Appendix C TRANSPORTATION AND TRAFFIC ANALYSIS

Transportation and Traffic Analysis Report

Living Arts Drive Extension Class EA

Prepared for:
City of Mississauga

Prepared by:
Stantec Consulting Ltd.

November 16, 2017

Revision	Description	Author		Quality Check		Independent Review	
0A	Draft	M Kaczmarek	17-09-30	F Tomeo	17-10-03	M Bradley	17-10-03
00	Final	M Kaczmarek	17-10-07	F Tomeo	17-10-09		
01	Final | Rev1	M Kaczmarek	17-11-16	F Tomeo	17-11-16	M Bradley	17-11-16

Stantec

Sign-off Sheet

This document entitled Transportation and Traffic Analysis Report was prepared by Stantec Consulting Ltd. ("Stantec") for the account of City of Mississauga (the "Client"). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by _____

(signature)

Martin B. Kaczmarek, E.I.T.

Reviewed by _____

(signature)

Francois Tomeo, P.Eng.

Approved by _____

(signature)

Mike Bradley, P.Eng.

Stantec

Table of Contents

1.0 INTRODUCTION 1.1

2.0 METHODOLOGY 2.1

3.0 EXISTING CONDITIONS 3.1
3.1 ROADS AND TRAFFIC CONTROL 3.1
3.2 TRANSIT 3.2
3.3 ACTIVE TRANSPORTATION 3.2
3.4 TRAFFIC VOLUMES 3.4
3.5 TRAFFIC OPERATIONS 3.7
3.6 MICROSCOPIC MODELLING 3.9
3.6.1 Calibration and Validation 3.9
3.6.2 Measures of Effectiveness 3.10

4.0 FUTURE TRAVEL DEMAND FORECASTING 4.1
4.1.1 Planning Assumptions 4.1
4.1.2 Future Travel Demand 4.2

5.0 SCENARIO ASSESSMENT 5.1
5.1 "DO NOTHING" SCENARIO 5.1
5.1.1 2021 Horizon Year 5.1
5.1.2 2031 Horizon Year 5.2
5.1.3 2041 Horizon Year 5.3
5.2 "WITH EXTENSION" SCENARIO 5.4
5.2.1 2021 Horizon Year 5.5
5.2.2 2031 Horizon Year 5.7
5.2.3 2041 Horizon Year 5.8
5.2.4 All-Way Stop-Control at Living Arts / Cineplex Access Intersection 5.9
5.2.5 4-Lane Living Arts Drive Extension 5.12
5.3 COMPARISON OF SCENARIOS 5.13

6.0 CONCLUSIONS 6.1

LIST OF FIGURES

Figure 1 – Study Area 1.2
Figure 2 – Existing 2017 Traffic Volumes AM 3.5
Figure 3 – Existing 2017 Traffic Volumes PM 3.6
Figure 4 – 2021 "Do Nothing" Traffic Volumes AM 4.4
Figure 5 – 2021 "Do Nothing" Traffic Volumes PM 4.5
Figure 6 – 2031 "Do Nothing" Traffic Volumes AM 4.6
Figure 7 – 2031 "Do Nothing" Traffic Volumes PM 4.7
Figure 8 – 2041 "Do Nothing" Traffic Volumes AM 4.8
Figure 9 – 2041 "Do Nothing" Traffic Volumes PM 4.9
Figure 10 – 2021 With Extension Traffic Volumes AM 4.10
Figure 11 – 2021 With Extension Traffic Volumes PM 4.11
Figure 12 – 2031 With Extension Traffic Volumes AM 4.12
Figure 13 – 2031 With Extension Traffic Volumes PM 4.13
Figure 14 – 2041 With Extension Traffic Volumes AM 4.14
Figure 15 – 2041 With Extension Traffic Volumes PM 4.15

LIST OF TABLES

Table 1 - Existing Transit Routes 3.3
Table 2 - LOS Criteria for Signalized Intersections 3.7
Table 3 - LOS Criteria for Unsignalized/Roundabout Intersections 3.7
Table 4 – Existing Conditions – 2017 – Measures of Effectiveness (Synchro) 3.9
Table 5 - Existing Conditions - 2017 - Measures of Effectiveness (VISSIM) 3.10
Table 6 - Forecast Downtown Mississauga Population and Employment 4.2
Table 7 - Forecast Growth in Travel Demand 4.2
Table 8 - VISSIM Runs within Standard Deviations (SD) 4.3
Table 9 - "Do Nothing" Scenario – 2021 – Measures of Effectiveness (Synchro) 5.1
Table 10 - "Do Nothing" Scenario – 2021 – Measures of Effectiveness (VISSIM) 5.2
Table 11 - "Do Nothing" Scenario – 2031 – Measures of Effectiveness (Synchro) 5.2
Table 12 - "Do Nothing" Scenario – 2031 – Measures of Effectiveness (VISSIM) 5.3
Table 13 - "Do Nothing" Scenario – 2041 – Measures of Effectiveness (Synchro) 5.4
Table 14 - "Do Nothing" Scenario – 2041 – Measures of Effectiveness (VISSIM) 5.4
Table 15 - With Extension Scenario – 2021 – Measures of Effectiveness (Synchro) 5.6
Table 16 - With Extension Scenario – 2021 – Measures of Effectiveness (VISSIM) 5.6
Table 17 - With Extension Scenario – 2031 – Measures of Effectiveness (Synchro) 5.7
Table 18 - With Extension Scenario – 2031 – Measures of Effectiveness (VISSIM) 5.8
Table 19 - With Extension Scenario – 2041 – Measures of Effectiveness (Synchro) 5.9
Table 20 - With Extension Scenario – 2041 – Measures of Effectiveness (VISSIM) 5.9
Table 21 – 2041 AWSC at Living Arts Dr / Cineplex - Comparison – HCM 2010 Measures of Effectiveness (Synchro) 5.10
Table 22 - AWSC at Living Arts Dr / Cineplex – Network Comparison - AM Measures of Effectiveness (Synchro) 5.11
Table 23 - AWSC at Living Arts Dr / Cineplex – Network Comparison - PM Measures of Effectiveness (Synchro) 5.11

Table 24 - 4-Lane Living Arts Drive Extension - Comparison - PM Measures of Effectiveness (Synchro) 5.12

LIST OF APPENDICES

Appendix A - Traffic Data
Appendix B - VISSIM Model Development and Calibration Report
Appendix C - Detailed Evaluation Results
Appendix D - Synchro Analysis Outputs
Appendix E – Forecast Traversal Matrices

1.0 INTRODUCTION

Stantec was retained by the City of Mississauga (the City) to conduct a traffic analysis as part of the Class Environmental Assessment (EA) for the extension of Living Arts Drive northerly to Centre View Drive. Living Arts Drive currently terminates at Rathburn Road West, with a Cineplex Cinemas driveway comprising the north leg of the intersection at Living Arts Drive/Rathburn Road West.

