1.20	0.87
Control Delay	187.5	30.3	4.0	33.2	42.3	17.4	83.8	123.2	149.3	49.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	187.5	30.3	4.0	33.2	42.3	17.4	83.8	123.2	149.3	49.9
Queue Length 50th (m)	~40.3	87.8	0.0	3.2	87.2	31.6	~62.0	~188.8	~72.3	88.3
Queue Length 95th (m)	#67.1	109.8	16.0	9.5	110.1	67.3	#121.1	#229.3	#128.2	#120.8
Internal Link Dist (m)		359.6			381.0			633.7		252.6
Turn Bay Length (m)	113.0		79.0	71.8		62.0	90.0		245.0	
Base Capacity (vph)	217	1394	775	132	1050	683	332	1157	261	918
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.24	0.65	0.39	0.14	0.75	0.64	1.02	1.17	1.20	0.87

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	270	910	300	19	791	440	337	1334	19	312	560	243
Future Volume (vph)	270	910	300	19	791	440	337	1334	19	312	560	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0		4.0	7.0	
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	*1.00		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	2879	3318	1432	1496	3380	1585	1690	3718		1674	3164	
Flt Permitted	0.95	1.00	1.00	0.27	1.00	1.00	0.13	1.00		0.12	1.00	
Satd. Flow (perm)	2879	3318	1432	427	3380	1585	228	3718		214	3164	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	270	910	300	19	791	440	337	1334	19	312	560	243
RTOR Reduction (vph)	0	0	174	0	0	190	0	1	0	0	41	0
Lane Group Flow (vph)	270	910	126	19	791	250	337	1352	0	312	762	0
Heavy Vehicles (%)	23%	10%	14%	22%	8%	3%	8%	3%	11%	9%	5%	22%
Turn Type	Prot	NA	Perm	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2			6		7	4		3	8	
Permitted Phases			2	6		6	4			8		
Actuated Green, G (s)	9.0	50.0	50.0	37.0	37.0	37.0	55.0	37.0		47.0	33.0	
Effective Green, g (s)	9.0	50.0	50.0	37.0	37.0	37.0	55.0	37.0		47.0	33.0	
Actuated g/C Ratio	0.08	0.42	0.42	0.31	0.31	0.31	0.46	0.31		0.39	0.28	
Clearance Time (s)	4.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	217	1394	601	132	1050	492	326	1156		256	877	
v/s Ratio Prot	c0.09	0.27			c0.23		c0.16	c0.36		c0.14	0.24	
v/s Ratio Perm			0.09	0.04		0.16	0.32			0.34		
v/c Ratio	1.24	0.65	0.21	0.14	0.75	0.51	1.03	1.17		1.22	0.87	
Uniform Delay, d1	55.0	27.6	21.9	29.6	36.9	33.5	33.1	41.0		33.7	40.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	142.5	2.4	0.8	2.3	5.0	3.7	58.8	86.0		128.5	9.1	
Delay (s)	197.5	30.0	22.7	31.9	41.9	37.3	92.0	127.0		162.2	50.1	
Level of Service	F	C	C	C	D	D	F	F		F	D	
Approach Delay (s)		59.1			40.1			120.0			81.4	
Approach LOS		E			D			F			F	

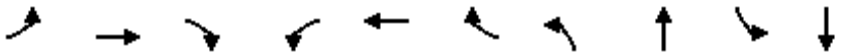
Intersection Summary			
HCM 2000 Control Delay	77.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	119.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	132.3%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Appendix F – Future (2031) Total Condition Sensitivity (RI/RO) Synchro Output

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1466	290	0	961	0	20
Future Volume (Veh/h)	1466	290	0	961	0	20
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1466	290	0	961	0	20
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1756		1946	733
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1756		1946	733
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	95
cM capacity (veh/h)			361		58	368

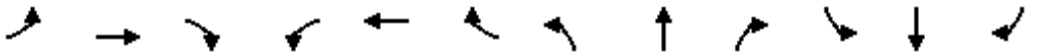
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	733	733	290	480	480	20
Volume Left	0	0	0	0	0	0
Volume Right	0	0	290	0	0	20
cSH	1700	1700	1700	1700	1700	368
Volume to Capacity	0.43	0.43	0.17	0.28	0.28	0.05
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	1.3
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	15.4
Lane LOS						C
Approach Delay (s)	0.0			0.0		15.4
Approach LOS						C

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	50.5%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	41	1291	103	73	814	113	45	53	8	8
v/c Ratio	0.08	0.51	0.09	0.29	0.34	0.09	0.33	0.26	0.05	0.05
Control Delay	4.8	6.2	2.1	9.0	4.9	1.2	36.1	21.2	28.5	21.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.8	6.2	2.1	9.0	4.9	1.2	36.1	21.2	28.5	21.1
Queue Length 50th (m)	1.5	37.9	1.1	3.2	19.6	0.0	6.0	3.5	1.0	0.4
Queue Length 95th (m)	5.2	62.6	5.8	12.0	33.5	4.4	14.4	12.3	4.4	3.8
Internal Link Dist (m)		784.2			211.8			280.3		23.8
Turn Bay Length (m)	50.0		32.0	60.0		30.0				
Base Capacity (vph)	498	2519	1094	249	2408	1256	410	545	480	485
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.51	0.09	0.29	0.34	0.09	0.11	0.10	0.02	0.02

Intersection Summary

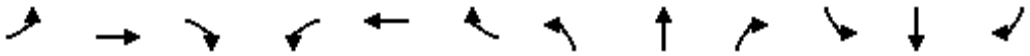


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	1291	103	73	814	113	45	20	33	8	3	5
Future Volume (vph)	41	1291	103	73	814	113	45	20	33	8	3	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91		1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	3349	1432	1659	3202	1633	1496	1523		1825	1393	
Flt Permitted	0.34	1.00	1.00	0.19	1.00	1.00	0.75	1.00		0.72	1.00	
Satd. Flow (perm)	662	3349	1432	332	3202	1633	1185	1523		1388	1393	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	41	1291	103	73	814	113	45	20	33	8	3	5
RTOR Reduction (vph)	0	0	20	0	0	32	0	23	0	0	5	0
Lane Group Flow (vph)	41	1291	83	73	814	81	45	30	0	8	3	0
Heavy Vehicles (%)	0%	9%	14%	10%	14%	0%	22%	5%	20%	0%	0%	40%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	53.6	53.6	53.6	53.6	53.6	53.6	7.4	7.4		7.4	7.4	
Effective Green, g (s)	53.6	53.6	53.6	53.6	53.6	53.6	7.4	7.4		7.4	7.4	
Actuated g/C Ratio	0.71	0.71	0.71	0.71	0.71	0.71	0.10	0.10		0.10	0.10	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	473	2393	1023	237	2288	1167	116	150		136	137	
v/s Ratio Prot		c0.39			0.25			0.02			0.00	
v/s Ratio Perm	0.06		0.06	0.22		0.05	c0.04			0.01		
v/c Ratio	0.09	0.54	0.08	0.31	0.36	0.07	0.39	0.20		0.06	0.03	
Uniform Delay, d1	3.3	5.0	3.2	3.9	4.1	3.2	31.7	31.1		30.6	30.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.9	0.2	3.3	0.4	0.1	2.1	0.6		0.2	0.1	
Delay (s)	3.6	5.8	3.4	7.3	4.5	3.3	33.8	31.7		30.8	30.6	
Level of Service	A	A	A	A	A	A	C	C		C	C	
Approach Delay (s)		5.6			4.6			32.7			30.7	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	6.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

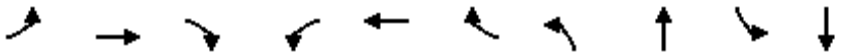
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	19	1372	24	386	54	3	16	38	90
v/c Ratio	0.03	0.50	0.12	0.15	0.04	0.02	0.12	0.29	0.43
Control Delay	3.4	5.0	5.0	3.1	1.1	36.0	19.9	43.4	17.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.4	5.0	5.0	3.1	1.1	36.0	19.9	43.4	17.4
Queue Length 50th (m)	0.7	39.8	0.9	7.6	0.0	0.5	0.2	6.3	1.3
Queue Length 95th (m)	2.5	61.7	3.7	13.4	2.7	3.0	5.9	15.2	14.5
Internal Link Dist (m)		633.7		309.4			165.6		225.3
Turn Bay Length (m)	50.0		40.0		50.0	40.0		38.0	
Base Capacity (vph)	657	2771	205	2647	1240	492	463	510	573
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.50	0.12	0.15	0.04	0.01	0.03	0.07	0.16

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	1362	10	24	386	54	3	1	15	38	8	82
Future Volume (vph)	19	1362	10	24	386	54	3	1	15	38	8	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.86		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1496	3474		1383	3318	1541	1825	1237		1772	1423	
Flt Permitted	0.52	1.00		0.18	1.00	1.00	0.70	1.00		0.75	1.00	
Satd. Flow (perm)	824	3474		258	3318	1541	1342	1237		1393	1423	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	19	1362	10	24	386	54	3	1	15	38	8	82
RTOR Reduction (vph)	0	0	0	0	0	13	0	14	0	0	76	0
Lane Group Flow (vph)	19	1372	0	24	386	41	3	2	0	38	14	0
Heavy Vehicles (%)	22%	5%	0%	32%	10%	6%	0%	100%	29%	3%	43%	14%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	69.0	69.0		69.0	69.0	69.0	7.0	7.0		7.0	7.0	
Effective Green, g (s)	69.0	69.0		69.0	69.0	69.0	7.0	7.0		7.0	7.0	
Actuated g/C Ratio	0.77	0.77		0.77	0.77	0.77	0.08	0.08		0.08	0.08	
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	631	2663		197	2543	1181	104	96		108	110	
v/s Ratio Prot		c0.39			0.12			0.00			0.01	
v/s Ratio Perm	0.02			0.09		0.03	0.00			c0.03		
v/c Ratio	0.03	0.52		0.12	0.15	0.04	0.03	0.02		0.35	0.13	
Uniform Delay, d1	2.5	4.0		2.7	2.8	2.5	38.4	38.3		39.3	38.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.7		1.3	0.1	0.1	0.1	0.1		2.0	0.5	
Delay (s)	2.6	4.8		4.0	2.9	2.6	38.5	38.4		41.3	39.2	
Level of Service	A	A		A	A	A	D	D		D	D	
Approach Delay (s)		4.7			2.9			38.4			39.8	
Approach LOS		A			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	6.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

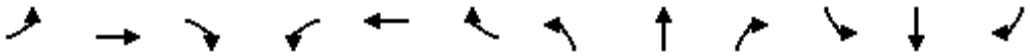


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	172	874	345	12	688	151	163	322	725	1325
v/c Ratio	0.92	0.72	0.49	0.09	0.72	0.30	0.90	0.36	1.15	0.95
Control Delay	79.3	35.5	11.7	33.0	42.6	6.7	74.0	36.5	108.7	48.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.3	35.5	11.7	33.0	42.6	6.7	74.0	36.5	108.7	48.8
Queue Length 50th (m)	26.8	90.8	18.3	2.0	75.5	0.0	22.2	31.8	~165.4	141.3
Queue Length 95th (m)	#66.0	114.2	44.5	7.1	97.0	15.0	#62.8	44.8	#269.7	#186.5
Internal Link Dist (m)		359.6			381.0			633.7		252.6
Turn Bay Length (m)	113.0		79.0	71.8		62.0	90.0		245.0	
Base Capacity (vph)	186	1218	711	130	958	497	181	900	631	1397
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.72	0.49	0.09	0.72	0.30	0.90	0.36	1.15	0.95

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



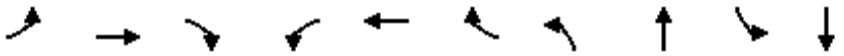
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	172	874	345	12	688	151	163	313	9	725	925	400
Future Volume (vph)	172	874	345	12	688	151	163	313	9	725	925	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	*1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1437	3202	1498	1674	3259	1328	1587	3342		1755	3421	
Flt Permitted	0.21	1.00	1.00	0.25	1.00	1.00	0.13	1.00		0.46	1.00	
Satd. Flow (perm)	315	3202	1498	442	3259	1328	211	3342		854	3421	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	172	874	345	12	688	151	163	313	9	725	925	400
RTOR Reduction (vph)	0	0	141	0	0	107	0	1	0	0	46	0
Lane Group Flow (vph)	172	874	204	12	688	44	163	321	0	725	1279	0
Heavy Vehicles (%)	27%	14%	9%	9%	12%	23%	15%	9%	0%	4%	3%	17%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2			6		7	4		3	8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	45.3	45.3	45.3	35.0	35.0	35.0	40.7	31.7		59.7	46.7	
Effective Green, g (s)	45.3	45.3	45.3	35.0	35.0	35.0	40.7	31.7		59.7	46.7	
Actuated g/C Ratio	0.38	0.38	0.38	0.29	0.29	0.29	0.34	0.27		0.50	0.39	
Clearance Time (s)	4.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	179	1218	570	130	958	390	176	890		610	1342	
v/s Ratio Prot	c0.05	0.27			0.21		0.07	0.10		c0.24	0.37	
v/s Ratio Perm	c0.31		0.14	0.03		0.03	0.25			c0.36		
v/c Ratio	0.96	0.72	0.36	0.09	0.72	0.11	0.93	0.36		1.19	0.95	
Uniform Delay, d1	34.6	31.4	26.4	30.5	37.6	30.7	31.1	35.4		25.6	35.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	55.6	3.6	1.7	1.4	4.6	0.6	46.6	0.3		100.5	14.7	
Delay (s)	90.2	35.0	28.2	31.9	42.2	31.3	77.6	35.7		126.1	49.8	
Level of Service	F	D	C	C	D	C	E	D		F	D	
Approach Delay (s)		40.2			40.1			49.8			76.8	
Approach LOS		D			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	56.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	119.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	120.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	989	94	0	1217	0	30
Future Volume (Veh/h)	989	94	0	1217	0	30
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	989	94	0	1217	0	30
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1083		1598	494
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1083		1598	494
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	94
cM capacity (veh/h)			652		99	526

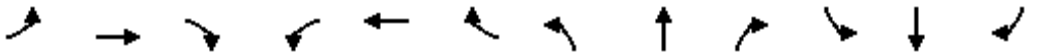
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	494	494	94	608	608	30
Volume Left	0	0	0	0	0	0
Volume Right	0	0	94	0	0	30
cSH	1700	1700	1700	1700	1700	526
Volume to Capacity	0.29	0.29	0.06	0.36	0.36	0.06
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	1.4
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	12.3
Lane LOS						B
Approach Delay (s)	0.0			0.0		12.3
Approach LOS						B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	37.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	10	1145	39	40	1112	12	85	69	124	72
v/c Ratio	0.08	0.73	0.06	0.34	0.71	0.02	0.19	0.13	0.26	0.12
Control Delay	13.0	19.7	2.3	22.8	18.9	0.0	18.6	9.8	19.5	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.0	19.7	2.3	22.8	18.9	0.0	18.6	9.8	19.5	9.2
Queue Length 50th (m)	0.7	65.7	0.0	3.4	62.6	0.0	8.3	2.7	12.4	2.6
Queue Length 95th (m)	3.4	88.5	3.1	12.1	84.2	0.0	17.9	10.6	24.6	10.5
Internal Link Dist (m)		784.2			211.8			280.3		23.8
Turn Bay Length (m)	50.0		32.0	60.0		30.0				
Base Capacity (vph)	133	1562	631	117	1577	793	450	512	474	601
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.73	0.06	0.34	0.71	0.02	0.19	0.13	0.26	0.12

Intersection Summary

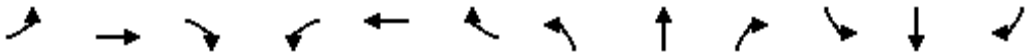


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	1145	39	40	1112	12	85	9	60	124	12	60
Future Volume (vph)	10	1145	39	40	1112	12	85	9	60	124	12	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.87		1.00	0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1644	3349	1286	1547	3380	1633	1738	1402		1825	1653	
Flt Permitted	0.17	1.00	1.00	0.15	1.00	1.00	0.71	1.00		0.71	1.00	
Satd. Flow (perm)	288	3349	1286	252	3380	1633	1299	1402		1368	1653	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	10	1145	39	40	1112	12	85	9	60	124	12	60
RTOR Reduction (vph)	0	0	21	0	0	6	0	26	0	0	29	0
Lane Group Flow (vph)	10	1145	18	40	1112	6	85	43	0	124	43	0
Heavy Vehicles (%)	11%	9%	27%	18%	8%	0%	5%	0%	22%	0%	0%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	35.0	35.0	35.0	35.0	35.0	35.0	26.0	26.0		26.0	26.0	
Effective Green, g (s)	35.0	35.0	35.0	35.0	35.0	35.0	26.0	26.0		26.0	26.0	
Actuated g/C Ratio	0.47	0.47	0.47	0.47	0.47	0.47	0.35	0.35		0.35	0.35	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	134	1562	600	117	1577	762	450	486		474	573	
v/s Ratio Prot		c0.34			0.33			0.03			0.03	
v/s Ratio Perm	0.03		0.01	0.16		0.00	0.07			c0.09		
v/c Ratio	0.07	0.73	0.03	0.34	0.71	0.01	0.19	0.09		0.26	0.08	
Uniform Delay, d1	11.1	16.2	10.8	12.7	15.9	10.7	17.1	16.5		17.6	16.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.1	3.1	0.1	7.8	2.7	0.0	0.9	0.4		1.3	0.3	
Delay (s)	12.1	19.3	10.9	20.5	18.6	10.7	18.1	16.9		18.9	16.7	
Level of Service	B	B	B	C	B	B	B	B		B	B	
Approach Delay (s)		19.0			18.6			17.5			18.1	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

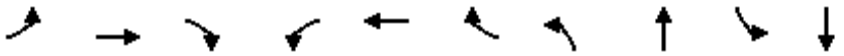
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	14	757	29	1346	38	19	48	48	245
v/c Ratio	0.10	0.36	0.08	0.63	0.04	0.10	0.13	0.18	0.70
Control Delay	11.1	9.3	9.2	12.7	1.9	23.5	9.3	24.8	36.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.1	9.3	9.2	12.7	1.9	23.5	9.3	24.8	36.5
Queue Length 50th (m)	0.8	26.9	1.6	61.1	0.0	2.3	0.7	6.0	32.0
Queue Length 95th (m)	4.4	48.1	6.3	105.0	2.9	6.7	7.6	12.8	48.5
Internal Link Dist (m)		633.7		309.4			165.6		225.3
Turn Bay Length (m)	50.0		40.0		50.0	40.0		38.0	
Base Capacity (vph)	141	2080	357	2122	881	327	614	471	601
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.36	0.08	0.63	0.04	0.06	0.08	0.10	0.41

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	747	10	29	1346	38	19	6	42	48	1	244
Future Volume (vph)	14	747	10	29	1346	38	19	6	42	48	1	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.87		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1484	3408		1587	3476	1408	1644	1567		1644	1572	
Flt Permitted	0.15	1.00		0.35	1.00	1.00	0.50	1.00		0.73	1.00	
Satd. Flow (perm)	231	3408		586	3476	1408	873	1567		1256	1572	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	14	747	10	29	1346	38	19	6	42	48	1	244
RTOR Reduction (vph)	0	1	0	0	0	15	0	33	0	0	15	0
Lane Group Flow (vph)	14	756	0	29	1346	23	19	15	0	48	230	0
Heavy Vehicles (%)	23%	7%	0%	15%	5%	16%	11%	17%	5%	11%	0%	4%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	48.8	48.8		48.8	48.8	48.8	17.2	17.2		17.2	17.2	
Effective Green, g (s)	48.8	48.8		48.8	48.8	48.8	17.2	17.2		17.2	17.2	
Actuated g/C Ratio	0.61	0.61		0.61	0.61	0.61	0.21	0.21		0.21	0.21	
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	140	2078		357	2120	858	187	336		270	337	
v/s Ratio Prot		0.22			c0.39			0.01			c0.15	
v/s Ratio Perm	0.06			0.05		0.02	0.02			0.04		
v/c Ratio	0.10	0.36		0.08	0.63	0.03	0.10	0.04		0.18	0.68	
Uniform Delay, d1	6.5	7.8		6.4	9.9	6.2	25.2	24.9		25.6	28.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.4	0.5		0.4	1.5	0.1	0.2	0.1		0.3	5.6	
Delay (s)	7.9	8.3		6.8	11.4	6.2	25.4	24.9		25.9	34.5	
Level of Service	A	A		A	B	A	C	C		C	C	
Approach Delay (s)		8.3			11.2			25.1			33.1	
Approach LOS		A			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

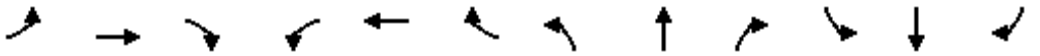


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	270	910	300	19	791	440	338	1382	321	803
v/c Ratio	1.23	0.64	0.38	0.14	0.75	0.65	1.04	1.19	1.30	0.90
Control Delay	160.6	29.3	3.9	32.9	42.3	17.8	92.2	133.1	190.0	53.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	160.6	29.3	3.9	32.9	42.3	17.8	92.2	133.1	190.0	53.3
Queue Length 50th (m)	~54.0	86.4	0.0	3.2	87.2	32.6	~67.9	~196.0	~80.2	89.6
Queue Length 95th (m)	#106.9	108.1	15.8	9.4	110.1	68.4	#125.2	#236.5	#136.5	#124.4
Internal Link Dist (m)		359.6			381.0			633.7		252.6
Turn Bay Length (m)	113.0		79.0	71.8		62.0	90.0		245.0	
Base Capacity (vph)	220	1422	785	138	1050	680	325	1157	247	892
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.23	0.64	0.38	0.14	0.75	0.65	1.04	1.19	1.30	0.90

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	270	910	300	19	791	440	338	1363	19	321	560	243
Future Volume (vph)	270	910	300	19	791	440	338	1363	19	321	560	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	*1.00		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1484	3318	1432	1496	3380	1585	1690	3719		1674	3164	
Flt Permitted	0.17	1.00	1.00	0.28	1.00	1.00	0.12	1.00		0.12	1.00	
Satd. Flow (perm)	260	3318	1432	445	3380	1585	212	3719		220	3164	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	270	910	300	19	791	440	338	1363	19	321	560	243
RTOR Reduction (vph)	0	0	171	0	0	187	0	1	0	0	41	0
Lane Group Flow (vph)	270	910	129	19	791	253	338	1381	0	321	762	0
Heavy Vehicles (%)	23%	10%	14%	22%	8%	3%	8%	3%	11%	9%	5%	22%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2			6		7	4		3	8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	51.0	51.0	51.0	37.0	37.0	37.0	54.0	37.0		45.0	32.0	
Effective Green, g (s)	51.0	51.0	51.0	37.0	37.0	37.0	54.0	37.0		45.0	32.0	
Actuated g/C Ratio	0.43	0.43	0.43	0.31	0.31	0.31	0.45	0.31		0.38	0.27	
Clearance Time (s)	4.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	214	1422	613	138	1050	492	319	1156		242	850	
v/s Ratio Prot	c0.11	0.27			0.23		c0.16	0.37		c0.14	0.24	
v/s Ratio Perm	c0.43		0.09	0.04		0.16	0.32			c0.36		
v/c Ratio	1.26	0.64	0.21	0.14	0.75	0.51	1.06	1.19		1.33	0.90	
Uniform Delay, d1	28.7	26.8	21.3	29.5	36.9	33.6	34.4	41.0		32.8	41.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	149.7	2.2	0.8	2.1	5.0	3.8	67.0	96.4		172.6	12.0	
Delay (s)	178.3	29.0	22.1	31.6	41.9	37.4	101.4	137.4		205.4	53.9	
Level of Service	F	C	C	C	D	D	F	F		F	D	
Approach Delay (s)		54.8			40.2			130.3			97.2	
Approach LOS		D			D			F			F	

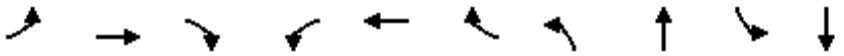
Intersection Summary			
HCM 2000 Control Delay	83.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.30		
Actuated Cycle Length (s)	119.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	133.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Appendix G – Future (2031) Total Condition Sensitivity Improvements – A Synchro Output

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1466	254	32	961	6	20
Future Volume (Veh/h)	1466	254	32	961	6	20
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1466	254	32	961	6	20
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1720		2010	733
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1720		2010	733
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			91		88	95
cM capacity (veh/h)			373		48	368

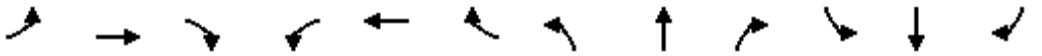
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	733	733	254	32	480	480	6	20
Volume Left	0	0	0	32	0	0	6	0
Volume Right	0	0	254	0	0	0	0	20
cSH	1700	1700	1700	373	1700	1700	48	368
Volume to Capacity	0.43	0.43	0.15	0.09	0.28	0.28	0.12	0.05
Queue Length 95th (m)	0.0	0.0	0.0	2.1	0.0	0.0	3.0	1.3
Control Delay (s)	0.0	0.0	0.0	15.6	0.0	0.0	90.4	15.4
Lane LOS				C			F	C
Approach Delay (s)	0.0			0.5			32.7	
Approach LOS							D	

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	50.5%	ICU Level of Service	A
Analysis Period (min)	15		



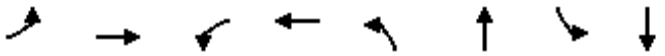
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	41	1291	103	72	814	113	45	53	8	8
v/c Ratio	0.08	0.51	0.09	0.29	0.34	0.09	0.33	0.26	0.05	0.05
Control Delay	4.8	6.2	2.1	8.9	4.9	1.2	36.1	21.2	28.5	21.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.8	6.2	2.1	8.9	4.9	1.2	36.1	21.2	28.5	21.1
Queue Length 50th (m)	1.5	37.9	1.1	3.2	19.6	0.0	6.0	3.5	1.0	0.4
Queue Length 95th (m)	5.2	62.6	5.8	11.9	33.5	4.4	14.4	12.3	4.4	3.8
Internal Link Dist (m)		784.2			211.8			280.3		23.8
Turn Bay Length (m)	50.0		32.0	60.0		30.0				
Base Capacity (vph)	498	2519	1094	249	2408	1256	410	545	480	485
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.51	0.09	0.29	0.34	0.09	0.11	0.10	0.02	0.02

Intersection Summary



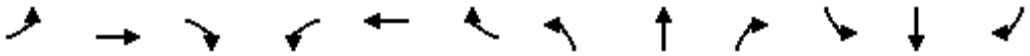
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	1291	103	72	814	113	45	20	33	8	3	5
Future Volume (vph)	41	1291	103	72	814	113	45	20	33	8	3	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91		1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	3349	1432	1659	3202	1633	1496	1523		1825	1393	
Flt Permitted	0.34	1.00	1.00	0.19	1.00	1.00	0.75	1.00		0.72	1.00	
Satd. Flow (perm)	662	3349	1432	332	3202	1633	1185	1523		1388	1393	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	41	1291	103	72	814	113	45	20	33	8	3	5
RTOR Reduction (vph)	0	0	20	0	0	32	0	23	0	0	5	0
Lane Group Flow (vph)	41	1291	83	72	814	81	45	30	0	8	3	0
Heavy Vehicles (%)	0%	9%	14%	10%	14%	0%	22%	5%	20%	0%	0%	40%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	53.6	53.6	53.6	53.6	53.6	53.6	7.4	7.4		7.4	7.4	
Effective Green, g (s)	53.6	53.6	53.6	53.6	53.6	53.6	7.4	7.4		7.4	7.4	
Actuated g/C Ratio	0.71	0.71	0.71	0.71	0.71	0.71	0.10	0.10		0.10	0.10	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	473	2393	1023	237	2288	1167	116	150		136	137	
v/s Ratio Prot		c0.39			0.25			0.02			0.00	
v/s Ratio Perm	0.06		0.06	0.22		0.05	c0.04			0.01		
v/c Ratio	0.09	0.54	0.08	0.30	0.36	0.07	0.39	0.20		0.06	0.03	
Uniform Delay, d1	3.3	5.0	3.2	3.9	4.1	3.2	31.7	31.1		30.6	30.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.9	0.2	3.3	0.4	0.1	2.1	0.6		0.2	0.1	
Delay (s)	3.6	5.8	3.4	7.2	4.5	3.3	33.8	31.7		30.8	30.6	
Level of Service	A	A	A	A	A	A	C	C		C	C	
Approach Delay (s)		5.6			4.6			32.7			30.7	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	6.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	80.7%	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)	19	1372	24	438	3	16	38	90
v/c Ratio	0.03	0.50	0.12	0.17	0.02	0.12	0.29	0.43
Control Delay	3.4	5.0	5.0	3.1	36.0	19.9	43.4	17.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.4	5.0	5.0	3.1	36.0	19.9	43.4	17.4
Queue Length 50th (m)	0.7	39.8	0.9	8.3	0.5	0.2	6.3	1.3
Queue Length 95th (m)	2.5	61.7	3.7	14.6	3.0	5.9	15.2	14.5
Internal Link Dist (m)		633.7		309.4		165.6		225.3
Turn Bay Length (m)	50.0		40.0		40.0		38.0	
Base Capacity (vph)	625	2771	205	2615	492	463	510	573
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	0.03	0.50	0.12	0.17	0.01	0.03	0.07	0.16

Intersection Summary



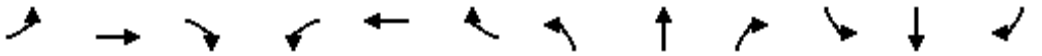
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	1362	10	24	386	52	3	1	15	38	8	82
Future Volume (vph)	19	1362	10	24	386	52	3	1	15	38	8	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.98		1.00	0.86		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1496	3474		1383	3273		1825	1237		1772	1423	
Flt Permitted	0.50	1.00		0.18	1.00		0.70	1.00		0.75	1.00	
Satd. Flow (perm)	784	3474		258	3273		1342	1237		1393	1423	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	19	1362	10	24	386	52	3	1	15	38	8	82
RTOR Reduction (vph)	0	0	0	0	5	0	0	14	0	0	76	0
Lane Group Flow (vph)	19	1372	0	24	433	0	3	2	0	38	14	0
Heavy Vehicles (%)	22%	5%	0%	32%	10%	6%	0%	100%	29%	3%	43%	14%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	69.0	69.0		69.0	69.0		7.0	7.0		7.0	7.0	
Effective Green, g (s)	69.0	69.0		69.0	69.0		7.0	7.0		7.0	7.0	
Actuated g/C Ratio	0.77	0.77		0.77	0.77		0.08	0.08		0.08	0.08	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	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)	601	2663		197	2509		104	96		108	110	
v/s Ratio Prot		c0.39			0.13			0.00			0.01	
v/s Ratio Perm	0.02			0.09			0.00			c0.03		
v/c Ratio	0.03	0.52		0.12	0.17		0.03	0.02		0.35	0.13	
Uniform Delay, d1	2.5	4.0		2.7	2.8		38.4	38.3		39.3	38.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.7		1.3	0.1		0.1	0.1		2.0	0.5	
Delay (s)	2.6	4.8		4.0	3.0		38.5	38.4		41.3	39.2	
Level of Service	A	A		A	A		D	D		D	D	
Approach Delay (s)		4.7			3.0			38.4			39.8	
Approach LOS		A			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	6.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	58.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	172	874	345	12	688	151	163	322	725	925	400
v/c Ratio	0.64	0.60	0.40	0.06	0.63	0.28	0.72	0.38	0.75	0.86	0.67
Control Delay	30.5	26.5	4.2	29.6	37.0	6.0	42.6	37.2	28.8	49.7	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.5	26.5	4.2	29.6	37.0	6.0	42.6	37.2	28.8	49.7	16.8
Queue Length 50th (m)	23.5	80.1	2.4	1.9	72.6	0.0	22.3	31.8	58.1	101.3	22.5
Queue Length 95th (m)	38.6	100.8	19.0	6.7	93.3	14.4	#48.1	44.8	74.0	125.2	58.1
Internal Link Dist (m)		359.6			381.0			633.7		252.6	
Turn Bay Length (m)	113.0		79.0	71.8		62.0	90.0		245.0		50.0
Base Capacity (vph)	275	1467	862	189	1094	546	234	900	967	1098	608
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.60	0.40	0.06	0.63	0.28	0.70	0.36	0.75	0.84	0.66

Intersection Summary

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



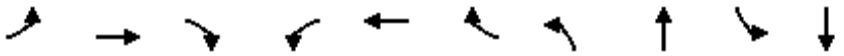
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	172	874	345	12	688	151	163	313	9	725	925	400
Future Volume (vph)	172	874	345	12	688	151	163	313	9	725	925	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0		4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95		0.97	*1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1437	3202	1498	1674	3259	1328	1587	3342		3404	3730	1396
Flt Permitted	0.24	1.00	1.00	0.32	1.00	1.00	0.13	1.00		0.46	1.00	1.00
Satd. Flow (perm)	363	3202	1498	563	3259	1328	219	3342		1651	3730	1396
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	172	874	345	12	688	151	163	313	9	725	925	400
RTOR Reduction (vph)	0	0	177	0	0	100	0	1	0	0	0	200
Lane Group Flow (vph)	172	874	168	12	688	51	163	321	0	725	925	200
Heavy Vehicles (%)	27%	14%	9%	9%	12%	23%	15%	9%	0%	4%	3%	17%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2			6		7	4		3	8	
Permitted Phases	2		2	6		6	4			8		8
Actuated Green, G (s)	54.5	54.5	54.5	40.0	40.0	40.0	42.8	30.5		50.2	34.2	34.2
Effective Green, g (s)	54.5	54.5	54.5	40.0	40.0	40.0	42.8	30.5		50.2	34.2	34.2
Actuated g/C Ratio	0.46	0.46	0.46	0.34	0.34	0.34	0.36	0.26		0.42	0.29	0.29
Clearance Time (s)	4.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0		4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	261	1466	686	189	1095	446	220	856		932	1071	401
v/s Ratio Prot	c0.06	0.27			0.21		0.08	0.10		c0.10	c0.25	
v/s Ratio Perm	c0.24		0.11	0.02		0.04	0.19			0.22		0.14
v/c Ratio	0.66	0.60	0.25	0.06	0.63	0.11	0.74	0.37		0.78	0.86	0.50
Uniform Delay, d1	21.5	24.0	19.7	26.8	33.2	27.3	29.2	36.4		26.4	40.2	35.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.9	1.8	0.9	0.6	2.7	0.5	12.6	0.3		4.1	7.4	1.0
Delay (s)	27.5	25.8	20.5	27.4	36.0	27.8	41.8	36.7		30.5	47.6	36.2
Level of Service	C	C	C	C	D	C	D	D		C	D	D
Approach Delay (s)		24.7			34.4			38.4			39.3	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	34.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	119.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	106.3%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1466	254	32	961	6	20
Future Volume (Veh/h)	1466	254	32	961	6	20
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1466	254	32	961	6	20
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1720		2010	733
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1720		2010	733
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			91		88	95
cM capacity (veh/h)			373		48	368

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	733	733	254	32	480	480	6	20
Volume Left	0	0	0	32	0	0	6	0
Volume Right	0	0	254	0	0	0	0	20
cSH	1700	1700	1700	373	1700	1700	48	368
Volume to Capacity	0.43	0.43	0.15	0.09	0.28	0.28	0.12	0.05
Queue Length 95th (m)	0.0	0.0	0.0	2.1	0.0	0.0	3.0	1.3
Control Delay (s)	0.0	0.0	0.0	15.6	0.0	0.0	90.4	15.4
Lane LOS				C			F	C
Approach Delay (s)	0.0			0.5			32.7	
Approach LOS							D	

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	50.5%	ICU Level of Service	A
Analysis Period (min)	15		

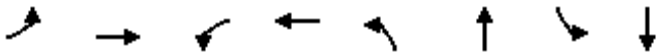


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	41	1291	103	72	814	113	45	53	8	8
v/c Ratio	0.08	0.51	0.09	0.29	0.34	0.09	0.33	0.26	0.05	0.05
Control Delay	4.8	6.2	2.1	8.9	4.9	1.2	36.1	21.2	28.5	21.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.8	6.2	2.1	8.9	4.9	1.2	36.1	21.2	28.5	21.1
Queue Length 50th (m)	1.5	37.9	1.1	3.2	19.6	0.0	6.0	3.5	1.0	0.4
Queue Length 95th (m)	5.2	62.6	5.8	11.9	33.5	4.4	14.4	12.3	4.4	3.8
Internal Link Dist (m)		784.2			211.8			280.3		23.8
Turn Bay Length (m)	50.0		32.0	60.0		30.0				
Base Capacity (vph)	498	2519	1094	249	2408	1256	410	545	480	485
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.51	0.09	0.29	0.34	0.09	0.11	0.10	0.02	0.02

Intersection Summary

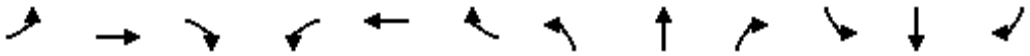
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	1291	103	72	814	113	45	20	33	8	3	5
Future Volume (vph)	41	1291	103	72	814	113	45	20	33	8	3	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91		1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1825	3349	1432	1659	3202	1633	1496	1523		1825	1393	
Flt Permitted	0.34	1.00	1.00	0.19	1.00	1.00	0.75	1.00		0.72	1.00	
Satd. Flow (perm)	662	3349	1432	332	3202	1633	1185	1523		1388	1393	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	41	1291	103	72	814	113	45	20	33	8	3	5
RTOR Reduction (vph)	0	0	20	0	0	32	0	23	0	0	5	0
Lane Group Flow (vph)	41	1291	83	72	814	81	45	30	0	8	3	0
Heavy Vehicles (%)	0%	9%	14%	10%	14%	0%	22%	5%	20%	0%	0%	40%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	53.6	53.6	53.6	53.6	53.6	53.6	7.4	7.4		7.4	7.4	
Effective Green, g (s)	53.6	53.6	53.6	53.6	53.6	53.6	7.4	7.4		7.4	7.4	
Actuated g/C Ratio	0.71	0.71	0.71	0.71	0.71	0.71	0.10	0.10		0.10	0.10	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	473	2393	1023	237	2288	1167	116	150		136	137	
v/s Ratio Prot		c0.39			0.25			0.02			0.00	
v/s Ratio Perm	0.06		0.06	0.22		0.05	c0.04			0.01		
v/c Ratio	0.09	0.54	0.08	0.30	0.36	0.07	0.39	0.20		0.06	0.03	
Uniform Delay, d1	3.3	5.0	3.2	3.9	4.1	3.2	31.7	31.1		30.6	30.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.9	0.2	3.3	0.4	0.1	2.1	0.6		0.2	0.1	
Delay (s)	3.6	5.8	3.4	7.2	4.5	3.3	33.8	31.7		30.8	30.6	
Level of Service	A	A	A	A	A	A	C	C		C	C	
Approach Delay (s)		5.6			4.6			32.7			30.7	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	6.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



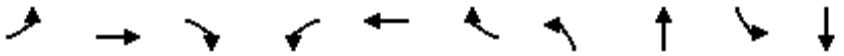
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	19	1372	24	438	3	16	38	90
v/c Ratio	0.03	0.50	0.12	0.17	0.02	0.12	0.29	0.43
Control Delay	3.4	5.0	5.0	3.1	36.0	19.9	43.4	17.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.4	5.0	5.0	3.1	36.0	19.9	43.4	17.4
Queue Length 50th (m)	0.7	39.8	0.9	8.3	0.5	0.2	6.3	1.3
Queue Length 95th (m)	2.5	61.7	3.7	14.6	3.0	5.9	15.2	14.5
Internal Link Dist (m)		633.7		309.4		165.6		225.3
Turn Bay Length (m)	50.0		40.0		40.0		38.0	
Base Capacity (vph)	625	2771	205	2615	492	463	510	573
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	0.03	0.50	0.12	0.17	0.01	0.03	0.07	0.16

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	1362	10	24	386	52	3	1	15	38	8	82
Future Volume (vph)	19	1362	10	24	386	52	3	1	15	38	8	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.98		1.00	0.86		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1496	3474		1383	3273		1825	1237		1772	1423	
Flt Permitted	0.50	1.00		0.18	1.00		0.70	1.00		0.75	1.00	
Satd. Flow (perm)	784	3474		258	3273		1342	1237		1393	1423	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	19	1362	10	24	386	52	3	1	15	38	8	82
RTOR Reduction (vph)	0	0	0	0	5	0	0	14	0	0	76	0
Lane Group Flow (vph)	19	1372	0	24	433	0	3	2	0	38	14	0
Heavy Vehicles (%)	22%	5%	0%	32%	10%	6%	0%	100%	29%	3%	43%	14%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	69.0	69.0		69.0	69.0		7.0	7.0		7.0	7.0	
Effective Green, g (s)	69.0	69.0		69.0	69.0		7.0	7.0		7.0	7.0	
Actuated g/C Ratio	0.77	0.77		0.77	0.77		0.08	0.08		0.08	0.08	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	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)	601	2663		197	2509		104	96		108	110	
v/s Ratio Prot		c0.39			0.13			0.00			0.01	
v/s Ratio Perm	0.02			0.09			0.00			c0.03		
v/c Ratio	0.03	0.52		0.12	0.17		0.03	0.02		0.35	0.13	
Uniform Delay, d1	2.5	4.0		2.7	2.8		38.4	38.3		39.3	38.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.7		1.3	0.1		0.1	0.1		2.0	0.5	
Delay (s)	2.6	4.8		4.0	3.0		38.5	38.4		41.3	39.2	
Level of Service	A	A		A	A		D	D		D	D	
Approach Delay (s)		4.7			3.0			38.4			39.8	
Approach LOS		A			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	6.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	58.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

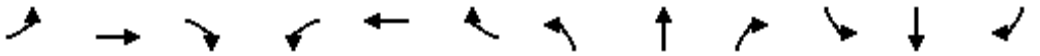


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	172	874	345	12	688	151	163	322	725	1325
v/c Ratio	1.17	0.72	0.49	0.09	0.72	0.30	0.90	0.36	1.15	0.95
Control Delay	177.1	35.5	11.7	33.0	42.6	6.7	74.0	36.5	108.7	48.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	177.1	35.5	11.7	33.0	42.6	6.7	74.0	36.5	108.7	48.8
Queue Length 50th (m)	~25.4	90.8	18.3	2.0	75.5	0.0	22.2	31.8	~165.4	141.3
Queue Length 95th (m)	#47.9	114.2	44.5	7.1	97.0	15.0	#62.8	44.8	#269.7	#186.5
Internal Link Dist (m)		359.6			381.0			633.7		252.6
Turn Bay Length (m)	113.0		79.0	71.8		62.0	90.0		245.0	
Base Capacity (vph)	147	1218	711	130	958	497	181	900	631	1397
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.17	0.72	0.49	0.09	0.72	0.30	0.90	0.36	1.15	0.95

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	172	874	345	12	688	151	163	313	9	725	925	400
Future Volume (vph)	172	874	345	12	688	151	163	313	9	725	925	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0		4.0	7.0	
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	*1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	2788	3202	1498	1674	3259	1328	1587	3342		1755	3421	
Flt Permitted	0.95	1.00	1.00	0.25	1.00	1.00	0.13	1.00		0.46	1.00	
Satd. Flow (perm)	2788	3202	1498	442	3259	1328	211	3342		854	3421	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	172	874	345	12	688	151	163	313	9	725	925	400
RTOR Reduction (vph)	0	0	141	0	0	107	0	1	0	0	46	0
Lane Group Flow (vph)	172	874	204	12	688	44	163	321	0	725	1279	0
Heavy Vehicles (%)	27%	14%	9%	9%	12%	23%	15%	9%	0%	4%	3%	17%
Turn Type	Prot	NA	Perm	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2			6		7	4		3	8	
Permitted Phases			2	6		6	4			8		
Actuated Green, G (s)	6.3	45.3	45.3	35.0	35.0	35.0	40.7	31.7		59.7	46.7	
Effective Green, g (s)	6.3	45.3	45.3	35.0	35.0	35.0	40.7	31.7		59.7	46.7	
Actuated g/C Ratio	0.05	0.38	0.38	0.29	0.29	0.29	0.34	0.27		0.50	0.39	
Clearance Time (s)	4.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	147	1218	570	130	958	390	176	890		610	1342	
v/s Ratio Prot	c0.06	c0.27			0.21		0.07	0.10		c0.24	0.37	
v/s Ratio Perm			0.14	0.03		0.03	0.25			c0.36		
v/c Ratio	1.17	0.72	0.36	0.09	0.72	0.11	0.93	0.36		1.19	0.95	
Uniform Delay, d1	56.4	31.4	26.4	30.5	37.6	30.7	31.1	35.4		25.6	35.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	127.2	3.6	1.7	1.4	4.6	0.6	46.6	0.3		100.5	14.7	
Delay (s)	183.6	35.0	28.2	31.9	42.2	31.3	77.6	35.7		126.1	49.8	
Level of Service	F	D	C	C	D	C	E	D		F	D	
Approach Delay (s)		51.7			40.1			49.8			76.8	
Approach LOS		D			D			D			E	

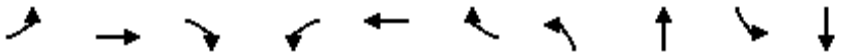
Intersection Summary			
HCM 2000 Control Delay	60.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	119.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	120.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Appendix H – Future (2031) Total Condition Sensitivity Improvements – B Synchro Output

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	989	84	19	1217	43	29
Future Volume (Veh/h)	989	84	19	1217	43	29
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	989	84	19	1217	43	29
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1073		1636	494
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1073		1636	494
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		53	94
cM capacity (veh/h)			657		91	526

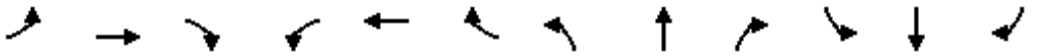
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	494	494	84	19	608	608	43	29
Volume Left	0	0	0	19	0	0	43	0
Volume Right	0	0	84	0	0	0	0	29
cSH	1700	1700	1700	657	1700	1700	91	526
Volume to Capacity	0.29	0.29	0.05	0.03	0.36	0.36	0.47	0.06
Queue Length 95th (m)	0.0	0.0	0.0	0.7	0.0	0.0	15.3	1.3
Control Delay (s)	0.0	0.0	0.0	10.6	0.0	0.0	76.1	12.2
Lane LOS				B			F	B
Approach Delay (s)	0.0			0.2			50.4	
Approach LOS							F	

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	43.6%	ICU Level of Service	A
Analysis Period (min)	15		



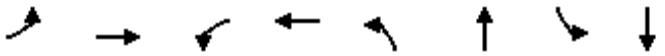
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	10	1145	33	38	1112	12	85	69	124	72
v/c Ratio	0.08	0.73	0.05	0.32	0.71	0.02	0.19	0.13	0.26	0.12
Control Delay	13.0	19.7	1.7	22.1	18.9	0.0	18.6	9.8	19.5	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.0	19.7	1.7	22.1	18.9	0.0	18.6	9.8	19.5	9.2
Queue Length 50th (m)	0.7	65.7	0.0	3.2	62.6	0.0	8.3	2.7	12.4	2.6
Queue Length 95th (m)	3.4	88.5	2.2	11.3	84.2	0.0	17.9	10.6	24.6	10.5
Internal Link Dist (m)		784.2			211.8			280.3		23.8
Turn Bay Length (m)	50.0		32.0	60.0		30.0				
Base Capacity (vph)	133	1562	631	117	1577	793	450	512	474	601
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.73	0.05	0.32	0.71	0.02	0.19	0.13	0.26	0.12

Intersection Summary



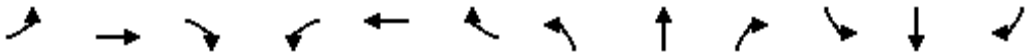
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	1145	33	38	1112	12	85	9	60	124	12	60
Future Volume (vph)	10	1145	33	38	1112	12	85	9	60	124	12	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.87		1.00	0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1644	3349	1286	1547	3380	1633	1738	1402		1825	1653	
Flt Permitted	0.17	1.00	1.00	0.15	1.00	1.00	0.71	1.00		0.71	1.00	
Satd. Flow (perm)	288	3349	1286	252	3380	1633	1299	1402		1368	1653	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	10	1145	33	38	1112	12	85	9	60	124	12	60
RTOR Reduction (vph)	0	0	18	0	0	6	0	26	0	0	29	0
Lane Group Flow (vph)	10	1145	15	38	1112	6	85	43	0	124	43	0
Heavy Vehicles (%)	11%	9%	27%	18%	8%	0%	5%	0%	22%	0%	0%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	35.0	35.0	35.0	35.0	35.0	35.0	26.0	26.0		26.0	26.0	
Effective Green, g (s)	35.0	35.0	35.0	35.0	35.0	35.0	26.0	26.0		26.0	26.0	
Actuated g/C Ratio	0.47	0.47	0.47	0.47	0.47	0.47	0.35	0.35		0.35	0.35	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	134	1562	600	117	1577	762	450	486		474	573	
v/s Ratio Prot		c0.34			0.33			0.03			0.03	
v/s Ratio Perm	0.03		0.01	0.15		0.00	0.07			c0.09		
v/c Ratio	0.07	0.73	0.03	0.32	0.71	0.01	0.19	0.09		0.26	0.08	
Uniform Delay, d1	11.1	16.2	10.8	12.6	15.9	10.7	17.1	16.5		17.6	16.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.1	3.1	0.1	7.2	2.7	0.0	0.9	0.4		1.3	0.3	
Delay (s)	12.1	19.3	10.9	19.8	18.6	10.7	18.1	16.9		18.9	16.7	
Level of Service	B	B	B	B	B	B	B	B		B	B	
Approach Delay (s)		19.0			18.5			17.5			18.1	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	70.0%	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)	14	757	29	1383	19	48	47	215
v/c Ratio	0.10	0.35	0.08	0.63	0.10	0.14	0.19	0.67
Control Delay	9.9	8.3	8.1	11.7	25.0	10.1	26.7	37.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.9	8.3	8.1	11.7	25.0	10.1	26.7	37.2
Queue Length 50th (m)	0.8	25.3	1.5	60.2	2.4	0.8	6.1	27.9
Queue Length 95th (m)	4.1	44.3	5.8	101.2	7.0	8.0	13.4	44.6
Internal Link Dist (m)		633.7		309.4		165.6		225.3
Turn Bay Length (m)	50.0		40.0		40.0		38.0	
Base Capacity (vph)	142	2150	373	2180	358	614	471	600
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	0.10	0.35	0.08	0.63	0.05	0.08	0.10	0.36

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	747	10	29	1346	37	19	6	42	47	1	214
Future Volume (vph)	14	747	10	29	1346	37	19	6	42	47	1	214
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.87		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1484	3408		1587	3453		1644	1567		1644	1572	
Flt Permitted	0.14	1.00		0.35	1.00		0.55	1.00		0.73	1.00	
Satd. Flow (perm)	226	3408		592	3453		957	1567		1256	1572	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	14	747	10	29	1346	37	19	6	42	47	1	214
RTOR Reduction (vph)	0	1	0	0	1	0	0	34	0	0	15	0
Lane Group Flow (vph)	14	756	0	29	1382	0	19	14	0	47	200	0
Heavy Vehicles (%)	23%	7%	0%	15%	5%	16%	11%	17%	5%	11%	0%	4%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	50.5	50.5		50.5	50.5		15.5	15.5		15.5	15.5	
Effective Green, g (s)	50.5	50.5		50.5	50.5		15.5	15.5		15.5	15.5	
Actuated g/C Ratio	0.63	0.63		0.63	0.63		0.19	0.19		0.19	0.19	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	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)	142	2151		373	2179		185	303		243	304	
v/s Ratio Prot		0.22			c0.40			0.01			c0.13	
v/s Ratio Perm	0.06			0.05			0.02			0.04		
v/c Ratio	0.10	0.35		0.08	0.63		0.10	0.05		0.19	0.66	
Uniform Delay, d1	5.8	7.0		5.7	9.1		26.5	26.2		27.0	29.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.4	0.5		0.4	1.4		0.2	0.1		0.4	5.1	
Delay (s)	7.2	7.4		6.1	10.5		26.8	26.3		27.4	34.9	
Level of Service	A	A		A	B		C	C		C	C	
Approach Delay (s)		7.4			10.4			26.4			33.6	
Approach LOS		A			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	270	910	300	19	791	440	338	1382	321	560	243
v/c Ratio	1.10	0.62	0.37	0.13	0.75	0.68	0.88	1.16	1.18	0.60	0.45
Control Delay	112.1	27.5	3.6	32.4	42.3	23.0	48.1	120.2	159.3	41.1	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	112.1	27.5	3.6	32.4	42.3	23.0	48.1	120.2	159.3	41.1	7.2
Queue Length 50th (m)	~47.7	83.6	0.0	3.2	87.2	44.0	51.8	~192.1	~46.2	60.1	0.0
Queue Length 95th (m)	#100.6	104.5	15.3	9.4	110.1	81.4	#87.4	#232.6	#74.7	78.4	19.6
Internal Link Dist (m)		359.6			381.0			633.7		252.6	
Turn Bay Length (m)	113.0		79.0	71.8		62.0	90.0		245.0		50.0
Base Capacity (vph)	245	1477	804	149	1050	647	384	1188	272	934	537
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.10	0.62	0.37	0.13	0.75	0.68	0.88	1.16	1.18	0.60	0.45

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

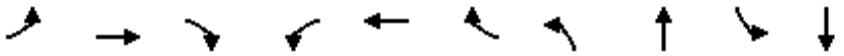
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	270	910	300	19	791	440	338	1363	19	321	560	243
Future Volume (vph)	270	910	300	19	791	440	338	1363	19	321	560	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0		4.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	*1.00		0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1484	3318	1432	1496	3380	1585	1690	3719		3248	3476	1338
Flt Permitted	0.17	1.00	1.00	0.31	1.00	1.00	0.27	1.00		0.95	1.00	1.00
Satd. Flow (perm)	260	3318	1432	481	3380	1585	480	3719		3248	3476	1338
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	270	910	300	19	791	440	338	1363	19	321	560	243
RTOR Reduction (vph)	0	0	166	0	0	154	0	1	0	0	0	178
Lane Group Flow (vph)	270	910	134	19	791	286	338	1381	0	321	560	65
Heavy Vehicles (%)	23%	10%	14%	22%	8%	3%	8%	3%	11%	9%	5%	22%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA		Prot	NA	Perm
Protected Phases	5	2			6		7	4		3	8	
Permitted Phases	2		2	6		6	4					8
Actuated Green, G (s)	53.0	53.0	53.0	37.0	37.0	37.0	52.0	38.0		10.0	32.0	32.0
Effective Green, g (s)	53.0	53.0	53.0	37.0	37.0	37.0	52.0	38.0		10.0	32.0	32.0
Actuated g/C Ratio	0.45	0.45	0.45	0.31	0.31	0.31	0.44	0.32		0.08	0.27	0.27
Clearance Time (s)	4.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0		4.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	239	1477	637	149	1050	492	372	1187		272	934	359
v/s Ratio Prot	c0.11	0.27			0.23		c0.12	c0.37		c0.10	0.16	
v/s Ratio Perm	c0.39		0.09	0.04		0.18	0.27					0.05
v/c Ratio	1.13	0.62	0.21	0.13	0.75	0.58	0.91	1.16		1.18	0.60	0.18
Uniform Delay, d1	26.5	25.2	20.2	29.4	36.9	34.5	25.7	40.5		54.5	37.9	33.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	97.6	1.9	0.7	1.8	5.0	4.9	25.1	83.2		112.3	1.0	0.2
Delay (s)	124.1	27.2	20.9	31.2	41.9	39.4	50.8	123.7		166.8	39.0	33.7
Level of Service	F	C	C	C	D	D	D	F		F	D	C
Approach Delay (s)		43.6			40.9			109.4			74.3	
Approach LOS		D			D			F			E	

Intersection Summary			
HCM 2000 Control Delay	69.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	119.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	124.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	989	84	19	1217	43	29
Future Volume (Veh/h)	989	84	19	1217	43	29
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	989	84	19	1217	43	29
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1073		1636	494
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1073		1636	494
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		53	94
cM capacity (veh/h)			657		91	526

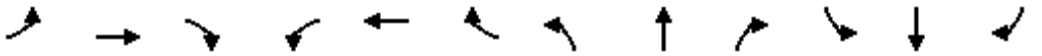
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	494	494	84	19	608	608	43	29
Volume Left	0	0	0	19	0	0	43	0
Volume Right	0	0	84	0	0	0	0	29
cSH	1700	1700	1700	657	1700	1700	91	526
Volume to Capacity	0.29	0.29	0.05	0.03	0.36	0.36	0.47	0.06
Queue Length 95th (m)	0.0	0.0	0.0	0.7	0.0	0.0	15.3	1.3
Control Delay (s)	0.0	0.0	0.0	10.6	0.0	0.0	76.1	12.2
Lane LOS				B			F	B
Approach Delay (s)	0.0			0.2			50.4	
Approach LOS							F	

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	43.6%	ICU Level of Service	A
Analysis Period (min)	15		



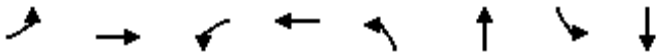
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	10	1145	33	38	1112	12	85	69	124	72
v/c Ratio	0.08	0.73	0.05	0.32	0.71	0.02	0.19	0.13	0.26	0.12
Control Delay	13.0	19.7	1.7	22.1	18.9	0.0	18.6	9.8	19.5	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.0	19.7	1.7	22.1	18.9	0.0	18.6	9.8	19.5	9.2
Queue Length 50th (m)	0.7	65.7	0.0	3.2	62.6	0.0	8.3	2.7	12.4	2.6
Queue Length 95th (m)	3.4	88.5	2.2	11.3	84.2	0.0	17.9	10.6	24.6	10.5
Internal Link Dist (m)		784.2			211.8			280.3		23.8
Turn Bay Length (m)	50.0		32.0	60.0		30.0				
Base Capacity (vph)	133	1562	631	117	1577	793	450	512	474	601
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.73	0.05	0.32	0.71	0.02	0.19	0.13	0.26	0.12

Intersection Summary



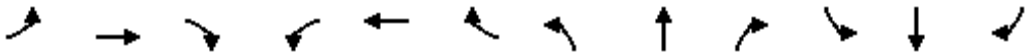
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	1145	33	38	1112	12	85	9	60	124	12	60
Future Volume (vph)	10	1145	33	38	1112	12	85	9	60	124	12	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.87		1.00	0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1644	3349	1286	1547	3380	1633	1738	1402		1825	1653	
Flt Permitted	0.17	1.00	1.00	0.15	1.00	1.00	0.71	1.00		0.71	1.00	
Satd. Flow (perm)	288	3349	1286	252	3380	1633	1299	1402		1368	1653	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	10	1145	33	38	1112	12	85	9	60	124	12	60
RTOR Reduction (vph)	0	0	18	0	0	6	0	26	0	0	29	0
Lane Group Flow (vph)	10	1145	15	38	1112	6	85	43	0	124	43	0
Heavy Vehicles (%)	11%	9%	27%	18%	8%	0%	5%	0%	22%	0%	0%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	35.0	35.0	35.0	35.0	35.0	35.0	26.0	26.0		26.0	26.0	
Effective Green, g (s)	35.0	35.0	35.0	35.0	35.0	35.0	26.0	26.0		26.0	26.0	
Actuated g/C Ratio	0.47	0.47	0.47	0.47	0.47	0.47	0.35	0.35		0.35	0.35	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	134	1562	600	117	1577	762	450	486		474	573	
v/s Ratio Prot		c0.34			0.33			0.03			0.03	
v/s Ratio Perm	0.03		0.01	0.15		0.00	0.07			c0.09		
v/c Ratio	0.07	0.73	0.03	0.32	0.71	0.01	0.19	0.09		0.26	0.08	
Uniform Delay, d1	11.1	16.2	10.8	12.6	15.9	10.7	17.1	16.5		17.6	16.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.1	3.1	0.1	7.2	2.7	0.0	0.9	0.4		1.3	0.3	
Delay (s)	12.1	19.3	10.9	19.8	18.6	10.7	18.1	16.9		18.9	16.7	
Level of Service	B	B	B	B	B	B	B	B		B	B	
Approach Delay (s)		19.0			18.5			17.5			18.1	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



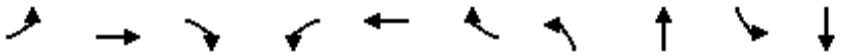
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	14	757	29	1383	19	48	47	215
v/c Ratio	0.10	0.35	0.08	0.63	0.10	0.14	0.19	0.67
Control Delay	9.9	8.3	8.1	11.7	25.0	10.1	26.7	37.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.9	8.3	8.1	11.7	25.0	10.1	26.7	37.2
Queue Length 50th (m)	0.8	25.3	1.5	60.2	2.4	0.8	6.1	27.9
Queue Length 95th (m)	4.1	44.3	5.8	101.2	7.0	8.0	13.4	44.6
Internal Link Dist (m)		633.7		309.4		165.6		225.3
Turn Bay Length (m)	50.0		40.0		40.0		38.0	
Base Capacity (vph)	142	2150	373	2180	358	614	471	600
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	0.10	0.35	0.08	0.63	0.05	0.08	0.10	0.36

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	747	10	29	1346	37	19	6	42	47	1	214
Future Volume (vph)	14	747	10	29	1346	37	19	6	42	47	1	214
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.87		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1484	3408		1587	3453		1644	1567		1644	1572	
Flt Permitted	0.14	1.00		0.35	1.00		0.55	1.00		0.73	1.00	
Satd. Flow (perm)	226	3408		592	3453		957	1567		1256	1572	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	14	747	10	29	1346	37	19	6	42	47	1	214
RTOR Reduction (vph)	0	1	0	0	1	0	0	34	0	0	15	0
Lane Group Flow (vph)	14	756	0	29	1382	0	19	14	0	47	200	0
Heavy Vehicles (%)	23%	7%	0%	15%	5%	16%	11%	17%	5%	11%	0%	4%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	50.5	50.5		50.5	50.5		15.5	15.5		15.5	15.5	
Effective Green, g (s)	50.5	50.5		50.5	50.5		15.5	15.5		15.5	15.5	
Actuated g/C Ratio	0.63	0.63		0.63	0.63		0.19	0.19		0.19	0.19	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	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)	142	2151		373	2179		185	303		243	304	
v/s Ratio Prot		0.22			c0.40			0.01			c0.13	
v/s Ratio Perm	0.06			0.05			0.02			0.04		
v/c Ratio	0.10	0.35		0.08	0.63		0.10	0.05		0.19	0.66	
Uniform Delay, d1	5.8	7.0		5.7	9.1		26.5	26.2		27.0	29.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.4	0.5		0.4	1.4		0.2	0.1		0.4	5.1	
Delay (s)	7.2	7.4		6.1	10.5		26.8	26.3		27.4	34.9	
Level of Service	A	A		A	B		C	C		C	C	
Approach Delay (s)		7.4			10.4			26.4			33.6	
Approach LOS		A			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

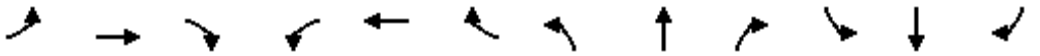


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	270	910	300	19	791	440	338	1382	321	803
v/c Ratio	1.24	0.65	0.39	0.14	0.75	0.65	1.02	1.19	1.23	0.87
Control Delay	187.5	30.3	4.0	33.2	42.3	17.5	84.6	133.1	162.2	49.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	187.5	30.3	4.0	33.2	42.3	17.5	84.6	133.1	162.2	49.9
Queue Length 50th (m)	~40.3	87.8	0.0	3.2	87.2	31.9	~62.5	~196.0	~76.8	88.3
Queue Length 95th (m)	#67.1	109.8	16.0	9.5	110.1	67.6	#121.6	#236.5	#133.1	#120.8
Internal Link Dist (m)		359.6			381.0			633.7		252.6
Turn Bay Length (m)	113.0		79.0	71.8		62.0	90.0		245.0	
Base Capacity (vph)	217	1394	775	132	1050	682	332	1157	261	918
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.24	0.65	0.39	0.14	0.75	0.65	1.02	1.19	1.23	0.87

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	270	910	300	19	791	440	338	1363	19	321	560	243
Future Volume (vph)	270	910	300	19	791	440	338	1363	19	321	560	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0		4.0	7.0	
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	*1.00		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	2879	3318	1432	1496	3380	1585	1690	3719		1674	3164	
Flt Permitted	0.95	1.00	1.00	0.27	1.00	1.00	0.13	1.00		0.12	1.00	
Satd. Flow (perm)	2879	3318	1432	427	3380	1585	228	3719		214	3164	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	270	910	300	19	791	440	338	1363	19	321	560	243
RTOR Reduction (vph)	0	0	174	0	0	189	0	1	0	0	41	0
Lane Group Flow (vph)	270	910	126	19	791	251	338	1381	0	321	762	0
Heavy Vehicles (%)	23%	10%	14%	22%	8%	3%	8%	3%	11%	9%	5%	22%
Turn Type	Prot	NA	Perm	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2			6		7	4		3	8	
Permitted Phases			2	6		6	4			8		
Actuated Green, G (s)	9.0	50.0	50.0	37.0	37.0	37.0	55.0	37.0		47.0	33.0	
Effective Green, g (s)	9.0	50.0	50.0	37.0	37.0	37.0	55.0	37.0		47.0	33.0	
Actuated g/C Ratio	0.08	0.42	0.42	0.31	0.31	0.31	0.46	0.31		0.39	0.28	
Clearance Time (s)	4.0	7.0	7.0	7.0	7.0	7.0	4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	217	1394	601	132	1050	492	326	1156		256	877	
v/s Ratio Prot	c0.09	0.27			c0.23		c0.16	c0.37		c0.15	0.24	
v/s Ratio Perm			0.09	0.04		0.16	0.32			0.35		
v/c Ratio	1.24	0.65	0.21	0.14	0.75	0.51	1.04	1.19		1.25	0.87	
Uniform Delay, d1	55.0	27.6	21.9	29.6	36.9	33.6	33.1	41.0		33.7	40.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	142.5	2.4	0.8	2.3	5.0	3.7	59.7	96.4		142.2	9.1	
Delay (s)	197.5	30.0	22.7	31.9	41.9	37.3	92.8	137.4		175.9	50.1	
Level of Service	F	C	C	C	D	D	F	F		F	D	
Approach Delay (s)		59.1			40.1			128.6			86.0	
Approach LOS		E			D			F			F	

Intersection Summary			
HCM 2000 Control Delay	81.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	119.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	133.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Appendix I – Turning Movement Counts

City of Toronto - Traffic Safety Unit

Intersection Detailed 15 Minutes Movement Report

ALBION RD AT CLAIREPORT CR & CODLIN CR (PX 2072) **Survey Date:** May-24-2016 (Tuesday)

Survey Type: Routine Hours

Time Period		NORTH BOUND			EAST BOUND			SOUTH BOUND			WEST BOUND		
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
07:45	CARS	0	1	0	262	2	4	0	1	1	88	4	5
	DUALS	0	0	1	14	1	0	0	3	2	12	0	1
	BUSES	0	0	0	3	0	0	0	0	0	1	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	North Side		0	East Side		1	South Side		0	West Side		0
08:00	CARS	0	3	1	295	1	1	0	1	4	73	9	6
	DUALS	1	1	0	16	0	0	0	0	0	11	0	1
	BUSES	0	0	0	2	0	0	0	0	0	1	0	1
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	North Side		0	East Side		8	South Side		3	West Side		0
08:15	CARS	0	4	0	280	2	2	1	1	7	78	5	4
	DUALS	0	0	0	10	0	2	1	1	0	6	0	1
	BUSES	0	0	0	2	0	0	0	0	0	1	0	2
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	North Side		0	East Side		3	South Side		1	West Side		0
08:30	CARS	0	1	2	314	3	9	1	7	11	90	13	3
	DUALS	0	2	0	14	0	1	0	0	1	5	1	1
	BUSES	0	0	0	2	0	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	North Side		0	East Side		9	South Side		2	West Side		0
08:45	CARS	0	2	0	302	3	2	2	9	11	78	6	2
	DUALS	0	1	0	17	0	1	2	2	0	11	1	0
	BUSES	0	0	0	3	0	0	0	0	0	2	0	1
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	1	(0)	
	PEDS	North Side		0	East Side		1	South Side		1	West Side		0
09:00	CARS	0	2	2	258	1	3	1	4	3	64	2	6
	DUALS	0	1	2	7	0	0	0	1	4	10	1	0
	BUSES	0	0	0	2	0	0	0	0	0	1	0	1
	BIKE (OTHER)		1	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	North Side		0	East Side		0	South Side		0	West Side		0
09:15	CARS	0	2	0	166	0	1	3	2	0	57	3	4
	DUALS	1	5	0	8	0	0	0	1	1	8	1	0
	BUSES	0	0	0	2	0	0	0	0	0	1	0	1
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	North Side		0	East Side		1	South Side		1	West Side		0

Intersection Detailed 15 Minutes Movement Report

ALBION RD AT CLAIREPORT CR & CODLIN CR (PX 2072) **Survey Date:** May-24-2016 (Tuesday)

Survey Type: Routine Hours

Time Period		NORTH BOUND			EAST BOUND			SOUTH BOUND			WEST BOUND		
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
09:30	CARS	1	3	0	211	1	4	0	3	2	62	3	3
	DUALS	1	1	0	6	1	0	0	1	1	10	0	0
	BUSES	0	0	0	3	0	0	0	0	0	1	0	1
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		2	**South Side**		1	**West Side**		0
10:15	CARS	0	0	1	139	3	1	2	3	1	74	1	6
	DUALS	0	1	0	11	1	2	0	0	0	15	0	0
	BUSES	0	0	0	3	0	0	0	0	0	0	0	1
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	1	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
10:30	CARS	0	0	2	124	4	1	0	1	4	74	3	3
	DUALS	0	3	0	11	1	1	1	0	2	12	2	2
	BUSES	0	0	0	2	0	0	0	0	0	1	0	1
	BIKE (OTHER)		0	(0)		1	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		1	**South Side**		1	**West Side**		0
10:45	CARS	0	4	2	122	3	3	1	2	2	100	2	2
	DUALS	0	3	0	9	0	2	1	1	0	11	3	0
	BUSES	0	0	0	1	0	0	0	0	0	0	0	1
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		1	**South Side**		1	**West Side**		0
11:00	CARS	1	4	2	129	0	1	0	1	2	66	2	3
	DUALS	0	1	0	13	1	1	0	2	1	13	0	1
	BUSES	0	0	0	2	0	0	0	0	0	0	0	1
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
11:15	CARS	0	3	2	125	0	2	1	2	2	93	6	3
	DUALS	1	1	1	11	0	1	1	0	0	10	1	2
	BUSES	0	0	0	1	0	0	0	0	0	0	0	1
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
11:30	CARS	2	3	1	135	2	1	2	2	2	86	4	6
	DUALS	1	3	1	12	0	0	2	0	3	11	2	1
	BUSES	0	0	0	2	0	0	0	0	0	1	0	1
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0

Intersection Detailed 15 Minutes Movement Report

ALBION RD AT CLAIREPORT CR & CODLIN CR (PX 2072) **Survey Date:** May-24-2016 (Tuesday)

Survey Type: Routine Hours

Time Period		NORTH BOUND			EAST BOUND			SOUTH BOUND			WEST BOUND		
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
11:45	CARS	0	4	2	119	2	1	0	3	1	98	2	5
	DUALS	1	2	1	11	0	1	0	2	1	10	5	1
	BUSES	0	0	0	1	0	0	0	0	0	0	0	1
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	1	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
12:00	CARS	0	9	2	114	2	1	3	1	2	92	2	7
	DUALS	0	2	1	12	0	0	0	1	2	14	3	1
	BUSES	0	0	0	2	0	0	0	0	0	1	0	1
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
13:15	CARS	1	6	2	106	6	0	1	1	1	116	6	2
	DUALS	0	1	0	13	0	0	0	1	2	21	1	0
	BUSES	0	0	0	1	0	0	0	0	1	0	0	1
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
13:30	CARS	0	5	1	115	3	0	1	0	1	121	2	5
	DUALS	0	0	0	7	0	1	1	1	0	12	1	2
	BUSES	0	0	0	2	0	0	0	0	0	1	0	1
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
13:45	CARS	1	6	1	130	1	2	1	3	3	117	4	8
	DUALS	0	1	1	10	0	1	0	0	1	11	3	3
	BUSES	0	0	0	1	0	0	0	0	0	1	0	1
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
14:00	CARS	0	5	5	96	1	0	0	0	3	120	3	2
	DUALS	0	1	0	12	0	0	0	2	0	7	1	3
	BUSES	0	0	0	2	0	0	0	0	0	1	0	1
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
14:15	CARS	0	8	1	141	1	2	0	3	1	121	3	3
	DUALS	0	1	2	12	0	1	0	0	1	9	2	2
	BUSES	0	0	0	1	0	0	0	0	0	0	0	1
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		1	**South Side**		1	**West Side**		0

Intersection Detailed 15 Minutes Movement Report

ALBION RD AT CLAIREPORT CR & CODLIN CR (PX 2072) **Survey Date:** May-24-2016 (Tuesday)

Survey Type: Routine Hours

Time Period		NORTH BOUND			EAST BOUND			SOUTH BOUND			WEST BOUND		
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
14:30	CARS	1	4	1	156	2	2	0	2	6	132	4	6
	DUALS	0	2	0	12	0	0	1	0	0	13	1	2
	BUSES	0	0	0	2	0	0	0	0	0	1	0	1
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
14:45	CARS	1	7	1	140	0	0	0	1	4	159	3	5
	DUALS	0	1	1	3	0	0	0	0	0	8	1	1
	BUSES	0	0	0	1	0	0	0	0	0	0	0	1
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
15:00	CARS	1	7	3	139	1	3	2	4	5	160	2	5
	DUALS	0	2	0	17	0	1	1	0	2	16	1	0
	BUSES	0	0	0	1	0	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
16:15	CARS	1	10	0	140	5	1	0	5	1	292	4	8
	DUALS	1	1	2	11	0	0	0	0	2	12	0	0
	BUSES	0	0	0	1	0	0	0	0	0	2	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		1	**South Side**		0	**West Side**		0
16:30	CARS	2	2	4	168	0	4	1	7	7	282	7	5
	DUALS	0	0	0	8	0	1	0	1	2	20	1	1
	BUSES	0	0	0	3	0	0	0	0	0	1	0	2
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		1	**East Side**		3	**South Side**		3	**West Side**		1
16:45	CARS	2	19	8	157	2	4	0	10	17	312	10	5
	DUALS	0	1	0	10	0	2	0	0	0	12	1	0
	BUSES	0	0	0	1	0	0	0	0	0	1	0	1
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		1	**East Side**		7	**South Side**		7	**West Side**		0
17:00	CARS	0	6	4	178	2	1	0	5	9	294	5	5
	DUALS	0	0	0	11	0	0	0	0	0	13	3	0
	BUSES	0	0	0	2	0	0	0	0	0	2	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		3	**South Side**		1	**West Side**		0

Intersection Detailed 15 Minutes Movement Report

ALBION RD AT CLAIREPORT CR & CODLIN CR (PX 2072)

Survey Date: May-24-2016 (Tuesday)

Survey Type: Routine Hours

Time Period		NORTH BOUND			EAST BOUND			SOUTH BOUND			WEST BOUND		
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
17:15	CARS	3	12	4	146	0	0	2	3	8	249	9	3
	DUALS	0	1	0	6	0	1	1	0	2	15	0	1
	BUSES	0	0	0	2	0	0	0	0	0	1	0	1
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		3	**South Side**		3	**West Side**		0
17:30	CARS	0	7	4	172	3	0	0	5	4	313	5	2
	DUALS	0	0	0	6	0	1	1	0	3	5	1	0
	BUSES	0	0	0	1	0	0	0	0	0	1	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		1	**South Side**		1	**West Side**		0
17:45	CARS	1	1	3	156	1	1	1	4	8	271	3	0
	DUALS	1	0	0	5	0	1	0	2	0	10	2	0
	BUSES	0	0	0	2	0	0	0	0	0	2	0	1
	BIKE (OTHER)		0	(0)		2	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		1	**South Side**		2	**West Side**		0
18:00	CARS	0	6	2	160	3	0	0	1	5	232	2	0
	DUALS	0	0	0	12	0	1	0	1	0	4	1	0
	BUSES	0	0	0	2	0	0	0	0	0	1	0	1
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		2	**West Side**		0

City of Toronto - Traffic Safety Unit

Turning Movement Count Summary Report

ALBION RD AT STEELES AVE & HIGHWAY 50 (PX 2312)

Survey Date: 2015-May-15 (Friday)

Survey Type: Routine Hours

Time Period	Vehicle Type	NORTHBOUND Exits	Left	Thru	Right	Total	EASTBOUND Exits	Left	Thru	Right	Total	SOUTHBOUND Exits	Left	Thru	Right	Total	WESTBOUND Exits	Left	Thru	Right	Total		Peds	Bike	Other
07:30-08:30	CAR	424	124	204	8	336	1,110	114	682	287	1,083	1,119	420	822	305	1,547	983	10	554	106	670	N	0	0	0
	TRK	93	22	18	0	40	118	43	102	29	174	48	16	18	57	91	154	1	75	32	108	S	2	0	0
AM PEAK	BUS	3	0	3	0	3	6	0	5	0	5	6	1	6	4	11	4	0	0	0	0	E	0	0	0
																						W	2	0	0
	TOTAL:	**520**	**146**	**225**	**8**	**379**	**1,234**	**157**	**789**	**316**	**1,262**	**1,173**	**437**	**846**	**366**	**1,649**	**1,141**	**11**	**629**	**138**	**778**				
16:30-17:30	CAR	1,597	278	1,020	16	1,314	974	189	746	237	1,172	740	212	489	178	879	1,123	14	667	388	1,069	N	0	0	0
	TRK	103	23	32	2	57	97	57	76	37	170	61	19	20	45	84	124	4	56	14	74	S	1	2	0
PM PEAK	BUS	8	0	7	0	7	7	1	7	0	8	3	0	3	0	3	0	0	0	0	0	E	0	0	0
																						W	2	0	0
	TOTAL:	**1,708**	**301**	**1,059**	**18**	**1,378**	**1,078**	**247**	**829**	**274**	**1,350**	**804**	**231**	**512**	**223**	**966**	**1,247**	**18**	**723**	**402**	**1,143**				
OFF HR AVG	CAR	685	149	349	20	518	699	142	498	168	808	580	181	392	122	695	742	20	471	194	685	N	0	0	0
	TRK	95	31	22	3	56	120	45	86	34	165	64	31	27	45	103	165	3	89	28	120	S	0	0	0
	BUS	3	0	2	0	2	4	1	4	0	5	3	0	3	1	4	2	0	1	0	1	E	0	0	0
																						W	1	0	0
	TOTAL:	**783**	**180**	**373**	**23**	**576**	**823**	**188**	**588**	**202**	**978**	**647**	**212**	**422**	**168**	**802**	**909**	**23**	**561**	**222**	**806**				
07:30-09:30	CAR	820	240	412	19	671	1,930	215	1,182	486	1,883	1,980	729	1,476	585	2,790	1,808	18	983	193	1,194	N	0	0	0
	TRK	197	33	35	5	73	281	98	218	57	373	101	58	42	95	195	282	2	154	64	220	S	2	1	0
2 HR AM	BUS	8	0	7	0	7	13	1	12	0	13	9	1	9	5	15	5	0	0	0	0	E	0	0	0
																						W	5	0	0
	TOTAL:	**1,025**	**273**	**454**	**24**	**751**	**2,224**	**314**	**1,412**	**543**	**2,269**	**2,090**	**788**	**1,527**	**685**	**3,000**	**2,095**	**20**	**1,137**	**257**	**1,414**				
16:00-18:00	CAR	3,164	548	2,008	33	2,589	1,963	392	1,508	501	2,401	1,463	422	929	320	1,671	2,114	33	1,246	764	2,043	N	0	1	0
	TRK	202	49	68	3	120	180	110	142	67	319	117	35	40	88	163	271	10	134	24	168	S	2	2	0
2 HR PM	BUS	11	1	10	0	11	13	1	13	1	15	8	0	7	1	8	2	0	0	0	0	E	0	0	0
																						W	3	0	0
	TOTAL:	**3,377**	**598**	**2,086**	**36**	**2,720**	**2,156**	**503**	**1,663**	**569**	**2,735**	**1,588**	**457**	**976**	**409**	**1,842**	**2,387**	**43**	**1,380**	**788**	**2,211**				
07:30-18:00	CAR	6,722	1,383	3,816	132	5,331	6,691	1,175	4,683	1,659	7,517	5,763	1,876	3,973	1,394	7,243	6,889	131	4,112	1,731	5,974	N	1	2	0
	TRK	780	205	191	19	415	939	388	703	261	1,352	472	217	189	361	767	1,209	22	643	201	866	S	5	3	0
8 HR SUM	BUS	30	2	25	0	27	42	5	40	1	46	27	2	26	9	37	13	0	2	0	2	E	1	0	0
																						W	12	1	0
	TOTAL:	**7,532**	**1,590**	**4,032**	**151**	**5,773**	**7,672**	**1,568**	**5,426**	**1,921**	**8,915**	**6,262**	**2,095**	**4,188**	**1,764**	**8,047**	**8,111**	**153**	**4,757**	**1,932**	**6,842**				

Total 8 Hour Vehicle Volume: 29,577

Total 8 Hour Bicycle Volume: 6

Total 8 Hour Intersection Volume: 29,583

Comment:

Printed On: 19 Oct, 2016 7:47:20AM

City of Toronto - Traffic Safety Unit

Intersection Detailed 15 Minutes Movement Report

ALBION RD AT STEELES AVE & HIGHWAY 50 (PX 2312) **Survey Date:** May-15-2015 (Friday)

Survey Type: Routine Hours

Time Period		NORTH BOUND			EAST BOUND			SOUTH BOUND			WEST BOUND		
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
07:45	CARS	49	0	33	169	55	31	241	78	120	154	25	3
	DUALS	4	0	6	23	6	13	3	16	11	14	13	0
	BUSES	1	0	0	1	0	0	2	1	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
08:00	CARS	51	1	29	186	86	22	211	87	98	156	26	6
	DUALS	1	0	5	24	8	10	7	15	2	20	7	0
	BUSES	0	0	0	1	0	0	2	2	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		1
08:15	CARS	49	4	34	161	75	23	180	74	91	128	21	0
	DUALS	7	0	3	28	9	9	3	12	1	20	9	0
	BUSES	1	0	0	2	0	0	1	1	1	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		1
08:30	CARS	55	3	28	166	71	38	190	66	111	116	34	1
	DUALS	6	0	8	27	6	11	5	14	2	21	3	1
	BUSES	1	0	0	1	0	0	1	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		2	**West Side**		0
08:45	CARS	56	3	29	161	47	25	196	69	94	128	20	4
	DUALS	5	0	5	38	7	8	4	8	13	28	3	0
	BUSES	1	0	0	2	0	0	1	0	0	0	0	0
	BIKE (OTHER)		1	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		2
09:00	CARS	58	1	35	118	57	20	181	89	89	109	18	0
	DUALS	5	1	2	31	5	17	7	17	18	17	12	0
	BUSES	0	0	0	1	0	0	1	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
09:15	CARS	41	4	28	107	53	22	123	56	74	101	18	2
	DUALS	2	2	0	24	10	15	7	2	7	23	11	0
	BUSES	1	0	0	2	0	0	1	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		1

Intersection Detailed 15 Minutes Movement Report

ALBION RD AT STEELES AVE & HIGHWAY 50 (PX 2312) **Survey Date:** May-15-2015 (Friday)

Survey Type: Routine Hours

Time Period		NORTH BOUND			EAST BOUND			SOUTH BOUND			WEST BOUND		
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
09:30	CARS	53	3	24	114	42	34	154	66	52	91	31	2
	DUALS	5	2	4	23	6	15	6	11	4	11	6	1
	BUSES	2	0	0	2	0	1	0	1	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
10:15	CARS	43	3	28	111	38	26	89	41	47	68	26	6
	DUALS	7	2	7	22	5	18	8	11	11	24	13	1
	BUSES	1	0	0	1	0	0	1	0	1	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		1	**West Side**		1
10:30	CARS	51	3	22	83	37	29	87	30	53	98	22	2
	DUALS	4	1	9	20	5	6	5	7	6	21	11	0
	BUSES	0	0	0	1	0	1	0	1	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
10:45	CARS	50	4	43	105	36	27	78	31	41	102	37	3
	DUALS	6	0	6	24	8	14	7	3	5	19	5	0
	BUSES	1	0	0	0	0	0	1	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
11:00	CARS	63	3	34	115	34	24	107	30	44	108	38	4
	DUALS	3	0	4	30	13	9	6	10	10	19	5	2
	BUSES	0	0	0	1	0	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		1	**East Side**		0	**South Side**		0	**West Side**		0
11:15	CARS	50	6	13	118	29	39	95	23	43	76	26	6
	DUALS	6	1	6	20	7	15	4	15	14	19	5	0
	BUSES	1	0	0	1	0	0	1	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
11:30	CARS	65	3	38	122	31	33	94	26	39	98	36	3
	DUALS	2	0	9	16	11	7	10	17	10	12	13	3
	BUSES	1	0	0	2	0	1	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		1	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		1	**South Side**		0	**West Side**		0

Intersection Detailed 15 Minutes Movement Report

ALBION RD AT STEELES AVE & HIGHWAY 50 (PX 2312) **Survey Date:** May-15-2015 (Friday)

Survey Type: Routine Hours

Time Period		NORTH BOUND			EAST BOUND			SOUTH BOUND			WEST BOUND		
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
11:45	CARS	58	7	41	111	47	31	107	28	35	95	51	5
	DUALS	3	0	5	17	6	10	8	8	5	38	7	0
	BUSES	0	0	0	0	0	0	1	0	0	0	0	0
	BIKE (OTHER)		0	(0)		1	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
12:00	CARS	61	5	29	107	27	35	97	30	35	108	40	4
	DUALS	10	2	15	25	5	9	11	13	8	27	8	1
	BUSES	0	0	0	1	0	0	0	1	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		2
13:15	CARS	76	6	46	145	39	44	80	28	47	112	62	5
	DUALS	7	0	3	25	11	8	7	9	6	19	5	0
	BUSES	1	0	0	1	0	0	1	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		1
13:30	CARS	91	5	43	107	47	49	82	24	43	127	60	3
	DUALS	4	0	10	19	12	12	6	21	8	26	10	0
	BUSES	0	0	1	0	0	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
13:45	CARS	112	5	42	132	41	37	77	26	47	148	53	9
	DUALS	10	0	9	20	10	11	7	13	6	21	4	0
	BUSES	1	0	0	2	0	0	1	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
14:00	CARS	96	5	41	119	41	41	105	26	49	153	44	2
	DUALS	8	0	7	18	12	11	2	15	9	19	13	0
	BUSES	0	0	0	2	0	0	1	1	0	2	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
14:15	CARS	136	3	49	123	54	38	93	25	59	117	50	11
	DUALS	4	0	7	25	13	10	9	13	5	25	4	0
	BUSES	1	0	0	1	0	0	1	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0

Intersection Detailed 15 Minutes Movement Report

ALBION RD AT STEELES AVE & HIGHWAY 50 (PX 2312) **Survey Date:** May-15-2015 (Friday)

Survey Type: Routine Hours

Time Period		NORTH BOUND			EAST BOUND			SOUTH BOUND			WEST BOUND		
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
14:30	CARS	131	9	51	156	58	43	111	36	52	139	66	8
	DUALS	4	1	4	23	6	10	10	8	5	18	1	1
	BUSES	0	0	0	0	0	1	1	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
14:45	CARS	130	7	31	173	57	33	132	40	52	188	70	5
	DUALS	3	2	13	21	5	14	2	10	7	27	4	1
	BUSES	1	0	0	1	0	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
15:00	CARS	183	6	44	166	56	39	134	45	39	146	93	4
	DUALS	7	2	9	18	8	16	5	5	9	21	5	1
	BUSES	0	0	0	1	0	0	1	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
16:15	CARS	233	1	82	175	79	43	97	36	49	144	114	3
	DUALS	9	0	6	20	11	14	5	11	2	28	3	0
	BUSES	1	0	1	1	0	0	1	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		1	**West Side**		0
16:30	CARS	256	7	77	192	64	50	118	24	48	140	86	5
	DUALS	6	0	2	17	5	16	7	17	11	16	2	0
	BUSES	1	0	0	1	1	0	1	1	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
16:45	CARS	248	6	57	189	61	44	119	37	51	198	94	3
	DUALS	5	0	4	23	12	15	7	12	4	13	3	2
	BUSES	2	0	0	2	0	1	1	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		1	**West Side**		0
17:00	CARS	272	4	71	161	55	48	139	42	52	142	108	2
	DUALS	12	1	10	22	6	18	2	10	5	15	3	0
	BUSES	0	0	0	1	0	0	1	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		2

Intersection Detailed 15 Minutes Movement Report

ALBION RD AT STEELES AVE & HIGHWAY 50 (PX 2312) **Survey Date:** May-15-2015 (Friday)

Survey Type: Routine Hours

Time Period		NORTH BOUND			EAST BOUND			SOUTH BOUND			WEST BOUND		
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
17:15	CARS	278	4	91	194	60	55	101	37	54	154	77	7
	DUALS	4	0	4	19	10	12	3	11	6	15	3	1
	BUSES	1	0	0	3	0	0	1	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
17:30	CARS	222	2	59	202	61	42	130	62	55	173	109	2
	DUALS	11	1	5	12	9	12	8	12	4	13	5	1
	BUSES	4	0	0	1	0	0	0	0	0	0	0	0
	BIKE (OTHER)		2	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
17:45	CARS	265	4	45	180	58	49	123	62	53	147	81	8
	DUALS	13	0	12	14	5	9	6	5	1	13	2	5
	BUSES	0	0	0	2	0	0	1	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		1	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
18:00	CARS	234	5	66	215	63	61	102	20	60	148	95	3
	DUALS	8	1	6	15	9	14	2	10	2	21	3	1
	BUSES	1	0	0	2	0	0	1	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		1

City of Toronto - Traffic Safety Unit

Turning Movement Count Summary Report

SIGNAL HILL AVE AT STEELES AVE & 407 ETR OFFICE (PX 1980)

Survey Date: 2015-May-15 (Friday)