For the purpose of the traffic analysis, an expanded Study Area was considered as illustrated in **Figure 1**. This expanded Study Area makes it possible to draw conclusions on the impact that extending Living Arts Drive to Centre View Drive will have on the local transportation network. The traffic analysis Study Area is comprised of the following (8) intersections:

1. Centre View Drive / Mavis Road;
2. Centre View Drive / Duke of York Boulevard;
3. Centre View Drive / Station Gate Road;
4. Rathburn Road West / Station Gate Road;
5. Rathburn Road West / Duke of York Boulevard;
6. Rathburn Road West / Living Arts Drive;
7. Rathburn Road West / Confederation Parkway; and
8. Square One Drive / Living Arts Drive.

The key components of this Transportation and Traffic Analysis Report include:

1. Detailed review and summary of existing roadway and intersection conditions, transit routes, and active transportation facilities;
2. Assessment of existing traffic operations with measures of effectiveness (MOE) including delay, level of service (LOS), and 95th percentile queue lengths;
3. Traffic Forecast using the City's Emme Regional Model at the 2021, 2031, and 2041 horizon years;
4. Assessment of traffic operations for the forecast 2021, 2031, and 2041 horizon years; and
5. Existing and forecast traffic deficiencies are summarized and discussed, with potential alternatives assessed.

Figure 1 **– Study Area**

2.0 METHODOLOGY

The section outlines the methodology applied for the traffic analysis of the Living Arts Drive Extension Class EA Study Area network. Turning movement counts (TMCs) provided by the City of Mississauga were balanced to represent the traffic demand of the Study Area network for the 2017 existing conditions assessment. Models have been developed using both Synchro 9.1 and VISSIM 9.0 software packages. The Synchro software was used to assess traffic operations while the VISSIM microsimulations allowed for the consideration of the network effect with upstream effects of queueing considered. The models prepared through the Synchro and VISSIM software packages were both calibrated and validated. The VISSIM Model Development and Calibration Report which provides detailed information on the calibration and validation process is attached for reference in **Appendix B**.

Traversal matrices were produced to determine the vehicle access and egress volumes of the Study Area network for the a.m. and p.m. peak hours using the most recent version of the City's Strategic Transportation Demand Model (Emme). The Traffic Analysis Zones (TAZs) used at the macro level in the Emme model were split into Internal Zones at the Micro Level (IZML) to model the travel demand at the micro level. The traversal matrices previously estimated with IZML were then adjusted according to the counted traffic volumes to reflect the vehicular travel demand dynamics that are observed through the TMCs during the existing a.m. and p.m. peak hours. The microscopic travel demand matrices were then fed into the existing a.m. and p.m. VISSIM microsimulation models, after which the models were calibrated and validated based on observations of existing traffic volumes and operations through the Traffic Analysis Area Model parameters. Model parameters were cross-referenced with the previous VISSIM models prepared for the Square One Drive Extension Class EA.

Dynamic assignment was used to assign the paths vehicles would take during the VISSIM model simulations. Instead of applying static routes with volumes pre-selected, dynamic assignment determines the paths vehicles will take through the observed cost to the drivers and allows drivers to avoid links which are experiencing significant delays. This approach results in a more realistic estimate of network operations, as drivers will divert to whichever path represents the best option available at the time. The GEH statistic was used to confirm that the base year model outputs were within acceptable ranges at both the turning movement, and link level. GEH values provide an indication of the goodness of fit of modelled flows to observed flows. The assessment of GEH values and other calibration and validation metrics was conducted in a separate calibration report, in which it was found that the model was acceptably calibrated.

It should be noted that all transit operations were coded and simulated within the models developed in VISSIM. Hence, the interaction between the different transportation modes is considered. The traffic counts used as inputs for this study also include buses in the heavy vehicle volumes and, as such, the coded bus routes applied to the VISSIM model provide a more conservative estimation of heavy vehicles. This conservative approach to modelling bus volumes

is expected to remain within the daily variation of traffic and does not affect the conclusions of this study.

Traffic was forecast at the micro level using the Emme Regional Model at the 2021, 2031, and 2041 horizon years. Traversal matrices similar to those produced for the existing conditions assessment were produced for the horizon year scenarios using a zoning system integrating IZML.

Travel demand at the micro level was forecast using the following formula:

$Future_{i,j}^{Micro} = Baseline_{i,j}^{Micro} + \left(Future_{i,j}^{Macro} - Baseline_{i,j}^{Macro}\right)$ where:

$Future_{i,j}^{Micro}$: Future Travel Demand at the micro level for $Origin_i$ to $Destination_j$

$Baseline_{i,j}^{Micro}$: Existing Travel Demand at the micro level for $Origin_i$ to $Destination_j$

$Future_{i,j}^{Macro}$: Future Travel Demand at the macro level (Emme) for $Origin_i$ to $Destination_j$

$Baseline_{i,j}^{Macro}$: Existing Travel Demand at the macro level (Emme) for $Origin_i$ to $Destination_j$

Trips generated from nearby developments which were not captured at the macro level have been added into the micro level travel demand matrices.

It should be noted that the method applied for assignment of travel demand was not the same in VISSIM and Synchro. In Synchro, travel demand was assigned on the road network based on optimal travel times estimated without constraints of capacity. On the other hand, in VISSIM, travel demand was assigned dynamically by taking into consideration congestion on the network. Thus, if a path was becoming too congested (in VISSIM), which was increasing the travel time compared to the time estimated without capacity constraints, vehicles were selecting another path that would allow them to reach their destination faster. Also, if vehicles were blocked at an intersection at the edge of the study area, the number of vehicles observed at the intersections within the study area became less than the number of vehicles theoretically estimated in Synchro, since the vehicles were not able to load the network. The above explains why turning movement volumes might differ in models developed in Synchro and VISSIM.

The intersection signal timings and offsets were optimized through Synchro and incorporated in the VISSIM microsimulation models. Deficiencies are identified through the measures of effectiveness found through the Synchro and VISSIM models.

3.0 EXISTING CONDITIONS

3.1 ROADS AND TRAFFIC CONTROL

The roadways in the Study Area all operate under the jurisdiction of the City of Mississauga. The site conditions of the roads and intersections within the Study Area are described below with reference made to *Schedule 5 Long Term Road Network* of the *Mississauga Official Plan*. Site conditions include geometric characteristics, types of traffic control, speed limits, signage, etc.

Centre View Drive is an east-west major collector with a posted speed limit of 70 km/h. Centre View Drive has a four-lane cross-section east of Station Gate Road and a five-lane cross-section (i.e. including dedicated right-turn lanes at the Duke of York Boulevard and Station Gate Road intersections) west of Station Gate Road. Signalized intersections are formed along Centre View Drive with Mavis Road, Duke of York, and Station Gate Road. A stop-controlled intersection is formed with the GO carpool lot located between Station Gate Road and Duke of York Boulevard, with stop control provided on the south approach.