Survey Type: Routine Hours

Time Period	Vehicle Type	NORTHBOUND Exits	Left	Thru	Right	Total	EASTBOUND Exits	Left	Thru	Right	Total	SOUTHBOUND Exits	Left	Thru	Right	Total	WESTBOUND Exits	Left	Thru	Right	Total		Peds	Bike	Other
07:30-08:30	CAR	158	32	18	14	64	1,092	37	1,071	79	1,187	136	7	3	3	13	676	54	641	103	798	N	0	0	0
	TRK	1	9	1	6	16	114	0	108	7	115	13	0	0	2	2	114	6	103	0	109	S	42	0	0
AM PEAK	BUS	0	0	0	10	10	11	0	1	6	7	6	0	0	0	0	0	0	0	0	0	E	5	0	0
																						W	20	0	0
	TOTAL:	**159**	**41**	**19**	**30**	**90**	**1,217**	**37**	**1,180**	**92**	**1,309**	**155**	**7**	**3**	**5**	**15**	**790**	**60**	**744**	**103**	**907**				
16:00-17:00	CAR	27	73	8	47	128	1,112	8	951	22	981	61	114	11	54	179	1,063	28	936	11	975	N	7	0	0
	TRK	1	4	0	2	6	98	1	96	2	99	8	0	0	1	1	86	6	81	0	87	S	31	0	0
PM PEAK	BUS	0	0	0	6	6	6	0	0	6	6	6	0	0	0	0	0	0	0	0	0	E	5	0	0
																						W	18	0	0
	TOTAL:	**28**	**77**	**8**	**55**	**140**	**1,216**	**9**	**1,047**	**30**	**1,086**	**75**	**114**	**11**	**55**	**180**	**1,149**	**34**	**1,017**	**11**	**1,062**				
OFF HR AVG	CAR	67	37	5	37	79	742	18	664	35	717	82	41	4	19	64	665	43	609	44	696	N	2	0	0
	TRK	3	8	1	6	15	125	1	119	5	125	10	0	0	1	1	125	5	116	1	122	S	14	0	0
	BUS	0	0	0	4	4	7	0	3	3	6	3	0	0	0	0	1	0	1	0	1	E	4	0	0
																						W	9	0	0
	TOTAL:	**70**	**45**	**6**	**47**	**98**	**874**	**19**	**786**	**43**	**848**	**95**	**41**	**4**	**20**	**65**	**791**	**48**	**726**	**45**	**819**				
07:30-09:30	CAR	277	49	28	25	102	1,898	61	1,849	127	2,037	226	24	5	10	39	1,198	94	1,139	188	1,421	N	0	0	0
	TRK	4	21	2	8	31	279	0	266	11	277	22	5	1	4	10	230	10	205	2	217	S	69	0	0
2 HR AM	BUS	0	0	0	20	20	21	0	1	12	13	12	0	0	0	0	0	0	0	0	0	E	6	0	0
																						W	25	0	0
	TOTAL:	**281**	**70**	**30**	**53**	**153**	**2,198**	**61**	**2,116**	**150**	**2,327**	**260**	**29**	**6**	**14**	**49**	**1,428**	**104**	**1,344**	**190**	**1,638**				
16:00-18:00	CAR	36	124	11	70	205	2,185	13	1,959	50	2,022	116	156	17	72	245	2,073	49	1,877	12	1,938	N	7	0	0
	TRK	1	9	0	5	14	162	1	157	3	161	12	0	0	1	1	180	9	170	0	179	S	50	0	0
2 HR PM	BUS	0	0	0	12	12	12	0	0	13	13	13	0	0	0	0	0	0	0	0	0	E	8	0	0
																						W	24	0	0
	TOTAL:	**37**	**133**	**11**	**87**	**231**	**2,359**	**14**	**2,116**	**66**	**2,196**	**141**	**156**	**17**	**73**	**246**	**2,253**	**58**	**2,047**	**12**	**2,117**				
07:30-18:00	CAR	579	321	60	241	622	7,047	144	6,462	317	6,923	667	344	36	158	538	5,930	314	5,451	375	6,140	N	16	0	0
	TRK	13	62	4	36	102	940	3	898	33	934	75	6	2	8	16	907	40	837	6	883	S	174	0	0
8 HR SUM	BUS	0	0	0	49	49	61	0	12	37	49	37	0	0	0	0	2	0	2	0	2	E	31	1	0
																						W	84	1	0
	TOTAL:	**592**	**383**	**64**	**326**	**773**	**8,048**	**147**	**7,372**	**387**	**7,906**	**779**	**350**	**38**	**166**	**554**	**6,839**	**354**	**6,290**	**381**	**7,025**				

Total 8 Hour Vehicle Volume: 16,258

Total 8 Hour Bicycle Volume: 2

Total 8 Hour Intersection Volume: 16,260

Comment:

Printed On: 19 Oct, 2016 8:07:12AM

City of Toronto - Traffic Safety Unit

Intersection Detailed 15 Minutes Movement Report

SIGNAL HILL AVE AT STEELES AVE & 407 ETR OFFICE (PX 1980) **Survey Date:** May-15-2015 (Friday)

Survey Type: Routine Hours

Time Period		NORTH BOUND			EAST BOUND			SOUTH BOUND			WEST BOUND		
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
07:45	CARS	1	1	11	290	23	4	0	1	1	166	7	12
	DUALS	0	3	4	31	3	0	0	0	0	26	0	1
	BUSES	0	2	0	0	2	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	North Side		0	East Side		0	South Side		10	West Side		7
08:00	CARS	4	5	8	281	23	8	1	1	2	186	22	14
	DUALS	0	0	1	26	1	0	0	0	0	23	0	0
	BUSES	0	2	0	0	1	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	North Side		0	East Side		3	South Side		7	West Side		5
08:15	CARS	7	6	7	248	20	10	1	1	2	151	31	14
	DUALS	0	0	2	28	2	0	0	2	0	34	0	3
	BUSES	0	3	0	1	2	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	North Side		0	East Side		1	South Side		11	West Side		3
08:30	CARS	6	2	6	252	13	15	1	0	2	138	43	14
	DUALS	1	3	2	23	1	0	0	0	0	20	0	2
	BUSES	0	3	0	0	1	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	North Side		0	East Side		1	South Side		14	West Side		5
08:45	CARS	2	3	6	236	9	6	0	2	2	145	20	13
	DUALS	0	1	3	56	0	0	0	2	2	26	1	1
	BUSES	0	2	0	0	2	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	North Side		0	East Side		1	South Side		5	West Side		4
09:00	CARS	3	3	3	196	14	9	0	2	5	121	23	10
	DUALS	0	0	5	46	2	0	0	0	0	32	0	2
	BUSES	0	2	0	0	1	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	North Side		0	East Side		0	South Side		11	West Side		1
09:15	CARS	4	3	2	177	11	6	1	2	7	121	29	11
	DUALS	1	1	2	35	1	0	0	0	3	27	0	1
	BUSES	0	3	0	0	2	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	North Side		0	East Side		0	South Side		5	West Side		0

Intersection Detailed 15 Minutes Movement Report

SIGNAL HILL AVE AT STEELES AVE & 407 ETR OFFICE (PX 1980) **Survey Date:** May-15-2015 (Friday)

Survey Type: Routine Hours

Time Period		NORTH BOUND			EAST BOUND			SOUTH BOUND			WEST BOUND		
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
09:30	CARS	1	2	6	169	14	3	1	1	3	111	13	6
	DUALS	0	0	2	21	1	0	1	0	0	17	1	0
	BUSES	0	3	0	0	1	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		6	**West Side**		0
10:15	CARS	3	4	3	169	2	2	1	3	3	98	10	5
	DUALS	0	0	0	34	1	0	0	0	0	42	0	2
	BUSES	0	2	0	1	1	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		9	**West Side**		0
10:30	CARS	1	7	9	125	16	3	0	2	5	114	10	7
	DUALS	0	2	2	29	0	0	0	0	0	28	0	1
	BUSES	0	1	0	5	0	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		1	**East Side**		1	**South Side**		1	**West Side**		1
10:45	CARS	1	4	5	149	5	4	0	4	3	139	9	12
	DUALS	0	1	1	26	1	1	0	0	0	25	0	0
	BUSES	0	1	0	3	1	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		1	**East Side**		0	**South Side**		3	**West Side**		1
11:00	CARS	1	5	7	151	6	5	0	4	6	117	6	9
	DUALS	0	0	1	40	2	0	0	1	0	26	1	0
	BUSES	0	2	0	0	1	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		4	**West Side**		4
11:15	CARS	0	9	5	153	4	2	1	6	7	98	10	8
	DUALS	0	0	0	35	0	1	0	1	0	22	0	1
	BUSES	0	1	0	0	1	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		1	**South Side**		4	**West Side**		3
11:30	CARS	1	9	4	158	8	9	1	4	10	139	11	6
	DUALS	0	3	2	29	1	0	0	0	1	33	0	0
	BUSES	0	1	0	1	0	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		1	**West Side**		2

Intersection Detailed 15 Minutes Movement Report

SIGNAL HILL AVE AT STEELES AVE & 407 ETR OFFICE (PX 1980) **Survey Date:** May-15-2015 (Friday)

Survey Type: Routine Hours

Time Period		NORTH BOUND			EAST BOUND			SOUTH BOUND			WEST BOUND		
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
11:45	CARS	0	15	5	138	10	5	2	8	13	131	7	12
	DUALS	0	1	1	16	3	0	0	0	0	47	1	1
	BUSES	0	1	0	0	1	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	North Side		0	East Side		1	South Side		1	West Side		0
12:00	CARS	1	8	6	138	5	8	0	5	23	134	4	12
	DUALS	0	2	2	36	4	0	0	1	0	29	2	1
	BUSES	0	1	0	0	1	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	North Side		0	East Side		0	South Side		7	West Side		1
13:15	CARS	2	5	14	190	5	1	1	5	14	149	17	9
	DUALS	0	1	2	34	0	0	0	0	0	20	0	2
	BUSES	0	1	0	0	1	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	North Side		0	East Side		0	South Side		1	West Side		1
13:30	CARS	1	12	11	147	6	10	0	1	9	198	19	11
	DUALS	0	2	4	27	1	0	0	0	0	33	0	1
	BUSES	0	1	0	0	0	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		1	(0)		0	(0)	0	(0)	
	PEDS	North Side		0	East Side		7	South Side		1	West Side		1
13:45	CARS	0	3	15	161	10	3	2	8	9	160	12	14
	DUALS	0	0	5	25	1	0	0	0	0	20	0	3
	BUSES	0	1	0	0	1	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	North Side		5	East Side		0	South Side		6	West Side		4
14:00	CARS	0	12	10	169	12	3	0	6	12	178	12	20
	DUALS	0	4	2	34	0	0	0	0	0	36	0	0
	BUSES	0	1	0	1	1	0	0	0	0	2	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	North Side		0	East Side		5	South Side		3	West Side		8
14:15	CARS	4	8	11	182	9	4	0	2	11	170	14	16
	DUALS	0	0	1	29	0	0	0	0	0	26	0	5
	BUSES	0	1	0	0	1	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	1	(0)	
	PEDS	North Side		0	East Side		1	South Side		2	West Side		3

Intersection Detailed 15 Minutes Movement Report

SIGNAL HILL AVE AT STEELES AVE & 407 ETR OFFICE (PX 1980) **Survey Date:** May-15-2015 (Friday)

Survey Type: Routine Hours

Time Period		NORTH BOUND			EAST BOUND			SOUTH BOUND			WEST BOUND		
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
14:30	CARS	2	18	10	196	15	3	0	3	11	195	12	8
	DUALS	0	3	2	31	0	0	1	0	0	26	0	0
	BUSES	0	1	0	0	0	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		5	**West Side**		0
14:45	CARS	4	10	10	213	14	3	5	9	13	220	10	9
	DUALS	1	2	2	21	4	0	0	0	0	32	0	4
	BUSES	0	0	0	0	1	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		1	**East Side**		1	**South Side**		2	**West Side**		4
15:00	CARS	0	17	23	215	13	5	1	6	15	195	12	13
	DUALS	1	2	5	29	1	0	0	0	0	17	0	0
	BUSES	0	1	0	0	1	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		1	**East Side**		0	**South Side**		5	**West Side**		2
16:15	CARS	1	16	26	237	2	2	4	16	25	243	4	7
	DUALS	0	1	1	23	1	0	0	0	0	27	0	3
	BUSES	0	2	0	0	2	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		2	**South Side**		9	**West Side**		8
16:30	CARS	3	13	12	246	8	3	4	6	21	230	5	6
	DUALS	0	0	0	23	1	1	0	0	0	20	0	0
	BUSES	0	1	0	0	1	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		8	**West Side**		2
16:45	CARS	1	12	21	242	10	2	2	22	44	236	1	9
	DUALS	0	1	1	27	0	0	0	1	0	13	0	0
	BUSES	0	1	0	0	1	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		5	**East Side**		1	**South Side**		6	**West Side**		5
17:00	CARS	3	6	14	226	2	1	1	10	24	227	1	6
	DUALS	0	0	2	23	0	0	0	0	0	21	0	3
	BUSES	0	2	0	0	2	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		2	**East Side**		2	**South Side**		8	**West Side**		3

City of Toronto - Traffic Safety Unit

Intersection Detailed 15 Minutes Movement Report

SIGNAL HILL AVE AT STEELES AVE & 407 ETR OFFICE (PX 1980) **Survey Date:** May-15-2015 (Friday)

Survey Type: Routine Hours

Time Period		NORTH BOUND			EAST BOUND			SOUTH BOUND			WEST BOUND		
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
17:15	CARS	1	9	13	249	5	2	5	13	19	210	1	6
	DUALS	0	1	2	17	0	0	0	0	0	22	0	1
	BUSES	0	3	0	0	2	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		2	**South Side**		13	**West Side**		3
17:30	CARS	1	3	22	256	9	1	0	2	11	253	0	7
	DUALS	0	1	2	17	0	0	0	0	0	19	0	0
	BUSES	0	1	0	0	1	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		1	**South Side**		0	**West Side**		1
17:45	CARS	1	6	8	236	6	1	1	1	8	257	0	4
	DUALS	0	0	1	11	1	0	0	0	0	22	0	0
	BUSES	0	2	0	0	2	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		6	**West Side**		1
18:00	CARS	0	5	8	267	8	1	0	2	4	221	0	4
	DUALS	0	1	0	16	0	0	0	0	0	26	0	2
	BUSES	0	0	0	0	2	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		1

Alcide Street & Steeles Avenue

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

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

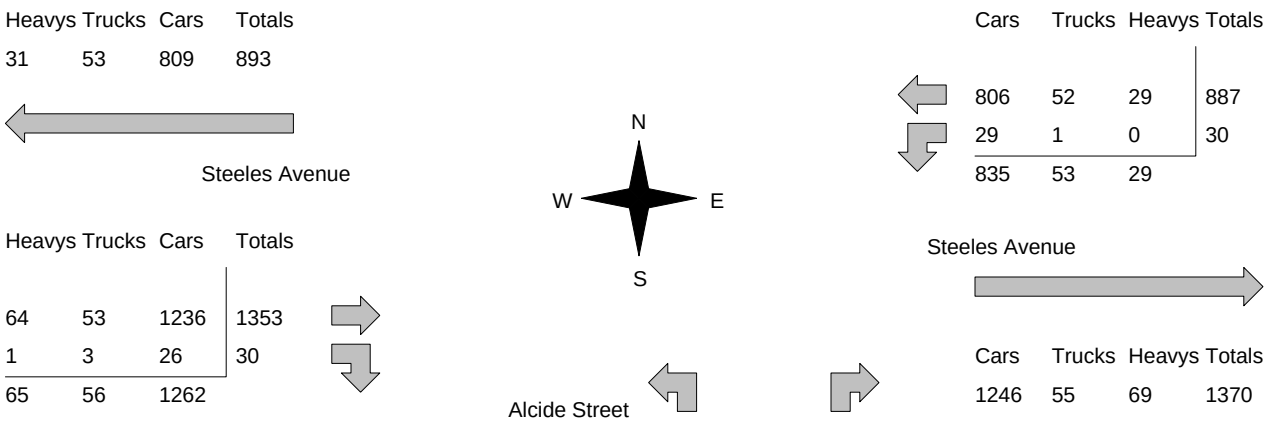
Municipality: Vaughan
Site #: 0000008708
Intersection: Steeles Avenue & Alcide Street
TFR File #: 1
Count date: 8-Nov-2016

Weather conditions:
Clear / Cloudy
Person(s) who counted:

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

Major Road: Steeles Avenue runs W/E

East Leg Total: 2287
East Entering: 917
East Peds: 0
Peds Cross: ⧖



Peds Cross: ⧖
West Peds: 0
West Entering: 1383
West Leg Total: 2276

Cars 55
Trucks 4
Heavys 1
Totals 60

Peds Cross: ⋈
South Peds: 0
South Entering: 23
South Leg Total: 83

Comments

Alcide Street & Steeles Avenue

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 13:00:00
To: 14:00:00

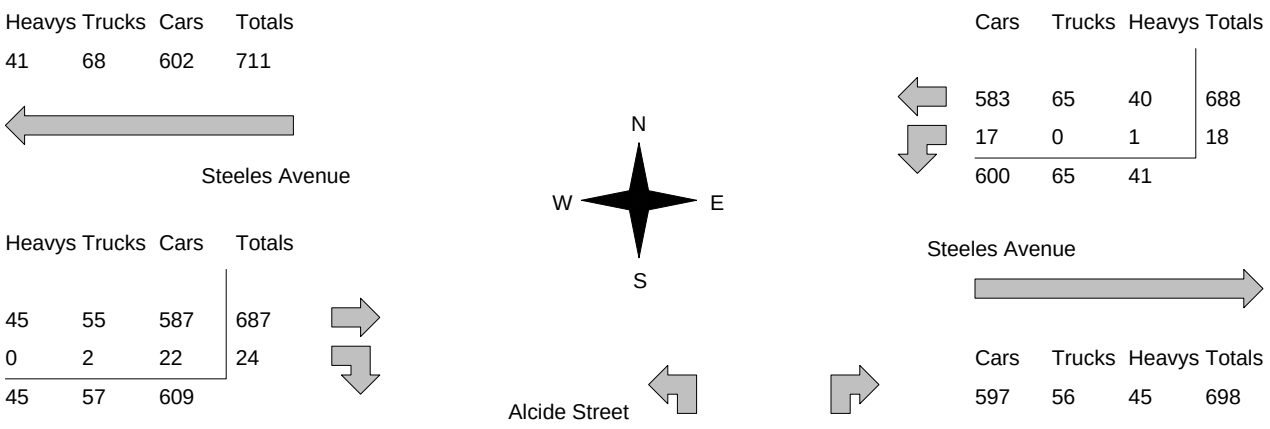
Municipality: Vaughan
Site #: 0000008708
Intersection: Steeles Avenue & Alcide Street
TFR File #: 1
Count date: 8-Nov-2016

Weather conditions:
Clear / Cloudy
Person(s) who counted:

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

Major Road: Steeles Avenue runs W/E

East Leg Total: 1404
East Entering: 706
East Peds: 0
Peds Cross: ⧖



Peds Cross: ⧖
West Peds: 0
West Entering: 711
West Leg Total: 1422

Cars 39
Trucks 2
Heavys 1
Totals 42

Cars 19 10 29
Trucks 3 1 4
Heavys 1 0 1
Totals 23 11

Peds Cross: ⋈
South Peds: 1
South Entering: 34
South Leg Total: 76

Comments

Alcide Street & Steeles Avenue

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

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

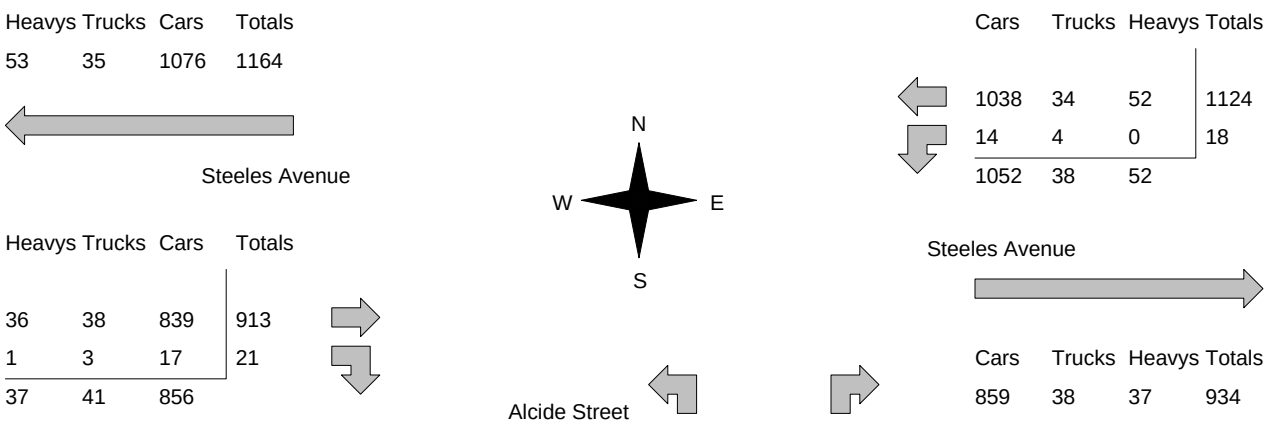
Municipality: Vaughan
Site #: 0000008708
Intersection: Steeles Avenue & Alcide Street
TFR File #: 1
Count date: 8-Nov-2016

Weather conditions:
Clear / Cloudy
Person(s) who counted:

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

Major Road: Steeles Avenue runs W/E

East Leg Total: 2076
East Entering: 1142
East Peds: 0
Peds Cross: ⧖



Peds Cross: ⧖
West Peds: 0
West Entering: 934
West Leg Total: 2098

Cars 31
Trucks 7
Heavys 1
Totals 39

Cars 38 20 58
Trucks 1 0 1
Heavys 1 1 2
Totals 40 21

Peds Cross: ⋈
South Peds: 0
South Entering: 61
South Leg Total: 100

Comments

Alcide Street & Steeles Avenue

Total Count Diagram

Municipality: Vaughan
Site #: 0000008708
Intersection: Steeles Avenue & Alcide Street
TFR File #: 1
Count date: 8-Nov-2016

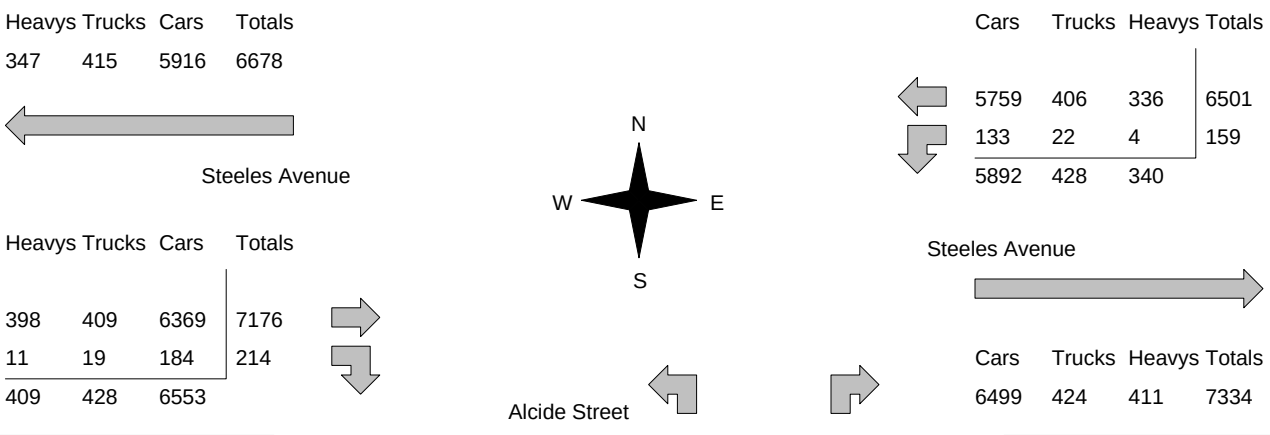
Weather conditions:
Clear / Cloudy

Person(s) who counted:

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

Major Road: Steeles Avenue runs W/E

East Leg Total: 13994
East Entering: 6660
East Peds: 0
Peds Cross:



Peds Cross:
West Peds: 0
West Entering: 7390
West Leg Total: 14068

Cars 317
Trucks 41
Heavys 15
Totals 373

Cars 157 130 287
Trucks 9 15 24
Heavys 11 13 24
Totals 177 158

Peds Cross:
South Peds: 11
South Entering: 335
South Leg Total: 708

Comments

Alcide Street & Steeles Avenue
Traffic Count Summary

Intersection: Steeles Avenue & Alcide Street | **Count Date:** 8-Nov-2016 | **Municipality:** Vaughan

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	0	0	0	0	0	23
9:00:00	0	0	0	0	0	32
11:00:00	0	0	0	0	0	0
12:00:00	0	0	0	0	0	44
13:00:00	0	0	0	0	0	48
14:00:00	0	0	0	0	0	34
15:00:00	0	0	0	0	0	0
16:00:00	0	0	0	0	0	39
17:00:00	0	0	0	0	0	54
18:00:00	0	0	0	0	0	61
Totals:	0	0	0	0	0	335

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	6	0	17	23	0
9:00:00	9	0	23	32	0
11:00:00	0	0	0	0	0
12:00:00	19	0	25	44	2
13:00:00	27	0	21	48	3
14:00:00	23	0	11	34	1
15:00:00	0	0	0	0	0
16:00:00	26	0	13	39	2
17:00:00	27	0	27	54	3
18:00:00	40	0	21	61	0
Totals:	177	0	158	335	11

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	30	887	0	917	0	2300
9:00:00	23	693	0	716	0	1948
11:00:00	0	0	0	0	0	0
12:00:00	21	586	0	607	0	1271
13:00:00	16	655	0	671	0	1379
14:00:00	18	688	0	706	0	1417
15:00:00	0	0	0	0	0	0
16:00:00	11	911	0	922	0	1734
17:00:00	22	957	0	979	0	1925
18:00:00	18	1124	0	1142	0	2076
Totals:	159	6501	0	6660	0	14050

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	1353	30	1383	0
9:00:00	0	1198	34	1232	0
11:00:00	0	0	0	0	0
12:00:00	0	644	20	664	0
13:00:00	0	679	29	708	0
14:00:00	0	687	24	711	0
15:00:00	0	0	0	0	0
16:00:00	0	788	24	812	0
17:00:00	0	914	32	946	0
18:00:00	0	913	21	934	0
Totals:	0	7176	214	7390	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	6	9	19	27	23	26	27	40

City of Toronto - Traffic Safety Unit

Turning Movement Count Summary Report

ALBION RD AT CLAIREPORT CR & CODLIN CR (PX 2072)

Survey Date: 2016-May-24 (Tuesday)

Survey Type: Routine Hours

Time Period	Vehicle Type	NORTHBOUND Exits	Left	Thru	Right	Total	EASTBOUND Exits	Left	Thru	Right	Total	SOUTHBOUND Exits	Left	Thru	Right	Total	WESTBOUND Exits	Left	Thru	Right	Total		Peds	Bike	Other
07:45-08:45	CAR	47	3	0	10	13	1,234	14	1,191	9	1,214	28	33	4	18	55	340	15	319	33	367	N	0	0	0
	TRK	7	0	1	4	5	62	4	57	0	61	6	1	3	3	7	36	3	33	2	38	S	7	0	0
AM PEAK	BUS	0	0	0	0	0	9	0	9	0	9	4	0	0	0	0	4	4	4	0	8	E	21	1	0
																						W	0	0	0
	TOTAL:	**54**	**3**	**1**	**14**	**18**	**1,305**	**18**	**1,257**	**9**	**1,284**	**38**	**34**	**7**	**21**	**62**	**380**	**22**	**356**	**35**	**413**				
16:00-17:00	CAR	41	16	5	37	58	714	10	643	9	662	33	34	1	27	62	1,223	23	1,180	26	1,229	N	2	0	0
	TRK	9	2	1	2	5	46	3	40	0	43	1	4	0	1	5	60	1	57	5	63	S	11	0	0
PM PEAK	BUS	0	0	0	0	0	7	0	7	0	7	3	0	0	0	0	6	3	6	0	9	E	14	0	0
																						W	1	0	0
	TOTAL:	**50**	**18**	**6**	**39**	**63**	**767**	**13**	**690**	**9**	**712**	**37**	**38**	**1**	**28**	**67**	**1,289**	**27**	**1,243**	**31**	**1,301**				
OFF HR AVG	CAR	19	7	2	19	28	537	5	508	8	521	30	10	4	7	21	446	18	432	12	462	N	0	0	0
	TRK	11	2	1	6	9	54	3	44	1	48	8	4	2	3	9	53	5	48	7	60	S	1	0	0
	BUS	0	0	0	0	0	6	0	6	0	6	4	0	0	0	0	2	4	2	0	6	E	1	1	0
																						W	0	0	0
	TOTAL:	**30**	**9**	**3**	**25**	**37**	**597**	**8**	**558**	**9**	**575**	**42**	**14**	**6**	**10**	**30**	**501**	**27**	**482**	**19**	**528**				
07:30-09:30	CAR	72	5	1	18	24	2,145	26	2,088	13	2,127	54	39	8	28	75	623	33	590	45	668	N	0	0	0
	TRK	11	3	3	11	17	112	4	92	2	98	9	9	3	9	21	85	4	73	4	81	S	9	1	0
2 HR AM	BUS	0	0	0	0	0	19	0	19	0	19	7	0	0	0	0	8	7	8	0	15	E	25	1	0
																						W	0	0	0
	TOTAL:	**83**	**8**	**4**	**29**	**41**	**2,276**	**30**	**2,199**	**15**	**2,244**	**70**	**48**	**11**	**37**	**96**	**716**	**44**	**671**	**49**	**764**				
16:00-18:00	CAR	65	29	9	63	101	1,399	11	1,277	16	1,304	48	59	4	40	103	2,314	28	2,245	45	2,318	N	2	0	0
	TRK	18	2	2	3	7	81	7	69	0	76	4	9	2	4	15	97	2	91	9	102	S	19	0	0
2 HR PM	BUS	0	0	0	0	0	14	0	14	0	14	6	0	0	0	0	11	6	11	0	17	E	19	0	0
																						W	1	2	0
	TOTAL:	**83**	**31**	**11**	**66**	**108**	**1,494**	**18**	**1,360**	**16**	**1,394**	**58**	**68**	**6**	**44**	**118**	**2,422**	**36**	**2,347**	**54**	**2,437**				
07:30-18:00	CAR	214	63	18	156	237	5,689	57	5,395	60	5,512	218	138	26	97	261	4,724	132	4,564	139	4,835	N	2	0	0
	TRK	71	13	8	39	60	409	23	337	5	365	45	33	13	23	69	393	27	357	40	424	S	31	1	0
8 HR SUM	BUS	0	0	0	0	0	59	0	58	0	58	28	1	0	0	1	26	28	26	0	54	E	47	3	0
																						W	1	3	0
	TOTAL:	**285**	**76**	**26**	**195**	**297**	**6,157**	**80**	**5,790**	**65**	**5,935**	**291**	**172**	**39**	**120**	**331**	**5,143**	**187**	**4,947**	**179**	**5,313**				

Total 8 Hour Vehicle Volume: 11,876

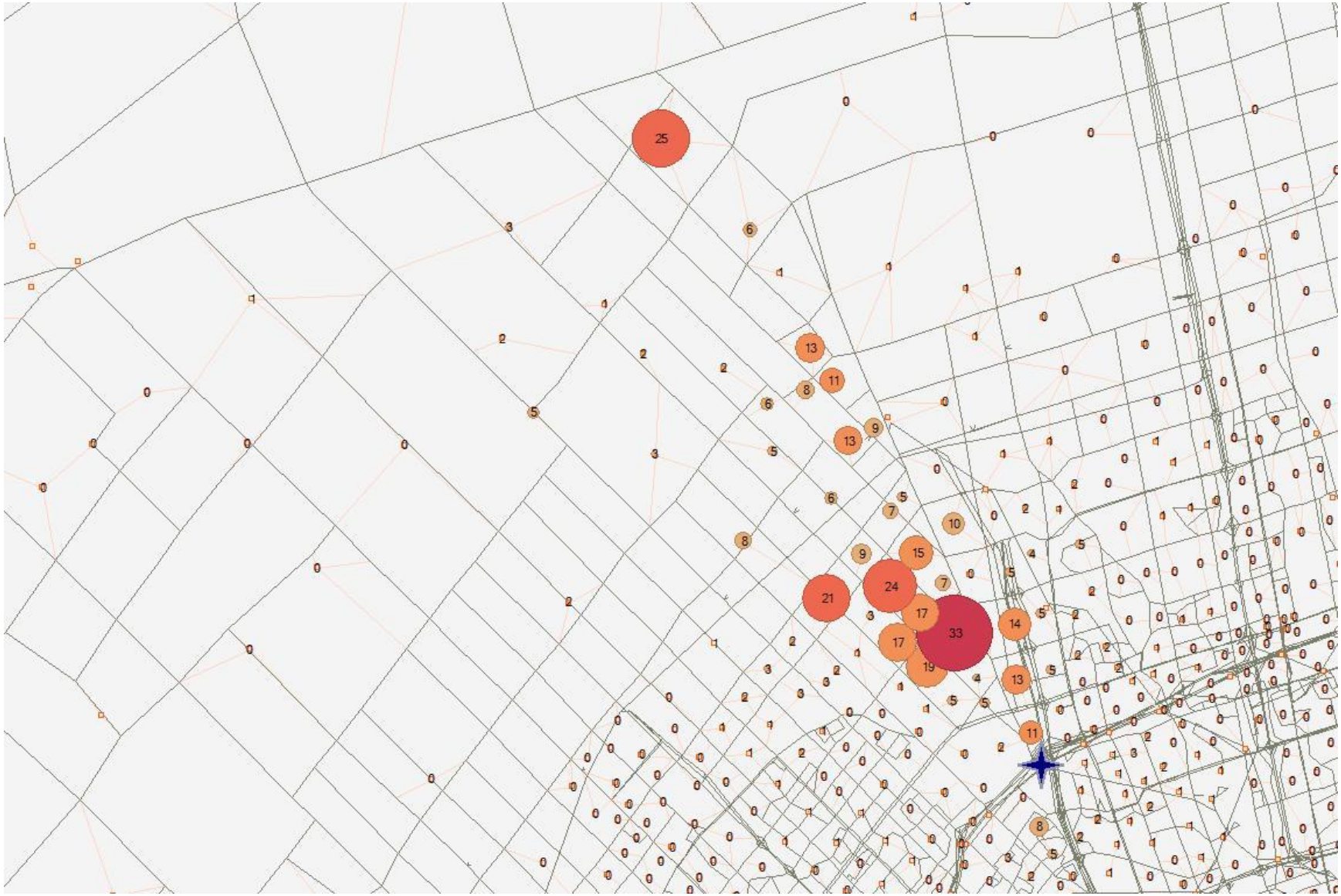
Total 8 Hour Bicycle Volume: 7

Total 8 Hour Intersection Volume: 11,883

Comment:

Printed On: 19 Oct, 2016 8:03:11AM

Appendix J – EMME Origin/Destination Output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Report

Highway 27 Station Traffic Impact Study

Highway 407 Transitway-3

Prepared for the Ministry of Transportation, Ontario
by IBI Group

July 27, 2018

Document Control Page

CLIENT:	Ministry of Transportation, Ontario
PROJECT NAME:	Highway 407 Transitway-3
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REVIEWER:	Scott Johnston
AUTHORIZATION:	Scott Johnston
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Table of Contents

List of Exhibits

1 Introduction

1.1 Project Overview

The Highway 407 Transitway is a rapid transit facility planned within the Greater Toronto and Hamilton Area (GTHA). The Transitway operate on a dedicated, grade-separated right-of-way providing users fast travel speeds and good travel time reliability. The Highway 407 Transitway project supports the Province's Growth Plan by meeting increased travel demands through alternative transportation modes, providing increased mobility for a wide variety of users, and supporting transit-oriented development and associated land uses.

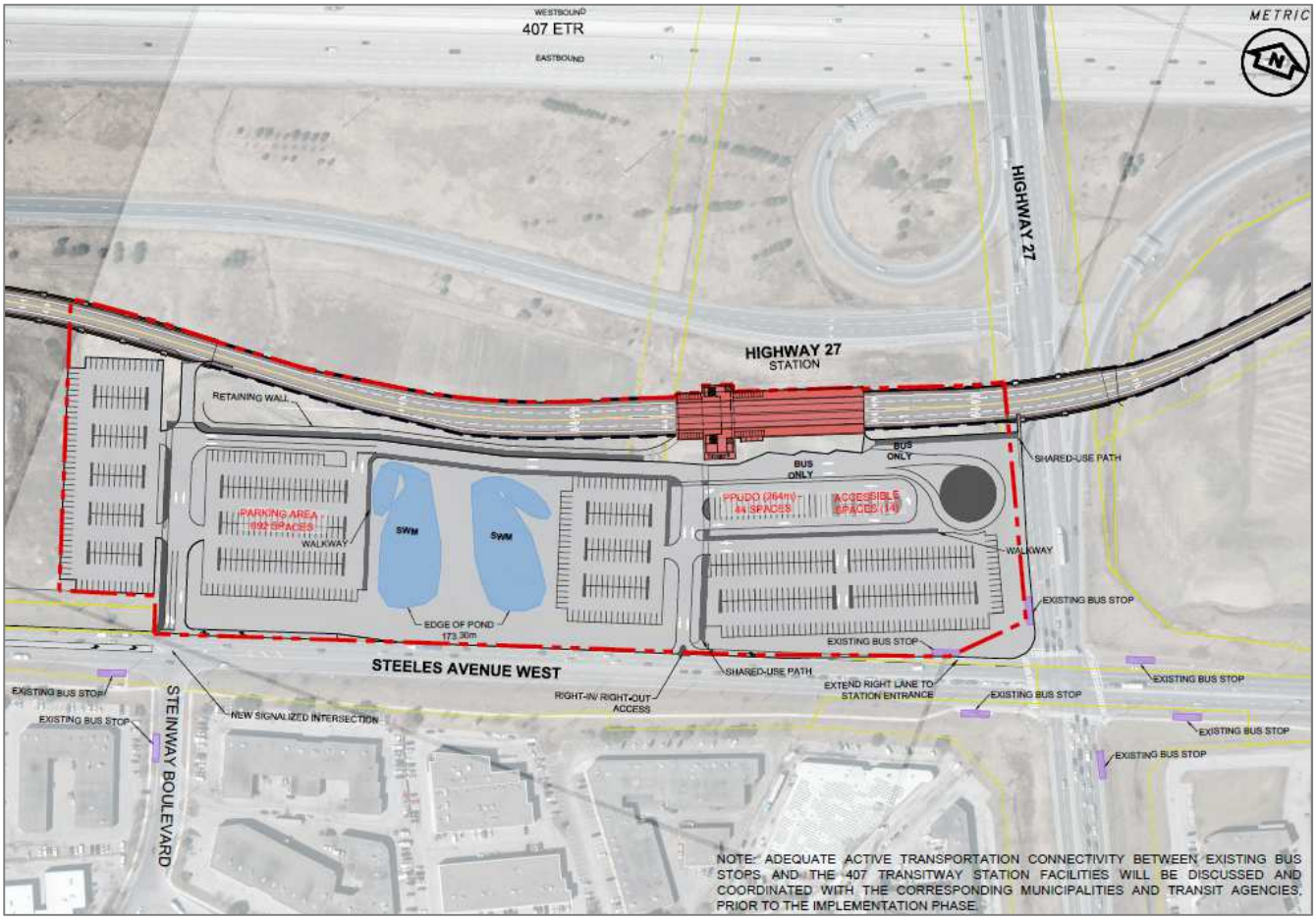
Building upon previous work IBI Group completed for the 'Central' and 'East' sections of the Transitway, the 'Transitway-3' section spans approximately 23 kilometres between Hurontario Street and Highway 400. This section of the Transitway provides opportunities to connect to the GO Rail system at Bramalea Station (Kitchener Line) as well as to a number of other higher order transit systems, supporting development within both the York and Peel Regions.

1.2 Study Area

Highway 27 station was recommended in large due to high traffic volumes on the Highway 27 and potential transfer demand. The station also serves as a park-and-ride lot for the surrounding area, which is predominantly industrial or commercial in land use. The proposed station layout is indicated in Exhibit 1-1.

This study considers traffic operations at the Highway 27 station under two scenarios – first with 8-station operation, and second with 7-station operation assuming that Martin Grove Road station is not carried forward.

Exhibit 1-1: Proposed Highway 27 Station Layout

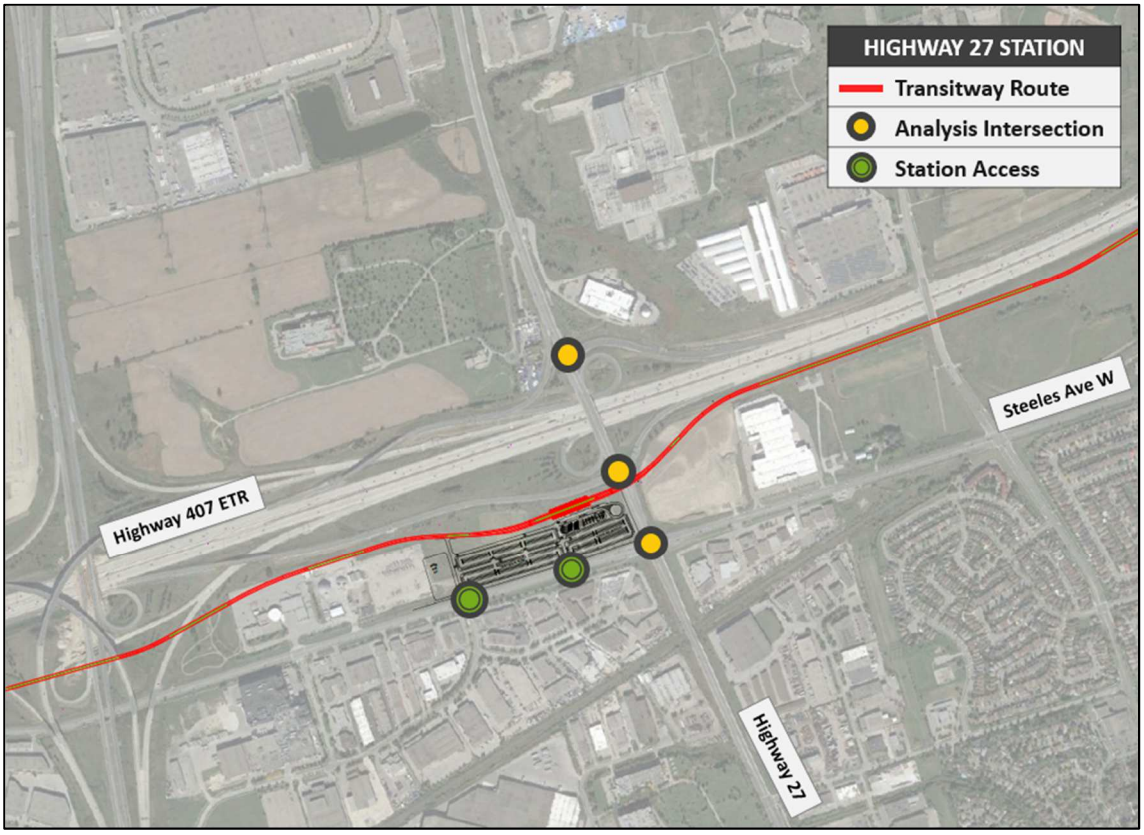


In addition to the future station accesses, the traffic operations analysis includes the following intersections:

- Highway 27 & Highway 407 Westbound Off-Ramp;
- Highway 27 & Highway 407 Eastbound Off-Ramp.
- Highway 27 & Steeles Avenue; and.
- Steeles Avenue & Steinway Boulevard;

The study area is illustrated in Exhibit 1-2.

Exhibit 1-2: Highway 27 Station Study Area



1.3 Study Objective

The purpose of this Highway 27 Station TIS is to assess existing and future traffic operations in order to identify possible deficiencies in the road network and consider potential improvement options. The study is organized as follows:

- Section 2 provides an overview of the current transportation network and assesses existing traffic conditions;
- Section 3 outlines the process used to estimate peak hour traffic generated at this Transitway station, and how this traffic will be distributed on the road network;
- Section 4 assesses of future traffic conditions by considering background traffic growth in addition to traffic generated from the Transitway station;
- Section 5 evaluates potential improvement options that to address any future network deficiencies that have been identified; and,
- Section 6 provides a summary of traffic operations and recommended improvement measures.

1.4 Traffic Analysis Approach

This study documents existing traffic conditions, and assesses anticipated future conditions with consideration of background traffic growth and additional traffic generated from the proposed Transitway. Traffic analysis is conducted using Synchro (version 9) following Highway Capacity Manual (HCM 2000) methodologies of intersection analysis.

All critical traffic movements identified through the Synchro analysis are outlined and discussed, as per the following conditions:

- For signalized intersections,
  - V/C ratios for overall intersections operations, through movements or shared through/turning movements equal 0.80 or above;
  - V/C ratios for exclusive movements equal 0.85 or above; or,
  - Queues for an individual movement are projected to exceed available turning lane storage.
- For unsignalized intersections,
  - Level of service, based on average delay per vehicle or on individual movements is LOS "D" or greater; or,
  - The estimated 95th percentile queue length for an individual movement exceeds the available queue storage.

Level-of-service (LOS) is a measure of performance based on the control delay, defined as follows in Exhibit 1-3.

Exhibit 1-3: Intersection LOS Reference

HCM	CONTROL DELAY PER VEHICLE (S)	
LOS	Signalized	Unsignalized
A	≤10	≤10
B	>10 and ≤20	>10 and ≤15
C	>20 and ≤35	>15 and ≤25
D	>35 and ≤55	>25 and ≤35
E	>55 and ≤80	>35 and ≤50
F	>80	>50

Operational concerns or deficiencies noted in the studied horizon years are identified and addressed through recommendations on potential mitigation measures and/or operational improvements.

1.5 Synchro Model Calibration

The Synchro traffic models were calibrated to better reflect measured field conditions. This was accomplished by adjusting the following parameters detailed below.

Lane Utilization Factor

The "lane utilization factor" (LUF) was altered when calibrating through movements. This parameter is used to dictate the distribution of traffic across the available lanes, with a value of '1.0' representing a uniform distribution across all lanes.

During non-congested periods, there is often more traffic distributed amongst the right-most lanes as compared to the left-most lanes. However, in oversaturated conditions, the distribution of traffic is typically split more evenly across all lanes, as drivers quickly fill any available gap in traffic.

In the existing models, the LUF was adjusted to a value of '1.0' for all through movements initially identified as having a v/c ratio greater than '1.0'. These adjustments were also carried forward to those same movements in the future models (for the same peak period). Additionally, because the above-mentioned driver behaviour is quite predictable, this adjustment was also

made to any “new” critical through movements (having a v/c ratio > ‘1.0’) identified in the future models.

Lost Time Adjustment

Lost Time Adjustment (LTA) was altered in order to calibrate left-turn movements. Adjusting this parameter to a negative value effectively increases the clearance time available for left-turning traffic to clear the intersection during the amber and/or all-red signal phases.

During oversaturated conditions where left-turn queues are excessively long and/or there are limited gaps available in the opposing traffic to make the left-turn (under permissive phasing), drivers are typically more aggressive and willing to turn during the amber/all-red phases.

In the existing models, the LTA was changed for all left-turn movements identified as being well over capacity – defined as having a v/c ratio greater than ‘1.2’ – since these turning volumes were explicitly measured in the field. Values were assigned based on the initial v/c ratio for that movement:

- If the v/c ratio was between 1.2 and 1.5, the LTA was set to ‘-1’; and,
- If the v/c ratio exceeded 1.5, the LTA was set to ‘-2’.

All changes to the LTA made in the existing models were carried forward to those same movements in the future models (for the same peak period). However, because this driver behaviour is believed to be less predictable, no additional LTA changes were made to “new” critical left-turn movements (having a v/c ratio > ‘1.1) identified in the future models, which did not exist in the existing models.

2 Existing Conditions

2.1 Existing Road Network

Highway 27 is a four lane north-south arterial road that connects the Highway 427 interchange with Eglinton Avenue West in the City of Toronto to the village of Schomberg in the Township of King. Within the study area, it is under the jurisdiction of both the City of Toronto and York Region and has a speed limit of 70 km/h.

Highway 407 is a tolled 400-series highway with a nine lane (four westbound, five eastbound) cross section. It connects the City of Burlington to the City of Pickering. 400-series highways have a speed limit of 100 km/h. A full interchange exists at Highway 27.

Steeles Avenue West is an arterial east-west road that connects the Town of Milton to Scarborough, Toronto. Within the study area, it is under the jurisdiction of the City of Toronto and has 4 lanes. It also has a posted speed limit of 70 km/h.

Toronto RV Road provides local access to a cemetery and a motel. A speed limit of 50 km/h is assumed.

Steinway Boulevard is a two lane road that connects Steeles Avenue West to Albion Road. It provides access to an employment area. A speed limit of 50km/h is assumed.

2.2 Traffic Counts & Signal Timing Data

Traffic count data and signal timing information was collected from City of Brampton, City of Mississauga, and Region of Peel. All turning movement counts modelled for the purposes of this study were conducted recently (within the past five years) and so should reflect current traffic patterns within the study area. Exhibit 2-1 provides a summary of dates on which this information was collected/recorded.

Exhibit 2-1: Traffic Count and Signal Timing Data

INTERSECTION	CONTROL TYPE	DATE OF TMC	DATE OF SIGNAL DATA
Hwy 27 & Highway 407 WB off-ramp	Signalized	14-Apr-17	4-Mar-15
Hwy 27 & Highway 407 EB off-ramp	Signalized	14-Apr-17	4-Mar-15
Hwy 27 & Steeles Ave W	Signalized	15-May-15	27-Jan-16
Steeles Ave W & Steinway Blvd	Unsignalized	8-Nov-16	N/A

2.3 Existing Transit Network

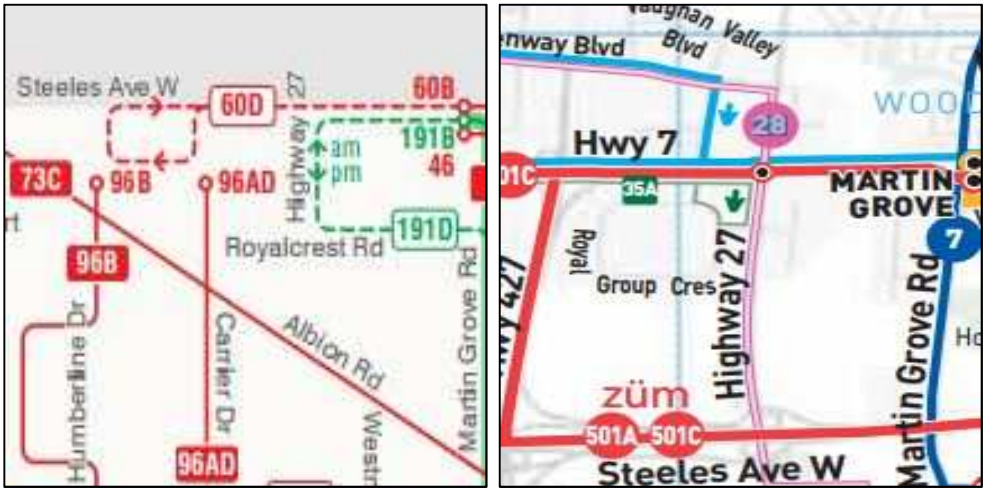
York Region Transit (YRT), Toronto Transit Commission (TTC), and GO Transit operate services within the study are. Routes currently in service are:

- **TTC Route 60D (Steeles West)** is a local route that travels along Steeles Avenue, connecting Signal Hill Avenue to Finch Subway Station at seven minute headways during peak hours;
- **TTC Route 191D (Highway 27 Rocket)** is an express route that runs along Highway 27, connecting Steeles Avenue West to Kipling Station in Toronto at five minute headways during peak hours;

- **YRT Route 28 (Huntington)** is an hourly peak hour route that connects an east Brampton residential area to Highway 27 and Steeles Avenue West via Hungtington Road, Zenway Boulevard, and Highway 27;
- **GO Bus Route 38A (Bolton/Malton/North York)** is a regional route that connects the community of Bolton (in Caledon, Region of Peel) to York Mills Bus Terminal in Toronto via Highway 50 based on scheduled times. It serves a bus stop at the corner of Steeles Avenue West and Highway 27

Exhibit 2-2 illustrates the transit services within the study area.

Exhibit 2-2: TTC (left) and YRT (right) in the Study Area

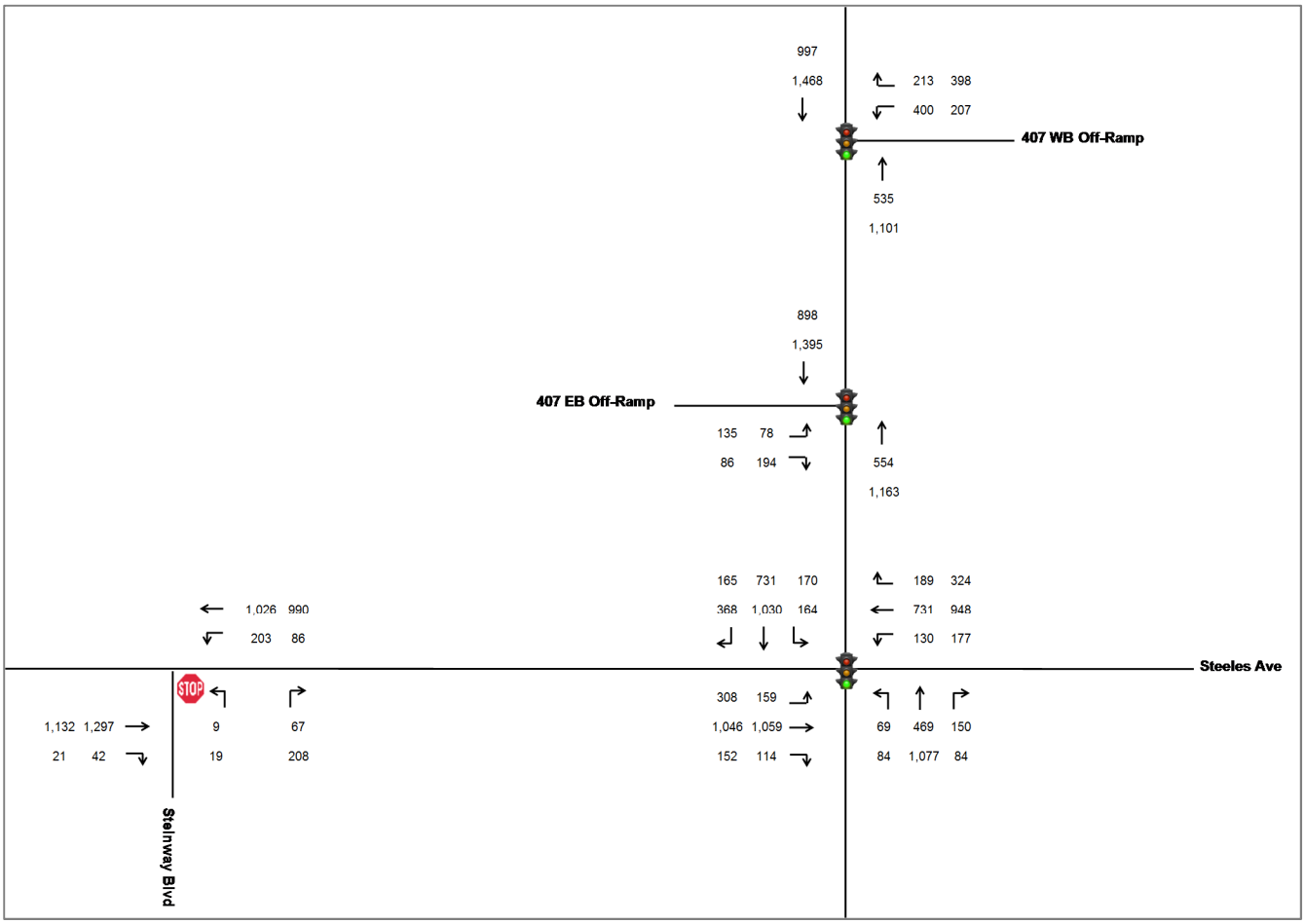


2.4 Existing Traffic Operations

The existing conditions analysis represents traffic operations during base year 2017. An annual compound growth rate of 1.0% was applied to all count volumes obtained in years prior to 2017 in order to bring all counts to a consistent base year.

Existing conditions traffic volumes are illustrated in Exhibit 2-3.

Exhibit 2-3: Existing Volumes in AM (PM) Peak Hours



A summary of critical movements identified during the existing conditions analysis is provided in Exhibit 2-4, with a detailed output of the Synchro analysis provided in the Appendix.

Exhibit 2-4: Existing Critical Movements Summary

INTERSECTION	AM PEAK					PM PEAK				
	LOS	Critical Movements				LOS	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Highway 27 & 407 WB Off-Ramp	B	WBL	E	0.76	71.7	B	WBL	E	0.73	60.4
							WBR	E	0.64	63.8
Highway 27 & 407 EB Off-Ramp	B	EBL	E	0.52	30.5	A	EBL	E	0.53	30.6
		EBR	E	0.52	38.3					
Highway 27 & Steeles Ave W	D	EBT	E	0.99	205.6	E	EBL	F	1.18	147.1
		NBL	F	0.96	51.0		EBT	E	0.97	191.5
							WBT	E	0.97	180.4
							WBR	D	0.53	78.0
							NBT	F	1.04	201.4
							SBL	F	1.16	88.4
							SBR	F	0.13	22.7
Steeles Ave W & Steinway Blvd	N/A	NB	F	1.56	58.9	N/A	NB	F	1.02	75.8

The study intersections are currently operating as follows:

- The intersections between Highway 27 and each of the Highway 407 off-ramps are operating well during both peak hours.
- Highway 27 & Steeles Avenue is operating at LOS D in the a.m. peak hour, and LOS E in the p.m. peak hour. The EBT movement is at capacity in the a.m. peak, while high SBT volumes result in limited gaps and cause delays to the NBL movement. In the p.m. peak, the NBT, EBT and WBT movements are all at capacity, and cause delays to opposing left-turn movements. At present, there are no dual left-turn lanes on any of the intersection approaches.
- At Steeles Avenue & Steinway Boulevard (unsignalized), the stop-controlled northbound approach operates at LOS F. There are limited gaps in the east-west traffic travelling on Steeles Avenue, causing delays to left-turning traffic on this northbound approach.

2.5 Existing Model Calibration

The Existing traffic models were calibrated to better reflect measured field conditions accomplished by adjusting either the Lane Utilization Factor (LUF) or Lost Time Adjustment (LTA) for ertain movements.

Adjustmets made to the existing traffic models are outlined in Exhibit 2-5.

Exhibit 2-5: Existing Model Calibration Parameters

PERIOD	INTERSECTION	MOVEMENT	ADJUSTED PARAMETER	ADJUSTMENT VALUE
AM Peak	(no adjustments)	-	-	-
PM Peak	Highway 27 & Steeles	EBL	LTA	- 1 sec
		EBT	LUF	1.0
		NBT	LUF	1.0
		SBL	LTA	- 1 sec
		WBT	LUF	-

These adjustments were applied using the methodologies outlined in Section 1.5.

3 Site Traffic & Parking

3.1 Ridership Forecasts

Ridership forecasts were developed using the Greater Golden Horseshoe Model (GGHM), a state-of-practice multi-modal travel demand model that estimates future travel demands within the Greater Golden Horseshoe. The GGHM was developed to forecast peak period demand in support of Growth Plan policies and has the capability of predicting mode shifts resulting from new public transit infrastructure. It can also be used to test network responses to changes in link characteristics such as transit vehicle frequency, operating speed, station location, and parking availability.

Future year forecasts were previously developed for a number of horizon years including 2031, 2041, and 2051. A number of road network improvements and expansions are also included in the future year models, including numerous widenings along the 400-series highways and major arterial roads. Transit infrastructure included in future models represent projects that are currently committed and funded. While is possible that additional projects will be funded over the upcoming years, this method represents a conservative approach. The following is a list of rapid transit projects that were included in the future year models:

- Toronto-York Spadina Subway Extension (TYSSE);
- 407 Transitway Central Section (Jane Street to Kennedy Road);
- VIVA routes and busways;
- Mississauga 403 Transitway;
- Eglinton Crosstown LRT;
- Sheppard LRT;
- Finch West LRT;
- Yonge Subway Extension to Richmond Hill;
- Two-way all-day GO Rail service (Regional Express Rail);
- Scarborough RT Extension;
- Hurontario-Main LRT; and,
- Highway 427 Transitway.

In addition to developing separate scenarios for the horizon years studied, alternative GGHM scenarios were also developed to represent different levels of funding for the Transitway-3 project: one representing an eleven-station structure and a second representing a reduced eight-station structure. It should also be noted that forecasts were developed only for the a.m. peak period, and so adjustment factors will be used to estimate p.m. peak demands.

With input from the MTO, a horizon year of 2031 was selected as the baseline for determining road and intersection requirements as part of this traffic impact study. The ridership forecasts used for the purposes of this study were taken from the 2031 GGHM model showing the reduced eight-station structure. Demands corresponding to the eight-station scenario for year 2031 are outlined in Exhibit 3-1.

EXHIBIT 3-1: 2031 AM PEAK HOUR BOARDINGS STATION	TOTAL BOARDINGS	PARK-AND-RIDE	WALK / TRANSIT	% PARK-AND-RIDE	% WALK / TRANSIT
Pine Valley	210	130	80	62%	38%
Martin Grove	420	170	250	40%	60%
Highway 27	**400**	**170**	**230**	**43%**	**58%**
Highway 50	790	260	530	33%	67%
Goreway	320	180	140	56%	44%
Airport	610	120	490	20%	80%
Dixie	1,770	110	1,660	6%	94%
Hurontario	1,320	170	1,150	13%	87%
Total:	*5,840*	*1,310*	*4,530*	*22%*	*78%*

Note that a ninth station may also be included at Bramalea (between Dixie and Airport), however this station would operate solely as a transit interlining/transfer station and therefore generate no park-and-ride demand.

3.2 Trip Generation

Peak hour trips to and from the station were estimated using the GGHM ridership forecasts presented in Exhibit 3-1. Because walk/transit boardings do not translate into vehicle trips generated, only park-and-ride demands were considered at this stage.

Park-and-ride boardings were equated to inbound vehicle trips at an assumed factor of 10:11, or 1.1 riders per park-and-ride vehicle. However, this only provides an indication of inbound trips to the station, and not of outbound trips leaving the station. Furthermore, the park-and-ride demands were developed only for the a.m. peak hour and not for the p.m. peak hour.

The ITE Trip Generation Manual (9th edition) was used to estimate a.m. peak outbound trips, as well as p.m. peak inbound and outbound trips. Average trip generation rates for bus stations with park-and-ride lots are indicated in Exhibit 3-2.

Exhibit 3-2: ITE Trip Generation Rates for Park-and-Ride Lots

LAND USE (CODE)	UNITS	AM PEAK HOUR		PM PEAK HOUR	
		Trip Rate	Inbound / Outbound	Trip Rate	Inbound / Outbound
Park-and-ride with bus service (090)	/ parking space	0.71	79% / 21%	0.62	25% / 75%

The 2031 GGHM forecasts indicate a demand of 170 park-and-ride boardings at Highway 27 Station during the a.m. peak hour. Exhibit 3-3 lists the estimated site traffic generated given the above assumptions.

Exhibit 3-3: Estimated Vehicle Trips Generated by Highway 27 Station (8-station structure)

AM PEAK TRIPS		PM PEAK TRIPS	
Inbound	Outbound	Inbound	Outbound
155*	41	43	128

** Calculated based on forecasted 2031 a.m. park-and-ride boardings, at a factor 1.0 inbound vehicles per 1.1 boardings.*

Sensitivity Analysis (7-station structure assuming no Martin Grove Station)

The ridership forecasts included in Section 3.1 were generated using EMME based on an eight-station structure for the 407 Transitway-3. An EMME model was also developed showing a 7-station structure, where Martin Grove Station is omitted.

The 7-station model has only been developed for year 2041, consistent with the horizon year adopted in the Systems Planning report. A model will also be developed for both 2031 and 2051 horizon years (used for traffic operation analysis and parking lot sizing, respectively), pending further direction/decision on whether Martin Grove Station will ultimately be recommended.

For the purposes of the current study, the 7-station and 8-station outputs (2041 horizon year) were compared to assess impacts on ridership forecasts at the remaining seven stations. It was observed that omitting Martin Grove Station primarily affected demands at Highway 50 and Highway 27 stations.

Park-and-ride demands at Highway 27 were observed to increase by a factor 118%. This factor was applied to the previous trip generation results (Exhibit 3-3) in order to produce new trip generation values to be used in the “sensitivity analysis” scenario, indicated in Exhibit 3-4.

Exhibit 3-4: Estimated Vehicle Trips Generated by Highway 27 Station (7-station structure)

AM PEAK TRIPS		PM PEAK TRIPS	
Inbound	Outbound	Inbound	Outbound
183	49	50	151

3.3 Trip Distribution

An origin/destination map showing the origin of park-and-ride trips destined to Highway 27 Station was extracted from the 2031 GGHM and can be found attached in the Appendix. The model runs correspond to 2031 a.m. conditions for the eight-station Transitway structure, and with the assumption that the ‘Central’ and ‘East’ Transitway sections exist. Note that the model does not account for an extension of the Transitway west beyond Hurontario Street (i.e. beyond the ‘Transitway-3’ limits).

Using this map, inbound trips were tabulated in terms of general direction of origin (i.e. north, south, east or west) and assigned to the study area intersections as a percentage of total inbound trips. Distribution of outbound trips was assumed to the same as inbound trips (e.g. the percentage of inbound trips originating from the north is equal to the percentage of outbound trips destined to the north). Trip distribution percentages were assumed to be equal during both the a.m. and p.m. peak hours.

The resulting trip distribution percentages to and from the station are illustrated in

Exhibit 3-5, and the trip distribution 7-station structure was assumed to be the same as that shown for the 8-station structure. By then applying the trip generation values to the trip distribution percentages, the site generated traffic was assigned to study area intersections and is indicated in Exhibit 3-6/Exhibit 3-7 (8-station structure) and Exhibit 3-8/Exhibit 3-9 (7-station structure).

Exhibit 3-5: Trip Distribution in AM and PM Peak Hours

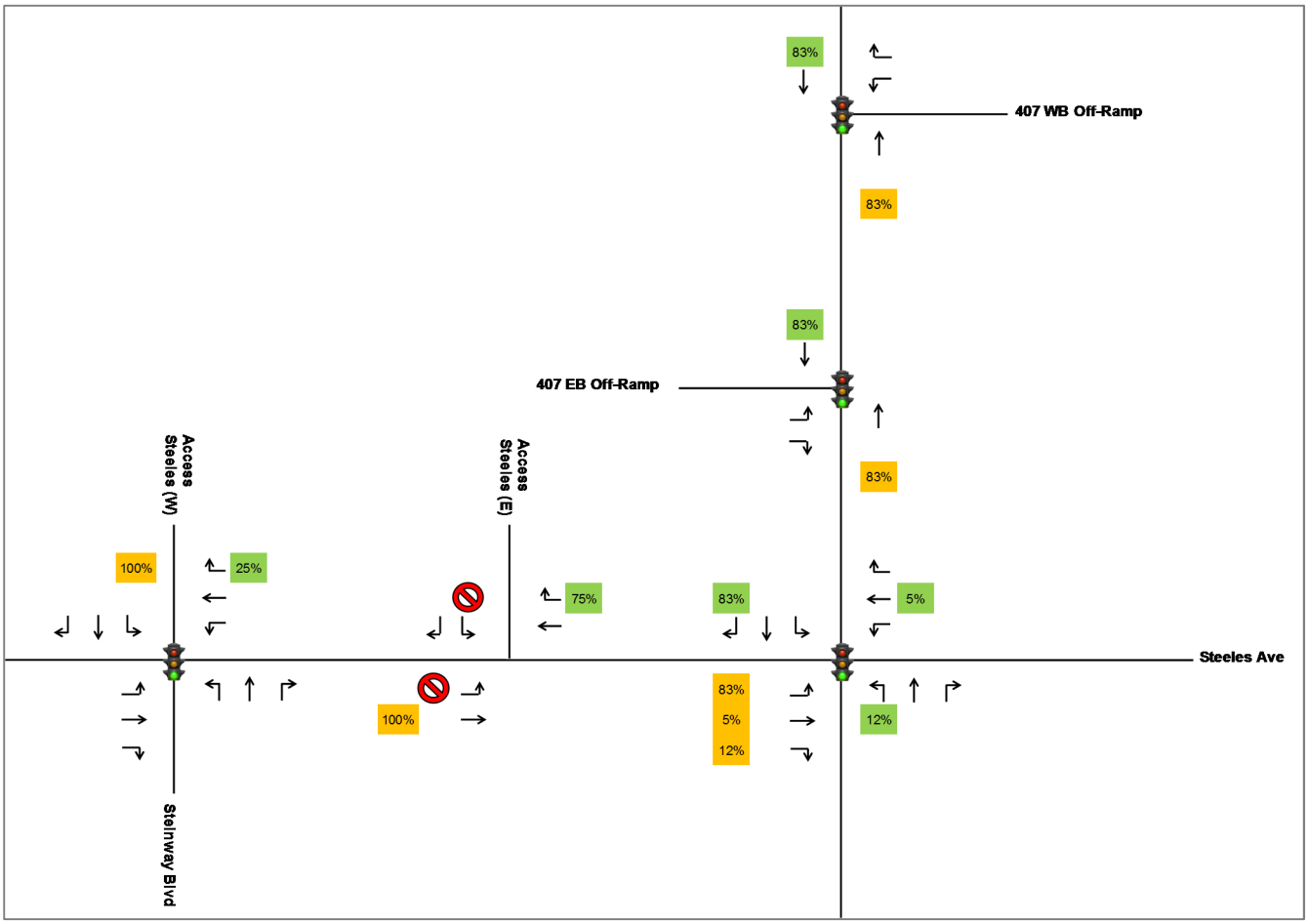


Exhibit 3-6: Site Generated Traffic in AM Peak Hour (8-station structure)

Exhibit 3-7: Site Generated Traffic in PM Peak Hour (8-station structure)

Exhibit 3-8: Site Generated Traffic in AM Peak Hour (7-station structure)

Exhibit 3-9: Site Generated Traffic in PM Peak Hour (7-station structure)

3.4 Parking Demands

In order to estimate parking demands at each of the Transitway stations, data from various GO transit stations nearby the study area was analyzed to study the relationship between inbound vehicle trips and average parking lot utilization. Four GO stations were considered, comprising of Brampton, Bramalea, Malton, and Etobicoke North stations.

The average number of inbound vehicle trips made to each of these GO stations during the a.m. peak period (defined as 6:30-9:30 am) were determined using 2011 Transportation Tomorrow Survey (TTS) data. The data was filtered to only include trips made via the auto driver mode, as this corresponds directly to number of inbound passenger vehicles.

Parking data for the GO transit stations was obtained from the *GO Transit Rail Parking and Station Access Plan (2013)* prepared for Metrolinx. The report notes the total capacity and average utilization of each GO station parking lot, which were used to calculate average parking demands. Note that the parking data from this report is dated May-2012, which is similar to the time period covered by the 2011 TTS.

By comparing the number of inbound auto drivers during the a.m. peak period to the average parking lot demand at each station, a representative "parking factor" was determined. These values are indicated in the below Exhibit 3-10.

Exhibit 3-10: Parking Demand Factors for nearby GO Transit Stations

2011 TTS AM PEAK PERIOD *		2012 GO STATION PARKING **			PARKING FACTOR
GO Station	Auto Drivers	Capacity	Utilization	Demand	
Brampton	860	891	101%	900	1.046
Bramalea	1,360	2,381	81%	1,929	1.418
Malton	580	731	95%	694	1.197
Etobicoke North	410	532	97%	516	1.259
Total	*3,210*	*4,535*	*89%*	*4,039*	***1.258***

** AM peak period inbound vehicles estimated using 2011 TTS data, and rounded to the nearest 10.*

*** GO parking data obtained from the "GO Transit Rail Parking and Station Access Plan" (2013), and is dated May-2012.*

This "parking factor" was then applied to the a.m. peak period inbound trips estimated at each Transitway station. Note that park-and-ride forecasts (and congruently, estimated inbound vehicle trips) for the a.m. peak hour can be converted to a.m. peak period forecasts by applying a factor of 2.174, as analysis of the TTS indicated that 46% of 3-hour a.m. peak period trips occur within the single a.m. peak hour.

The resulting estimated parking demands at each Transitway station are provided in Exhibit 3-11. Parking demands are provided for both the 2031 horizon used for the purposes of this traffic study, as well as for the 2051 horizon established to represent "ultimate" conditions.

Exhibit 3-11: Estimated Parking Demands for each Transitway Station

STATION	GGHM INBOUND TRIPS *				PARKING DEMAND ***	
	AM Peak Hour		AM Peak Period **			
	2031	2051	2031	2051	2031	2051
Pine Valley	118	164	257	356	323	448
Martin Grove	155	227	336	494	423	622
Highway 27	**155**	**236**	**336**	**514**	**423**	**646**
Highway 50	236	409	514	889	646	1119
Goreway	164	291	356	632	448	796
Airport	109	191	237	415	298	522
Dixie	100	164	217	356	273	448
Hurontario	155	245	336	534	423	671

** Calculated based on forecasted a.m. park-and-ride boardings, at a factor 1.0 inbound vehicles per 1.1 boardings.*

*** Peak hour trips can be converted to peak period trips at a factor of 2.174.*

**** Parking demands calculated by multiplying estimated a.m. peak period inbound trips by a factor of 1.258.*

Note that in the event that Martin Grove Station is not implemented and the 407 Transitway-3 section operates under the 7-station structure, parking demands are expected to be 15-20% higher at Highway 27 Station.

4 Future Conditions

4.1 Future Background Operations

Future conditions analysis were undertaken for horizon year 2031. The City of Mississauga and Region of Peel population and trip-end growth forecasts were considered in the preparation of the traffic growth forecast. Relevant documents are listed as follows:

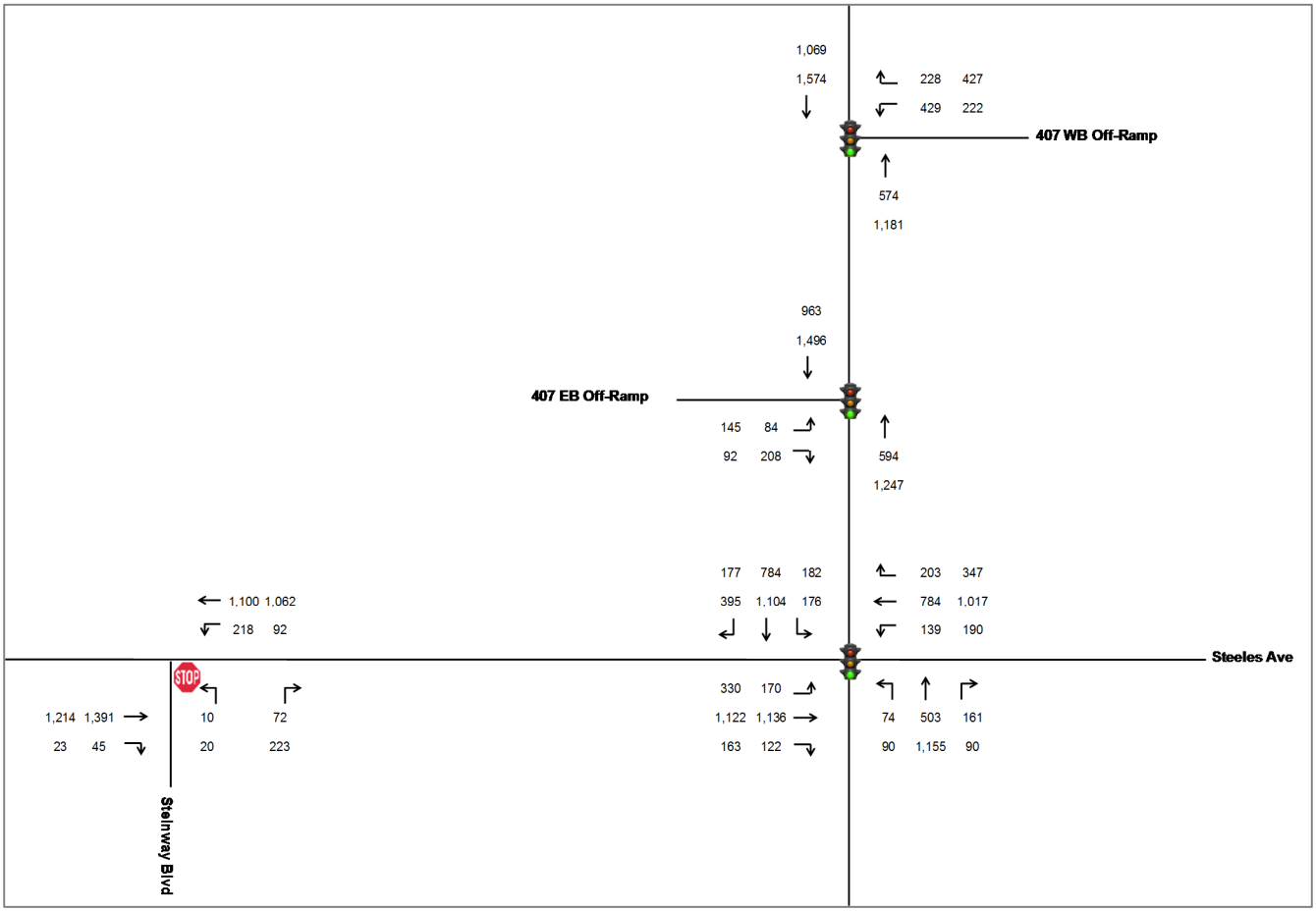
- Greater Toronto and Hamilton Area – "Growth Plan for the Greater Golden Horseshoe" (2017);
- City of Mississauga – "Mississauga Official Plan" (2016); "Population, Demographics & Housing" (2013); and "Moving Mississauga" (2011); and,
- Region of Peel – "Long Range Transportation Plan" (2012).

Review of the above documents showed that population growth is estimated to be 0.5% to 0.6% per year between 2011 and 2031, while trip ends are forecasted to increase by 0.9% to 1.0% per year during that same period time.

However, many major intersections nearby the Transitway are already operating at or above capacity during peak times, suggesting that there is limited remaining capacity available to serve added future demands. While trip ends are forecasted to increase up to 1.0% per year, it is expected that some "peak spreading" will occur – where some motorists alter their departure times to avoid congestion during the peak hours. Rather than growth occurring uniformly throughout the day, this results in less growth during the peak hours and greater growth during off-peak times.

Given the above, an annual compound growth rate of 0.5% per year was used to represent background growth (unrelated to the implementation of the Transitway) during the a.m. and p.m. peak hours. Future traffic volumes with background growth applied are illustrated in Exhibit 4-1.

Exhibit 4-1: Future Background Volumes in AM (PM) Peak Hours



A summary of critical movements identified during the future background conditions analysis is provided in Exhibit 4-2, with a detailed output of the Synchro analysis provided in the Appendix.

Exhibit 4-2: Future Background Critical Movements Summary

INTERSECTION	AM PEAK					PM PEAK				
	LOS	Critical Movements				LOS	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Highway 27 & 407 WB Off-Ramp	C	WBL	E	0.79	78.5	B	WBL WBR	E E	0.74 0.70	65.5 72.9
Highway 27 & 407 EB Off-Ramp	B	EBL EBR	E E	0.53 0.52	31.3 38.7	A	EBL	E	0.55	32.5
Highway 27 & Steeles Ave W	D	EBT WBL SBT	E F D	0.99 1.05 0.94	202.6 71.2 199.1	F	EBL EBT WBL WBT WBR NBT SBL SBR	F E F F D F F E	1.16 1.00 1.10 1.09 0.56 1.06 1.24 0.14	153.3 202.8 94.8 198.9 79.3 216.8 98.9 22.7
Steeles Ave W & Steinway Blvd	N/A	NB	F	2.76	78.5	N/A	NB	F	1.28	108.3

With background growth added, the study intersections are expected to operate as follows:

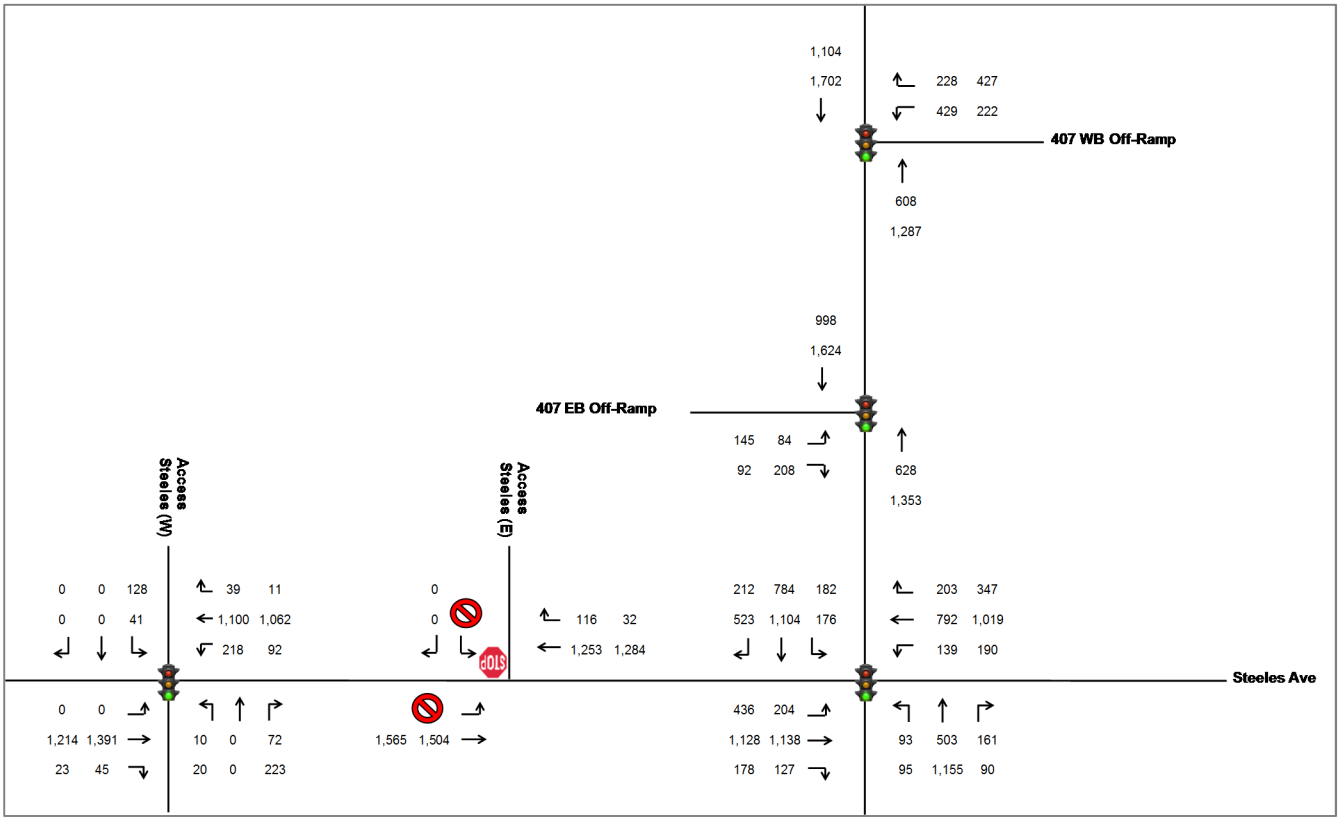
- The intersections between Highway 27 and each of the Highway 407 off-ramps continue to operate sufficiently during both peak hours, although the westbound off-ramp intersection deteriorates from LOS B to LOS C in the a.m. peak.
- Highway 27 & Steeles Avenue continues to operate at LOS D in the a.m. peak hour, and the busy SBT movement is approaching capacity. In the p.m. peak the intersection deteriorates from LOS E to LOS F, as volumes on the already critical NBT, WBT, and EBT movements increase and cause further delays to the opposing left-turn movements.
- At Steeles Avenue & Steinway Boulevard (unsignalized), the stop-controlled northbound approach continues to operate at LOS F during both peak hours, with conditions entirely breaking down in the a.m. peak.

4.2 Future Total Operations

Future total volumes were calculated adding the site-generated traffic to the future volumes with background growth applied. This future total scenario accounts for all vehicular traffic that is estimated in year 2031 following implementation of the Transitway.

Future total volumes, which include background growth in addition to the traffic generated by Highway 27 Station (8-station structure), are illustrated in Exhibit 4-3.

Exhibit 4-3: Future Total Volumes in AM (PM) Peak Hours (8-station structure)



A summary of critical movements identified during the future total conditions analysis is provided in Exhibit 4-4, with a detailed output of the Synchro analysis provided in the Appendix.

Exhibit 4-4: Future Total Critical Movements Summary (8-station structure)

INTERSECTION	AM PEAK					PM PEAK				
	LOS	Critical Movements				LOS	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Highway 27 & 407 WB Off-Ramp	C	WBL	E	0.80	79.3	B	WBL WBR	E E	0.74 0.72	66.2 75.0
Highway 27 & 407 EB Off-Ramp	B	EBL EBR	E E	0.54 0.56	32.3 41.0	A	EBL	E	0.55	32.5
Highway 27 & Steeles Ave W	E	EBL EBT EBR WBL WBT NBL SBT SBR	E F F F D E E E	0.93 0.99 0.10 1.05 0.88 0.86 0.96 0.76	63.2 177.9 15.9 71.3 145.5 42.8 208.8 149.8	F	EBL EBT WBL WBT WBR NBT SBL	F D F F D F F	1.47 0.99 1.10 1.09 0.59 1.09 1.24	218.1 197.7 94.8 199.5 84.1 220.6 97.2
Steeles Ave W & Steinway Blvd	D	EBT WBL SBL	D F E	0.98 0.96 0.42	249.8 71.6 12.3	D	EBT SBL	D E	0.85 0.53	175.7 28.7

With Highway 27 demands (8-station structure) added to future background growth conditions, the study intersections are expected to operate as follows:

- Northbound and southbound traffic is added to the Highway 407 off-ramp intersections, however they continue to operate sufficiently during both peak hours. No significant queuing is observed.
- Site traffic is added to several movements at the Highway 27 & Steeles Avenue intersection, which continues to operate at LOS E in the a.m. peak and LOS F in the p.m. peak. In the a.m. peak hour, a significant number of vehicles are added to the SBR movement, and queues approach the upstream Highway 407 eastbound off-ramp. In the p.m. peak hour, a significant number of vehicles are added to the EBL movement, which is already operating above capacity and cannot accommodate the modelled volumes under its existing single-left configuration. With traffic volumes expected to be high on all four approaches, a large number of movements are identified as being critical as they compete for available green-time.
- With the west station access located off Steeles Avenue opposite Steinway Boulevard, this intersection is now modelled as a full-moves signalized intersection as opposed to its existing unsignalized configuration. The intersection operates at LOS D during both peak hours. None of the critical movements identified at this intersection are affected by added Transitway traffic.

Two accesses to the park-and-ride lot are proposed: a signalized access located on Highway 27 west side and a right-in/right-out access on Highway 27 east side. The below Exhibit 4-5 indicates that the west access will operate satisfactorily and the east access will operate well under this proposed configuration. Note that at the signalized west access, the SBL movement was modelled as having dual-left turn lanes in order to better accommodate outbound traffic volumes and queuing.

Exhibit 4-5: Station Access Operations Summary (8-station structure)

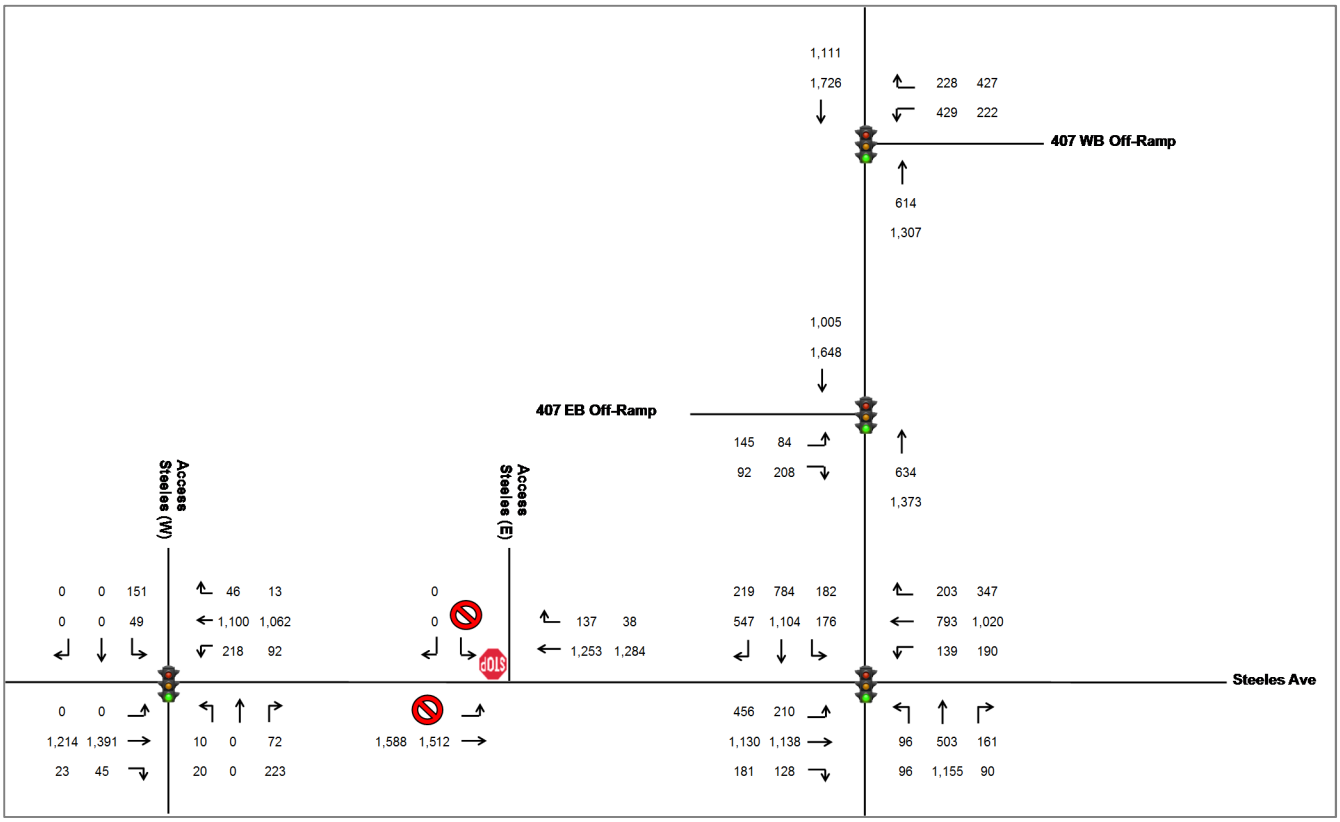
ACCESS	AM PEAK					PM PEAK				
	LOS	Inbound/Outbound Movement				LOS	Inbound/Outbound Movement			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Highway 27 west access (signalized)	D	EBL (in)	A	0.00	0.0	D	EBL (in)	A	0.00	0.0
		WBR (in)	A	0.05	0.0		WBR (in)	A	0.01	0.0
		SBL (out)	E	0.34	12.3		SBL (out)	E	0.53	28.7
		SBTR (out)	A	0.00	0.0		SBTR (out)	A	0.00	0.0
Highway 27 east access (right-in/right-out)	A	WBR (in)	A	0.07	0.0	A	WBR (in)	A	0.02	0.0
		SBR (out)	A	0.00	0.0		SBR (out)	A	0.00	0.0

As shown in the table above, Highway 27 SBL movement for the west access operates at capacity with LOS E for both peaks. This is due to minimal gaps from opposing traffic movements and minimal green time for the left turn phase. This was expected to be insignificant due to minimal site traffic leaving this station. However, Highway 27 east access is expected to operate well during both a.m. peak and p.m. peak hour.

Sensitivity Analysis (7-station structure)

In this scenario, it is assumed that the nearby Martin Grove Station is not implemented, and therefore additional demands shift to Highway 27 Station. Future total volumes, which include background growth in addition to the traffic generated by Highway 27 Station (7-station structure), are illustrated in Exhibit 4-6.

Exhibit 4-6: Future Total Volumes in AM (PM) Peak Hours (7-station structure)



A summary of critical movements identified during the future total conditions analysis is provided in Exhibit 4-7, with a detailed output of the Synchro analysis provided in the Appendix.

Exhibit 4-7: Future Total Critical Movements Summary (7-station structure)

INTERSECTION	AM PEAK					PM PEAK				
	LOS	Critical Movements				LOS	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Highway 27 & 407 WB Off-Ramp	C	WBL	E	0.81	80.1	B	WBL	E	0.74	66.2
							WBR	E	0.72	75.7
Highway 27 & 407 EB Off-Ramp	B	EBL	E	0.54	32.5	A	EBL	E	0.55	32.5
		EBR	E	0.57	41.6					
Highway 27 & Steeles Ave W	E	EBL	F	0.99	66.4	F	EBL	F	1.48	228.6
		EBT	F	1.01	182.3		EBT	D	0.99	198.5
		EBR	F	0.10	16.2		WBL	F	1.03	91.4
		WBL	F	1.05	71.1		WBT	F	1.10	199.7
		WBT	E	0.89	145.5		WBR	D	0.59	84.1
		NBL	E	0.87	44.8		NBT	F	1.09	220.6
		SBT	E	0.94	205.8		SBL	F	1.35	100.7
		SBR	E	0.82	168.3					
Steeles Ave W & Steinway Blvd	D	EBT	D	0.98	249.8	D	EBT	D	0.85	175.7
		WBL	F	0.96	68.3		SBL	E	0.57	32.8
		SBL	E	0.47	13.8					

With Highway 27 demands (7-station structure) added to future background growth conditions, the study intersections operate as follows:

- Additional NBT and SBT traffic is added to the Highway 407 off-ramp intersections, however they continue to operate sufficiently during both peak hours. No significant queuing is observed.
- A greater amount of site traffic is added to Highway 27 & Steeles Avenue with the 7-station Transitway structure, and these movements further deteriorate as a result. In the a.m. peak, SBR queuing now reaches the upstream Highway 407 eastbound off-ramp, and thus presents a risk of backups occurring along the off-ramp facility. In the p.m. peak, even more traffic is added to the EBL movement and volumes cannot be accommodated under its existing single-left configuration. With traffic volumes expected to be high on all four approaches, a large number of movements are identified as being critical as they compete for available green-time.
- With the west station access located off Steeles Avenue opposite Steinway Boulevard, this intersection is now modelled as a full-moves signalized intersection as opposed to its existing unsignalized configuration. None of the critical movements identified at this intersection are affected by added Transitway traffic, and so the additional site traffic has little effect on operations at this intersection.

The same two accesses are proposed for this sensitivity analysis scenario, and the below Exhibit 4-8 indicates that the west access will continue to operate satisfactorily and the east access will operate well under this proposed configuration. Note that the outbound SBL movement was still modeled as having dual-left turn lanes.

Exhibit 4-8: Station Access Operations Summary (7-station structure)

ACCESS	AM PEAK					PM PEAK				
	LOS	Inbound/Outbound Movement				LOS	Inbound/Outbound Movement			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Highway 27 west access (signalized)	D	EBL (in)	A	0.00	0.0	D	EBL (in)	A	0.00	0.0
		WBR (in)	A	0.03	0.0		WBR (in)	B	0.01	0.0
		SBL (out)	E	0.47	13.8		SBL (out)	E	0.57	32.8
		SBTR (out)	A	0.00	0.0		SBTR (out)	A	0.00	0.0
Highway 27 east access (right-in/right-out)	A	WBR (in)	A	0.09	0.0	A	WBR (in)	A	0.02	0.0
		SBR (out)	A	0.00	0.0		SBR (out)	A	0.00	0.0

As shown in the table above, Highway 27 SBL movement remains at LOS E for the west access. No significant amount of site traffic will create operation problems at this location. Highway 27 east access is expected to operate well during both a.m. peak and p.m. peak hour.

4.3 Future Model Calibration

The Future Synchro models were calibrated to better reflect measured field conditions accomplished by adjusting either the Lane Utilization Factor (LUF) or Lost Time Adjustment (LTA) for certain movements.

Adjustments made to the existing traffic models are outlined in Exhibit 4-9.

Exhibit 4-9: Future Background Model Calibration Parameters

PERIOD	INTERSECTION	MOVEMENT	ADJUSTED PARAMETER	ADJUSTMENT VALUE
AM Peak	Highway 27 & Steeles	EBT	LUF	1.0
PM Peak	Highway 27 & Steeles	EBL	LTA	- 1 sec
		EBT	LUF	1.0
		NBT	LUF	1.0
		SBL	LTA	- 1 sec
		WBT	LUF	1.0

These adjustments were applied using the methodologies outlined in Section 1.5.

5 Potential Improvement Measures

5.1 Highway 27 & Steeles Avenue

The below improvement measures were analyzed in Synchro given the 8-station scenario, with results presented in Exhibit 5-1:

- Dual EBL and WBL lanes; and,
- Dual SBL lanes.

Exhibit 5-1: Analysis of Improvements to Highway 27 & Steeles Avenue (8-station structure)

INTERSECTION	AM PEAK					PM PEAK				
	Avg. v/c Ratio	Critical Movements				Avg. v/c Ratio	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Highway 27 & Steeles Ave (existing configuration)	1.02	EBL	E	0.93	63.2	1.47	EBL	F	1.47	218.1
		EBT	F	0.99	177.9		EBT	D	0.99	197.7
		EBR	F	0.10	15.9		EBR	B	0.22	12.0
		WBL	F	1.05	71.3		WBL	F	1.10	94.8
		WBT	D	0.88	145.5		WBT	F	1.09	199.5
		WBR	C	0.15	17.8		WBR	D	0.59	84.1
		NBL	E	0.86	42.8		NBL	C	0.58	27.1
		NBT	D	0.57	81.9		NBT	F	1.09	220.6
		NBR	C	0.13	7.4		NBR	C	0.07	-
		SBL	D	0.56	62.7		SBL	F	1.24	97.2
		SBT	E	0.96	208.8		SBT	D	0.73	115.7
		SBR	E	0.76	149.8		SBR	D	0.17	17.9
Highway 27 & Steeles Ave (with improvements)	1.00	EBL	D	0.81	33.0	1.07	EBL	F	1.08	105.6
		EBT	F	0.99	177.9		EBT	D	0.99	197.7
		EBR	F	0.10	15.9		EBR	B	0.22	13.5
		WBL	F	0.87	39.3		WBL	F	0.96	52.2
		WBT	D	0.80	131.1		WBT	F	1.09	199.5
		WBR	C	0.18	22.3		WBR	D	0.59	84.1
		NBL	E	0.86	43.3		NBL	C	0.51	26.4
		NBT	D	0.54	80.1		NBT	F	1.06	216.8
		NBR	C	0.14	17.2		NBR	C	0.07	-
		SBL	E	0.67	36.9		SBL	F	0.98	52.0
		SBT	E	0.96	208.8		SBT	D	0.73	115.3
		SBR	E	0.83	168.7		SBR	D	0.17	17.7

The following was observed:

- Implementing dual EBL, WBL and WBL lanes greatly improves operations, and results in significantly shorter queuing.
- The average v/c ratio is greatly reduced in both peak hours.

Implementing dual EBL, WBL, and SBL lanes would greatly improve operations at this intersection, however would present major hydro conflicts given the presence of hydro corridors along the north, south and east boulevards.

The EBL movement is directly affected by site traffic, and so the dual EBL improvement – along with the opposing dual WBL – should be implemented during construction of the Transitway. Dual SBL lanes can be considered, however further analysis of impacts is required.

Sensitivity Analysis (7-station structure)

The same observations are observed when analyzing these improvements under the 7-station scenario, notwithstanding a minor worsening of overall intersection operations due to the additional site traffic accessing this station. Results of this analysis are presented in Exhibit 5-2.

Exhibit 5-2: Analysis of Improvements to Highway 27 & Steeles Avenue (7-station structure)

INTERSECTION	AM PEAK					PM PEAK				
	Avg. v/c Ratio	Critical Movements				Avg. v/c Ratio	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Highway 27 & Steeles Ave (existing configuration)	1.02	EBL	F	0.99	66.4	1.51	EBL	F	1.48	228.6
		EBT	F	1.01	182.3		EBT	D	0.99	198.5
		EBR	F	0.10	16.2		EBR	B	0.23	13.0
		WBL	F	1.05	71.1		WBL	F	1.03	91.4
		WBT	E	0.89	145.5		WBT	F	1.10	199.7
		WBR	C	0.15	17.8		WBR	D	0.59	84.1
		NBL	E	0.87	44.8		NBL	D	0.59	27.7
		NBT	D	0.54	79.2		NBT	F	1.09	220.6
		NBR	C	0.13	7.1		NBR	C	0.07	-
		SBL	C	0.56	62.3		SBL	F	1.35	100.7
		SBT	E	0.94	205.8		SBT	D	0.76	118.8
		SBR	E	0.82	168.3		SBR	D	0.18	19.7
Highway 27 & Steeles Ave (with improvements)	1.00	EBL	D	0.83	33.7	1.08	EBL	F	1.06	109.1
		EBT	F	0.99	177.9		EBT	D	0.97	194.7
		EBR	F	0.10	16.2		EBR	B	0.23	13.8
		WBL	F	0.87	39.3		WBL	F	0.96	52.2
		WBT	D	0.81	131.1		WBT	F	1.10	199.7
		WBR	C	0.18	22.3		WBR	D	0.59	84.1
		NBL	E	0.86	45.4		NBL	C	0.53	26.9
		NBT	D	0.55	81.0		NBT	F	1.09	220.6
		NBR	C	0.14	17.4		NBR	C	0.07	-
		SBL	D	0.63	36.4		SBL	F	0.98	52.5
		SBT	E	0.96	209.6		SBT	D	0.75	117.8
		SBR	E	0.88	183.8		SBR	D	0.18	19

6 Summary and Recommendations

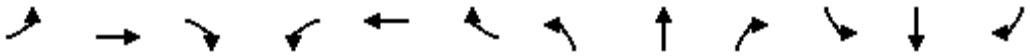
This report provides an analysis of traffic operations for the proposed Highway 407 Transitway station located on Highway 27. Future conditions during the a.m. and p.m. peak hours were modelled and analyzed based on a horizon year of 2031. The study included analysis of 8-station operations along the transitway and 7-station operations, without Martin Grove Road station, to account for a potential shift in parking demand and traffic to the subject Highway 27 station.

The study indicates that future 2031 background traffic operations have several movements nearing or at capacity at Highway 27 & 407 WB Off-Ramp, at Highway 27 & 407 EB Off-Ramp, at Highway 27 & Steeles Avenue West, and at Steeles Ave W & Steinway Blvd.

Site traffic for this station is generally originating from / destined to the north. Inbound traffic travels through Highway 27 and turns onto Steeles Avenue mainly accessing the Highway 27 east access. Majority of the inbound traffic there does not travel through the congested signalized Steeles Avenue W and Steinway Boulevard. Exiting traffic for the east access is not permitted to make a left turn directly onto Steeles Avenue, and instead travels to Steeles Ave W and Steinway Boulevard impacting SBL movements and the already critical EBL movement at Highway 27 and Steeles Avenue.

At intersection Highway 27 and Steeles Avenue, it is recommended that dual EBL improvement along with opposing dual WBL should be implemented during the construction of the Transitway to address this deficiency. It is also recommended that dual SBL lanes be considered, however further analysis of impacts is required.

Appendix A – Existing (2017) Conditions Synchro Output

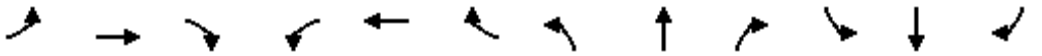


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	173	1151	124	141	795	205	75	510	163	178	1120	400
v/c Ratio	0.70	0.99	0.21	0.73	0.69	0.31	0.96	0.49	0.31	0.59	0.78	0.51
Control Delay	36.4	67.0	5.0	49.0	39.5	5.1	137.7	38.0	6.3	32.2	36.9	10.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
Total Delay	36.4	67.0	5.0	49.0	39.5	5.1	137.7	38.0	6.3	32.2	37.2	10.9
Queue Length 50th (m)	25.1	~159.6	0.0	20.7	91.4	0.0	18.8	55.6	0.0	31.4	143.7	27.6
Queue Length 95th (m)	#41.4	#205.6	11.3	#47.8	114.1	16.0	#51.0	72.6	15.7	40.6	110.0	31.6
Internal Link Dist (m)		455.0			354.7			410.1			178.2	
Turn Bay Length (m)	126.0		60.0	115.0		67.0	67.0		94.0	138.0		115.0
Base Capacity (vph)	253	1160	582	207	1155	654	78	1036	531	303	1443	786
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	58	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.99	0.21	0.68	0.69	0.31	0.96	0.49	0.31	0.59	0.81	0.51

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	159	1059	114	130	731	189	69	469	150	164	1030	368
Future Volume (vph)	159	1059	114	130	731	189	69	469	150	164	1030	368
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0	7.0	6.0	5.0	5.0	7.0	7.0	7.0	6.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1560	3349	1428	1674	3230	1461	1585	3288	1332	1705	3476	1507
Flt Permitted	0.19	1.00	1.00	0.09	1.00	1.00	0.15	1.00	1.00	0.32	1.00	1.00
Satd. Flow (perm)	309	3349	1428	152	3230	1461	248	3288	1332	574	3476	1507
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)	173	1151	124	141	795	205	75	510	163	178	1120	400
RTOR Reduction (vph)	0	0	81	0	0	132	0	0	112	0	0	161
Lane Group Flow (vph)	173	1151	43	141	795	73	75	510	51	178	1120	239
Confl. Peds. (#/hr)	4		8	8		4	9		1	1		9
Heavy Vehicles (%)	17%	9%	12%	9%	13%	10%	15%	11%	21%	7%	5%	6%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	56.6	45.1	45.1	57.4	46.5	46.5	41.0	41.0	41.0	54.0	54.0	54.0
Effective Green, g (s)	56.6	45.1	45.1	57.4	46.5	46.5	41.0	41.0	41.0	54.0	54.0	54.0
Actuated g/C Ratio	0.44	0.35	0.35	0.44	0.36	0.36	0.32	0.32	0.32	0.42	0.42	0.42
Clearance Time (s)	6.0	7.0	7.0	6.0	5.0	5.0	7.0	7.0	7.0	6.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	245	1161	495	194	1155	522	78	1036	420	299	1443	625
v/s Ratio Prot	c0.06	c0.34		0.06	0.25			0.16		0.03	c0.32	
v/s Ratio Perm	0.24		0.03	0.26		0.05	c0.30		0.04	0.21		0.16
v/c Ratio	0.71	0.99	0.09	0.73	0.69	0.14	0.96	0.49	0.12	0.60	0.78	0.38
Uniform Delay, d1	25.7	42.3	28.6	28.3	35.6	28.2	43.7	36.1	31.7	28.3	32.8	26.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.96	1.00	1.05
Incremental Delay, d2	8.9	24.4	0.3	12.7	3.4	0.6	91.6	1.7	0.6	2.8	3.6	1.5
Delay (s)	34.6	66.7	28.9	41.1	38.9	28.8	135.4	37.7	32.3	30.0	36.4	29.4
Level of Service	C	E	C	D	D	C	F	D	C	C	D	C
Approach Delay (s)		59.6			37.4			46.3			34.1	
Approach LOS		E			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	44.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	120.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	461	206	582	1596
v/c Ratio	0.76	0.50	0.25	0.65
Control Delay	58.1	10.1	6.0	12.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	58.1	10.1	6.0	12.1
Queue Length 50th (m)	57.9	0.0	18.4	101.8
Queue Length 95th (m)	71.7	21.9	24.7	146.7
Internal Link Dist (m)	450.2		288.7	55.2
Turn Bay Length (m)		168.0		
Base Capacity (vph)	982	533	2340	2474
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	0.39	0.25	0.65

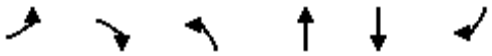
Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	400	213	535	0	0	1468
Future Volume (vph)	400	213	535	0	0	1468
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0			7.0
Lane Util. Factor	0.97	0.91	0.95			0.95
Frt	0.99	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3348	1327	3288			3476
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3348	1327	3288			3476
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	435	232	582	0	0	1596
RTOR Reduction (vph)	4	169	0	0	0	0
Lane Group Flow (vph)	457	37	582	0	0	1596
Heavy Vehicles (%)	5%	12%	11%	0%	0%	5%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	23.4	23.4	92.6			92.6
Effective Green, g (s)	23.4	23.4	92.6			92.6
Actuated g/C Ratio	0.18	0.18	0.71			0.71
Clearance Time (s)	7.0	7.0	7.0			7.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	602	238	2342			2475
v/s Ratio Prot	c0.14		0.18			c0.46
v/s Ratio Perm		0.03				
v/c Ratio	0.76	0.16	0.25			0.64
Uniform Delay, d1	50.6	45.0	6.5			10.0
Progression Factor	1.00	1.00	0.82			1.00
Incremental Delay, d2	5.5	0.3	0.3			1.3
Delay (s)	56.1	45.3	5.6			11.3
Level of Service	E	D	A			B
Approach Delay (s)	52.7		5.6			11.3
Approach LOS	D		A			B

Intersection Summary			
HCM 2000 Control Delay	19.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	191	105	602	1516
v/c Ratio	0.57	0.61	0.23	0.55
Control Delay	50.9	51.3	1.7	5.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	50.9	51.3	1.7	5.5
Queue Length 50th (m)	19.8	18.9	6.2	41.0
Queue Length 95th (m)	30.5	38.3	11.6	98.7
Internal Link Dist (m)	638.4		178.2	288.7
Turn Bay Length (m)		150.0		
Base Capacity (vph)	895	420	2573	2744
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	0.21	0.25	0.23	0.55

Intersection Summary



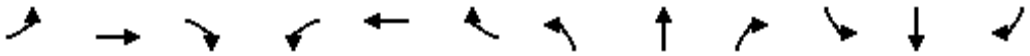
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	78	194	0	554	1395	0
Future Volume (vph)	78	194	0	554	1395	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	
Lane Util. Factor	0.97	0.91		0.95	0.95	
Frt	0.92	0.85		1.00	1.00	
Flt Protected	0.98	1.00		1.00	1.00	
Satd. Flow (prot)	2978	1351		3259	3476	
Flt Permitted	0.98	1.00		1.00	1.00	
Satd. Flow (perm)	2978	1351		3259	3476	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	85	211	0	602	1516	0
RTOR Reduction (vph)	32	32	0	0	0	0
Lane Group Flow (vph)	159	73	0	602	1516	0
Heavy Vehicles (%)	15%	10%	0%	12%	5%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	13.4	13.4		102.6	102.6	
Effective Green, g (s)	13.4	13.4		102.6	102.6	
Actuated g/C Ratio	0.10	0.10		0.79	0.79	
Clearance Time (s)	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	306	139		2572	2743	
v/s Ratio Prot	0.05			0.18	c0.44	
v/s Ratio Perm		c0.05				
v/c Ratio	0.52	0.52		0.23	0.55	
Uniform Delay, d1	55.2	55.3		3.5	5.1	
Progression Factor	1.00	1.00		0.39	0.88	
Incremental Delay, d2	1.5	3.5		0.2	0.6	
Delay (s)	56.7	58.8		1.6	5.2	
Level of Service	E	E		A	A	
Approach Delay (s)	57.5			1.6	5.2	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1297	42	203	1026	9	67
Future Volume (Veh/h)	1297	42	203	1026	9	67
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)	1410	46	221	1115	10	73
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1456		2410	705
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1456		2410	705
tC, single (s)			4.3		7.7	7.3
tC, 2 stage (s)						
tF (s)			2.3		3.9	3.5
p0 queue free %			49		0	79
cM capacity (veh/h)			432		7	340

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	705	705	46	221	558	558	83
Volume Left	0	0	0	221	0	0	10
Volume Right	0	0	46	0	0	0	73
cSH	1700	1700	1700	432	1700	1700	53
Volume to Capacity	0.41	0.41	0.03	0.51	0.33	0.33	1.56
Queue Length 95th (m)	0.0	0.0	0.0	21.6	0.0	0.0	58.9
Control Delay (s)	0.0	0.0	0.0	21.8	0.0	0.0	451.9
Lane LOS				C			F
Approach Delay (s)	0.0			3.6			451.9
Approach LOS							F

Intersection Summary			
Average Delay	14.7		
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		

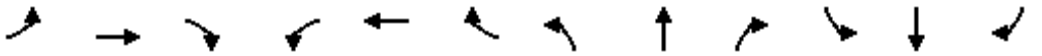


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	335	1137	165	192	1030	352	91	1171	91	185	795	179
v/c Ratio	1.18	0.97	0.29	0.82	0.97	0.61	0.49	1.04	0.17	1.15	0.75	0.33
Control Delay	145.4	63.1	9.8	58.3	64.5	26.8	33.4	81.8	2.2	151.2	51.9	13.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	145.4	63.1	9.8	58.3	64.5	26.8	33.4	81.8	2.2	151.2	51.9	13.9
Queue Length 50th (m)	~88.2	~146.7	5.6	33.0	136.7	45.4	14.2	~161.8	0.0	~41.4	104.0	4.9
Queue Length 95th (m)	#147.1	#191.5	22.0	#67.9	#180.4	78.0	25.6	#201.4	4.2	#88.4	131.2	22.7
Internal Link Dist (m)		455.0			354.7			410.1			178.2	
Turn Bay Length (m)	126.0		60.0	115.0		67.0	67.0		94.0	138.0		115.0
Base Capacity (vph)	284	1174	575	252	1066	581	186	1125	531	161	1061	535
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.18	0.97	0.29	0.76	0.97	0.61	0.49	1.04	0.17	1.15	0.75	0.33

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	308	1046	152	177	948	324	84	1077	84	170	731	165
Future Volume (vph)	308	1046	152	177	948	324	84	1077	84	170	731	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.0	7.0	6.0	7.0	7.0	6.0	7.0	7.0	5.0	7.0	7.0
Lane Util. Factor	1.00	*1.00	1.00	1.00	0.95	1.00	1.00	*1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1738	3591	1484	1615	3380	1535	1674	3659	1425	1706	3444	1336
Flt Permitted	0.09	1.00	1.00	0.10	1.00	1.00	0.17	1.00	1.00	0.10	1.00	1.00
Satd. Flow (perm)	168	3591	1484	166	3380	1535	307	3659	1425	175	3444	1336
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)	335	1137	165	192	1030	352	91	1171	91	185	795	179
RTOR Reduction (vph)	0	0	90	0	0	97	0	0	63	0	0	124
Lane Group Flow (vph)	335	1137	75	192	1030	255	91	1171	28	185	795	55
Confl. Peds. (#/hr)	1		6	6		1	6		2	2		6
Heavy Vehicles (%)	5%	7%	8%	13%	8%	5%	9%	5%	13%	7%	6%	20%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	58.5	42.5	42.5	55.5	41.0	41.0	46.9	40.0	40.0	47.1	40.1	40.1
Effective Green, g (s)	60.5	42.5	42.5	55.5	41.0	41.0	46.9	40.0	40.0	49.1	40.1	40.1
Actuated g/C Ratio	0.47	0.33	0.33	0.43	0.32	0.32	0.36	0.31	0.31	0.38	0.31	0.31
Clearance Time (s)	6.0	7.0	7.0	6.0	7.0	7.0	6.0	7.0	7.0	6.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	283	1173	485	232	1066	484	183	1125	438	160	1062	412
v/s Ratio Prot	c0.15	0.32		0.09	0.30		0.03	0.32		c0.07	0.23	
v/s Ratio Perm	c0.39		0.05	0.26		0.17	0.15		0.02	c0.37		0.04
v/c Ratio	1.18	0.97	0.15	0.83	0.97	0.53	0.50	1.04	0.06	1.16	0.75	0.13
Uniform Delay, d1	39.9	43.1	31.0	33.1	43.8	36.5	29.9	45.0	31.8	34.6	40.4	32.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.41	1.15	2.59
Incremental Delay, d2	112.7	19.9	0.7	20.9	20.5	4.1	2.1	38.1	0.3	118.2	4.7	0.7
Delay (s)	152.6	63.0	31.7	54.0	64.4	40.6	32.0	83.1	32.1	167.1	51.4	84.8
Level of Service	F	E	C	D	E	D	C	F	C	F	D	F
Approach Delay (s)		78.2			57.8			76.2			75.0	
Approach LOS		E			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	71.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.23		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	107.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	442	216	1197	1084
v/c Ratio	0.76	0.72	0.47	0.43
Control Delay	50.8	45.7	5.3	8.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	50.8	45.7	5.3	8.2
Queue Length 50th (m)	47.0	37.8	40.6	50.6
Queue Length 95th (m)	60.4	63.8	43.1	78.3
Internal Link Dist (m)	450.2		288.7	171.7
Turn Bay Length (m)		168.0		
Base Capacity (vph)	968	472	2549	2549
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	0.46	0.46	0.47	0.43

Intersection Summary

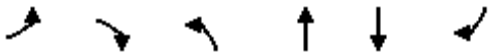
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	207	398	1101	0	0	997
Future Volume (vph)	207	398	1101	0	0	997
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0			7.0
Lane Util. Factor	0.97	0.91	0.95			0.95
Frt	0.93	0.85	1.00			1.00
Flt Protected	0.98	1.00	1.00			1.00
Satd. Flow (prot)	3130	1429	3510			3510
Flt Permitted	0.98	1.00	1.00			1.00
Satd. Flow (perm)	3130	1429	3510			3510
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	225	433	1197	0	0	1084
RTOR Reduction (vph)	64	64	0	0	0	0
Lane Group Flow (vph)	378	152	1197	0	0	1084
Heavy Vehicles (%)	11%	4%	4%	0%	0%	4%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	21.6	21.6	94.4			94.4
Effective Green, g (s)	21.6	21.6	94.4			94.4
Actuated g/C Ratio	0.17	0.17	0.73			0.73
Clearance Time (s)	7.0	7.0	7.0			7.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	520	237	2548			2548
v/s Ratio Prot	c0.12		c0.34			0.31
v/s Ratio Perm		0.11				
v/c Ratio	0.73	0.64	0.47			0.43
Uniform Delay, d1	51.4	50.6	7.4			7.1
Progression Factor	1.00	1.00	0.59			1.00
Incremental Delay, d2	5.0	5.8	0.6			0.5
Delay (s)	56.4	56.4	4.9			7.6
Level of Service	E	E	A			A
Approach Delay (s)	56.4		4.9			7.6
Approach LOS	E		A			A

Intersection Summary			
HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	166	74	1264	976
v/c Ratio	0.54	0.40	0.45	0.35
Control Delay	58.9	18.1	1.9	3.1
Queue Delay	0.0	0.0	0.4	0.0
Total Delay	58.9	18.1	2.3	3.1
Queue Length 50th (m)	19.8	0.0	15.1	21.9
Queue Length 95th (m)	30.6	15.6	m22.3	25.1
Internal Link Dist (m)	638.4		178.2	288.7
Turn Bay Length (m)		150.0		
Base Capacity (vph)	949	426	2779	2754
Starvation Cap Reductn	0	0	901	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.17	0.17	0.67	0.35

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	135	86	0	1163	898	0
Future Volume (vph)	135	86	0	1163	898	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	
Lane Util. Factor	0.97	0.91		0.95	0.95	
Frt	0.98	0.85		1.00	1.00	
Flt Protected	0.96	1.00		1.00	1.00	
Satd. Flow (prot)	3221	1281		3476	3444	
Flt Permitted	0.96	1.00		1.00	1.00	
Satd. Flow (perm)	3221	1281		3476	3444	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	147	93	0	1264	976	0
RTOR Reduction (vph)	10	67	0	0	0	0
Lane Group Flow (vph)	156	7	0	1264	976	0
Heavy Vehicles (%)	8%	16%	0%	5%	6%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	12.0	12.0		104.0	104.0	
Effective Green, g (s)	12.0	12.0		104.0	104.0	
Actuated g/C Ratio	0.09	0.09		0.80	0.80	
Clearance Time (s)	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	297	118		2780	2755	
v/s Ratio Prot	c0.05			c0.36	0.28	
v/s Ratio Perm		0.01				
v/c Ratio	0.53	0.06		0.45	0.35	
Uniform Delay, d1	56.3	53.8		4.1	3.6	
Progression Factor	1.00	1.00		0.40	0.73	
Incremental Delay, d2	1.7	0.2		0.1	0.3	
Delay (s)	58.0	54.0		1.8	3.0	
Level of Service	E	D		A	A	
Approach Delay (s)	56.8			1.8	3.0	
Approach LOS	E			A	A	

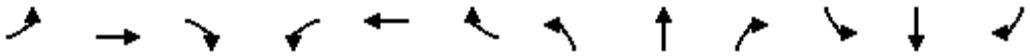
Intersection Summary			
HCM 2000 Control Delay	7.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1132	21	86	990	19	208
Future Volume (Veh/h)	1132	21	86	990	19	208
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)	1230	23	93	1076	21	226
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1253		1954	615
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1253		1954	615
tC, single (s)			4.5		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.4		3.5	3.4
p0 queue free %			80		51	46
cM capacity (veh/h)			458		43	422

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	615	615	23	93	538	538	247
Volume Left	0	0	0	93	0	0	21
Volume Right	0	0	23	0	0	0	226
cSH	1700	1700	1700	458	1700	1700	241
Volume to Capacity	0.36	0.36	0.01	0.20	0.32	0.32	1.02
Queue Length 95th (m)	0.0	0.0	0.0	5.7	0.0	0.0	75.8
Control Delay (s)	0.0	0.0	0.0	14.9	0.0	0.0	108.1
Lane LOS				B			F
Approach Delay (s)	0.0			1.2			108.1
Approach LOS							F

Intersection Summary			
Average Delay	10.5		
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		

Appendix B – Future (2031) Background Conditions Synchro Output

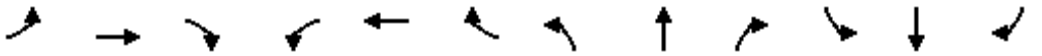


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	185	1235	133	151	852	221	80	547	175	191	1200	192
v/c Ratio	0.84	0.99	0.22	1.06	0.81	0.36	0.70	0.53	0.32	0.58	0.94	0.29
Control Delay	55.8	65.1	2.4	122.3	47.5	7.8	53.8	38.8	6.3	24.7	47.1	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.8	65.1	2.4	122.3	47.5	7.8	53.8	38.8	6.3	24.7	47.1	4.3
Queue Length 50th (m)	28.4	156.6	0.0	~27.7	105.5	4.1	11.5	60.5	0.0	28.4	147.7	6.4
Queue Length 95th (m)	#66.7	#202.6	6.4	#71.2	130.9	22.7	#28.9	78.2	16.1	42.0	#199.1	11.9
Internal Link Dist (m)		455.0			354.7			410.1			178.2	
Turn Bay Length (m)	126.0		60.0	115.0		67.0	67.0		94.0	138.0		115.0
Base Capacity (vph)	225	1247	616	142	1050	609	115	1037	539	327	1270	672
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.99	0.22	1.06	0.81	0.36	0.70	0.53	0.32	0.58	0.94	0.29

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	170	1136	122	139	784	203	74	503	161	176	1104	177
Future Volume (vph)	170	1136	122	139	784	203	74	503	161	176	1104	177
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0	7.0	6.0	5.0	5.0	4.5	7.0	7.0	6.0	7.0	7.0
Lane Util. Factor	1.00	*1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1560	3525	1428	1674	3230	1461	1587	3288	1332	1705	3476	1507
Flt Permitted	0.12	1.00	1.00	0.09	1.00	1.00	0.10	1.00	1.00	0.30	1.00	1.00
Satd. Flow (perm)	192	3525	1428	167	3230	1461	163	3288	1332	531	3476	1507
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)	185	1235	133	151	852	221	80	547	175	191	1200	192
RTOR Reduction (vph)	0	0	86	0	0	134	0	0	120	0	0	122
Lane Group Flow (vph)	185	1235	47	151	852	87	80	547	55	191	1200	70
Confl. Peds. (#/hr)	4		8	8		4	9		1	1		9
Heavy Vehicles (%)	17%	9%	12%	9%	13%	10%	15%	11%	21%	7%	5%	6%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	58.7	46.0	46.0	49.3	42.3	42.3	46.0	41.0	41.0	57.0	47.5	47.5
Effective Green, g (s)	58.7	46.0	46.0	49.3	42.3	42.3	46.0	41.0	41.0	57.0	47.5	47.5
Actuated g/C Ratio	0.45	0.35	0.35	0.38	0.33	0.33	0.35	0.32	0.32	0.44	0.37	0.37
Clearance Time (s)	6.0	7.0	7.0	6.0	5.0	5.0	4.5	7.0	7.0	6.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	220	1247	505	144	1050	475	112	1036	420	323	1270	550
v/s Ratio Prot	c0.08	c0.35		0.06	0.26		0.03	0.17		c0.05	c0.35	
v/s Ratio Perm	0.30		0.03	c0.34		0.06	0.22		0.04	0.21		0.05
v/c Ratio	0.84	0.99	0.09	1.05	0.81	0.18	0.71	0.53	0.13	0.59	0.94	0.13
Uniform Delay, d1	27.4	41.8	28.1	34.2	40.2	31.5	32.8	36.6	31.8	24.4	40.0	27.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.79	0.84	0.91
Incremental Delay, d2	24.1	23.3	0.4	88.5	6.8	0.9	19.3	1.9	0.6	2.4	13.2	0.4
Delay (s)	51.4	65.1	28.4	122.7	47.0	32.3	52.1	38.5	32.4	21.7	46.6	25.3
Level of Service	D	E	C	F	D	C	D	D	C	C	D	C
Approach Delay (s)		60.3			53.7			38.5			41.0	
Approach LOS		E			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	49.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	100.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	493	221	624	1711
v/c Ratio	0.79	0.52	0.27	0.70
Control Delay	59.7	10.0	9.2	13.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	59.7	10.0	9.2	13.4
Queue Length 50th (m)	61.7	0.0	29.5	123.6
Queue Length 95th (m)	78.5	23.4	42.6	160.6
Internal Link Dist (m)	450.2		288.7	55.2
Turn Bay Length (m)		168.0		
Base Capacity (vph)	724	459	2324	2457
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	0.68	0.48	0.27	0.70

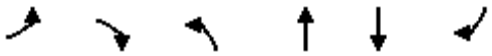
Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	429	228	574	0	0	1574
Future Volume (vph)	429	228	574	0	0	1574
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0			7.0
Lane Util. Factor	0.97	0.91	0.95			0.95
Frt	0.99	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3349	1327	3288			3476
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3349	1327	3288			3476
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	466	248	624	0	0	1711
RTOR Reduction (vph)	3	180	0	0	0	0
Lane Group Flow (vph)	490	41	624	0	0	1711
Heavy Vehicles (%)	5%	12%	11%	0%	0%	5%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	24.1	24.1	91.9			91.9
Effective Green, g (s)	24.1	24.1	91.9			91.9
Actuated g/C Ratio	0.19	0.19	0.71			0.71
Clearance Time (s)	7.0	7.0	7.0			7.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	620	246	2324			2457
v/s Ratio Prot	c0.15		0.19			c0.49
v/s Ratio Perm		0.03				
v/c Ratio	0.79	0.17	0.27			0.70
Uniform Delay, d1	50.5	44.5	6.9			11.0
Progression Factor	1.00	1.00	1.22			1.00
Incremental Delay, d2	6.6	0.3	0.3			1.7
Delay (s)	57.2	44.8	8.7			12.7
Level of Service	E	D	A			B
Approach Delay (s)	53.4		8.7			12.7
Approach LOS	D		A			B

Intersection Summary			
HCM 2000 Control Delay	21.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	204	113	646	1626
v/c Ratio	0.59	0.63	0.25	0.59
Control Delay	49.5	48.7	3.5	4.3
Queue Delay	0.0	0.0	0.0	0.1
Total Delay	49.5	48.7	3.5	4.3
Queue Length 50th (m)	20.4	18.5	17.1	32.0
Queue Length 95th (m)	31.3	38.7	26.6	70.2
Internal Link Dist (m)	638.4		178.2	288.7
Turn Bay Length (m)		150.0		
Base Capacity (vph)	654	316	2570	2741
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	1	0	122
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.31	0.36	0.25	0.62

Intersection Summary



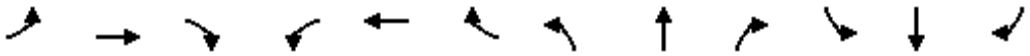
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	84	208	0	594	1496	0
Future Volume (vph)	84	208	0	594	1496	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	
Lane Util. Factor	0.97	0.91		0.95	0.95	
Frt	0.92	0.85		1.00	1.00	
Flt Protected	0.98	1.00		1.00	1.00	
Satd. Flow (prot)	2978	1351		3259	3476	
Flt Permitted	0.98	1.00		1.00	1.00	
Satd. Flow (perm)	2978	1351		3259	3476	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	91	226	0	646	1626	0
RTOR Reduction (vph)	40	40	0	0	0	0
Lane Group Flow (vph)	164	73	0	646	1626	0
Heavy Vehicles (%)	15%	10%	0%	12%	5%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	13.5	13.5		102.5	102.5	
Effective Green, g (s)	13.5	13.5		102.5	102.5	
Actuated g/C Ratio	0.10	0.10		0.79	0.79	
Clearance Time (s)	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	309	140		2569	2740	
v/s Ratio Prot	c0.05			0.20	c0.47	
v/s Ratio Perm		0.05				
v/c Ratio	0.53	0.52		0.25	0.59	
Uniform Delay, d1	55.2	55.2		3.6	5.5	
Progression Factor	1.00	1.00		0.84	0.61	
Incremental Delay, d2	1.6	3.2		0.2	0.7	
Delay (s)	56.9	58.4		3.2	4.0	
Level of Service	E	E		A	A	
Approach Delay (s)	57.4			3.2	4.0	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1391	45	218	1100	10	72
Future Volume (Veh/h)	1391	45	218	1100	10	72
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)	1512	49	237	1196	11	78
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1561		2584	756
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1561		2584	756
tC, single (s)			4.3		7.7	7.3
tC, 2 stage (s)						
tF (s)			2.3		3.9	3.5
p0 queue free %			40		0	75
cM capacity (veh/h)			392		4	314

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	756	756	49	237	598	598	89
Volume Left	0	0	0	237	0	0	11
Volume Right	0	0	49	0	0	0	78
cSH	1700	1700	1700	392	1700	1700	32
Volume to Capacity	0.44	0.44	0.03	0.60	0.35	0.35	2.76
Queue Length 95th (m)	0.0	0.0	0.0	29.1	0.0	0.0	78.5
Control Delay (s)	0.0	0.0	0.0	27.3	0.0	0.0	1055.5
Lane LOS				D			F
Approach Delay (s)	0.0			4.5			1055.5
Approach LOS							F

Intersection Summary			
Average Delay	32.6		
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		

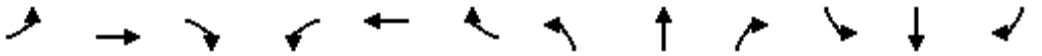


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	359	1220	177	207	1105	377	98	1255	98	198	852	192
v/c Ratio	1.15	1.00	0.30	1.09	1.09	0.66	0.56	1.06	0.17	1.23	0.75	0.34
Control Delay	134.5	69.7	10.4	124.4	100.3	26.7	36.5	86.5	0.6	177.2	45.4	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	134.5	69.7	10.4	124.4	100.3	26.7	36.5	86.5	0.6	177.2	45.4	10.1
Queue Length 50th (m)	~92.8	~157.0	7.5	~45.0	~159.3	43.7	15.0	~176.7	0.0	~48.9	100.6	7.8
Queue Length 95th (m)	#153.3	#202.8	24.5	#94.8	#198.9	79.3	26.5	#216.8	0.0	#98.9	124.0	22.7
Internal Link Dist (m)		455.0			354.7			410.1			178.2	
Turn Bay Length (m)	126.0		60.0	115.0		67.0	67.0		94.0	138.0		115.0
Base Capacity (vph)	311	1215	589	190	1012	567	175	1182	585	161	1133	566
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.15	1.00	0.30	1.09	1.09	0.66	0.56	1.06	0.17	1.23	0.75	0.34

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	330	1122	163	190	1017	347	90	1155	90	182	784	177
Future Volume (vph)	330	1122	163	190	1017	347	90	1155	90	182	784	177
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.0	7.0	6.0	7.0	7.0	6.0	7.0	7.0	5.0	7.0	7.0
Lane Util. Factor	1.00	*1.00	1.00	1.00	*1.00	1.00	1.00	*1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1738	3591	1481	1615	3558	1530	1674	3659	1426	1706	3444	1331
Flt Permitted	0.09	1.00	1.00	0.11	1.00	1.00	0.16	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	170	3591	1481	184	3558	1530	291	3659	1426	164	3444	1331
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)	359	1220	177	207	1105	377	98	1255	98	198	852	192
RTOR Reduction (vph)	0	0	89	0	0	132	0	0	66	0	0	129
Lane Group Flow (vph)	359	1220	88	207	1105	245	98	1255	32	198	852	63
Confl. Peds. (#/hr)	4		8	8		4	9		1	1		9
Heavy Vehicles (%)	5%	7%	8%	13%	8%	5%	9%	5%	13%	7%	6%	20%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	61.0	44.0	44.0	48.0	37.0	37.0	48.2	42.0	42.0	49.8	42.8	42.8
Effective Green, g (s)	62.0	44.0	44.0	48.0	37.0	37.0	48.2	42.0	42.0	51.8	42.8	42.8
Actuated g/C Ratio	0.48	0.34	0.34	0.37	0.28	0.28	0.37	0.32	0.32	0.40	0.33	0.33
Clearance Time (s)	6.0	7.0	7.0	6.0	7.0	7.0	6.0	7.0	7.0	6.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	310	1215	501	189	1012	435	173	1182	460	160	1133	438
v/s Ratio Prot	c0.17	0.34		0.09	0.31		0.03	0.34		c0.08	0.25	
v/s Ratio Perm	c0.38		0.06	0.31		0.16	0.18		0.02	c0.42		0.05
v/c Ratio	1.16	1.00	0.18	1.10	1.09	0.56	0.57	1.06	0.07	1.24	0.75	0.14
Uniform Delay, d1	41.1	43.0	30.3	34.3	46.5	39.6	29.4	44.0	30.5	33.0	38.9	30.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.32	1.04	1.98
Incremental Delay, d2	101.1	26.8	0.8	93.2	56.8	5.2	4.2	44.2	0.3	147.5	4.4	0.7
Delay (s)	142.1	69.8	31.0	127.5	103.3	44.8	33.6	88.2	30.8	191.2	45.0	61.6
Level of Service	F	E	C	F	F	D	C	F	C	F	D	E
Approach Delay (s)		80.7			93.2			80.7			70.9	
Approach LOS		F			F			F			E	

Intersection Summary			
HCM 2000 Control Delay	82.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.28		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	111.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	473	232	1284	1162
v/c Ratio	0.76	0.75	0.52	0.47
Control Delay	51.7	51.4	6.1	9.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	51.7	51.4	6.1	9.6
Queue Length 50th (m)	52.9	47.1	33.6	60.0
Queue Length 95th (m)	65.5	72.9	102.1	93.5
Internal Link Dist (m)	450.2		288.7	55.2
Turn Bay Length (m)		168.0		
Base Capacity (vph)	980	470	2490	2490
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	0.48	0.49	0.52	0.47

Intersection Summary

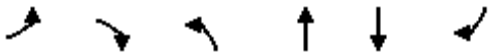
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	222	427	1181	0	0	1069
Future Volume (vph)	222	427	1181	0	0	1069
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0			7.0
Lane Util. Factor	0.97	0.91	0.95			0.95
Frt	0.93	0.85	1.00			1.00
Flt Protected	0.98	1.00	1.00			1.00
Satd. Flow (prot)	3130	1429	3510			3510
Flt Permitted	0.98	1.00	1.00			1.00
Satd. Flow (perm)	3130	1429	3510			3510
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	241	464	1284	0	0	1162
RTOR Reduction (vph)	49	49	0	0	0	0
Lane Group Flow (vph)	424	183	1284	0	0	1162
Heavy Vehicles (%)	11%	4%	4%	0%	0%	4%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	23.8	23.8	92.2			92.2
Effective Green, g (s)	23.8	23.8	92.2			92.2
Actuated g/C Ratio	0.18	0.18	0.71			0.71
Clearance Time (s)	7.0	7.0	7.0			7.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	573	261	2489			2489
v/s Ratio Prot	c0.14		c0.37			0.33
v/s Ratio Perm		0.13				
v/c Ratio	0.74	0.70	0.52			0.47
Uniform Delay, d1	50.2	49.8	8.7			8.2
Progression Factor	1.00	1.00	0.57			1.00
Incremental Delay, d2	5.0	8.2	0.7			0.6
Delay (s)	55.2	58.0	5.7			8.8
Level of Service	E	E	A			A
Approach Delay (s)	56.1		5.7			8.8
Approach LOS	E		A			A

Intersection Summary			
HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	178	80	1355	1047
v/c Ratio	0.56	0.41	0.49	0.38
Control Delay	59.7	17.6	1.3	3.6
Queue Delay	0.0	0.0	0.7	0.0
Total Delay	59.7	17.6	2.0	3.6
Queue Length 50th (m)	21.5	0.0	10.1	26.8
Queue Length 95th (m)	32.5	16.1	m18.0	37.6
Internal Link Dist (m)	638.4		178.2	288.7
Turn Bay Length (m)		150.0		
Base Capacity (vph)	702	338	2769	2744
Starvation Cap Reductn	0	0	964	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.25	0.24	0.75	0.38

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	145	92	0	1247	963	0
Future Volume (vph)	145	92	0	1247	963	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	
Lane Util. Factor	0.97	0.91		0.95	0.95	
Frt	0.98	0.85		1.00	1.00	
Flt Protected	0.96	1.00		1.00	1.00	
Satd. Flow (prot)	3222	1281		3476	3444	
Flt Permitted	0.96	1.00		1.00	1.00	
Satd. Flow (perm)	3222	1281		3476	3444	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	158	100	0	1355	1047	0
RTOR Reduction (vph)	9	72	0	0	0	0
Lane Group Flow (vph)	169	8	0	1355	1047	0
Heavy Vehicles (%)	8%	16%	0%	5%	6%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	12.4	12.4		103.6	103.6	
Effective Green, g (s)	12.4	12.4		103.6	103.6	
Actuated g/C Ratio	0.10	0.10		0.80	0.80	
Clearance Time (s)	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	307	122		2770	2744	
v/s Ratio Prot	c0.05			c0.39	0.30	
v/s Ratio Perm		0.01				
v/c Ratio	0.55	0.06		0.49	0.38	
Uniform Delay, d1	56.1	53.5		4.4	3.9	
Progression Factor	1.00	1.00		0.28	0.79	
Incremental Delay, d2	2.1	0.2		0.1	0.4	
Delay (s)	58.3	53.7		1.3	3.4	
Level of Service	E	D		A	A	
Approach Delay (s)	56.9			1.3	3.4	
Approach LOS	E			A	A	

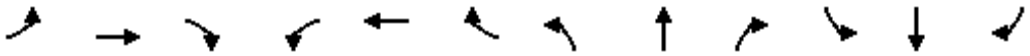
Intersection Summary			
HCM 2000 Control Delay	7.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1214	23	92	1062	20	223
Future Volume (Veh/h)	1214	23	92	1062	20	223
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)	1320	25	100	1154	22	242
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1345		2097	660
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1345		2097	660
tC, single (s)			4.5		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.4		3.5	3.4
p0 queue free %			76		33	39
cM capacity (veh/h)			419		33	394

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	660	660	25	100	577	577	264
Volume Left	0	0	0	100	0	0	22
Volume Right	0	0	25	0	0	0	242
cSH	1700	1700	1700	419	1700	1700	206
Volume to Capacity	0.39	0.39	0.01	0.24	0.34	0.34	1.28
Queue Length 95th (m)	0.0	0.0	0.0	7.0	0.0	0.0	108.3
Control Delay (s)	0.0	0.0	0.0	16.3	0.0	0.0	205.8
Lane LOS				C			F
Approach Delay (s)	0.0			1.3			205.8
Approach LOS							F

Intersection Summary			
Average Delay	19.5		
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		

Appendix C – Future (2031) Total Conditions Synchro Output



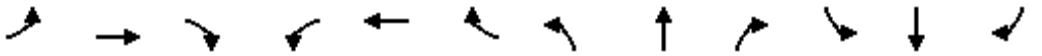
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	222	1237	138	151	861	221	101	547	175	191	1200	568
v/c Ratio	0.92	0.99	0.22	1.06	0.88	0.37	0.83	0.57	0.32	0.56	0.96	0.81
Control Delay	71.3	86.2	21.6	122.8	55.1	6.1	73.1	42.0	3.2	36.2	64.9	39.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.3	86.2	21.6	122.8	55.1	6.1	73.1	42.0	3.2	36.2	64.9	39.9
Queue Length 50th (m)	60.0	169.5	13.8	~27.8	110.8	0.0	14.7	63.4	0.0	36.9	159.7	87.5
Queue Length 95th (m)	m63.2	m#177.9	m15.9	#71.3	#145.5	17.8	#42.8	81.9	7.4	62.7	#208.8	149.8
Internal Link Dist (m)		224.1			354.7			410.1			178.2	
Turn Bay Length (m)	126.0		60.0	115.0		67.0	67.0		94.0	138.0		115.0
Base Capacity (vph)	243	1247	616	142	974	595	121	964	547	353	1256	699
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.99	0.22	1.06	0.88	0.37	0.83	0.57	0.32	0.54	0.96	0.81

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

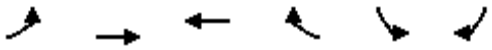
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	204	1138	127	139	792	203	93	503	161	176	1104	523
Future Volume (vph)	204	1138	127	139	792	203	93	503	161	176	1104	523
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0	7.0	6.0	5.0	5.0	4.5	7.0	7.0	6.0	7.0	7.0
Lane Util. Factor	1.00	*1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1560	3525	1428	1674	3230	1461	1587	3288	1332	1705	3476	1507
Flt Permitted	0.09	1.00	1.00	0.10	1.00	1.00	0.10	1.00	1.00	0.28	1.00	1.00
Satd. Flow (perm)	152	3525	1428	180	3230	1461	175	3288	1332	503	3476	1507
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)	222	1237	138	151	861	221	101	547	175	191	1200	568
RTOR Reduction (vph)	0	0	89	0	0	154	0	0	124	0	0	155
Lane Group Flow (vph)	222	1237	49	151	861	67	101	547	51	191	1200	413
Confl. Peds. (#/hr)	4		8	8		4	9		1	1		9
Heavy Vehicles (%)	17%	9%	12%	9%	13%	10%	15%	11%	21%	7%	5%	6%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	59.0	46.0	46.0	46.2	39.2	39.2	43.6	38.1	38.1	57.0	47.0	47.0
Effective Green, g (s)	59.0	46.0	46.0	46.2	39.2	39.2	43.6	38.1	38.1	57.0	47.0	47.0
Actuated g/C Ratio	0.45	0.35	0.35	0.36	0.30	0.30	0.34	0.29	0.29	0.44	0.36	0.36
Clearance Time (s)	6.0	7.0	7.0	6.0	5.0	5.0	4.5	7.0	7.0	6.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	240	1247	505	144	973	440	118	963	390	339	1256	544
v/s Ratio Prot	c0.11	c0.35		0.06	0.27		c0.04	0.17		0.06	c0.35	
v/s Ratio Perm	0.31		0.03	c0.32		0.05	0.25		0.04	0.19		0.27
v/c Ratio	0.93	0.99	0.10	1.05	0.88	0.15	0.86	0.57	0.13	0.56	0.96	0.76
Uniform Delay, d1	37.2	41.8	28.1	36.2	43.3	33.2	35.8	39.0	33.8	24.5	40.5	36.5
Progression Factor	1.56	1.79	11.58	1.00	1.00	1.00	1.00	1.00	1.00	1.37	1.26	1.50
Incremental Delay, d2	19.2	13.8	0.1	88.5	11.6	0.7	41.9	2.4	0.7	1.7	14.2	7.7
Delay (s)	77.5	88.6	325.6	124.7	54.9	34.0	77.7	41.4	34.5	35.1	65.2	62.5
Level of Service	E	F	F	F	D	C	E	D	C	D	E	E
Approach Delay (s)		107.5			59.7			44.4			61.5	
Approach LOS		F			E			D			E	

Intersection Summary			
HCM 2000 Control Delay	71.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	101.9%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Volume (veh/h)	0	1504	1253	116	0	0
Future Volume (Veh/h)	0	1504	1253	116	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1635	1362	126	0	0
Pedestrians					3	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.1	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		231	248			
pX, platoon unblocked	0.77				0.67	0.77
vC, conflicting volume	1491				2182	684
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1035				231	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	511				494	830

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	818	818	681	681	126	0
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	126	0
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.48	0.48	0.40	0.40	0.07	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS						A
Approach Delay (s)	0.0		0.0			0.0
Approach LOS						A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	44.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	493	221	661	1850
v/c Ratio	0.80	0.52	0.28	0.75
Control Delay	60.6	10.2	2.5	14.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	60.6	10.2	2.5	14.8
Queue Length 50th (m)	61.8	0.0	12.3	144.8
Queue Length 95th (m)	79.3	23.7	15.5	183.2
Internal Link Dist (m)	450.2		288.7	171.7
Turn Bay Length (m)		168.0		
Base Capacity (vph)	698	450	2331	2464
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	0.71	0.49	0.28	0.75

Intersection Summary

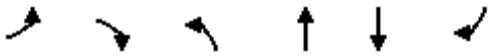
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	429	228	608	0	0	1702
Future Volume (vph)	429	228	608	0	0	1702
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0			7.0
Lane Util. Factor	0.97	0.91	0.95			0.95
Frt	0.99	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3349	1327	3288			3476
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3349	1327	3288			3476
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	466	248	661	0	0	1850
RTOR Reduction (vph)	3	181	0	0	0	0
Lane Group Flow (vph)	490	40	661	0	0	1850
Heavy Vehicles (%)	5%	12%	11%	0%	0%	5%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	23.8	23.8	92.2			92.2
Effective Green, g (s)	23.8	23.8	92.2			92.2
Actuated g/C Ratio	0.18	0.18	0.71			0.71
Clearance Time (s)	7.0	7.0	7.0			7.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	613	242	2331			2465
v/s Ratio Prot	c0.15		0.20			c0.53
v/s Ratio Perm		0.03				
v/c Ratio	0.80	0.17	0.28			0.75
Uniform Delay, d1	50.8	44.7	6.9			11.7
Progression Factor	1.00	1.00	0.30			1.00
Incremental Delay, d2	7.2	0.3	0.3			2.2
Delay (s)	58.0	45.1	2.4			13.9
Level of Service	E	D	A			B
Approach Delay (s)	54.0		2.4			13.9
Approach LOS	D		A			B

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	73.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	204	113	683	1765
v/c Ratio	0.58	0.64	0.27	0.65
Control Delay	51.5	53.5	6.6	4.9
Queue Delay	0.3	2.2	0.0	0.1
Total Delay	51.8	55.7	6.6	5.0
Queue Length 50th (m)	21.5	21.0	53.1	70.4
Queue Length 95th (m)	32.3	41.0	m67.1	79.5
Internal Link Dist (m)	638.4		178.2	288.7
Turn Bay Length (m)		150.0		
Base Capacity (vph)	601	288	2559	2729
Starvation Cap Reductn	0	0	0	152
Spillback Cap Reductn	95	87	0	24
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.40	0.56	0.27	0.68

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



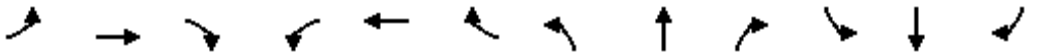
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	84	208	0	628	1624	0
Future Volume (vph)	84	208	0	628	1624	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	
Lane Util. Factor	0.97	0.91		0.95	0.95	
Frt	0.92	0.85		1.00	1.00	
Flt Protected	0.98	1.00		1.00	1.00	
Satd. Flow (prot)	2978	1351		3259	3476	
Flt Permitted	0.98	1.00		1.00	1.00	
Satd. Flow (perm)	2978	1351		3259	3476	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	91	226	0	683	1765	0
RTOR Reduction (vph)	32	32	0	0	0	0
Lane Group Flow (vph)	172	81	0	683	1765	0
Heavy Vehicles (%)	15%	10%	0%	12%	5%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	13.9	13.9		102.1	102.1	
Effective Green, g (s)	13.9	13.9		102.1	102.1	
Actuated g/C Ratio	0.11	0.11		0.79	0.79	
Clearance Time (s)	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	318	144		2559	2729	
v/s Ratio Prot	0.06			0.21	c0.51	
v/s Ratio Perm		c0.06				
v/c Ratio	0.54	0.56		0.27	0.65	
Uniform Delay, d1	55.0	55.2		3.8	6.1	
Progression Factor	1.00	1.00		1.55	0.61	
Incremental Delay, d2	1.9	4.9		0.2	0.8	
Delay (s)	56.9	60.1		6.1	4.5	
Level of Service	E	E		A	A	
Approach Delay (s)	58.0			6.1	4.5	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	73.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL
Lane Group Flow (vph)	1512	49	237	1196	42	11	78	45
v/c Ratio	0.98	0.04	0.96	0.57	0.04	0.04	0.16	0.34
Control Delay	52.8	0.0	81.4	11.3	0.1	31.1	0.7	68.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.8	0.0	81.4	11.3	0.1	31.1	0.7	68.0
Queue Length 50th (m)	196.0	0.0	51.9	62.5	0.0	1.9	0.0	5.9
Queue Length 95th (m)	#249.8	0.0	m#71.6	74.1	m0.0	6.5	0.0	12.3
Internal Link Dist (m)	222.3			206.9			220.6	
Turn Bay Length (m)		37.0	100.0		50.0	50.0		
Base Capacity (vph)	1544	1396	247	2093	1031	355	480	133
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	0.98	0.04	0.96	0.57	0.04	0.03	0.16	0.34

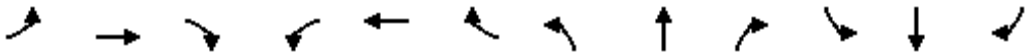
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1391	45	218	1100	39	10	0	72	41	0	0
Future Volume (vph)	0	1391	45	218	1100	39	10	0	72	41	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.0	4.5	4.5	4.5	4.5	4.5		4.5		
Lane Util. Factor		0.95	1.00	1.00	0.95	1.00	1.00	1.00		0.97		
Frt		1.00	0.85	1.00	1.00	0.85	1.00	0.85		1.00		
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95		
Satd. Flow (prot)		3318	1396	1690	3411	1601	1267	1361		3471		
Flt Permitted		1.00	1.00	0.06	1.00	1.00	0.76	1.00		0.95		
Satd. Flow (perm)		3318	1396	109	3411	1601	1010	1361		3471		
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)	0	1512	49	237	1196	42	11	0	78	45	0	0
RTOR Reduction (vph)	0	0	0	0	0	16	0	58	0	0	0	0
Lane Group Flow (vph)	0	1512	49	237	1196	26	11	20	0	45	0	0
Heavy Vehicles (%)	2%	10%	17%	8%	7%	2%	44%	2%	20%	2%	0%	2%
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm	pm+pt	NA		Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free	8		8	2					
Actuated Green, G (s)		60.5	130.0	79.8	79.8	79.8	34.3	32.7		4.0		
Effective Green, g (s)		60.5	130.0	79.8	79.8	79.8	34.3	32.7		4.0		
Actuated g/C Ratio		0.47	1.00	0.61	0.61	0.61	0.26	0.25		0.03		
Clearance Time (s)		4.5		4.5	4.5	4.5	4.5	4.5		4.5		
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0		3.0		
Lane Grp Cap (vph)		1544	1396	246	2093	982	269	342		106		
v/s Ratio Prot		0.46		c0.11	0.35		0.00	c0.01		c0.01		
v/s Ratio Perm			c0.04	c0.48		0.02	0.01					
v/c Ratio		0.98	0.04	0.96	0.57	0.03	0.04	0.06		0.42		
Uniform Delay, d1		34.1	0.0	42.9	14.9	9.9	35.5	36.9		61.9		
Progression Factor		1.00	1.00	1.34	0.70	1.00	1.00	1.00		1.00		
Incremental Delay, d2		17.9	0.0	34.4	0.2	0.0	0.1	0.3		2.7		
Delay (s)		52.1	0.0	91.8	10.7	9.9	35.6	37.3		64.6		
Level of Service		D	A	F	B	A	D	D		E		
Approach Delay (s)		50.4			23.7			37.1			64.6	
Approach LOS		D			C			D			E	

Intersection Summary			
HCM 2000 Control Delay	37.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	69.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	474	1226	193	207	1108	377	103	1255	98	198	852	230
v/c Ratio	1.46	0.99	0.33	1.09	1.09	0.68	0.55	1.09	0.17	1.23	0.73	0.38
Control Delay	261.6	47.1	7.3	124.6	101.3	29.1	34.8	96.0	0.7	178.5	37.6	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	261.6	47.1	7.3	124.6	101.3	29.1	34.8	96.0	0.7	178.5	37.6	6.7
Queue Length 50th (m)	~147.6	125.9	0.9	~45.0	~160.1	48.1	15.5	~180.4	0.0	~46.0	78.8	0.0
Queue Length 95th (m)	m#218.1	#197.7	m12.0	#94.8	#199.5	84.1	27.1	#220.6	0.0	#97.2	115.7	17.9
Internal Link Dist (m)		224.1			354.7			410.1			178.2	
Turn Bay Length (m)	126.0		60.0	115.0		67.0	67.0		94.0	138.0		115.0
Base Capacity (vph)	324	1243	591	190	1012	557	187	1153	564	161	1160	602
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.46	0.99	0.33	1.09	1.09	0.68	0.55	1.09	0.17	1.23	0.73	0.38

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

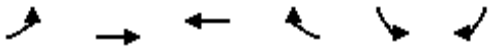
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	436	1128	178	190	1019	347	95	1155	90	182	784	212
Future Volume (vph)	436	1128	178	190	1019	347	95	1155	90	182	784	212
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.0	7.0	6.0	7.0	7.0	4.0	7.0	7.0	5.0	7.0	7.0
Lane Util. Factor	1.00	*1.00	1.00	1.00	*1.00	1.00	1.00	*1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1738	3591	1484	1615	3558	1535	1674	3659	1425	1706	3444	1336
Flt Permitted	0.09	1.00	1.00	0.11	1.00	1.00	0.18	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	170	3591	1484	184	3558	1535	317	3659	1425	160	3444	1336
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)	474	1226	193	207	1108	377	103	1255	98	198	852	230
RTOR Reduction (vph)	0	0	78	0	0	120	0	0	67	0	0	153
Lane Group Flow (vph)	474	1226	115	207	1108	257	103	1255	31	198	852	77
Confl. Peds. (#/hr)	1		6	6		1	6		2	2		6
Heavy Vehicles (%)	5%	7%	8%	13%	8%	5%	9%	5%	13%	7%	6%	20%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	62.0	45.0	45.0	48.0	37.0	37.0	47.2	41.0	41.0	50.8	43.8	43.8
Effective Green, g (s)	63.0	45.0	45.0	48.0	37.0	37.0	47.2	41.0	41.0	52.8	43.8	43.8
Actuated g/C Ratio	0.48	0.35	0.35	0.37	0.28	0.28	0.36	0.32	0.32	0.41	0.34	0.34
Clearance Time (s)	6.0	7.0	7.0	6.0	7.0	7.0	4.0	7.0	7.0	6.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	323	1243	513	189	1012	436	179	1153	449	160	1160	450
v/s Ratio Prot	c0.23	0.34		0.09	0.31		0.03	0.34		c0.08	0.25	
v/s Ratio Perm	c0.48		0.08	0.31		0.17	0.18		0.02	c0.43		0.06
v/c Ratio	1.47	0.99	0.22	1.10	1.09	0.59	0.58	1.09	0.07	1.24	0.73	0.17
Uniform Delay, d1	41.2	42.2	30.1	34.2	46.5	40.0	29.7	44.5	31.1	32.3	38.0	30.3
Progression Factor	1.59	0.64	0.50	1.00	1.00	1.00	1.00	1.00	1.00	1.45	0.88	1.27
Incremental Delay, d2	222.8	19.1	0.8	93.2	57.8	5.7	4.4	54.0	0.3	147.3	4.0	0.8
Delay (s)	288.1	46.0	15.9	127.4	104.3	45.7	34.2	98.5	31.4	194.1	37.2	39.3
Level of Service	F	D	B	F	F	D	C	F	C	F	D	D
Approach Delay (s)		103.6			94.1			89.4			61.9	
Approach LOS		F			F			F			E	

Intersection Summary			
HCM 2000 Control Delay	89.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.47		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	117.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Volume (veh/h)	0	1565	1284	32	0	0
Future Volume (Veh/h)	0	1565	1284	32	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1701	1396	35	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		231	248			
pX, platoon unblocked	0.72				0.79	0.72
vC, conflicting volume	1431				2246	698
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	832				466	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	576				414	785

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	850	850	698	698	35	0
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	35	0
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.50	0.50	0.41	0.41	0.02	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS						A
Approach Delay (s)	0.0		0.0			0.0
Approach LOS						A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	46.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	473	232	1399	1200
v/c Ratio	0.76	0.76	0.56	0.48
Control Delay	52.4	53.7	8.4	9.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	52.4	53.7	8.4	9.9
Queue Length 50th (m)	54.0	49.3	54.8	63.2
Queue Length 95th (m)	66.2	75.0	78.3	99.1
Internal Link Dist (m)	450.2		288.7	171.7
Turn Bay Length (m)		168.0		
Base Capacity (vph)	903	433	2481	2481
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	0.52	0.54	0.56	0.48

Intersection Summary

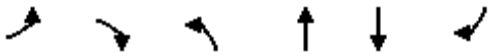
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	222	427	1287	0	0	1104
Future Volume (vph)	222	427	1287	0	0	1104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0			7.0
Lane Util. Factor	0.97	0.91	0.95			0.95
Frt	0.93	0.85	1.00			1.00
Flt Protected	0.98	1.00	1.00			1.00
Satd. Flow (prot)	3130	1429	3510			3510
Flt Permitted	0.98	1.00	1.00			1.00
Satd. Flow (perm)	3130	1429	3510			3510
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	241	464	1399	0	0	1200
RTOR Reduction (vph)	42	42	0	0	0	0
Lane Group Flow (vph)	431	190	1399	0	0	1200
Heavy Vehicles (%)	11%	4%	4%	0%	0%	4%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	24.1	24.1	91.9			91.9
Effective Green, g (s)	24.1	24.1	91.9			91.9
Actuated g/C Ratio	0.19	0.19	0.71			0.71
Clearance Time (s)	7.0	7.0	7.0			7.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	580	264	2481			2481
v/s Ratio Prot	c0.14		c0.40			0.34
v/s Ratio Perm		0.13				
v/c Ratio	0.74	0.72	0.56			0.48
Uniform Delay, d1	50.0	49.8	9.3			8.5
Progression Factor	1.00	1.00	0.75			1.00
Incremental Delay, d2	5.1	9.0	0.8			0.7
Delay (s)	55.1	58.8	7.7			9.2
Level of Service	E	E	A			A
Approach Delay (s)	56.3		7.7			9.2
Approach LOS	E		A			A

Intersection Summary			
HCM 2000 Control Delay	18.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	178	80	1471	1085
v/c Ratio	0.56	0.41	0.53	0.40
Control Delay	59.7	17.6	2.4	3.0
Queue Delay	0.0	0.0	0.6	0.0
Total Delay	59.7	17.6	3.0	3.0
Queue Length 50th (m)	21.5	0.0	25.4	20.3
Queue Length 95th (m)	32.5	16.1	m28.4	28.0
Internal Link Dist (m)	638.4		178.2	288.7
Turn Bay Length (m)		150.0		
Base Capacity (vph)	677	329	2769	2744
Starvation Cap Reductn	0	0	821	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.26	0.24	0.76	0.40

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	145	92	0	1353	998	0
Future Volume (vph)	145	92	0	1353	998	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	
Lane Util. Factor	0.97	0.91		0.95	0.95	
Frt	0.98	0.85		1.00	1.00	
Flt Protected	0.96	1.00		1.00	1.00	
Satd. Flow (prot)	3222	1281		3476	3444	
Flt Permitted	0.96	1.00		1.00	1.00	
Satd. Flow (perm)	3222	1281		3476	3444	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	158	100	0	1471	1085	0
RTOR Reduction (vph)	9	72	0	0	0	0
Lane Group Flow (vph)	169	8	0	1471	1085	0
Heavy Vehicles (%)	8%	16%	0%	5%	6%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	12.4	12.4		103.6	103.6	
Effective Green, g (s)	12.4	12.4		103.6	103.6	
Actuated g/C Ratio	0.10	0.10		0.80	0.80	
Clearance Time (s)	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	307	122		2770	2744	
v/s Ratio Prot	c0.05			c0.42	0.32	
v/s Ratio Perm		0.01				
v/c Ratio	0.55	0.06		0.53	0.40	
Uniform Delay, d1	56.1	53.5		4.6	3.9	
Progression Factor	1.00	1.00		0.47	0.63	
Incremental Delay, d2	2.1	0.2		0.1	0.4	
Delay (s)	58.3	53.7		2.3	2.8	
Level of Service	E	D		A	A	
Approach Delay (s)	56.9			2.3	2.8	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	7.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL
Lane Group Flow (vph)	1320	25	100	1154	12	22	242	139
v/c Ratio	0.85	0.02	0.62	0.61	0.01	0.05	0.48	0.53
Control Delay	37.8	0.0	35.5	44.7	0.0	29.6	22.5	65.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.8	0.0	35.5	44.7	0.0	29.6	22.5	65.6
Queue Length 50th (m)	152.3	0.0	23.4	155.8	0.0	3.6	22.4	17.8
Queue Length 95th (m)	175.7	0.0	m25.4	m149.8	m0.0	10.2	50.8	28.7
Internal Link Dist (m)	222.3			206.9			220.6	
Turn Bay Length (m)		37.0	100.0		50.0	50.0		
Base Capacity (vph)	1655	1306	186	1927	967	563	501	275
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	0.80	0.02	0.54	0.60	0.01	0.04	0.48	0.51

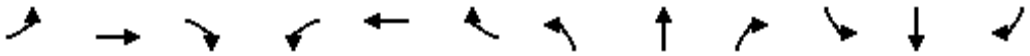
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1214	23	92	1062	11	20	0	223	128	0	0
Future Volume (vph)	0	1214	23	92	1062	11	20	0	223	128	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.0	4.5	4.5	4.5	4.5	4.5		4.5		
Lane Util. Factor		0.95	1.00	1.00	0.95	1.00	1.00	1.00		0.97		
Frt		1.00	0.85	1.00	1.00	0.85	1.00	0.85		1.00		
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95		
Satd. Flow (prot)		3444	1306	1508	3380	1601	1738	1526		3541		
Flt Permitted		1.00	1.00	0.06	1.00	1.00	0.76	1.00		0.95		
Satd. Flow (perm)		3444	1306	101	3380	1601	1385	1526		3541		
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)	0	1320	25	100	1154	12	22	0	242	139	0	0
RTOR Reduction (vph)	0	0	0	0	0	5	0	100	0	0	0	0
Lane Group Flow (vph)	0	1320	25	100	1154	7	22	142	0	139	0	0
Heavy Vehicles (%)	25%	6%	25%	21%	8%	2%	5%	0%	7%	0%	0%	0%
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm	pm+pt	NA		Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free	8		8	2					
Actuated Green, G (s)		58.5	130.0	72.7	72.7	72.7	38.6	34.2		9.6		
Effective Green, g (s)		58.5	130.0	72.7	72.7	72.7	38.6	34.2		9.6		
Actuated g/C Ratio		0.45	1.00	0.56	0.56	0.56	0.30	0.26		0.07		
Clearance Time (s)		4.5		4.5	4.5	4.5	4.5	4.5		4.5		
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0		3.0		
Lane Grp Cap (vph)		1549	1306	161	1890	895	423	401		261		
v/s Ratio Prot		c0.38		0.05	c0.34		0.00	c0.09		c0.04		
v/s Ratio Perm			0.02	0.30		0.00	0.01					
v/c Ratio		0.85	0.02	0.62	0.61	0.01	0.05	0.35		0.53		
Uniform Delay, d1		31.9	0.0	24.4	19.2	12.7	32.5	38.9		58.0		
Progression Factor		1.00	1.00	1.37	2.35	1.00	1.00	1.00		1.00		
Incremental Delay, d2		4.8	0.0	2.5	0.2	0.0	0.1	2.4		2.1		
Delay (s)		36.6	0.0	35.9	45.2	12.7	32.6	41.4		60.1		
Level of Service		D	A	D	D	B	C	D		E		
Approach Delay (s)		36.0			44.2			40.6			60.1	
Approach LOS		D			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	40.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	71.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Appendix D – Future (2031) Total Conditions Improvements Synchro Output

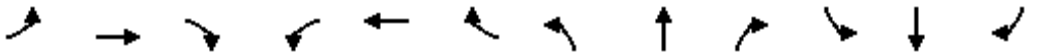


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	222	1237	138	151	861	221	101	547	175	191	1200	568
v/c Ratio	0.81	0.99	0.22	0.87	0.80	0.36	0.83	0.54	0.33	0.67	0.96	0.86
Control Delay	55.3	86.2	21.6	101.3	46.4	7.6	72.2	40.3	7.0	61.2	64.9	47.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.3	86.2	21.6	101.3	46.4	7.6	72.2	40.3	7.0	61.2	64.9	47.3
Queue Length 50th (m)	31.3	169.5	13.8	20.1	105.6	4.0	14.7	61.9	0.5	25.3	159.7	110.2
Queue Length 95th (m)	m33.0	m#177.9	m15.9	#39.3	131.1	22.3	#43.3	80.1	17.2	36.9	#208.8	#168.7
Internal Link Dist (m)		224.1			354.7			410.1			178.2	
Turn Bay Length (m)	126.0		60.0	115.0		67.0	67.0		94.0	138.0		115.0
Base Capacity (vph)	279	1247	616	174	1073	617	122	1004	526	305	1256	663
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.99	0.22	0.87	0.80	0.36	0.83	0.54	0.33	0.63	0.96	0.86

Intersection Summary

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

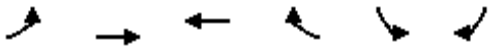
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	204	1138	127	139	792	203	93	503	161	176	1104	523
Future Volume (vph)	204	1138	127	139	792	203	93	503	161	176	1104	523
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0	7.0	6.0	5.0	5.0	4.5	7.0	7.0	6.0	7.0	7.0
Lane Util. Factor	0.97	*1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3026	3525	1428	3248	3230	1461	1587	3288	1332	3309	3476	1507
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.10	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3026	3525	1428	3248	3230	1461	168	3288	1332	3309	3476	1507
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)	222	1237	138	151	861	221	101	547	175	191	1200	568
RTOR Reduction (vph)	0	0	89	0	0	132	0	0	119	0	0	119
Lane Group Flow (vph)	222	1237	49	151	861	89	101	547	56	191	1200	449
Confl. Peds. (#/hr)	4		8	8		4	9		1	1		9
Heavy Vehicles (%)	17%	9%	12%	9%	13%	10%	15%	11%	21%	7%	5%	6%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2		2			6
Actuated Green, G (s)	11.8	46.0	46.0	7.0	43.2	43.2	45.2	39.7	39.7	11.3	47.0	47.0
Effective Green, g (s)	11.8	46.0	46.0	7.0	43.2	43.2	45.2	39.7	39.7	11.3	47.0	47.0
Actuated g/C Ratio	0.09	0.35	0.35	0.05	0.33	0.33	0.35	0.31	0.31	0.09	0.36	0.36
Clearance Time (s)	6.0	7.0	7.0	6.0	5.0	5.0	4.5	7.0	7.0	6.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	274	1247	505	174	1073	485	118	1004	406	287	1256	544
v/s Ratio Prot	c0.07	c0.35		0.05	0.27		0.04	0.17		c0.06	c0.35	
v/s Ratio Perm			0.03			0.06	0.26		0.04			0.30
v/c Ratio	0.81	0.99	0.10	0.87	0.80	0.18	0.86	0.54	0.14	0.67	0.96	0.83
Uniform Delay, d1	58.0	41.8	28.1	61.0	39.5	30.9	34.8	37.6	32.7	57.5	40.5	37.8
Progression Factor	0.78	1.79	11.58	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.26	1.42
Incremental Delay, d2	6.8	13.8	0.1	33.7	6.4	0.8	41.9	2.1	0.7	4.5	14.2	10.9
Delay (s)	52.1	88.6	325.6	94.7	45.9	31.7	76.6	39.7	33.4	56.5	65.2	64.5
Level of Service	D	F	F	F	D	C	E	D	C	E	E	E
Approach Delay (s)		104.0			49.3			42.9			64.1	
Approach LOS		F			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	69.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	93.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Volume (veh/h)	0	1504	1253	116	0	0
Future Volume (Veh/h)	0	1504	1253	116	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1635	1362	126	0	0
Pedestrians					3	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.1	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		231	248			
pX, platoon unblocked	0.78				0.67	0.78
vC, conflicting volume	1491				2182	684
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1063				283	28
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	506				455	809

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	818	818	681	681	126	0
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	126	0
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.48	0.48	0.40	0.40	0.07	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS						A
Approach Delay (s)	0.0		0.0			0.0
Approach LOS						A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	44.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	493	221	661	1850
v/c Ratio	0.80	0.52	0.28	0.75
Control Delay	60.6	10.2	2.3	14.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	60.6	10.2	2.3	14.8
Queue Length 50th (m)	61.8	0.0	12.1	144.8
Queue Length 95th (m)	79.3	23.7	14.4	183.2
Internal Link Dist (m)	450.2		288.7	171.7
Turn Bay Length (m)		168.0		
Base Capacity (vph)	698	450	2331	2464
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	0.71	0.49	0.28	0.75

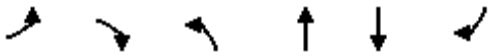
Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	429	228	608	0	0	1702
Future Volume (vph)	429	228	608	0	0	1702
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0			7.0
Lane Util. Factor	0.97	0.91	0.95			0.95
Frt	0.99	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3349	1327	3288			3476
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3349	1327	3288			3476
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	466	248	661	0	0	1850
RTOR Reduction (vph)	3	181	0	0	0	0
Lane Group Flow (vph)	490	40	661	0	0	1850
Heavy Vehicles (%)	5%	12%	11%	0%	0%	5%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	23.8	23.8	92.2			92.2
Effective Green, g (s)	23.8	23.8	92.2			92.2
Actuated g/C Ratio	0.18	0.18	0.71			0.71
Clearance Time (s)	7.0	7.0	7.0			7.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	613	242	2331			2465
v/s Ratio Prot	c0.15		0.20			c0.53
v/s Ratio Perm		0.03				
v/c Ratio	0.80	0.17	0.28			0.75
Uniform Delay, d1	50.8	44.7	6.9			11.7
Progression Factor	1.00	1.00	0.27			1.00
Incremental Delay, d2	7.2	0.3	0.3			2.2
Delay (s)	58.0	45.1	2.2			13.9
Level of Service	E	D	A			B
Approach Delay (s)	54.0		2.2			13.9
Approach LOS	D		A			B

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	73.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	204	113	683	1765
v/c Ratio	0.58	0.64	0.27	0.65
Control Delay	51.5	53.5	7.2	4.9
Queue Delay	0.3	2.2	0.0	0.1
Total Delay	51.8	55.7	7.2	5.0
Queue Length 50th (m)	21.5	21.0	52.3	70.4
Queue Length 95th (m)	32.3	41.0	67.7	79.5
Internal Link Dist (m)	638.4		178.2	288.7
Turn Bay Length (m)		150.0		
Base Capacity (vph)	601	288	2559	2729
Starvation Cap Reductn	0	0	0	152
Spillback Cap Reductn	95	87	0	24
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.40	0.56	0.27	0.68

Intersection Summary



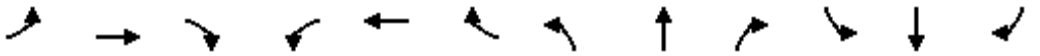
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	84	208	0	628	1624	0
Future Volume (vph)	84	208	0	628	1624	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	
Lane Util. Factor	0.97	0.91		0.95	0.95	
Frt	0.92	0.85		1.00	1.00	
Flt Protected	0.98	1.00		1.00	1.00	
Satd. Flow (prot)	2978	1351		3259	3476	
Flt Permitted	0.98	1.00		1.00	1.00	
Satd. Flow (perm)	2978	1351		3259	3476	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	91	226	0	683	1765	0
RTOR Reduction (vph)	32	32	0	0	0	0
Lane Group Flow (vph)	172	81	0	683	1765	0
Heavy Vehicles (%)	15%	10%	0%	12%	5%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	13.9	13.9		102.1	102.1	
Effective Green, g (s)	13.9	13.9		102.1	102.1	
Actuated g/C Ratio	0.11	0.11		0.79	0.79	
Clearance Time (s)	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	318	144		2559	2729	
v/s Ratio Prot	0.06			0.21	c0.51	
v/s Ratio Perm		c0.06				
v/c Ratio	0.54	0.56		0.27	0.65	
Uniform Delay, d1	55.0	55.2		3.8	6.1	
Progression Factor	1.00	1.00		1.71	0.61	
Incremental Delay, d2	1.9	4.9		0.2	0.8	
Delay (s)	56.9	60.1		6.7	4.5	
Level of Service	E	E		A	A	
Approach Delay (s)	58.0			6.7	4.5	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	11.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	73.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	SBL
Lane Group Flow (vph)	1512	49	237	1250	11	78	45
v/c Ratio	0.98	0.04	0.96	0.60	0.04	0.16	0.34
Control Delay	52.8	0.0	82.9	11.9	31.1	0.7	68.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.8	0.0	82.9	11.9	31.1	0.7	68.0
Queue Length 50th (m)	196.0	0.0	51.6	69.0	1.9	0.0	5.9
Queue Length 95th (m)	#249.8	0.0	m#76.3	79.8	6.5	0.0	12.3
Internal Link Dist (m)	222.3			206.9		220.6	
Turn Bay Length (m)		37.0	100.0		50.0		
Base Capacity (vph)	1544	1396	247	2087	355	480	133
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.04	0.96	0.60	0.03	0.16	0.34

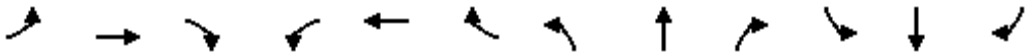
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1391	45	218	1100	50	10	0	72	41	0	0
Future Volume (vph)	0	1391	45	218	1100	50	10	0	72	41	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.0	4.5	4.5		4.5	4.5		4.5		
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	1.00		0.97		
Frt		1.00	0.85	1.00	0.99		1.00	0.85		1.00		
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00		0.95		
Satd. Flow (prot)		3318	1396	1690	3396		1267	1361		3471		
Flt Permitted		1.00	1.00	0.06	1.00		0.76	1.00		0.95		
Satd. Flow (perm)		3318	1396	109	3396		1010	1361		3471		
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)	0	1512	49	237	1196	54	11	0	78	45	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	58	0	0	0	0
Lane Group Flow (vph)	0	1512	49	237	1248	0	11	20	0	45	0	0
Heavy Vehicles (%)	2%	10%	17%	8%	7%	2%	44%	2%	20%	2%	0%	2%
Turn Type	pm+pt	NA	Free	pm+pt	NA		pm+pt	NA		Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free	8			2					
Actuated Green, G (s)		60.5	130.0	79.8	79.8		34.3	32.7		4.0		
Effective Green, g (s)		60.5	130.0	79.8	79.8		34.3	32.7		4.0		
Actuated g/C Ratio		0.47	1.00	0.61	0.61		0.26	0.25		0.03		
Clearance Time (s)		4.5		4.5	4.5		4.5	4.5		4.5		
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0		
Lane Grp Cap (vph)		1544	1396	246	2084		269	342		106		
v/s Ratio Prot		0.46		c0.11	0.37		0.00	c0.01		c0.01		
v/s Ratio Perm			c0.04	c0.48			0.01					
v/c Ratio		0.98	0.04	0.96	0.60		0.04	0.06		0.42		
Uniform Delay, d1		34.1	0.0	42.9	15.3		35.5	36.9		61.9		
Progression Factor		1.00	1.00	1.33	0.72		1.00	1.00		1.00		
Incremental Delay, d2		17.9	0.0	36.0	0.3		0.1	0.3		2.7		
Delay (s)		52.1	0.0	93.1	11.3		35.6	37.3		64.6		
Level of Service		D	A	F	B		D	D		E		
Approach Delay (s)		50.4			24.3			37.1			64.6	
Approach LOS		D			C			D			E	

Intersection Summary			
HCM 2000 Control Delay	38.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	69.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	474	1226	193	207	1108	377	103	1255	98	198	852	230
v/c Ratio	1.08	0.99	0.33	0.96	1.09	0.68	0.49	1.06	0.17	0.98	0.73	0.38
Control Delay	131.9	47.6	8.1	111.3	101.3	29.1	29.3	86.5	0.6	128.8	37.1	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	131.9	47.6	8.1	111.3	101.3	29.1	29.3	86.5	0.6	128.8	37.1	6.6
Queue Length 50th (m)	~70.4	118.2	1.1	27.7	~160.1	48.1	15.1	~176.7	0.0	27.5	78.6	0.0
Queue Length 95th (m)	m#105.6	#197.7	m13.5	#52.2	#199.5	84.1	26.4	#216.8	0.0	#52.0	115.3	17.7
Internal Link Dist (m)		224.1			354.7			410.1			178.2	
Turn Bay Length (m)	126.0		60.0	115.0		67.0	67.0		94.0	138.0		115.0
Base Capacity (vph)	440	1243	591	216	1012	557	212	1182	574	203	1170	606
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.08	0.99	0.33	0.96	1.09	0.68	0.49	1.06	0.17	0.98	0.73	0.38

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

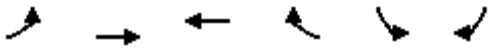
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	436	1128	178	190	1019	347	95	1155	90	182	784	212
Future Volume (vph)	436	1128	178	190	1019	347	95	1155	90	182	784	212
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0	7.0	6.0	7.0	7.0	4.0	7.0	7.0	6.0	7.0	7.0
Lane Util. Factor	0.97	*1.00	1.00	0.97	*1.00	1.00	1.00	*1.00	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3372	3591	1484	3133	3558	1535	1674	3659	1425	3309	3444	1336
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.18	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3372	3591	1484	3133	3558	1535	317	3659	1425	3309	3444	1336
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)	474	1226	193	207	1108	377	103	1255	98	198	852	230
RTOR Reduction (vph)	0	0	78	0	0	120	0	0	66	0	0	152
Lane Group Flow (vph)	474	1226	115	207	1108	257	103	1255	32	198	852	78
Confl. Peds. (#/hr)	1		6	6		1	6		2	2		6
Heavy Vehicles (%)	5%	7%	8%	13%	8%	5%	9%	5%	13%	7%	6%	20%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2		2			6
Actuated Green, G (s)	17.0	45.0	45.0	9.0	37.0	37.0	49.8	42.0	42.0	8.0	44.2	44.2
Effective Green, g (s)	17.0	45.0	45.0	9.0	37.0	37.0	49.8	42.0	42.0	8.0	44.2	44.2
Actuated g/C Ratio	0.13	0.35	0.35	0.07	0.28	0.28	0.38	0.32	0.32	0.06	0.34	0.34
Clearance Time (s)	6.0	7.0	7.0	6.0	7.0	7.0	4.0	7.0	7.0	6.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	440	1243	513	216	1012	436	202	1182	460	203	1170	454
v/s Ratio Prot	c0.14	c0.34		0.07	c0.31		0.03	c0.34		c0.06	0.25	
v/s Ratio Perm			0.08			0.17	0.16		0.02			0.06
v/c Ratio	1.08	0.99	0.22	0.96	1.09	0.59	0.51	1.06	0.07	0.98	0.73	0.17
Uniform Delay, d1	56.5	42.2	30.1	60.3	46.5	40.0	28.1	44.0	30.5	60.9	37.6	30.1
Progression Factor	1.44	0.65	0.57	1.00	1.00	1.00	1.00	1.00	1.00	1.24	0.87	1.25
Incremental Delay, d2	59.7	19.1	0.8	48.9	57.8	5.7	2.0	44.2	0.3	54.1	3.8	0.8
Delay (s)	140.9	46.5	17.8	109.2	104.3	45.7	30.1	88.2	30.8	129.7	36.7	38.4
Level of Service	F	D	B	F	F	D	C	F	C	F	D	D
Approach Delay (s)		67.2			91.9			80.3			51.4	
Approach LOS		E			F			F			D	

Intersection Summary			
HCM 2000 Control Delay	73.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	102.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1565	1284	32	0	0
Future Volume (Veh/h)	0	1565	1284	32	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1701	1396	35	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		231	248			
pX, platoon unblocked	0.72				0.79	0.72
vC, conflicting volume	1431				2264	716
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	832				488	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	576				401	785

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	850	850	931	500	0
Volume Left	0	0	0	0	0
Volume Right	0	0	0	35	0
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.50	0.50	0.55	0.29	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					A
Approach Delay (s)	0.0		0.0		0.0
Approach LOS					A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	46.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	473	232	1399	1200
v/c Ratio	0.76	0.76	0.56	0.48
Control Delay	52.4	53.7	10.0	9.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	52.4	53.7	10.0	9.9
Queue Length 50th (m)	54.0	49.3	61.1	63.2
Queue Length 95th (m)	66.2	75.0	90.2	99.1
Internal Link Dist (m)	450.2		288.7	171.7
Turn Bay Length (m)		168.0		
Base Capacity (vph)	903	433	2481	2481
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	0.52	0.54	0.56	0.48

Intersection Summary

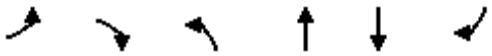
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	222	427	1287	0	0	1104
Future Volume (vph)	222	427	1287	0	0	1104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0			7.0
Lane Util. Factor	0.97	0.91	0.95			0.95
Frt	0.93	0.85	1.00			1.00
Flt Protected	0.98	1.00	1.00			1.00
Satd. Flow (prot)	3130	1429	3510			3510
Flt Permitted	0.98	1.00	1.00			1.00
Satd. Flow (perm)	3130	1429	3510			3510
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	241	464	1399	0	0	1200
RTOR Reduction (vph)	42	42	0	0	0	0
Lane Group Flow (vph)	431	190	1399	0	0	1200
Heavy Vehicles (%)	11%	4%	4%	0%	0%	4%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	24.1	24.1	91.9			91.9
Effective Green, g (s)	24.1	24.1	91.9			91.9
Actuated g/C Ratio	0.19	0.19	0.71			0.71
Clearance Time (s)	7.0	7.0	7.0			7.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	580	264	2481			2481
v/s Ratio Prot	c0.14		c0.40			0.34
v/s Ratio Perm		0.13				
v/c Ratio	0.74	0.72	0.56			0.48
Uniform Delay, d1	50.0	49.8	9.3			8.5
Progression Factor	1.00	1.00	0.90			1.00
Incremental Delay, d2	5.1	9.0	0.8			0.7
Delay (s)	55.1	58.8	9.2			9.2
Level of Service	E	E	A			A
Approach Delay (s)	56.3		9.2			9.2
Approach LOS	E		A			A

Intersection Summary			
HCM 2000 Control Delay	19.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	178	80	1471	1085
v/c Ratio	0.56	0.41	0.53	0.40
Control Delay	59.7	17.6	1.8	3.0
Queue Delay	0.0	0.0	0.4	0.0
Total Delay	59.7	17.6	2.2	3.0
Queue Length 50th (m)	21.5	0.0	18.2	20.3
Queue Length 95th (m)	32.5	16.1	m23.4	28.0
Internal Link Dist (m)	638.4		178.2	288.7
Turn Bay Length (m)		150.0		
Base Capacity (vph)	677	329	2769	2744
Starvation Cap Reductn	0	0	694	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.26	0.24	0.71	0.40