It should be noted that the City's *Downtown21 Master Plan* identifies a proposed easterly extension of Centre View Drive to Hurontario Street to create a parallel connection between Mavis Road and Hurontario Street.

Mavis Road is a six-lane arterial road with a posted speed limit of 60 km/h. Mavis Road runs north-south and provides access to and from Highway 403.

Duke of York Boulevard is a four-lane major collector road with no posted speed limit. It is therefore assumed that the statutory speed limit of 50 km/h governs. Duke of York Boulevard runs north-south and forms an unsignalized intersection with the private driveways between Centre View Drive and Rathburn Road West. Stop control is provided on the east and west approaches.

It should be noted that the City's *Downtown21 Master Plan* identifies a proposed extension of Duke of York Boulevard above Highway 403. The extension will connect to a distribution road to be constructed north of, and parallel to, Highway 403.

Station Gate Road is a two-lane minor collector road with no posted speed limit. It is assumed that the statutory speed limit of 50 km/h governs. Station Gate Road runs north-south and forms an unsignalized intersection with the private driveways between Centre View Drive and Rathburn Road West. Stop control is provided on the east and west approaches of the unsignalized intersection. Station Gate Road acts as a transit hub with GO Transit bus stops located along both sides and an exit from the City Centre Transit Terminal located on the south approach of Rathburn Road West/Station Gate Road.

Rathburn Road West is a four-lane major collector road with a posted speed limit of 50 km/h. Rathburn Road West runs east-west and forms signalized intersections with Confederation Parkway, Living Arts Drive, Duke of York Boulevard, and Station Gate Road.

Living Arts Drive is a two-lane minor collector road with no posted speed limit. It is therefore assumed that the statutory speed limit of 50 km/h governs. Living Arts Drive runs north-south, forming a signalized intersection with Square One Drive and an unsignalized intersection with a driveway to Sheridan College. Stop control is provided on the east approach at the intersection with the Sheridan College driveway.

Confederation Parkway is a four-lane major collector road with a posted speed limit of 50 km/h. Confederation Parkway runs north-south and has an overpass above Highway 403, connecting northern Mississauga to Mississauga's downtown core.

Square One Drive is a two-lane minor collector road with no posted speed limit. It is therefore assumed that the statutory speed limit of 50 km/h governs.

3.2 TRANSIT

The Study Area is well served by public transit, with bus options available via GO Transit, MiWay, and Züm. The area around Station Gate Road serves as a transit hub and will become further enhanced through the future implementation of the Hurontario-Main light rail transit (LRT) and Mississauga's bus rapid transit (BRT) projects. The City Centre Transit Terminal exit is located on the south approach to the intersection of Rathburn Road West/Station Gate Road, with entry available to the east from Rathburn Road West. GO bus stops are provided along the sides of Station Gate Road and along the south side of Centre View Drive, west of the intersection of Centre View Drive/Station Gate Road. Transit routes servicing the stops within the Study Area are summarized **Table 1**.

3.3 ACTIVE TRANSPORTATION

Under existing conditions, the Study Area provides bicycle lanes only along Confederation Parkway. A multi-use trail is provided along the south side of Rathburn Road West, west of the City Centre Transit Terminal. This multi-use trail provides an east-west connection to the bicycle lanes along Confederation Parkway. On all other roads within the Study Area, cyclists must use the vehicular travel lanes of the roadway.

As identified in Schedule 7 Long Term Cycling Routes of the Mississauga Official Plan, it is anticipated that Rathburn Road West will have primary on-road / boulevard routes implemented.

Within the Study Area roadway network, sidewalks are currently provided along:

- Mavis Road – both sides;
- Centre View Drive – south side, east of Duke of York Boulevard;

- Duke of York Boulevard – both sides, south of private driveways located between Centre View Drive and Rathburn Road West;
- Station Gate Road – both sides;
- Rathburn Road West – both sides;
- Confederation Parkway – both sides;
- Living Arts Drive – east side; and
- Square One Drive – both sides.

Table 1 - Existing Transit Routes

Transit Agency	Route Number	Route Name
MiWay	3	Bloor
	6	Credit Woodlands
	7	Airport
	8	Cawthra
	9	Rathburn-Thomas
	10	Bristol-Britannia
	19	Hurontario
	20	Rathburn
	28	Confederation
	34	Credit Valley
	61	Mavis
	66	McLaughlin
	68	Windsor Hill
	76	City Centre-Subway
	91	Hillcrest-Cooksville GO
	107	Malton Express
	109	Meadowvale Express N
	110	University Express
	302	Philip Pocock-Bloor West
	309	St. Joseph-Rathburn
	312	Gordon Graydon-City Centre
	315	Rick Hansen-City Centre
GO Transit	19	Mississauga/North York
	21	Milton
	25	Waterloo Mississauga
	29	Guelph/Mississauga
	40	Hamilton/Richmond Hill
	45	Mississauga/York U
	46	Oakville/York U
	47	Hamilton/York U
Züm	502	Main

3.4 TRAFFIC VOLUMES

Turning movement count (TMC) data for the signalized intersections within the Study Area were provided by the City of Mississauga; count dates ranged from October 2015 to January 2017. Highway 403 ramp volume counts were provided by the Ministry of Transportation for the week of June 5, 2017 to June 11, 2017. Stantec conducted site visits on Wednesday, June 14, 2017 during the a.m. and p.m. peak hours, during which 15-minute spot check counts were conducted at the stop controlled intersections to estimate typical volumes.

Hourly volumes at all intersections within the Study Area were calculated for 15-minute increments and summed to determine the representative a.m. and p.m. peak hour of the Study Area network. Representative peak hours of 7:45 a.m. to 8:45 a.m., and 5:00 p.m. to 6:00 p.m. are used in the analysis as they represent the highest total volumes during the a.m. and p.m. peak hours. Data provided by the City of Mississauga, Ministry of Transportation, and counted by Stantec during the site visit were balanced to represent 2017 conditions. The balanced existing 2017 base year a.m. and p.m. peak hour traffic volumes for the Study Area are shown in **Figure 2** and **Figure 3**. All traffic data is included for reference in **Appendix A**.

Figure 2 - Existing 2017 Traffic Volumes AM

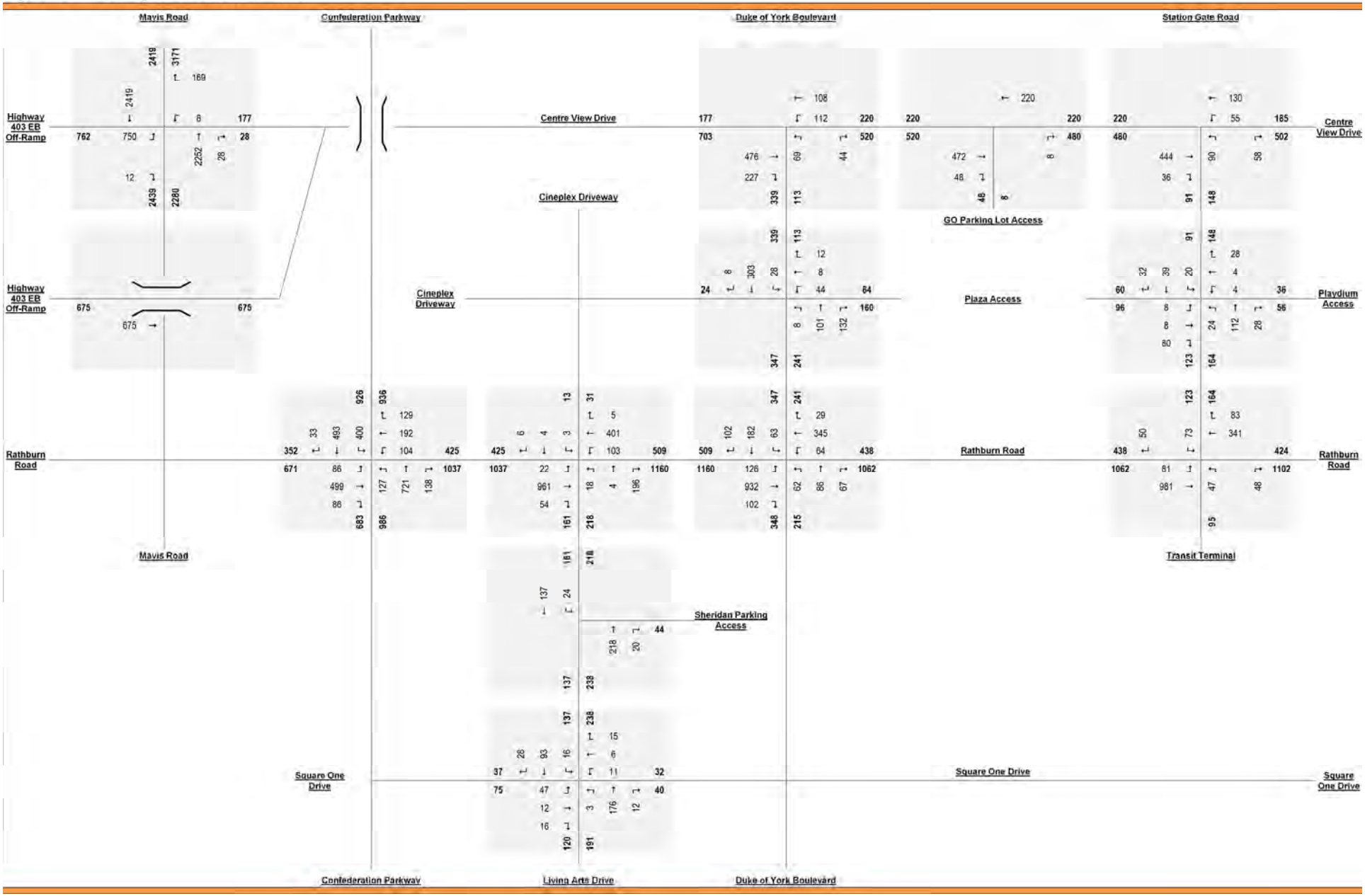
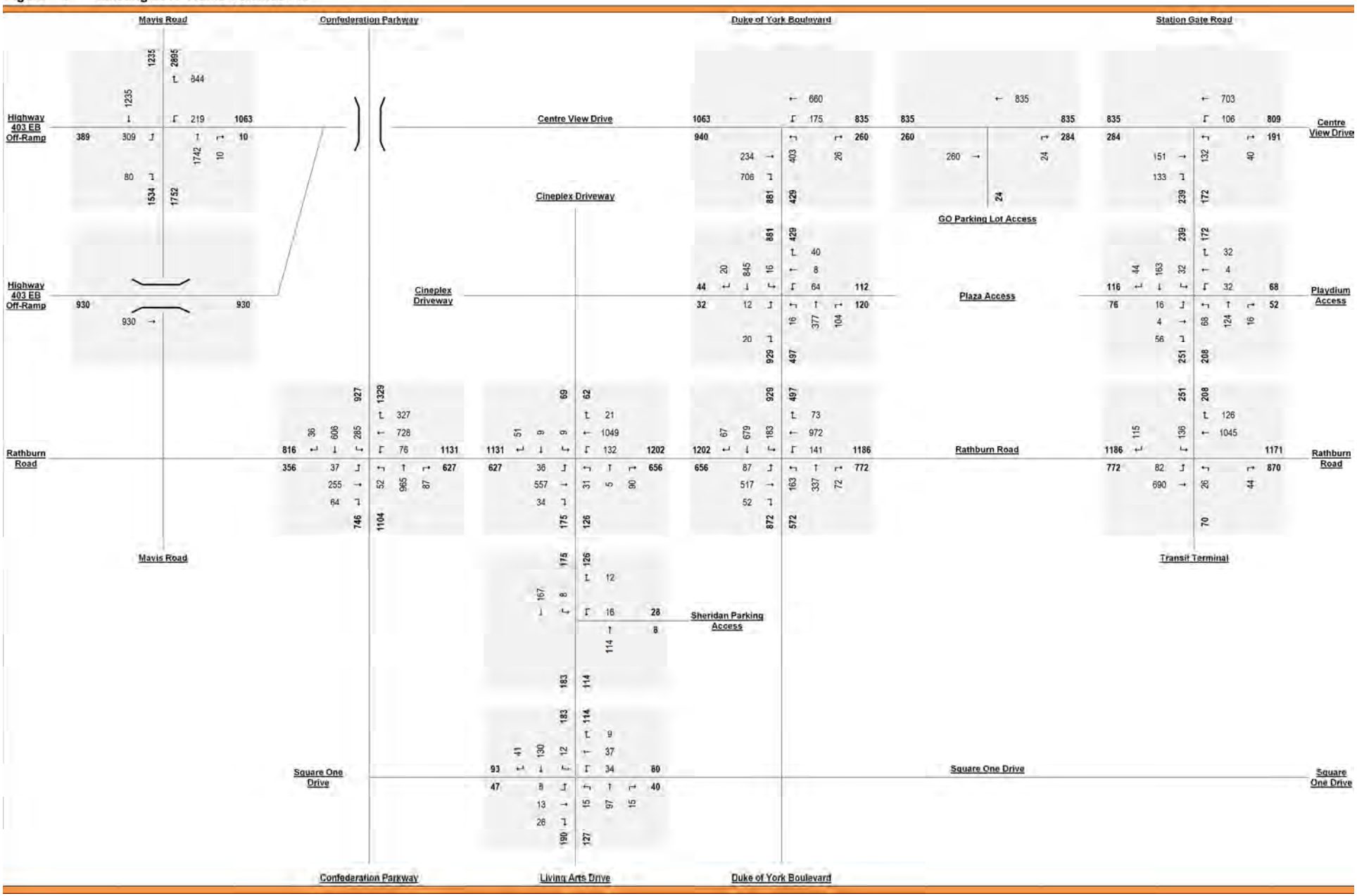