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



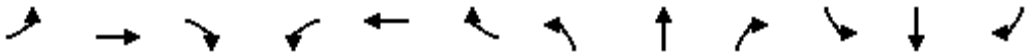
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	145	92	0	1353	998	0
Future Volume (vph)	145	92	0	1353	998	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	
Lane Util. Factor	0.97	0.91		0.95	0.95	
Frt	0.98	0.85		1.00	1.00	
Flt Protected	0.96	1.00		1.00	1.00	
Satd. Flow (prot)	3222	1281		3476	3444	
Flt Permitted	0.96	1.00		1.00	1.00	
Satd. Flow (perm)	3222	1281		3476	3444	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	158	100	0	1471	1085	0
RTOR Reduction (vph)	9	72	0	0	0	0
Lane Group Flow (vph)	169	8	0	1471	1085	0
Heavy Vehicles (%)	8%	16%	0%	5%	6%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	12.4	12.4		103.6	103.6	
Effective Green, g (s)	12.4	12.4		103.6	103.6	
Actuated g/C Ratio	0.10	0.10		0.80	0.80	
Clearance Time (s)	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	307	122		2770	2744	
v/s Ratio Prot	c0.05			c0.42	0.32	
v/s Ratio Perm		0.01				
v/c Ratio	0.55	0.06		0.53	0.40	
Uniform Delay, d1	56.1	53.5		4.6	3.9	
Progression Factor	1.00	1.00		0.34	0.63	
Incremental Delay, d2	2.1	0.2		0.2	0.4	
Delay (s)	58.3	53.7		1.7	2.8	
Level of Service	E	D		A	A	
Approach Delay (s)	56.9			1.7	2.8	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	7.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	SBL
Lane Group Flow (vph)	1320	25	100	1166	22	242	139
v/c Ratio	0.85	0.02	0.62	0.62	0.05	0.48	0.53
Control Delay	37.8	0.0	37.3	46.4	29.6	22.5	65.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.8	0.0	37.3	46.4	29.6	22.5	65.6
Queue Length 50th (m)	152.3	0.0	23.4	157.5	3.6	22.4	17.8
Queue Length 95th (m)	175.7	0.0	m25.7	m150.8	10.2	50.8	28.7
Internal Link Dist (m)	222.3			206.9		220.6	
Turn Bay Length (m)		37.0	100.0		50.0		
Base Capacity (vph)	1655	1306	186	1925	563	501	275
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.02	0.54	0.61	0.04	0.48	0.51

Intersection Summary

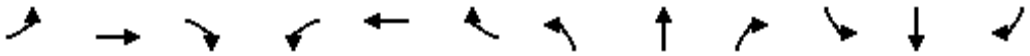
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1214	23	92	1062	11	20	0	223	128	0	0
Future Volume (vph)	0	1214	23	92	1062	11	20	0	223	128	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.0	4.5	4.5		4.5	4.5		4.5		
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	1.00		0.97		
Frt		1.00	0.85	1.00	1.00		1.00	0.85		1.00		
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00		0.95		
Satd. Flow (prot)		3444	1306	1508	3376		1738	1526		3541		
Flt Permitted		1.00	1.00	0.06	1.00		0.76	1.00		0.95		
Satd. Flow (perm)		3444	1306	101	3376		1385	1526		3541		
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)	0	1320	25	100	1154	12	22	0	242	139	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	100	0	0	0	0
Lane Group Flow (vph)	0	1320	25	100	1166	0	22	142	0	139	0	0
Heavy Vehicles (%)	25%	6%	25%	21%	8%	2%	5%	0%	7%	0%	0%	0%
Turn Type	pm+pt	NA	Free	pm+pt	NA		pm+pt	NA		Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free	8			2					
Actuated Green, G (s)		58.5	130.0	72.7	72.7		38.6	34.2		9.6		
Effective Green, g (s)		58.5	130.0	72.7	72.7		38.6	34.2		9.6		
Actuated g/C Ratio		0.45	1.00	0.56	0.56		0.30	0.26		0.07		
Clearance Time (s)		4.5		4.5	4.5		4.5	4.5		4.5		
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0		
Lane Grp Cap (vph)		1549	1306	161	1887		423	401		261		
v/s Ratio Prot		c0.38		0.05	c0.35		0.00	c0.09		c0.04		
v/s Ratio Perm			0.02	0.30			0.01					
v/c Ratio		0.85	0.02	0.62	0.62		0.05	0.35		0.53		
Uniform Delay, d1		31.9	0.0	24.4	19.3		32.5	38.9		58.0		
Progression Factor		1.00	1.00	1.44	2.42		1.00	1.00		1.00		
Incremental Delay, d2		4.8	0.0	2.6	0.2		0.1	2.4		2.1		
Delay (s)		36.6	0.0	37.8	46.9		32.6	41.4		60.1		
Level of Service		D	A	D	D		C	D		E		
Approach Delay (s)		36.0			46.2			40.6			60.1	
Approach LOS		D			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	41.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	71.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Appendix E – Future (2031) Total Conditions Sensitivity Synchro Output



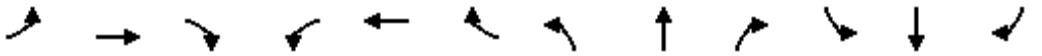
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	228	1237	139	151	862	221	104	547	175	191	1200	595
v/c Ratio	0.99	1.01	0.23	1.06	0.89	0.37	0.84	0.54	0.31	0.56	0.94	0.85
Control Delay	84.8	90.9	21.9	121.2	55.9	6.1	73.0	39.5	3.0	35.7	61.6	43.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
Total Delay	84.8	90.9	21.9	121.2	55.9	6.1	73.0	39.5	3.0	35.7	61.7	43.9
Queue Length 50th (m)	61.6	~172.0	13.9	~27.6	111.0	0.0	14.9	61.2	0.0	36.4	158.4	108.0
Queue Length 95th (m)	m#66.4	m#182.3	m16.2	#71.1	#145.5	17.8	#44.8	79.2	7.1	62.3	#205.8	#168.3
Internal Link Dist (m)		224.1			354.7			410.1			178.2	
Turn Bay Length (m)	126.0		60.0	115.0		67.0	67.0		94.0	138.0		115.0
Base Capacity (vph)	231	1220	606	143	969	593	124	1022	567	347	1278	697
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	3	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	1.01	0.23	1.06	0.89	0.37	0.84	0.54	0.31	0.55	0.94	0.85

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

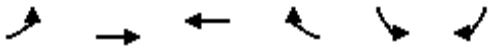
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	210	1138	128	139	793	203	96	503	161	176	1104	547
Future Volume (vph)	210	1138	128	139	793	203	96	503	161	176	1104	547
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0	7.0	6.0	5.0	5.0	4.5	7.0	7.0	6.0	7.0	7.0
Lane Util. Factor	1.00	*1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1560	3525	1428	1674	3230	1461	1587	3288	1332	1705	3476	1507
Flt Permitted	0.09	1.00	1.00	0.10	1.00	1.00	0.10	1.00	1.00	0.29	1.00	1.00
Satd. Flow (perm)	153	3525	1428	181	3230	1461	165	3288	1332	526	3476	1507
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)	228	1237	139	151	862	221	104	547	175	191	1200	595
RTOR Reduction (vph)	0	0	91	0	0	155	0	0	121	0	0	143
Lane Group Flow (vph)	228	1237	48	151	862	66	104	547	54	191	1200	452
Confl. Peds. (#/hr)	4		8	8		4	9		1	1		9
Heavy Vehicles (%)	17%	9%	12%	9%	13%	10%	15%	11%	21%	7%	5%	6%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	58.0	45.0	45.0	46.0	39.0	39.0	46.1	40.4	40.4	58.0	47.8	47.8
Effective Green, g (s)	58.0	45.0	45.0	46.0	39.0	39.0	46.1	40.4	40.4	58.0	47.8	47.8
Actuated g/C Ratio	0.45	0.35	0.35	0.35	0.30	0.30	0.35	0.31	0.31	0.45	0.37	0.37
Clearance Time (s)	6.0	7.0	7.0	6.0	5.0	5.0	4.5	7.0	7.0	6.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	230	1220	494	144	969	438	120	1021	413	339	1278	554
v/s Ratio Prot	c0.11	c0.35		0.06	0.27		c0.04	0.17		0.05	c0.35	
v/s Ratio Perm	0.33		0.03	c0.31		0.05	0.27		0.04	0.20		0.30
v/c Ratio	0.99	1.01	0.10	1.05	0.89	0.15	0.87	0.54	0.13	0.56	0.94	0.82
Uniform Delay, d1	38.5	42.5	28.8	36.6	43.4	33.4	33.8	37.0	32.2	23.8	39.7	37.1
Progression Factor	1.58	1.77	11.04	1.00	1.00	1.00	1.00	1.00	1.00	1.38	1.26	1.45
Incremental Delay, d2	34.1	19.4	0.1	88.5	12.0	0.7	43.8	2.0	0.7	1.7	11.8	10.0
Delay (s)	95.0	94.4	317.8	125.1	55.5	34.1	77.6	39.1	32.9	34.4	61.7	63.9
Level of Service	F	F	F	F	E	C	E	D	C	C	E	E
Approach Delay (s)		113.9			60.2			42.6			59.7	
Approach LOS		F			E			D			E	

Intersection Summary			
HCM 2000 Control Delay	72.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	102.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Volume (veh/h)	0	1512	1253	137	0	0
Future Volume (Veh/h)	0	1512	1253	137	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1643	1362	149	0	0
Pedestrians					3	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.1	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		231	248			
pX, platoon unblocked	0.77				0.67	0.77
vC, conflicting volume	1514				2186	684
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1069				244	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	497				484	832

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	822	822	681	681	149	0
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	149	0
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.48	0.48	0.40	0.40	0.09	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS						A
Approach Delay (s)	0.0		0.0			0.0
Approach LOS						A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	45.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	493	221	667	1876
v/c Ratio	0.81	0.53	0.28	0.76
Control Delay	61.9	10.4	2.5	14.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	61.9	10.4	2.5	14.7
Queue Length 50th (m)	61.8	0.0	12.7	149.1
Queue Length 95th (m)	80.1	24.0	15.2	183.5
Internal Link Dist (m)	450.2		288.7	171.7
Turn Bay Length (m)		168.0		
Base Capacity (vph)	673	442	2341	2475
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	0.73	0.50	0.28	0.76

Intersection Summary

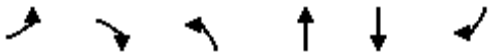
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	429	228	614	0	0	1726
Future Volume (vph)	429	228	614	0	0	1726
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0			7.0
Lane Util. Factor	0.97	0.91	0.95			0.95
Frt	0.99	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3349	1327	3288			3476
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3349	1327	3288			3476
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	466	248	667	0	0	1876
RTOR Reduction (vph)	3	181	0	0	0	0
Lane Group Flow (vph)	490	40	667	0	0	1876
Heavy Vehicles (%)	5%	12%	11%	0%	0%	5%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	23.4	23.4	92.6			92.6
Effective Green, g (s)	23.4	23.4	92.6			92.6
Actuated g/C Ratio	0.18	0.18	0.71			0.71
Clearance Time (s)	7.0	7.0	7.0			7.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	602	238	2342			2475
v/s Ratio Prot	c0.15		0.20			c0.54
v/s Ratio Perm		0.03				
v/c Ratio	0.81	0.17	0.28			0.76
Uniform Delay, d1	51.2	45.1	6.7			11.7
Progression Factor	1.00	1.00	0.31			1.00
Incremental Delay, d2	8.3	0.3	0.3			2.2
Delay (s)	59.5	45.4	2.4			13.9
Level of Service	E	D	A			B
Approach Delay (s)	55.1		2.4			13.9
Approach LOS	E		A			B

Intersection Summary			
HCM 2000 Control Delay	20.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	204	113	689	1791
v/c Ratio	0.58	0.64	0.27	0.66
Control Delay	51.9	54.6	7.4	5.0
Queue Delay	0.3	2.2	0.0	0.1
Total Delay	52.2	56.9	7.4	5.0
Queue Length 50th (m)	21.8	21.6	53.0	71.5
Queue Length 95th (m)	32.5	41.6	m65.6	81.7
Internal Link Dist (m)	638.4		178.2	288.7
Turn Bay Length (m)		150.0		
Base Capacity (vph)	600	287	2556	2726
Starvation Cap Reductn	0	0	0	150
Spillback Cap Reductn	95	87	0	19
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.40	0.56	0.27	0.70

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	84	208	0	634	1648	0
Future Volume (vph)	84	208	0	634	1648	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	
Lane Util. Factor	0.97	0.91		0.95	0.95	
Frt	0.92	0.85		1.00	1.00	
Flt Protected	0.98	1.00		1.00	1.00	
Satd. Flow (prot)	2978	1351		3259	3476	
Flt Permitted	0.98	1.00		1.00	1.00	
Satd. Flow (perm)	2978	1351		3259	3476	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	91	226	0	689	1791	0
RTOR Reduction (vph)	30	30	0	0	0	0
Lane Group Flow (vph)	174	83	0	689	1791	0
Heavy Vehicles (%)	15%	10%	0%	12%	5%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	14.0	14.0		102.0	102.0	
Effective Green, g (s)	14.0	14.0		102.0	102.0	
Actuated g/C Ratio	0.11	0.11		0.78	0.78	
Clearance Time (s)	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	320	145		2557	2727	
v/s Ratio Prot	0.06			0.21	c0.52	
v/s Ratio Perm		c0.06				
v/c Ratio	0.54	0.57		0.27	0.66	
Uniform Delay, d1	55.0	55.1		3.8	6.2	
Progression Factor	1.00	1.00		1.72	0.60	
Incremental Delay, d2	1.9	5.3		0.2	0.8	
Delay (s)	56.8	60.5		6.8	4.5	
Level of Service	E	E		A	A	
Approach Delay (s)	58.1			6.8	4.5	
Approach LOS	E			A	A	

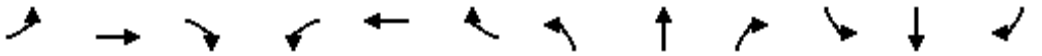
Intersection Summary			
HCM 2000 Control Delay	11.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL
Lane Group Flow (vph)	1512	49	237	1196	50	11	78	53
v/c Ratio	0.98	0.04	0.96	0.57	0.05	0.04	0.16	0.38
Control Delay	52.8	0.0	79.9	11.5	0.0	31.1	0.7	68.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.8	0.0	79.9	11.5	0.0	31.1	0.7	68.6
Queue Length 50th (m)	196.0	0.0	51.6	65.5	0.0	1.9	0.0	6.9
Queue Length 95th (m)	#249.8	0.0	m#68.3	m76.7	m0.0	6.5	0.0	13.8
Internal Link Dist (m)	222.3			206.9			220.6	
Turn Bay Length (m)		37.0	100.0		50.0	50.0		
Base Capacity (vph)	1544	1396	247	2093	1031	355	477	141
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	0.98	0.04	0.96	0.57	0.05	0.03	0.16	0.38

Intersection Summary

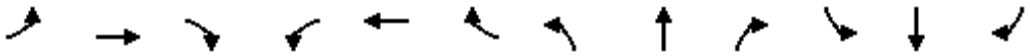
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1391	45	218	1100	46	10	0	72	49	0	0
Future Volume (vph)	0	1391	45	218	1100	46	10	0	72	49	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.0	4.5	4.5	4.5	4.5	4.5		4.5		
Lane Util. Factor		0.95	1.00	1.00	0.95	1.00	1.00	1.00		0.97		
Frt		1.00	0.85	1.00	1.00	0.85	1.00	0.85		1.00		
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95		
Satd. Flow (prot)		3318	1396	1690	3411	1601	1267	1361		3471		
Flt Permitted		1.00	1.00	0.06	1.00	1.00	0.76	1.00		0.95		
Satd. Flow (perm)		3318	1396	109	3411	1601	1010	1361		3471		
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)	0	1512	49	237	1196	50	11	0	78	53	0	0
RTOR Reduction (vph)	0	0	0	0	0	19	0	59	0	0	0	0
Lane Group Flow (vph)	0	1512	49	237	1196	31	11	20	0	53	0	0
Heavy Vehicles (%)	2%	10%	17%	8%	7%	2%	44%	2%	20%	2%	0%	2%
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm	pm+pt	NA		Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free	8		8	2					
Actuated Green, G (s)		60.5	130.0	79.8	79.8	79.8	34.1	32.5		4.2		
Effective Green, g (s)		60.5	130.0	79.8	79.8	79.8	34.1	32.5		4.2		
Actuated g/C Ratio		0.47	1.00	0.61	0.61	0.61	0.26	0.25		0.03		
Clearance Time (s)		4.5		4.5	4.5	4.5	4.5	4.5		4.5		
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0		3.0		
Lane Grp Cap (vph)		1544	1396	246	2093	982	268	340		112		
v/s Ratio Prot		0.46		c0.11	0.35		0.00	c0.01		c0.02		
v/s Ratio Perm			c0.04	c0.48		0.02	0.01					
v/c Ratio		0.98	0.04	0.96	0.57	0.03	0.04	0.06		0.47		
Uniform Delay, d1		34.1	0.0	42.9	14.9	9.9	35.7	37.1		61.8		
Progression Factor		1.00	1.00	1.31	0.72	1.00	1.00	1.00		1.00		
Incremental Delay, d2		17.9	0.0	33.8	0.2	0.0	0.1	0.3		3.1		
Delay (s)		52.1	0.0	89.8	10.9	9.9	35.7	37.4		64.9		
Level of Service		D	A	F	B	A	D	D		E		
Approach Delay (s)		50.4			23.5			37.2			64.9	
Approach LOS		D			C			D			E	

Intersection Summary			
HCM 2000 Control Delay	37.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	496	1228	197	207	1109	377	104	1255	98	198	852	238
v/c Ratio	1.47	0.99	0.33	1.02	1.10	0.68	0.57	1.09	0.17	1.34	0.76	0.40
Control Delay	263.0	48.3	7.8	105.0	101.6	29.1	36.8	96.0	0.7	220.9	39.8	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	263.0	48.3	7.8	105.0	101.6	29.1	36.8	96.0	0.7	220.9	39.8	7.4
Queue Length 50th (m)	~155.9	127.9	1.1	~41.6	~160.3	48.1	15.9	~180.4	0.0	~50.9	79.8	0.0
Queue Length 95th (m)	#228.6	#198.5	m13.0	#91.4	#199.7	84.1	27.7	#220.6	0.0	#100.7	118.8	19.7
Internal Link Dist (m)		224.1			354.7			410.1			178.2	
Turn Bay Length (m)	126.0		60.0	115.0		67.0	67.0		94.0	138.0		115.0
Base Capacity (vph)	338	1243	592	202	1012	557	181	1153	564	148	1128	597
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.47	0.99	0.33	1.02	1.10	0.68	0.57	1.09	0.17	1.34	0.76	0.40

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

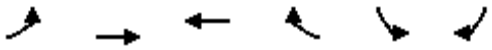
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	456	1130	181	190	1020	347	96	1155	90	182	784	219
Future Volume (vph)	456	1130	181	190	1020	347	96	1155	90	182	784	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.0	7.0	6.0	7.0	7.0	4.0	7.0	7.0	5.0	7.0	7.0
Lane Util. Factor	1.00	*1.00	1.00	1.00	*1.00	1.00	1.00	*1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1738	3591	1484	1615	3558	1535	1674	3659	1425	1706	3444	1336
Flt Permitted	0.09	1.00	1.00	0.11	1.00	1.00	0.17	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	170	3591	1484	184	3558	1535	294	3659	1425	165	3444	1336
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)	496	1228	197	207	1109	377	104	1255	98	198	852	238
RTOR Reduction (vph)	0	0	79	0	0	120	0	0	67	0	0	160
Lane Group Flow (vph)	496	1228	118	207	1109	257	104	1255	31	198	852	78
Confl. Peds. (#/hr)	1		6	6		1	6		2	2		6
Heavy Vehicles (%)	5%	7%	8%	13%	8%	5%	9%	5%	13%	7%	6%	20%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	63.0	45.0	45.0	49.0	37.0	37.0	47.4	41.0	41.0	48.6	42.6	42.6
Effective Green, g (s)	64.0	45.0	45.0	49.0	37.0	37.0	47.4	41.0	41.0	50.6	42.6	42.6
Actuated g/C Ratio	0.49	0.35	0.35	0.38	0.28	0.28	0.36	0.32	0.32	0.39	0.33	0.33
Clearance Time (s)	6.0	7.0	7.0	6.0	7.0	7.0	4.0	7.0	7.0	6.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	336	1243	513	201	1012	436	175	1153	449	147	1128	437
v/s Ratio Prot	c0.24	0.34		0.09	0.31		0.03	0.34		c0.07	0.25	
v/s Ratio Perm	c0.49		0.08	0.29		0.17	0.19		0.02	c0.45		0.06
v/c Ratio	1.48	0.99	0.23	1.03	1.10	0.59	0.59	1.09	0.07	1.35	0.76	0.18
Uniform Delay, d1	41.3	42.2	30.2	35.3	46.5	40.0	29.9	44.5	31.1	34.8	39.0	31.2
Progression Factor	1.58	0.66	0.54	1.00	1.00	1.00	1.00	1.00	1.00	1.46	0.89	1.40
Incremental Delay, d2	226.1	19.4	0.8	71.5	58.2	5.7	5.3	54.0	0.3	192.7	4.5	0.8
Delay (s)	291.3	47.2	16.9	106.8	104.7	45.7	35.3	98.5	31.4	243.7	39.4	44.5
Level of Service	F	D	B	F	F	D	D	F	C	F	D	D
Approach Delay (s)		107.1			91.8			89.5			71.8	
Approach LOS		F			F			F			E	

Intersection Summary			
HCM 2000 Control Delay	91.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.51		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	118.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Volume (veh/h)	0	1588	1284	38	0	0
Future Volume (Veh/h)	0	1588	1284	38	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1726	1396	41	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		231	248			
pX, platoon unblocked	0.72				0.79	0.72
vC, conflicting volume	1437				2259	698
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	840				482	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	572				405	785

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	863	863	698	698	41	0
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	41	0
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.51	0.51	0.41	0.41	0.02	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS						A
Approach Delay (s)	0.0		0.0			0.0
Approach LOS						A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	473	232	1421	1208
v/c Ratio	0.76	0.76	0.57	0.49
Control Delay	52.5	54.5	8.4	10.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	52.5	54.5	8.4	10.1
Queue Length 50th (m)	54.3	50.2	55.2	64.1
Queue Length 95th (m)	66.5	75.7	81.5	100.4
Internal Link Dist (m)	450.2		288.7	171.7
Turn Bay Length (m)		168.0		
Base Capacity (vph)	901	431	2477	2477
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	0.52	0.54	0.57	0.49

Intersection Summary

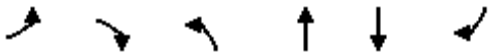
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	222	427	1307	0	0	1111
Future Volume (vph)	222	427	1307	0	0	1111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0			7.0
Lane Util. Factor	0.97	0.91	0.95			0.95
Frt	0.93	0.85	1.00			1.00
Flt Protected	0.98	1.00	1.00			1.00
Satd. Flow (prot)	3130	1429	3510			3510
Flt Permitted	0.98	1.00	1.00			1.00
Satd. Flow (perm)	3130	1429	3510			3510
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	241	464	1421	0	0	1208
RTOR Reduction (vph)	40	40	0	0	0	0
Lane Group Flow (vph)	433	192	1421	0	0	1208
Heavy Vehicles (%)	11%	4%	4%	0%	0%	4%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	24.3	24.3	91.7			91.7
Effective Green, g (s)	24.3	24.3	91.7			91.7
Actuated g/C Ratio	0.19	0.19	0.71			0.71
Clearance Time (s)	7.0	7.0	7.0			7.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	585	267	2475			2475
v/s Ratio Prot	c0.14		c0.40			0.34
v/s Ratio Perm		0.13				
v/c Ratio	0.74	0.72	0.57			0.49
Uniform Delay, d1	49.9	49.7	9.5			8.6
Progression Factor	1.00	1.00	0.73			1.00
Incremental Delay, d2	5.0	9.0	0.8			0.7
Delay (s)	54.9	58.6	7.8			9.3
Level of Service	D	E	A			A
Approach Delay (s)	56.1		7.8			9.3
Approach LOS	E		A			A

Intersection Summary			
HCM 2000 Control Delay	18.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	178	80	1492	1092
v/c Ratio	0.56	0.41	0.54	0.40
Control Delay	59.7	17.6	2.4	3.0
Queue Delay	0.0	0.0	0.7	0.0
Total Delay	59.7	17.6	3.0	3.0
Queue Length 50th (m)	21.5	0.0	25.4	20.4
Queue Length 95th (m)	32.5	16.1	m28.3	28.1
Internal Link Dist (m)	638.4		178.2	288.7
Turn Bay Length (m)		150.0		
Base Capacity (vph)	677	329	2769	2744
Starvation Cap Reductn	0	0	831	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.26	0.24	0.77	0.40

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



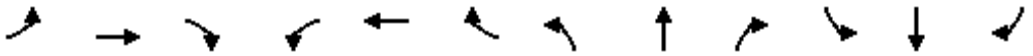
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	145	92	0	1373	1005	0
Future Volume (vph)	145	92	0	1373	1005	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	
Lane Util. Factor	0.97	0.91		0.95	0.95	
Frt	0.98	0.85		1.00	1.00	
Flt Protected	0.96	1.00		1.00	1.00	
Satd. Flow (prot)	3222	1281		3476	3444	
Flt Permitted	0.96	1.00		1.00	1.00	
Satd. Flow (perm)	3222	1281		3476	3444	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	158	100	0	1492	1092	0
RTOR Reduction (vph)	9	72	0	0	0	0
Lane Group Flow (vph)	169	8	0	1492	1092	0
Heavy Vehicles (%)	8%	16%	0%	5%	6%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	12.4	12.4		103.6	103.6	
Effective Green, g (s)	12.4	12.4		103.6	103.6	
Actuated g/C Ratio	0.10	0.10		0.80	0.80	
Clearance Time (s)	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	307	122		2770	2744	
v/s Ratio Prot	c0.05			c0.43	0.32	
v/s Ratio Perm		0.01				
v/c Ratio	0.55	0.06		0.54	0.40	
Uniform Delay, d1	56.1	53.5		4.7	3.9	
Progression Factor	1.00	1.00		0.46	0.63	
Incremental Delay, d2	2.1	0.2		0.1	0.4	
Delay (s)	58.3	53.7		2.2	2.8	
Level of Service	E	D		A	A	
Approach Delay (s)	56.9			2.2	2.8	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	7.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL
Lane Group Flow (vph)	1320	25	100	1154	14	22	242	164
v/c Ratio	0.85	0.02	0.62	0.61	0.01	0.05	0.50	0.57
Control Delay	37.8	0.0	35.5	44.7	0.0	29.7	23.7	65.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.8	0.0	35.5	44.7	0.0	29.7	23.7	65.5
Queue Length 50th (m)	152.3	0.0	23.4	155.6	0.0	3.6	23.5	21.0
Queue Length 95th (m)	175.7	0.0	m25.6	m150.0	m0.0	10.2	52.4	32.8
Internal Link Dist (m)	222.3			206.9			220.6	
Turn Bay Length (m)		37.0	100.0		50.0	50.0		
Base Capacity (vph)	1655	1306	186	1927	967	563	488	306
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	0.80	0.02	0.54	0.60	0.01	0.04	0.50	0.54

Intersection Summary

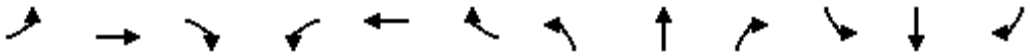
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1214	23	92	1062	13	20	0	223	151	0	0
Future Volume (vph)	0	1214	23	92	1062	13	20	0	223	151	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.0	4.5	4.5	4.5	4.5	4.5		4.5		
Lane Util. Factor		0.95	1.00	1.00	0.95	1.00	1.00	1.00		0.97		
Frt		1.00	0.85	1.00	1.00	0.85	1.00	0.85		1.00		
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95		
Satd. Flow (prot)		3444	1306	1508	3380	1601	1738	1526		3541		
Flt Permitted		1.00	1.00	0.06	1.00	1.00	0.76	1.00		0.95		
Satd. Flow (perm)		3444	1306	101	3380	1601	1385	1526		3541		
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)	0	1320	25	100	1154	14	22	0	242	164	0	0
RTOR Reduction (vph)	0	0	0	0	0	6	0	99	0	0	0	0
Lane Group Flow (vph)	0	1320	25	100	1154	8	22	143	0	164	0	0
Heavy Vehicles (%)	25%	6%	25%	21%	8%	2%	5%	0%	7%	0%	0%	0%
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm	pm+pt	NA		Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free	8		8	2					
Actuated Green, G (s)		58.5	130.0	72.7	72.7	72.7	37.6	33.2		10.6		
Effective Green, g (s)		58.5	130.0	72.7	72.7	72.7	37.6	33.2		10.6		
Actuated g/C Ratio		0.45	1.00	0.56	0.56	0.56	0.29	0.26		0.08		
Clearance Time (s)		4.5		4.5	4.5	4.5	4.5	4.5		4.5		
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0	3.0		3.0		
Lane Grp Cap (vph)		1549	1306	161	1890	895	412	389		288		
v/s Ratio Prot		c0.38		0.05	c0.34		0.00	c0.09		c0.05		
v/s Ratio Perm			0.02	0.30		0.00	0.01					
v/c Ratio		0.85	0.02	0.62	0.61	0.01	0.05	0.37		0.57		
Uniform Delay, d1		31.9	0.0	24.4	19.2	12.7	33.3	39.8		57.5		
Progression Factor		1.00	1.00	1.37	2.35	1.00	1.00	1.00		1.00		
Incremental Delay, d2		4.8	0.0	2.5	0.2	0.0	0.1	2.7		2.6		
Delay (s)		36.6	0.0	35.9	45.3	12.7	33.3	42.4		60.1		
Level of Service		D	A	D	D	B	C	D		E		
Approach Delay (s)		36.0			44.2			41.7			60.1	
Approach LOS		D			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	41.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	71.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Appendix F – Future (2031) Total Conditions Sensitivity Improvements Synchro Output

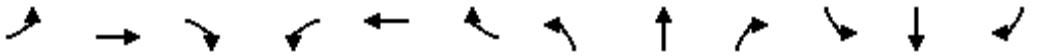


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	228	1237	139	151	862	221	104	547	175	191	1200	595
v/c Ratio	0.83	0.99	0.23	0.87	0.80	0.36	0.85	0.55	0.34	0.63	0.96	0.90
Control Delay	56.2	86.1	21.8	101.3	46.5	7.6	74.1	40.9	7.1	59.1	65.7	52.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.2	86.1	21.8	101.3	46.5	7.6	74.1	40.9	7.1	59.1	65.7	52.3
Queue Length 50th (m)	32.2	169.5	14.0	20.1	105.7	4.0	15.2	62.5	0.5	25.2	160.2	117.7
Queue Length 95th (m)	m33.7	m#177.9	m16.2	#39.3	131.1	22.3	#45.4	81.0	17.4	36.4	#209.6	#183.8
Internal Link Dist (m)		224.1			354.7			410.1			178.2	
Turn Bay Length (m)	126.0		60.0	115.0		67.0	67.0		94.0	138.0		115.0
Base Capacity (vph)	279	1247	616	174	1071	616	123	990	521	330	1251	661
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.99	0.23	0.87	0.80	0.36	0.85	0.55	0.34	0.58	0.96	0.90

Intersection Summary

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

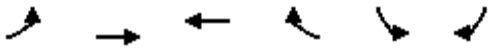
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	210	1138	128	139	793	203	96	503	161	176	1104	547
Future Volume (vph)	210	1138	128	139	793	203	96	503	161	176	1104	547
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0	7.0	6.0	5.0	5.0	4.5	7.0	7.0	6.0	7.0	7.0
Lane Util. Factor	0.97	*1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3026	3525	1428	3248	3230	1461	1587	3288	1332	3309	3476	1507
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.10	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3026	3525	1428	3248	3230	1461	171	3288	1332	3309	3476	1507
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)	228	1237	139	151	862	221	104	547	175	191	1200	595
RTOR Reduction (vph)	0	0	90	0	0	132	0	0	120	0	0	119
Lane Group Flow (vph)	228	1237	49	151	862	89	104	547	55	191	1200	476
Confl. Peds. (#/hr)	4		8	8		4	9		1	1		9
Heavy Vehicles (%)	17%	9%	12%	9%	13%	10%	15%	11%	21%	7%	5%	6%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2		2			6
Actuated Green, G (s)	11.9	46.0	46.0	7.0	43.1	43.1	44.8	39.1	39.1	11.9	46.8	46.8
Effective Green, g (s)	11.9	46.0	46.0	7.0	43.1	43.1	44.8	39.1	39.1	11.9	46.8	46.8
Actuated g/C Ratio	0.09	0.35	0.35	0.05	0.33	0.33	0.34	0.30	0.30	0.09	0.36	0.36
Clearance Time (s)	6.0	7.0	7.0	6.0	5.0	5.0	4.5	7.0	7.0	6.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	276	1247	505	174	1070	484	121	988	400	302	1251	542
v/s Ratio Prot	c0.08	c0.35		0.05	0.27		c0.04	0.17		0.06	c0.35	
v/s Ratio Perm			0.03			0.06	0.26		0.04			0.32
v/c Ratio	0.83	0.99	0.10	0.87	0.81	0.18	0.86	0.55	0.14	0.63	0.96	0.88
Uniform Delay, d1	58.0	41.8	28.1	61.0	39.6	30.9	35.0	38.1	33.1	56.9	40.7	38.9
Progression Factor	0.78	1.78	11.26	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.26	1.41
Incremental Delay, d2	7.5	13.8	0.1	33.7	6.5	0.8	41.7	2.2	0.7	3.4	14.8	14.9
Delay (s)	52.7	88.4	316.6	94.7	46.1	31.8	76.7	40.4	33.9	54.8	66.0	69.6
Level of Service	D	F	F	F	D	C	E	D	C	D	E	E
Approach Delay (s)		103.1			49.5			43.6			66.0	
Approach LOS		F			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	69.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	93.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1504	1253	116	0	0
Future Volume (Veh/h)	0	1504	1253	116	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1635	1362	126	0	0
Pedestrians					3	
Lane Width (m)					3.7	
Walking Speed (m/s)					1.1	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		231	248			
pX, platoon unblocked	0.78				0.67	0.78
vC, conflicting volume	1491				2182	684
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1068				292	35
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	505				448	802

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	818	818	681	681	126	0
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	126	0
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.48	0.48	0.40	0.40	0.07	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS						A
Approach Delay (s)	0.0		0.0			0.0
Approach LOS						A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	44.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	493	221	661	1850
v/c Ratio	0.80	0.52	0.28	0.75
Control Delay	60.6	10.2	2.3	14.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	60.6	10.2	2.3	14.8
Queue Length 50th (m)	61.8	0.0	12.1	144.8
Queue Length 95th (m)	79.3	23.7	14.4	183.2
Internal Link Dist (m)	450.2		288.7	171.7
Turn Bay Length (m)		168.0		
Base Capacity (vph)	698	450	2331	2464
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	0.71	0.49	0.28	0.75

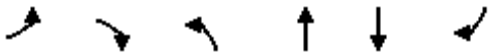
Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	429	228	608	0	0	1702
Future Volume (vph)	429	228	608	0	0	1702
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0			7.0
Lane Util. Factor	0.97	0.91	0.95			0.95
Frt	0.99	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3349	1327	3288			3476
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3349	1327	3288			3476
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	466	248	661	0	0	1850
RTOR Reduction (vph)	3	181	0	0	0	0
Lane Group Flow (vph)	490	40	661	0	0	1850
Heavy Vehicles (%)	5%	12%	11%	0%	0%	5%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	23.8	23.8	92.2			92.2
Effective Green, g (s)	23.8	23.8	92.2			92.2
Actuated g/C Ratio	0.18	0.18	0.71			0.71
Clearance Time (s)	7.0	7.0	7.0			7.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	613	242	2331			2465
v/s Ratio Prot	c0.15		0.20			c0.53
v/s Ratio Perm		0.03				
v/c Ratio	0.80	0.17	0.28			0.75
Uniform Delay, d1	50.8	44.7	6.9			11.7
Progression Factor	1.00	1.00	0.27			1.00
Incremental Delay, d2	7.2	0.3	0.3			2.2
Delay (s)	58.0	45.1	2.2			13.9
Level of Service	E	D	A			B
Approach Delay (s)	54.0		2.2			13.9
Approach LOS	D		A			B

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	73.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	204	113	683	1765
v/c Ratio	0.58	0.64	0.27	0.65
Control Delay	51.5	53.5	7.0	4.9
Queue Delay	0.3	2.2	0.0	0.1
Total Delay	51.8	55.7	7.0	5.0
Queue Length 50th (m)	21.5	21.0	52.1	70.4
Queue Length 95th (m)	32.3	41.0	67.3	79.5
Internal Link Dist (m)	638.4		178.2	288.7
Turn Bay Length (m)		150.0		
Base Capacity (vph)	601	288	2559	2729
Starvation Cap Reductn	0	0	0	152
Spillback Cap Reductn	95	87	0	23
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.40	0.56	0.27	0.68

Intersection Summary



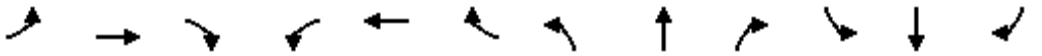
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	84	208	0	628	1624	0
Future Volume (vph)	84	208	0	628	1624	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	
Lane Util. Factor	0.97	0.91		0.95	0.95	
Frt	0.92	0.85		1.00	1.00	
Flt Protected	0.98	1.00		1.00	1.00	
Satd. Flow (prot)	2978	1351		3259	3476	
Flt Permitted	0.98	1.00		1.00	1.00	
Satd. Flow (perm)	2978	1351		3259	3476	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	91	226	0	683	1765	0
RTOR Reduction (vph)	32	32	0	0	0	0
Lane Group Flow (vph)	172	81	0	683	1765	0
Heavy Vehicles (%)	15%	10%	0%	12%	5%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	13.9	13.9		102.1	102.1	
Effective Green, g (s)	13.9	13.9		102.1	102.1	
Actuated g/C Ratio	0.11	0.11		0.79	0.79	
Clearance Time (s)	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	318	144		2559	2729	
v/s Ratio Prot	0.06			0.21	c0.51	
v/s Ratio Perm		c0.06				
v/c Ratio	0.54	0.56		0.27	0.65	
Uniform Delay, d1	55.0	55.2		3.8	6.1	
Progression Factor	1.00	1.00		1.65	0.61	
Incremental Delay, d2	1.9	4.9		0.2	0.8	
Delay (s)	56.9	60.1		6.4	4.5	
Level of Service	E	E		A	A	
Approach Delay (s)	58.0			6.4	4.5	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	73.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	SBL
Lane Group Flow (vph)	1512	49	237	1250	11	78	45
v/c Ratio	0.98	0.04	0.96	0.60	0.04	0.16	0.34
Control Delay	52.8	0.0	81.4	12.1	31.1	0.7	68.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.8	0.0	81.4	12.1	31.1	0.7	68.0
Queue Length 50th (m)	196.0	0.0	51.7	71.0	1.9	0.0	5.9
Queue Length 95th (m)	#249.8	0.0	m#73.7	m81.3	6.5	0.0	12.3
Internal Link Dist (m)	222.3			206.9		220.6	
Turn Bay Length (m)		37.0	100.0		50.0		
Base Capacity (vph)	1544	1396	247	2087	355	480	133
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.04	0.96	0.60	0.03	0.16	0.34

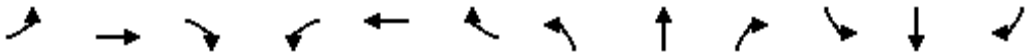
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1391	45	218	1100	50	10	0	72	41	0	0
Future Volume (vph)	0	1391	45	218	1100	50	10	0	72	41	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.0	4.5	4.5		4.5	4.5		4.5		
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	1.00		0.97		
Frt		1.00	0.85	1.00	0.99		1.00	0.85		1.00		
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00		0.95		
Satd. Flow (prot)		3318	1396	1690	3396		1267	1361		3471		
Flt Permitted		1.00	1.00	0.06	1.00		0.76	1.00		0.95		
Satd. Flow (perm)		3318	1396	109	3396		1010	1361		3471		
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)	0	1512	49	237	1196	54	11	0	78	45	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	58	0	0	0	0
Lane Group Flow (vph)	0	1512	49	237	1248	0	11	20	0	45	0	0
Heavy Vehicles (%)	2%	10%	17%	8%	7%	2%	44%	2%	20%	2%	0%	2%
Turn Type	pm+pt	NA	Free	pm+pt	NA		pm+pt	NA		Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free	8			2					
Actuated Green, G (s)		60.5	130.0	79.8	79.8		34.3	32.7		4.0		
Effective Green, g (s)		60.5	130.0	79.8	79.8		34.3	32.7		4.0		
Actuated g/C Ratio		0.47	1.00	0.61	0.61		0.26	0.25		0.03		
Clearance Time (s)		4.5		4.5	4.5		4.5	4.5		4.5		
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0		
Lane Grp Cap (vph)		1544	1396	246	2084		269	342		106		
v/s Ratio Prot		0.46		c0.11	0.37		0.00	c0.01		c0.01		
v/s Ratio Perm			c0.04	c0.48			0.01					
v/c Ratio		0.98	0.04	0.96	0.60		0.04	0.06		0.42		
Uniform Delay, d1		34.1	0.0	42.9	15.3		35.5	36.9		61.9		
Progression Factor		1.00	1.00	1.31	0.73		1.00	1.00		1.00		
Incremental Delay, d2		17.9	0.0	35.2	0.3		0.1	0.3		2.7		
Delay (s)		52.1	0.0	91.4	11.5		35.6	37.3		64.6		
Level of Service		D	A	F	B		D	D		E		
Approach Delay (s)		50.4			24.2			37.1			64.6	
Approach LOS		D			C			D			E	

Intersection Summary			
HCM 2000 Control Delay	38.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	69.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	496	1228	197	207	1109	377	104	1255	98	198	852	238
v/c Ratio	1.06	0.97	0.33	0.96	1.10	0.68	0.51	1.09	0.17	0.98	0.75	0.40
Control Delay	127.3	43.3	8.0	111.3	101.6	29.1	30.8	96.0	0.7	129.0	38.9	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	127.3	43.3	8.0	111.3	101.6	29.1	30.8	96.0	0.7	129.0	38.9	7.0
Queue Length 50th (m)	~73.0	111.5	1.1	27.7	~160.3	48.1	15.4	~180.4	0.0	27.5	79.6	0.0
Queue Length 95th (m)	#109.1	#194.7	m13.8	#52.2	#199.7	84.1	26.9	#220.6	0.0	#52.5	117.8	19.0
Internal Link Dist (m)		224.1			354.7			410.1			178.2	
Turn Bay Length (m)	126.0		60.0	115.0		67.0	67.0		94.0	138.0		115.0
Base Capacity (vph)	466	1270	603	216	1012	557	206	1153	564	203	1142	602
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.06	0.97	0.33	0.96	1.10	0.68	0.50	1.09	0.17	0.98	0.75	0.40

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

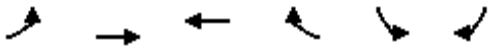
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	456	1130	181	190	1020	347	96	1155	90	182	784	219
Future Volume (vph)	456	1130	181	190	1020	347	96	1155	90	182	784	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0	7.0	6.0	7.0	7.0	4.0	7.0	7.0	6.0	7.0	7.0
Lane Util. Factor	0.97	*1.00	1.00	0.97	*1.00	1.00	1.00	*1.00	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3372	3591	1484	3133	3558	1535	1674	3659	1425	3309	3444	1336
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.17	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3372	3591	1484	3133	3558	1535	303	3659	1425	3309	3444	1336
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)	496	1228	197	207	1109	377	104	1255	98	198	852	238
RTOR Reduction (vph)	0	0	79	0	0	120	0	0	67	0	0	159
Lane Group Flow (vph)	496	1228	118	207	1109	257	104	1255	31	198	852	79
Confl. Peds. (#/hr)	1		6	6		1	6		2	2		6
Heavy Vehicles (%)	5%	7%	8%	13%	8%	5%	9%	5%	13%	7%	6%	20%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2		2			6
Actuated Green, G (s)	18.0	46.0	46.0	9.0	37.0	37.0	48.9	41.0	41.0	8.0	43.1	43.1
Effective Green, g (s)	18.0	46.0	46.0	9.0	37.0	37.0	48.9	41.0	41.0	8.0	43.1	43.1
Actuated g/C Ratio	0.14	0.35	0.35	0.07	0.28	0.28	0.38	0.32	0.32	0.06	0.33	0.33
Clearance Time (s)	6.0	7.0	7.0	6.0	7.0	7.0	4.0	7.0	7.0	6.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	466	1270	525	216	1012	436	197	1153	449	203	1141	442
v/s Ratio Prot	c0.15	c0.34		0.07	c0.31		0.03	c0.34		c0.06	0.25	
v/s Ratio Perm			0.08			0.17	0.17		0.02			0.06
v/c Ratio	1.06	0.97	0.23	0.96	1.10	0.59	0.53	1.09	0.07	0.98	0.75	0.18
Uniform Delay, d1	56.0	41.3	29.5	60.3	46.5	40.0	28.8	44.5	31.1	60.9	38.6	30.9
Progression Factor	1.44	0.65	0.58	1.00	1.00	1.00	1.00	1.00	1.00	1.24	0.89	1.32
Incremental Delay, d2	54.7	15.5	0.8	48.9	58.2	5.7	2.5	54.0	0.3	54.1	4.3	0.8
Delay (s)	135.1	42.3	17.8	109.2	104.7	45.7	31.3	98.5	31.4	129.8	38.5	41.6
Level of Service	F	D	B	F	F	D	C	F	C	F	D	D
Approach Delay (s)		63.8			92.1			89.2			53.1	
Approach LOS		E			F			F			D	

Intersection Summary			
HCM 2000 Control Delay	75.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	102.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1565	1284	32	0	0
Future Volume (Veh/h)	0	1565	1284	32	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1701	1396	35	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		231	248			
pX, platoon unblocked	0.72				0.79	0.72
vC, conflicting volume	1431				2264	716
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	832				488	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	576				401	785

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	850	850	931	500	0
Volume Left	0	0	0	0	0
Volume Right	0	0	0	35	0
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.50	0.50	0.55	0.29	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					A
Approach Delay (s)	0.0		0.0		0.0
Approach LOS					A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	46.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	473	232	1399	1200
v/c Ratio	0.76	0.76	0.56	0.48
Control Delay	52.4	53.7	9.7	9.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	52.4	53.7	9.7	9.9
Queue Length 50th (m)	54.0	49.3	60.1	63.2
Queue Length 95th (m)	66.2	75.0	88.6	99.1
Internal Link Dist (m)	450.2		288.7	171.7
Turn Bay Length (m)		168.0		
Base Capacity (vph)	903	433	2481	2481
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	0.52	0.54	0.56	0.48

Intersection Summary

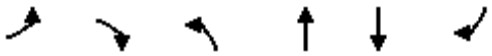
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	222	427	1287	0	0	1104
Future Volume (vph)	222	427	1287	0	0	1104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0			7.0
Lane Util. Factor	0.97	0.91	0.95			0.95
Frt	0.93	0.85	1.00			1.00
Flt Protected	0.98	1.00	1.00			1.00
Satd. Flow (prot)	3130	1429	3510			3510
Flt Permitted	0.98	1.00	1.00			1.00
Satd. Flow (perm)	3130	1429	3510			3510
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	241	464	1399	0	0	1200
RTOR Reduction (vph)	42	42	0	0	0	0
Lane Group Flow (vph)	431	190	1399	0	0	1200
Heavy Vehicles (%)	11%	4%	4%	0%	0%	4%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	24.1	24.1	91.9			91.9
Effective Green, g (s)	24.1	24.1	91.9			91.9
Actuated g/C Ratio	0.19	0.19	0.71			0.71
Clearance Time (s)	7.0	7.0	7.0			7.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	580	264	2481			2481
v/s Ratio Prot	c0.14		c0.40			0.34
v/s Ratio Perm		0.13				
v/c Ratio	0.74	0.72	0.56			0.48
Uniform Delay, d1	50.0	49.8	9.3			8.5
Progression Factor	1.00	1.00	0.88			1.00
Incremental Delay, d2	5.1	9.0	0.8			0.7
Delay (s)	55.1	58.8	9.0			9.2
Level of Service	E	E	A			A
Approach Delay (s)	56.3		9.0			9.2
Approach LOS	E		A			A

Intersection Summary			
HCM 2000 Control Delay	19.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	178	80	1471	1085
v/c Ratio	0.56	0.41	0.53	0.40
Control Delay	59.7	17.6	1.7	3.0
Queue Delay	0.0	0.0	0.4	0.0
Total Delay	59.7	17.6	2.1	3.0
Queue Length 50th (m)	21.5	0.0	17.8	20.3
Queue Length 95th (m)	32.5	16.1	m22.8	28.0
Internal Link Dist (m)	638.4		178.2	288.7
Turn Bay Length (m)		150.0		
Base Capacity (vph)	677	329	2769	2744
Starvation Cap Reductn	0	0	704	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.26	0.24	0.71	0.40

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



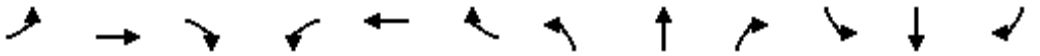
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	145	92	0	1353	998	0
Future Volume (vph)	145	92	0	1353	998	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	
Lane Util. Factor	0.97	0.91		0.95	0.95	
Frt	0.98	0.85		1.00	1.00	
Flt Protected	0.96	1.00		1.00	1.00	
Satd. Flow (prot)	3222	1281		3476	3444	
Flt Permitted	0.96	1.00		1.00	1.00	
Satd. Flow (perm)	3222	1281		3476	3444	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	158	100	0	1471	1085	0
RTOR Reduction (vph)	9	72	0	0	0	0
Lane Group Flow (vph)	169	8	0	1471	1085	0
Heavy Vehicles (%)	8%	16%	0%	5%	6%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	12.4	12.4		103.6	103.6	
Effective Green, g (s)	12.4	12.4		103.6	103.6	
Actuated g/C Ratio	0.10	0.10		0.80	0.80	
Clearance Time (s)	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	307	122		2770	2744	
v/s Ratio Prot	c0.05			c0.42	0.32	
v/s Ratio Perm		0.01				
v/c Ratio	0.55	0.06		0.53	0.40	
Uniform Delay, d1	56.1	53.5		4.6	3.9	
Progression Factor	1.00	1.00		0.33	0.63	
Incremental Delay, d2	2.1	0.2		0.1	0.4	
Delay (s)	58.3	53.7		1.6	2.8	
Level of Service	E	D		A	A	
Approach Delay (s)	56.9			1.6	2.8	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	7.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	SBL
Lane Group Flow (vph)	1320	25	100	1166	22	242	139
v/c Ratio	0.85	0.02	0.62	0.62	0.05	0.48	0.53
Control Delay	37.8	0.0	37.2	46.3	29.6	22.5	65.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.8	0.0	37.2	46.3	29.6	22.5	65.6
Queue Length 50th (m)	152.3	0.0	23.3	157.3	3.6	22.4	17.8
Queue Length 95th (m)	175.7	0.0	m25.9	m150.7	10.2	50.8	28.7
Internal Link Dist (m)	222.3			206.9		220.6	
Turn Bay Length (m)		37.0	100.0		50.0		
Base Capacity (vph)	1655	1306	186	1925	563	501	275
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.02	0.54	0.61	0.04	0.48	0.51

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1214	23	92	1062	11	20	0	223	128	0	0
Future Volume (vph)	0	1214	23	92	1062	11	20	0	223	128	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.0	4.5	4.5		4.5	4.5		4.5		
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	1.00		0.97		
Frt		1.00	0.85	1.00	1.00		1.00	0.85		1.00		
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00		0.95		
Satd. Flow (prot)		3444	1306	1508	3376		1738	1526		3541		
Flt Permitted		1.00	1.00	0.06	1.00		0.76	1.00		0.95		
Satd. Flow (perm)		3444	1306	101	3376		1385	1526		3541		
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)	0	1320	25	100	1154	12	22	0	242	139	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	100	0	0	0	0
Lane Group Flow (vph)	0	1320	25	100	1166	0	22	142	0	139	0	0
Heavy Vehicles (%)	25%	6%	25%	21%	8%	2%	5%	0%	7%	0%	0%	0%
Turn Type	pm+pt	NA	Free	pm+pt	NA		pm+pt	NA		Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		Free	8			2					
Actuated Green, G (s)		58.5	130.0	72.7	72.7		38.6	34.2		9.6		
Effective Green, g (s)		58.5	130.0	72.7	72.7		38.6	34.2		9.6		
Actuated g/C Ratio		0.45	1.00	0.56	0.56		0.30	0.26		0.07		
Clearance Time (s)		4.5		4.5	4.5		4.5	4.5		4.5		
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0		
Lane Grp Cap (vph)		1549	1306	161	1887		423	401		261		
v/s Ratio Prot		c0.38		0.05	c0.35		0.00	c0.09		c0.04		
v/s Ratio Perm			0.02	0.30			0.01					
v/c Ratio		0.85	0.02	0.62	0.62		0.05	0.35		0.53		
Uniform Delay, d1		31.9	0.0	24.4	19.3		32.5	38.9		58.0		
Progression Factor		1.00	1.00	1.44	2.42		1.00	1.00		1.00		
Incremental Delay, d2		4.8	0.0	2.6	0.2		0.1	2.4		2.1		
Delay (s)		36.6	0.0	37.7	46.8		32.6	41.4		60.1		
Level of Service		D	A	D	D		C	D		E		
Approach Delay (s)		36.0			46.1			40.6			60.1	
Approach LOS		D			D			D			E	

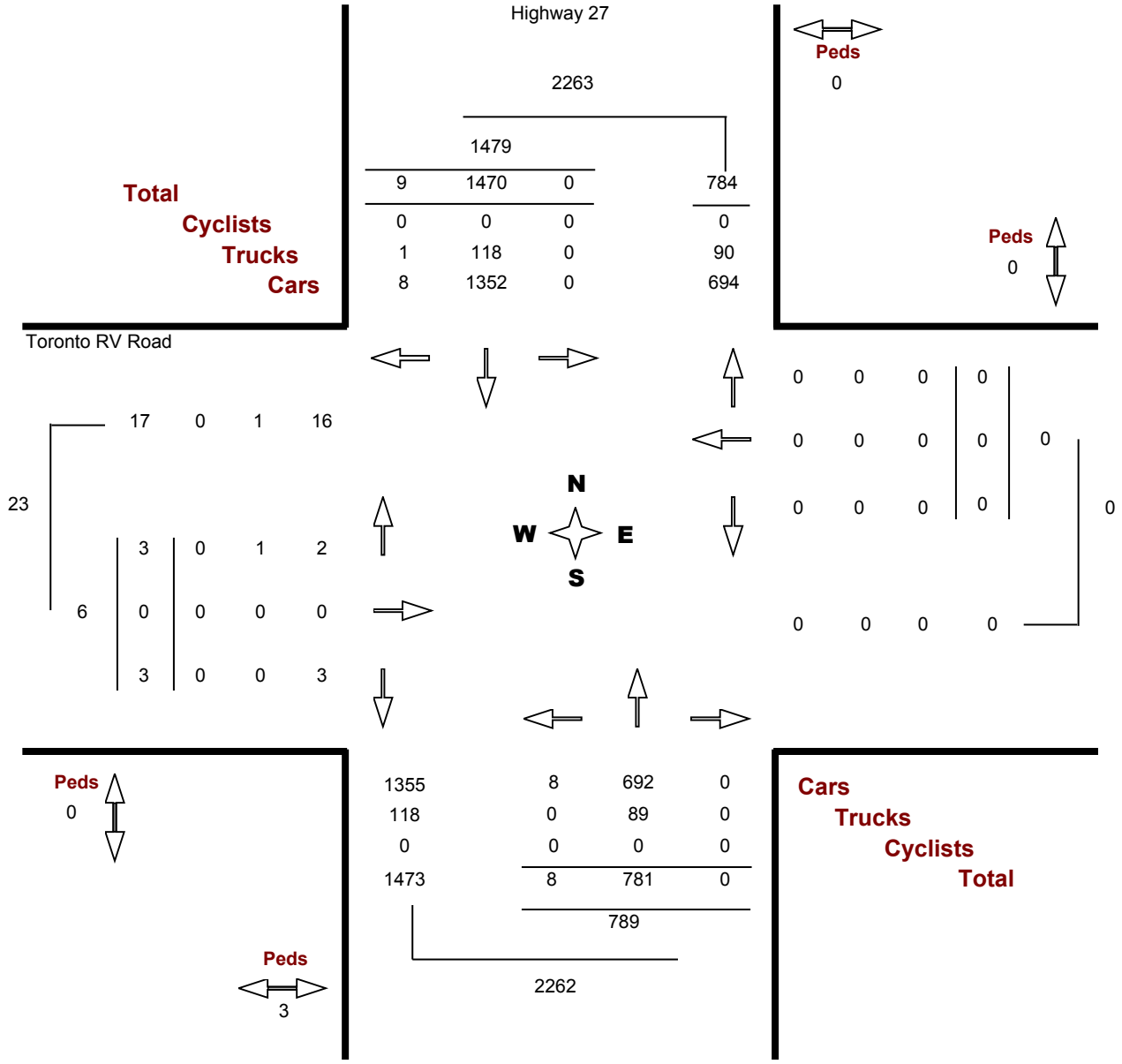
Intersection Summary			
HCM 2000 Control Delay	41.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	71.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Appendix G – Turning Movement Counts

Turning Movements Diagram
Peak Hour Report with Cyclists: AM Period

Location..... Highway 27 & Toronto RV Road
Municipality. Vaughan
Traffic Cont. Traffic signal
Major Dir..... None

GeoID..... 05A2852E
Count Date. Tuesday, 10 June, 2008
Count Period. 07:00 AM — 09:00 AM
Peak Hour.... 07:30 AM — 08:30 AM

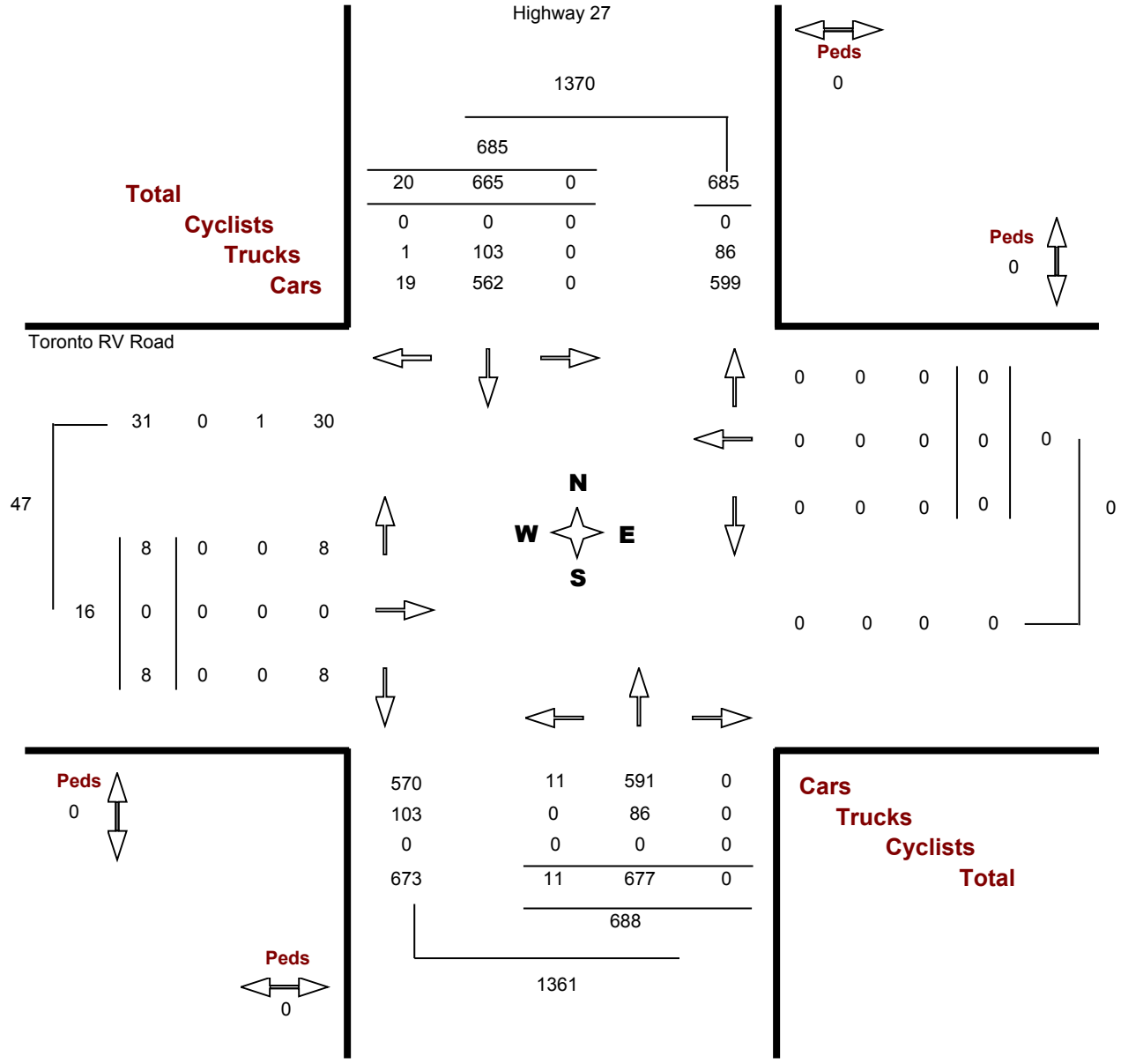


Notes:

Turning Movements Diagram
Peak Hour Report with Cyclists: MD Period

Location..... Highway 27 & Toronto RV Road
Municipality. Vaughan
Traffic Cont. Traffic signal
Major Dir..... None

GeoID..... 05A2852E
Count Date. Tuesday, 10 June, 2008
Count Period. 11:00 AM — 02:00 PM
Peak Hour.... 01:00 PM — 02:00 PM

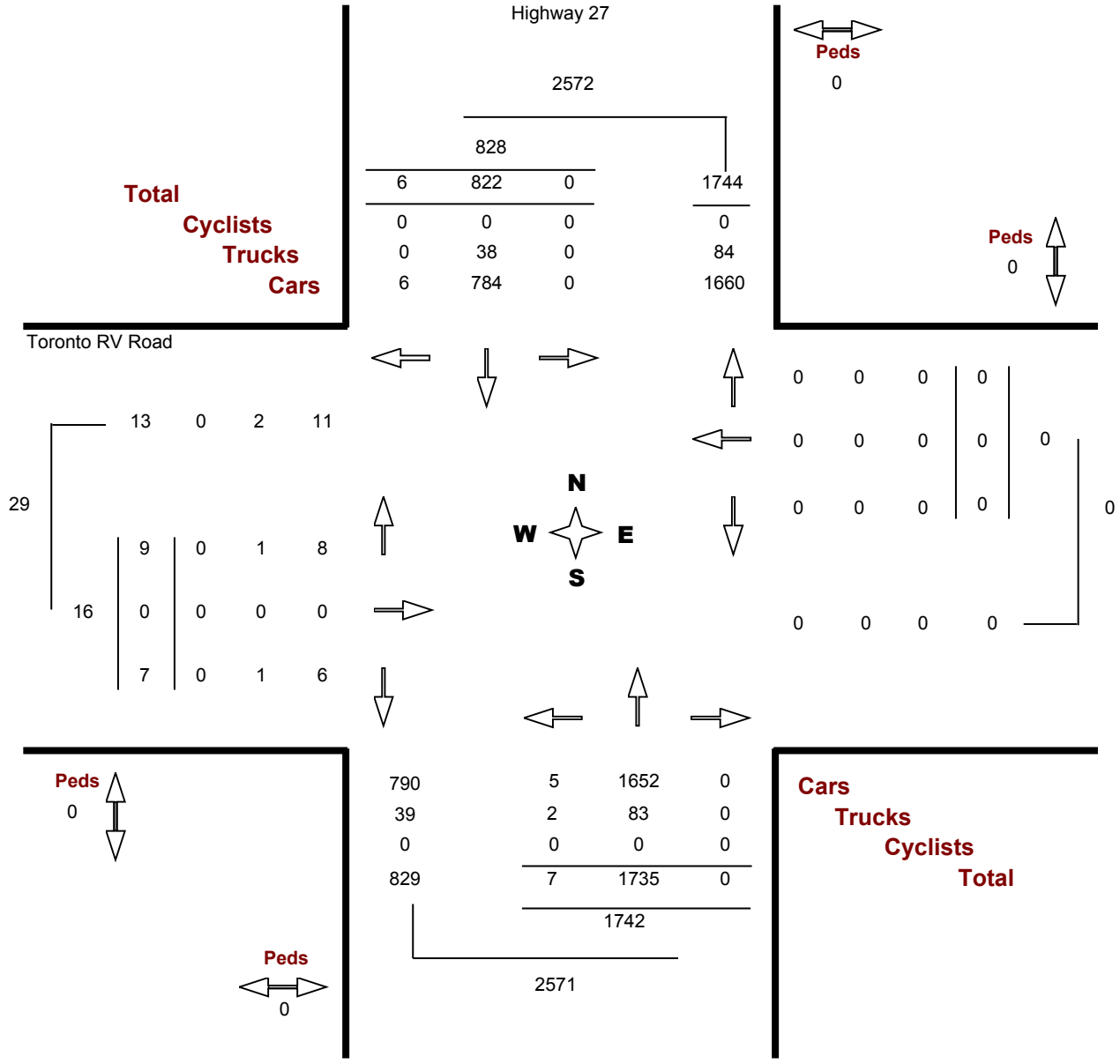


Notes:

Turning Movements Diagram
Peak Hour Report with Cyclists: PM Period

Location..... Highway 27 & Toronto RV Road
Municipality. Vaughan
Traffic Cont. Traffic signal
Major Dir..... None

GeoID..... 05A2852E
Count Date. Tuesday, 10 June, 2008
Count Period. 03:00 PM — 06:00 PM
Peak Hour.... 04:45 PM — 05:45 PM



Notes:

City of Toronto - Traffic Safety Unit

Turning Movement Count Summary Report

HIGHWAY 27 AT STEELES AVE (PX 1793)

Survey Date: 2015-May-15 (Friday)

Survey Type: Routine Hours

Time Period	Vehicle Type	NORTHBOUND Exits	Left	Thru	Right	Total	EASTBOUND Exits	Left	Thru	Right	Total	SOUTHBOUND Exits	Left	Thru	Right	Total	WESTBOUND Exits	Left	Thru	Right	Total		Peds	Bike	Other
07:30-08:30	CAR	705	58	409	116	583	1,210	129	945	100	1,174	1,178	149	963	339	1,451	1,020	115	623	167	905	N	4	0	0
	TRK	95	10	51	20	81	115	27	84	12	123	71	11	47	22	80	117	12	85	17	114	S	8	0	0
AM PEAK	BUS	1	0	0	11	11	21	0	9	0	9	0	1	0	0	1	9	0	9	1	10	E	1	0	0
																						W	9	0	0
	TOTAL:	**801**	**68**	**460**	**147**	**675**	**1,346**	**156**	**1,038**	**112**	**1,306**	**1,249**	**161**	**1,010**	**361**	**1,532**	**1,146**	**127**	**717**	**185**	**1,029**				
16:15-17:15	CAR	1,598	75	1,008	71	1,154	1,178	287	951	137	1,375	963	156	675	130	961	1,060	151	855	303	1,309	N	2	0	0
	TRK	77	7	48	11	66	87	15	67	12	94	66	9	42	32	83	105	12	66	14	92	S	6	1	0
PM PEAK	BUS	1	0	0	0	0	9	0	7	0	7	11	2	0	0	2	8	11	8	1	20	E	2	0	0
																						W	6	0	0
	TOTAL:	**1,676**	**82**	**1,056**	**82**	**1,220**	**1,274**	**302**	**1,025**	**149**	**1,476**	**1,040**	**167**	**717**	**162**	**1,046**	**1,173**	**174**	**929**	**318**	**1,421**				
OFF HR AVG	CAR	1,049	114	713	110	937	787	177	593	113	883	722	84	493	170	747	848	116	564	159	839	N	1	0	0
	TRK	107	10	59	23	92	133	27	94	8	129	83	16	53	32	101	134	22	92	21	135	S	2	0	0
	BUS	2	0	1	0	1	6	0	5	0	5	1	1	0	0	1	5	1	5	1	7	E	0	0	0
																						W	1	0	0
	TOTAL:	**1,158**	**124**	**773**	**133**	**1,030**	**926**	**204**	**692**	**121**	**1,017**	**806**	**101**	**546**	**202**	**849**	**987**	**139**	**661**	**181**	**981**				
07:30-09:30	CAR	1,466	133	912	221	1,266	2,155	246	1,674	166	2,086	2,068	260	1,677	593	2,530	1,851	225	1,125	308	1,658	N	4	0	0
	TRK	226	17	118	42	177	279	75	203	29	307	180	34	117	52	203	237	34	168	33	235	S	11	0	0
2 HR AM	BUS	3	0	1	22	23	43	0	19	0	19	2	2	0	0	2	17	2	17	2	21	E	1	0	0
																						W	10	0	0
	TOTAL:	**1,695**	**150**	**1,031**	**285**	**1,466**	**2,477**	**321**	**1,896**	**195**	**2,412**	**2,250**	**296**	**1,794**	**645**	**2,735**	**2,105**	**261**	**1,310**	**343**	**1,914**				
16:00-18:00	CAR	3,118	184	2,015	144	2,343	2,254	559	1,801	263	2,623	1,726	309	1,170	236	1,715	2,134	293	1,714	544	2,551	N	2	0	0
	TRK	141	12	91	19	122	155	24	118	20	162	115	18	73	58	149	211	22	141	26	189	S	16	1	0
2 HR PM	BUS	4	0	1	0	1	15	0	12	0	12	25	3	1	0	4	15	24	15	3	42	E	5	0	0
																						W	8	0	0
	TOTAL:	**3,263**	**196**	**2,107**	**163**	**2,466**	**2,424**	**583**	**1,931**	**283**	**2,797**	**1,866**	**330**	**1,244**	**294**	**1,868**	**2,360**	**339**	**1,870**	**573**	**2,782**				
07:30-18:00	CAR	8,777	771	5,777	804	7,352	7,554	1,514	5,845	880	8,239	6,681	905	4,818	1,510	7,233	7,374	983	5,093	1,486	7,562	N	8	0	0
	TRK	798	67	446	154	667	966	208	697	82	987	627	115	403	239	757	982	142	676	144	962	S	33	1	0
8 HR SUM	BUS	14	0	5	23	28	84	0	52	0	52	30	9	1	0	10	53	29	53	9	91	E	7	0	0
																						W	22	0	0
	TOTAL:	**9,589**	**838**	**6,228**	**981**	**8,047**	**8,604**	**1,722**	**6,594**	**962**	**9,278**	**7,338**	**1,029**	**5,222**	**1,749**	**8,000**	**8,409**	**1,154**	**5,822**	**1,639**	**8,615**				

Total 8 Hour Vehicle Volume: 33,940

Total 8 Hour Bicycle Volume: 1

Total 8 Hour Intersection Volume: 33,941

Comment:

Printed On: 19 Oct, 2016 8:00:11AM

City of Toronto - Traffic Safety Unit

Intersection Detailed 15 Minutes Movement Report

HIGHWAY 27 AT STEELES AVE (PX 1793) **Survey Date:** May-15-2015 (Friday)

Survey Type: Routine Hours

Time Period		NORTH BOUND			EAST BOUND			SOUTH BOUND			WEST BOUND		
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
07:45	CARS	95	29	7	262	23	26	258	80	34	153	37	35
	DUALS	17	7	4	16	2	5	10	5	5	21	6	3
	BUSES	0	3	0	1	0	0	0	0	0	2	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		2	**East Side**		0	**South Side**		4	**West Side**		4
08:00	CARS	87	26	16	215	32	42	244	84	33	179	48	22
	DUALS	11	4	3	30	4	9	14	8	3	18	5	3
	BUSES	0	2	0	3	0	0	0	0	1	3	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		2	**East Side**		0	**South Side**		2	**West Side**		3
08:15	CARS	102	32	21	232	25	28	234	96	39	143	41	26
	DUALS	9	5	2	16	1	7	11	6	1	28	3	5
	BUSES	0	3	0	2	0	0	0	0	0	2	1	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		1	**South Side**		2	**West Side**		1
08:30	CARS	125	29	14	236	20	33	227	79	43	148	41	32
	DUALS	14	4	1	22	5	6	12	3	2	18	3	1
	BUSES	0	3	0	3	0	0	0	0	0	2	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		1
08:45	CARS	143	24	25	225	10	21	228	74	30	145	33	34
	DUALS	19	5	1	41	2	14	15	8	4	19	4	3
	BUSES	0	4	0	2	0	0	0	0	0	2	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		1	**West Side**		1
09:00	CARS	140	34	12	198	18	34	184	79	31	131	40	22
	DUALS	20	8	2	36	6	9	18	11	2	23	3	5
	BUSES	0	3	0	3	0	0	0	0	1	2	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		2	**West Side**		0
09:15	CARS	122	26	20	162	19	36	138	57	26	119	32	22
	DUALS	16	4	3	25	5	16	14	3	12	26	2	8
	BUSES	0	3	0	3	0	0	0	0	0	2	1	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0

Intersection Detailed 15 Minutes Movement Report

HIGHWAY 27 AT STEELES AVE (PX 1793) **Survey Date:** May-15-2015 (Friday)

Survey Type: Routine Hours

Time Period		NORTH BOUND			EAST BOUND			SOUTH BOUND			WEST BOUND		
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
09:30	CARS	98	21	18	144	19	26	164	44	24	107	36	32
	DUALS	12	5	1	17	4	9	23	8	5	15	7	6
	BUSES	1	1	0	2	0	0	0	0	0	2	0	2
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
10:15	CARS	102	15	23	143	13	24	121	43	25	75	29	20
	DUALS	12	9	1	28	1	8	9	3	4	36	7	6
	BUSES	0	0	0	3	0	0	0	0	0	2	1	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		1	**West Side**		0
10:30	CARS	118	25	28	115	23	33	104	40	19	108	23	24
	DUALS	12	4	2	25	2	3	12	6	0	25	5	4
	BUSES	0	0	0	2	0	0	0	0	0	1	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
10:45	CARS	98	16	19	118	26	30	128	45	32	147	30	27
	DUALS	10	8	1	19	1	9	11	8	6	19	3	9
	BUSES	0	0	0	1	0	0	0	0	0	1	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
11:00	CARS	125	23	18	122	23	34	115	35	24	105	35	19
	DUALS	12	6	3	27	1	9	11	10	10	19	2	6
	BUSES	1	0	0	1	0	0	0	0	1	1	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		1	**East Side**		0	**South Side**		0	**West Side**		0
11:15	CARS	128	21	22	121	27	54	123	31	24	101	27	26
	DUALS	16	3	1	29	1	9	15	6	7	21	4	5
	BUSES	0	0	0	2	0	0	0	0	0	1	1	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		1	**West Side**		1
11:30	CARS	126	24	33	135	33	51	109	40	14	116	16	25
	DUALS	17	10	1	25	2	5	14	5	6	24	5	4
	BUSES	0	0	0	2	0	0	0	0	0	2	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0

Intersection Detailed 15 Minutes Movement Report

HIGHWAY 27 AT STEELES AVE (PX 1793)

Survey Date: May-15-2015 (Friday)

Survey Type: Routine Hours

Time Period		NORTH BOUND			EAST BOUND			SOUTH BOUND			WEST BOUND		
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
11:45	CARS	147	18	25	127	32	50	125	32	30	123	38	24
	DUALS	14	9	1	19	1	4	15	9	4	42	4	5
	BUSES	0	0	0	1	0	0	0	0	0	1	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
12:00	CARS	142	22	24	128	25	51	129	25	23	117	27	33
	DUALS	10	7	6	26	0	6	11	5	1	15	6	8
	BUSES	0	0	0	1	0	0	0	0	1	1	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		1
13:15	CARS	183	40	41	153	31	59	111	53	25	134	35	29
	DUALS	14	2	1	27	3	9	13	7	5	18	5	6
	BUSES	1	1	0	0	0	0	0	0	0	1	1	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
13:30	CARS	170	22	30	134	28	47	112	63	21	182	40	28
	DUALS	16	3	2	22	3	6	11	11	6	30	6	7
	BUSES	0	0	0	2	0	0	0	0	0	2	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		1	**West Side**		0
13:45	CARS	238	31	31	152	41	55	129	56	19	128	40	39
	DUALS	24	5	3	18	2	8	13	10	4	14	5	5
	BUSES	0	0	0	1	0	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		1	**South Side**		3	**West Side**		0
14:00	CARS	255	40	28	126	26	35	136	53	21	151	33	27
	DUALS	20	7	2	25	3	10	14	12	3	28	4	6
	BUSES	1	0	0	2	0	0	0	0	1	3	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		1	**East Side**		0	**South Side**		0	**West Side**		1
14:15	CARS	217	23	28	153	26	56	117	37	2	187	59	36
	DUALS	14	7	2	27	3	5	13	7	4	22	6	4
	BUSES	0	0	0	1	0	0	0	0	0	2	1	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0

Intersection Detailed 15 Minutes Movement Report

HIGHWAY 27 AT STEELES AVE (PX 1793) **Survey Date:** May-15-2015 (Friday)

Survey Type: Routine Hours

Time Period		NORTH BOUND			EAST BOUND			SOUTH BOUND			WEST BOUND		
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
14:30	CARS	269	39	33	196	31	49	134	40	19	184	52	28
	DUALS	15	11	5	26	3	4	16	8	1	19	7	5
	BUSES	0	0	0	0	0	0	0	0	0	1	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
14:45	CARS	276	47	45	208	34	38	147	46	21	208	48	40
	DUALS	13	2	5	15	6	6	23	13	1	23	8	3
	BUSES	0	0	0	1	0	0	0	0	0	0	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
15:00	CARS	256	33	26	239	32	43	131	42	17	188	102	40
	DUALS	18	0	2	18	1	8	12	9	1	12	8	3
	BUSES	0	0	0	1	0	0	0	0	1	2	0	3
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		1
16:15	CARS	237	13	35	215	37	69	132	32	43	215	62	31
	DUALS	12	2	2	14	3	3	12	8	1	23	2	2
	BUSES	0	0	0	2	0	0	0	0	0	3	1	2
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		0	**West Side**		0
16:30	CARS	238	11	17	242	37	58	197	37	47	217	87	39
	DUALS	5	3	1	15	4	8	7	8	1	18	5	2
	BUSES	0	0	0	1	0	0	0	0	1	2	0	2
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		2	**West Side**		1
16:45	CARS	247	18	23	241	37	77	173	45	35	228	51	35
	DUALS	19	1	2	22	5	2	14	5	4	11	2	5
	BUSES	0	0	0	1	0	0	0	0	0	1	0	2
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		1	**East Side**		0	**South Side**		3	**West Side**		3
17:00	CARS	265	19	19	212	29	74	133	25	37	212	86	31
	DUALS	11	6	1	17	1	2	11	8	2	20	1	4
	BUSES	0	0	0	2	0	0	0	0	1	3	0	5
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		1	**East Side**		0	**South Side**		1	**West Side**		2

City of Toronto - Traffic Safety Unit

Intersection Detailed 15 Minutes Movement Report

HIGHWAY 27 AT STEELES AVE (PX 1793) **Survey Date:** May-15-2015 (Friday)

Survey Type: Routine Hours

Time Period		NORTH BOUND			EAST BOUND			SOUTH BOUND			WEST BOUND		
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
17:15	CARS	258	23	16	256	34	78	172	23	37	198	79	46
	DUALS	13	1	3	13	2	3	10	11	2	17	6	1
	BUSES	0	0	0	3	0	0	0	0	0	2	1	2
	BIKE (OTHER)		1	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		2	**South Side**		0	**West Side**		0
17:30	CARS	249	16	19	212	32	70	124	26	38	234	78	47
	DUALS	11	3	0	13	3	4	7	7	3	13	6	4
	BUSES	1	0	0	1	0	0	0	0	0	1	0	5
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		1	**West Side**		1
17:45	CARS	270	18	25	229	32	62	118	26	34	215	44	33
	DUALS	10	2	1	11	1	1	9	5	5	16	1	4
	BUSES	0	0	0	2	0	0	1	0	0	1	0	2
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		3	**South Side**		6	**West Side**		1
18:00	CARS	251	26	30	194	25	71	121	22	38	195	57	31
	DUALS	10	1	2	13	1	1	3	6	0	23	3	0
	BUSES	0	0	0	0	0	0	0	0	1	2	1	4
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		0	**East Side**		0	**South Side**		3	**West Side**		0

Highway 407 WB Off-ramp & Highway 27

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

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

Municipality: Vaughan
Site #: 0000001005
Intersection: Highway 27 & Highway 407 WB Off
TFR File #: 1
Count date: 14-Feb-2017

Weather conditions:
Cloudy

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Highway 27 runs N/S

North Leg Total: 2216
North Entering: 1468
North Peds: 0
Peds Cross: ⋈

Heavys	31	0	31
Trucks	47	0	47
Cars	1390	0	1390
Totals	1468	0	

Heavys	30
Trucks	54
Cars	664
Totals	748

East Leg Total: 613
East Entering: 613
East Peds: 0
Peds Cross: ⋈

Highway 27

Cars	Trucks	Heavys	Totals
187	21	5	213
382	16	2	400
569	37	7	

N
W E
S

Highway 407 WB Off-ramp

Cars	Trucks	Heavys	Totals
0	0	0	0

Highway 27

Cars	1772		
Trucks	63		
Heavys	33		
Totals	1868		

Cars	477	0	477
Trucks	33	0	33
Heavys	25	0	25
Totals	535	0	

Peds Cross: ⋈
South Peds: 0
South Entering: 535
South Leg Total: 2403

Comments

Highway 407 WB Off-ramp & Highway 27

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 13:00:00
To: 14:00:00

Municipality: Vaughan
Site #: 0000001005
Intersection: Highway 27 & Highway 407 WB Off
TFR File #: 1
Count date: 14-Feb-2017

Weather conditions:
Cloudy
Person(s) who counted:

**** Signalized Intersection ****

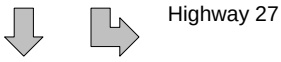
Major Road: Highway 27 runs N/S

North Leg Total: 1664
North Entering: 728
North Peds: 0
Peds Cross: ⋈

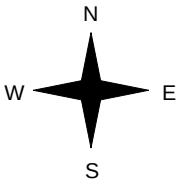
Heavys	26	0	26
Trucks	40	0	40
Cars	662	0	662
Totals	728	0	

Heavys	30
Trucks	57
Cars	849
Totals	936

East Leg Total: 399
East Entering: 399
East Peds: 0
Peds Cross: ⋈



	Cars	Trucks	Heavys	Totals
	173	23	5	201
	171	21	6	198
	344	44	11	



Cars	Trucks	Heavys	Totals
0	0	0	0

Cars	833
Trucks	61
Heavys	32
Totals	926

Cars	676	0	676
Trucks	34	0	34
Heavys	25	0	25
Totals	735	0	

Peds Cross: ⋈
South Peds: 0
South Entering: 735
South Leg Total: 1661

Comments

Highway 407 WB Off-ramp & Highway 27

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

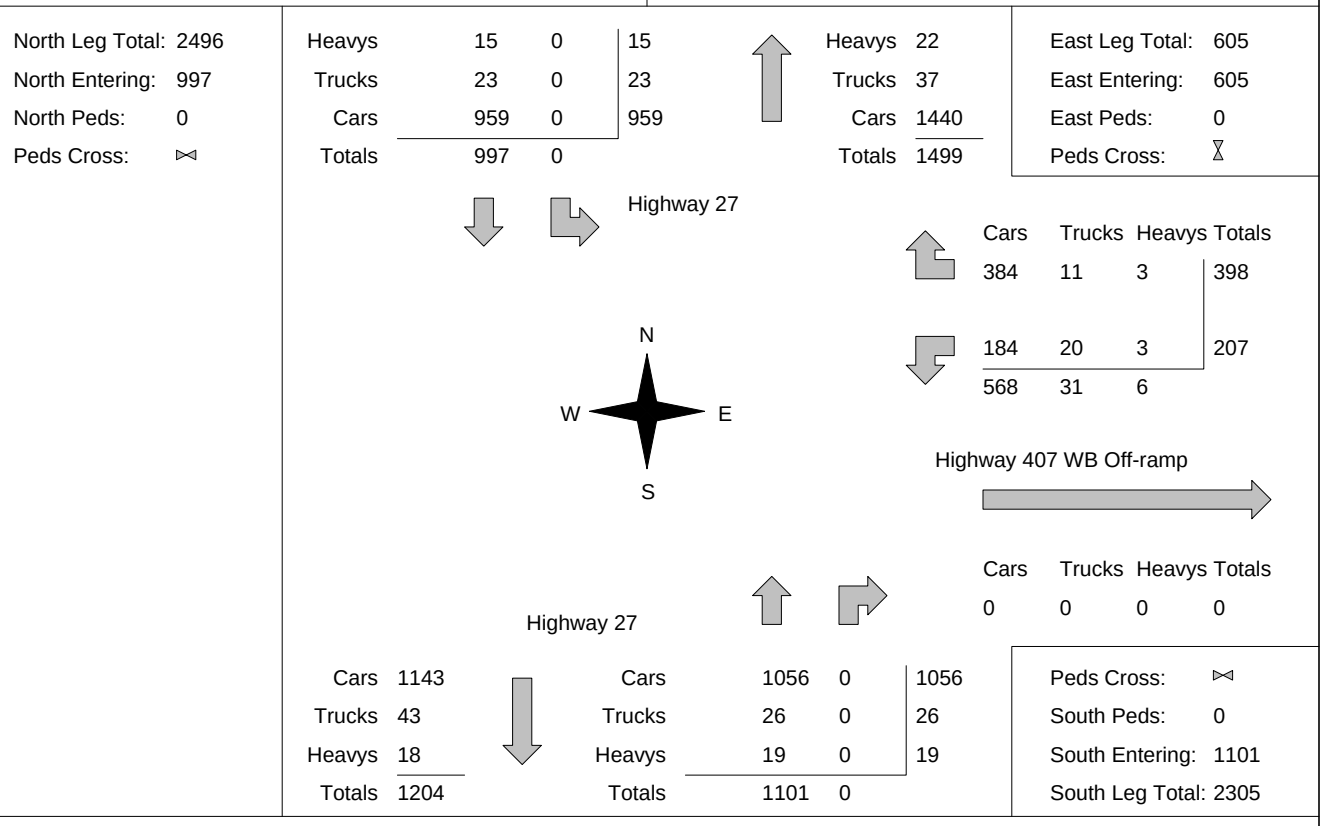
One Hour Peak
From: 16:30:00
To: 17:30:00

Municipality: Vaughan
Site #: 0000001005
Intersection: Highway 27 & Highway 407 WB Off
TFR File #: 1
Count date: 14-Feb-2017

Weather conditions:
Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Highway 27 runs N/S



Comments

Highway 407 WB Off-ramp & Highway 27

Total Count Diagram

Municipality: Vaughan
Site #: 0000001005
Intersection: Highway 27 & Highway 407 WB Off
TFR File #: 1
Count date: 14-Feb-2017

Weather conditions:
Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Highway 27 runs N/S

North Leg Total: 15819
North Entering: 7469
North Peds: 0
Peds Cross: ⋈

Heavys	184	0	184
Trucks	295	0	295
Cars	6990	0	6990
Totals	7469	0	

Heavys	205	
Trucks	393	
Cars	7752	
Totals	8350	

East Leg Total: 3853
East Entering: 3853
East Peds: 0
Peds Cross: ⋈

Highway 27

Cars	Trucks	Heavys	Totals
1837	138	26	2001
1676	144	32	1852
3513	282	58	

N
W E
S

Highway 407 WB Off-ramp

Cars	Trucks	Heavys	Totals
0	0	0	0

Highway 27

Cars	8666		
Trucks	439		
Heavys	216		
Totals	9321		

Cars	5915	0	5915
Trucks	255	0	255
Heavys	179	0	179
Totals	6349	0	

Peds Cross: ⋈
South Peds: 0
South Entering: 6349
South Leg Total: 15670

Comments

Highway 407 WB Off-ramp & Highway 27
Traffic Count Summary

Intersection: Highway 27 & Highway 407 WB Of | **Count Date:** 14-Feb-2017 | **Municipality:** Vaughan

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	0	1410	0	1410	0	1972
9:00:00	0	1372	0	1372	0	1912
11:00:00	0	0	0	0	0	0
12:00:00	0	677	0	677	0	1262
13:00:00	0	685	0	685	0	1330
14:00:00	0	728	0	728	0	1463
15:00:00	0	0	0	0	0	0
16:00:00	0	787	0	787	0	1822
17:00:00	0	943	0	943	0	2075
18:00:00	0	867	0	867	0	1982
Totals:	0	7469	0	7469	0	13818

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	562	0	562	0
9:00:00	0	540	0	540	0
11:00:00	0	0	0	0	0
12:00:00	0	585	0	585	0
13:00:00	0	645	0	645	0
14:00:00	0	735	0	735	0
15:00:00	0	0	0	0	0
16:00:00	0	1035	0	1035	0
17:00:00	0	1132	0	1132	0
18:00:00	0	1115	0	1115	0
Totals:	0	6349	0	6349	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	317	0	152	469	0	469
9:00:00	402	0	266	668	0	668
11:00:00	0	0	0	0	0	0
12:00:00	192	0	186	378	0	378
13:00:00	177	0	172	349	0	349
14:00:00	198	0	201	399	0	399
15:00:00	0	0	0	0	0	0
16:00:00	182	0	280	462	0	462
17:00:00	180	0	360	540	0	540
18:00:00	204	0	384	588	0	588
Totals:	1852	0	2001	3853	0	3853

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	0
9:00:00	0	0	0	0	0
11:00:00	0	0	0	0	0
12:00:00	0	0	0	0	0
13:00:00	0	0	0	0	0
14:00:00	0	0	0	0	0
15:00:00	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
Totals:	0	0	0	0	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	317	402	192	177	198	182	180	204

Highway 407 EB Off-ramp & Highway 27

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

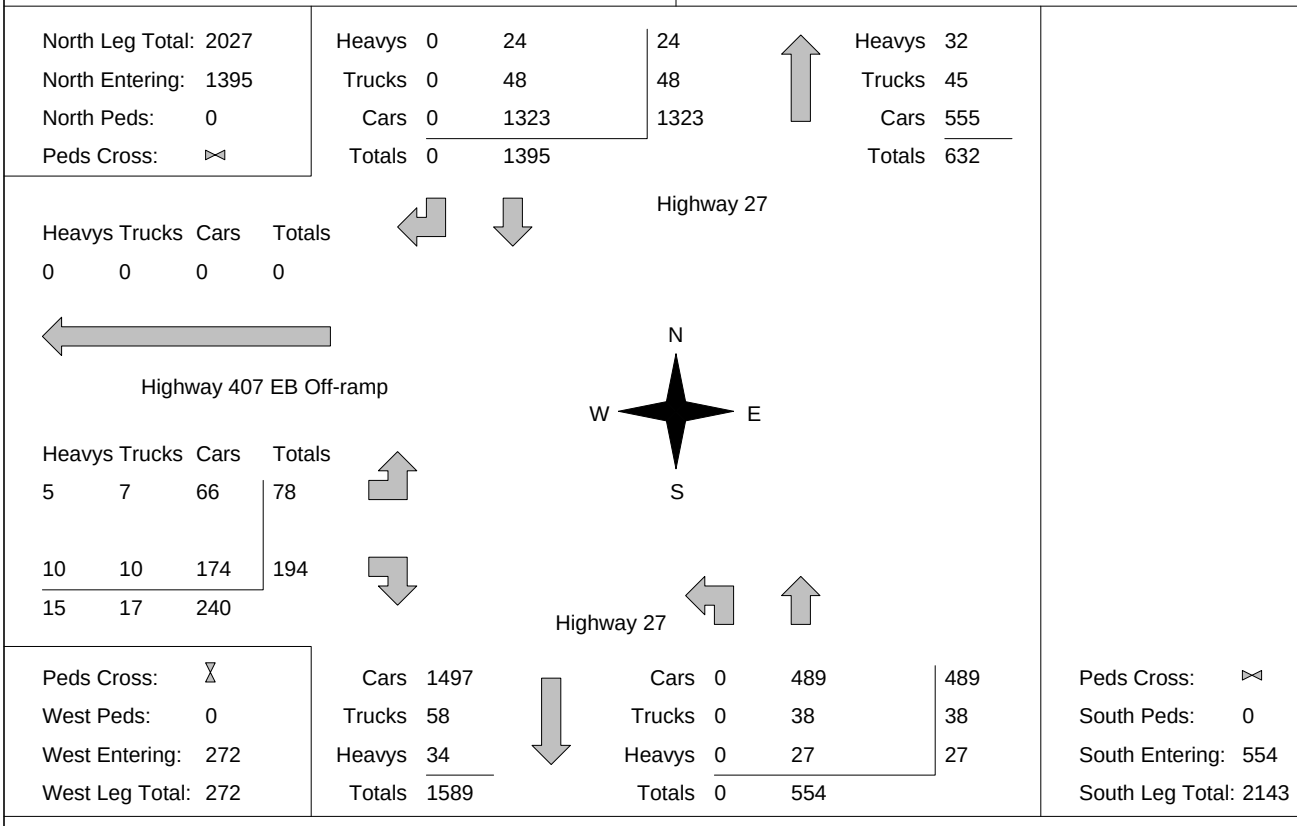
One Hour Peak
From: 7:30:00
To: 8:30:00

Municipality: Vaughan
Site #: 0000001006
Intersection: Highway 27 & Highway 407 EB Off-
TFR File #: 1
Count date: 14-Feb-2017