Figure 3 - Existing 2017 Traffic Volumes PM



3.5 TRAFFIC OPERATIONS

The quality of intersection operations is typically measured in terms of level of service (LOS) during the peak hour periods as defined by the *Highway Capacity Manual (HCM)*. The LOS is evaluated based on average delay per vehicle and includes deceleration delay, queue move-up time, stopped delay, and final acceleration delay. For signalized intersections, the LOS ranges from LOS A for 10 second average delay or less to LOS F for delays greater than 80 seconds as shown in **Table 2**.

Table 2 - LOS Criteria for Signalized Intersections

Level of Service (LOS)	Delay (seconds / vehicle)
A	0 – 10 seconds
B	> 10 – 20 seconds
C	> 20 – 35 seconds
D	> 35 – 55 seconds
E	> 55 – 80 seconds
F	> 80 seconds

The LOS criteria for unsignalized and roundabout intersections differ from the criteria for signalized intersections primarily because different transportation facilities result in different driver expectations. The expectation is that a signalized intersection is designed to carry higher traffic volumes and therefore drivers would expect to experience greater delay than at an unsignalized intersection. The delay values for unsignalized and roundabout intersections range from 10 seconds or less for LOS A to greater than 50 seconds for LOS F as shown in **Table 3**.

Table 3 - LOS Criteria for Unsignalized/Roundabout Intersections

Level of Service (LOS)	Delay (seconds / vehicle)
A	0 – 10 seconds
B	> 10 – 15 seconds
C	> 15 – 25 seconds
D	> 25 – 35 seconds
E	> 35 – 50 seconds
F	> 50 seconds

Acceptable intersection operations are generally considered to be LOS D or better, and for left turn movements, LOS E is acceptable during peak hours.

The study area intersections were assessed using both TrafficWare's Synchro 9.1 software and PTV's VISSIM 9.0 software. The Synchro model was used to assess the capacity of the intersections and identify required lane configurations, as the VISSIM model was observed to experience an increased proportion of vehicles denied entry in the future horizon years which results in decreased reliability of model results.

Synchro 9.1 implements the methods of the 2000/2010 Highway Capacity Manual. The key parameters used in the analysis include:

- existing lane configurations;
- heavy vehicle percentages and conflicting pedestrian volumes as derived from traffic count data;
- calculated peak hour factors (PHFs) for the Study Area intersections. It is noted that this factor adjusts the hourly volumes to better represent conditions during the peak 15 minutes of intersection operations; and
- Synchro default values for all other inputs.

The overall intersection results of the analysis for existing conditions are summarized in **Table 4**. Detailed results are illustrated in **Appendix C**. The analysis of traffic operations is in accordance with City of Mississauga *Traffic Impact Study Guidelines*.

As shown in the detailed results, traffic operations under the existing 2017 scenario are generally good; however, there are several notable deficiencies. Deficiencies are observed in the northbound shared through/right and southbound left in both the a.m. and p.m. peak hours at the intersection of Rathburn Road West/Confederation Parkway. The southbound left is overcapacity in both peak hours due to high left turning volumes and opposing northbound through volumes which make it difficult to find acceptable gaps to move on permitted green phases. The westbound shared through/right movement at Rathburn Road West/Confederation Parkway is overcapacity in the p.m. peak hour due to significant through volumes. It is noted that the westbound through operations cannot be improved through extension of green time due to the deficiencies observed along the northbound and southbound approaches.

Other deficiencies in the p.m. peak hour are observed along the eastbound left, southbound through, and southbound right movements at the intersection of Rathburn Road West/Duke of York Boulevard, eastbound left at Rathburn Road West/Station Gate Road, and westbound right at Mavis Road/Centre View Drive. Although the southbound right turning movement at Rathburn Road West/Duke of York Boulevard does not experience a high volume, the high delay may be caused by the extensive queueing along the southbound through movement which extends beyond the north end of Duke of York Boulevard. It is noted that the southbound through volume to capacity ratio can be brought below 1.00 with an LOS E through signal split optimization, however, doing so would increase the northbound left movement to LOS F and bring it near capacity. High delay is observed along the eastbound left movement at Rathburn Road West/Station Gate Road, however, increasing the eastbound green time would reduce the southbound left movement to LOS E and increase its queueing. Since the queueing exceeds the available storage length for the southbound left turn lane without signal split optimization, it is recommended not to alter the splits. The westbound right turn lane at Mavis Road/Centre View Drive is significantly over capacity during the p.m. peak hour due to the high volume along the movement.

Table 4 – Existing Conditions – 2017 – Measures of Effectiveness (Synchro)

Intersection	AM Peak Hour			PM Peak Hour		
	Volume	Delay	V/C	Volume	Delay	V/C
Centre View Dr / Mavis Rd	5,638	25.6	0.78	4,439	76.5	0.99
Centre View Dr / Duke of York Blvd	1,036	19.3	0.36	2,204	14.1	0.55
Centre View Dr / Station Gate Rd	813	10.8	0.24	1,265	8.9	0.38
Rathburn Rd / Station Gate Rd	1,704	17.0	0.46	2,264	30.5	0.66
Rathburn Rd / Duke of York Blvd	2,160	28.8	0.55	3,343	50.2	0.89
Rathburn Rd / Living Arts Dr	1,777	13.6	0.41	2,024	12.4	0.41
Rathburn Rd / Confederation Pkwy	3,008	72.7	>1.00	3,518	79.1	>1.00
Square One Dr / Living Arts Dr	435	14.0	0.32	437	13.4	0.19

Delay: LOS A-C (Green), LOS D (Yellow), LOS E (Purple), LOS F (Red)
V/C: 0.00-0.84 (Green), 0.85-0.99 (Purple), 1.00+ (Red)

3.6 MICROSCOPIC MODELLING

3.6.1 Calibration and Validation

A microsimulation model was developed using PTV's VISSIM 9 software to assess the existing 2017 a.m. and p.m. peak hour network performance. The network performance is assessed using the VISSIM model's measures of effectiveness (MOE) which include delay, level of service, and queue length.

The road network within the Study Area was coded with VISSIM's default "urban (motorized)" link behavior. Once the geometric network was created, desired and reduced speeds were coded into the network. The desired speeds were based on the maximum posted speed limits in the field. Reduced speeds for turns are based on industry accepted values. The speeds coded within the model are 40 km/h for left-turning passenger cars, 30 km/h for left-turning heavy vehicles, and 12 km/h for right-turning vehicles. Public transit stops, routes, and arrival times were coded for all routes within the Study Area. Signal plans at intersections were coded within the model as per the signal timing plans provided by the City, with right-turns on red coded where allowed under existing conditions. Pedestrian crosswalks were coded with their respective pedestrian signal timings and counted volumes applied to account for delay caused by pedestrian conflicts. Conflict areas and priority rules were coded in the VISSIM model to set the appropriate right-of-way in areas where there is potential for vehicles/pedestrians to cross paths. Error checking was conducted throughout the coding process, and before the calibration/validation through a detailed review of the model.

3.6.2 Measures of Effectiveness

The VISSIM measures of effectiveness for the analyzed intersections are summarized in **Table 5** for the existing conditions. Detailed analysis results for individual movements are provided in **Appendix C.1** for the existing conditions.

Although the overall intersection measures of effectiveness indicate differences in operations between the Synchro and VISSIM models due to the differing methods of delay calculation, the detailed results from each analysis indicate that the existing 2017 conditions are characterized by many of the same deficiencies. The westbound right turning movement at Centre View Drive/Mavis Road experiences extensive queueing, reaching an average queue of over 400 metres during the p.m. peak hour. The average queue on the southbound approach to Rathburn Road West /Duke of York Boulevard extends to the upstream intersection with the Cineplex access during the p.m. peak hour. The southbound left movement at Rathburn Road West/Confederation Parkway and the eastbound left at Rathburn Road West/Duke of York Boulevard experience high delays in the p.m. peak hour, resulting in movements at both intersections operating at LOS F, as shown in **Appendix C.1**.

Table 5 - Existing Conditions - 2017 - Measures of Effectiveness (VISSIM)

Intersection	AM Peak Hour		PM Peak Hour	
	Volume	Delay	Volume	Delay
Centre View Dr / Mavis Rd	5,537	26.6	4,313	29.5
Centre View Dr / Duke of York Blvd	1,054	14.4	2,163	15.3
Centre View Dr / Station Gate Rd	813	5.6	1,242	5.1
Rathburn Rd / Station Gate Rd	1,798	19.0	2,378	34.1
Rathburn Rd / Duke of York Blvd	2,242	21.5	3,481	36.0
Rathburn Rd / Living Arts Dr	1,762	9.6	2,108	32.6
Rathburn Rd / Confederation Pkwy	2,993	35.2	3,488	49.4
Square One Dr / Living Arts Dr	421	12.0	449	11.7

Delay: LOS A-C (Green), LOS D (Yellow), LOS E (Purple), LOS F (Red)

4.0 FUTURE TRAVEL DEMAND FORECASTING

4.1.1 Planning Assumptions

Through the background document review and discussions with the City, several network changes have been identified and incorporated in the VISSIM and Synchro models. Network changes which do not fall within the bounds of the Study Area, but which will influence travel demands within the Study Area, have been taken into account through the travel demand matrices provided by the City. The planning assumptions incorporated at each horizon year are as follows:

1. 2021 & 2031 horizon years:
    a. Hurontario LRT implemented along Rathburn Road West and Duke of York Boulevard, with associated traffic signal changes and lane reductions at the intersections of Rathburn Road West with Duke of York Boulevard and Station Gate Road. A Hurontario LRT stop is anticipated to be located east of the intersection of Rathburn Road West/Station Gate Road which will result in the removal of the westbound right turn lane at Rathburn Road West/Station Gate Road;
    b. Lane reduction on Hurontario Street from 6 lanes to 4 lanes;
    c. Extension of Square One Drive, from Confederation Parkway to Rathburn Road;
    d. MiWay bus route and service rate changes as part of the MiWay 5 study; and
    e. Additional traffic generated by the Amacon development.
2. 2041 horizon year:
    a. New North Distribution Road constructed north of, and parallel to, Highway 403;
    b. Duke of York Boulevard extended north beyond Highway 403, with a grade separated crossing with Centre View Drive, reduction to a two-lane cross-section north of Rathburn Road West/Duke of York Boulevard, and lane configuration changes at Rathburn Road West/Duke of York Boulevard. The extension will connect to the new North Distribution Road; and
    c. City Center Drive extended north (i.e. beyond Highway 403), to the new North Distribution Road.

It should be noted that construction of Phase 2 of the Sheridan College expansion was completed in January 2017. It is assumed that the volumes generated by this construction have been captured through the 2017 turning movement counts, and during the spot-check counts conducted at the Sheridan College access.

The networks for the 2021 and 2031 horizon years are the same with the exception of signal timings which have been optimized through Synchro and applied to the VISSIM models.

4.1.2 Future Travel Demand

Travel demand was forecasted for the 2021, 2031, and 2041 horizon years with the use of the City's EMME model outputs. The demand varies slightly for the horizon years depending on whether the Living Arts Drive extension was implemented. The fluctuation in volume between zones in the horizon years relative to the base year outputs were applied to the adjusted matrices used in the 2017 existing conditions analysis. Substantial traffic growth is anticipated in the Study Area network in both the a.m. and p.m. peak hours resulting in an increase of over 30% in the a.m. peak hour and nearly 50% in the p.m. peak hour in 2041 relative to 2017 traffic demand. The population and employment forecasts in downtown Mississauga which were used to derive the travel demand growth in the Study Area are summarized in **Table 6**, with growth percentages calculated relative to 2011. **Table 7** summarizes the total network volumes for the horizon years along with the growth relative to the base year.

Table 6 - Forecast Downtown Mississauga Population and Employment

Year	Population	Growth	Employment	Growth
2011	31,860	-	21,250	-
2021	40,910	28.4%	26,480	24.6%
2031	53,800	68.9%	31,610	48.8%
2041	61,370	92.6%	36,830	73.3%

Table 7 - Forecast Growth in Travel Demand

Year	Scenario	AM Peak Hour		PM Peak Hour	
		Network Volume	Growth	Network Volume	Growth
2017	-	10,162	-	10,077	-
2021	"Do Nothing"	10,654	4.8%	11,307	12.2%
	With Extension	10,474	3.1%	11,558	14.7%
2031	"Do Nothing"	11,502	13.2%	12,897	28.0%
	With Extension	11,620	14.3%	13,103	30.0%
2041	"Do Nothing"	13,143	29.3%	14,886	47.7%
	With Extension	13,339	31.3%	15,091	49.8%

Similar to the previously conducted Square One Drive Extension Class EA, it is assumed that the Amacon development will be completed by the 2021 horizon year. Trips generated by the Amacon development were added to the horizon year traversal matrices.