Weather conditions:
Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Highway 27 runs N/S



Comments

Highway 407 EB Off-ramp & Highway 27

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

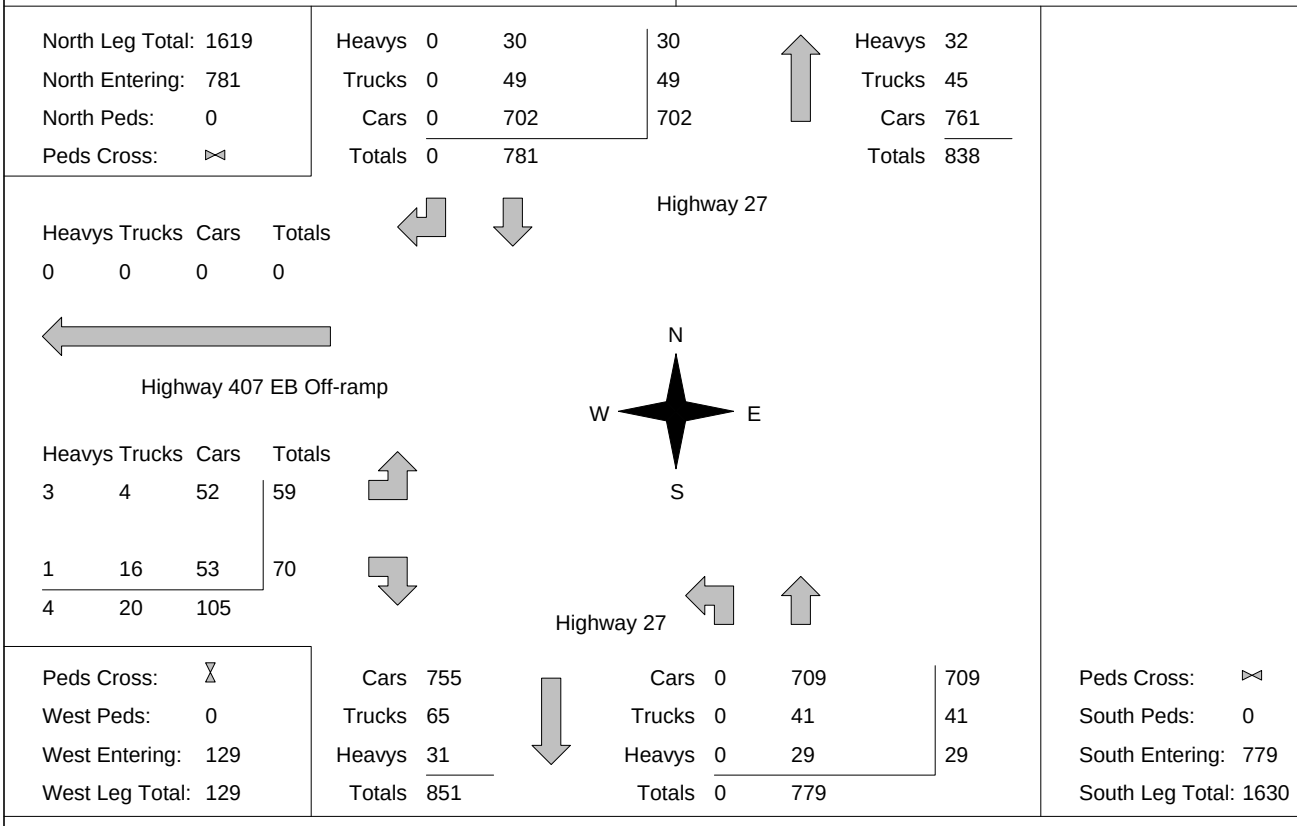
One Hour Peak
From: 13:00:00
To: 14:00:00

Municipality: Vaughan
Site #: 0000001006
Intersection: Highway 27 & Highway 407 EB Off-
TFR File #: 1
Count date: 14-Feb-2017

Weather conditions:
Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Highway 27 runs N/S



Comments

Highway 407 EB Off-ramp & Highway 27

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

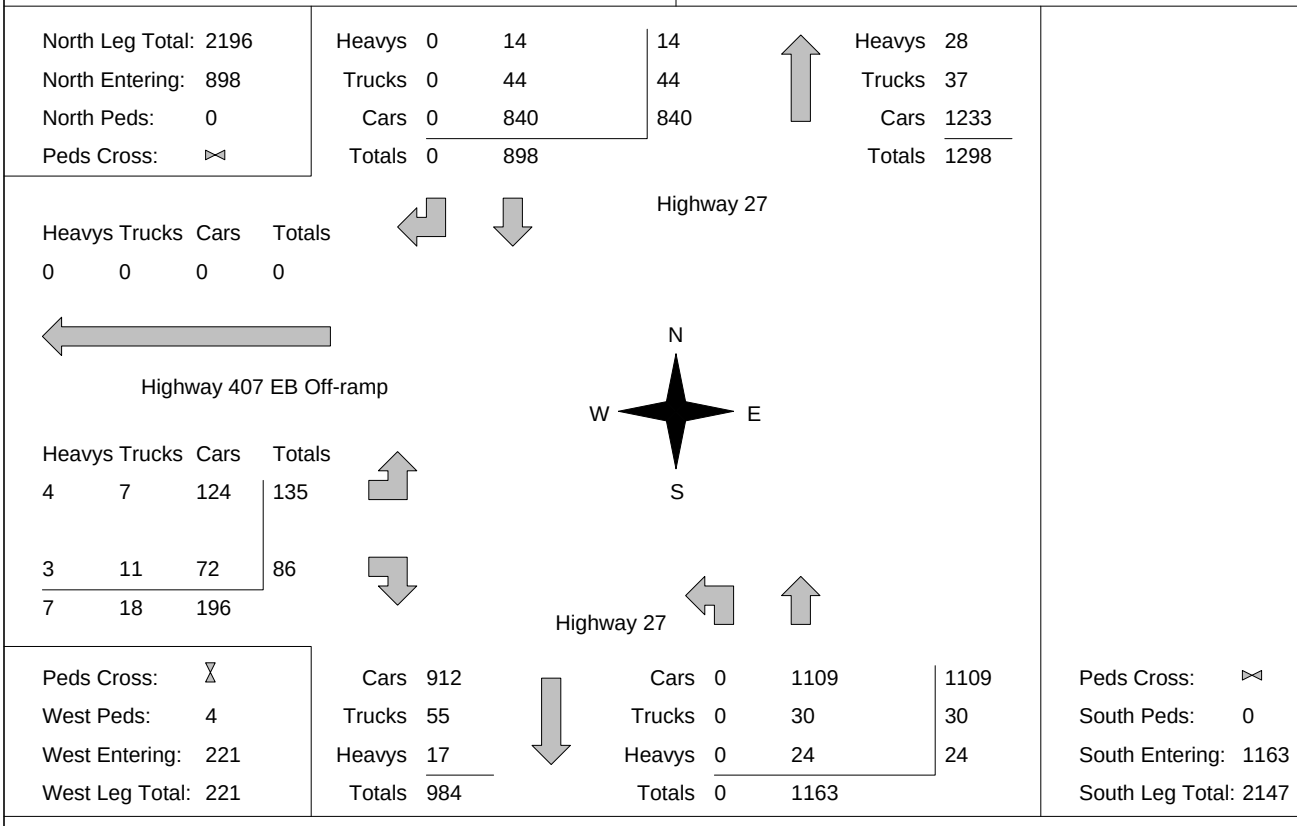
One Hour Peak
From: 15:45:00
To: 16:45:00

Municipality: Vaughan
Site #: 0000001006
Intersection: Highway 27 & Highway 407 EB Off-
TFR File #: 1
Count date: 14-Feb-2017

Weather conditions:
Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Highway 27 runs N/S



Comments

Highway 407 EB Off-ramp & Highway 27

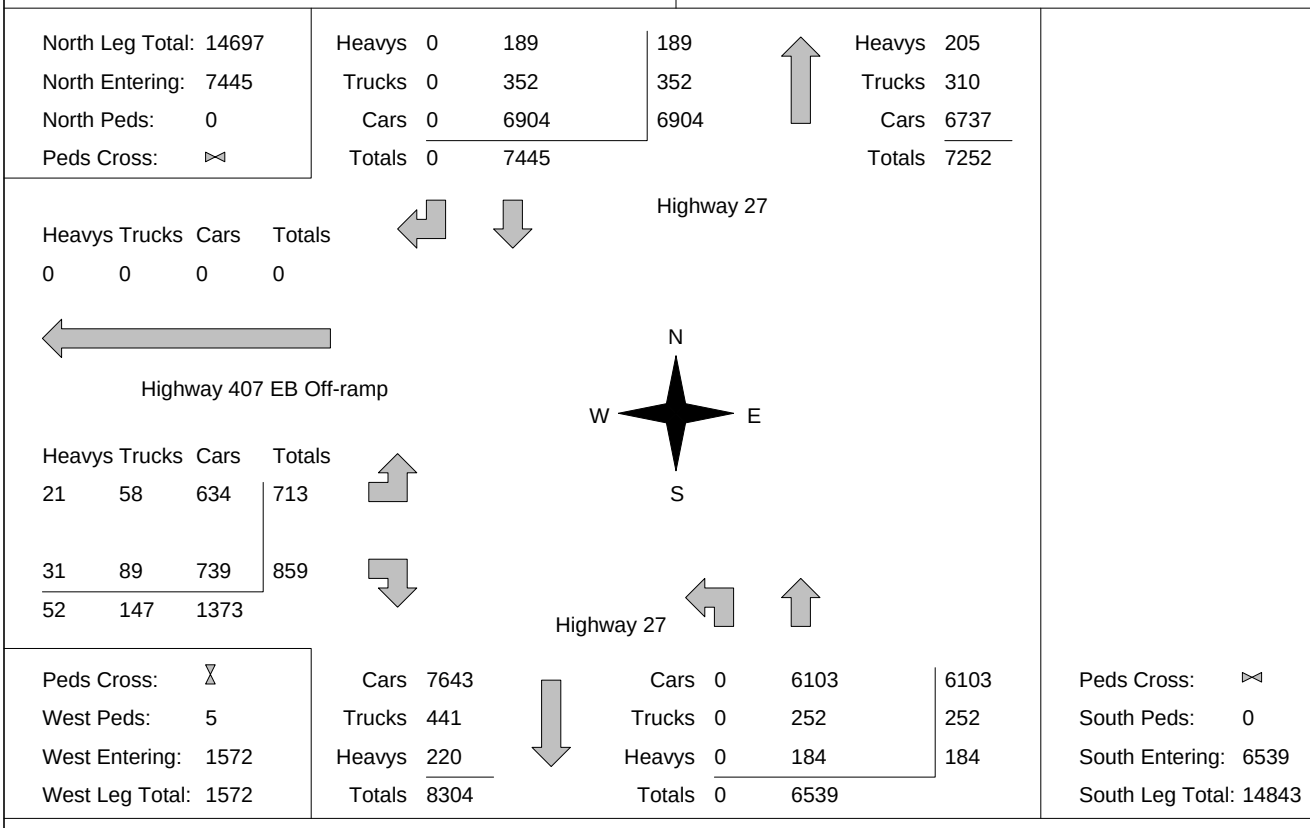
Total Count Diagram

Municipality: Vaughan
Site #: 0000001006
Intersection: Highway 27 & Highway 407 EB Off-
TFR File #: 1
Count date: 14-Feb-2017

Weather conditions:
Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Highway 27 runs N/S



Comments

Highway 407 EB Off-ramp & Highway 27
Traffic Count Summary

Intersection: Highway 27 & Highway 407 EB Off | **Count Date:** 14-Feb-2017 | **Municipality:** Vaughan

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	0	1310	0	1310	0	1869
9:00:00	0	1368	0	1368	0	1932
11:00:00	0	0	0	0	0	0
12:00:00	0	739	0	739	0	1348
13:00:00	0	720	0	720	0	1382
14:00:00	0	781	0	781	0	1560
15:00:00	0	0	0	0	0	0
16:00:00	0	813	0	813	0	1921
17:00:00	0	879	0	879	0	2017
18:00:00	0	835	0	835	0	1955
Totals:	0	7445	0	7445	0	13984

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	559	0	559	0
9:00:00	0	564	0	564	0
11:00:00	0	0	0	0	0
12:00:00	0	609	0	609	0
13:00:00	0	662	0	662	0
14:00:00	0	779	0	779	0
15:00:00	0	0	0	0	0
16:00:00	0	1108	0	1108	0
17:00:00	0	1138	0	1138	0
18:00:00	0	1120	0	1120	0
Totals:	0	6539	0	6539	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	0	0	0	0	0	221
9:00:00	0	0	0	0	0	269
11:00:00	0	0	0	0	0	0
12:00:00	0	0	0	0	0	140
13:00:00	0	0	0	0	0	151
14:00:00	0	0	0	0	0	129
15:00:00	0	0	0	0	0	0
16:00:00	0	0	0	0	0	171
17:00:00	0	0	0	0	0	248
18:00:00	0	0	0	0	0	243
Totals:	0	0	0	0	0	1572

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	64	0	157	221	0
9:00:00	68	0	201	269	0
11:00:00	0	0	0	0	0
12:00:00	46	0	94	140	0
13:00:00	56	0	95	151	0
14:00:00	59	0	70	129	0
15:00:00	0	0	0	0	0
16:00:00	87	0	84	171	3
17:00:00	165	0	83	248	2
18:00:00	168	0	75	243	0
Totals:	713	0	859	1572	5

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	64	68	46	56	59	87	165	168

Steinway Blvd & Steeles Avenue

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

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

Municipality: Vaughan
Site #: 0000008709
Intersection: Steeles Avenue & Steinway Blvd
TFR File #: 1
Count date: 8-Nov-2016

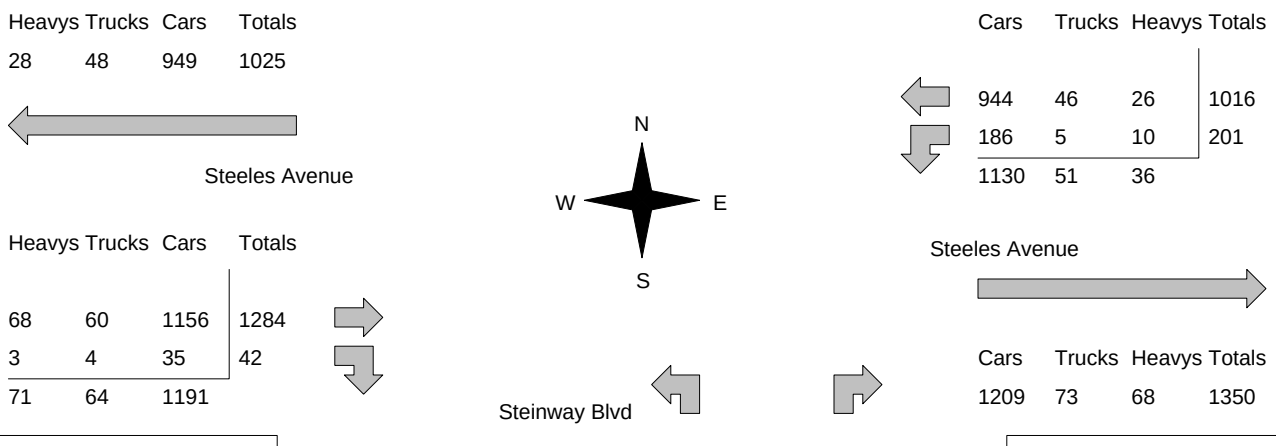
Weather conditions:
Clear / Cloudy

Person(s) who counted:

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

Major Road: Steeles Avenue runs W/E

East Leg Total: 2567
East Entering: 1217
East Peds: 0
Peds Cross: ⧖



Peds Cross: ⧖
West Peds: 0
West Entering: 1326
West Leg Total: 2351

Cars 221
Trucks 9
Heavys 13
Totals 243

Cars 5 53 58
Trucks 2 13 15
Heavys 2 0 2
Totals 9 66

Peds Cross: ⋈
South Peds: 0
South Entering: 75
South Leg Total: 318

Comments

Steinway Blvd & Steeles Avenue

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 13:00:00
To: 14:00:00

Municipality: Vaughan
Site #: 0000008709
Intersection: Steeles Avenue & Steinway Blvd
TFR File #: 1
Count date: 8-Nov-2016

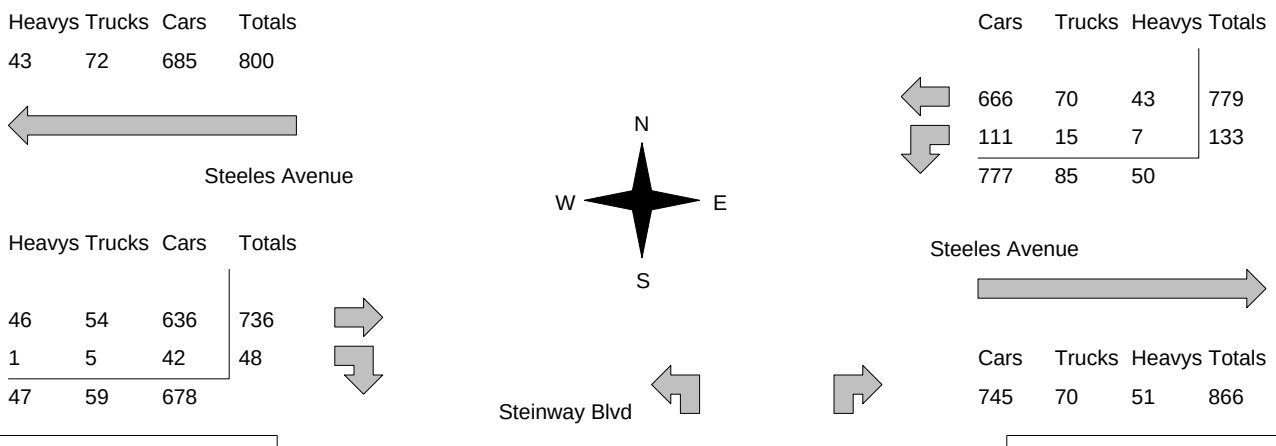
Weather conditions:
Clear / Cloudy

Person(s) who counted:

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

Major Road: Steeles Avenue runs W/E

East Leg Total: 1778
East Entering: 912
East Peds: 0
Peds Cross: ⧖



Peds Cross: ⧖
West Peds: 0
West Entering: 784
West Leg Total: 1584

Cars 153
Trucks 20
Heavys 8
Totals 181

Cars 19 109 128
Trucks 2 16 18
Heavys 0 5 5
Totals 21 130

Peds Cross: ⋈
South Peds: 1
South Entering: 151
South Leg Total: 332

Comments

Steinway Blvd & Steeles Avenue

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

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

Municipality: Vaughan
Site #: 0000008709
Intersection: Steeles Avenue & Steinway Blvd
TFR File #: 1
Count date: 8-Nov-2016

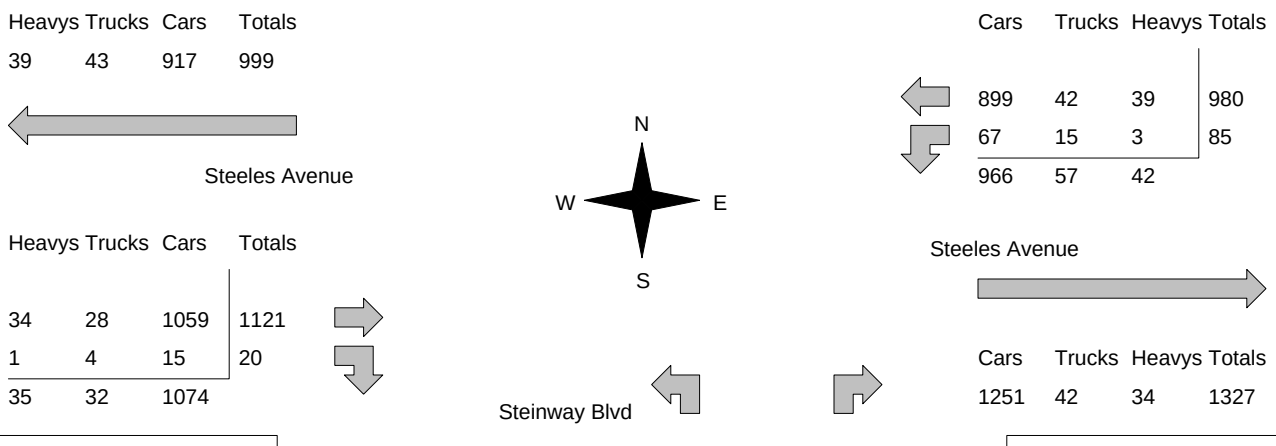
Weather conditions:
Clear / Cloudy

Person(s) who counted:

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

Major Road: Steeles Avenue runs W/E

East Leg Total: 2392
East Entering: 1065
East Peds: 0
Peds Cross: ⧖



Peds Cross: ⧖
West Peds: 0
West Entering: 1141
West Leg Total: 2140

Cars 82
Trucks 19
Heavys 4
Totals 105

Cars 18 192 210
Trucks 1 14 15
Heavys 0 0 0
Totals 19 206

Peds Cross: ⋈
South Peds: 1
South Entering: 225
South Leg Total: 330

Comments

Steinway Blvd & Steeles Avenue

Total Count Diagram

Municipality: Vaughan
Site #: 0000008709
Intersection: Steeles Avenue & Steinway Blvd
TFR File #: 1
Count date: 8-Nov-2016

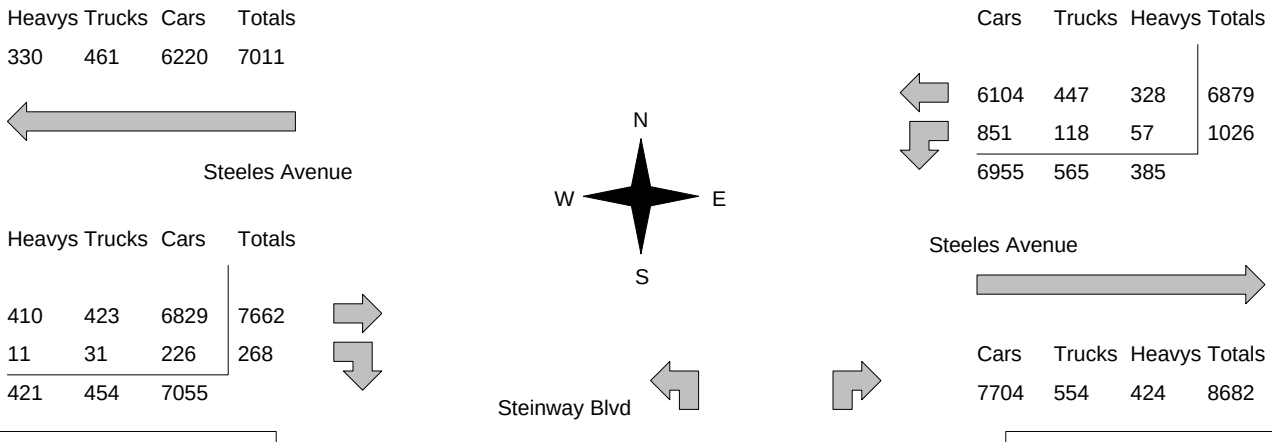
Weather conditions:
Clear / Cloudy

Person(s) who counted:

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

Major Road: Steeles Avenue runs W/E

East Leg Total: 16587
East Entering: 7905
East Peds: 0
Peds Cross:



Peds Cross:
West Peds: 0
West Entering: 7930
West Leg Total: 14941

Cars 1077
Trucks 149
Heavys 68
Totals 1294

Cars 116 875 991
Trucks 14 131 145
Heavys 2 14 16
Totals 132 1020

Peds Cross:
South Peds: 9
South Entering: 1152
South Leg Total: 2446

Comments

Steinway Blvd & Steeles Avenue
Traffic Count Summary

Intersection: Steeles Avenue & Steinway Blvd | **Count Date:** 8-Nov-2016 | **Municipality:** Vaughan

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	0	0	0	0	0	75
9:00:00	0	0	0	0	0	75
11:00:00	0	0	0	0	0	0
12:00:00	0	0	0	0	0	113
13:00:00	0	0	0	0	0	157
14:00:00	0	0	0	0	0	151
15:00:00	0	0	0	0	0	0
16:00:00	0	0	0	0	0	176
17:00:00	0	0	0	0	0	201
18:00:00	0	0	0	0	0	204
Totals:	0	0	0	0	0	1152

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	9	0	66	75	0
9:00:00	8	0	67	75	2
11:00:00	0	0	0	0	0
12:00:00	13	0	100	113	1
13:00:00	30	0	127	157	2
14:00:00	21	0	130	151	1
15:00:00	0	0	0	0	0
16:00:00	14	0	162	176	1
17:00:00	14	0	187	201	2
18:00:00	23	0	181	204	0
Totals:	132	0	1020	1152	9

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	201	1016	0	1217	0	2543
9:00:00	194	866	0	1060	0	2229
11:00:00	0	0	0	0	0	0
12:00:00	112	650	0	762	0	1487
13:00:00	126	726	0	852	0	1639
14:00:00	133	779	0	912	0	1696
15:00:00	0	0	0	0	0	0
16:00:00	99	916	0	1015	0	1939
17:00:00	91	914	0	1005	0	2163
18:00:00	70	1012	0	1082	0	2139
Totals:	1026	6879	0	7905	0	15835

West Approach Totals

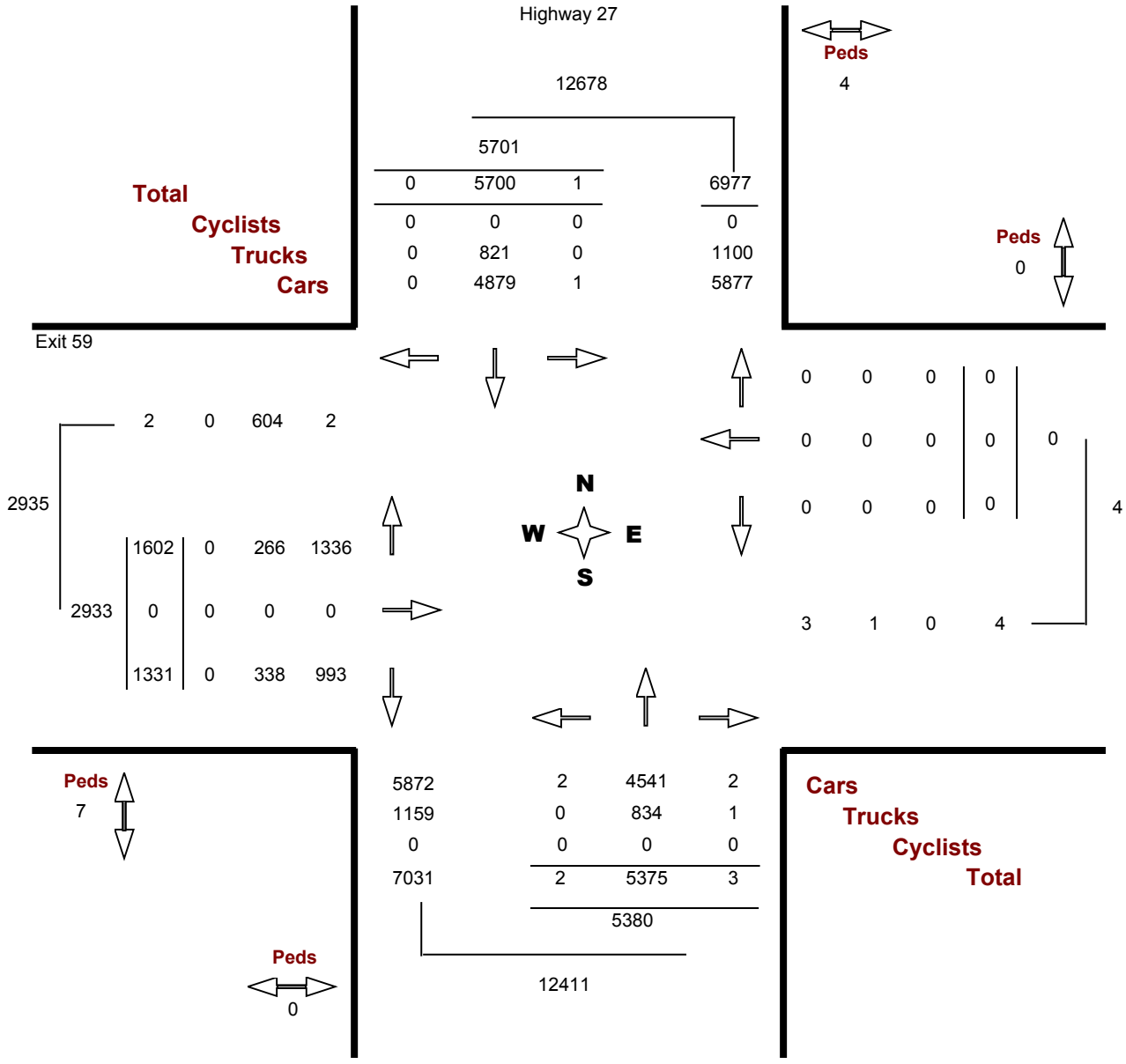
Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	1284	42	1326	0
9:00:00	0	1119	50	1169	0
11:00:00	0	0	0	0	0
12:00:00	0	695	30	725	0
13:00:00	0	753	34	787	0
14:00:00	0	736	48	784	0
15:00:00	0	0	0	0	0
16:00:00	0	901	23	924	0
17:00:00	0	1132	26	1158	0
18:00:00	0	1042	15	1057	0
Totals:	0	7662	268	7930	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	9	8	13	30	21	14	14	23

Turning Movements Diagram
Period Report: Full Study

Location Highway 27 & Exit 59
Municipality Vaughan
GeoID 18B66CC5
Count Date Thursday, 17 January, 2008 **Count Period.** 07:00 AM — 06:00 PM

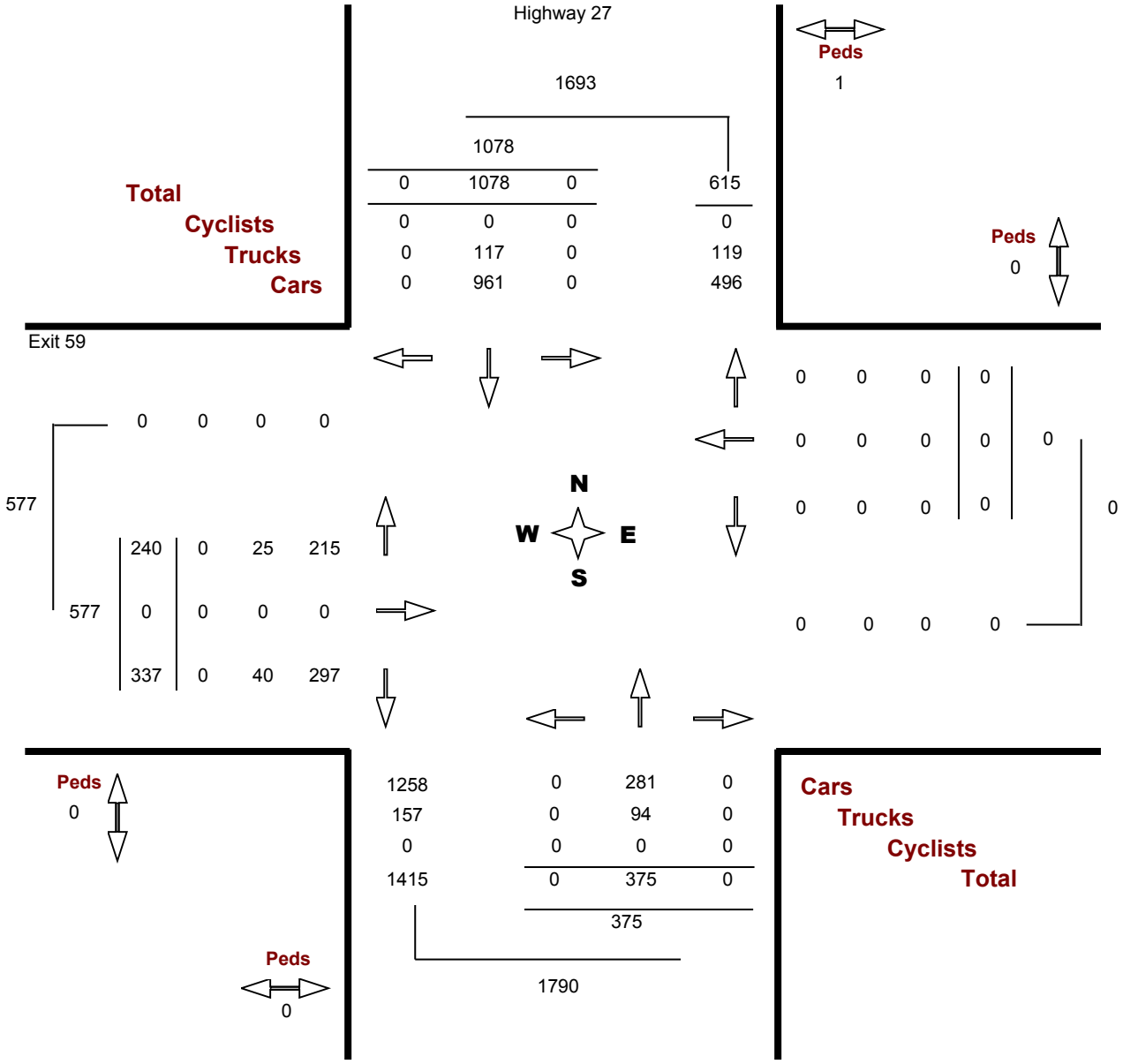


Notes:

Turning Movements Diagram
Peak Hour Report: AM Period

Location..... Highway 27 & Exit 59
Municipality. Vaughan
Traffic Cont. Traffic signal
Major Dir..... None

GeoID..... 18B66CC5
Count Date. Thursday, 17 January, 2008
Count Period. 07:00 AM — 09:00 AM
Peak Hour.... 08:00 AM — 09:00 AM

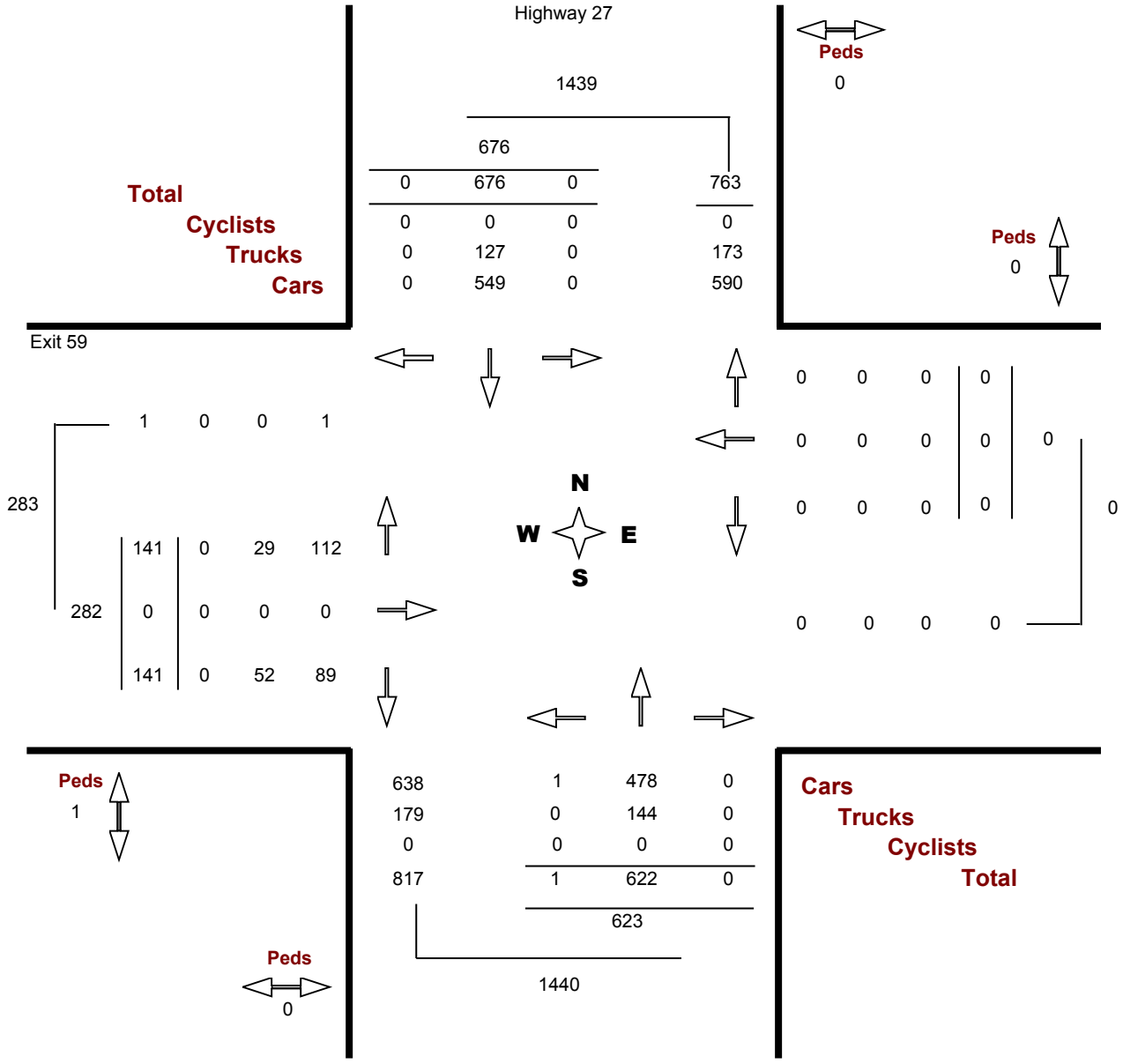


Notes:

Turning Movements Diagram
Peak Hour Report: MD Period

Location..... Highway 27 & Exit 59
Municipality. Vaughan
Traffic Cont. Traffic signal
Major Dir..... None

GeoID..... 18B66CC5
Count Date. Thursday, 17 January, 2008
Count Period. 11:00 AM — 02:00 PM
Peak Hour.... 01:00 PM — 02:00 PM

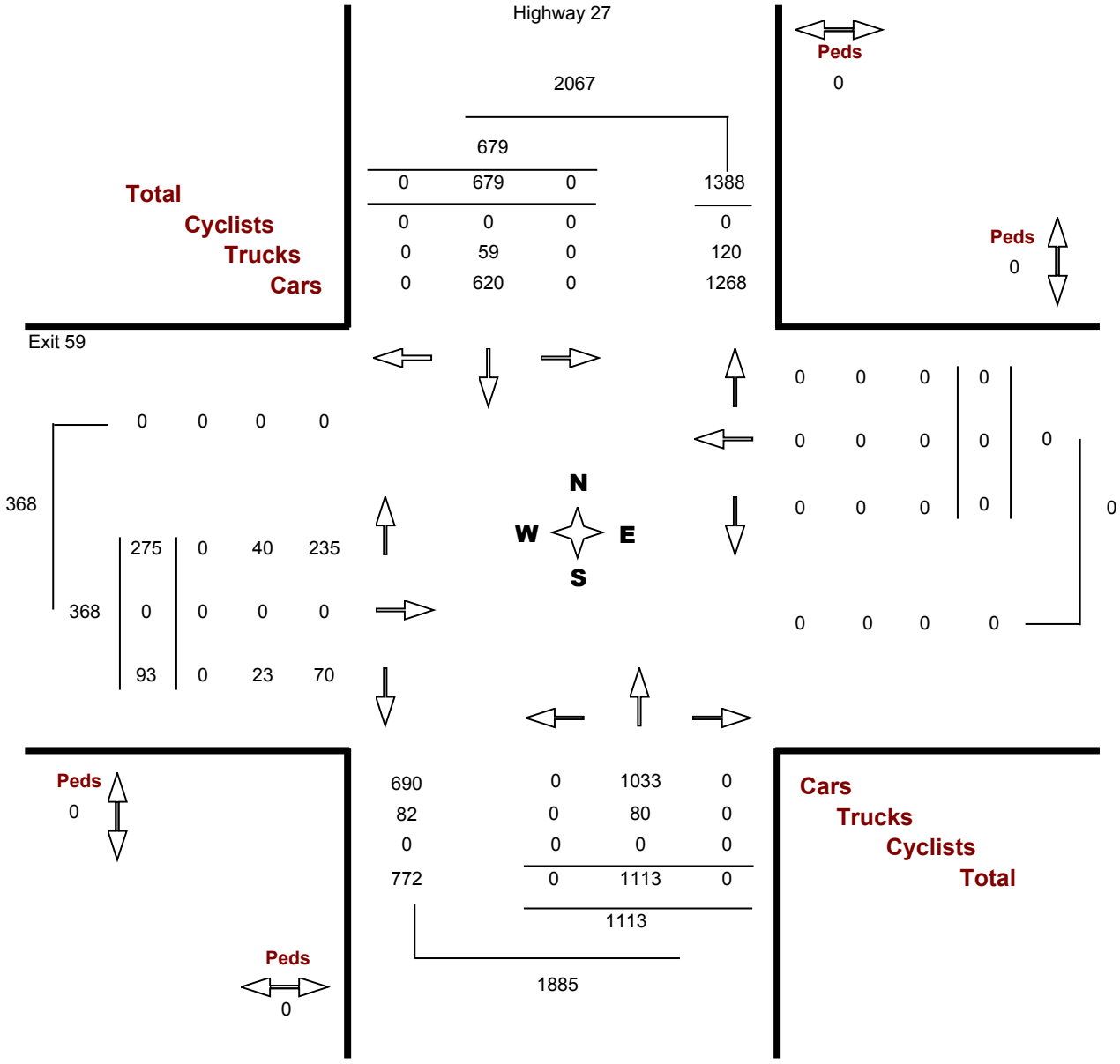


Notes:

Turning Movements Diagram
Peak Hour Report: PM Period

Location..... Highway 27 & Exit 59
Municipality. Vaughan
Traffic Cont. Traffic signal
Major Dir..... None

GeoID..... 18B66CC5
Count Date. Thursday, 17 January, 2008
Count Period. 03:00 PM — 06:00 PM
Peak Hour.... 04:30 PM — 05:30 PM



Notes:

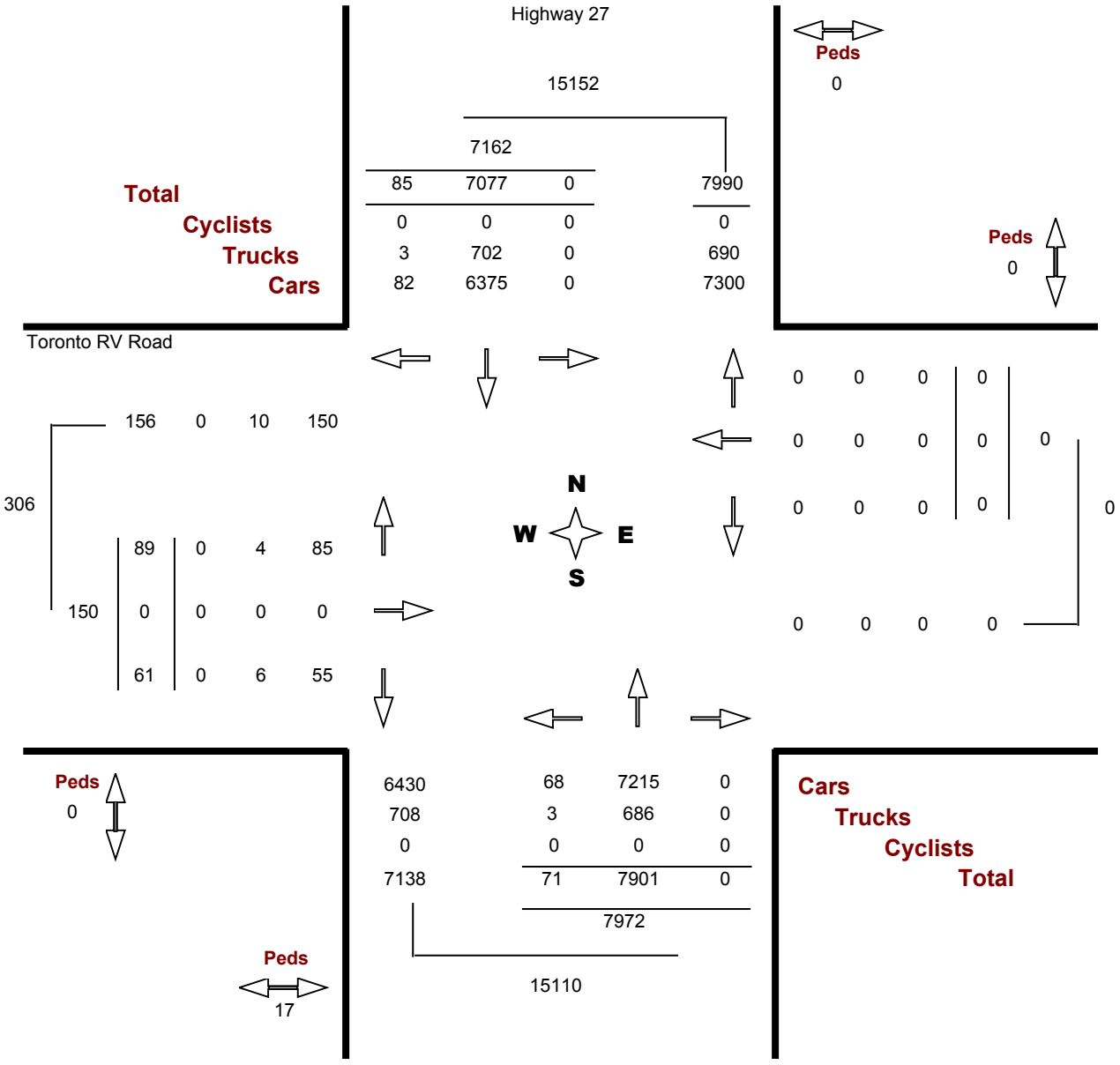
Turning Movements Diagram
Period Report with Cyclists: Full Study

Location Highway 27 & Toronto RV Road

Municipality Vaughan

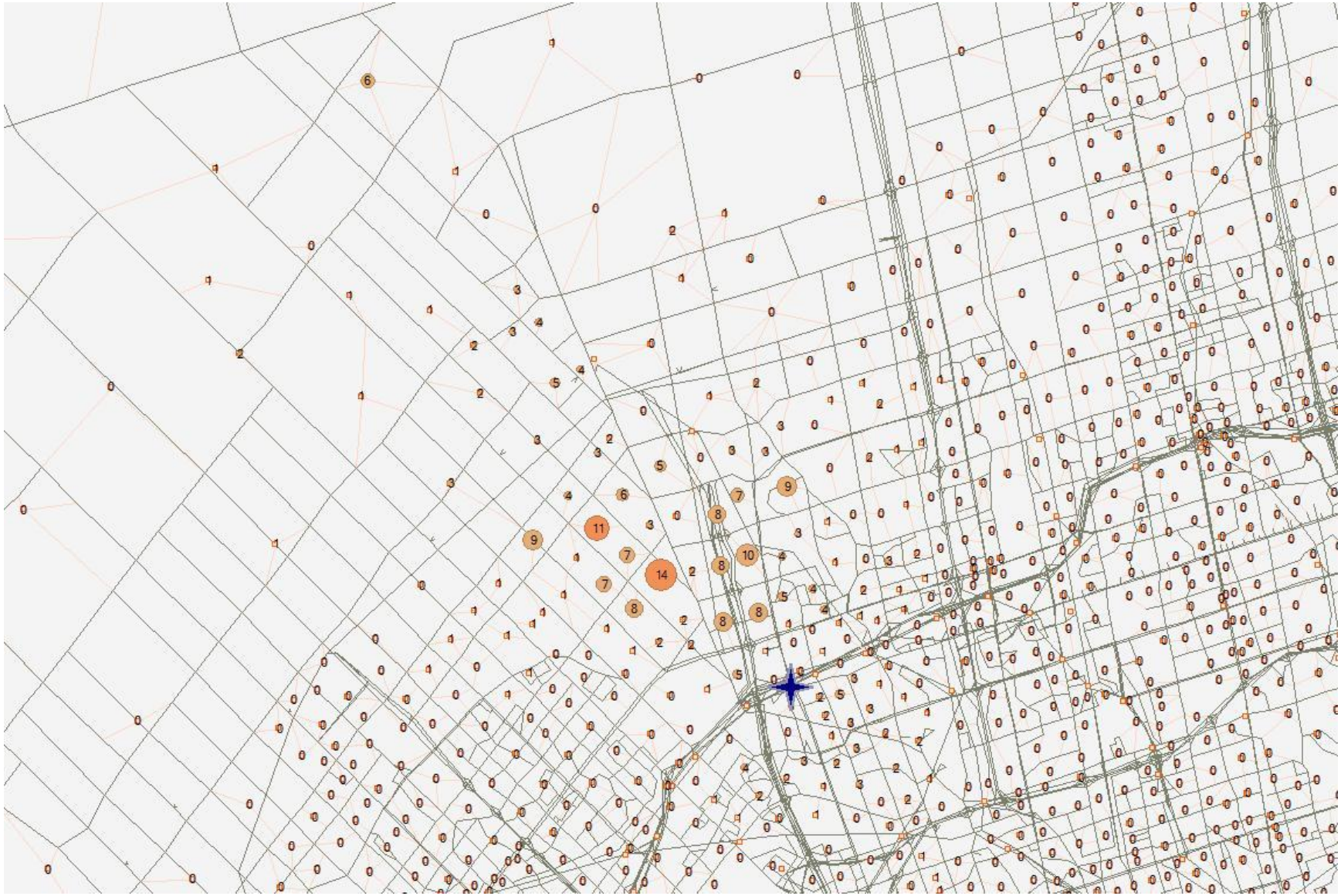
GeoID 05A2852E

Count Date Tuesday, 10 June, 2008 **Count Period.** 07:00 AM — 06:00 PM



Notes:

Appendix H – EMME Origins/Destinations Outputs



Report

Pine Valley Station
Traffic Impact Study

Highway 407 Transitway-3

Prepared for the Ministry of Transportation, Ontario
by IBI Group

July 27, 2018

Document Control Page

CLIENT:	Ministry of Transportation, Ontario
PROJECT NAME:	Highway 407 Transitway-3
REPORT TITLE:	Pine Valley Station TIS – 2018-07-27
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REVIEWER:	Scott Johnston
AUTHORIZATION:	Scott Johnston
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HISTORY:	1.0 Draft 2017-10-05 1.1 Draft 2017-12-12 1.2 2018-07-27

Table of Contents

List of Exhibits

1 Introduction

1.1 Project Overview

The Highway 407 Transitway is a rapid transit facility planned within the Greater Toronto and Hamilton Area (GTHA). The Transitway operate on a dedicated, grade-separated right-of-way providing users fast travel speeds and good travel time reliability. The Highway 407 Transitway project supports the Province's Growth Plan by meeting increased travel demands through alternative transportation modes, providing increased mobility for a wide variety of users, and supporting transit-oriented development and associated land uses.

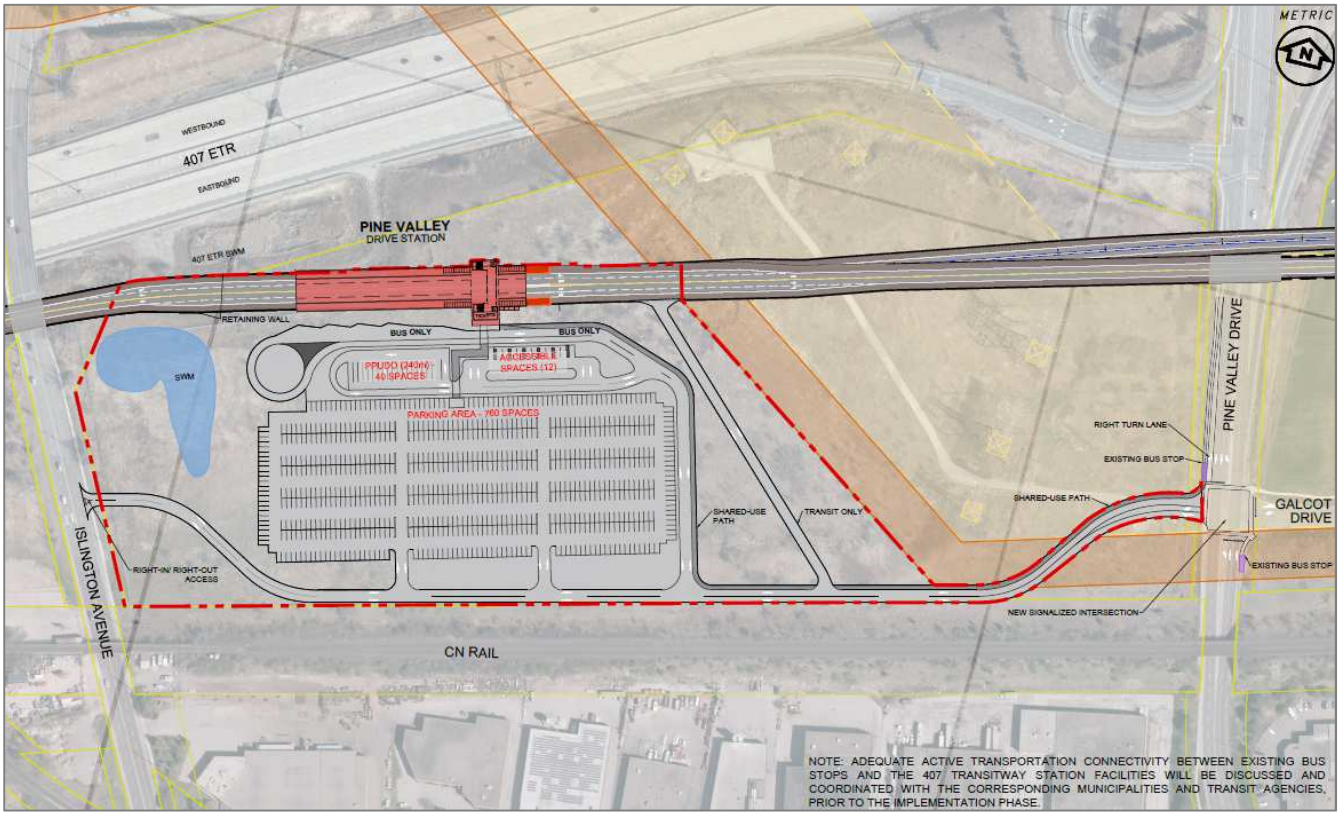
Building upon previous work IBI Group completed for the 'Central' and 'East' sections of the Transitway, the 'Transitway-3' section spans approximately 23 kilometres between Hurontario Street and Highway 400. This section of the Transitway provides opportunities to connect to the GO Rail system at Bramalea Station (Kitchener Line) as well as to a number of other higher order transit systems, supporting development within both the York and Peel Regions.

1.2 Study Area

Pine Valley Station was recommended given the moderately high transit demands forecasted for the area, the potential for the station to integrate well with local transit, and given the long distances between the adjacent Transitway stations. No major developments are located immediately south of Highway 407 ETR between Islington Avenue and Pine Valley Drive, however a CN/CP Railway corridor that runs parallel to Highway 407 towards the south limits the space available for station and parking facilities.

The Transitway station is proposed to be located between Islington Avenue and Pine Valley Drive, with separate accesses to each of these arterial roads. The access located on Pine Valley Drive will operate as a full-moves signalized intersection. At Islington Avenue however, Highway 407 and the railway corridor lie in closer proximity, and so there is limited space available to widen the roadway as would be necessary to accommodate auxiliary turn lanes. The proposed station layout is indicated in Exhibit 1-1.

Exhibit 1-1: Proposed Pine Valley Station Layout

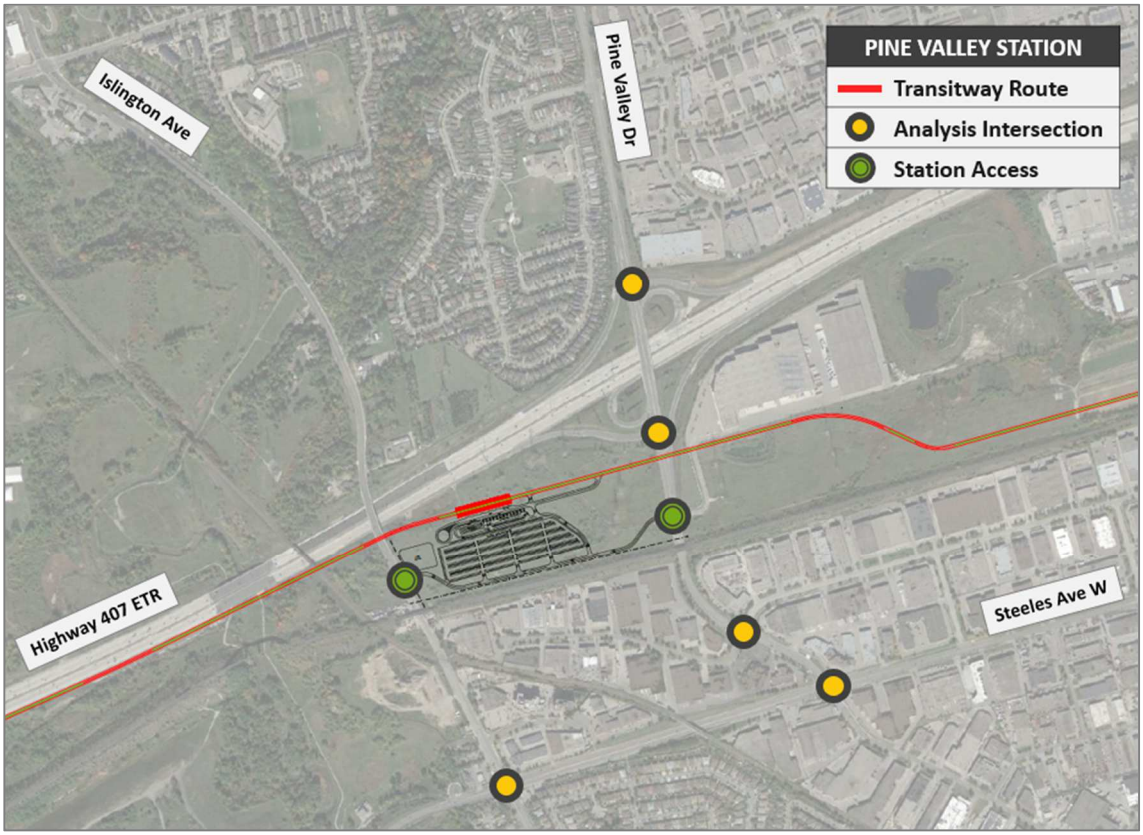


In addition to the future station accesses, the study area includes the following intersections:

- Pine Valley Drive & Highway 407 Westbound off-ramp;
- Pine. Valley Drive & Highway 407 Eastbound off-ramp;
- Pine Valley Drive & Galcat Drive / Station Access;
- Pine Valley Drive & Hanlan Road/Vinyl Court;
- Pine Valley Drive / Fenmar Drive & Steeles Avenue; and,
- Islington Avenue & Steeles Avenue.

The study area is illustrated in Exhibit 1-2.

Exhibit 1-2: Pine Valley Station Study Area



1.3 Study Objective

The purpose of this Pine Valley Station TIS is to assess existing and future traffic operations in order to identify possible deficiencies in the road network and consider potential improvement options. The study is organized as follows:

- Section 2 provides an overview of the current transportation network and assesses existing traffic conditions;
- Section 3 outlines the process used to estimate peak hour traffic generated at this Transitway station, and how this traffic will be distributed on the road network;
- Section 4 assesses of future traffic conditions by considering background traffic growth in addition to traffic generated from the Transitway station;
- Section 5 evaluates potential improvement options that to address any future network deficiencies that have been identified; and,
- Section 6 provides a summary of traffic operations and recommended improvement measures.

1.4 Traffic Analysis Approach

This study documents existing traffic conditions, and assesses anticipated future conditions with consideration of background traffic growth and additional traffic generated from the proposed Transitway. Traffic analysis is conducted using Synchro (version 9) following Highway Capacity Manual (HCM 2000) methodologies of intersection analysis.

All critical traffic movements identified through the Synchro analysis are outlined and discussed, as per the following conditions:

- For signalized intersections,
  - V/C ratios for overall intersections operations, through movements or shared through/turning movements equal 0.80 or above;
  - V/C ratios for exclusive movements equal 0.85 or above; or,
  - Queues for an individual movement are projected to exceed available turning lane storage.
- For unsignalized intersections,
  - Level of service, based on average delay per vehicle or on individual movements is LOS "D" or greater; or,
  - The estimated 95th percentile queue length for an individual movement exceeds the available queue storage.

Level-of-service (LOS) is a measure of performance based on the control delay, defined as follows in Exhibit 1-3.

Exhibit 1-3: Intersection LOS Reference

HCM	CONTROL DELAY PER VEHICLE (S)	
LOS	Signalized	Unsignalized
A	≤10	≤10
B	>10 and ≤20	>10 and ≤15
C	>20 and ≤35	>15 and ≤25
D	>35 and ≤55	>25 and ≤35
E	>55 and ≤80	>35 and ≤50
F	>80	>50

Operational concerns or deficiencies noted in the studied horizon years are identified and addressed through recommendations on potential mitigation measures and/or operational improvements.

1.5 Synchro Model Calibration

The Synchro traffic models were calibrated to better reflect measured field conditions. This was accomplished by adjusting the following parameters detailed below.

Lane Utilization Factor

The "lane utilization factor" (LUF) was altered when calibrating through movements. This parameter is used to dictate the distribution of traffic across the available lanes, with a value of '1.0' representing a uniform distribution across all lanes.

During non-congested periods, there is often more traffic distributed amongst the right-most lanes as compared to the left-most lanes. However, in oversaturated conditions, the distribution of traffic is typically split more evenly across all lanes, as drivers quickly fill any available gap in traffic.

In the existing models, the LUF was adjusted to a value of '1.0' for all through movements initially identified as having a v/c ratio greater than '1.0'. These adjustments were also carried forward to those same movements in the future models (for the same peak period). Additionally, because the above-mentioned driver behaviour is quite predictable, this adjustment was also

made to any “new” critical through movements (having a v/c ratio > ‘1.0’) identified in the future models.

Lost Time Adjustment

Lost Time Adjustment (LTA) was altered in order to calibrate left-turn movements. Adjusting this parameter to a negative value effectively increases the clearance time available for left-turning traffic to clear the intersection during the amber and/or all-red signal phases.

During oversaturated conditions where left-turn queues are excessively long and/or there are limited gaps available in the opposing traffic to make the left-turn (under permissive phasing), drivers are typically more aggressive and willing to turn during the amber/all-red phases.

In the existing models, the LTA was changed for all left-turn movements identified as being well over capacity – defined as having a v/c ratio greater than ‘1.2’ – since these turning volumes were explicitly measured in the field. Values were assigned based on the initial v/c ratio for that movement:

- If the v/c ratio was between 1.2 and 1.5, the LTA was set to ‘-1’; and,
- If the v/c ratio exceeded 1.5, the LTA was set to ‘-2’.

All changes to the LTA made in the existing models were carried forward to those same movements in the future models (for the same peak period). However, because this driver behaviour is believed to be less predictable, no additional LTA changes were made to “new” critical left-turn movements (having a v/c ratio > ‘1.1) identified in the future models, which did not exist in the existing models.

2 Existing Conditions

2.1 Existing Road Network

Highway 407 is a tolled 400-series highway with an eight lane cross section. It connects the City of Burlington to the City of Pickering. 400-series highways have a speed limit of 100 km/h. There is a full interchange at the intersection with Pine Valley Drive.

Pine Valley/Fenmar Drive is a four lane north-south road in the City of Vaughan within York Region. It connects Steeles Avenue in Toronto to The National Golf Club of Canada and continuing again from Rutherford Road to the border of Vaughn and King City. Pine Valley Drive turns into Fenmar Drive south of Steeles Ave W. There are plans to connect the two portions of Pine Valley Drive into one continuous road. Within the study area, it serves an industrial area and has a posted speed limit of 60 km/h.

Steeles Avenue West is an arterial east-west road that connects the Town of Milton to Scarborough, Toronto. Within the study area, it is under the jurisdiction of the City of Toronto and has 4 lanes. It also has a posted speed limit of 60 km/h.

Islington Avenue is an arterial north-south road. North of Steeles Ave W the road is in the City of Vaughan within York Region and has a posted speed limit of 60 km/hr. South of Steeles Ave W it is under the jurisdiction of the City of Toronto with a posted speed limit of 50 km/hr.

Vinyl Court/Hanlan Road is a two lane east-west collector road that primarily serves an employment area. It has an assumed speed limit of 50 km/h.

2.2 Traffic Counts & Signal Timing Data

Traffic count data and signal timing information was collected from City of Brampton, City of Mississauga, and Region of Peel. All turning movement counts modelled for the purposes of this study were conducted recently (within the past five years) and so should reflect current traffic patterns within the study area. Exhibit 2-1 provides a summary of dates on which this information was collected/recorded.

Exhibit 2-1: Traffic Count and Signal Timing Data

INTERSECTION	CONTROL TYPE	DATE OF TMC	DATE OF SIGNAL DATA
Pine Valley Dr & Highway 407 WB off-ramp	Signalized	14-Feb-17	01-Mar-17
Pine Valley Dr & Highway 407 EB off-ramp	Signalized	14-Feb-17	01-Mar-17
Pine Valley Dr & Vinyl Ct / Hanlan Rd	Signalized	25-Jul-17	01-Mar-17
Pine Valley Dr & Steeles Ave W	Signalized	25-Jul-17	13-Apr-17
Steeles Ave W & Islington Ave	Signalized	28-May-13	16-Mar-17

Note that the signal timing information obtained for Pine Valley Drive & Steeles Avenue (dated April-2017) indicates that the SBL movement operates under permissive phasing only. However, a site visit indicated that an advanced-green signal head has since been installed, and the SBL likely now appears to operate under protected + permitted phasing. While not being indicated on the signal timing information sheet, the SBL was modelled in Synchro as operating under protected + permitted phasing.

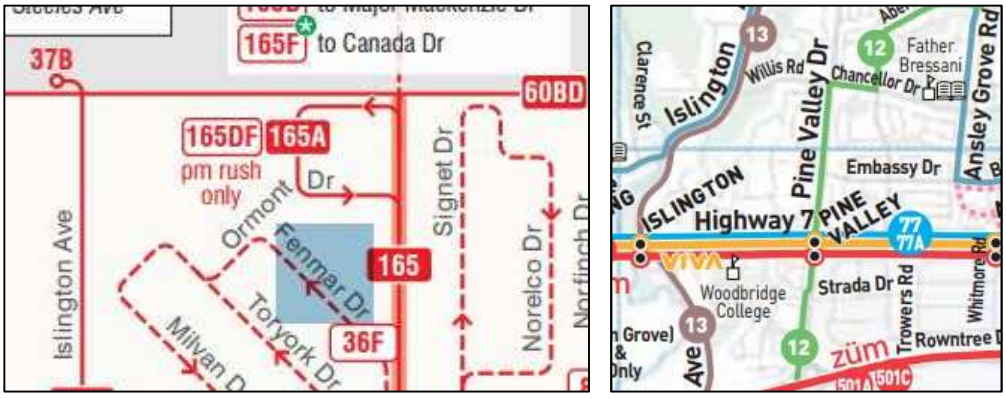
2.3 Existing Transit Network

The Toronto Transit Commission (TTC) and York Region Transit (YRT) operate routes that are servicing the study area. The following routes are currently in service:

- **TTC Route 60 B/D (Steeles West)** is a local route that runs along the Steeles Ave corridor, connecting Steeles Ave at Highway 27 (60B) and Signal Hill Avenue (60D) to Finch Station in Toronto at seven minute headways during peak hours, collectively;
- **YRT Route 12 (Pine Valley Drive)** connects Vaughan Mills and Islington & Steeles Loop in Toronto via Edgeley Blvd, Langstaff Rd, Abordeen Ave, Pine Valley Drive, and Steeles Ave at approximately 30 minute headways during peak hours.

Exhibit 2-2 illustrates the transit services located within the study area.

Exhibit 2-2: TTC (left) and YRT (right) in the Study Area

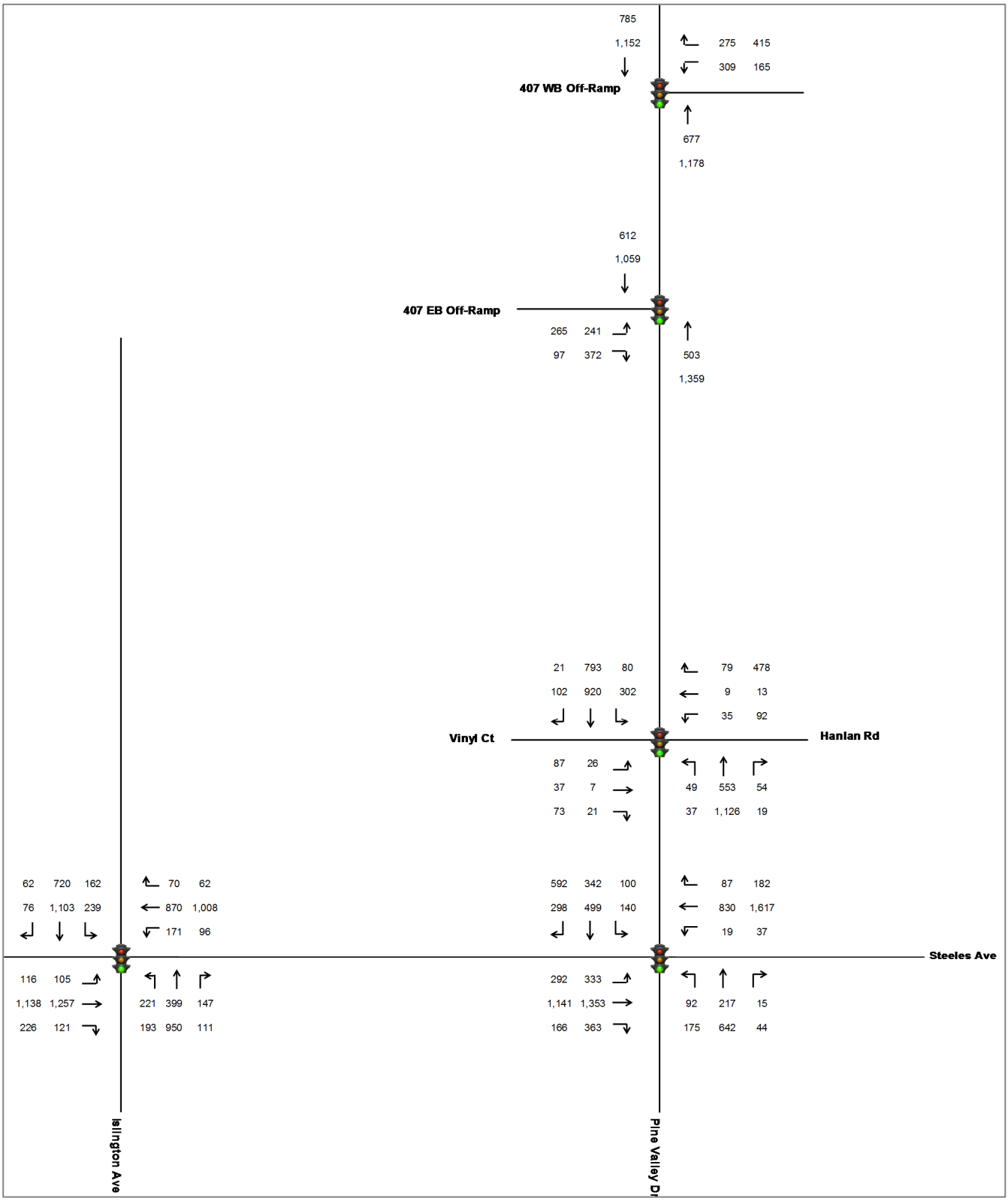


2.4 Existing Traffic Operations

The existing conditions analysis represents traffic operations during base year 2017. An annual compound growth rate of 1.0% was applied to all count volumes obtained in years prior to 2017 in order to bring all counts to a consistent base year.

Existing conditions traffic volumes are illustrated in Exhibit 2-3.

Exhibit 2-3: Existing Volumes in AM (PM) Peak Hours



A summary of critical movements identified during the existing conditions analysis is provided in Exhibit 2-4, with a detailed output of the Synchro analysis provided in the Appendix.

Exhibit 2-4: Existing Critical Movements Summary

INTERSECTION	AM PEAK					PM PEAK				
	LOS	Critical Movements				LOS	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Pine Valley Dr & 407 WB Off-Ramp	B	WBL	E	0.75	65.7	B	WBL	E	0.69	54.1
							WBR	E	0.69	66.4
Pine Valley Dr & 407 EB Off-Ramp	C	EBL	E	0.72	59.2	B	EBL	E	0.68	50.8
		EBR	E	0.60	57.6					
Pine Valley Dr & Vinyl Ct / Hanlan Rd	D	(no critical movements)				D	EBL	F	1.76	75.2
							WBTR	E	0.84	140.8
Pine Valley Dr / Fenmar Dr & Steeles Ave W	C	EBL	D	0.93	100.8	E	EBL	F	1.35	140.1
		WBL	E	0.46	17.4		WBL	E	0.52	25.2
		NBL	E	0.77	54.6		WBT	E	1.03	187.8
							WBR	D	0.28	38.9
							NBL	F	1.24	107.2
Islington Ave & Steeles Ave W	D	EBL	F	1.00	68.1	D	EBL	F	0.94	56.6
		EBT	D	0.88	140.5		EBR	D	0.36	45.0
		WBL	F	1.10	75.0		WBT	D	1.03	159.5
		NBL	E	0.86	76.6		SBL	E	0.86	55.2
		SBT	F	1.05	221.7					

The study intersections are currently operating as follows:

- The intersections between Pine Valley Drive and each of the Highway 407 off-ramps are operating sufficiently during both peak hours.
- Pine Valley Drive & Vinyl Court / Hanlan Road is operating at LOS D during both peak hours. No critical movements were identified in the a.m. peak hour, when southbound volumes are highest. In the p.m. peak hour, northbound volumes are highest, however delays are experienced on the minor approaches as a result of them having limited green-time. The EBL movement is operating well above capacity, while long queues are forming at the shared WBTR lane.
- Pine Valley Drive / Fenmar Drive & Steeles Avenue is operating at LOS C in the a.m. peak hour, and LOS E in the p.m. peak hour. The NBL, EBL and WBL movements are critical during both peak hours, all of which operate as single left-turn lanes. In the p.m. peak hour, the WBT movement is operating at capacity, and the WBL and WBR movements experience delays as a result.
- Islington Avenue & Steeles Avenue is operating at LOS D during both peak hours. In the a.m. peak, the SBT, EBT and EBL movements are operating near or at capacity, and delays are incurred at the opposing NBL and WBL movements. In the p.m. peak, the WBT movement is operating at capacity, and delays are incurred at the opposing EBL movement. The SBL is also critical during the p.m. peak largely due to higher northbound volumes. Finally, the EBR was identified as a critical movement in the p.m. peak hour since 95th percentile queues exceed the very short storage length (shared with a bus bay).

2.5 Existing Model Calibration

The Existing traffic models were calibrated to better reflect measured field conditions accomplished by adjusting either the Lane Utilization Factor (LUF) or Lost Time Adjustment (LTA) for certain movements.

Adjustments made to the existing traffic models are outlined in Exhibit 2-5.

Exhibit 2-5: Existing Model Calibration Parameters

PERIOD	INTERSECTION	MOVEMENT	ADJUSTED PARAMETER	ADJUSTMENT VALUE
AM Peak	Islington & Steeles	WBL	LTA	-1.0
		SBT	LUF	1.0
PM Peak	Pine Valley & Steeles	EBL	LTA	-1.0
		WBT	LUF	1.0
		NBL	LTA	-1.0

These adjustments were applied using the methodologies outlined in Section 1.5.

3 Site Traffic & Parking

3.1 Ridership Forecasts

Ridership forecasts were developed using the Greater Golden Horseshoe Model (GGHM), a state-of-practice multi-modal travel demand model that estimates future travel demands within the Greater Golden Horseshoe. The GGHM was developed to forecast peak period demand in support of Growth Plan policies and has the capability of predicting mode shifts resulting from new public transit infrastructure. It can also be used to test network responses to changes in link characteristics such as transit vehicle frequency, operating speed, station location, and parking availability.

Future year forecasts were previously developed for a number of horizon years including 2031, 2041, and 2051. A number of road network improvements and expansions are also included in the future year models, including numerous widenings along the 400-series highways and major arterial roads. Transit infrastructure included in future models represent projects that are currently committed and funded. While is possible that additional projects will be funded over the upcoming years, this method represents a conservative approach. The following is a list of rapid transit projects that were included in the future year models:

- Toronto-York Spadina Subway Extension (TYSSE);
- 407 Transitway Central Section (Jane Street to Kennedy Road);
- VIVA routes and busways;
- Mississauga 403 Transitway;
- Eglinton Crosstown LRT;
- Sheppard LRT;
- Finch West LRT;
- Yonge Subway Extension to Richmond Hill;
- Two-way all-day GO Rail service (Regional Express Rail);
- Scarborough RT Extension;
- Hurontario-Main LRT; and,
- Highway 427 Transitway.

In addition to developing separate scenarios for the horizon years studied, alternative GGHM scenarios were also developed to represent different levels of funding for the Transitway-3 project: one representing an eleven-station structure and a second representing a reduced eight-station structure. It should also be noted that forecasts were developed only for the a.m. peak period, and so adjustment factors will be used to estimate p.m. peak demands.

With input from the MTO, a horizon year of 2031 was selected as the baseline for determining road and intersection requirements as part of this traffic impact study. The ridership forecasts used for the purposes of this study were taken from the 2031 GGHM model showing the reduced eight-station structure. Demands corresponding to the eight-station scenario for year 2031 are outlined in Exhibit 3-1.

Exhibit 3-1: 2031 AM Peak Hour Boardings

STATION	TOTAL BOARDINGS	PARK-AND-RIDE	WALK / TRANSIT	% PARK-AND-RIDE	% WALK / TRANSIT
Pine Valley	**210**	**130**	**80**	**62%**	**38%**
Martin Grove	420	170	250	40%	60%
Highway 27	400	170	230	43%	58%
Highway 50	790	260	530	33%	67%
Goreway	320	180	140	56%	44%
Airport	610	120	490	20%	80%
Dixie	1,770	110	1,660	6%	94%
Hurontario	1,320	170	1,150	13%	87%
Total:	*5,840*	*1,310*	*4,530*	*22%*	*78%*

Note that a ninth station may also be included at Bramalea (between Dixie and Airport), however this station would operate solely as a transit interlining/transfer station and therefore generate no park-and-ride demand.

3.2 Trip Generation

Peak hour trips to and from the station were estimated using the GGHM ridership forecasts presented in Exhibit 3-1. Because walk/transit boardings do not translate into vehicle trips generated, only park-and-ride demands were considered at this stage.

Park-and-ride boardings were equated to inbound vehicle trips at an assumed factor of 10:11, or 1.1 riders per park-and-ride vehicle. However, this only provides an indication of inbound trips to the station, and not of outbound trips leaving the station. Furthermore, the park-and-ride demands were developed only for the a.m. peak hour and not for the p.m. peak hour.

The ITE Trip Generation Manual (9th edition) was used to estimate a.m. peak outbound trips, as well as p.m. peak inbound and outbound trips. Average trip generation rates for bus stations with park-and-ride lots are indicated in Exhibit 3-2.

Exhibit 3-2: ITE Trip Generation Rates for Park-and-Ride Lots

LAND USE (CODE)	UNITS	AM PEAK HOUR		PM PEAK HOUR	
		Trip Rate	Inbound / Outbound	Trip Rate	Inbound / Outbound
Park-and-ride with bus service (090)	/ parking space	0.71	79% / 21%	0.62	25% / 75%

The 2031 GGHM forecasts indicate a demand of 130 park-and-ride boardings at Pine Valley Station during the a.m. peak hour. Exhibit 3-3 lists the estimated site traffic generated given the above assumptions.

Exhibit 3-3: Estimated Vehicle Trips Generated by Pine Valley Station

AM PEAK TRIPS		PM PEAK TRIPS	
Inbound	Outbound	Inbound	Outbound
118*	31	33	98

** Calculated based on forecasted 2031 a.m. park-and-ride boardings, at a factor 1.0 inbound vehicles per 1.1 boardings.*

3.3 Trip Distribution

An origin/destination map showing the origin of park-and-ride trips destined to Pine Valley Station was extracted from the 2031 GGHM and can be found attached in the Appendix. The model runs correspond to 2031 a.m. conditions for the eight-station Transitway structure, and with the assumption that the 'Central' and 'East' Transitway sections exist. Note that the model does not account for an extension of the Transitway west beyond Hurontario Street (i.e. beyond the 'Transitway-3' limits).

Using this map, inbound trips were tabulated in terms of general direction of origin (i.e. north, south, east or west) and assigned to the study area intersections as a percentage of total inbound trips. Distribution of outbound trips was assumed to the same as inbound trips (e.g. the percentage of inbound trips originating from the north is equal to the percentage of outbound trips destined to the north). Trip distribution percentages were assumed to be equal during both the a.m. and p.m. peak hours.

The resulting trip distribution percentages to and from the station are illustrated in Exhibit 3-4. By then applying the trip generation values from Exhibit 3-3 to the trip distribution percentages shown in Exhibit 3-4, the site generated traffic was assigned to study area intersections and is indicated in Exhibit 3-5 and Exhibit 3-6 (for the a.m. and p.m. peak hours, respectively).

Exhibit 3-4: Trip Distribution in AM and PM Peak Hours

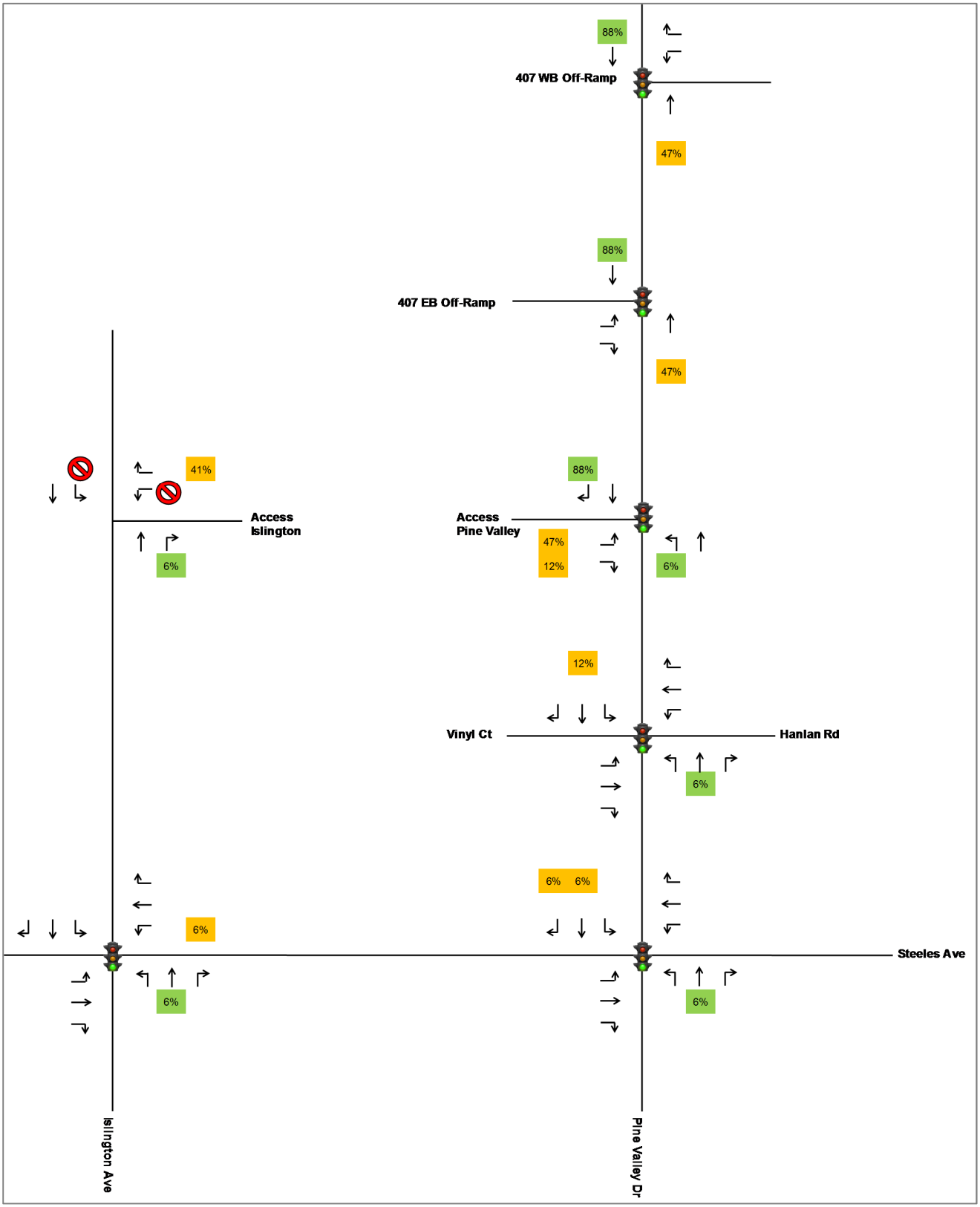


Exhibit 3-5: Site Generated Traffic in AM Peak Hour

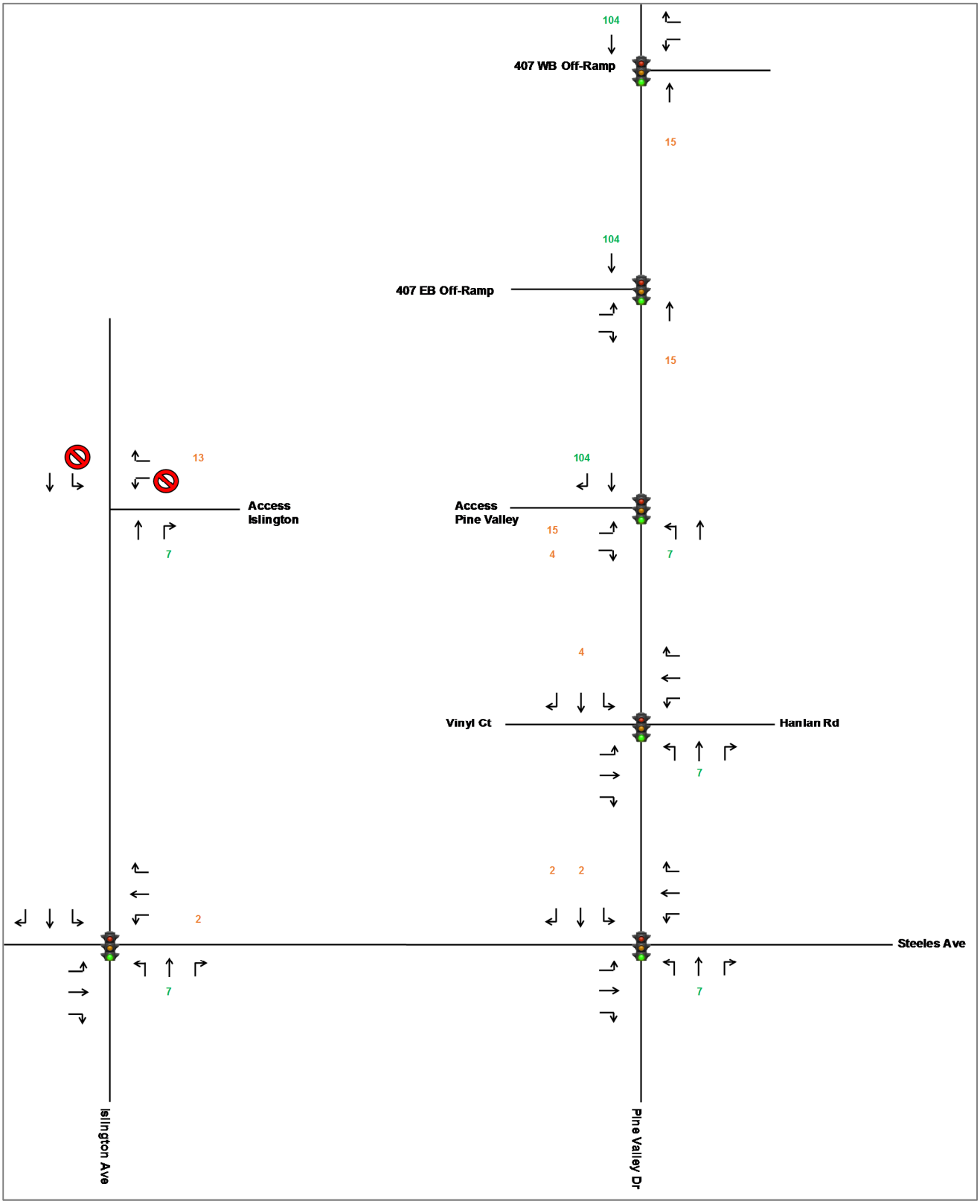
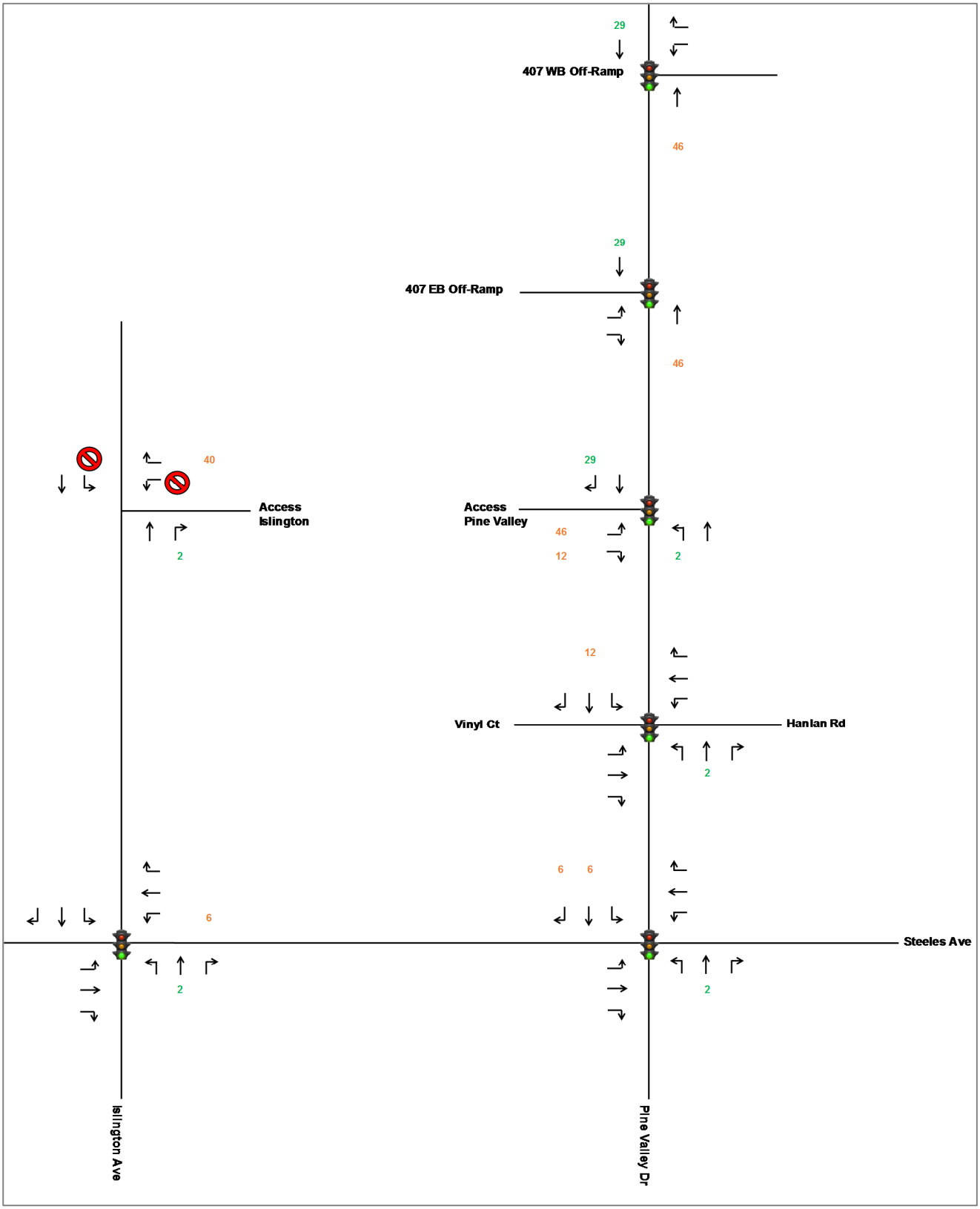


Exhibit 3-6: Site Generated Traffic in PM Peak Hour



3.4 Parking Demands

In order to estimate parking demands at each of the Transitway stations, data from various GO transit stations nearby the study area was analyzed to study the relationship between inbound vehicle trips and average parking lot utilization. Four GO stations were considered, comprising of Brampton, Bramalea, Malton, and Etobicoke North stations.