Due to the dynamic nature of the vehicle assignment in VISSIM, the number of turning movement volumes at intersections is not consistent from one simulation to the other. To review whether the volumes processed are consistent enough to be considered for analysis purposes, the standard deviation for intersection volumes per run were reviewed. Each scenario was run 5 times, with the average volumes and measures of effectiveness results summarized for analysis purposes. **Table 8** summarizes the number of runs which have volumes within one and two standard deviations at intersections for each scenario. Data sets are considered to be normally

distributed when about 68% of the samples are within one standard deviation, and 95% are within two standard deviations. The summary below shows that the p.m. scenarios are normally distributed, with a few scenarios in the a.m. peak hour being just below 68%, however, all volumes remain within 2 standard deviations. Based on the summary below, it can be concluded that the future models assign future travel demand effectively.

Table 8 - VISSIM Runs within Standard Deviations (SD)

Scenario	AM Peak Hour		PM Peak Hour	
	1 SD	2 SD	1 SD	2 SD
2021 Do Nothing	68%	100%	73%	100%
2021 With Extension	71%	100%	67%	100%
2031 Do Nothing	65%	100%	80%	100%
2031 With Extension	70%	100%	70%	100%
2041 Do Nothing	64%	100%	78%	100%
2041 With Extension	66%	100%	80%	100%

Since the forecast travel demand could not fully enter the VISSIM network in the future horizon years, turning movement volumes have been estimated assuming assignment of vehicles based on theoretical minimization of travel times without constraints of capacity. This approach was applied as to not underestimate the impact of forecast growth on the Study Area network intersections. The resulting forecast horizon year volumes applied to the Synchro models under the "Do Nothing" and with extension of Living Arts Drive scenarios are shown in **Figure 4** to **Figure 15**. Traversal matrices used in the forecast horizon years VISSIM models, and in the determination of forecast assigned volumes for use in Synchro, are attached in **Appendix E** for reference. The forecast traversal matrices were calculated by adding the projected growth from the traversal matrices to the adjusted existing a.m. and p.m. peak hour matrices.