The average number of inbound vehicle trips made to each of these GO stations during the a.m. peak period (defined as 6:30-9:30 am) were determined using 2011 Transportation Tomorrow Survey (TTS) data. The data was filtered to only include trips made via the auto driver mode, as this corresponds directly to number of inbound passenger vehicles.

Parking data for the GO transit stations was obtained from the *GO Transit Rail Parking and Station Access Plan (2013)* prepared for Metrolinx. The report notes the total capacity and average utilization of each GO station parking lot, which were used to calculate average parking demands. Note that the parking data from this report is dated May-2012, which is similar to the time period covered by the 2011 TTS.

By comparing the number of inbound auto drivers during the a.m. peak period to the average parking lot demand at each station, a representative “parking factor” was determined. These values are indicated in the below Exhibit 3-7.

Exhibit 3-7: Parking Demand Factors for nearby GO Transit Stations

2011 TTS AM PEAK PERIOD *		2012 GO STATION PARKING **			PARKING FACTOR
GO Station	Auto Drivers	Capacity	Utilization	Demand	
Brampton	860	891	101%	900	1.046
Bramalea	1,360	2,381	81%	1,929	1.418
Malton	580	731	95%	694	1.197
Etobicoke North	410	532	97%	516	1.259
Total	*3,210*	*4,535*	*89%*	*4,039*	***1.258***

** AM peak period inbound vehicles estimated using 2011 TTS data, and rounded to the nearest 10.*

*** GO parking data obtained from the "GO Transit Rail Parking and Station Access Plan" (2013), and is dated May-2012.*

This “parking factor” was then applied to the a.m. peak period inbound trips estimated at each Transitway station. Note that park-and-ride forecasts (and congruently, estimated inbound vehicle trips) for the a.m. peak hour can be converted to a.m. peak period forecasts by applying a factor of 2.174, as analysis of the TTS indicated that 46% of 3-hour a.m. peak period trips occur within the single a.m. peak hour.

The resulting estimated parking demands at each Transitway station are provided in Exhibit 3-8. Parking demands are provided for both the 2031 horizon used for the purposes of this traffic study, as well as for the 2051 horizon established to represent “ultimate” conditions.

Exhibit 3-8: Estimated Parking Demands for each Transitway Station

STATION	GGHM INBOUND TRIPS *				PARKING DEMAND ***	
	AM Peak Hour		AM Peak Period **			
	2031	2051	2031	2051	2031	2051
Pine Valley	**118**	**164**	**257**	**356**	**323**	**448**
Martin Grove	155	227	336	494	423	622
Highway 27	155	236	336	514	423	646
Highway 50	236	409	514	889	646	1119
Goreway	164	291	356	632	448	796
Airport	109	191	237	415	298	522
Dixie	100	164	217	356	273	448
Hurontario	155	245	336	534	423	671

** Calculated based on forecasted a.m. park-and-ride boardings, at a factor 1.0 inbound vehicles per 1.1 boardings.*

*** Peak hour trips can be converted to peak period trips at a factor of 2.174.*

**** Parking demands calculated by multiplying estimated a.m. peak period inbound trips by a factor of 1.258.*

4 Future Conditions

4.1 Future Background Operations

Future conditions analysis were undertaken for horizon year 2031. The City of Mississauga and Region of Peel population and trip-end growth forecasts were considered in the preparation of the traffic growth forecast. Relevant documents are listed as follows:

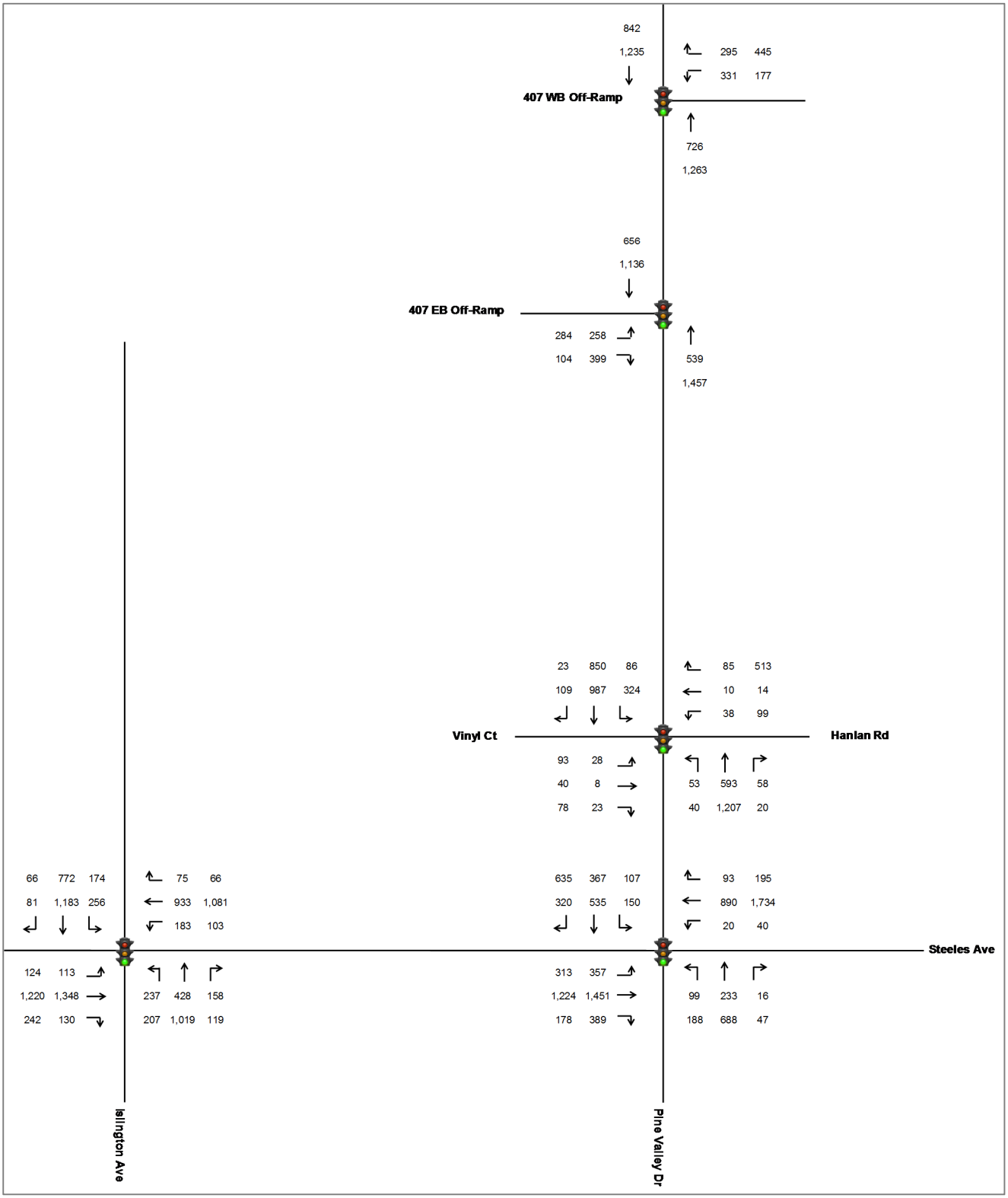
- Greater Toronto and Hamilton Area – “Growth Plan for the Greater Golden Horseshoe” (2017);
- City of Mississauga – “Mississauga Official Plan” (2016); “Population, Demographics & Housing” (2013); and “Moving Mississauga” (2011); and,
- Region of Peel – “Long Range Transportation Plan” (2012).

Review of the above documents showed that population growth is estimated to be 0.5% to 0.6% per year between 2011 and 2031, while trip ends are forecasted to increase by 0.9% to 1.0% per year during that same period time.

However, many major intersections nearby the Transitway are already operating at or above capacity during peak times, suggesting that there is limited remaining capacity available to serve added future demands. While trip ends are forecasted to increase up to 1.0% per year, it is expected that some “peak spreading” will occur – where some motorists alter their departure times to avoid congestion during the peak hours. Rather than growth occurring uniformly throughout the day, this results in less growth during the peak hours and greater growth during off-peak times.

Given the above, an annual compound growth rate of 0.5% per year was used to represent background growth (unrelated to the implementation of the Transitway) during the a.m. and p.m. peak hours. Future traffic volumes with background growth applied are illustrated in Exhibit 4-1.

Exhibit 4-1: Future Background Volumes in AM (PM) Peak Hours



A summary of critical movements identified during the future background conditions analysis is provided in Exhibit 4-2, with a detailed output of the Synchro analysis provided in the Appendix.

Exhibit 4-2: Future Background Critical Movements Summary

INTERSECTION	AM PEAK					PM PEAK				
	LOS	Critical Movements				LOS	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Pine Valley Dr & 407 WB Off-Ramp	B	WBL	E	0.76	69.8	B	WBR	E	0.74	76.3
Pine Valley Dr & 407 EB Off-Ramp	C	EBR	E	0.70	70.4	B	EBL	E	0.70	54.1
Pine Valley Dr & Vinyl Ct / Hanlan Rd	B	EBL WBL WBTR	E E E	0.24 0.45 0.17	15.9 23.0 20.7	D	WBTR NBT	E D	0.97 0.88	204.8 206.7
Pine Valley Dr / Fenmar Dr & Steeles Ave W	D	EBL WBL SBT	E F E	0.94 0.51 0.91	143.8 19.4 160.5	D	EBL WBT WBR NBL SBT	F E C F F	1.03 1.00 0.28 0.95 1.08	122.4 193.8 40.7 83.5 158.3
Islington Ave & Steeles Ave W	E	EBL EBT WBL NBL SBT	F D F F F	1.06 0.88 1.09 1.19 1.10	73.9 148.6 88.3 116.4 226.3	D	EBL EBR WBT NBL NBT SBL SBT	F C C E E F E	1.01 0.36 0.93 0.90 0.94 1.11 0.87	63.0 47.3 156.5 83.1 186.0 83.3 141.2

With background growth added, the study intersections are expected to operate as follows:

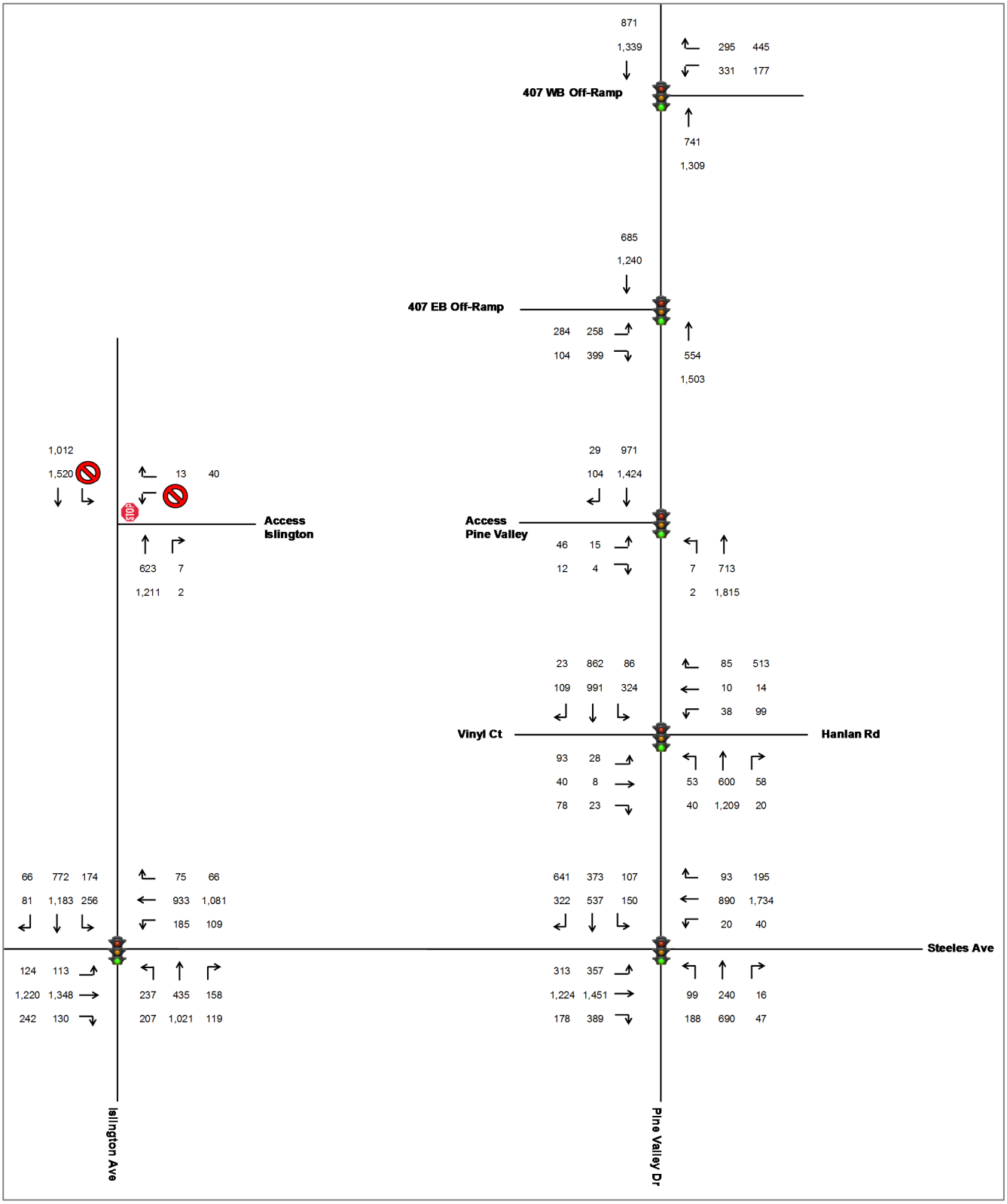
- The intersections between Pine Valley Drive and each of the Highway 407 off-ramps continue to operate well during both peak hours.
- Pine Valley Drive & Vinyl Court / Hanlan Road continues to operate at LOS D in the p.m. peak hour, but improves from LOS D to LOS B in the a.m. peak simply following optimization of signal phase splits. In the p.m. peak, the NBT movement is further approaching capacity while the WBT movement now operates at capacity.
- Pine Valley Drive / Fenmar Drive & Steeles Avenue deteriorates from LOS C to LOS D in the a.m. peak hour, and from LOS D to LOS E in the p.m. peak hour. The NBL is no longer critical in the a.m. peak, however the SBT and EBL movements are approaching capacity. In the p.m. peak, these same movements operate above capacity, while the WBT movement is also now at capacity.
- Islington Avenue & Steeles Avenue deteriorates from LOS D to LOS E in the a.m. peak hour, and remains operating at LOS D in the p.m. peak hour. The already critical SBT, EBT, EBL, and WBL movements further deteriorate in the a.m. peak, each now operating above capacity. In the p.m. peak, the NBT, SBT, and WBT further approach capacity, while the EBL and SBL movements now operate above capacity.

4.2 Future Total Operations

Future total volumes were calculated adding the site-generated traffic to the future volumes with background growth applied. This future total scenario accounts for all vehicular traffic that is estimated in year 2031 following implementation of the Transitway.

Future total volumes, which include background growth in addition to the traffic generated by Pine Valley Station, are illustrated in Exhibit 4-3.

Exhibit 4-3: Future Total Volumes in AM (PM) Peak Hours



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A summary of critical movements identified during the future total conditions analysis is provided in Exhibit 4-4, with a detailed output of the Synchro analysis provided in the Appendix.

Exhibit 4-4: Future Total Critical Movements Summary

INTERSECTION	AM PEAK					PM PEAK				
	LOS	Critical Movements				LOS	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Pine Valley Dr & 407 WB Off-Ramp	B	WBL	E	0.76	70.0	B	WBR	E	0.75	77.8
Pine Valley Dr & 407 EB Off-Ramp	C	EBR	E	0.73	74.3	B	EBL	E	0.70	54.1
Pine Valley Dr & Vinyl Ct / Hanlan Rd	B	EBL WBL WBTR	E E E	0.24 0.45 0.17	15.9 23.0 20.7	D	WBTR NBT	E D	0.97 0.88	204.8 206.7
Pine Valley Dr / Fenmar Dr & Steeles Ave W	D	EBL WBL SBT	F E E	0.95 0.48 0.91	118.6 18.2 150.7	E	EBL WBT WBR NBL SBT	F D C F F	1.18 0.96 0.28 1.06 1.11	141.8 186.9 39.8 89.8 162.0
Islington Ave & Steeles Ave W	E	EBL EBT WBL NBL SBT	F D F F F	1.11 0.90 1.18 1.19 1.08	75.2 150.5 72.0 116.3 223.9	D	EBL EBR WBT NBL NBT SBL SBT	F C D E E F E	1.01 0.36 0.93 0.91 0.94 1.11 0.89	63.0 47.3 165.2 85.2 187.4 83.3 145.1

With Pine Valley demands added to background growth conditions, the study intersections are expected to operate as follows:

- A significant amount NBT and SBT traffic is added to the both Highway 407 off-ramp intersections, however they continue to operate well during both peak hours.
- Limited NBT and SBT traffic is added to Pine Valley Drive & Vinyl Court / Hanlan Road, and the intersection remains operating in LOS B in the a.m. peak hour and LOS D in the p.m. peak hour. While the NBT movement was identified as a critical movement in the background conditions analysis, the small amount of site traffic added to this movement causes operations to deteriorate only marginally.
- At Pine Valley Drive / Fenmar Drive & Steeles Avenue, a small amount of traffic is added to the NBT, SBT, and SBR movements. These critical movements worsen slightly but remain below capacity, and result in a slight deterioration of movements along the eastbound and westbound approaches. Overall, the intersection remains operating at LOS D in the a.m. peak hour and LOS E in the p.m. peak hour, as was the case in the background conditions analysis.
- Limited traffic is added to the NBT and WBL movements at Islington Avenue & Steeles Avenue, however the intersection remains operating at LOS E in the a.m. peak hour and LOS D in the p.m. peak hour. The additional WBL traffic, albeit limited, causes the already critical WBL movement to deteriorate further beyond capacity.

Two accesses to the park-and-ride lot are proposed: a signalized access on Pine Valley Drive, and a right-in/right-out access on Islington Avenue. While a full-moves signalized access was

also considered on Islington Avenue, there is limited space available to widen the roadway given the bridge over Highway 407 to the north and the CN/CP railway overpass to the south. Implementing a signalized access requires an auxiliary SBL turn-lane on Islington Road in addition to the proposed dedicated right-turn lane – these two auxiliary lanes cannot be accommodated in the available right-of-way. Alternatively, implementing a right-in/right-out access requires for only the dedicated right-turn lane to be provided. The below Exhibit 4-5 indicates that the two accesses will both operate well under this proposed configuration.

Exhibit 4-5: Station Access Operations Summary

ACCESS	AM Peak					PM Peak				
	LOS	Inbound/Outbound Movement				LOS	Inbound/Outbound Movement			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Islington Ave access (right-in/right-out)	A	NBR (in)	A	0.00	0.0	A	NBR (in)	A	0.00	0.0
		WBR (out)	B	0.02	0.5		WBR (out)	B	0.11	2.7
Pine Valley Dr access (signalized)	A	NBL (in)	A	0.03	1.0	A	NBL (in)	A	0.00	0.5
		SBR (in)	A	0.07	2.6		SBR (in)	A	0.02	1.6
		EBL (out)	C	0.09	6.2		EBL (out)	C	0.26	13.8
		EBR (out)	B	0.02	2.2		EBR (out)	B	0.07	4.1

As shown, both access are expected to operate satisfactorily during both the a.m. peak and p.m. peak hour. No individual movements are expected to exceed critical thresholds.

4.3 Future Model Calibration

The Future Synchro models were calibrated to better reflect measured field conditions accomplished by adjusting either the Lane Utilization Factor (LUF) or Lost Time Adjustment (LTA) for certain movements.

Adjustments made to the existing traffic models are outlined in Exhibit 4-6.

Exhibit 4-6: Future Background Model Calibration Parameters

PERIOD	INTERSECTION	MOVEMENT	ADJUSTED PARAMETER	ADJUSTMENT VALUE
AM Peak	Islington & Steeles	WBL	LTA	-1.0
		SBT	LUF	1.0
PM Peak	Pine Valley & Steeles	EBL	LTA	-1.0
		WBT	LUF	1.0
		NBL	LTA	-1.0
		SBT	LUF	1.0

These adjustments were applied using the methodologies outlined in Section 1.5.

5 Potential Improvement Measures

5.1 Islington Avenue & Steeles Avenue

The below improvement measures were analyzed in Synchro (given Future Total volumes), with results presented in Exhibit 5-1:

- Dual WBL and EBL lanes; and,
- Extend dedicated EBR lane.

Exhibit 5-1: Analysis of Improvements to Islington Ave & Steeles Ave

INTERSECTION	AM PEAK					PM PEAK				
	Avg. v/c Ratio	Critical Movements				Avg. v/c Ratio	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Islington Ave & Steeles Ave (current configuration)	1.15	EBL	F	1.06	73.9	1.01	EBL	F	1.01	63.0
		EBT	D	0.88	148.6		EBT	D	0.69	122.9
		EBR	C	0.15	20.5		EBR	C	0.36	47.3
		WBL	F	1.09	67.9		WBL	C	0.60	22.7
		WBT	C	0.70	140.2		WBT	D	0.93	159.8
		WBR	D	0.06	13.0		WBR	C	0.05	0.6
		NBL	F	1.19	116.4		NBL	E	0.90	83.1
		NBT	D	0.46	68.2		NBT	E	0.94	186.5
		NBR	C	0.12	16.3		NBR	C	0.13	19.1
		SBL	C	0.63	62.1		SBL	F	1.11	83.3
		SBT	F	1.10	226.3		SBT	E	0.87	141.2
		SBR	C	0.06	10.8		SBR	C	0.05	0.9
Islington Ave & Steeles Ave (with improvements)	1.04	EBL	F	0.87	34.5	0.98	EBL	F	0.97	39.0
		EBT	E	0.97	167.1		EBT	D	0.67	119.7
		EBR	C	0.15	20.7		EBR	C	0.31	36.7
		WBL	E	0.93	52.0		WBL	D	0.56	17.1
		WBT	E	0.94	178.4		WBT	D	0.91	173.5
		WBR	F	0.06	17.3		WBR	C	0.05	1.1
		NBL	F	1.12	113.5		NBL	E	0.90	83.1
		NBT	C	0.42	65.8		NBT	E	0.94	186.5
		NBR	C	0.12	15.7		NBR	C	0.13	19.1
		SBL	C	0.59	57.9		SBL	F	1.11	83.3
		SBT	E	1.03	215.2		SBT	E	0.87	141.2
		SBR	C	0.06	9.5		SBR	C	0.05	0.9

The following was observed:

- Implementing dual EBL and WBL lanes improves operations at these movements in both peak hours.
- In the a.m. peak, optimization of signal splits results in less green-time allocated to E-W phases, and more green-time allocated to N-S phases. Operations on these approaches are affected as a result.
- Extending the dedicated EBR lane to 50m accommodates 95th percentile queuing.
- The average v/c ratio is reduced in both peak hours.

Implementing dual EBL and WBL lanes would improve operations at this intersection, however would present major hydro conflicts (corridor located along the north boulevard).

While only a small amount of Transitway traffic is anticipated to be added to the WBL movement, this movement is already operating above capacity based on the existing conditions analysis, and deteriorates further beyond capacity with the addition of this site traffic. As a result, it is recommended that dual WBL lanes be implemented during construction of the Transitway. While the EBL movement is not expected to be greatly impacted by site traffic, opposing dual EBL lanes can be considered an optional measure pending further design review (i.e. to check potential overlapping left-turns and/or additional constructability impacts).

5.2 Pine Valley Drive & Steeles Avenue

The below improvement measures were analyzed in Synchro (given Future Total volumes), with results presented in Exhibit 5-2:

- Dedicated SBR lane.

Exhibit 5-2: Analysis of Improvements to Pine Valley Dr & Steeles Ave

INTERSECTION	AM PEAK					PM PEAK				
	Avg. v/c Ratio	Critical Movements				Avg. v/c Ratio	Critical Movements			
		Mvmnt	LOS	V/C	95% Queue		Mvmnt	LOS	V/C	95% Queue
Pine Valley Dr & Steeles Ave (current configuration)	0.95	EBL	F	0.95	121.6	1.07	EBL	F	1.03	130.4
		EBT	D	0.83	162.1		EBT	C	0.61	108.5
		WBL	E	0.48	18.2		WBL	D	0.44	22.2
		WBT	D	0.77	101.7		WBT	E	1.00	193.8
		WBR	D	0.07	11.2		WBR	C	0.28	40.7
		NBL	D	0.72	39.4		NBL	F	0.95	83.5
		NBT	D	0.31	41.1		NBT	D	0.79	122.9
		SBL	C	0.38	42.3		SBL	D	0.61	31.6
		SBT	E	0.91	152.1		SBT	F	1.10	161.6
Pine Valley Dr & Steeles Ave (with improvements)	0.83	EBL	E	0.91	102.0	1.07	EBL	F	1.03	130.9
		EBT	C	0.77	129.1		EBT	C	0.58	96.6
		WBL	E	0.48	18.7		WBL	D	0.41	21.3
		WBT	D	0.66	97.2		WBT	D	0.93	175.1
		WBR	C	0.07	10.7		WBR	C	0.27	39.0
		NBL	D	0.57	32.1		NBL	D	0.65	55.7
		NBT	D	0.34	42.4		NBT	E	0.86	128.6
		SBL	C	0.44	45.4		SBL	D	0.69	34.8
		SBT	D	0.64	89.5		SBT	D	0.43	56.9
		SBR	D	0.23	23.6		SBR	F	1.08	207.2

The following was observed:

- Implementing a dedicated SBR lane improves operations along the southbound approach.
- Optimization of signal splits results in less green-time allocated to E-W phases, and more green-time allocated to N-S phases. Operations on these approaches are affected as a result.
- The average v/c ratio improves in the a.m. peak, but remains the same in the p.m. peak.

Implementing a dedicated SBR lane would improve operations in the a.m. peak hour, and does not appear to present major constructability issues (although further study is required).

However, only a marginal amount of site traffic is anticipated to be added to the SBR movement. As a result, this improvement does not fall within the scope/responsibility of the Transitway-3 project.

6 Summary and Recommendations

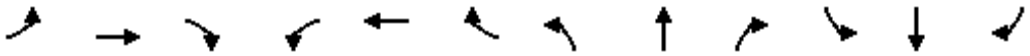
This report provides an analysis of traffic operations for the proposed Highway 407 Transitway station located on Pine Valley Drive. Future conditions during the a.m. and p.m. peak hours were modelled and analyzed based on a horizon year of 2031.

The study indicates that future 2031 background traffic operations have several movements nearing or at capacity at Pine Valley Dr & 407 WB Off-Ramp, at Pine Valley Dr & 407 EB Off-Ramp, at Pine Valley Drive & Vinyl Crescent/ Hanlan Road, at Pine Valley Drive / Fenmar Drive & Steeles Avenue West, and at Islington Avenue & Steeles Avenue West.

Site traffic for this station is generally originating from / destined to the north. Because SBL turns are not permitted at the access off Islington Avenue, it is anticipated that the majority of inbound trips will be made travelling southbound on Pine Valley Drive. Outbound traffic will likely be more split between the two accesses. Given this anticipated trip distribution, little traffic will be added to the congested Islington Avenue & Steeles Avenue and Pine Valley Drive & Steeles Avenue intersections.

With that said, some traffic is still anticipated to be added to the critical WBL movement at Islington Avenue & Steeles Avenue, which is already operating above capacity based on the existing conditions analysis. It is recommended that dual WBL lanes be implemented at Islington Avenue & Steeles Avenue during construction of the Transitway to address this deficiency. While the EBL movement is not expected to be impacted by site traffic, opposing dual EBL lanes can be considered an optional measure pending further design review (i.e. to check potential overlapping left-turns and/or additional constructability impacts).

Appendix A – Existing (2017) Conditions Synchro Output



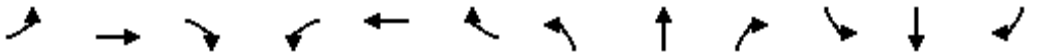
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	114	1366	132	186	946	76	240	368	160	260	1199	83
v/c Ratio	1.00	0.88	0.25	1.08	0.71	0.12	0.85	0.27	0.25	0.61	1.05	0.14
Control Delay	129.6	49.3	5.3	132.3	20.1	0.4	57.2	26.9	4.6	31.7	82.6	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	129.6	49.3	5.3	132.3	20.1	0.4	57.2	26.9	4.6	31.7	82.6	2.0
Queue Length 50th (m)	29.2	120.9	0.0	~38.0	38.0	0.0	44.1	33.0	0.0	36.5	~170.3	0.0
Queue Length 95th (m)	#68.1	140.5	11.8	m#75.0	45.2	m0.0	#76.6	44.8	13.3	54.1	#221.7	3.7
Internal Link Dist (m)		111.7			819.7			134.5			269.8	
Turn Bay Length (m)	85.0		35.0	85.0			55.0			120.0		80.0
Base Capacity (vph)	114	1554	535	172	1340	626	331	1352	648	425	1146	585
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.00	0.88	0.25	1.08	0.71	0.12	0.73	0.27	0.25	0.61	1.05	0.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	1257	121	171	870	70	221	339	147	239	1103	76
Future Volume (vph)	105	1257	121	171	870	70	221	339	147	239	1103	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	3.0	6.0	6.0	4.0	8.0	8.0	4.0	8.0	8.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	*1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.85	1.00	1.00	0.88	1.00	1.00	0.97
Flpb, ped/bikes	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1576	4812	1358	1807	3288	1378	1644	3380	1381	1746	3625	1579
Flt Permitted	0.21	1.00	1.00	0.09	1.00	1.00	0.09	1.00	1.00	0.53	1.00	1.00
Satd. Flow (perm)	353	4812	1358	165	3288	1378	154	3380	1381	979	3625	1579
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)	114	1366	132	186	946	76	240	368	160	260	1199	83
RTOR Reduction (vph)	0	0	89	0	0	45	0	0	96	0	0	57
Lane Group Flow (vph)	114	1366	43	186	946	31	240	368	64	260	1199	26
Confl. Peds. (#/hr)	64		11	11		64	10		51	51		10
Heavy Vehicles (%)	13%	9%	16%	1%	11%	1%	11%	8%	4%	1%	6%	0%
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Actuated Green, G (s)	42.0	42.0	42.0	53.0	53.0	53.0	63.0	52.0	52.0	48.1	41.1	41.1
Effective Green, g (s)	42.0	42.0	42.0	54.0	53.0	53.0	63.0	52.0	52.0	48.1	41.1	41.1
Actuated g/C Ratio	0.32	0.32	0.32	0.42	0.41	0.41	0.48	0.40	0.40	0.37	0.32	0.32
Clearance Time (s)	6.0	6.0	6.0	4.0	6.0	6.0	4.0	8.0	8.0	4.0	8.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	114	1554	438	169	1340	561	279	1352	552	403	1146	499
v/s Ratio Prot		0.28		c0.07	0.29		c0.12	0.11		0.03	c0.33	
v/s Ratio Perm	0.32		0.03	c0.39		0.02	0.30		0.05	0.20		0.02
v/c Ratio	1.00	0.88	0.10	1.10	0.71	0.06	0.86	0.27	0.12	0.65	1.05	0.05
Uniform Delay, d1	44.0	41.6	30.8	30.7	32.0	23.3	37.5	26.3	24.5	31.6	44.5	30.9
Progression Factor	1.00	1.00	1.00	2.30	0.55	0.08	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	84.3	7.4	0.4	86.8	2.2	0.1	22.7	0.5	0.4	3.5	39.5	0.0
Delay (s)	128.3	49.0	31.2	157.4	19.9	2.1	60.2	26.8	25.0	35.1	84.0	31.0
Level of Service	F	D	C	F	B	A	E	C	C	D	F	C
Approach Delay (s)		53.2			40.0			36.8			72.9	
Approach LOS		D			D			D			E	

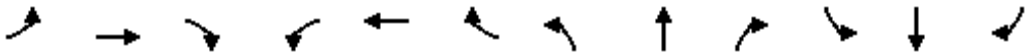
Intersection Summary			
HCM 2000 Control Delay	53.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	118.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	362	1866	21	902	95	100	252	152	866
v/c Ratio	0.92	0.82	0.46	0.75	0.23	0.77	0.25	0.33	0.60
Control Delay	51.7	16.6	76.2	50.1	5.9	76.3	31.8	24.5	26.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.7	16.6	76.2	50.1	5.9	76.3	31.8	24.5	26.1
Queue Length 50th (m)	43.7	161.9	4.7	79.8	0.0	22.9	24.1	23.4	76.3
Queue Length 95th (m)	m#100.8	185.4	#17.4	96.0	9.8	#54.6	35.0	37.9	97.1
Internal Link Dist (m)		819.7		213.0			219.6		237.2
Turn Bay Length (m)	87.0		194.0		27.0	52.0		93.6	
Base Capacity (vph)	409	2287	46	1199	421	130	993	467	1447
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.82	0.46	0.75	0.23	0.77	0.25	0.33	0.60

Intersection Summary

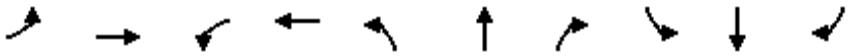
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	333	1353	363	19	830	87	92	217	15	140	499	298
Future Volume (vph)	333	1353	363	19	830	87	92	217	15	140	499	298
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0		6.0	6.0	6.0	7.0	7.0		4.5	6.0	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.95	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		0.99	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.99		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1706	4719		1447	4812	1352	1378	2991		1702	3202	
Flt Permitted	0.13	1.00		0.12	1.00	1.00	0.27	1.00		0.54	1.00	
Satd. Flow (perm)	240	4719		188	4812	1352	396	2991		968	3202	
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)	362	1471	395	21	902	95	100	236	16	152	542	324
RTOR Reduction (vph)	0	37	0	0	0	71	0	4	0	0	68	0
Lane Group Flow (vph)	362	1829	0	21	902	24	100	248	0	152	798	0
Confl. Peds. (#/hr)	17		10	10		17	7		17	17		7
Heavy Vehicles (%)	7%	6%	10%	26%	9%	15%	32%	21%	13%	6%	8%	4%
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases	5	2			6			8		7	4	
Permitted Phases	2			6		6	8			4		
Actuated Green, G (s)	62.0	62.0		32.4	32.4	32.4	43.0	43.0		56.0	56.0	
Effective Green, g (s)	62.0	62.0		32.4	32.4	32.4	43.0	43.0		56.0	56.0	
Actuated g/C Ratio	0.48	0.48		0.25	0.25	0.25	0.33	0.33		0.43	0.43	
Clearance Time (s)	5.0	6.0		6.0	6.0	6.0	7.0	7.0		4.5	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	391	2250		46	1199	336	130	989		459	1379	
v/s Ratio Prot	c0.17	0.39			0.19			0.08		0.02	c0.25	
v/s Ratio Perm	c0.27			0.11		0.02	c0.25			0.12		
v/c Ratio	0.93	0.81		0.46	0.75	0.07	0.77	0.25		0.33	0.58	
Uniform Delay, d1	34.9	29.0		41.3	45.1	37.3	39.0	31.7		23.2	28.1	
Progression Factor	0.82	0.49		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	23.0	2.6		29.3	4.4	0.4	34.6	0.6		0.4	1.8	
Delay (s)	51.8	17.0		70.7	49.5	37.7	73.7	32.4		23.6	29.8	
Level of Service	D	B		E	D	D	E	C		C	C	
Approach Delay (s)		22.6			48.8			44.1			28.9	
Approach LOS		C			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	31.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	132.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	28	31	38	96	53	601	59	328	1000	111
v/c Ratio	0.10	0.09	0.12	0.23	0.23	0.40	0.08	0.53	0.45	0.11
Control Delay	42.8	20.0	43.1	11.9	25.1	24.7	4.0	12.2	12.7	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.8	20.0	43.1	11.9	25.1	24.7	4.0	12.2	12.7	1.7
Queue Length 50th (m)	6.1	1.7	8.3	2.1	8.5	55.4	0.0	33.0	66.8	0.0
Queue Length 95th (m)	14.6	10.1	18.1	16.6	18.7	70.3	6.6	46.6	80.6	6.4
Internal Link Dist (m)		227.1		217.9		237.2			341.3	
Turn Bay Length (m)	71.0		74.0		72.4		69.0	160.0		65.0
Base Capacity (vph)	285	332	318	415	229	1520	737	622	2229	1040
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.09	0.12	0.23	0.23	0.40	0.08	0.53	0.45	0.11

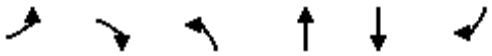
Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	7	21	35	9	79	49	553	54	302	920	102
Future Volume (vph)	26	7	21	35	9	79	49	553	54	302	920	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5		7.5	7.5		7.5	7.5	7.5	4.0	7.5	7.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	0.96	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.89		1.00	0.87		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1630	1315		1714	1463		1599	3202	1480	1804	3411	1533
Flt Permitted	0.69	1.00		0.74	1.00		0.29	1.00	1.00	0.35	1.00	1.00
Satd. Flow (perm)	1192	1315		1330	1463		483	3202	1480	667	3411	1533
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)	28	8	23	38	10	86	53	601	59	328	1000	111
RTOR Reduction (vph)	0	17	0	0	65	0	0	0	31	0	0	38
Lane Group Flow (vph)	28	14	0	38	31	0	53	601	28	328	1000	73
Confl. Peds. (#/hr)			2	2			1		5	5		1
Heavy Vehicles (%)	12%	0%	38%	6%	11%	14%	14%	14%	6%	1%	7%	4%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	33.5	33.5		33.5	33.5		66.5	66.5	66.5	91.5	91.5	91.5
Effective Green, g (s)	33.5	33.5		33.5	33.5		66.5	66.5	66.5	91.5	91.5	91.5
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.48	0.48	0.48	0.65	0.65	0.65
Clearance Time (s)	7.5	7.5		7.5	7.5		7.5	7.5	7.5	4.0	7.5	7.5
Lane Grp Cap (vph)	285	314		318	350		229	1520	703	606	2229	1001
v/s Ratio Prot		0.01			0.02			0.19		c0.08	0.29	
v/s Ratio Perm	0.02			c0.03			0.11		0.02	c0.27		0.05
v/c Ratio	0.10	0.04		0.12	0.09		0.23	0.40	0.04	0.54	0.45	0.07
Uniform Delay, d1	41.5	40.9		41.7	41.4		21.7	23.8	19.7	11.2	11.9	8.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.3		0.8	0.5		2.4	0.8	0.1	3.4	0.7	0.1
Delay (s)	42.2	41.2		42.5	41.9		24.0	24.5	19.8	14.6	12.5	9.0
Level of Service	D	D		D	D		C	C	B	B	B	A
Approach Delay (s)		41.7			42.0			24.1			12.7	
Approach LOS		D			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	18.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	63.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	452	214	547	1151
v/c Ratio	0.76	0.71	0.23	0.44
Control Delay	48.8	40.1	6.0	8.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	48.8	40.1	6.0	8.5
Queue Length 50th (m)	45.6	30.9	19.7	78.5
Queue Length 95th (m)	59.2	57.6	33.1	101.0
Internal Link Dist (m)	312.9		189.6	346.5
Turn Bay Length (m)		141.0		
Base Capacity (vph)	915	430	2395	2602
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	0.49	0.50	0.23	0.44

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	241	372	0	503	1059	0
Future Volume (vph)	241	372	0	503	1059	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.0	7.0	
Lane Util. Factor	0.97	0.91		0.95	0.95	
Frt	0.94	0.85		1.00	1.00	
Flt Protected	0.97	1.00		1.00	1.00	
Satd. Flow (prot)	3216	1363		3230	3510	
Flt Permitted	0.97	1.00		1.00	1.00	
Satd. Flow (perm)	3216	1363		3230	3510	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	262	404	0	547	1151	0
RTOR Reduction (vph)	84	84	0	0	0	0
Lane Group Flow (vph)	368	130	0	547	1151	0
Heavy Vehicles (%)	3%	9%	0%	13%	4%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	20.6	20.6		96.4	96.4	
Effective Green, g (s)	20.6	20.6		96.4	96.4	
Actuated g/C Ratio	0.16	0.16		0.74	0.74	
Clearance Time (s)	6.0	6.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	509	215		2395	2602	
v/s Ratio Prot	c0.11			0.17	c0.33	
v/s Ratio Perm		0.10				
v/c Ratio	0.72	0.60		0.23	0.44	
Uniform Delay, d1	52.0	50.9		5.2	6.5	
Progression Factor	1.00	1.00		1.00	1.14	
Incremental Delay, d2	5.0	4.7		0.2	0.5	
Delay (s)	57.0	55.6		5.4	7.8	
Level of Service	E	E		A	A	
Approach Delay (s)	56.6			5.4	7.8	
Approach LOS	E			A	A	

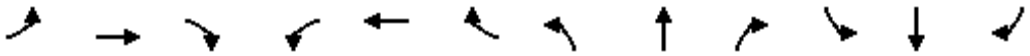
Intersection Summary			
HCM 2000 Control Delay	21.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	435	200	736	1252
v/c Ratio	0.76	0.49	0.28	0.48
Control Delay	56.3	10.0	4.2	7.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	56.3	10.0	4.2	7.6
Queue Length 50th (m)	51.8	0.0	19.3	57.5
Queue Length 95th (m)	65.7	21.6	28.6	85.7
Internal Link Dist (m)	307.9		346.5	91.4
Turn Bay Length (m)		99.0		
Base Capacity (vph)	887	526	2620	2620
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	0.49	0.38	0.28	0.48

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	309	275	677	0	0	1152
Future Volume (vph)	309	275	677	0	0	1152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5			5.5
Lane Util. Factor	0.97	0.91	0.95			0.95
Frt	0.97	0.85	1.00			1.00
Flt Protected	0.96	1.00	1.00			1.00
Satd. Flow (prot)	3260	1429	3510			3510
Flt Permitted	0.96	1.00	1.00			1.00
Satd. Flow (perm)	3260	1429	3510			3510
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	336	299	736	0	0	1252
RTOR Reduction (vph)	25	166	0	0	0	0
Lane Group Flow (vph)	410	34	736	0	0	1252
Heavy Vehicles (%)	7%	4%	4%	0%	0%	4%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	21.9	21.9	97.1			97.1
Effective Green, g (s)	21.9	21.9	97.1			97.1
Actuated g/C Ratio	0.17	0.17	0.75			0.75
Clearance Time (s)	5.5	5.5	5.5			5.5
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	549	240	2621			2621
v/s Ratio Prot	c0.13		0.21			c0.36
v/s Ratio Perm		0.02				
v/c Ratio	0.75	0.14	0.28			0.48
Uniform Delay, d1	51.4	46.0	5.3			6.5
Progression Factor	1.00	1.00	0.69			1.00
Incremental Delay, d2	5.5	0.3	0.3			0.6
Delay (s)	56.9	46.3	3.9			7.1
Level of Service	E	D	A			A
Approach Delay (s)	53.6		3.9			7.1
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



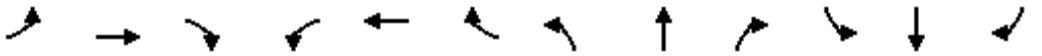
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	126	1237	246	104	1096	67	210	1033	121	176	783	67
v/c Ratio	0.93	0.74	0.48	0.65	1.03	0.11	0.64	0.72	0.19	0.82	0.67	0.11
Control Delay	88.5	42.3	17.7	34.0	55.5	0.6	27.0	36.5	5.9	52.2	41.1	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.5	42.3	17.7	34.0	55.5	0.6	27.0	36.5	5.9	52.2	41.1	0.4
Queue Length 50th (m)	20.0	103.0	19.8	6.8	~159.7	0.2	28.9	116.2	1.2	23.5	89.6	0.0
Queue Length 95th (m)	#56.6	119.9	45.0	m9.1	m#159.5	m0.4	44.5	140.8	13.1	#55.2	121.0	0.0
Internal Link Dist (m)		111.7			819.7			134.5			256.8	
Turn Bay Length (m)	85.0		35.0	85.0			55.0			120.0		80.0
Base Capacity (vph)	136	1677	513	160	1062	591	399	1431	628	214	1164	599
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.93	0.74	0.48	0.65	1.03	0.11	0.53	0.72	0.19	0.82	0.67	0.11

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	1138	226	96	1008	62	193	950	111	162	720	62
Future Volume (vph)	116	1138	226	96	1008	62	193	950	111	162	720	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	8.0	8.0	4.0	8.0	8.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00	0.93	1.00	1.00	0.93
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1560	5193	1289	1825	3288	1530	1659	3579	1401	1824	3444	1527
Flt Permitted	0.10	1.00	1.00	0.10	1.00	1.00	0.20	1.00	1.00	0.17	1.00	1.00
Satd. Flow (perm)	156	5193	1289	183	3288	1530	342	3579	1401	318	3444	1527
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)	126	1237	246	104	1096	67	210	1033	121	176	783	67
RTOR Reduction (vph)	0	0	97	0	0	45	0	0	68	0	0	44
Lane Group Flow (vph)	126	1237	149	104	1096	22	210	1033	53	176	783	23
Confl. Peds. (#/hr)	24		23	23		24	25		25	25		25
Heavy Vehicles (%)	17%	1%	19%	0%	11%	0%	10%	2%	9%	0%	6%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Actuated Green, G (s)	49.0	42.0	42.0	49.0	42.0	42.0	63.0	52.0	52.0	51.0	44.0	44.0
Effective Green, g (s)	49.0	42.0	42.0	49.0	42.0	42.0	63.0	52.0	52.0	51.0	44.0	44.0
Actuated g/C Ratio	0.38	0.32	0.32	0.38	0.32	0.32	0.48	0.40	0.40	0.39	0.34	0.34
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	8.0	8.0	4.0	8.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	134	1677	416	157	1062	494	317	1431	560	205	1165	516
v/s Ratio Prot	c0.05	0.24		0.04	c0.33		c0.08	0.29		c0.05	0.23	
v/s Ratio Perm	0.30		0.12	0.21		0.01	0.24		0.04	c0.29		0.01
v/c Ratio	0.94	0.74	0.36	0.66	1.03	0.04	0.66	0.72	0.10	0.86	0.67	0.04
Uniform Delay, d1	33.4	39.1	33.7	29.6	44.0	30.2	22.5	32.9	24.3	31.4	36.8	28.9
Progression Factor	1.00	1.00	1.00	1.14	0.69	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	59.5	2.9	2.4	3.3	24.5	0.1	5.1	3.2	0.3	28.1	3.1	0.2
Delay (s)	92.9	42.0	36.1	37.0	54.8	30.3	27.6	36.1	24.7	59.5	39.9	29.0
Level of Service	F	D	D	D	D	C	C	D	C	E	D	C
Approach Delay (s)		45.1			52.0			33.8			42.6	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	43.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	93.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

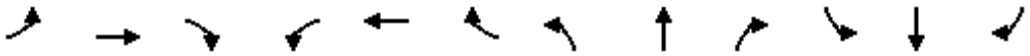
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	317	1420	40	1758	198	190	746	109	1015
v/c Ratio	1.34	0.69	0.52	1.03	0.38	1.24	0.54	0.39	0.65
Control Delay	206.1	11.1	64.4	75.3	18.6	186.8	31.4	22.6	21.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	206.1	11.1	64.4	75.3	18.6	186.8	31.4	22.6	21.2
Queue Length 50th (m)	~84.0	20.6	8.5	~161.0	17.7	~60.3	75.6	14.7	77.3
Queue Length 95th (m)	m#140.1	36.3	#25.2	#187.8	38.9	#107.2	94.6	25.2	100.1
Internal Link Dist (m)		819.7		213.0			219.6		237.2
Turn Bay Length (m)	87.0		194.0		27.0	52.0		93.6	
Base Capacity (vph)	237	2065	77	1700	524	153	1377	276	1554
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.34	0.69	0.52	1.03	0.38	1.24	0.54	0.39	0.65

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

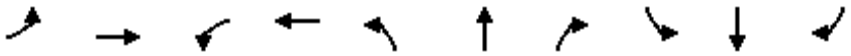
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	292	1141	166	37	1617	182	175	642	44	100	342	592
Future Volume (vph)	292	1141	166	37	1617	182	175	642	44	100	342	592
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		6.0	6.0	6.0	6.0	7.0		4.5	7.0	
Lane Util. Factor	1.00	0.91		1.00	*1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.94	1.00	1.00		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		0.99	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.99		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1772	4803		1728	5595	1486	1655	3437		1789	3003	
Flt Permitted	0.09	1.00		0.14	1.00	1.00	0.22	1.00		0.24	1.00	
Satd. Flow (perm)	172	4803		254	5595	1486	377	3437		457	3003	
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)	317	1240	180	40	1758	198	190	698	48	109	372	643
RTOR Reduction (vph)	0	15	0	0	0	73	0	4	0	0	134	0
Lane Group Flow (vph)	317	1405	0	40	1758	125	190	742	0	109	881	0
Confl. Peds. (#/hr)	24		25	25		24	7		21	21		7
Heavy Vehicles (%)	3%	7%	1%	5%	3%	3%	10%	5%	2%	2%	17%	3%
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases	5	2			6			8		7	4	
Permitted Phases	2			6		6	8			4		
Actuated Green, G (s)	55.5	55.5		39.5	39.5	39.5	52.0	52.0		61.5	61.5	
Effective Green, g (s)	56.5	55.5		39.5	39.5	39.5	53.0	52.0		61.5	61.5	
Actuated g/C Ratio	0.43	0.43		0.30	0.30	0.30	0.41	0.40		0.47	0.47	
Clearance Time (s)	4.0	6.0		6.0	6.0	6.0	7.0	7.0		4.5	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	234	2050		77	1700	451	153	1374		267	1420	
v/s Ratio Prot	c0.14	0.29			0.31			0.22		0.02	c0.29	
v/s Ratio Perm	c0.45			0.16		0.08	c0.50			0.18		
v/c Ratio	1.35	0.69		0.52	1.03	0.28	1.24	0.54		0.41	0.62	
Uniform Delay, d1	38.4	30.2		37.4	45.2	34.4	38.5	29.9		20.9	25.5	
Progression Factor	1.22	0.32		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	180.0	1.5		22.9	31.2	1.5	152.1	1.5		1.0	2.0	
Delay (s)	226.8	11.2		60.3	76.4	35.9	190.6	31.4		21.9	27.6	
Level of Service	F	B		E	E	D	F	C		C	C	
Approach Delay (s)		50.5			72.1			63.7			27.0	
Approach LOS		D			E			E			C	

Intersection Summary			
HCM 2000 Control Delay	55.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.33		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	125.9%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

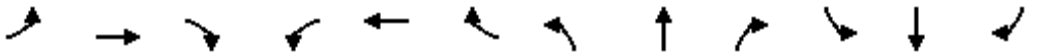


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	95	119	100	534	40	1224	21	87	862	23
v/c Ratio	1.76	0.27	0.33	0.90	0.12	0.61	0.02	0.33	0.40	0.03
Control Delay	438.1	21.6	47.7	42.7	15.6	21.7	0.1	11.1	12.0	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	438.1	21.6	47.7	42.7	15.6	21.7	0.1	11.1	12.0	1.4
Queue Length 50th (m)	~38.9	11.4	23.1	74.1	4.9	112.9	0.0	7.5	55.0	0.0
Queue Length 95th (m)	#75.1	28.3	40.3	#140.8	11.6	138.5	0.0	13.4	67.3	2.0
Internal Link Dist (m)		227.1		217.9		237.2			341.3	
Turn Bay Length (m)	71.0		74.0		72.4		69.0	160.0		65.0
Base Capacity (vph)	54	446	302	595	340	2016	917	398	2168	806
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.76	0.27	0.33	0.90	0.12	0.61	0.02	0.22	0.40	0.03

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



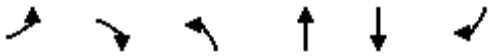
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	37	73	92	13	478	37	1126	19	80	793	21
Future Volume (vph)	87	37	73	92	13	478	37	1126	19	80	793	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	7.5		7.5	7.5		7.5	7.5	7.5	4.0	7.5	7.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.98		1.00	1.00	0.96	1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.90		1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1807	1656		1765	1580		1728	3544	1563	1722	3318	1216
Flt Permitted	0.11	1.00		0.68	1.00		0.33	1.00	1.00	0.15	1.00	1.00
Satd. Flow (perm)	214	1656		1263	1580		598	3544	1563	265	3318	1216
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)	95	40	79	100	14	520	40	1224	21	87	862	23
RTOR Reduction (vph)	0	51	0	0	218	0	0	0	9	0	0	8
Lane Group Flow (vph)	95	68	0	100	316	0	40	1224	12	87	862	15
Confl. Peds. (#/hr)	2		2	2		2	5		6	6		5
Heavy Vehicles (%)	1%	0%	5%	3%	8%	2%	5%	3%	0%	6%	10%	29%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	33.5	33.5		33.5	33.5		79.6	79.6	79.6	91.5	91.5	91.5
Effective Green, g (s)	35.5	33.5		33.5	33.5		79.6	79.6	79.6	91.5	91.5	91.5
Actuated g/C Ratio	0.25	0.24		0.24	0.24		0.57	0.57	0.57	0.65	0.65	0.65
Clearance Time (s)	7.5	7.5		7.5	7.5		7.5	7.5	7.5	4.0	7.5	7.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	54	396		302	378		340	2015	888	255	2168	794
v/s Ratio Prot		0.04			0.20			c0.35		0.02	c0.26	
v/s Ratio Perm	c0.44			0.08			0.07		0.01	0.20		0.01
v/c Ratio	1.76	0.17		0.33	0.84		0.12	0.61	0.01	0.34	0.40	0.02
Uniform Delay, d1	52.2	42.2		44.0	50.7		14.0	19.9	13.1	13.0	11.4	8.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	406.6	0.2		0.6	14.8		0.7	1.4	0.0	0.8	0.5	0.0
Delay (s)	458.8	42.5		44.6	65.5		14.7	21.3	13.2	13.8	11.9	8.5
Level of Service	F	D		D	E		B	C	B	B	B	A
Approach Delay (s)		227.3			62.2			20.9			12.0	
Approach LOS		F			E			C			B	

Intersection Summary			
HCM 2000 Control Delay	40.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	91.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	299	94	1477	665
v/c Ratio	0.68	0.38	0.53	0.25
Control Delay	61.4	13.8	6.8	3.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	61.4	13.8	6.8	3.6
Queue Length 50th (m)	37.8	0.0	65.5	15.5
Queue Length 95th (m)	50.8	16.5	92.5	23.2
Internal Link Dist (m)	312.9		189.6	346.5
Turn Bay Length (m)		141.0		
Base Capacity (vph)	896	410	2790	2633
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	0.33	0.23	0.53	0.25

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	265	97	0	1359	612	0
Future Volume (vph)	265	97	0	1359	612	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.0	7.0	
Lane Util. Factor	0.97	0.91		0.95	0.95	
Frt	0.99	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	3420	1303		3614	3411	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	3420	1303		3614	3411	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	288	105	0	1477	665	0
RTOR Reduction (vph)	3	82	0	0	0	0
Lane Group Flow (vph)	296	12	0	1477	665	0
Heavy Vehicles (%)	3%	14%	0%	1%	7%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	16.6	16.6		100.4	100.4	
Effective Green, g (s)	16.6	16.6		100.4	100.4	
Actuated g/C Ratio	0.13	0.13		0.77	0.77	
Clearance Time (s)	6.0	6.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	436	166		2791	2634	
v/s Ratio Prot	c0.09			c0.41	0.19	
v/s Ratio Perm		0.01				
v/c Ratio	0.68	0.07		0.53	0.25	
Uniform Delay, d1	54.2	49.9		5.7	4.2	
Progression Factor	1.00	1.00		1.00	0.76	
Incremental Delay, d2	4.2	0.2		0.7	0.2	
Delay (s)	58.4	50.1		6.4	3.4	
Level of Service	E	D		A	A	
Approach Delay (s)	56.4			6.4	3.4	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	13.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

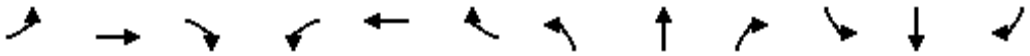
Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	405	225	1280	853
v/c Ratio	0.73	0.76	0.47	0.31
Control Delay	48.9	49.1	5.3	5.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	48.9	49.1	5.3	5.9
Queue Length 50th (m)	42.1	40.5	30.6	30.2
Queue Length 95th (m)	54.1	66.4	67.1	52.2
Internal Link Dist (m)	307.9		346.5	91.4
Turn Bay Length (m)		99.0		
Base Capacity (vph)	884	448	2712	2712
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	0.46	0.50	0.47	0.31

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	165	415	1178	0	0	785
Future Volume (vph)	165	415	1178	0	0	785
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5			5.5
Lane Util. Factor	0.97	0.91	0.95			0.95
Frt	0.92	0.85	1.00			1.00
Flt Protected	0.98	1.00	1.00			1.00
Satd. Flow (prot)	3117	1471	3579			3579
Flt Permitted	0.98	1.00	1.00			1.00
Satd. Flow (perm)	3117	1471	3579			3579
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	179	451	1280	0	0	853
RTOR Reduction (vph)	67	67	0	0	0	0
Lane Group Flow (vph)	338	158	1280	0	0	853
Heavy Vehicles (%)	15%	1%	2%	0%	0%	2%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	20.5	20.5	98.5			98.5
Effective Green, g (s)	20.5	20.5	98.5			98.5
Actuated g/C Ratio	0.16	0.16	0.76			0.76
Clearance Time (s)	5.5	5.5	5.5			5.5
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	491	231	2711			2711
v/s Ratio Prot	c0.11		c0.36			0.24
v/s Ratio Perm		0.11				
v/c Ratio	0.69	0.69	0.47			0.31
Uniform Delay, d1	51.7	51.7	5.9			5.0
Progression Factor	1.00	1.00	0.72			1.00
Incremental Delay, d2	4.0	8.2	0.5			0.3
Delay (s)	55.8	59.9	4.8			5.3
Level of Service	E	E	A			A
Approach Delay (s)	57.2		4.8			5.3
Approach LOS	E		A			A

Intersection Summary			
HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Appendix B – Future (2031) Background Conditions Synchro Output

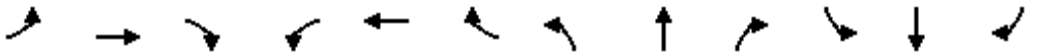


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	123	1465	141	199	1014	82	258	465	172	278	1286	88
v/c Ratio	1.06	0.88	0.26	1.07	0.70	0.13	1.16	0.45	0.32	0.60	1.10	0.15
Control Delay	142.8	47.3	10.0	115.2	32.9	4.9	142.8	38.1	6.4	26.7	98.7	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	142.8	47.3	10.0	115.2	32.9	4.9	142.8	38.1	6.4	26.7	98.7	6.2
Queue Length 50th (m)	~34.5	128.7	5.5	~39.7	109.2	0.0	~63.0	51.0	0.0	42.3	~186.4	0.0
Queue Length 95th (m)	#73.9	148.6	20.5	#88.3	133.7	9.2	#116.4	67.1	16.3	62.1	#226.3	10.8
Internal Link Dist (m)		111.7			819.7			134.5			269.8	
Turn Bay Length (m)	85.0		35.0	85.0			55.0			120.0		80.0
Base Capacity (vph)	116	1665	541	186	1441	650	222	1037	543	472	1171	572
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.06	0.88	0.26	1.07	0.70	0.13	1.16	0.45	0.32	0.59	1.10	0.15

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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)	113	1348	130	183	933	75	237	428	158	256	1183	81
Future Volume (vph)	113	1348	130	183	933	75	237	428	158	256	1183	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	3.0	6.0	6.0	4.0	8.0	8.0	4.0	8.0	8.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	*1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.85	1.00	1.00	0.88	1.00	1.00	0.97
Flpb, ped/bikes	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1580	4812	1358	1807	3288	1378	1644	3380	1381	1778	3625	1579
Flt Permitted	0.20	1.00	1.00	0.08	1.00	1.00	0.10	1.00	1.00	0.39	1.00	1.00
Satd. Flow (perm)	337	4812	1358	155	3288	1378	174	3380	1381	729	3625	1579
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)	123	1465	141	199	1014	82	258	465	172	278	1286	88
RTOR Reduction (vph)	0	0	71	0	0	46	0	0	119	0	0	60
Lane Group Flow (vph)	123	1465	70	199	1014	36	258	465	53	278	1286	28
Confl. Peds. (#/hr)	64		11	11		64	10		51	51		10
Heavy Vehicles (%)	13%	9%	16%	1%	11%	1%	11%	8%	4%	1%	6%	0%
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Actuated Green, G (s)	45.0	45.0	45.0	57.0	57.0	57.0	52.9	39.9	39.9	57.1	42.0	42.0
Effective Green, g (s)	45.0	45.0	45.0	58.0	57.0	57.0	52.9	39.9	39.9	57.1	42.0	42.0
Actuated g/C Ratio	0.35	0.35	0.35	0.45	0.44	0.44	0.41	0.31	0.31	0.44	0.32	0.32
Clearance Time (s)	6.0	6.0	6.0	4.0	6.0	6.0	4.0	8.0	8.0	4.0	8.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	116	1665	470	183	1441	604	217	1037	423	442	1171	510
v/s Ratio Prot		0.30		c0.08	0.31		c0.12	0.14		c0.07	0.35	
v/s Ratio Perm	0.37		0.05	c0.41		0.03	c0.36		0.04	0.20		0.02
v/c Ratio	1.06	0.88	0.15	1.09	0.70	0.06	1.19	0.45	0.12	0.63	1.10	0.06
Uniform Delay, d1	42.5	40.0	29.3	33.5	29.6	21.0	37.5	36.2	32.5	24.6	44.0	30.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	100.7	7.0	0.7	91.8	2.9	0.2	121.5	1.4	0.6	2.8	57.4	0.0
Delay (s)	143.2	47.0	30.0	125.3	32.5	21.2	159.0	37.6	33.1	27.4	101.4	30.4
Level of Service	F	D	C	F	C	C	F	D	C	C	F	C
Approach Delay (s)		52.4			46.1			71.7			85.2	
Approach LOS		D			D			E			F	

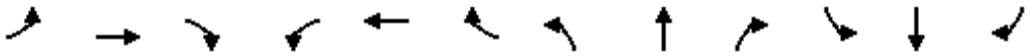
Intersection Summary			
HCM 2000 Control Delay	63.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	120.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	388	2000	22	967	101	108	270	163	930
v/c Ratio	0.94	0.82	0.51	0.74	0.23	0.73	0.29	0.39	0.92
Control Delay	67.8	31.5	86.0	50.5	7.6	56.1	37.3	30.5	56.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.8	31.5	86.0	50.5	7.6	56.1	37.3	30.5	56.8
Queue Length 50th (m)	84.3	161.6	5.2	90.4	0.0	18.7	29.4	28.7	120.9
Queue Length 95th (m)	#143.8	182.4	#19.4	107.0	13.0	#43.7	41.5	45.0	#160.5
Internal Link Dist (m)		819.7		213.0			219.6		237.2
Turn Bay Length (m)	87.0		194.0		27.0	52.0		93.6	
Base Capacity (vph)	424	2431	43	1311	444	154	917	423	1016
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.82	0.51	0.74	0.23	0.70	0.29	0.39	0.92

Intersection Summary

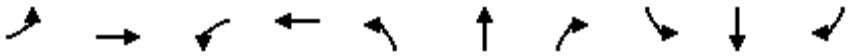
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	357	1451	389	20	890	93	99	233	16	150	535	320
Future Volume (vph)	357	1451	389	20	890	93	99	233	16	150	535	320
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0		6.0	6.0	6.0	4.5	7.0		4.5	6.0	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.95	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		0.98	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.99		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1706	4718		1447	4812	1348	1383	2991		1695	3201	
Flt Permitted	0.13	1.00		0.11	1.00	1.00	0.09	1.00		0.59	1.00	
Satd. Flow (perm)	227	4718		160	4812	1348	137	2991		1045	3201	
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)	388	1577	423	22	967	101	108	253	17	163	582	348
RTOR Reduction (vph)	0	34	0	0	0	73	0	3	0	0	63	0
Lane Group Flow (vph)	388	1966	0	22	967	28	108	267	0	163	867	0
Confl. Peds. (#/hr)	17		10	10		17	7		17	17		7
Heavy Vehicles (%)	7%	6%	10%	26%	9%	15%	32%	21%	13%	6%	8%	4%
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2			6		3	8		7	4	
Permitted Phases	2			6		6	8			4		
Actuated Green, G (s)	70.9	70.9		38.0	38.0	38.0	53.1	42.6		50.1	41.6	
Effective Green, g (s)	70.9	70.9		38.0	38.0	38.0	53.1	42.6		50.1	41.6	
Actuated g/C Ratio	0.51	0.51		0.27	0.27	0.27	0.38	0.31		0.36	0.30	
Clearance Time (s)	5.0	6.0		6.0	6.0	6.0	4.5	7.0		4.5	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	411	2397		43	1310	367	145	913		414	954	
v/s Ratio Prot	c0.19	0.42			0.20		c0.06	0.09		0.02	c0.27	
v/s Ratio Perm	c0.29			0.14		0.02	0.23			0.12		
v/c Ratio	0.94	0.82		0.51	0.74	0.07	0.74	0.29		0.39	0.91	
Uniform Delay, d1	38.4	28.9		42.9	46.2	37.7	33.7	36.9		31.7	47.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	30.3	3.3		37.5	3.8	0.4	18.6	0.8		0.6	14.0	
Delay (s)	68.8	32.2		80.4	50.0	38.1	52.3	37.8		32.3	61.1	
Level of Service	E	C		F	D	D	D	D		C	E	
Approach Delay (s)		38.1			49.5			41.9			56.8	
Approach LOS		D			D			D			E	

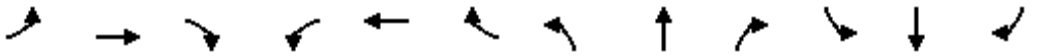
Intersection Summary			
HCM 2000 Control Delay	45.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	139.5	Sum of lost time (s)	22.5
Intersection Capacity Utilization	114.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	30	34	41	103	58	645	63	352	1073	118
v/c Ratio	0.21	0.19	0.45	0.55	0.20	0.31	0.06	0.53	0.41	0.10
Control Delay	52.0	25.5	76.6	26.0	15.2	12.5	0.7	7.3	6.4	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.0	25.5	76.6	26.0	15.2	12.5	0.7	7.3	6.4	1.1
Queue Length 50th (m)	7.1	2.2	11.1	2.9	6.6	42.1	0.0	24.2	51.6	0.0
Queue Length 95th (m)	15.9	12.0	23.0	20.7	17.4	63.8	1.8	39.7	71.1	5.3
Internal Link Dist (m)		227.1		217.9		237.2			341.3	
Turn Bay Length (m)	71.0		74.0		72.4		69.0	160.0		65.0
Base Capacity (vph)	146	334	213	312	294	2100	1005	816	2647	1216
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.10	0.19	0.33	0.20	0.31	0.06	0.43	0.41	0.10

Intersection Summary



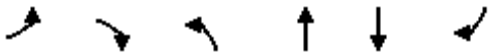
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	8	23	38	10	85	53	593	58	324	987	109
Future Volume (vph)	28	8	23	38	10	85	53	593	58	324	987	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.5		7.5	7.5		7.5	7.5	7.5	4.0	7.5	7.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	0.96	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.89		1.00	0.87		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1630	1320		1714	1464		1600	3202	1480	1803	3411	1533
Flt Permitted	0.45	1.00		0.73	1.00		0.27	1.00	1.00	0.37	1.00	1.00
Satd. Flow (perm)	775	1320		1326	1464		449	3202	1480	706	3411	1533
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	9	25	41	11	92	58	645	63	352	1073	118
RTOR Reduction (vph)	0	22	0	0	86	0	0	0	22	0	0	28
Lane Group Flow (vph)	30	12	0	41	17	0	58	645	41	352	1073	90
Confl. Peds. (#/hr)			2	2			1		5	5		1
Heavy Vehicles (%)	12%	0%	38%	6%	11%	14%	14%	14%	6%	1%	7%	4%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	18.1	18.1		9.7	9.7		90.1	90.1	90.1	106.9	106.9	106.9
Effective Green, g (s)	18.1	18.1		9.7	9.7		90.1	90.1	90.1	106.9	106.9	106.9
Actuated g/C Ratio	0.13	0.13		0.07	0.07		0.64	0.64	0.64	0.76	0.76	0.76
Clearance Time (s)	4.5	7.5		7.5	7.5		7.5	7.5	7.5	4.0	7.5	7.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	124	170		91	101		288	2060	952	639	2604	1170
v/s Ratio Prot	c0.01	0.01			0.01			0.20		c0.05	0.31	
v/s Ratio Perm	0.02			c0.03			0.13		0.03	c0.37		0.06
v/c Ratio	0.24	0.07		0.45	0.17		0.20	0.31	0.04	0.55	0.41	0.08
Uniform Delay, d1	54.2	53.6		62.6	61.4		10.2	11.1	9.1	5.3	5.7	4.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.2		3.5	0.8		1.6	0.4	0.1	1.0	0.5	0.1
Delay (s)	55.2	53.7		66.1	62.2		11.8	11.5	9.2	6.3	6.2	4.3
Level of Service	E	D		E	E		B	B	A	A	A	A
Approach Delay (s)		54.4			63.3			11.4			6.1	
Approach LOS		D			E			B			A	

Intersection Summary			
HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	484	230	586	1235
v/c Ratio	0.75	0.75	0.25	0.49
Control Delay	50.0	50.2	7.3	8.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	50.0	50.2	7.3	8.8
Queue Length 50th (m)	53.1	44.6	24.2	67.5
Queue Length 95th (m)	65.6	70.4	40.6	104.5
Internal Link Dist (m)	312.9		189.6	346.5
Turn Bay Length (m)		141.0		
Base Capacity (vph)	1036	465	2312	2512
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	0.49	0.25	0.49

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	258	399	0	539	1136	0
Future Volume (vph)	258	399	0	539	1136	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.0	7.0	
Lane Util. Factor	0.97	0.91		0.95	0.95	
Frt	0.94	0.85		1.00	1.00	
Flt Protected	0.97	1.00		1.00	1.00	
Satd. Flow (prot)	3215	1363		3230	3510	
Flt Permitted	0.97	1.00		1.00	1.00	
Satd. Flow (perm)	3215	1363		3230	3510	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	280	434	0	586	1235	0
RTOR Reduction (vph)	55	55	0	0	0	0
Lane Group Flow (vph)	429	175	0	586	1235	0
Heavy Vehicles (%)	3%	9%	0%	13%	4%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	23.9	23.9		93.1	93.1	
Effective Green, g (s)	23.9	23.9		93.1	93.1	
Actuated g/C Ratio	0.18	0.18		0.72	0.72	
Clearance Time (s)	6.0	6.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	591	250		2313	2513	
v/s Ratio Prot	c0.13			0.18	c0.35	
v/s Ratio Perm		0.13				
v/c Ratio	0.73	0.70		0.25	0.49	
Uniform Delay, d1	50.0	49.7		6.4	8.1	
Progression Factor	1.00	1.00		1.00	0.92	
Incremental Delay, d2	4.4	8.6		0.3	0.6	
Delay (s)	54.4	58.3		6.7	8.0	
Level of Service	D	E		A	A	
Approach Delay (s)	55.7			6.7	8.0	
Approach LOS	E			A	A	

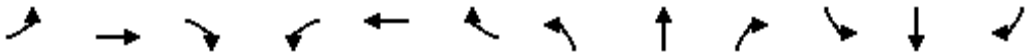
Intersection Summary			
HCM 2000 Control Delay	21.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	466	215	789	1342
v/c Ratio	0.77	0.50	0.30	0.52
Control Delay	56.1	9.6	4.4	8.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	56.1	9.6	4.4	8.6
Queue Length 50th (m)	55.7	0.0	21.1	67.3
Queue Length 95th (m)	69.8	22.1	29.2	99.4
Internal Link Dist (m)	307.9		346.5	91.4
Turn Bay Length (m)		99.0		
Base Capacity (vph)	887	537	2587	2587
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	0.53	0.40	0.30	0.52

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	331	295	726	0	0	1235
Future Volume (vph)	331	295	726	0	0	1235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5			5.5
Lane Util. Factor	0.97	0.91	0.95			0.95
Frt	0.97	0.85	1.00			1.00
Flt Protected	0.96	1.00	1.00			1.00
Satd. Flow (prot)	3260	1429	3510			3510
Flt Permitted	0.96	1.00	1.00			1.00
Satd. Flow (perm)	3260	1429	3510			3510
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	360	321	789	0	0	1342
RTOR Reduction (vph)	25	177	0	0	0	0
Lane Group Flow (vph)	441	38	789	0	0	1342
Heavy Vehicles (%)	7%	4%	4%	0%	0%	4%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	23.2	23.2	95.8			95.8
Effective Green, g (s)	23.2	23.2	95.8			95.8
Actuated g/C Ratio	0.18	0.18	0.74			0.74
Clearance Time (s)	5.5	5.5	5.5			5.5
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	581	255	2586			2586
v/s Ratio Prot	c0.14		0.22			c0.38
v/s Ratio Perm		0.03				
v/c Ratio	0.76	0.15	0.31			0.52
Uniform Delay, d1	50.8	45.1	5.8			7.3
Progression Factor	1.00	1.00	0.65			1.00
Incremental Delay, d2	5.7	0.3	0.3			0.7
Delay (s)	56.4	45.4	4.1			8.0
Level of Service	E	D	A			A
Approach Delay (s)	52.9		4.1			8.0
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



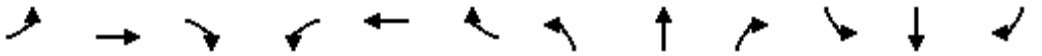
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	135	1326	263	112	1175	72	225	1108	129	189	839	72
v/c Ratio	0.99	0.69	0.47	0.57	0.93	0.11	0.88	0.94	0.24	1.07	0.87	0.14
Control Delay	102.6	37.3	16.8	31.1	26.2	0.1	62.0	57.2	10.3	115.1	55.8	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	102.6	37.3	16.8	31.1	26.2	0.1	62.0	57.2	10.3	115.1	55.8	0.8
Queue Length 50th (m)	20.7	105.7	22.2	10.0	156.5	0.0	38.3	144.4	4.9	~35.4	108.4	0.0
Queue Length 95th (m)	#63.0	122.9	47.3	m9.9	m156.5	m0.0	#83.1	#186.0	19.1	#83.3	#141.2	0.9
Internal Link Dist (m)		111.7			819.7			134.5			256.8	
Turn Bay Length (m)	85.0		35.0	85.0			55.0			120.0		80.0
Base Capacity (vph)	137	1914	565	211	1264	676	259	1183	531	177	962	517
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.69	0.47	0.53	0.93	0.11	0.87	0.94	0.24	1.07	0.87	0.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	1220	242	103	1081	66	207	1019	119	174	772	66
Future Volume (vph)	124	1220	242	103	1081	66	207	1019	119	174	772	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	8.0	8.0	4.0	8.0	8.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00	0.93	1.00	1.00	0.93
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1560	5193	1289	1825	3288	1530	1659	3579	1401	1825	3444	1527
Flt Permitted	0.08	1.00	1.00	0.09	1.00	1.00	0.12	1.00	1.00	0.11	1.00	1.00
Satd. Flow (perm)	137	5193	1289	176	3288	1530	202	3579	1401	212	3444	1527
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)	135	1326	263	112	1175	72	225	1108	129	189	839	72
RTOR Reduction (vph)	0	0	90	0	0	44	0	0	68	0	0	52
Lane Group Flow (vph)	135	1326	173	112	1175	28	225	1108	61	189	839	20
Confl. Peds. (#/hr)	24		23	23		24	25		25	25		25
Heavy Vehicles (%)	17%	1%	19%	0%	11%	0%	10%	2%	9%	0%	6%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Actuated Green, G (s)	54.9	47.9	47.9	59.1	50.0	50.0	55.0	43.0	43.0	44.3	36.3	36.3
Effective Green, g (s)	54.9	47.9	47.9	59.1	50.0	50.0	55.0	43.0	43.0	44.3	36.3	36.3
Actuated g/C Ratio	0.42	0.37	0.37	0.45	0.38	0.38	0.42	0.33	0.33	0.34	0.28	0.28
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	8.0	8.0	4.0	8.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	134	1913	474	195	1264	588	250	1183	463	171	961	426
v/s Ratio Prot	c0.05	0.26		c0.04	0.36		c0.10	0.31		c0.07	0.24	
v/s Ratio Perm	c0.37		0.13	0.22		0.02	0.28		0.04	c0.31		0.01
v/c Ratio	1.01	0.69	0.36	0.57	0.93	0.05	0.90	0.94	0.13	1.11	0.87	0.05
Uniform Delay, d1	30.1	34.8	29.9	24.4	38.3	25.1	32.2	42.2	30.4	36.9	44.7	34.2
Progression Factor	1.00	1.00	1.00	1.55	0.62	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	79.7	2.1	2.2	0.4	1.6	0.0	31.9	14.8	0.6	99.8	10.8	0.2
Delay (s)	109.9	36.9	32.1	38.3	25.4	25.1	64.0	57.0	31.0	136.7	55.5	34.4
Level of Service	F	D	C	D	C	C	E	E	C	F	E	C
Approach Delay (s)		41.9			26.5			55.8			68.1	
Approach LOS		D			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	46.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	96.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	340	1523	43	1885	212	204	799	116	1089
v/c Ratio	1.02	0.61	0.45	1.00	0.37	0.93	0.79	0.59	1.08dr
Control Delay	82.0	8.7	51.4	63.8	18.0	77.4	48.6	39.0	69.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	82.0	8.7	51.4	63.8	18.0	77.4	48.6	39.0	69.9
Queue Length 50th (m)	~56.0	18.2	8.6	160.4	19.6	36.7	98.6	18.7	~118.0
Queue Length 95th (m)	m#122.4	m22.1	22.2	#193.8	40.7	#83.5	122.7	31.6	#158.3
Internal Link Dist (m)		819.7		213.0			219.6		237.2
Turn Bay Length (m)	87.0		194.0		27.0	52.0		93.6	
Base Capacity (vph)	332	2482	96	1885	570	219	1013	196	1055
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.02	0.61	0.45	1.00	0.37	0.93	0.79	0.59	1.03

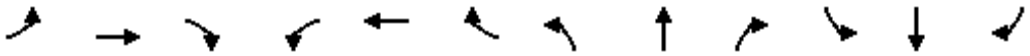
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.

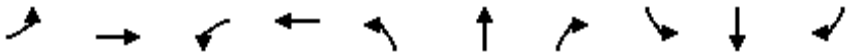
dr Defacto Right Lane. Recode with 1 though lane as a right lane.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	313	1224	178	40	1734	195	188	688	47	107	367	635
Future Volume (vph)	313	1224	178	40	1734	195	188	688	47	107	367	635
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		6.0	6.0	6.0	3.5	7.0		4.5	7.0	
Lane Util. Factor	1.00	0.91		1.00	*1.00	1.00	1.00	0.95		1.00	*1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.94	1.00	1.00		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		0.99	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.99		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1772	4803		1727	5595	1486	1659	3437		1787	3161	
Flt Permitted	0.08	1.00		0.16	1.00	1.00	0.10	1.00		0.18	1.00	
Satd. Flow (perm)	156	4803		288	5595	1486	181	3437		333	3161	
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)	340	1330	193	43	1885	212	204	748	51	116	399	690
RTOR Reduction (vph)	0	15	0	0	0	70	0	4	0	0	229	0
Lane Group Flow (vph)	340	1508	0	43	1885	142	204	795	0	116	860	0
Confl. Peds. (#/hr)	24		25	25		24	7		21	21		7
Heavy Vehicles (%)	3%	7%	1%	5%	3%	3%	10%	5%	2%	2%	17%	3%
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2			6		3	8		7	4	
Permitted Phases	2			6		6	8			4		
Actuated Green, G (s)	66.8	66.8		43.8	43.8	43.8	49.9	38.2		41.5	34.0	
Effective Green, g (s)	67.8	66.8		43.8	43.8	43.8	51.2	38.2		41.5	34.0	
Actuated g/C Ratio	0.52	0.51		0.34	0.34	0.34	0.39	0.29		0.32	0.26	
Clearance Time (s)	4.0	6.0		6.0	6.0	6.0	4.5	7.0		4.5	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	329	2468		97	1885	500	215	1009		190	826	
v/s Ratio Prot	c0.16	0.31			0.34		c0.09	0.23		0.04	0.27	
v/s Ratio Perm	c0.38			0.15		0.10	c0.28			0.16		
v/c Ratio	1.03	0.61		0.44	1.00	0.28	0.95	0.79		0.61	1.08dr	
Uniform Delay, d1	42.0	22.4		33.6	43.1	31.6	35.4	42.2		33.5	48.0	
Progression Factor	0.82	0.35		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	52.9	0.9		14.0	20.7	1.4	46.5	6.2		5.7	42.6	
Delay (s)	87.5	8.8		47.6	63.8	33.0	81.8	48.4		39.2	90.6	
Level of Service	F	A		D	E	C	F	D		D	F	
Approach Delay (s)		23.2			60.5			55.2			85.6	
Approach LOS		C			E			E			F	

Intersection Summary			
HCM 2000 Control Delay	53.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	111.1%	ICU Level of Service	H
Analysis Period (min)	15		

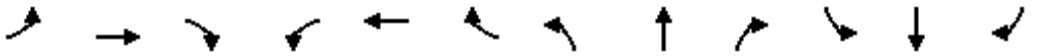
dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	101	128	108	573	43	1312	22	93	924	25
v/c Ratio	0.71	0.18	0.27	0.98	0.21	0.88	0.03	0.72	0.56	0.04
Control Delay	52.6	10.7	37.3	68.4	29.8	45.1	0.1	50.7	26.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.6	10.7	37.3	68.4	29.8	45.1	0.1	50.7	26.5	0.1
Queue Length 50th (m)	16.8	7.2	22.1	129.5	7.5	174.8	0.0	12.9	93.1	0.0
Queue Length 95th (m)	#37.6	20.2	38.3	#204.8	17.2	206.7	0.0	#36.8	113.3	0.0
Internal Link Dist (m)		227.1		217.9		237.2			341.3	
Turn Bay Length (m)	71.0		74.0		72.4		69.0	160.0		65.0
Base Capacity (vph)	142	724	411	600	202	1494	717	129	1638	635
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.18	0.26	0.95	0.21	0.88	0.03	0.72	0.56	0.04

Intersection Summary

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



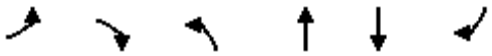
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	40	78	99	14	513	40	1207	20	86	850	23
Future Volume (vph)	93	40	78	99	14	513	40	1207	20	86	850	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.5		7.5	7.5		7.5	7.5	7.5	4.0	7.5	7.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.98		1.00	1.00	0.96	1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.90		1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1807	1656		1765	1580		1731	3544	1563	1722	3318	1217
Flt Permitted	0.08	1.00		0.67	1.00		0.26	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	156	1656		1254	1580		481	3544	1563	116	3318	1217
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)	101	43	85	108	15	558	43	1312	22	93	924	25
RTOR Reduction (vph)	0	51	0	0	84	0	0	0	13	0	0	13
Lane Group Flow (vph)	101	77	0	108	489	0	43	1312	9	93	924	12
Confl. Peds. (#/hr)	2		2	2		2	5		6	6		5
Heavy Vehicles (%)	1%	0%	5%	3%	8%	2%	5%	3%	0%	6%	10%	29%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	55.2	55.2		44.2	44.2		58.5	58.5	58.5	68.5	68.5	68.5
Effective Green, g (s)	55.2	55.2		44.2	44.2		58.5	58.5	58.5	68.5	68.5	68.5
Actuated g/C Ratio	0.40	0.40		0.32	0.32		0.42	0.42	0.42	0.49	0.49	0.49
Clearance Time (s)	4.5	7.5		7.5	7.5		7.5	7.5	7.5	4.0	7.5	7.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	139	659		399	503		202	1494	659	126	1638	601
v/s Ratio Prot	c0.03	0.05			c0.31			c0.37		c0.03	0.28	
v/s Ratio Perm	0.25			0.09			0.09		0.01	0.33		0.01
v/c Ratio	0.73	0.12		0.27	0.97		0.21	0.88	0.01	0.74	0.56	0.02
Uniform Delay, d1	33.4	26.4		35.2	46.7		25.5	36.8	23.3	28.6	24.6	17.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	17.2	0.1		0.4	32.9		2.4	7.6	0.0	20.0	1.4	0.1
Delay (s)	50.6	26.4		35.6	79.6		27.9	44.5	23.4	48.6	26.0	18.0
Level of Service	D	C		D	E		C	D	C	D	C	B
Approach Delay (s)		37.1			72.6			43.6			27.9	
Approach LOS		D			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	44.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	138.7	Sum of lost time (s)	23.5
Intersection Capacity Utilization	95.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	320	102	1584	713
v/c Ratio	0.70	0.39	0.57	0.27
Control Delay	61.7	13.3	7.6	5.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	61.7	13.3	7.6	5.3
Queue Length 50th (m)	40.7	0.0	76.3	39.6
Queue Length 95th (m)	54.1	17.0	106.9	32.2
Internal Link Dist (m)	312.9		189.6	346.5
Turn Bay Length (m)		141.0		
Base Capacity (vph)	633	323	2770	2615
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	0.51	0.32	0.57	0.27

Intersection Summary

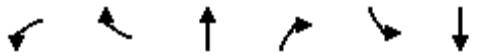


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	284	104	0	1457	656	0
Future Volume (vph)	284	104	0	1457	656	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.0	7.0	
Lane Util. Factor	0.97	0.91		0.95	0.95	
Frt	0.99	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	3421	1303		3614	3411	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	3421	1303		3614	3411	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	309	113	0	1584	713	0
RTOR Reduction (vph)	2	88	0	0	0	0
Lane Group Flow (vph)	318	14	0	1584	713	0
Heavy Vehicles (%)	3%	14%	0%	1%	7%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	17.3	17.3		99.7	99.7	
Effective Green, g (s)	17.3	17.3		99.7	99.7	
Actuated g/C Ratio	0.13	0.13		0.77	0.77	
Clearance Time (s)	6.0	6.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	455	173		2771	2615	
v/s Ratio Prot	c0.09			c0.44	0.21	
v/s Ratio Perm		0.01				
v/c Ratio	0.70	0.08		0.57	0.27	
Uniform Delay, d1	53.9	49.4		6.3	4.5	
Progression Factor	1.00	1.00		1.00	1.07	
Incremental Delay, d2	4.7	0.2		0.9	0.2	
Delay (s)	58.5	49.6		7.2	5.0	
Level of Service	E	D		A	A	
Approach Delay (s)	56.4			7.2	5.0	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	62.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	434	242	1373	915
v/c Ratio	0.72	0.78	0.52	0.35
Control Delay	49.6	54.9	6.7	7.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	49.6	54.9	6.7	7.1
Queue Length 50th (m)	47.9	50.9	51.4	37.3
Queue Length 95th (m)	59.4	76.3	83.1	62.8
Internal Link Dist (m)	307.9		346.5	91.4
Turn Bay Length (m)		99.0		
Base Capacity (vph)	939	465	2635	2635
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	0.46	0.52	0.52	0.35

Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	177	445	1263	0	0	842
Future Volume (vph)	177	445	1263	0	0	842
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5			5.5
Lane Util. Factor	0.97	0.91	0.95			0.95
Frt	0.92	0.85	1.00			1.00
Flt Protected	0.98	1.00	1.00			1.00
Satd. Flow (prot)	3117	1471	3579			3579
Flt Permitted	0.98	1.00	1.00			1.00
Satd. Flow (perm)	3117	1471	3579			3579
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	192	484	1373	0	0	915
RTOR Reduction (vph)	48	48	0	0	0	0
Lane Group Flow (vph)	386	194	1373	0	0	915
Heavy Vehicles (%)	15%	1%	2%	0%	0%	2%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	23.3	23.3	95.7			95.7
Effective Green, g (s)	23.3	23.3	95.7			95.7
Actuated g/C Ratio	0.18	0.18	0.74			0.74
Clearance Time (s)	5.5	5.5	5.5			5.5
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	558	263	2634			2634
v/s Ratio Prot	0.12		c0.38			0.26
v/s Ratio Perm		c0.13				
v/c Ratio	0.69	0.74	0.52			0.35
Uniform Delay, d1	50.0	50.5	7.3			6.1
Progression Factor	1.00	1.00	0.75			1.00
Incremental Delay, d2	3.7	10.4	0.6			0.4
Delay (s)	53.7	60.8	6.1			6.4
Level of Service	D	E	A			A
Approach Delay (s)	56.3		6.1			6.4
Approach LOS	E		A			A

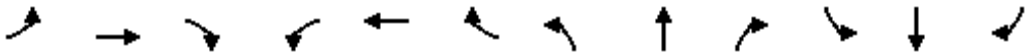
Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	62.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Appendix C – Future (2031) Total Conditions Synchro Output

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	13	623	7	0	1520
Future Volume (Veh/h)	0	13	623	7	0	1520
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	14	677	8	0	1652
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1503	338			685	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1503	338			685	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			100	
cM capacity (veh/h)	112	657			904	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	14	338	338	8	826	826
Volume Left	0	0	0	0	0	0
Volume Right	14	0	0	8	0	0
cSH	657	1700	1700	1700	1700	1700
Volume to Capacity	0.02	0.20	0.20	0.00	0.49	0.49
Queue Length 95th (m)	0.5	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	10.6	0.0	0.0	0.0	0.0	0.0
Lane LOS	B					
Approach Delay (s)	10.6	0.0			0.0	
Approach LOS	B					

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	45.4%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	123	1465	141	199	1014	82	258	473	172	278	1286	88
v/c Ratio	1.06	0.88	0.26	1.07	0.70	0.13	1.16	0.46	0.32	0.61	1.10	0.15
Control Delay	142.8	47.3	10.0	95.1	30.1	11.7	142.8	38.3	6.4	26.8	98.7	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	142.8	47.3	10.0	95.1	30.1	11.7	142.8	38.3	6.4	26.8	98.7	6.2
Queue Length 50th (m)	~34.5	128.7	5.5	~39.7	119.0	8.9	~63.0	51.9	0.0	42.3	~186.4	0.0
Queue Length 95th (m)	#73.9	148.6	20.5	m#67.9	m140.2	m13.0	#116.4	68.2	16.3	62.1	#226.3	10.8
Internal Link Dist (m)		111.7			819.7			134.5			531.5	
Turn Bay Length (m)	85.0		35.0	85.0			55.0			120.0		80.0
Base Capacity (vph)	116	1665	541	186	1441	650	222	1037	543	469	1171	572
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.06	0.88	0.26	1.07	0.70	0.13	1.16	0.46	0.32	0.59	1.10	0.15

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	1348	130	183	933	75	237	435	158	256	1183	81
Future Volume (vph)	113	1348	130	183	933	75	237	435	158	256	1183	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	3.0	6.0	6.0	4.0	8.0	8.0	4.0	8.0	8.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	*1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.85	1.00	1.00	0.88	1.00	1.00	0.97
Flpb, ped/bikes	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1580	4812	1358	1807	3288	1378	1644	3380	1381	1779	3625	1579
Flt Permitted	0.20	1.00	1.00	0.08	1.00	1.00	0.10	1.00	1.00	0.38	1.00	1.00
Satd. Flow (perm)	337	4812	1358	155	3288	1378	174	3380	1381	717	3625	1579
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)	123	1465	141	199	1014	82	258	473	172	278	1286	88
RTOR Reduction (vph)	0	0	71	0	0	46	0	0	119	0	0	60
Lane Group Flow (vph)	123	1465	70	199	1014	36	258	473	53	278	1286	28
Confl. Peds. (#/hr)	64		11	11		64	10		51	51		10
Heavy Vehicles (%)	13%	9%	16%	1%	11%	1%	11%	8%	4%	1%	6%	0%
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Actuated Green, G (s)	45.0	45.0	45.0	57.0	57.0	57.0	52.9	39.9	39.9	57.1	42.0	42.0
Effective Green, g (s)	45.0	45.0	45.0	58.0	57.0	57.0	52.9	39.9	39.9	57.1	42.0	42.0
Actuated g/C Ratio	0.35	0.35	0.35	0.45	0.44	0.44	0.41	0.31	0.31	0.44	0.32	0.32
Clearance Time (s)	6.0	6.0	6.0	4.0	6.0	6.0	4.0	8.0	8.0	4.0	8.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	116	1665	470	183	1441	604	217	1037	423	438	1171	510
v/s Ratio Prot		0.30		c0.08	0.31		c0.12	0.14		c0.07	0.35	
v/s Ratio Perm	0.37		0.05	c0.41		0.03	c0.36		0.04	0.20		0.02
v/c Ratio	1.06	0.88	0.15	1.09	0.70	0.06	1.19	0.46	0.12	0.63	1.10	0.06
Uniform Delay, d1	42.5	40.0	29.3	33.5	29.6	21.0	37.5	36.3	32.5	24.6	44.0	30.3
Progression Factor	1.00	1.00	1.00	0.80	0.95	2.56	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	100.7	7.0	0.7	75.7	1.7	0.1	121.5	1.4	0.6	3.0	57.4	0.0
Delay (s)	143.2	47.0	30.0	102.5	29.8	54.0	159.0	37.8	33.1	27.6	101.4	30.4
Level of Service	F	D	C	F	C	D	F	D	C	C	F	C
Approach Delay (s)		52.4			42.5			71.5			85.2	
Approach LOS		D			D			E			F	

Intersection Summary			
HCM 2000 Control Delay	62.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	120.8%	ICU Level of Service	H
Analysis Period (min)	15		

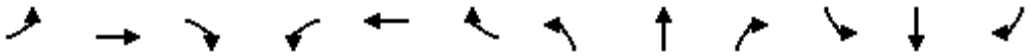
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	388	2000	22	967	101	108	278	163	934
v/c Ratio	0.95	0.83	0.48	0.77	0.23	0.70	0.32	0.37	0.92
Control Delay	78.2	41.3	77.4	49.7	6.6	50.3	36.5	27.5	54.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.2	41.3	77.4	49.7	6.6	50.3	36.5	27.5	54.4
Queue Length 50th (m)	91.3	141.7	4.8	85.1	0.0	17.2	28.7	26.4	112.2
Queue Length 95th (m)	m#121.6	162.1	#18.2	101.7	11.2	#39.4	41.1	42.3	#152.1
Internal Link Dist (m)		819.7		213.0			219.6		237.2
Turn Bay Length (m)	87.0		194.0		27.0	52.0		93.6	
Base Capacity (vph)	418	2396	46	1251	435	159	876	438	1016
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.93	0.83	0.48	0.77	0.23	0.68	0.32	0.37	0.92

Intersection Summary

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

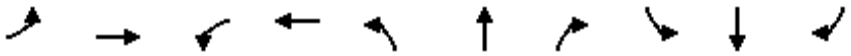
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	357	1451	389	20	890	93	99	240	16	150	537	322
Future Volume (vph)	357	1451	389	20	890	93	99	240	16	150	537	322
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0		6.0	6.0	6.0	4.5	7.0		4.5	6.0	
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.95	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		0.99	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.99		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1706	4719		1447	4812	1352	1383	2992		1699	3202	
Flt Permitted	0.12	1.00		0.12	1.00	1.00	0.11	1.00		0.57	1.00	
Satd. Flow (perm)	213	4719		180	4812	1352	154	2992		1019	3202	
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)	388	1577	423	22	967	101	108	261	17	163	584	350
RTOR Reduction (vph)	0	37	0	0	0	75	0	4	0	0	68	0
Lane Group Flow (vph)	388	1963	0	22	967	26	108	274	0	163	866	0
Confl. Peds. (#/hr)	17		10	10		17	7		17	17		7
Heavy Vehicles (%)	7%	6%	10%	26%	9%	15%	32%	21%	13%	6%	8%	4%
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2			6		3	8		7	4	
Permitted Phases	2			6		6	8			4		
Actuated Green, G (s)	65.0	65.0		33.8	33.8	33.8	47.9	37.9		48.1	38.5	
Effective Green, g (s)	65.0	65.0		33.8	33.8	33.8	47.9	37.9		48.1	38.5	
Actuated g/C Ratio	0.50	0.50		0.26	0.26	0.26	0.37	0.29		0.37	0.30	
Clearance Time (s)	5.0	6.0		6.0	6.0	6.0	4.5	7.0		4.5	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	407	2359		46	1251	351	151	872		427	948	
v/s Ratio Prot	c0.19	0.42			0.20		c0.05	0.09		0.03	c0.27	
v/s Ratio Perm	c0.28			0.12		0.02	0.21			0.11		
v/c Ratio	0.95	0.83		0.48	0.77	0.07	0.72	0.31		0.38	0.91	
Uniform Delay, d1	37.2	27.8		40.6	44.5	36.3	32.0	35.9		28.5	44.2	
Progression Factor	1.48	1.42		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	27.7	2.8		31.6	4.7	0.4	14.9	0.9		0.6	14.6	
Delay (s)	82.7	42.3		72.3	49.2	36.7	46.8	36.9		29.1	58.8	
Level of Service	F	D		E	D	D	D	D		C	E	
Approach Delay (s)		48.9			48.5			39.7			54.4	
Approach LOS		D			D			D			D	

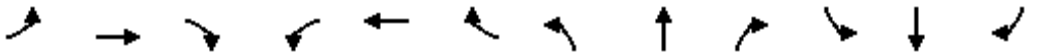
Intersection Summary			
HCM 2000 Control Delay	49.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	114.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	30	34	41	103	58	652	63	352	1077	118
v/c Ratio	0.21	0.19	0.45	0.55	0.20	0.31	0.06	0.53	0.41	0.10
Control Delay	52.0	25.5	76.6	26.0	15.2	12.6	0.7	7.4	6.5	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.0	25.5	76.6	26.0	15.2	12.6	0.7	7.4	6.5	1.1
Queue Length 50th (m)	7.1	2.2	11.1	2.9	6.6	42.7	0.0	24.2	52.0	0.0
Queue Length 95th (m)	15.9	12.0	23.0	20.7	17.5	64.7	1.8	39.7	71.6	5.3
Internal Link Dist (m)		227.1		217.9		237.2			341.3	
Turn Bay Length (m)	71.0		74.0		72.4		69.0	160.0		65.0
Base Capacity (vph)	146	334	213	312	292	2100	1005	813	2647	1216
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.10	0.19	0.33	0.20	0.31	0.06	0.43	0.41	0.10

Intersection Summary



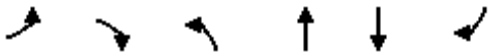
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	8	23	38	10	85	53	600	58	324	991	109
Future Volume (vph)	28	8	23	38	10	85	53	600	58	324	991	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.5		7.5	7.5		7.5	7.5	7.5	4.0	7.5	7.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	0.96	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.89		1.00	0.87		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1630	1320		1714	1464		1600	3202	1480	1803	3411	1533
Flt Permitted	0.45	1.00		0.73	1.00		0.27	1.00	1.00	0.37	1.00	1.00
Satd. Flow (perm)	775	1320		1326	1464		447	3202	1480	700	3411	1533
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	9	25	41	11	92	58	652	63	352	1077	118
RTOR Reduction (vph)	0	22	0	0	86	0	0	0	22	0	0	28
Lane Group Flow (vph)	30	12	0	41	17	0	58	652	41	352	1077	90
Confl. Peds. (#/hr)			2	2			1		5	5		1
Heavy Vehicles (%)	12%	0%	38%	6%	11%	14%	14%	14%	6%	1%	7%	4%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	18.1	18.1		9.7	9.7		90.1	90.1	90.1	106.9	106.9	106.9
Effective Green, g (s)	18.1	18.1		9.7	9.7		90.1	90.1	90.1	106.9	106.9	106.9
Actuated g/C Ratio	0.13	0.13		0.07	0.07		0.64	0.64	0.64	0.76	0.76	0.76
Clearance Time (s)	4.5	7.5		7.5	7.5		7.5	7.5	7.5	4.0	7.5	7.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	124	170		91	101		287	2060	952	635	2604	1170
v/s Ratio Prot	c0.01	0.01			0.01			0.20		c0.05	0.32	
v/s Ratio Perm	0.02			c0.03			0.13		0.03	c0.37		0.06
v/c Ratio	0.24	0.07		0.45	0.17		0.20	0.32	0.04	0.55	0.41	0.08
Uniform Delay, d1	54.2	53.6		62.6	61.4		10.2	11.2	9.1	5.3	5.7	4.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.2		3.5	0.8		1.6	0.4	0.1	1.1	0.5	0.1
Delay (s)	55.2	53.7		66.1	62.2		11.8	11.6	9.2	6.4	6.2	4.3
Level of Service	E	D		E	E		B	B	A	A	A	A
Approach Delay (s)		54.4			63.3			11.4			6.1	
Approach LOS		D			E			B			A	

Intersection Summary			
HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	484	230	602	1348
v/c Ratio	0.75	0.76	0.26	0.54
Control Delay	50.6	52.8	7.6	9.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	50.6	52.8	7.6	9.3
Queue Length 50th (m)	54.2	47.1	25.3	85.8
Queue Length 95th (m)	66.3	72.7	42.4	123.3
Internal Link Dist (m)	312.9		189.6	346.5
Turn Bay Length (m)		141.0		
Base Capacity (vph)	957	429	2302	2501
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	0.51	0.54	0.26	0.54

Intersection Summary

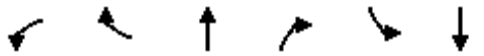


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	258	399	0	554	1240	0
Future Volume (vph)	258	399	0	554	1240	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.0	7.0	
Lane Util. Factor	0.97	0.91		0.95	0.95	
Frt	0.94	0.85		1.00	1.00	
Flt Protected	0.97	1.00		1.00	1.00	
Satd. Flow (prot)	3215	1363		3230	3510	
Flt Permitted	0.97	1.00		1.00	1.00	
Satd. Flow (perm)	3215	1363		3230	3510	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	280	434	0	602	1348	0
RTOR Reduction (vph)	47	47	0	0	0	0
Lane Group Flow (vph)	437	183	0	602	1348	0
Heavy Vehicles (%)	3%	9%	0%	13%	4%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	24.3	24.3		92.7	92.7	
Effective Green, g (s)	24.3	24.3		92.7	92.7	
Actuated g/C Ratio	0.19	0.19		0.71	0.71	
Clearance Time (s)	6.0	6.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	600	254		2303	2502	
v/s Ratio Prot	c0.14			0.19	c0.38	
v/s Ratio Perm		0.13				
v/c Ratio	0.73	0.72		0.26	0.54	
Uniform Delay, d1	49.7	49.7		6.6	8.7	
Progression Factor	1.00	1.00		1.00	0.90	
Incremental Delay, d2	4.4	9.4		0.3	0.7	
Delay (s)	54.1	59.0		6.9	8.5	
Level of Service	D	E		A	A	
Approach Delay (s)	55.7			6.9	8.5	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	20.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

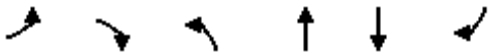
Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	466	215	805	1455
v/c Ratio	0.77	0.50	0.31	0.56
Control Delay	56.3	9.6	4.4	9.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	56.3	9.6	4.4	9.2
Queue Length 50th (m)	55.8	0.0	21.5	77.2
Queue Length 95th (m)	70.0	22.3	30.5	113.1
Internal Link Dist (m)	307.9		346.5	91.4
Turn Bay Length (m)		99.0		
Base Capacity (vph)	837	518	2587	2587
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	0.56	0.42	0.31	0.56

Intersection Summary



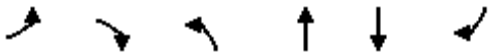
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	331	295	741	0	0	1339
Future Volume (vph)	331	295	741	0	0	1339
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5			5.5
Lane Util. Factor	0.97	0.91	0.95			0.95
Frt	0.97	0.85	1.00			1.00
Flt Protected	0.96	1.00	1.00			1.00
Satd. Flow (prot)	3260	1429	3510			3510
Flt Permitted	0.96	1.00	1.00			1.00
Satd. Flow (perm)	3260	1429	3510			3510
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	360	321	805	0	0	1455
RTOR Reduction (vph)	24	177	0	0	0	0
Lane Group Flow (vph)	442	38	805	0	0	1455
Heavy Vehicles (%)	7%	4%	4%	0%	0%	4%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	23.2	23.2	95.8			95.8
Effective Green, g (s)	23.2	23.2	95.8			95.8
Actuated g/C Ratio	0.18	0.18	0.74			0.74
Clearance Time (s)	5.5	5.5	5.5			5.5
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	581	255	2586			2586
v/s Ratio Prot	c0.14		0.23			c0.41
v/s Ratio Perm		0.03				
v/c Ratio	0.76	0.15	0.31			0.56
Uniform Delay, d1	50.8	45.1	5.8			7.7
Progression Factor	1.00	1.00	0.65			1.00
Incremental Delay, d2	5.8	0.3	0.3			0.9
Delay (s)	56.6	45.4	4.1			8.6
Level of Service	E	D	A			A
Approach Delay (s)	53.1		4.1			8.6
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	16	4	8	775	1548	113
v/c Ratio	0.09	0.02	0.03	0.23	0.46	0.07
Control Delay	25.1	16.8	1.6	1.0	1.6	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.1	16.8	1.6	1.0	1.6	0.5
Queue Length 50th (m)	1.6	0.0	0.0	0.0	0.0	0.0
Queue Length 95th (m)	6.2	2.2	1.0	16.2	43.3	2.6
Internal Link Dist (m)	120.6			341.3	189.6	
Turn Bay Length (m)		75.0	50.0			50.0
Base Capacity (vph)	536	483	269	3386	3386	1521
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.01	0.03	0.23	0.46	0.07

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	4	7	713	1424	104
Future Volume (vph)	15	4	7	713	1424	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1789	1601	1789	3579	3579	1601
Flt Permitted	0.95	1.00	0.15	1.00	1.00	1.00
Satd. Flow (perm)	1789	1601	285	3579	3579	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	4	8	775	1548	113
RTOR Reduction (vph)	0	4	0	0	0	20
Lane Group Flow (vph)	16	0	8	775	1548	93
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	1.4	1.4	49.6	49.6	49.6	49.6
Effective Green, g (s)	1.4	1.4	49.6	49.6	49.6	49.6
Actuated g/C Ratio	0.02	0.02	0.83	0.83	0.83	0.83
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	41	37	235	2958	2958	1323
v/s Ratio Prot	c0.01			0.22	c0.43	
v/s Ratio Perm		0.00	0.03			0.06
v/c Ratio	0.39	0.00	0.03	0.26	0.52	0.07
Uniform Delay, d1	28.9	28.6	0.9	1.2	1.6	1.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.0	0.0	0.3	0.2	0.7	0.1
Delay (s)	34.9	28.6	1.2	1.4	2.3	1.1
Level of Service	C	C	A	A	A	A
Approach Delay (s)	33.7			1.4	2.2	
Approach LOS	C			A	A	

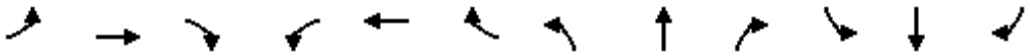
Intersection Summary			
HCM 2000 Control Delay	2.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	40	1211	2	0	1012
Future Volume (Veh/h)	0	40	1211	2	0	1012
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	43	1316	2	0	1100
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1866	658			1318	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1866	658			1318	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	89			100	
cM capacity (veh/h)	64	407			520	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	43	658	658	2	550	550
Volume Left	0	0	0	0	0	0
Volume Right	43	0	0	2	0	0
cSH	407	1700	1700	1700	1700	1700
Volume to Capacity	0.11	0.39	0.39	0.00	0.32	0.32
Queue Length 95th (m)	2.7	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	14.9	0.0	0.0	0.0	0.0	0.0
Lane LOS	B					
Approach Delay (s)	14.9	0.0			0.0	
Approach LOS	B					

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	43.5%	ICU Level of Service	A
Analysis Period (min)	15		



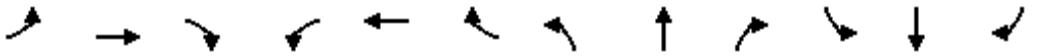
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	135	1326	263	118	1175	72	225	1110	129	189	839	72
v/c Ratio	0.99	0.69	0.47	0.60	0.93	0.11	0.88	0.94	0.24	1.07	0.87	0.14
Control Delay	102.7	37.4	16.9	20.0	43.2	5.5	62.0	57.5	10.3	115.1	55.8	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	102.7	37.4	16.9	20.0	43.2	5.5	62.0	57.5	10.3	115.1	55.8	0.8
Queue Length 50th (m)	20.7	106.0	22.3	23.0	161.1	0.6	38.3	144.8	4.9	~35.4	108.4	0.0
Queue Length 95th (m)	#63.0	122.9	47.3	m22.7	m159.8	m0.6	#83.1	#186.5	19.1	#83.3	#141.2	0.9
Internal Link Dist (m)		111.7			819.7			134.5			531.5	
Turn Bay Length (m)	85.0		35.0	85.0			55.0			120.0		80.0
Base Capacity (vph)	137	1910	564	210	1264	676	259	1183	531	177	962	517
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.69	0.47	0.56	0.93	0.11	0.87	0.94	0.24	1.07	0.87	0.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	1220	242	109	1081	66	207	1021	119	174	772	66
Future Volume (vph)	124	1220	242	109	1081	66	207	1021	119	174	772	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	8.0	8.0	4.0	8.0	8.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00	0.93	1.00	1.00	0.93
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1560	5193	1289	1825	3288	1530	1659	3579	1401	1825	3444	1527
Flt Permitted	0.08	1.00	1.00	0.09	1.00	1.00	0.12	1.00	1.00	0.11	1.00	1.00
Satd. Flow (perm)	137	5193	1289	175	3288	1530	202	3579	1401	212	3444	1527
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)	135	1326	263	118	1175	72	225	1110	129	189	839	72
RTOR Reduction (vph)	0	0	90	0	0	44	0	0	68	0	0	52
Lane Group Flow (vph)	135	1326	173	118	1175	28	225	1110	61	189	839	20
Confl. Peds. (#/hr)	24		23	23		24	25		25	25		25
Heavy Vehicles (%)	17%	1%	19%	0%	11%	0%	10%	2%	9%	0%	6%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Actuated Green, G (s)	54.8	47.8	47.8	59.2	50.0	50.0	55.0	43.0	43.0	44.3	36.3	36.3
Effective Green, g (s)	54.8	47.8	47.8	59.2	50.0	50.0	55.0	43.0	43.0	44.3	36.3	36.3
Actuated g/C Ratio	0.42	0.37	0.37	0.46	0.38	0.38	0.42	0.33	0.33	0.34	0.28	0.28
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	8.0	8.0	4.0	8.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	134	1909	473	196	1264	588	250	1183	463	171	961	426
v/s Ratio Prot	c0.05	0.26		c0.04	0.36		c0.10	0.31		c0.07	0.24	
v/s Ratio Perm	c0.37		0.13	0.23		0.02	0.28		0.04	c0.31		0.01
v/c Ratio	1.01	0.69	0.36	0.60	0.93	0.05	0.90	0.94	0.13	1.11	0.87	0.05
Uniform Delay, d1	30.2	34.9	30.0	24.6	38.3	25.1	32.2	42.2	30.4	36.9	44.7	34.2
Progression Factor	1.00	1.00	1.00	0.93	1.08	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	79.7	2.1	2.2	0.5	1.6	0.0	31.9	15.0	0.6	99.8	10.8	0.2
Delay (s)	109.9	37.0	32.2	23.5	43.0	25.1	64.0	57.2	31.0	136.8	55.5	34.4
Level of Service	F	D	C	C	D	C	E	E	C	F	E	C
Approach Delay (s)		42.0			40.4			56.0			68.1	
Approach LOS		D			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	50.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	96.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	340	1523	43	1885	212	204	801	116	1102
v/c Ratio	1.02	0.61	0.45	1.00	0.37	0.93	0.79	0.59	1.10dr
Control Delay	102.3	30.4	51.4	63.8	18.0	77.4	48.7	39.1	73.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	102.3	30.4	51.4	63.8	18.0	77.4	48.7	39.1	73.5
Queue Length 50th (m)	~83.7	89.5	8.6	160.4	19.6	36.7	98.9	18.7	~121.5
Queue Length 95th (m)	m#130.4	m108.5	22.2	#193.8	40.7	#83.5	122.9	31.6	#161.6
Internal Link Dist (m)		819.7		213.0			219.6		237.2
Turn Bay Length (m)	87.0		194.0		27.0	52.0		93.6	
Base Capacity (vph)	332	2482	96	1885	570	219	1013	195	1055
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.02	0.61	0.45	1.00	0.37	0.93	0.79	0.59	1.04

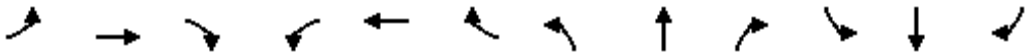
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.

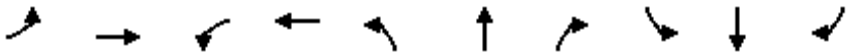
dr Defacto Right Lane. Recode with 1 though lane as a right lane.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	313	1224	178	40	1734	195	188	690	47	107	373	641
Future Volume (vph)	313	1224	178	40	1734	195	188	690	47	107	373	641
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		6.0	6.0	6.0	3.5	7.0		4.5	7.0	
Lane Util. Factor	1.00	0.91		1.00	*1.00	1.00	1.00	0.95		1.00	*1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.94	1.00	1.00		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		0.99	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.99		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1772	4803		1727	5595	1486	1659	3437		1787	3161	
Flt Permitted	0.08	1.00		0.16	1.00	1.00	0.10	1.00		0.18	1.00	
Satd. Flow (perm)	156	4803		288	5595	1486	181	3437		331	3161	
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)	340	1330	193	43	1885	212	204	750	51	116	405	697
RTOR Reduction (vph)	0	15	0	0	0	70	0	4	0	0	229	0
Lane Group Flow (vph)	340	1508	0	43	1885	142	204	797	0	116	873	0
Confl. Peds. (#/hr)	24		25	25		24	7		21	21		7
Heavy Vehicles (%)	3%	7%	1%	5%	3%	3%	10%	5%	2%	2%	17%	3%
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	5	2			6		3	8		7	4	
Permitted Phases	2			6		6	8			4		
Actuated Green, G (s)	66.8	66.8		43.8	43.8	43.8	49.9	38.2		41.5	34.0	
Effective Green, g (s)	67.8	66.8		43.8	43.8	43.8	51.2	38.2		41.5	34.0	
Actuated g/C Ratio	0.52	0.51		0.34	0.34	0.34	0.39	0.29		0.32	0.26	
Clearance Time (s)	4.0	6.0		6.0	6.0	6.0	4.5	7.0		4.5	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	329	2468		97	1885	500	215	1009		189	826	
v/s Ratio Prot	c0.16	0.31			0.34		c0.09	0.23		0.04	c0.28	
v/s Ratio Perm	c0.38			0.15		0.10	0.28			0.16		
v/c Ratio	1.03	0.61		0.44	1.00	0.28	0.95	0.79		0.61	1.10dr	
Uniform Delay, d1	42.0	22.4		33.6	43.1	31.6	35.4	42.2		33.5	48.0	
Progression Factor	1.49	1.34		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	52.9	0.9		14.0	20.7	1.4	46.5	6.3		5.8	47.5	
Delay (s)	115.5	30.8		47.6	63.8	33.0	81.8	48.5		39.3	95.5	
Level of Service	F	C		D	E	C	F	D		D	F	
Approach Delay (s)		46.3			60.5			55.3			90.1	
Approach LOS		D			E			E			F	

Intersection Summary			
HCM 2000 Control Delay	61.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	111.4%	ICU Level of Service	H
Analysis Period (min)	15		

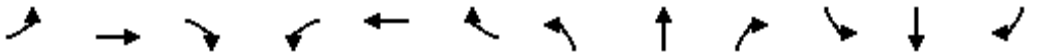
dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	101	128	108	573	43	1314	22	93	937	25
v/c Ratio	0.71	0.18	0.27	0.98	0.22	0.88	0.03	0.72	0.57	0.04
Control Delay	52.6	11.0	37.3	68.8	29.9	45.2	0.1	50.7	26.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.6	11.0	37.3	68.8	29.9	45.2	0.1	50.7	26.7	0.1
Queue Length 50th (m)	16.8	7.6	22.1	129.8	7.5	175.2	0.0	12.9	95.1	0.0
Queue Length 95th (m)	#37.6	20.6	38.3	#205.2	17.3	206.8	0.0	#36.8	115.4	0.0
Internal Link Dist (m)		227.1		217.9		237.2			341.3	
Turn Bay Length (m)	71.0		74.0		72.4		69.0	160.0		65.0
Base Capacity (vph)	142	723	411	599	198	1494	717	129	1638	635
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.18	0.26	0.96	0.22	0.88	0.03	0.72	0.57	0.04

Intersection Summary

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



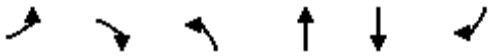
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	40	78	99	14	513	40	1209	20	86	862	23
Future Volume (vph)	93	40	78	99	14	513	40	1209	20	86	862	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.5		7.5	7.5		7.5	7.5	7.5	4.0	7.5	7.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.98		1.00	1.00	0.96	1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.90		1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1807	1656		1765	1580		1731	3544	1563	1722	3318	1217
Flt Permitted	0.08	1.00		0.67	1.00		0.26	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	156	1656		1254	1580		471	3544	1563	116	3318	1217
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)	101	43	85	108	15	558	43	1314	22	93	937	25
RTOR Reduction (vph)	0	50	0	0	83	0	0	0	13	0	0	13
Lane Group Flow (vph)	101	78	0	108	490	0	43	1314	9	93	937	12
Confl. Peds. (#/hr)	2		2	2		2	5		6	6		5
Heavy Vehicles (%)	1%	0%	5%	3%	8%	2%	5%	3%	0%	6%	10%	29%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	55.2	55.2		44.2	44.2		58.5	58.5	58.5	68.5	68.5	68.5
Effective Green, g (s)	55.2	55.2		44.2	44.2		58.5	58.5	58.5	68.5	68.5	68.5
Actuated g/C Ratio	0.40	0.40		0.32	0.32		0.42	0.42	0.42	0.49	0.49	0.49
Clearance Time (s)	4.5	7.5		7.5	7.5		7.5	7.5	7.5	4.0	7.5	7.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	139	659		399	503		198	1494	659	126	1638	601
v/s Ratio Prot	c0.03	0.05			c0.31			c0.37		c0.03	0.28	
v/s Ratio Perm	0.25			0.09			0.09		0.01	0.33		0.01
v/c Ratio	0.73	0.12		0.27	0.97		0.22	0.88	0.01	0.74	0.57	0.02
Uniform Delay, d1	33.4	26.4		35.2	46.7		25.5	36.9	23.3	28.6	24.8	17.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	17.2	0.1		0.4	33.2		2.5	7.7	0.0	20.0	1.5	0.1
Delay (s)	50.6	26.5		35.6	79.9		28.0	44.6	23.4	48.6	26.2	18.0
Level of Service	D	C		D	E		C	D	C	D	C	B
Approach Delay (s)		37.1			72.9			43.7			28.0	
Approach LOS		D			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	44.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	138.7	Sum of lost time (s)	23.5
Intersection Capacity Utilization	95.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	320	102	1634	745
v/c Ratio	0.70	0.39	0.59	0.28
Control Delay	61.7	13.3	7.9	5.3
Queue Delay	0.0	0.0	0.8	0.0
Total Delay	61.7	13.3	8.6	5.3
Queue Length 50th (m)	40.7	0.0	80.7	42.0
Queue Length 95th (m)	54.1	17.0	113.2	30.4
Internal Link Dist (m)	312.9		189.6	346.5
Turn Bay Length (m)		141.0		
Base Capacity (vph)	633	323	2770	2615
Starvation Cap Reductn	0	0	734	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.51	0.32	0.80	0.28

Intersection Summary

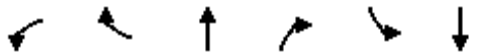


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	284	104	0	1503	685	0
Future Volume (vph)	284	104	0	1503	685	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.0	7.0	
Lane Util. Factor	0.97	0.91		0.95	0.95	
Frt	0.99	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	3421	1303		3614	3411	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	3421	1303		3614	3411	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	309	113	0	1634	745	0
RTOR Reduction (vph)	2	88	0	0	0	0
Lane Group Flow (vph)	318	14	0	1634	745	0
Heavy Vehicles (%)	3%	14%	0%	1%	7%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	17.3	17.3		99.7	99.7	
Effective Green, g (s)	17.3	17.3		99.7	99.7	
Actuated g/C Ratio	0.13	0.13		0.77	0.77	
Clearance Time (s)	6.0	6.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	455	173		2771	2615	
v/s Ratio Prot	c0.09			c0.45	0.22	
v/s Ratio Perm		0.01				
v/c Ratio	0.70	0.08		0.59	0.28	
Uniform Delay, d1	53.9	49.4		6.4	4.5	
Progression Factor	1.00	1.00		1.00	1.04	
Incremental Delay, d2	4.7	0.2		0.9	0.3	
Delay (s)	58.5	49.6		7.4	5.0	
Level of Service	E	D		A	A	
Approach Delay (s)	56.4			7.4	5.0	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	63.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

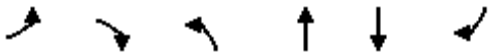
Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	434	242	1423	947
v/c Ratio	0.71	0.78	0.54	0.36
Control Delay	49.9	56.4	7.3	7.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	49.9	56.4	7.3	7.4
Queue Length 50th (m)	48.4	52.5	55.6	39.8
Queue Length 95th (m)	59.8	77.8	89.5	66.4
Internal Link Dist (m)	307.9		346.5	91.4
Turn Bay Length (m)		99.0		
Base Capacity (vph)	935	461	2626	2626
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	0.46	0.52	0.54	0.36

Intersection Summary



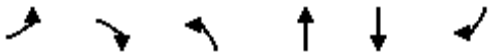
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	177	445	1309	0	0	871
Future Volume (vph)	177	445	1309	0	0	871
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5			5.5
Lane Util. Factor	0.97	0.91	0.95			0.95
Frt	0.92	0.85	1.00			1.00
Flt Protected	0.98	1.00	1.00			1.00
Satd. Flow (prot)	3117	1471	3579			3579
Flt Permitted	0.98	1.00	1.00			1.00
Satd. Flow (perm)	3117	1471	3579			3579
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	192	484	1423	0	0	947
RTOR Reduction (vph)	43	43	0	0	0	0
Lane Group Flow (vph)	391	199	1423	0	0	947
Heavy Vehicles (%)	15%	1%	2%	0%	0%	2%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	23.6	23.6	95.4			95.4
Effective Green, g (s)	23.6	23.6	95.4			95.4
Actuated g/C Ratio	0.18	0.18	0.73			0.73
Clearance Time (s)	5.5	5.5	5.5			5.5
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	565	267	2626			2626
v/s Ratio Prot	0.13		c0.40			0.26
v/s Ratio Perm		c0.14				
v/c Ratio	0.69	0.75	0.54			0.36
Uniform Delay, d1	49.8	50.4	7.6			6.3
Progression Factor	1.00	1.00	0.77			1.00
Incremental Delay, d2	3.7	10.8	0.7			0.4
Delay (s)	53.5	61.2	6.6			6.6
Level of Service	D	E	A			A
Approach Delay (s)	56.2		6.6			6.6
Approach LOS	E		A			A

Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	63.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	50	13	2	1973	1055	32
v/c Ratio	0.26	0.07	0.00	0.65	0.35	0.02
Control Delay	30.7	14.6	2.5	4.9	2.6	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.7	14.6	2.5	4.9	2.6	1.1
Queue Length 50th (m)	6.6	0.0	0.1	50.9	17.3	0.0
Queue Length 95th (m)	13.8	4.1	0.5	85.4	28.4	1.6
Internal Link Dist (m)	120.6			341.3	189.6	
Turn Bay Length (m)		75.0	50.0			50.0
Base Capacity (vph)	481	440	421	3045	3045	1367
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.03	0.00	0.65	0.35	0.02

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	46	12	2	1815	971	29
Future Volume (vph)	46	12	2	1815	971	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1789	1601	1789	3579	3579	1601
Flt Permitted	0.95	1.00	0.26	1.00	1.00	1.00
Satd. Flow (perm)	1789	1601	495	3579	3579	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	50	13	2	1973	1055	32
RTOR Reduction (vph)	0	12	0	0	0	6
Lane Group Flow (vph)	50	1	2	1973	1055	26
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	4.9	4.9	55.3	55.3	55.3	55.3
Effective Green, g (s)	4.9	4.9	55.3	55.3	55.3	55.3
Actuated g/C Ratio	0.07	0.07	0.80	0.80	0.80	0.80
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	126	113	395	2860	2860	1279
v/s Ratio Prot	c0.03			c0.55	0.29	
v/s Ratio Perm		0.00	0.00			0.02
v/c Ratio	0.40	0.01	0.01	0.69	0.37	0.02
Uniform Delay, d1	30.7	29.9	1.4	3.1	2.0	1.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	0.0	0.0	1.4	0.4	0.0
Delay (s)	32.8	29.9	1.4	4.5	2.3	1.4
Level of Service	C	C	A	A	A	A
Approach Delay (s)	32.2			4.5	2.3	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	4.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	69.2	Sum of lost time (s)	9.0
Intersection Capacity Utilization	61.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Appendix D – Future (2031) Total Conditions Improvement Synchro Output

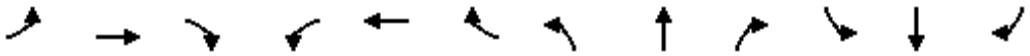
Lane Group	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	14	677	8	1652
v/c Ratio	0.04	0.20	0.01	0.49
Control Delay	0.2	0.8	0.9	1.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	0.2	0.8	0.9	1.5
Queue Length 50th (m)	0.0	0.0	0.0	0.0
Queue Length 95th (m)	0.0	11.5	0.6	40.8
Internal Link Dist (m)		531.5		140.0
Turn Bay Length (m)			50.0	
Base Capacity (vph)	632	3406	1524	3406
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	0.02	0.20	0.01	0.49

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	13	623	7	0	1520
Future Volume (vph)	0	13	623	7	0	1520
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5		4.5
Lane Util. Factor		1.00	0.95	1.00		0.95
Frt		0.85	1.00	0.85		1.00
Flt Protected		1.00	1.00	1.00		1.00
Satd. Flow (prot)		1601	3579	1601		3579
Flt Permitted		1.00	1.00	1.00		1.00
Satd. Flow (perm)		1601	3579	1601		3579
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	14	677	8	0	1652
RTOR Reduction (vph)	0	14	0	1	0	0
Lane Group Flow (vph)	0	0	677	7	0	1652
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2			6
Permitted Phases		8		2	6	
Actuated Green, G (s)		1.1	49.9	49.9		49.9
Effective Green, g (s)		1.1	49.9	49.9		49.9
Actuated g/C Ratio		0.02	0.83	0.83		0.83
Clearance Time (s)		4.5	4.5	4.5		4.5
Vehicle Extension (s)		3.0	3.0	3.0		3.0
Lane Grp Cap (vph)		29	2976	1331		2976
v/s Ratio Prot			0.19			c0.46
v/s Ratio Perm		c0.00		0.00		
v/c Ratio		0.01	0.23	0.00		0.56
Uniform Delay, d1		28.9	1.0	0.9		1.6
Progression Factor		1.00	1.00	1.00		1.00
Incremental Delay, d2		0.1	0.2	0.0		0.8
Delay (s)		29.0	1.2	0.9		2.3
Level of Service		C	A	A		A
Approach Delay (s)	29.0		1.2			2.3
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	2.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



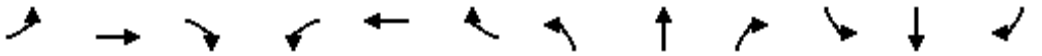
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	123	1465	141	201	1014	82	258	473	172	278	1286	88
v/c Ratio	0.87	0.97	0.28	0.93	0.94	0.16	1.10	0.42	0.30	0.57	1.03	0.14
Control Delay	107.8	60.1	10.5	83.5	60.5	14.0	121.3	35.2	5.9	23.1	73.9	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	107.8	60.1	10.5	83.5	60.5	14.0	121.3	35.2	5.9	23.1	73.9	5.1
Queue Length 50th (m)	16.4	135.2	5.0	27.8	143.1	7.8	~59.9	50.0	0.0	39.5	~175.2	0.0
Queue Length 95th (m)	#34.5	#167.1	20.7	#52.0	#178.4	m17.3	#113.5	65.8	15.7	57.9	#215.2	9.5
Internal Link Dist (m)		111.7			819.7			134.5			531.5	
Turn Bay Length (m)	85.0		50.0	85.0			55.0			120.0		80.0
Base Capacity (vph)	142	1517	505	215	1077	527	235	1131	576	512	1254	610
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.97	0.28	0.93	0.94	0.16	1.10	0.42	0.30	0.54	1.03	0.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

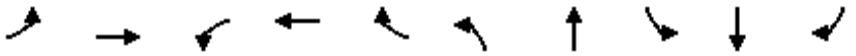
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	1348	130	185	933	75	237	435	158	256	1183	81
Future Volume (vph)	113	1348	130	185	933	75	237	435	158	256	1183	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.0	4.0	6.0	6.0	4.0	8.0	8.0	4.0	8.0	8.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	*1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.85	1.00	1.00	0.88	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3133	4812	1358	3506	3288	1378	1644	3380	1381	1776	3625	1579
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.09	1.00	1.00	0.40	1.00	1.00
Satd. Flow (perm)	3133	4812	1358	3506	3288	1378	159	3380	1381	752	3625	1579
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)	123	1465	141	201	1014	82	258	473	172	278	1286	88
RTOR Reduction (vph)	0	0	77	0	0	55	0	0	114	0	0	58
Lane Group Flow (vph)	123	1465	64	201	1014	27	258	473	58	278	1286	30
Confl. Peds. (#/hr)	64		11	11		64	10		51	51		10
Heavy Vehicles (%)	13%	9%	16%	1%	11%	1%	11%	8%	4%	1%	6%	0%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6	4		4	8		8
Actuated Green, G (s)	5.9	41.0	41.0	8.0	42.6	42.6	57.5	43.5	43.5	60.5	45.0	45.0
Effective Green, g (s)	5.9	41.0	41.0	8.0	42.6	42.6	57.5	43.5	43.5	60.5	45.0	45.0
Actuated g/C Ratio	0.05	0.32	0.32	0.06	0.33	0.33	0.44	0.33	0.33	0.47	0.35	0.35
Clearance Time (s)	4.5	6.0	6.0	4.0	6.0	6.0	4.0	8.0	8.0	4.0	8.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	142	1517	428	215	1077	451	230	1131	462	472	1254	546
v/s Ratio Prot	0.04	0.30		c0.06	c0.31		c0.12	0.14		0.07	0.35	
v/s Ratio Perm			0.05			0.02	c0.37		0.04	0.20		0.02
v/c Ratio	0.87	0.97	0.15	0.93	0.94	0.06	1.12	0.42	0.12	0.59	1.03	0.06
Uniform Delay, d1	61.7	43.8	32.0	60.7	42.5	30.0	38.9	33.5	30.0	22.3	42.5	28.3
Progression Factor	1.00	1.00	1.00	0.69	1.10	6.13	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	38.7	16.3	0.7	37.0	13.9	0.2	96.0	1.1	0.6	1.9	32.1	0.0
Delay (s)	100.4	60.1	32.7	78.8	60.4	183.8	134.9	34.6	30.6	24.2	74.6	28.4
Level of Service	F	E	C	E	E	F	F	C	C	C	E	C
Approach Delay (s)		60.7			71.1			62.5			63.7	
Approach LOS		E			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	64.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	96.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

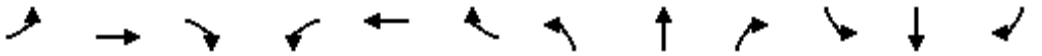


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	388	2000	22	967	101	108	278	163	584	350
v/c Ratio	0.91	0.78	0.48	0.66	0.21	0.55	0.34	0.43	0.64	0.52
Control Delay	67.6	30.9	75.5	42.6	5.9	39.4	39.0	32.8	45.6	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.6	30.9	75.5	42.6	5.9	39.4	39.0	32.8	45.6	6.8
Queue Length 50th (m)	86.2	116.9	4.7	81.3	0.0	18.4	29.7	28.4	69.8	0.0
Queue Length 95th (m)	m102.0	m129.1	#18.7	97.2	10.7	32.1	42.4	45.4	89.5	23.6
Internal Link Dist (m)		819.7		213.0			219.6		237.2	
Turn Bay Length (m)	87.0		194.0		27.0	52.0		93.6		60.0
Base Capacity (vph)	456	2577	46	1463	489	197	809	383	914	668
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.78	0.48	0.66	0.21	0.55	0.34	0.43	0.64	0.52

Intersection Summary

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

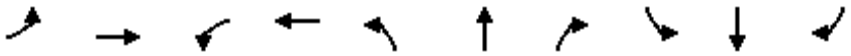
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	357	1451	389	20	890	93	99	240	16	150	537	322
Future Volume (vph)	357	1451	389	20	890	93	99	240	16	150	537	322
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0		6.0	6.0	6.0	4.5	7.0		4.5	6.0	6.0
Lane Util. Factor	1.00	0.91		1.00	0.91	1.00	1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.95	1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		0.99	1.00	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1706	4719		1447	4812	1352	1381	2992		1699	3380	1528
Flt Permitted	0.15	1.00		0.10	1.00	1.00	0.26	1.00		0.57	1.00	1.00
Satd. Flow (perm)	267	4719		154	4812	1352	371	2992		1021	3380	1528
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)	388	1577	423	22	967	101	108	261	17	163	584	350
RTOR Reduction (vph)	0	37	0	0	0	70	0	4	0	0	0	255
Lane Group Flow (vph)	388	1963	0	22	967	31	108	274	0	163	584	95
Confl. Peds. (#/hr)	17		10	10		17	7		17	17		7
Heavy Vehicles (%)	7%	6%	10%	26%	9%	15%	32%	21%	13%	6%	8%	4%
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2			6		3	8		7	4	
Permitted Phases	2			6		6	8			4		4
Actuated Green, G (s)	70.0	70.0		39.5	39.5	39.5	43.3	35.0		42.7	35.2	35.2
Effective Green, g (s)	70.0	70.0		39.5	39.5	39.5	43.3	35.0		42.7	35.2	35.2
Actuated g/C Ratio	0.54	0.54		0.30	0.30	0.30	0.33	0.27		0.33	0.27	0.27
Clearance Time (s)	5.0	6.0		6.0	6.0	6.0	4.5	7.0		4.5	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	426	2541		46	1462	410	188	805		374	915	413
v/s Ratio Prot	c0.18	0.42			0.20		c0.04	0.09		0.03	c0.17	
v/s Ratio Perm	c0.31			0.14		0.02	0.15			0.12		0.06
v/c Ratio	0.91	0.77		0.48	0.66	0.07	0.57	0.34		0.44	0.64	0.23
Uniform Delay, d1	31.3	23.7		36.9	39.4	32.2	32.3	38.2		32.6	41.8	36.9
Progression Factor	1.72	1.27		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	18.4	1.7		31.6	2.4	0.4	4.2	1.2		0.8	3.4	1.3
Delay (s)	72.1	31.8		68.5	41.8	32.6	36.5	39.4		33.4	45.2	38.1
Level of Service	E	C		E	D	C	D	D		C	D	D
Approach Delay (s)		38.3			41.5			38.6			41.2	
Approach LOS		D			D			D			D	

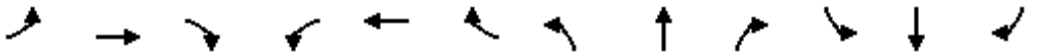
Intersection Summary			
HCM 2000 Control Delay	39.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	114.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	30	34	41	103	58	652	63	352	1077	118
v/c Ratio	0.21	0.19	0.45	0.55	0.20	0.31	0.06	0.53	0.41	0.10
Control Delay	52.0	25.5	76.6	26.0	15.2	12.6	0.7	7.4	6.5	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.0	25.5	76.6	26.0	15.2	12.6	0.7	7.4	6.5	1.1
Queue Length 50th (m)	7.1	2.2	11.1	2.9	6.6	42.7	0.0	24.2	52.0	0.0
Queue Length 95th (m)	15.9	12.0	23.0	20.7	17.5	64.7	1.8	39.7	71.6	5.3
Internal Link Dist (m)		227.1		217.9		237.2			341.3	
Turn Bay Length (m)	71.0		74.0		72.4		69.0	160.0		65.0
Base Capacity (vph)	146	334	213	312	292	2100	1005	813	2647	1216
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.10	0.19	0.33	0.20	0.31	0.06	0.43	0.41	0.10

Intersection Summary



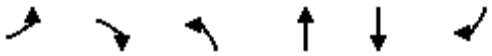
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	8	23	38	10	85	53	600	58	324	991	109
Future Volume (vph)	28	8	23	38	10	85	53	600	58	324	991	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.5		7.5	7.5		7.5	7.5	7.5	4.0	7.5	7.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	0.96	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.89		1.00	0.87		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1630	1320		1714	1464		1600	3202	1480	1803	3411	1533
Flt Permitted	0.45	1.00		0.73	1.00		0.27	1.00	1.00	0.37	1.00	1.00
Satd. Flow (perm)	775	1320		1326	1464		447	3202	1480	700	3411	1533
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	9	25	41	11	92	58	652	63	352	1077	118
RTOR Reduction (vph)	0	22	0	0	86	0	0	0	22	0	0	28
Lane Group Flow (vph)	30	12	0	41	17	0	58	652	41	352	1077	90
Confl. Peds. (#/hr)			2	2			1		5	5		1
Heavy Vehicles (%)	12%	0%	38%	6%	11%	14%	14%	14%	6%	1%	7%	4%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	18.1	18.1		9.7	9.7		90.1	90.1	90.1	106.9	106.9	106.9
Effective Green, g (s)	18.1	18.1		9.7	9.7		90.1	90.1	90.1	106.9	106.9	106.9
Actuated g/C Ratio	0.13	0.13		0.07	0.07		0.64	0.64	0.64	0.76	0.76	0.76
Clearance Time (s)	4.5	7.5		7.5	7.5		7.5	7.5	7.5	4.0	7.5	7.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	124	170		91	101		287	2060	952	635	2604	1170
v/s Ratio Prot	c0.01	0.01			0.01			0.20		c0.05	0.32	
v/s Ratio Perm	0.02			c0.03			0.13		0.03	c0.37		0.06
v/c Ratio	0.24	0.07		0.45	0.17		0.20	0.32	0.04	0.55	0.41	0.08
Uniform Delay, d1	54.2	53.6		62.6	61.4		10.2	11.2	9.1	5.3	5.7	4.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.2		3.5	0.8		1.6	0.4	0.1	1.1	0.5	0.1
Delay (s)	55.2	53.7		66.1	62.2		11.8	11.6	9.2	6.4	6.2	4.3
Level of Service	E	D		E	E		B	B	A	A	A	A
Approach Delay (s)		54.4			63.3			11.4			6.1	
Approach LOS		D			E			B			A	

Intersection Summary			
HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	484	230	602	1348
v/c Ratio	0.75	0.76	0.26	0.54
Control Delay	50.6	52.8	7.6	9.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	50.6	52.8	7.6	9.3
Queue Length 50th (m)	54.2	47.1	25.3	85.8
Queue Length 95th (m)	66.3	72.7	42.4	123.3
Internal Link Dist (m)	312.9		189.6	346.5
Turn Bay Length (m)		141.0		
Base Capacity (vph)	957	429	2302	2501
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	0.51	0.54	0.26	0.54

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	258	399	0	554	1240	0
Future Volume (vph)	258	399	0	554	1240	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.0	7.0	
Lane Util. Factor	0.97	0.91		0.95	0.95	
Frt	0.94	0.85		1.00	1.00	
Flt Protected	0.97	1.00		1.00	1.00	
Satd. Flow (prot)	3215	1363		3230	3510	
Flt Permitted	0.97	1.00		1.00	1.00	
Satd. Flow (perm)	3215	1363		3230	3510	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	280	434	0	602	1348	0
RTOR Reduction (vph)	47	47	0	0	0	0
Lane Group Flow (vph)	437	183	0	602	1348	0
Heavy Vehicles (%)	3%	9%	0%	13%	4%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	24.3	24.3		92.7	92.7	
Effective Green, g (s)	24.3	24.3		92.7	92.7	
Actuated g/C Ratio	0.19	0.19		0.71	0.71	
Clearance Time (s)	6.0	6.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	600	254		2303	2502	
v/s Ratio Prot	c0.14			0.19	c0.38	
v/s Ratio Perm		0.13				
v/c Ratio	0.73	0.72		0.26	0.54	
Uniform Delay, d1	49.7	49.7		6.6	8.7	
Progression Factor	1.00	1.00		1.00	0.90	
Incremental Delay, d2	4.4	9.4		0.3	0.7	
Delay (s)	54.1	59.0		6.9	8.5	
Level of Service	D	E		A	A	
Approach Delay (s)	55.7			6.9	8.5	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	20.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	466	215	805	1455
v/c Ratio	0.77	0.50	0.31	0.56
Control Delay	56.3	9.6	4.4	9.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	56.3	9.6	4.4	9.2
Queue Length 50th (m)	55.8	0.0	21.5	77.2
Queue Length 95th (m)	70.0	22.3	30.5	113.1
Internal Link Dist (m)	307.9		346.5	91.4
Turn Bay Length (m)		99.0		
Base Capacity (vph)	837	518	2587	2587
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	0.56	0.42	0.31	0.56

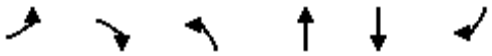
Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	331	295	741	0	0	1339
Future Volume (vph)	331	295	741	0	0	1339
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5			5.5
Lane Util. Factor	0.97	0.91	0.95			0.95
Frt	0.97	0.85	1.00			1.00
Flt Protected	0.96	1.00	1.00			1.00
Satd. Flow (prot)	3260	1429	3510			3510
Flt Permitted	0.96	1.00	1.00			1.00
Satd. Flow (perm)	3260	1429	3510			3510
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	360	321	805	0	0	1455
RTOR Reduction (vph)	24	177	0	0	0	0
Lane Group Flow (vph)	442	38	805	0	0	1455
Heavy Vehicles (%)	7%	4%	4%	0%	0%	4%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	23.2	23.2	95.8			95.8
Effective Green, g (s)	23.2	23.2	95.8			95.8
Actuated g/C Ratio	0.18	0.18	0.74			0.74
Clearance Time (s)	5.5	5.5	5.5			5.5
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	581	255	2586			2586
v/s Ratio Prot	c0.14		0.23			c0.41
v/s Ratio Perm		0.03				
v/c Ratio	0.76	0.15	0.31			0.56
Uniform Delay, d1	50.8	45.1	5.8			7.7
Progression Factor	1.00	1.00	0.65			1.00
Incremental Delay, d2	5.8	0.3	0.3			0.9
Delay (s)	56.6	45.4	4.1			8.6
Level of Service	E	D	A			A
Approach Delay (s)	53.1		4.1			8.6
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBT	SBT	SBR
Lane Group Flow (vph)	16	4	775	1548	113
v/c Ratio	0.09	0.02	0.23	0.46	0.07
Control Delay	25.1	16.8	1.0	1.6	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	25.1	16.8	1.0	1.6	0.5
Queue Length 50th (m)	1.6	0.0	0.0	0.0	0.0
Queue Length 95th (m)	6.2	2.2	16.2	43.3	2.6
Internal Link Dist (m)	120.6		341.3	189.6	
Turn Bay Length (m)		75.0			50.0
Base Capacity (vph)	536	483	3386	3386	1521
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.03	0.01	0.23	0.46	0.07

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	4	0	713	1424	104
Future Volume (vph)	15	4	0	713	1424	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	1789	1601		3579	3579	1601
Flt Permitted	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	1789	1601		3579	3579	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	4	0	775	1548	113
RTOR Reduction (vph)	0	4	0	0	0	20
Lane Group Flow (vph)	16	0	0	775	1548	93
Turn Type	Prot	Perm		NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4				6
Actuated Green, G (s)	1.4	1.4		49.6	49.6	49.6
Effective Green, g (s)	1.4	1.4		49.6	49.6	49.6
Actuated g/C Ratio	0.02	0.02		0.83	0.83	0.83
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	41	37		2958	2958	1323
v/s Ratio Prot	c0.01			0.22	c0.43	
v/s Ratio Perm		0.00				0.06
v/c Ratio	0.39	0.00		0.26	0.52	0.07
Uniform Delay, d1	28.9	28.6		1.2	1.6	1.0
Progression Factor	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	6.0	0.0		0.2	0.7	0.1
Delay (s)	34.9	28.6		1.4	2.3	1.1
Level of Service	C	C		A	A	A
Approach Delay (s)	33.7			1.4	2.2	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	2.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

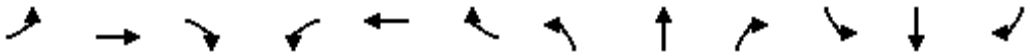
Lane Group	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	43	1316	2	1100
v/c Ratio	0.20	0.42	0.00	0.35
Control Delay	13.3	2.6	2.0	2.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	13.3	2.6	2.0	2.2
Queue Length 50th (m)	0.9	0.0	0.0	0.0
Queue Length 95th (m)	7.7	36.6	0.4	28.1
Internal Link Dist (m)		531.5		154.7
Turn Bay Length (m)			50.0	
Base Capacity (vph)	546	3152	1410	3152
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	0.08	0.42	0.00	0.35

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	40	1211	2	0	1012
Future Volume (vph)	0	40	1211	2	0	1012
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5		4.5
Lane Util. Factor		1.00	0.95	1.00		0.95
Frt		0.85	1.00	0.85		1.00
Flt Protected		1.00	1.00	1.00		1.00
Satd. Flow (prot)		1601	3579	1601		3579
Flt Permitted		1.00	1.00	1.00		1.00
Satd. Flow (perm)		1601	3579	1601		3579
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	43	1316	2	0	1100
RTOR Reduction (vph)	0	31	0	0	0	0
Lane Group Flow (vph)	0	12	1316	2	0	1100
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2			6
Permitted Phases		8		2	6	
Actuated Green, G (s)		3.0	43.0	43.0		43.0
Effective Green, g (s)		3.0	43.0	43.0		43.0
Actuated g/C Ratio		0.05	0.78	0.78		0.78
Clearance Time (s)		4.5	4.5	4.5		4.5
Vehicle Extension (s)		3.0	3.0	3.0		3.0
Lane Grp Cap (vph)		87	2798	1251		2798
v/s Ratio Prot			c0.37			0.31
v/s Ratio Perm		c0.01		0.00		
v/c Ratio		0.14	0.47	0.00		0.39
Uniform Delay, d1		24.8	2.1	1.3		1.9
Progression Factor		1.00	1.00	1.00		1.00
Incremental Delay, d2		0.7	0.6	0.0		0.4
Delay (s)		25.5	2.6	1.3		2.3
Level of Service		C	A	A		A
Approach Delay (s)	25.5		2.6			2.3
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	2.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	45.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



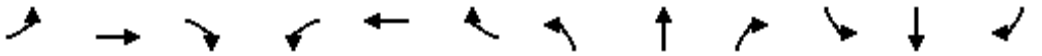
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	135	1326	263	118	1175	72	225	1110	129	189	839	72
v/c Ratio	0.97	0.68	0.44	0.56	0.91	0.10	0.88	0.94	0.24	1.07	0.87	0.14
Control Delay	130.4	35.9	11.8	48.4	48.2	5.5	62.0	57.5	10.3	115.1	55.8	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	130.4	35.9	11.8	48.4	48.2	5.5	62.0	57.5	10.3	115.1	55.8	0.8
Queue Length 50th (m)	18.1	103.2	13.7	16.2	163.5	0.9	38.3	144.8	4.9	~35.4	108.4	0.0
Queue Length 95th (m)	#39.0	119.7	36.7	m17.1	m173.5	m1.1	#83.1	#186.5	19.1	#83.3	#141.2	0.9
Internal Link Dist (m)		111.7			819.7			134.5			531.5	
Turn Bay Length (m)	85.0		50.0	85.0			55.0			120.0		80.0
Base Capacity (vph)	139	1964	600	217	1289	687	259	1183	531	177	962	517
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.97	0.68	0.44	0.54	0.91	0.10	0.87	0.94	0.24	1.07	0.87	0.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

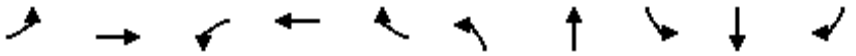
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	1220	242	109	1081	66	207	1021	119	174	772	66
Future Volume (vph)	124	1220	242	109	1081	66	207	1021	119	174	772	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	8.0	8.0	4.0	8.0	8.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.94	1.00	1.00	0.94	1.00	1.00	0.93	1.00	1.00	0.93
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3026	5193	1289	3541	3288	1530	1659	3579	1401	1825	3444	1527
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.12	1.00	1.00	0.11	1.00	1.00
Satd. Flow (perm)	3026	5193	1289	3541	3288	1530	202	3579	1401	212	3444	1527
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)	135	1326	263	118	1175	72	225	1110	129	189	839	72
RTOR Reduction (vph)	0	0	113	0	0	44	0	0	68	0	0	52
Lane Group Flow (vph)	135	1326	150	118	1175	28	225	1110	61	189	839	20
Confl. Peds. (#/hr)	24		23	23		24	25		25	25		25
Heavy Vehicles (%)	17%	1%	19%	0%	11%	0%	10%	2%	9%	0%	6%	0%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6	4		4	8		8
Actuated Green, G (s)	6.0	49.2	49.2	7.8	51.0	51.0	55.0	43.0	43.0	44.3	36.3	36.3
Effective Green, g (s)	6.0	49.2	49.2	7.8	51.0	51.0	55.0	43.0	43.0	44.3	36.3	36.3
Actuated g/C Ratio	0.05	0.38	0.38	0.06	0.39	0.39	0.42	0.33	0.33	0.34	0.28	0.28
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	4.0	8.0	8.0	4.0	8.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	139	1965	487	212	1289	600	250	1183	463	171	961	426
v/s Ratio Prot	c0.04	0.26		0.03	c0.36		c0.10	0.31		c0.07	0.24	
v/s Ratio Perm			0.12			0.02	0.28		0.04	c0.31		0.01
v/c Ratio	0.97	0.67	0.31	0.56	0.91	0.05	0.90	0.94	0.13	1.11	0.87	0.05
Uniform Delay, d1	61.9	33.7	28.4	59.4	37.4	24.5	32.2	42.2	30.4	36.9	44.7	34.2
Progression Factor	1.00	1.00	1.00	0.75	1.16	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	67.2	1.9	1.6	1.1	4.5	0.1	31.9	15.0	0.6	99.8	10.8	0.2
Delay (s)	129.1	35.6	30.1	45.8	47.9	24.5	64.0	57.2	31.0	136.8	55.5	34.4
Level of Service	F	D	C	D	D	C	E	E	C	F	E	C
Approach Delay (s)		42.1			46.5			56.0			68.1	
Approach LOS		D			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	51.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	94.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



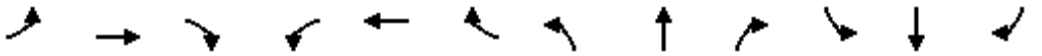
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	340	1523	43	1885	212	204	801	116	405	697
v/c Ratio	1.03	0.59	0.42	0.93	0.35	0.62	0.86	0.68	0.43	1.05
Control Delay	102.5	24.8	46.4	49.5	16.6	40.3	55.2	48.2	39.7	74.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	102.5	24.8	46.4	49.5	16.6	40.3	55.2	48.2	39.7	74.9
Queue Length 50th (m)	~83.4	76.7	8.2	154.0	18.8	36.1	102.4	19.5	42.4	~133.7
Queue Length 95th (m)	m#130.9	m96.6	21.3	#175.1	39.0	55.7	#128.6	#34.8	56.9	#207.2
Internal Link Dist (m)		819.7		213.0			219.6		237.2	
Turn Bay Length (m)	87.0		194.0		27.0	52.0		93.6		60.0
Base Capacity (vph)	331	2601	103	2022	604	330	933	171	934	662
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.03	0.59	0.42	0.93	0.35	0.62	0.86	0.68	0.43	1.05

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

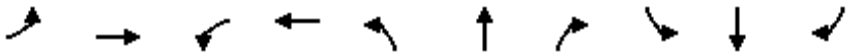
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	313	1224	178	40	1734	195	188	690	47	107	373	641
Future Volume (vph)	313	1224	178	40	1734	195	188	690	47	107	373	641
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.0		6.0	6.0	6.0	3.5	7.0		4.5	7.0	7.0
Lane Util. Factor	1.00	0.91		1.00	*1.00	1.00	1.00	0.95		1.00	*1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.94	1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		0.99	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1772	4803		1727	5595	1486	1653	3437		1789	3284	1543
Flt Permitted	0.08	1.00		0.16	1.00	1.00	0.48	1.00		0.12	1.00	1.00
Satd. Flow (perm)	146	4803		288	5595	1486	837	3437		235	3284	1543
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)	340	1330	193	43	1885	212	204	750	51	116	405	697
RTOR Reduction (vph)	0	15	0	0	0	67	0	4	0	0	0	223
Lane Group Flow (vph)	340	1508	0	43	1885	145	204	797	0	116	405	474
Confl. Peds. (#/hr)	24		25	25		24	7		21	21		7
Heavy Vehicles (%)	3%	7%	1%	5%	3%	3%	10%	5%	2%	2%	17%	3%
Turn Type	pm+pt	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2			6		3	8		7	4	
Permitted Phases	2			6		6	8			4		4
Actuated Green, G (s)	70.0	70.0		47.0	47.0	47.0	40.7	35.2		44.3	37.0	37.0
Effective Green, g (s)	71.0	70.0		47.0	47.0	47.0	42.7	35.2		44.3	37.0	37.0
Actuated g/C Ratio	0.55	0.54		0.36	0.36	0.36	0.33	0.27		0.34	0.28	0.28
Clearance Time (s)	4.0	6.0		6.0	6.0	6.0	4.5	7.0		4.5	7.0	7.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	329	2586		104	2022	537	315	930		167	934	439
v/s Ratio Prot	c0.16	0.31			0.34		0.03	0.23		c0.04	0.12	
v/s Ratio Perm	c0.40			0.15		0.10	0.18			0.20		c0.31
v/c Ratio	1.03	0.58		0.41	0.93	0.27	0.65	0.86		0.69	0.43	1.08
Uniform Delay, d1	42.1	20.2		31.2	40.0	29.4	35.7	45.0		32.9	37.9	46.5
Progression Factor	1.44	1.21		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	53.2	0.8		11.7	9.4	1.2	4.5	10.1		11.8	1.5	65.9
Delay (s)	113.6	25.1		42.8	49.3	30.6	40.2	55.1		44.7	39.4	112.4
Level of Service	F	C		D	D	C	D	E		D	D	F
Approach Delay (s)		41.3			47.3			52.1			81.7	
Approach LOS		D			D			D			F	

Intersection Summary			
HCM 2000 Control Delay	53.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	107.5%	ICU Level of Service	G
Analysis Period (min)	15		

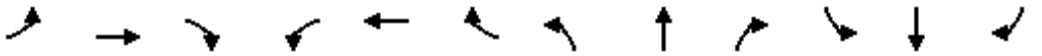
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	101	128	108	573	43	1314	22	93	937	25
v/c Ratio	0.71	0.18	0.27	0.98	0.22	0.88	0.03	0.72	0.57	0.04
Control Delay	52.6	11.0	37.3	68.8	29.9	45.2	0.1	50.7	26.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.6	11.0	37.3	68.8	29.9	45.2	0.1	50.7	26.7	0.1
Queue Length 50th (m)	16.8	7.6	22.1	129.8	7.5	175.2	0.0	12.9	95.1	0.0
Queue Length 95th (m)	#37.6	20.6	38.3	#205.2	17.3	206.8	0.0	#36.8	115.4	0.0
Internal Link Dist (m)		227.1		217.9		237.2			341.3	
Turn Bay Length (m)	71.0		74.0		72.4		69.0	160.0		65.0
Base Capacity (vph)	142	723	411	599	198	1494	717	129	1638	635
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.18	0.26	0.96	0.22	0.88	0.03	0.72	0.57	0.04

Intersection Summary

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



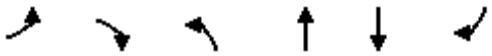
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	40	78	99	14	513	40	1209	20	86	862	23
Future Volume (vph)	93	40	78	99	14	513	40	1209	20	86	862	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	7.5		7.5	7.5		7.5	7.5	7.5	4.0	7.5	7.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.98		1.00	1.00	0.96	1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.90		1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1807	1656		1765	1580		1731	3544	1563	1722	3318	1217
Flt Permitted	0.08	1.00		0.67	1.00		0.26	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	156	1656		1254	1580		471	3544	1563	116	3318	1217
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)	101	43	85	108	15	558	43	1314	22	93	937	25
RTOR Reduction (vph)	0	50	0	0	83	0	0	0	13	0	0	13
Lane Group Flow (vph)	101	78	0	108	490	0	43	1314	9	93	937	12
Confl. Peds. (#/hr)	2		2	2		2	5		6	6		5
Heavy Vehicles (%)	1%	0%	5%	3%	8%	2%	5%	3%	0%	6%	10%	29%
Turn Type	pm+pt	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4			8			2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	55.2	55.2		44.2	44.2		58.5	58.5	58.5	68.5	68.5	68.5
Effective Green, g (s)	55.2	55.2		44.2	44.2		58.5	58.5	58.5	68.5	68.5	68.5
Actuated g/C Ratio	0.40	0.40		0.32	0.32		0.42	0.42	0.42	0.49	0.49	0.49
Clearance Time (s)	4.5	7.5		7.5	7.5		7.5	7.5	7.5	4.0	7.5	7.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	139	659		399	503		198	1494	659	126	1638	601
v/s Ratio Prot	c0.03	0.05			c0.31			c0.37		c0.03	0.28	
v/s Ratio Perm	0.25			0.09			0.09		0.01	0.33		0.01
v/c Ratio	0.73	0.12		0.27	0.97		0.22	0.88	0.01	0.74	0.57	0.02
Uniform Delay, d1	33.4	26.4		35.2	46.7		25.5	36.9	23.3	28.6	24.8	17.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	17.2	0.1		0.4	33.2		2.5	7.7	0.0	20.0	1.5	0.1
Delay (s)	50.6	26.5		35.6	79.9		28.0	44.6	23.4	48.6	26.2	18.0
Level of Service	D	C		D	E		C	D	C	D	C	B
Approach Delay (s)		37.1			72.9			43.7			28.0	
Approach LOS		D			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	44.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	138.7	Sum of lost time (s)	23.5
Intersection Capacity Utilization	95.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	320	102	1634	745
v/c Ratio	0.70	0.39	0.59	0.28
Control Delay	61.7	13.3	7.9	5.3
Queue Delay	0.0	0.0	0.8	0.0
Total Delay	61.7	13.3	8.6	5.3
Queue Length 50th (m)	40.7	0.0	80.7	42.0
Queue Length 95th (m)	54.1	17.0	113.2	30.4
Internal Link Dist (m)	312.9		189.6	346.5
Turn Bay Length (m)		141.0		
Base Capacity (vph)	633	323	2770	2615
Starvation Cap Reductn	0	0	734	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.51	0.32	0.80	0.28

Intersection Summary

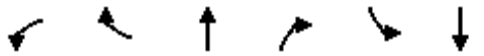


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	284	104	0	1503	685	0
Future Volume (vph)	284	104	0	1503	685	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.0	7.0	
Lane Util. Factor	0.97	0.91		0.95	0.95	
Frt	0.99	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	3421	1303		3614	3411	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	3421	1303		3614	3411	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	309	113	0	1634	745	0
RTOR Reduction (vph)	2	88	0	0	0	0
Lane Group Flow (vph)	318	14	0	1634	745	0
Heavy Vehicles (%)	3%	14%	0%	1%	7%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	17.3	17.3		99.7	99.7	
Effective Green, g (s)	17.3	17.3		99.7	99.7	
Actuated g/C Ratio	0.13	0.13		0.77	0.77	
Clearance Time (s)	6.0	6.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	455	173		2771	2615	
v/s Ratio Prot	c0.09			c0.45	0.22	
v/s Ratio Perm		0.01				
v/c Ratio	0.70	0.08		0.59	0.28	
Uniform Delay, d1	53.9	49.4		6.4	4.5	
Progression Factor	1.00	1.00		1.00	1.04	
Incremental Delay, d2	4.7	0.2		0.9	0.3	
Delay (s)	58.5	49.6		7.4	5.0	
Level of Service	E	D		A	A	
Approach Delay (s)	56.4			7.4	5.0	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	63.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	434	242	1423	947
v/c Ratio	0.71	0.78	0.54	0.36
Control Delay	49.9	56.4	7.3	7.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	49.9	56.4	7.3	7.4
Queue Length 50th (m)	48.4	52.5	55.6	39.8
Queue Length 95th (m)	59.8	77.8	89.5	66.4
Internal Link Dist (m)	307.9		346.5	91.4
Turn Bay Length (m)		99.0		
Base Capacity (vph)	935	461	2626	2626
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	0.46	0.52	0.54	0.36

Intersection Summary

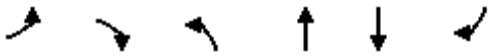


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	177	445	1309	0	0	871
Future Volume (vph)	177	445	1309	0	0	871
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5			5.5
Lane Util. Factor	0.97	0.91	0.95			0.95
Frt	0.92	0.85	1.00			1.00
Flt Protected	0.98	1.00	1.00			1.00
Satd. Flow (prot)	3117	1471	3579			3579
Flt Permitted	0.98	1.00	1.00			1.00
Satd. Flow (perm)	3117	1471	3579			3579
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	192	484	1423	0	0	947
RTOR Reduction (vph)	43	43	0	0	0	0
Lane Group Flow (vph)	391	199	1423	0	0	947
Heavy Vehicles (%)	15%	1%	2%	0%	0%	2%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	23.6	23.6	95.4			95.4
Effective Green, g (s)	23.6	23.6	95.4			95.4
Actuated g/C Ratio	0.18	0.18	0.73			0.73
Clearance Time (s)	5.5	5.5	5.5			5.5
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	565	267	2626			2626
v/s Ratio Prot	0.13		c0.40			0.26
v/s Ratio Perm		c0.14				
v/c Ratio	0.69	0.75	0.54			0.36
Uniform Delay, d1	49.8	50.4	7.6			6.3
Progression Factor	1.00	1.00	0.77			1.00
Incremental Delay, d2	3.7	10.8	0.7			0.4
Delay (s)	53.5	61.2	6.6			6.6
Level of Service	D	E	A			A
Approach Delay (s)	56.2		6.6			6.6
Approach LOS	E		A			A

Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	63.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBT	SBT	SBR
Lane Group Flow (vph)	50	13	1973	1055	32
v/c Ratio	0.26	0.07	0.65	0.35	0.02
Control Delay	30.7	14.6	4.9	2.6	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	30.7	14.6	4.9	2.6	1.1
Queue Length 50th (m)	6.6	0.0	50.9	17.3	0.0
Queue Length 95th (m)	13.8	4.1	85.4	28.4	1.6
Internal Link Dist (m)	120.6		341.3	189.6	
Turn Bay Length (m)		75.0			50.0
Base Capacity (vph)	481	440	3045	3045	1367
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.10	0.03	0.65	0.35	0.02

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	46	12	0	1815	971	29
Future Volume (vph)	46	12	0	1815	971	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	1789	1601		3579	3579	1601
Flt Permitted	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	1789	1601		3579	3579	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	50	13	0	1973	1055	32
RTOR Reduction (vph)	0	12	0	0	0	6
Lane Group Flow (vph)	50	1	0	1973	1055	26
Turn Type	Prot	Perm		NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4				6
Actuated Green, G (s)	4.9	4.9		55.3	55.3	55.3
Effective Green, g (s)	4.9	4.9		55.3	55.3	55.3
Actuated g/C Ratio	0.07	0.07		0.80	0.80	0.80
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	126	113		2860	2860	1279
v/s Ratio Prot	c0.03			c0.55	0.29	
v/s Ratio Perm		0.00				0.02
v/c Ratio	0.40	0.01		0.69	0.37	0.02
Uniform Delay, d1	30.7	29.9		3.1	2.0	1.4
Progression Factor	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.1	0.0		1.4	0.4	0.0
Delay (s)	32.8	29.9		4.5	2.3	1.4
Level of Service	C	C		A	A	A
Approach Delay (s)	32.2			4.5	2.3	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	4.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	69.2	Sum of lost time (s)	9.0
Intersection Capacity Utilization	61.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Appendix E – Turning Movement Counts

City of Toronto - Traffic Safety Unit

Turning Movement Count Summary Report

ISLINGTON AVE AT STEELES AVE (PX 1208)

Survey Date: 2013-May-28 (Tuesday)

Survey Type: Routine Hours

Time Period	Vehicle Type	NORTHBOUND Exits	Left	Thru	Right	Total	EASTBOUND Exits	Left	Thru	Right	Total	SOUTHBOUND Exits	Left	Thru	Right	Total	WESTBOUND Exits	Left	Thru	Right	Total		Peds	Bike	Other
07:30-08:30	CAR	507	189	353	135	677	1,465	88	1,102	98	1,288	1,253	228	992	73	1,293	1,005	163	743	66	972	N	64	0	0
	TRK	34	10	21	6	37	92	12	84	8	104	54	2	45	0	47	86	1	76	1	78	S	11	0	0
AM PEAK	BUS	10	13	9	0	22	22	1	22	10	33	33	0	23	0	23	30	0	17	0	17	E	51	0	0
																						W	10	0	0
	TOTAL:	**551**	**212**	**383**	**141**	**736**	**1,579**	**101**	**1,208**	**116**	**1,425**	**1,340**	**230**	**1,060**	**73**	**1,363**	**1,121**	**164**	**836**	**67**	**1,067**				
17:00-18:00	CAR	1,051	166	899	97	1,162	1,224	92	971	198	1,261	941	156	651	60	867	1,096	92	870	60	1,022	N	24	0	0
	TRK	24	9	13	8	30	117	11	109	12	132	34	0	22	0	22	77	0	68	0	68	S	23	0	0
PM PEAK	BUS	9	10	1	2	13	16	8	14	7	29	26	0	19	0	19	41	0	31	0	31	E	25	0	0
																						W	25	0	0
	TOTAL:	**1,084**	**185**	**913**	**107**	**1,205**	**1,357**	**111**	**1,094**	**217**	**1,422**	**1,001**	**156**	**692**	**60**	**908**	**1,214**	**92**	**969**	**60**	**1,121**				
OFF HR AVG	CAR	452	177	292	109	578	924	77	701	146	924	777	114	536	55	705	886	95	654	83	832	N	19	0	0
	TRK	26	11	15	13	39	149	10	135	15	160	51	1	35	0	36	85	1	74	1	76	S	25	0	0
	BUS	6	7	0	0	7	12	6	12	8	26	15	0	7	0	7	23	0	16	0	16	E	21	0	0
																						W	26	0	0
	TOTAL:	**484**	**195**	**307**	**122**	**624**	**1,085**	**93**	**848**	**169**	**1,110**	**843**	**115**	**578**	**55**	**748**	**994**	**96**	**744**	**84**	**924**				
07:30-09:30	CAR	867	318	590	225	1,133	2,675	152	1,992	265	2,409	2,492	458	2,001	107	2,566	1,821	226	1,396	125	1,747	N	100	0	0
	TRK	50	21	30	17	68	192	19	172	14	205	98	3	83	0	86	179	1	158	1	160	S	11	0	0
2 HR AM	BUS	21	24	12	1	37	39	9	38	16	63	58	0	42	0	42	70	0	46	0	46	E	80	0	0
																						W	16	0	0
	TOTAL:	**938**	**363**	**632**	**243**	**1,238**	**2,906**	**180**	**2,202**	**295**	**2,677**	**2,648**	**461**	**2,126**	**107**	**2,694**	**2,070**	**227**	**1,600**	**126**	**1,953**				
16:00-18:00	CAR	1,839	339	1,546	230	2,115	2,295	178	1,773	347	2,298	1,772	292	1,243	134	1,669	2,025	182	1,552	115	1,849	N	48	0	0
	TRK	59	16	40	22	78	332	19	310	24	353	76	0	52	0	52	140	0	124	0	124	S	73	0	0
2 HR PM	BUS	17	17	2	3	22	31	15	28	14	57	57	0	43	0	43	81	0	64	0	64	E	35	0	0
																						W	69	0	0
	TOTAL:	**1,915**	**372**	**1,588**	**255**	**2,215**	**2,658**	**212**	**2,111**	**385**	**2,708**	**1,905**	**292**	**1,338**	**134**	**1,764**	**2,246**	**182**	**1,740**	**115**	**2,037**				
07:30-18:00	CAR	4,508	1,366	3,302	891	5,559	8,662	636	6,567	1,194	8,397	7,369	1,204	5,389	461	7,054	7,390	786	5,563	570	6,919	N	225	0	0
	TRK	208	79	129	89	297	1,117	76	1,020	96	1,192	374	8	275	0	283	655	3	576	3	582	S	184	1	0
8 HR SUM	BUS	64	68	15	4	87	117	49	113	60	222	174	0	114	0	114	240	0	172	0	172	E	200	0	0
																						W	189	0	0
	TOTAL:	**4,780**	**1,513**	**3,446**	**984**	**5,943**	**9,896**	**761**	**7,700**	**1,350**	**9,811**	**7,917**	**1,212**	**5,778**	**461**	**7,451**	**8,285**	**789**	**6,311**	**573**	**7,673**				

Total 8 Hour Vehicle Volume: 30,878

Total 8 Hour Bicycle Volume: 1

Total 8 Hour Intersection Volume: 30,879

Comment:

Printed On: 26 Jul, 2017 2:43:47PM

City of Toronto - Traffic Safety Unit

Intersection Detailed 15 Minutes Movement Report

ISLINGTON AVE AT STEELES AVE (PX 1208) **Survey Date:** May-28-2013 (Tuesday)

Survey Type: Routine Hours

Time Period		NORTH BOUND			EAST BOUND			SOUTH BOUND			WEST BOUND		
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
07:45	CARS	62	32	42	287	19	19	240	20	55	175	15	40
	DUALS	2	1	2	16	1	3	0	0	0	17	0	0
	BUSES	2	0	4	5	1	0	5	0	0	3	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		10	**East Side**		10	**South Side**		2	**West Side**		3
08:00	CARS	113	47	56	312	23	27	245	27	61	180	18	42
	DUALS	5	2	3	21	3	5	16	0	0	24	1	1
	BUSES	3	0	3	5	4	0	8	0	0	5	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		16	**East Side**		12	**South Side**		8	**West Side**		6
08:15	CARS	84	20	41	235	27	17	248	17	57	178	13	54
	DUALS	6	1	2	22	2	1	15	0	0	14	0	0
	BUSES	1	0	3	7	2	1	5	0	0	3	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		17	**East Side**		18	**South Side**		1	**West Side**		1
08:30	CARS	94	36	50	268	29	25	259	9	55	210	20	27
	DUALS	8	2	3	25	2	3	14	0	2	21	0	0
	BUSES	3	0	3	5	3	0	5	0	0	6	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		21	**East Side**		11	**South Side**		0	**West Side**		0
08:45	CARS	78	16	35	246	42	24	276	10	63	154	13	17
	DUALS	3	1	4	19	1	2	13	0	0	22	0	0
	BUSES	1	0	3	5	2	2	4	0	0	9	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		8	**East Side**		7	**South Side**		0	**West Side**		3
09:00	CARS	71	14	27	254	46	20	258	8	59	174	14	19
	DUALS	2	3	2	21	0	1	10	0	0	19	0	0
	BUSES	1	0	3	3	1	2	5	0	0	7	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		9	**East Side**		8	**South Side**		0	**West Side**		0
09:15	CARS	47	34	38	211	43	11	249	6	54	155	12	13
	DUALS	2	4	3	27	3	2	8	0	0	24	0	0
	BUSES	1	0	3	5	2	2	6	0	0	7	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		8	**East Side**		7	**South Side**		0	**West Side**		3

Intersection Detailed 15 Minutes Movement Report

ISLINGTON AVE AT STEELES AVE (PX 1208) **Survey Date:** May-28-2013 (Tuesday)

Survey Type: Routine Hours

Time Period		NORTH BOUND			EAST BOUND			SOUTH BOUND			WEST BOUND		
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
09:30	CARS	41	26	29	179	36	9	226	10	54	170	20	14
	DUALS	2	3	2	21	2	2	7	0	1	17	0	0
	BUSES	0	1	2	3	1	2	4	0	0	6	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		11	**East Side**		7	**South Side**		0	**West Side**		0
10:15	CARS	49	20	27	152	29	17	140	8	25	152	29	28
	DUALS	3	2	2	28	1	2	6	0	0	18	0	1
	BUSES	1	0	1	3	0	1	4	0	0	2	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		4	**East Side**		5	**South Side**		2	**West Side**		1
10:30	CARS	56	26	35	164	34	23	125	13	30	141	24	23
	DUALS	2	3	3	32	2	3	10	0	0	14	0	0
	BUSES	0	0	2	2	1	1	0	0	0	3	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		5	**East Side**		6	**South Side**		2	**West Side**		2
10:45	CARS	42	14	31	154	27	20	129	6	45	171	15	11
	DUALS	4	2	3	28	5	1	8	0	1	16	0	0
	BUSES	0	0	2	7	1	1	2	0	0	7	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		4	**East Side**		3	**South Side**		2	**West Side**		4
11:00	CARS	49	17	35	163	31	25	136	8	21	160	23	17
	DUALS	5	3	2	31	4	2	12	0	1	18	0	0
	BUSES	0	0	2	5	2	2	3	0	0	3	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		2	**East Side**		4	**South Side**		2	**West Side**		3
11:15	CARS	75	12	38	162	35	15	115	23	31	121	29	19
	DUALS	2	3	3	30	1	2	9	0	0	17	1	0
	BUSES	0	0	2	4	2	1	2	0	0	3	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		6	**East Side**		5	**South Side**		2	**West Side**		5
11:30	CARS	84	15	44	169	39	19	131	17	34	165	19	21
	DUALS	4	2	2	35	3	3	7	0	0	22	0	0
	BUSES	0	0	2	3	3	2	1	0	0	2	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		5	**East Side**		6	**South Side**		3	**West Side**		4

Intersection Detailed 15 Minutes Movement Report

ISLINGTON AVE AT STEELES AVE (PX 1208) **Survey Date:** May-28-2013 (Tuesday)

Survey Type: Routine Hours

Time Period		NORTH BOUND			EAST BOUND			SOUTH BOUND			WEST BOUND		
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
11:45	CARS	61	18	40	175	34	15	140	7	25	166	16	15
	DUALS	5	3	4	38	4	1	7	0	0	18	0	0
	BUSES	0	0	2	2	2	2	2	0	0	3	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		3	**East Side**		9	**South Side**		7	**West Side**		9
12:00	CARS	77	25	46	183	39	18	140	11	23	185	21	20
	DUALS	8	4	3	44	6	3	10	0	0	18	0	0
	BUSES	0	0	2	2	3	3	2	0	0	3	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		16	**East Side**		12	**South Side**		9	**West Side**		5
13:15	CARS	64	18	57	172	37	18	97	7	24	159	12	19
	DUALS	3	4	1	26	1	2	11	0	0	17	0	0
	BUSES	0	0	1	5	1	0	3	0	0	6	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		6	**East Side**		6	**South Side**		2	**West Side**		10
13:30	CARS	80	24	45	172	36	12	112	15	22	154	21	27
	DUALS	2	4	2	30	6	2	9	0	0	20	0	0
	BUSES	0	0	1	2	1	2	2	0	0	6	0	0
	BIKE (OTHER)		1	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		5	**East Side**		7	**South Side**		6	**West Side**		6
13:45	CARS	88	38	47	201	34	15	121	14	20	209	14	41
	DUALS	2	3	1	33	4	2	8	0	1	20	0	1
	BUSES	0	0	2	2	2	1	2	0	0	4	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		1	**East Side**		4	**South Side**		10	**West Side**		9
14:00	CARS	94	43	54	210	40	17	158	20	39	138	26	32
	DUALS	3	4	2	35	6	3	10	0	0	16	0	0
	BUSES	0	0	2	2	3	2	1	0	0	3	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		4	**East Side**		5	**South Side**		15	**West Side**		12
14:15	CARS	74	34	50	163	25	15	159	14	30	175	27	32
	DUALS	1	1	3	21	1	3	9	0	2	24	1	0
	BUSES	0	0	0	1	1	1	2	0	0	4	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		7	**East Side**		7	**South Side**		0	**West Side**		1

Intersection Detailed 15 Minutes Movement Report

ISLINGTON AVE AT STEELES AVE (PX 1208) **Survey Date:** May-28-2013 (Tuesday)

Survey Type: Routine Hours

Time Period		NORTH BOUND			EAST BOUND			SOUTH BOUND			WEST BOUND		
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
14:30	CARS	90	44	55	186	47	23	145	18	29	170	22	28
	DUALS	5	4	3	43	3	4	5	0	0	22	0	0
	BUSES	0	0	2	2	3	2	1	0	0	2	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		5	**East Side**		4	**South Side**		15	**West Side**		12
14:45	CARS	89	42	51	182	46	25	142	20	25	169	18	25
	DUALS	5	4	4	40	6	3	9	0	0	18	0	0
	BUSES	0	0	2	3	2	2	0	0	0	3	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		2	**East Side**		2	**South Side**		12	**West Side**		9
15:00	CARS	94	46	54	194	49	29	155	19	31	180	14	20
	DUALS	5	4	4	44	5	2	10	0	0	16	0	0
	BUSES	0	0	2	2	3	2	2	0	0	8	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		2	**East Side**		0	**South Side**		11	**West Side**		12
16:15	CARS	137	24	23	184	29	18	157	16	34	185	11	16
	DUALS	5	3	1	49	2	2	8	0	0	15	0	0
	BUSES	0	1	1	2	2	2	5	0	0	8	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		4	**East Side**		4	**South Side**		14	**West Side**		7
16:30	CARS	146	33	47	198	36	19	131	20	37	149	18	25
	DUALS	7	2	2	54	3	1	10	0	0	11	0	0
	BUSES	0	0	2	4	2	2	6	0	0	7	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		7	**East Side**		2	**South Side**		11	**West Side**		10
16:45	CARS	167	37	56	196	39	23	148	22	35	160	14	30
	DUALS	6	5	1	57	4	3	7	0	0	18	0	0
	BUSES	1	0	2	3	2	2	6	0	0	8	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		5	**East Side**		0	**South Side**		12	**West Side**		12
17:00	CARS	197	39	47	224	45	26	156	16	30	188	12	19
	DUALS	9	4	3	41	3	2	5	0	0	12	0	0
	BUSES	0	0	2	5	1	1	7	0	0	10	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		8	**East Side**		4	**South Side**		13	**West Side**		15

City of Toronto - Traffic Safety Unit

Intersection Detailed 15 Minutes Movement Report

ISLINGTON AVE AT STEELES AVE (PX 1208) **Survey Date:** May-28-2013 (Tuesday)

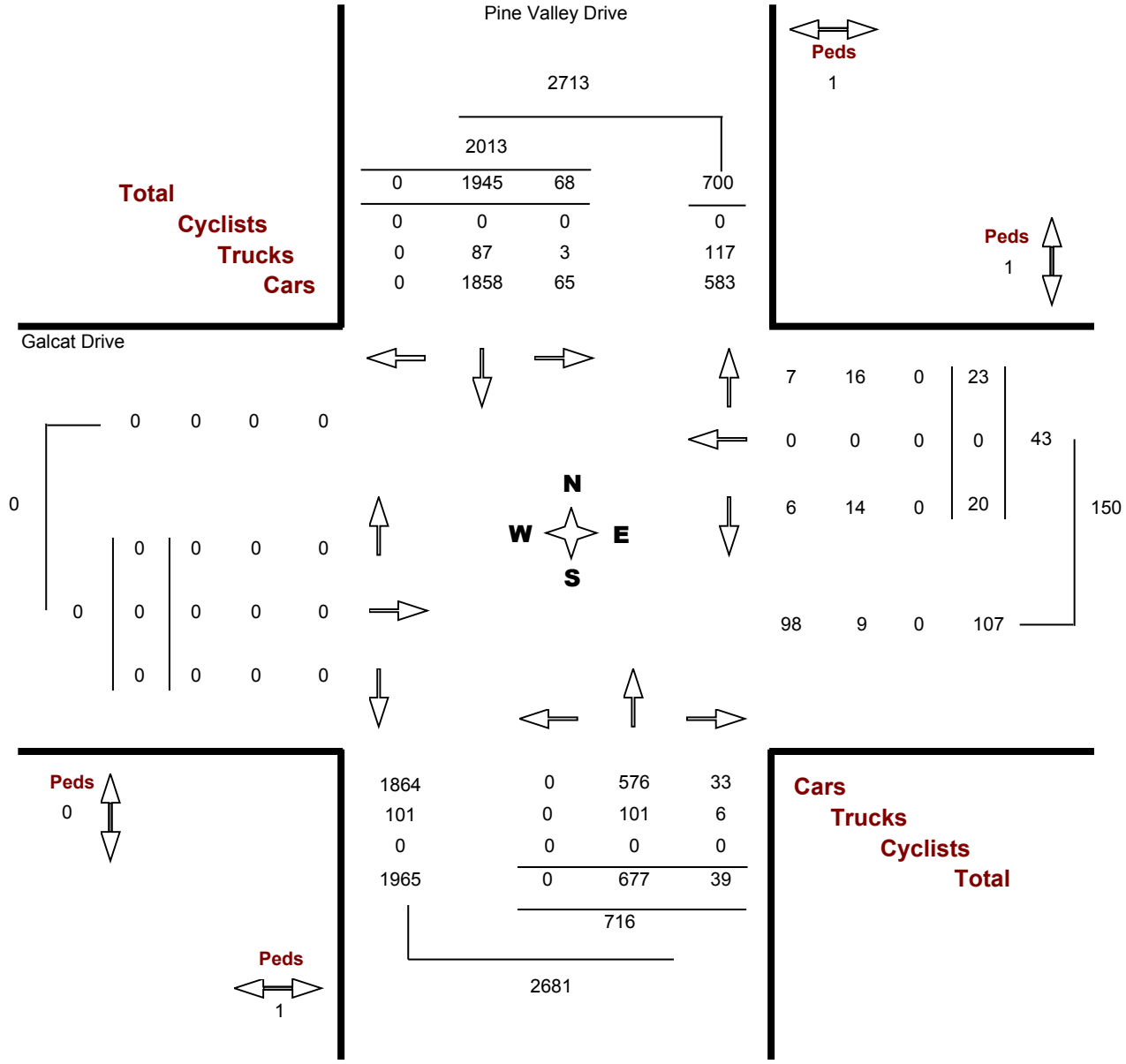
Survey Type: Routine Hours

Time Period		NORTH BOUND			EAST BOUND			SOUTH BOUND			WEST BOUND		
		Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
17:15	CARS	219	34	47	241	47	29	170	18	45	201	9	18
	DUALS	5	3	2	35	2	4	7	0	0	18	0	0
	BUSES	0	0	3	3	2	1	4	0	0	7	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		8	**East Side**		4	**South Side**		11	**West Side**		10
17:30	CARS	227	25	44	253	54	27	154	11	40	240	14	25
	DUALS	4	2	4	29	5	3	5	0	0	16	0	0
	BUSES	0	0	2	4	2	2	5	0	0	9	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		5	**East Side**		7	**South Side**		7	**West Side**		7
17:45	CARS	231	22	41	247	50	20	159	15	32	222	20	27
	DUALS	2	1	2	25	3	2	4	0	0	19	0	0
	BUSES	1	2	2	3	1	3	4	0	0	7	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		7	**East Side**		9	**South Side**		4	**West Side**		6
18:00	CARS	222	16	34	230	47	16	168	16	39	207	17	22
	DUALS	2	2	1	20	2	2	6	0	0	15	0	0
	BUSES	0	0	3	4	2	2	6	0	0	8	0	0
	BIKE (OTHER)		0	(0)		0	(0)		0	(0)	0	(0)	
	PEDS	**North Side**		4	**East Side**		5	**South Side**		1	**West Side**		2

Turning Movements Diagram
Peak Hour Report: AM Period

Location..... Pine Valley Drive & Galcat Drive
Municipality. Vaughan
Traffic Cont. Traffic signal
Major Dir..... None

GeoID..... F6A23A0B
Count Date. Wednesday, 16 January, 2008
Count Period. 07:00 AM — 09:00 AM
Peak Hour.... 08:00 AM — 09:00 AM

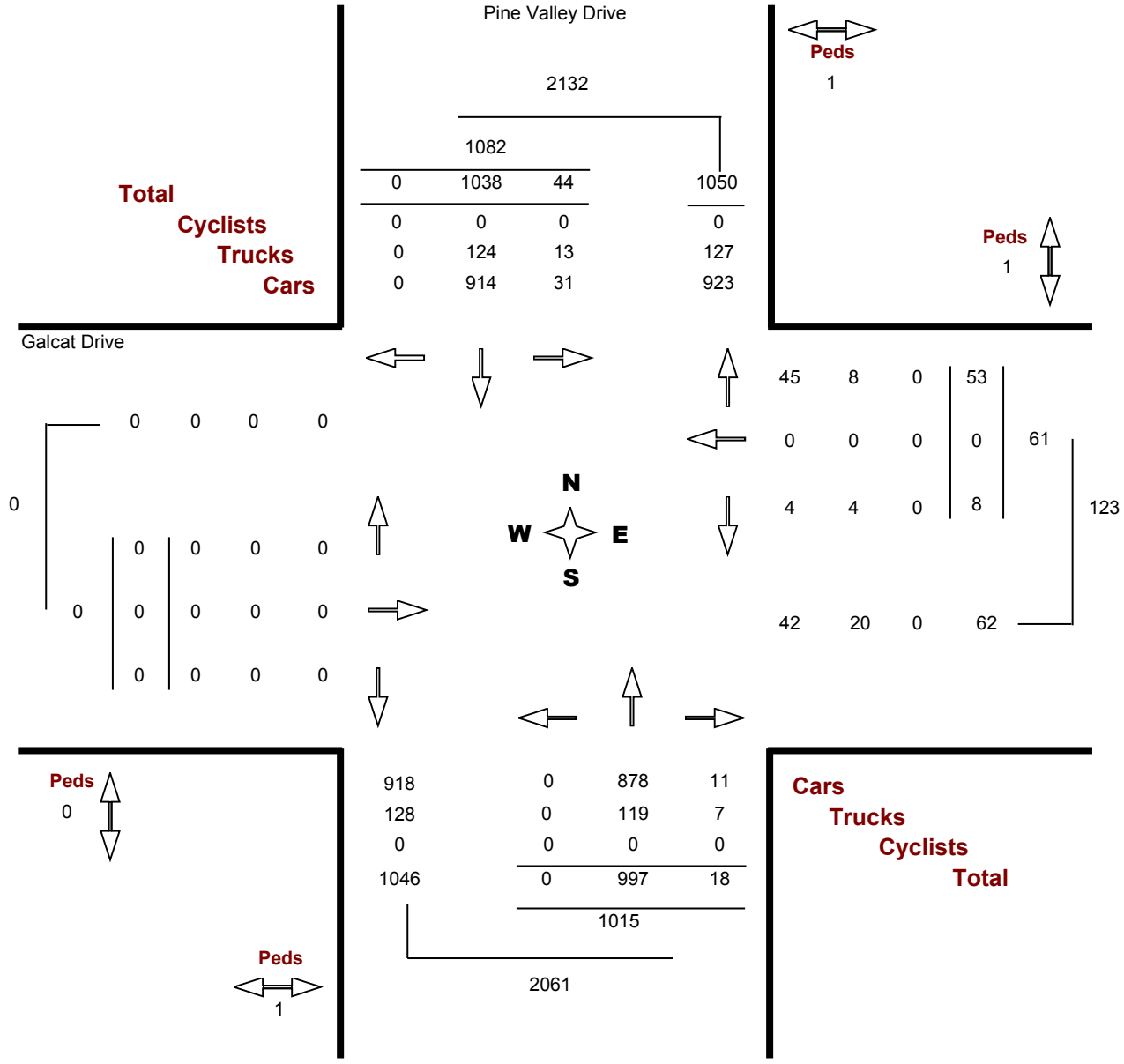


Notes:

Turning Movements Diagram
Peak Hour Report: MD Period

Location..... Pine Valley Drive & Galcat Drive
Municipality. Vaughan
Traffic Cont. Traffic signal
Major Dir..... None

GeoID..... F6A23A0B
Count Date. Wednesday, 16 January, 2008
Count Period. 11:00 AM — 02:00 PM
Peak Hour.... 12:15 PM — 01:15 PM

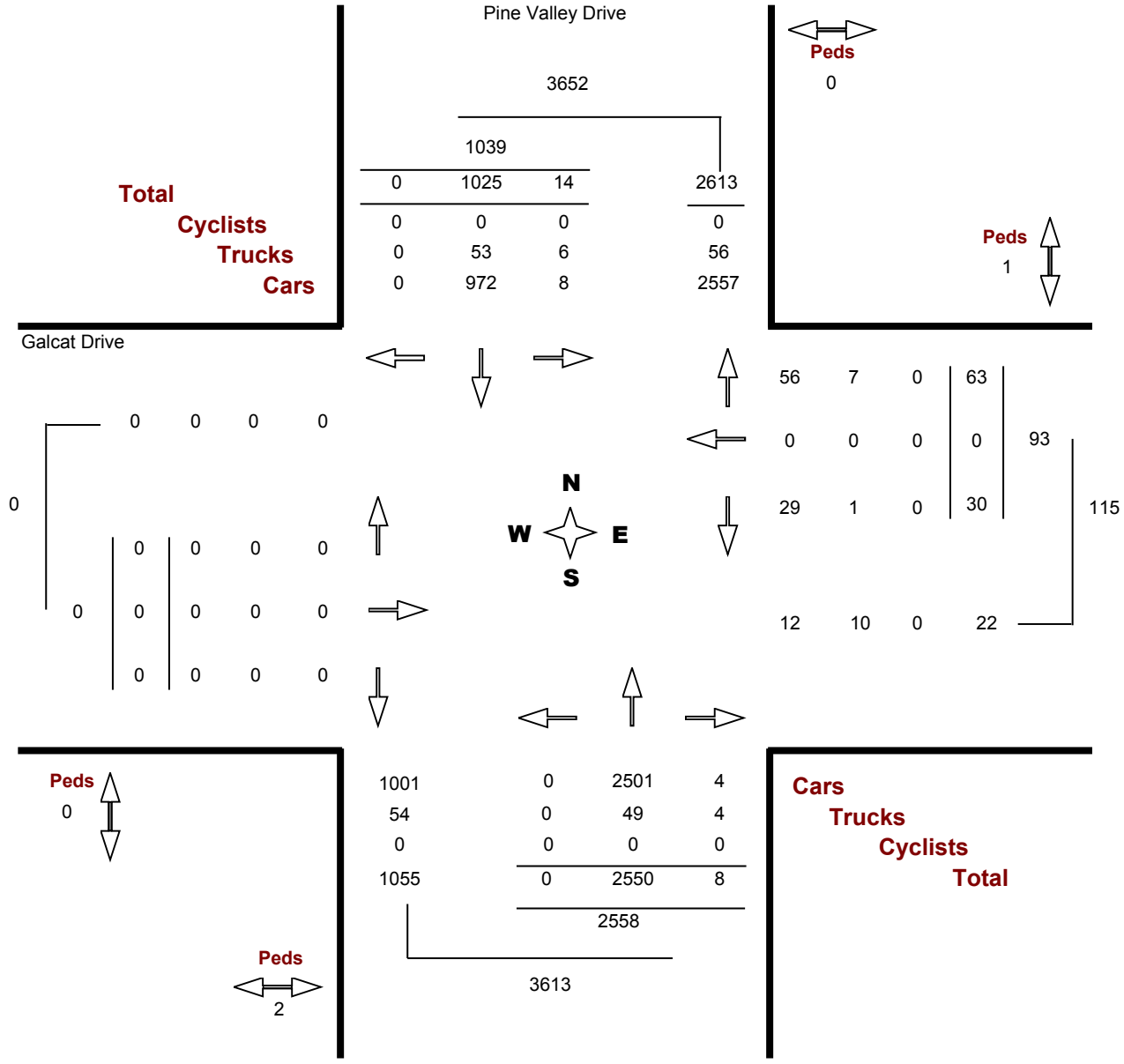


Notes:

Turning Movements Diagram
Peak Hour Report: PM Period

Location..... Pine Valley Drive & Galcat Drive
Municipality. Vaughan
Traffic Cont. Traffic signal
Major Dir..... None

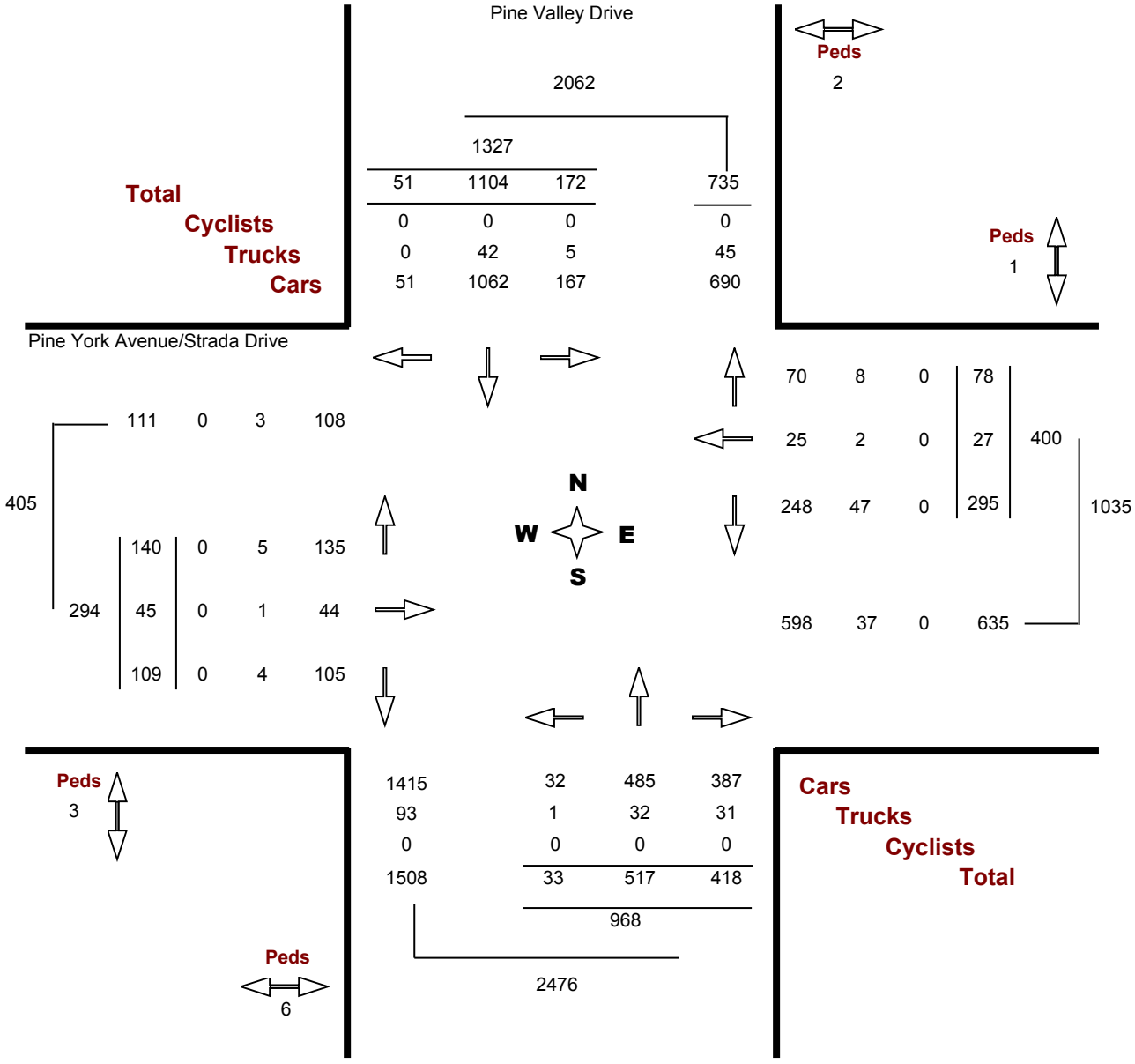
GeoID..... F6A23A0B
Count Date. Wednesday, 16 January, 2008
Count Period. 03:00 PM — 06:00 PM
Peak Hour.... 04:45 PM — 05:45 PM



Notes:

Turning Movements Diagram
Peak Hour Report: AM Period

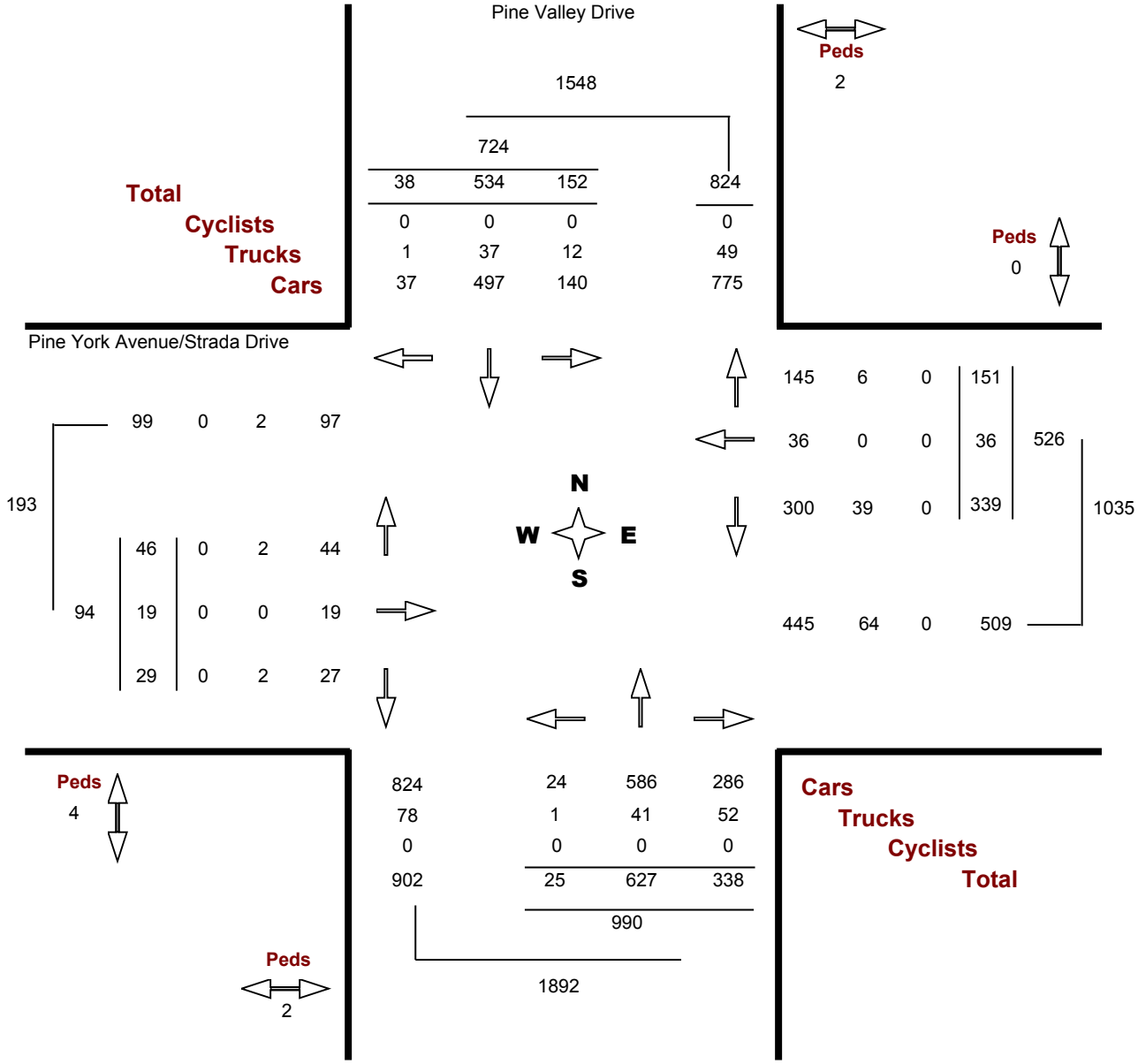
Location..... Pine Valley Drive & Pine York Avenue/Strada Drive
GeoID..... CA1B1333
Municipality. Vaughan
Count Date. Wednesday, 30 May, 2012
Traffic Cont. Traffic signal
Count Period. 07:00 AM — 09:00 AM
Major Dir..... None
Peak Hour.... 08:00 AM — 09:00 AM



Notes:

Turning Movements Diagram
Peak Hour Report: MD Period

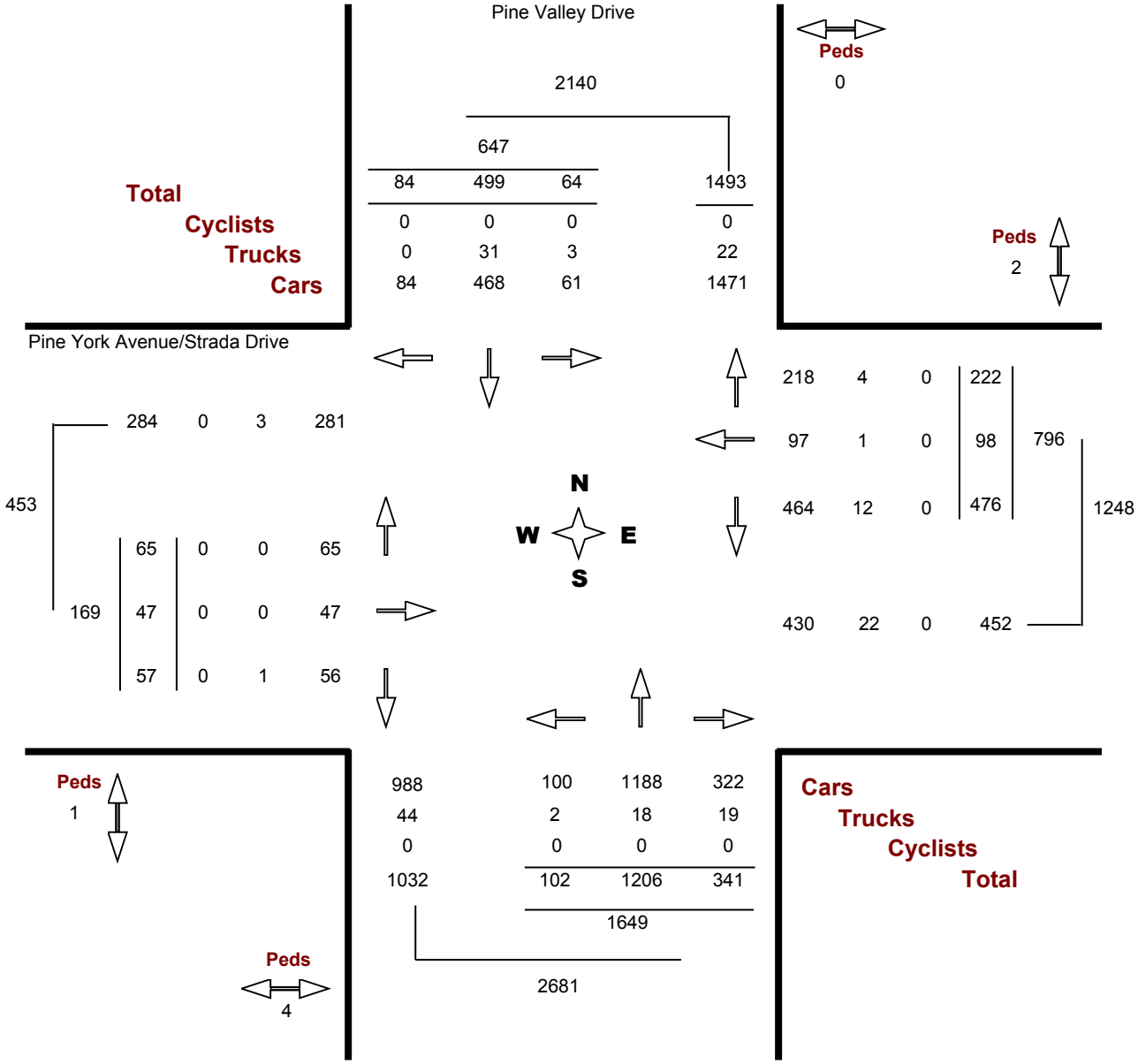
Location..... Pine Valley Drive & Pine York Avenue/Strada Drive
GeoID..... CA1B1333
Municipality. Vaughan
Count Date. Wednesday, 30 May, 2012
Traffic Cont. Traffic signal
Count Period. 11:00 AM — 02:00 PM
Major Dir..... None
Peak Hour.... 11:45 AM — 12:45 PM



Notes:

Turning Movements Diagram
Peak Hour Report: PM Period

Location.....	Pine Valley Drive & Pine York Avenue/Strada Drive	**GeoID.....**	CA1B1333
Municipality.	Vaughan	**Count Date.**	Wednesday, 30 May, 2012
Traffic Cont.	Traffic signal	**Count Period.**	03:00 PM — 06:00 PM
Major Dir.....	None	**Peak Hour....**	04:45 PM — 05:45 PM

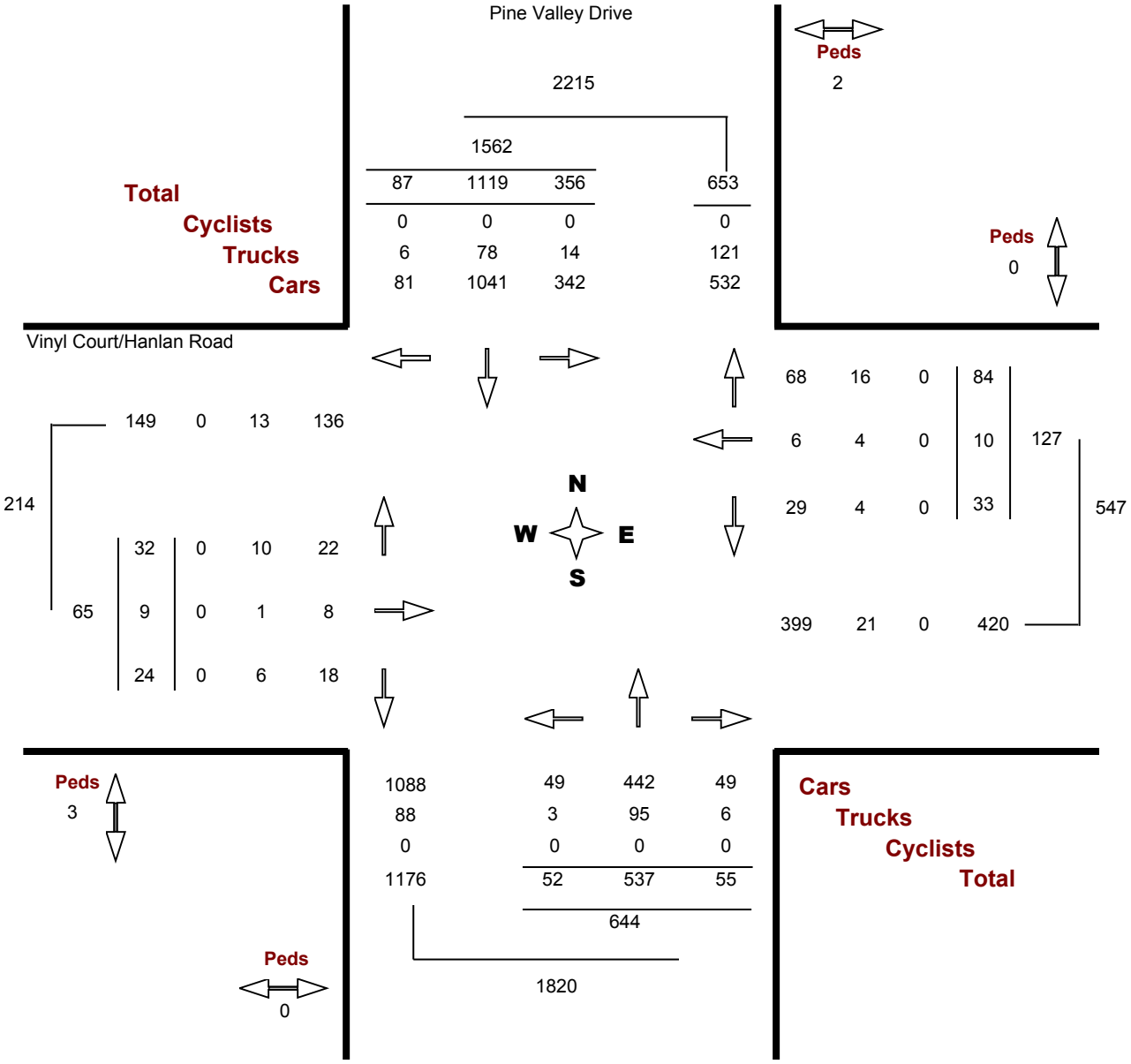


Notes:

Turning Movements Diagram
Peak Hour Report: AM Period

Location..... Pine Valley Drive & Vinyl Court/Hanlan Road
Municipality. Vaughan
Traffic Cont. Traffic signal
Major Dir..... None

GeoID..... A4738296
Count Date. Tuesday, 25 September, 2007
Count Period. 07:00 AM — 09:00 AM
Peak Hour.... 08:00 AM — 09:00 AM

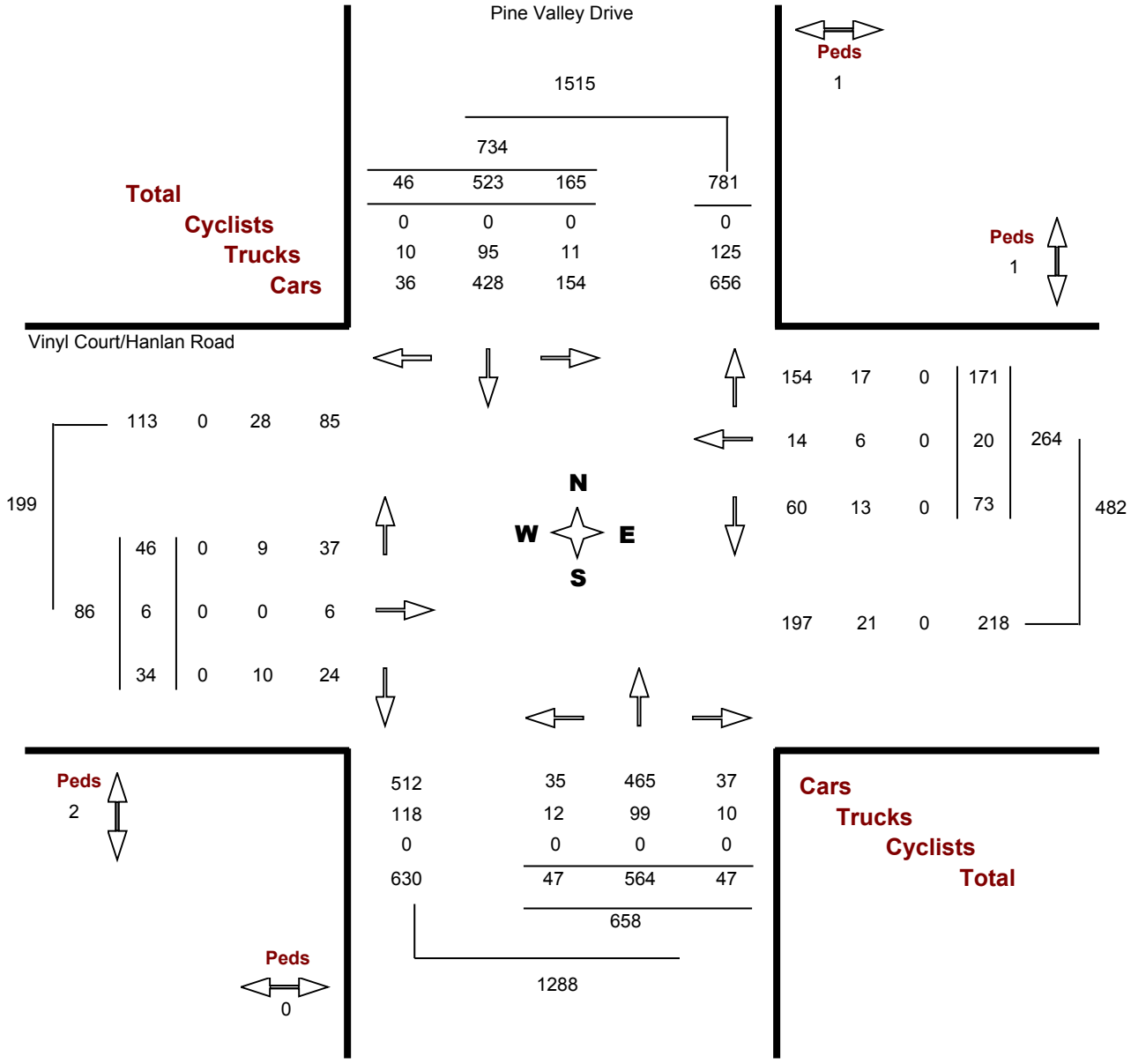


Notes:

Turning Movements Diagram
Peak Hour Report: MD Period

Location..... Pine Valley Drive & Vinyl Court/Hanlan Road
Municipality. Vaughan
Traffic Cont. Traffic signal
Major Dir..... None

GeoID..... A4738296
Count Date. Tuesday, 25 September, 2007
Count Period. 11:00 AM — 02:00 PM
Peak Hour.... 12:30 PM — 01:30 PM

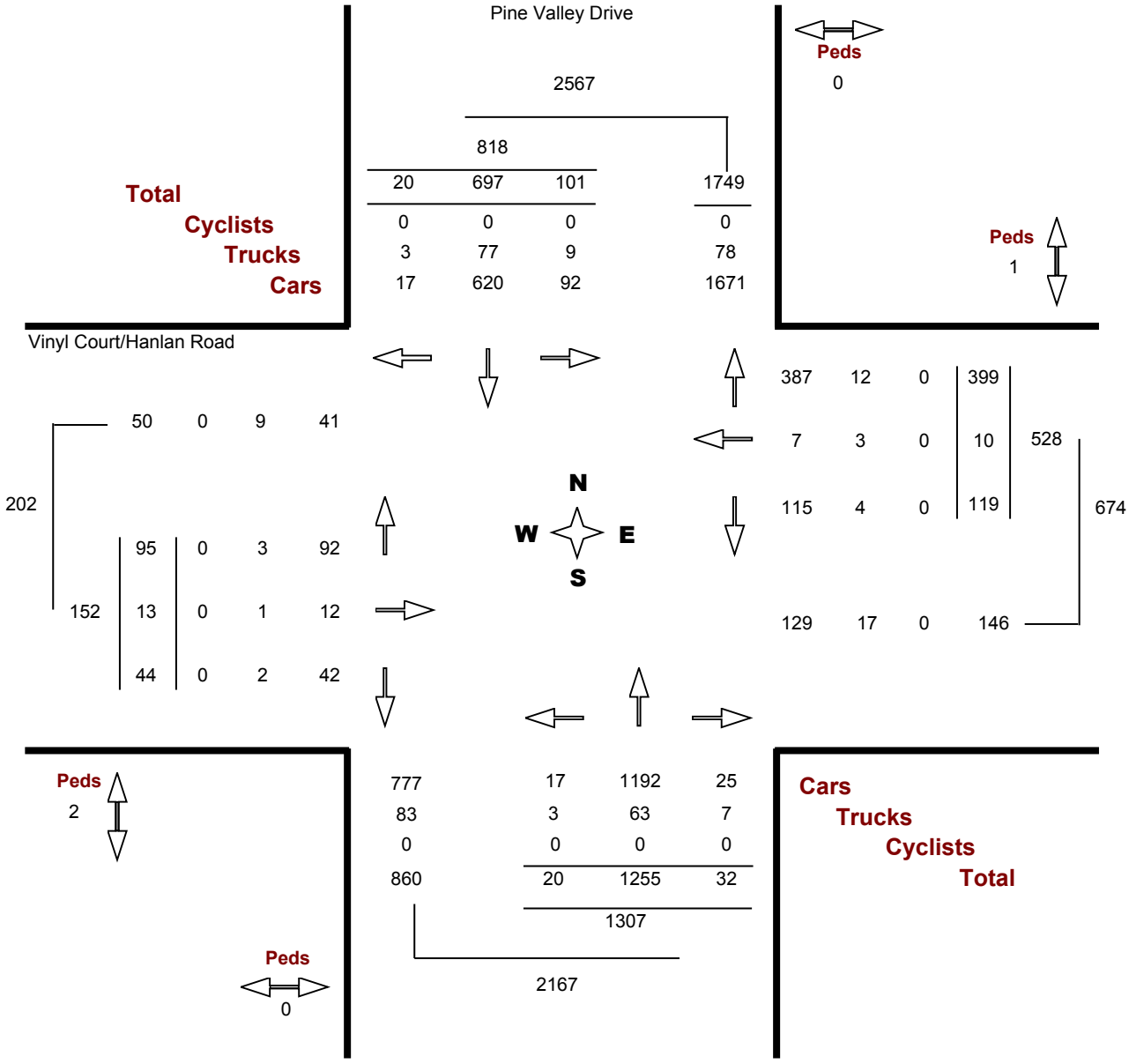


Notes:

Turning Movements Diagram
Peak Hour Report: PM Period

Location..... Pine Valley Drive & Vinyl Court/Hanlan Road
Municipality. Vaughan
Traffic Cont. Traffic signal
Major Dir..... None

GeoID..... A4738296
Count Date. Tuesday, 25 September, 2007
Count Period. 03:00 PM — 06:00 PM
Peak Hour.... 04:30 PM — 05:30 PM



Notes:

Pine Valley Dr & Vinil Ct / Hanlan Rd

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

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

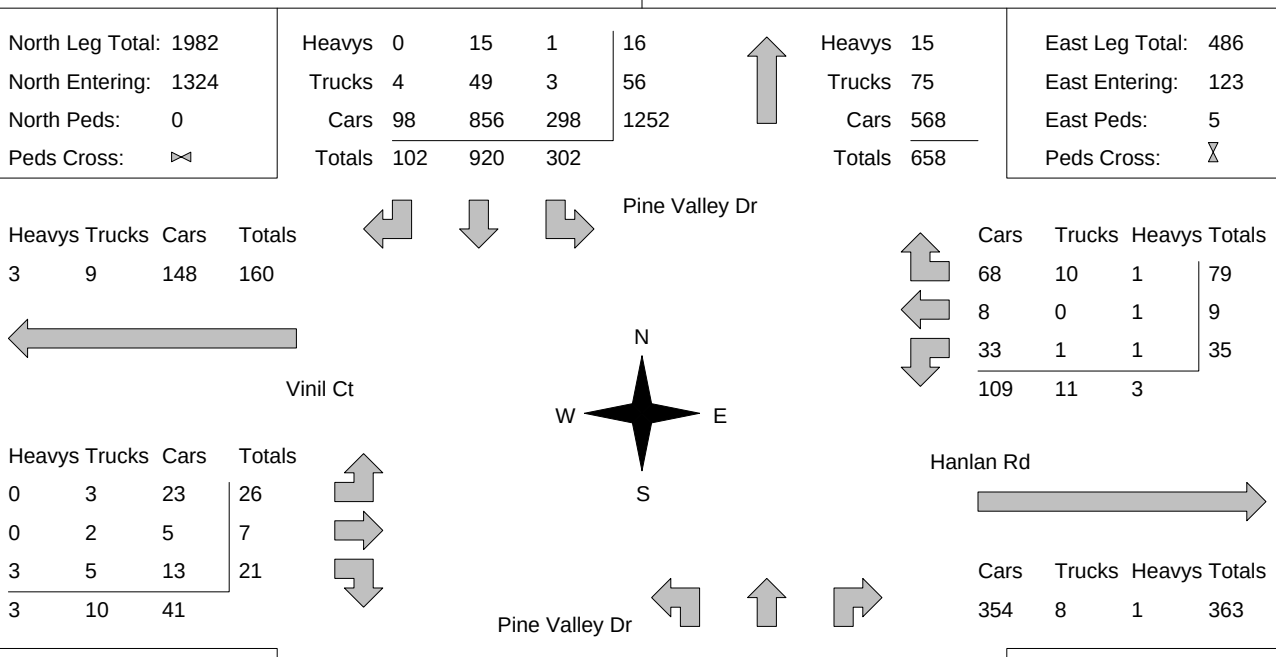
Municipality: Vaughan
Site #: 0000005301
Intersection: Pine Valley Dr & Vinil Ct / Hanlan R
TFR File #: 1
Count date: 25-Jul-2017

Weather conditions:
Clear / Cloudy

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Pine Valley Dr runs N/S



Comments

Pine Valley Dr & Vinil Ct / Hanlan Rd

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

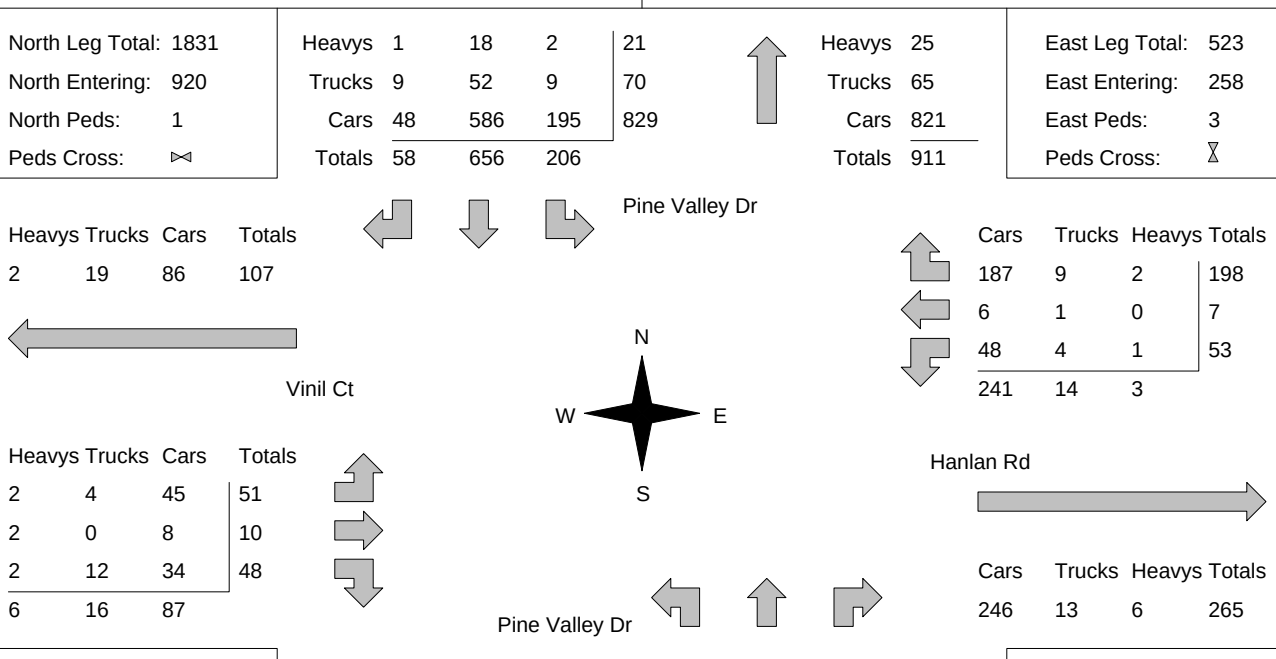
One Hour Peak
From: 12:45:00
To: 13:45:00

Municipality: Vaughan
Site #: 0000005301
Intersection: Pine Valley Dr & Vinil Ct / Hanlan R
TFR File #: 1
Count date: 25-Jul-2017

Weather conditions:
Clear / Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Pine Valley Dr runs N/S



Comments

Pine Valley Dr & Vinil Ct / Hanlan Rd

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

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

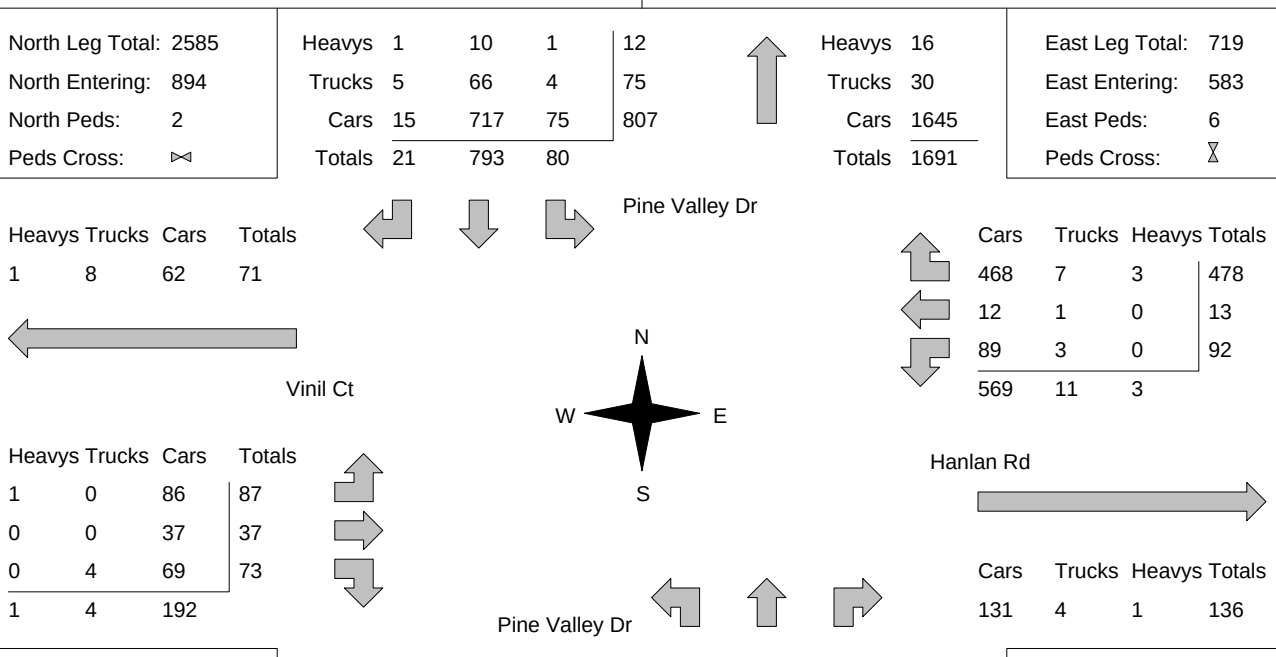
Municipality: Vaughan
Site #: 0000005301
Intersection: Pine Valley Dr & Vinil Ct / Hanlan R
TFR File #: 1
Count date: 25-Jul-2017

Weather conditions:
Clear / Cloudy

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Pine Valley Dr runs N/S



Comments

Pine Valley Dr & Vinil Ct / Hanlan Rd

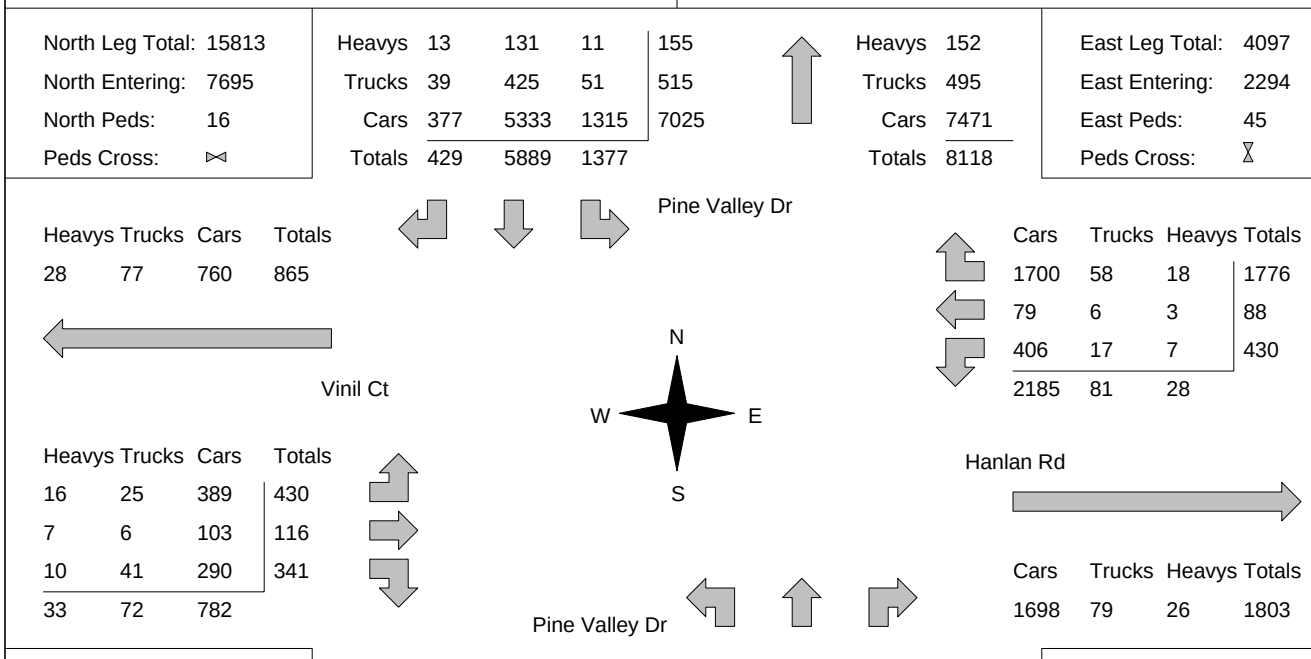
Total Count Diagram

Municipality: Vaughan
Site #: 0000005301
Intersection: Pine Valley Dr & Vinil Ct / Hanlan R
TFR File #: 1
Count date: 25-Jul-2017

Weather conditions:
Clear / Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Pine Valley Dr runs N/S



Comments

Pine Valley Dr & Vinil Ct / Hanlan Rd
Traffic Count Summary

Intersection: Pine Valley Dr & Vinil Ct / Hanlan F | **Count Date:** 25-Jul-2017 | **Municipality:** Vaughan

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	268	822	90	1180	2	1804
9:00:00	282	893	90	1265	0	1926
11:00:00	0	0	0	0	0	0
12:00:00	149	636	60	845	7	1503
13:00:00	176	660	56	892	0	1609
14:00:00	183	659	57	899	1	1641
15:00:00	0	0	0	0	0	0
16:00:00	119	659	38	816	1	1693
17:00:00	127	827	20	974	5	2089
18:00:00	73	733	18	824	0	2000
Totals:	1377	5889	429	7695	16	14265

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	81	502	41	624	2
9:00:00	49	556	56	661	2
11:00:00	0	0	0	0	0
12:00:00	37	576	45	658	5
13:00:00	49	636	32	717	0
14:00:00	40	657	45	742	0
15:00:00	0	0	0	0	0
16:00:00	27	808	42	877	1
17:00:00	42	1047	26	1115	2
18:00:00	23	1130	23	1176	2
Totals:	348	5912	310	6570	14

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	37	18	80	135	15	192
9:00:00	29	8	87	124	3	189
11:00:00	0	0	0	0	0	0
12:00:00	37	10	135	182	8	290
13:00:00	46	8	197	251	2	381
14:00:00	49	8	196	253	3	344
15:00:00	0	0	0	0	0	0
16:00:00	58	15	256	329	3	423
17:00:00	87	15	414	516	6	690
18:00:00	87	6	411	504	5	672
Totals:	430	88	1776	2294	45	3181

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	18	9	30	57	4
9:00:00	34	5	26	65	0
11:00:00	0	0	0	0	0
12:00:00	60	7	41	108	0
13:00:00	71	12	47	130	0
14:00:00	38	9	44	91	0
15:00:00	0	0	0	0	0
16:00:00	53	13	28	94	1
17:00:00	74	29	71	174	1
18:00:00	82	32	54	168	6
Totals:	430	116	341	887	12

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	77	73	119	129	97	128	197	203

Pine Valley Dr & Steeles Ave

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

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

Municipality: Vaughan
Site #: 0000005302
Intersection: Steeles Ave & Pine Valley Dr
TFR File #: 1
Count date: 25-Jul-2017

Weather conditions:
Clear / Cloudy

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Steeles Ave runs W/E

North Leg Total:	1574
North Entering:	937
North Peds:	17
Peds Cross:	⋈

Heavys	5	11	1	17
Trucks	8	28	8	44
Cars	285	460	131	876
Totals	298	499	140	

Heavys	22
Trucks	60
Cars	555
Totals	637

East Leg Total:	2444
East Entering:	936
East Peds:	17
Peds Cross:	⧖

Pine Valley Dr

Heavys	Trucks	Cars	Totals
46	71	1103	1220

Cars	Trucks	Heavys	Totals
74	5	8	87
755	41	34	830
14	2	3	19
843	48	45	

Steeles Ave

N
W E
S

Heavys	Trucks	Cars	Totals
10	13	310	333
44	33	1276	1353
15	21	327	363
69	67	1913	

Steeles Ave

Cars	Trucks	Heavys	Totals
1420	41	47	1508

Pine Valley Dr

Peds Cross:	⧖
West Peds:	7
West Entering:	2049
West Leg Total:	3269

Cars	801
Trucks	51
Heavys	29
Totals	881

Cars	63	171	13	247
Trucks	22	42	0	64
Heavys	7	4	2	13
Totals	92	217	15	

Peds Cross:	⋈
South Peds:	10
South Entering:	324
South Leg Total:	1205

Comments

Pine Valley Dr & Steeles Ave

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 13:00:00
To: 14:00:00

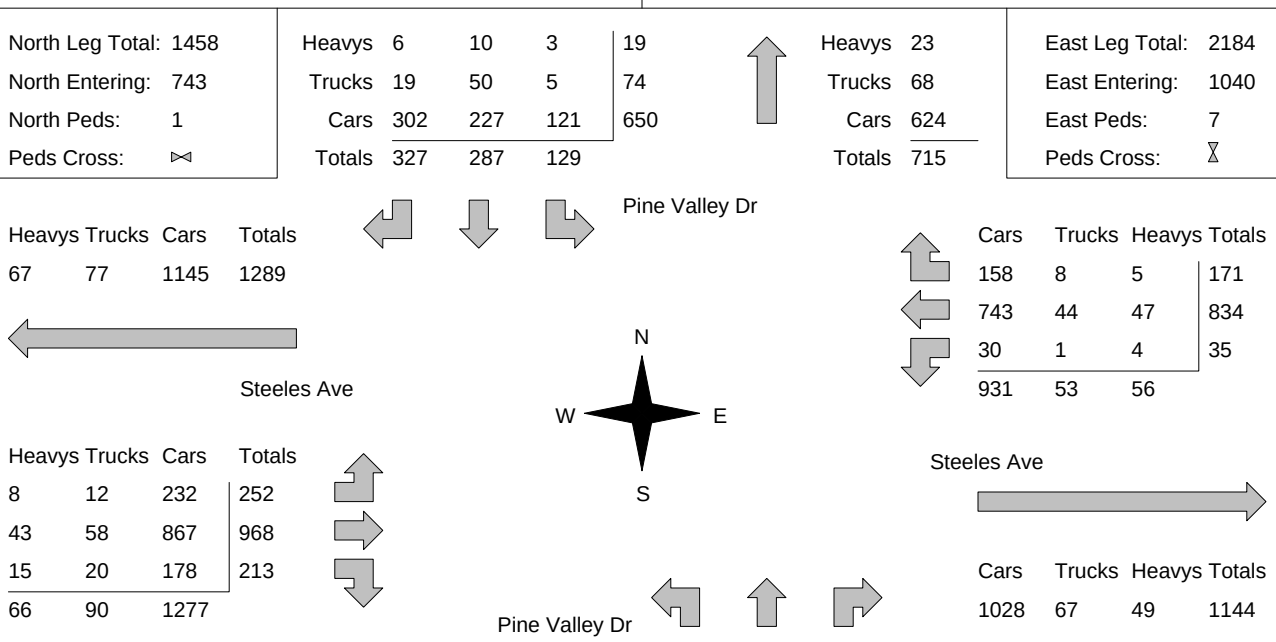
Municipality: Vaughan
Site #: 0000005302
Intersection: Steeles Ave & Pine Valley Dr
TFR File #: 1
Count date: 25-Jul-2017

Weather conditions:
Clear / Cloudy

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Steeles Ave runs W/E



Comments

Pine Valley Dr & Steeles Ave

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:45:00
To: 17:45:00

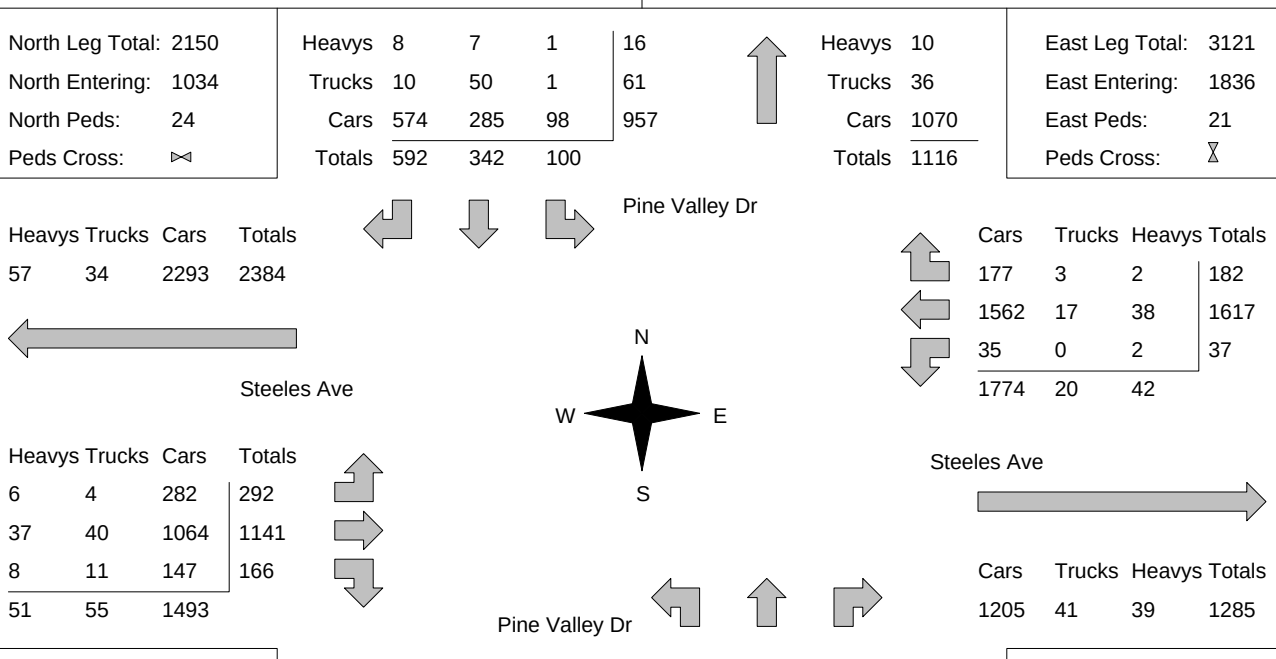
Municipality: Vaughan
Site #: 0000005302
Intersection: Steeles Ave & Pine Valley Dr
TFR File #: 1
Count date: 25-Jul-2017

Weather conditions:
Clear / Cloudy

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Steeles Ave runs W/E



Comments

Pine Valley Dr & Steeles Ave

Total Count Diagram

Municipality: Vaughan
Site #: 0000005302
Intersection: Steeles Ave & Pine Valley Dr
TFR File #: 1
Count date: 25-Jul-2017

Weather conditions:
Clear / Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Steeles Ave runs W/E

North Leg Total:	13278			
North Entering:	6825			
North Peds:	85			
Peds Cross:	⋈			
Heavys	60	64	17	141
Trucks	101	324	37	462
Cars	2851	2445	926	6222
Totals	3012	2833	980	
Heavys	145			
Trucks	444			
Cars	5864			
Totals	6453			
East Leg Total:	20185			
East Entering:	10145			
East Peds:	101			
Peds Cross:	⧖			

Pine Valley Dr

Heavys	Trucks	Cars	Totals
508	518	11701	12727

Cars	Trucks	Heavys	Totals
1150	48	40	1238
7958	313	368	8639
230	17	21	268
9338	378	429	

Steeles Ave

N
W E
S

Heavys	Trucks	Cars	Totals
62	84	2037	2183
363	332	8028	8723
94	128	1525	1747
519	544	11590	

Steeles Ave

Cars	Trucks	Heavys	Totals
9248	390	402	10040

Pine Valley Dr

Peds Cross:	⧖			
West Peds:	34			
West Entering:	12653			
West Leg Total:	25380			
Cars	4200			
Trucks	469			
Heavys	179			
Totals	4848			
Cars	892	2677	294	3863
Trucks	104	312	21	437
Heavys	80	43	22	145
Totals	1076	3032	337	
Peds Cross:	⋈			
South Peds:	86			
South Entering:	4445			
South Leg Total:	9293			

Comments

Pine Valley Dr & Steeles Ave
Traffic Count Summary

Intersection: Steeles Ave & Pine Valley Dr | **Count Date:** 25-Jul-2017 | **Municipality:** Vaughan

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	133	458	292	883	21	1213
9:00:00	154	500	286	940	13	1288
11:00:00	0	0	0	0	0	0
12:00:00	148	313	252	713	6	1155
13:00:00	139	283	329	751	2	1252
14:00:00	129	287	327	743	1	1210
15:00:00	0	0	0	0	0	0
16:00:00	81	309	406	796	0	1460
17:00:00	108	363	554	1025	21	1898
18:00:00	88	320	566	974	21	1794
Totals:	980	2833	3012	6825	85	11270

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	106	207	17	330	12
9:00:00	90	231	27	348	8
11:00:00	0	0	0	0	0
12:00:00	125	250	67	442	9
13:00:00	125	320	56	501	7
14:00:00	128	292	47	467	7
15:00:00	0	0	0	0	0
16:00:00	162	462	40	664	8
17:00:00	163	668	42	873	16
18:00:00	177	602	41	820	19
Totals:	1076	3032	337	4445	86

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	20	872	88	980	21	3021
9:00:00	15	758	110	883	8	2874
11:00:00	0	0	0	0	0	0
12:00:00	35	743	157	935	3	2226
13:00:00	48	853	178	1079	8	2315
14:00:00	35	834	171	1040	7	2473
15:00:00	0	0	0	0	0	0
16:00:00	32	1470	165	1667	13	3141
17:00:00	45	1533	186	1764	23	3321
18:00:00	38	1576	183	1797	18	3427
Totals:	268	8639	1238	10145	101	22798

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	320	1369	352	2041	5
9:00:00	314	1370	307	1991	4
11:00:00	0	0	0	0	0
12:00:00	217	903	171	1291	9
13:00:00	224	830	182	1236	0
14:00:00	252	968	213	1433	0
15:00:00	0	0	0	0	0
16:00:00	266	1021	187	1474	3
17:00:00	291	1104	162	1557	6
18:00:00	299	1158	173	1630	7
Totals:	2183	8723	1747	12653	34

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	723	756	598	592	556	721	968	892

Highway 407 WB Off-ramp & Pine Valley Drive

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

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

Municipality: Vaughan
Site #: 0000001007
Intersection: Pine Valley Drive &
TFR File #: 1
Count date: 14-Feb-2017

Weather conditions:
Cloudy

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Pine Valley Drive runs N/S

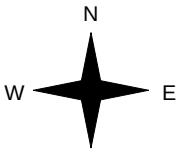
North Leg Total: 2104
North Entering: 1152
North Peds: 0
Peds Cross: ⋈

Heavys	14	0	14
Trucks	32	0	32
Cars	1106	0	1106
Totals	1152	0	

Heavys	11
Trucks	30
Cars	911
Totals	952

East Leg Total: 584
East Entering: 584
East Peds: 2
Peds Cross: ⋈

	Cars	Trucks	Heavys	Totals
	263	10	2	275
	286	17	6	309
	549	27	8	



	Cars	Trucks	Heavys	Totals
	0	0	0	0

Cars	1392	Cars	648	0	648
Trucks	49	Trucks	20	0	20
Heavys	20	Heavys	9	0	9
Totals	1461	Totals	677	0	

Peds Cross: ⋈
South Peds: 0
South Entering: 677
South Leg Total: 2138

Comments

Highway 407 WB Off-ramp & Pine Valley Drive

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 13:00:00
To: 14:00:00

Municipality: Vaughan
Site #: 0000001007
Intersection: Pine Valley Drive &
TFR File #: 1
Count date: 14-Feb-2017

Weather conditions:
Cloudy

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Pine Valley Drive runs N/S

North Leg Total: 1735
North Entering: 712
North Peds: 0
Peds Cross: ⋈

Heavys	9	0	9
Trucks	34	0	34
Cars	669	0	669
Totals	712	0	

Heavys	13	
Trucks	50	
Cars	960	
Totals	1023	

East Leg Total: 403
East Entering: 403
East Peds: 0
Peds Cross: ⋈

Pine Valley Drive

	Cars	Trucks	Heavys	Totals
	234	8	3	245
	121	37	0	158
	355	45	3	

N
W E
S

	Cars	Trucks	Heavys	Totals
	0	0	0	0

Pine Valley Drive

Cars	790		
Trucks	71		
Heavys	9		
Totals	870		

Cars	726	0	726
Trucks	42	0	42
Heavys	10	0	10
Totals	778	0	

Peds Cross: ⋈
South Peds: 0
South Entering: 778
South Leg Total: 1648

Comments

Highway 407 WB Off-ramp & Pine Valley Drive

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

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

Municipality: Vaughan
Site #: 0000001007
Intersection: Pine Valley Drive &
TFR File #: 1
Count date: 14-Feb-2017

Weather conditions:
Cloudy

Person(s) who counted:

**** Signalized Intersection ****

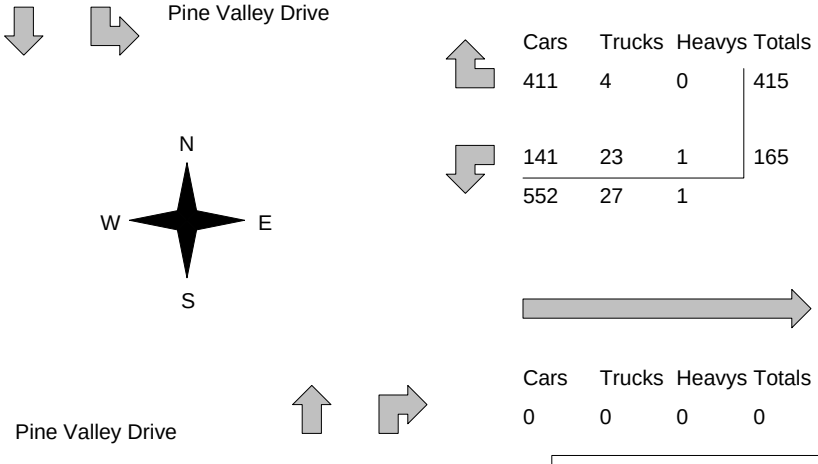
Major Road: Pine Valley Drive runs N/S

North Leg Total: 2378
North Entering: 785
North Peds: 0
Peds Cross: ⋈

Heavys	9	0	9
Trucks	18	0	18
Cars	758	0	758
Totals	785	0	

Heavys	9
Trucks	19
Cars	1565
Totals	1593

East Leg Total: 580
East Entering: 580
East Peds: 0
Peds Cross: ⋈



Cars	899
Trucks	41
Heavys	10
Totals	950

Cars	1154	0	1154
Trucks	15	0	15
Heavys	9	0	9
Totals	1178	0	

Peds Cross: ⋈
South Peds: 0
South Entering: 1178
South Leg Total: 2128

Comments

Highway 407 WB Off-ramp & Pine Valley Drive

Total Count Diagram

Municipality: Vaughan
Site #: 0000001007
Intersection: Pine Valley Drive &
TFR File #: 1
Count date: 14-Feb-2017

Weather conditions:
Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Pine Valley Drive runs N/S

North Leg Total: 15122
North Entering: 6287
North Peds: 0
Peds Cross: ⋈

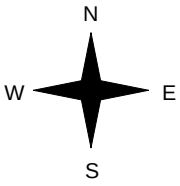
Heavys	65	0	65
Trucks	222	0	222
Cars	6000	0	6000
Totals	6287	0	

Heavys	85
Trucks	327
Cars	8423
Totals	8835

East Leg Total: 3845
East Entering: 3845
East Peds: 3
Peds Cross: ⋈

Pine Valley Drive

Cars	Trucks	Heavys	Totals
2246	74	12	2332
1299	202	12	1513
3545	276	24	



Cars	Trucks	Heavys	Totals
0	0	0	0

Pine Valley Drive

Cars	7299		
Trucks	424		
Heavys	77		
Totals	7800		

Cars	6177	0	6177
Trucks	253	0	253
Heavys	73	0	73
Totals	6503	0	

Peds Cross: ⋈
South Peds: 0
South Entering: 6503
South Leg Total: 14303

Comments

Highway 407 WB Off-ramp & Pine Valley Drive
Traffic Count Summary

Intersection: Pine Valley Drive & **Count Date:** 14-Feb-2017 **Municipality:** Vaughan

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	0	1043	0	1043	0	1650
9:00:00	0	1048	0	1048	0	1712
11:00:00	0	0	0	0	0	0
12:00:00	0	599	0	599	0	1185
13:00:00	0	652	0	652	0	1417
14:00:00	0	712	0	712	0	1490
15:00:00	0	0	0	0	0	0
16:00:00	0	710	0	710	0	1587
17:00:00	0	755	0	755	0	1932
18:00:00	0	768	0	768	0	1817
Totals:	0	6287	0	6287	0	12790

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	607	0	607	0
9:00:00	0	664	0	664	0
11:00:00	0	0	0	0	0
12:00:00	0	586	0	586	0
13:00:00	0	765	0	765	0
14:00:00	0	778	0	778	0
15:00:00	0	0	0	0	0
16:00:00	0	877	0	877	0
17:00:00	0	1177	0	1177	0
18:00:00	0	1049	0	1049	0
Totals:	0	6503	0	6503	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	201	0	185	386	1	386
9:00:00	324	0	303	627	1	627
11:00:00	0	0	0	0	0	0
12:00:00	163	0	229	392	0	392
13:00:00	164	0	239	403	0	403
14:00:00	158	0	245	403	0	403
15:00:00	0	0	0	0	0	0
16:00:00	188	0	324	512	0	512
17:00:00	181	0	425	606	1	606
18:00:00	134	0	382	516	0	516
Totals:	1513	0	2332	3845	3	3845

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	0
9:00:00	0	0	0	0	0
11:00:00	0	0	0	0	0
12:00:00	0	0	0	0	0
13:00:00	0	0	0	0	0
14:00:00	0	0	0	0	0
15:00:00	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
Totals:	0	0	0	0	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	201	324	163	164	158	188	181	134

Highway 407 EB Off-ramp & Pine Valley Drive

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

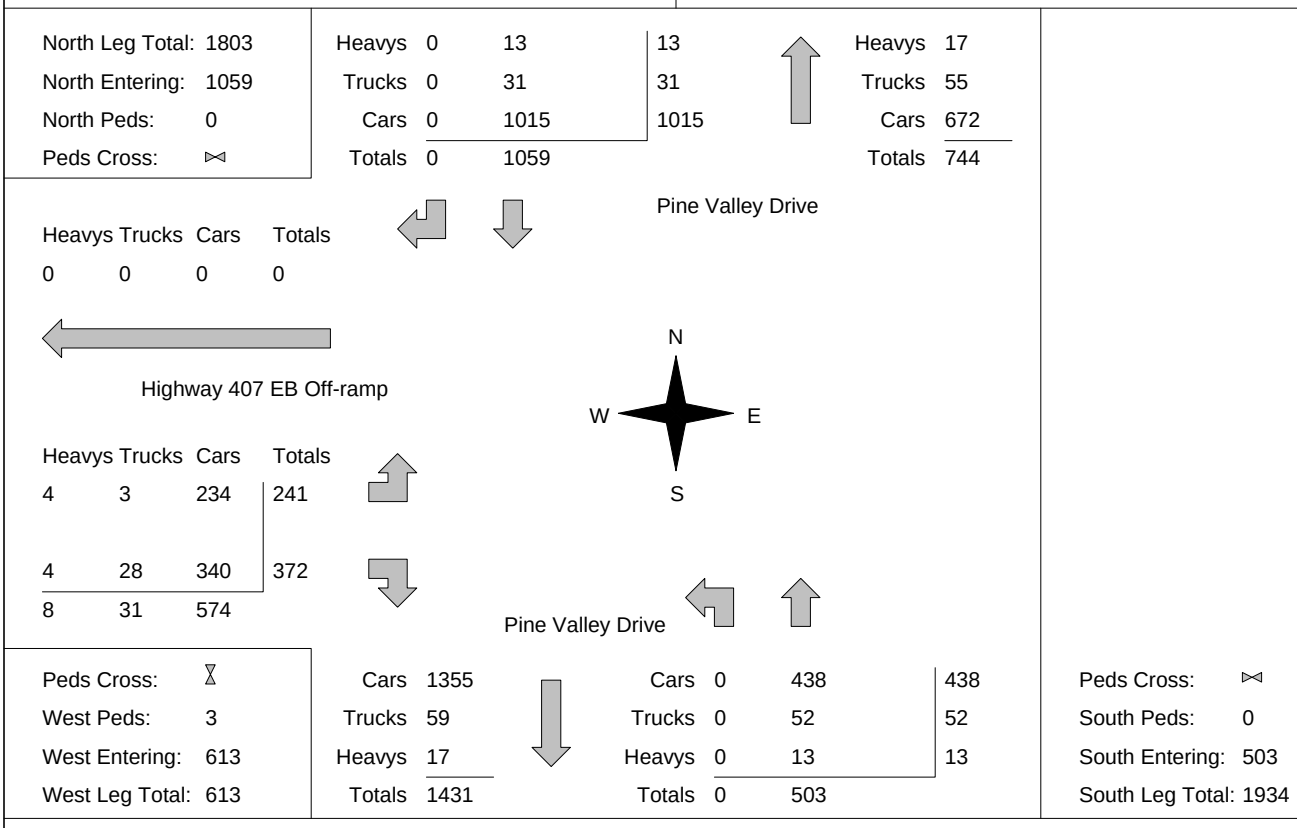
One Hour Peak
From: 7:45:00
To: 8:45:00

Municipality: Vaughan
Site #: 0000001008
Intersection: Pine Valley Drive & Highway 407 EB
TFR File #: 1
Count date: 14-Feb-2017

Weather conditions:
Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Pine Valley Drive runs N/S



Comments

Highway 407 EB Off-ramp & Pine Valley Drive

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

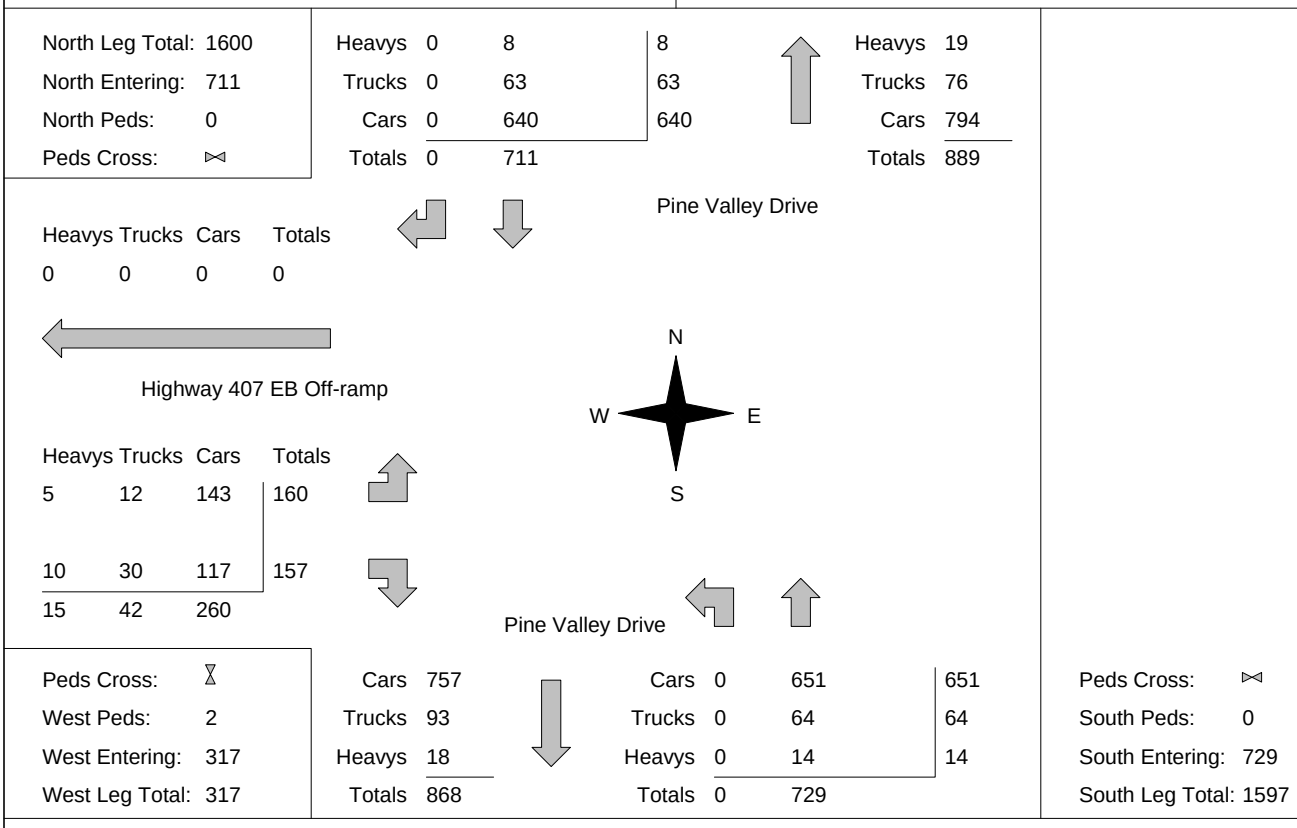
One Hour Peak
From: 12:45:00
To: 13:45:00

Municipality: Vaughan
Site #: 0000001008
Intersection: Pine Valley Drive & Highway 407 EB
TFR File #: 1
Count date: 14-Feb-2017

Weather conditions:
Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Pine Valley Drive runs N/S



Comments

Highway 407 EB Off-ramp & Pine Valley Drive

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

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

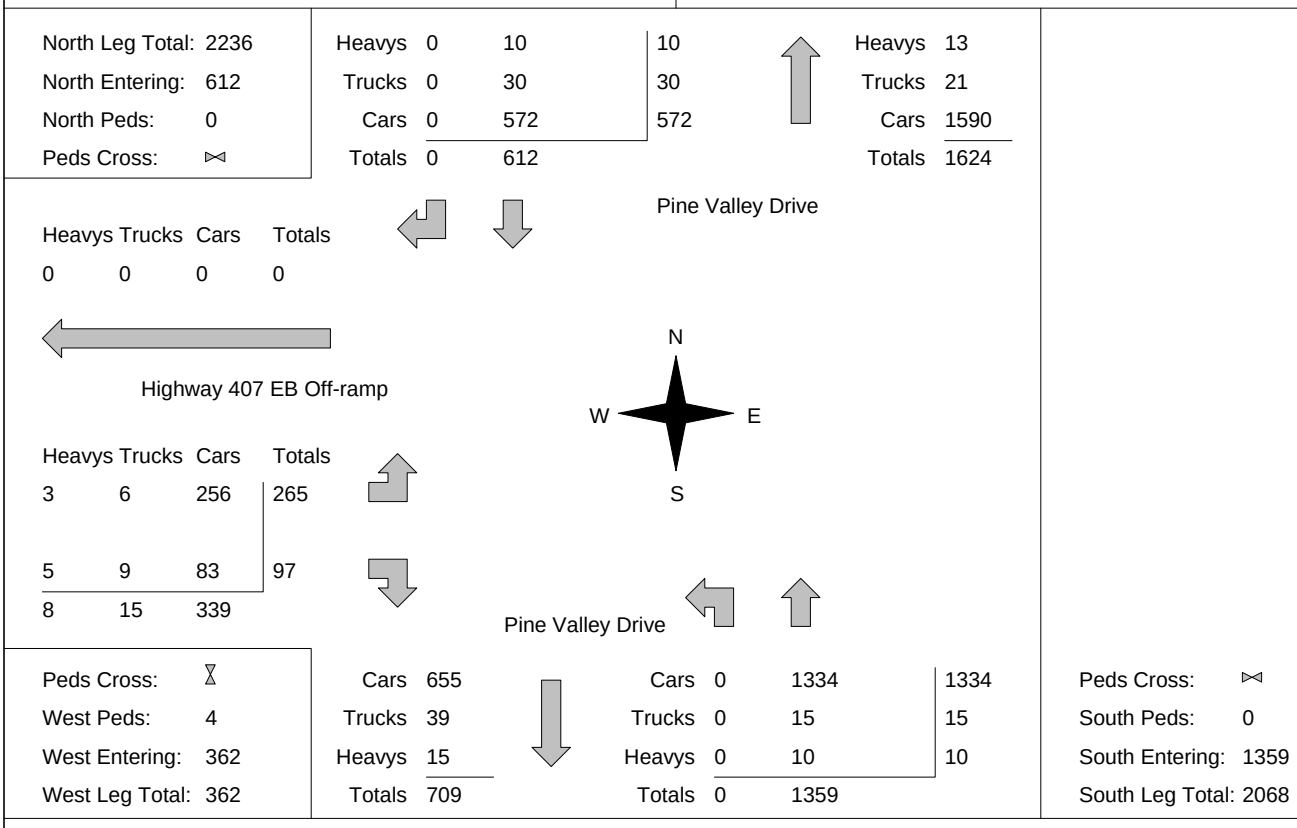
Municipality: Vaughan
Site #: 0000001008
Intersection: Pine Valley Drive & Highway 407 EB
TFR File #: 1
Count date: 14-Feb-2017

Weather conditions:
Cloudy

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Pine Valley Drive runs N/S



Comments

Highway 407 EB Off-ramp & Pine Valley Drive

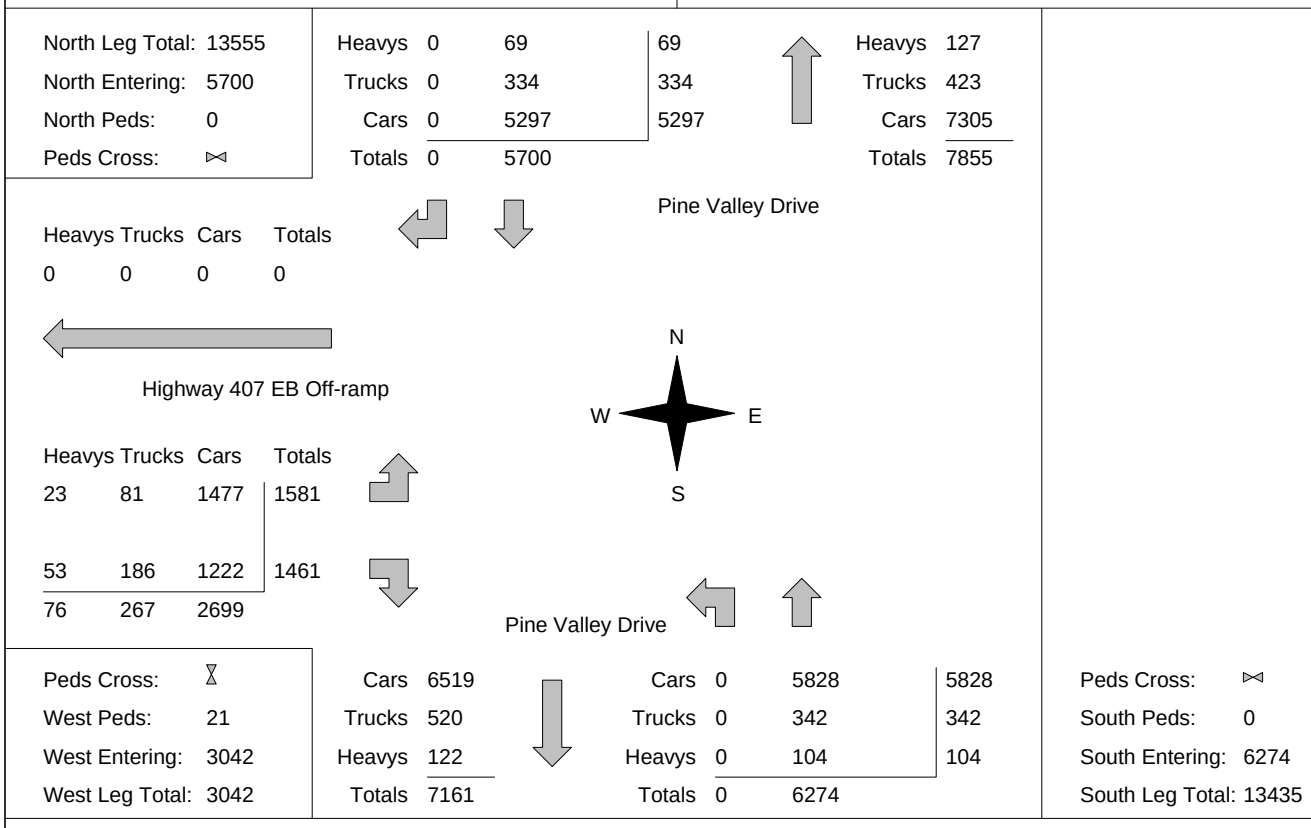
Total Count Diagram

Municipality: Vaughan
Site #: 0000001008
Intersection: Pine Valley Drive & Highway 407 EB
TFR File #: 1
Count date: 14-Feb-2017

Weather conditions:
Cloudy
Person(s) who counted:

**** Signalized Intersection ****

Major Road: Pine Valley Drive runs N/S



Comments

Highway 407 EB Off-ramp & Pine Valley Drive
Traffic Count Summary

Intersection: Pine Valley Drive & Highway 407 E | **Count Date:** 14-Feb-2017 | **Municipality:** Vaughan

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	0	927	0	927	0	1401
9:00:00	0	1023	0	1023	0	1511
11:00:00	0	0	0	0	0	0
12:00:00	0	550	0	550	0	1095
13:00:00	0	623	0	623	0	1330
14:00:00	0	696	0	696	0	1436
15:00:00	0	0	0	0	0	0
16:00:00	0	641	0	641	0	1501
17:00:00	0	654	0	654	0	1925
18:00:00	0	586	0	586	0	1775
Totals:	0	5700	0	5700	0	11974

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	0	474	0	474	0
9:00:00	0	488	0	488	0
11:00:00	0	0	0	0	0
12:00:00	0	545	0	545	0
13:00:00	0	707	0	707	0
14:00:00	0	740	0	740	0
15:00:00	0	0	0	0	0
16:00:00	0	860	0	860	0
17:00:00	0	1271	0	1271	0
18:00:00	0	1189	0	1189	0
Totals:	0	6274	0	6274	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	0	0	0	0	0	473
9:00:00	0	0	0	0	0	611
11:00:00	0	0	0	0	0	0
12:00:00	0	0	0	0	0	303
13:00:00	0	0	0	0	0	323
14:00:00	0	0	0	0	0	310
15:00:00	0	0	0	0	0	0
16:00:00	0	0	0	0	0	356
17:00:00	0	0	0	0	0	347
18:00:00	0	0	0	0	0	319
Totals:	0	0	0	0	0	3042

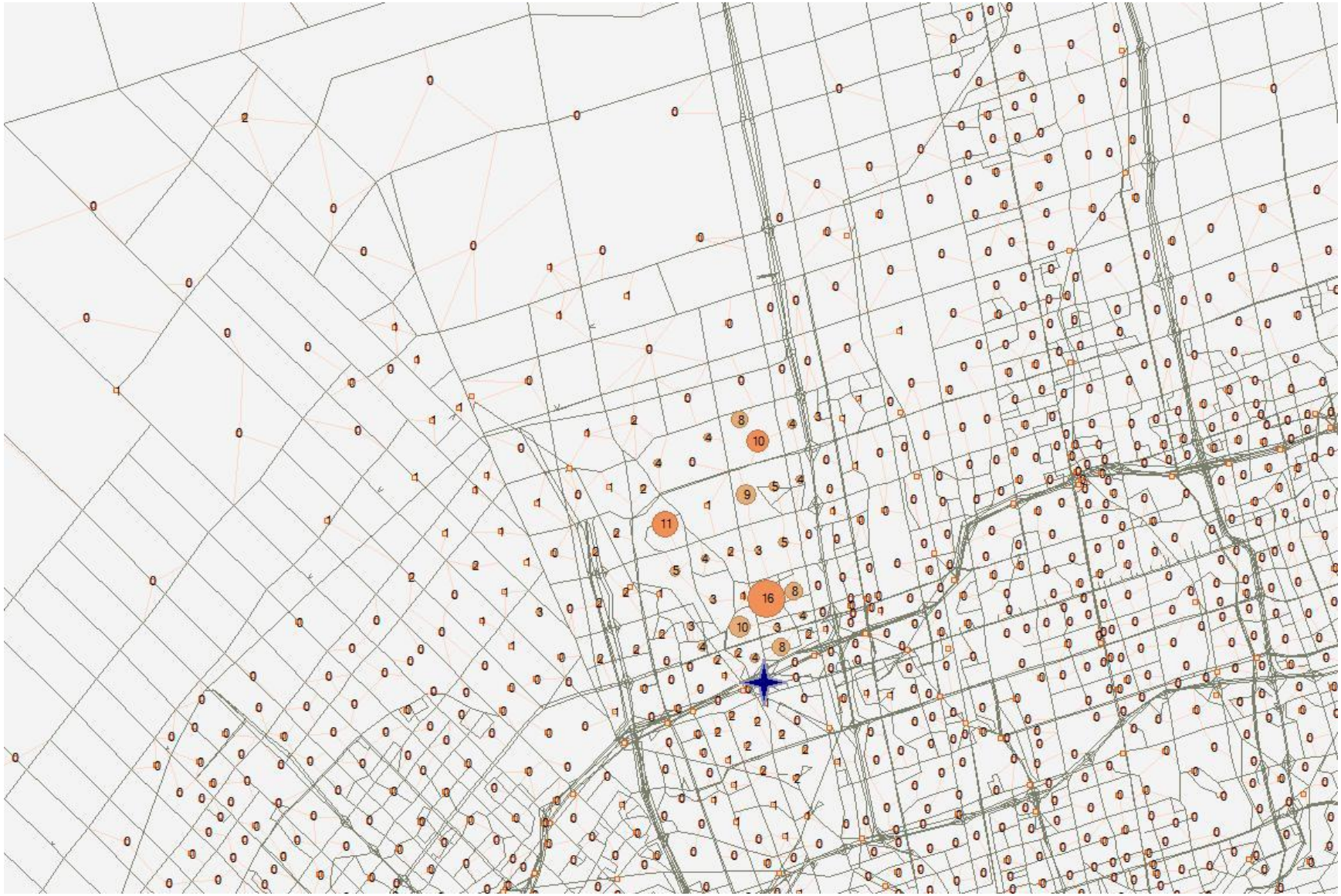
West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	188	0	285	473	2
9:00:00	238	0	373	611	3
11:00:00	0	0	0	0	0
12:00:00	146	0	157	303	1
13:00:00	164	0	159	323	3
14:00:00	170	0	140	310	2
15:00:00	0	0	0	0	0
16:00:00	201	0	155	356	2
17:00:00	228	0	119	347	6
18:00:00	246	0	73	319	2
Totals:	1581	0	1461	3042	21

Calculated Values for Traffic Crossing Major Street

Hours Ending:	8:00	9:00	12:00	13:00	14:00	16:00	17:00	18:00
Crossing Values:	188	238	146	164	170	201	228	246

Appendix F – EMME Origin/Destination Output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