Figure 4 - 2021 "Do Nothing" Traffic Volumes AM

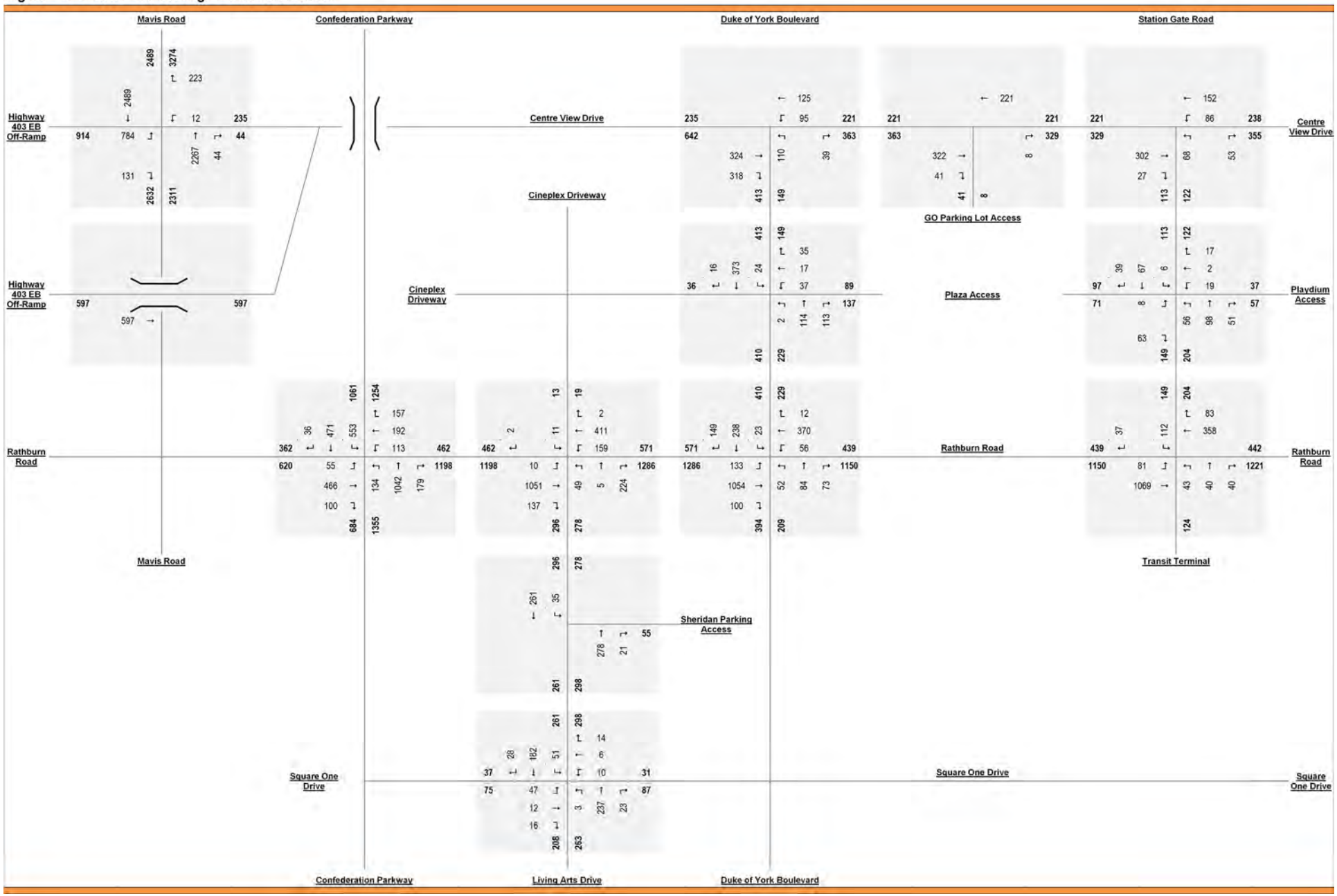


Figure 5 - 2021 "Do Nothing" Traffic Volumes PM

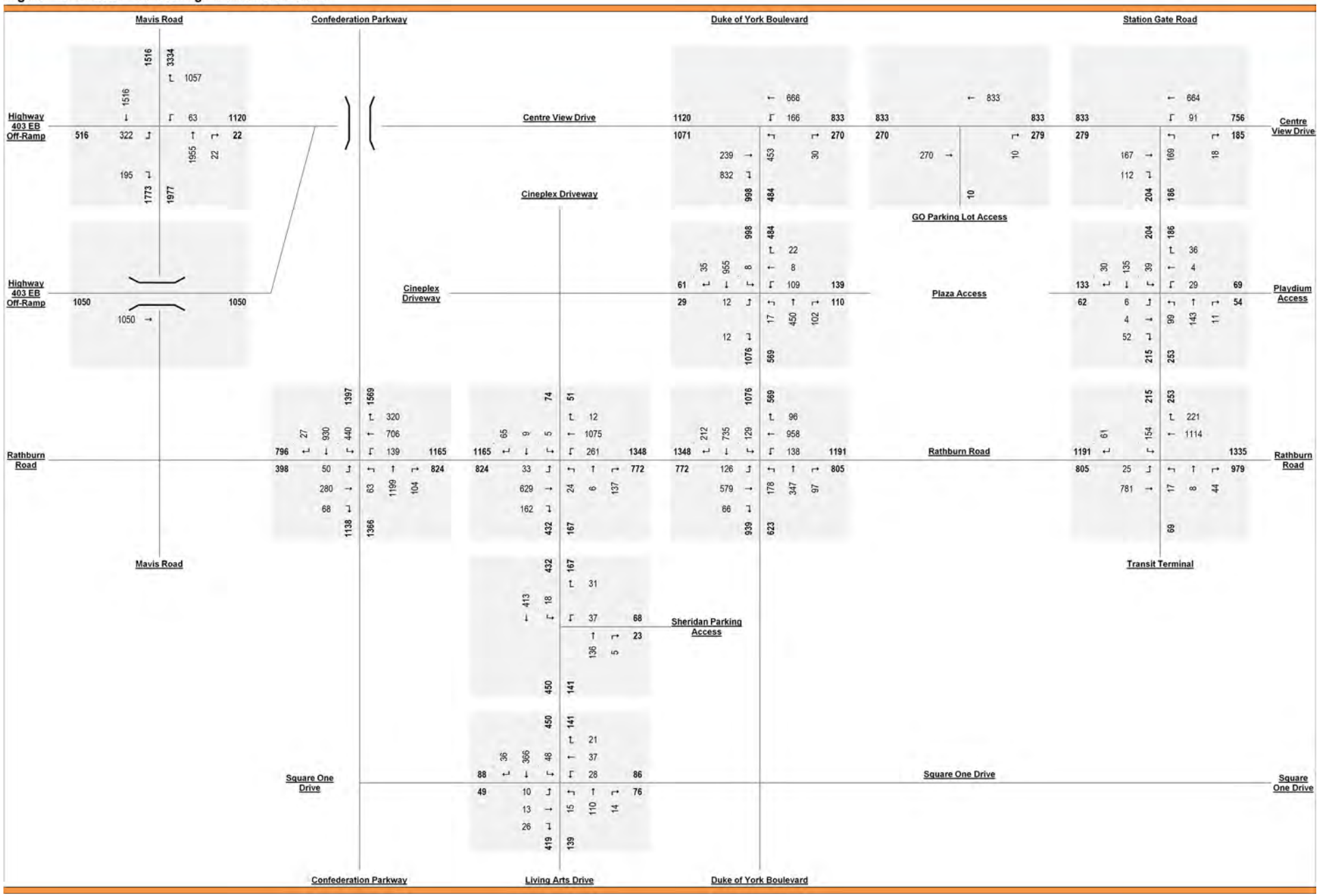


Figure 6 - 2031 "Do Nothing" Traffic Volumes AM

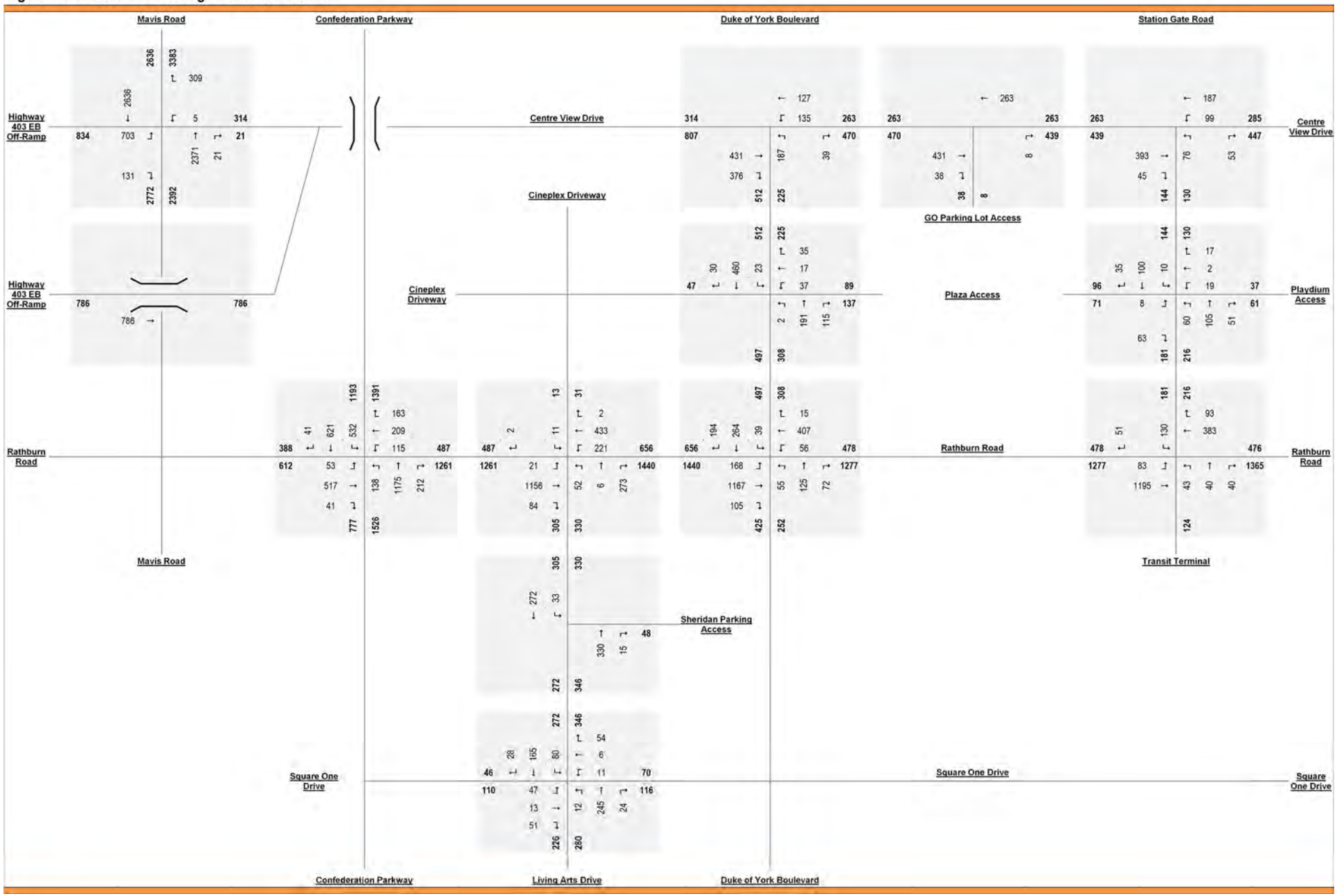


Figure 7 - 2031 "Do Nothing" Traffic Volumes PM

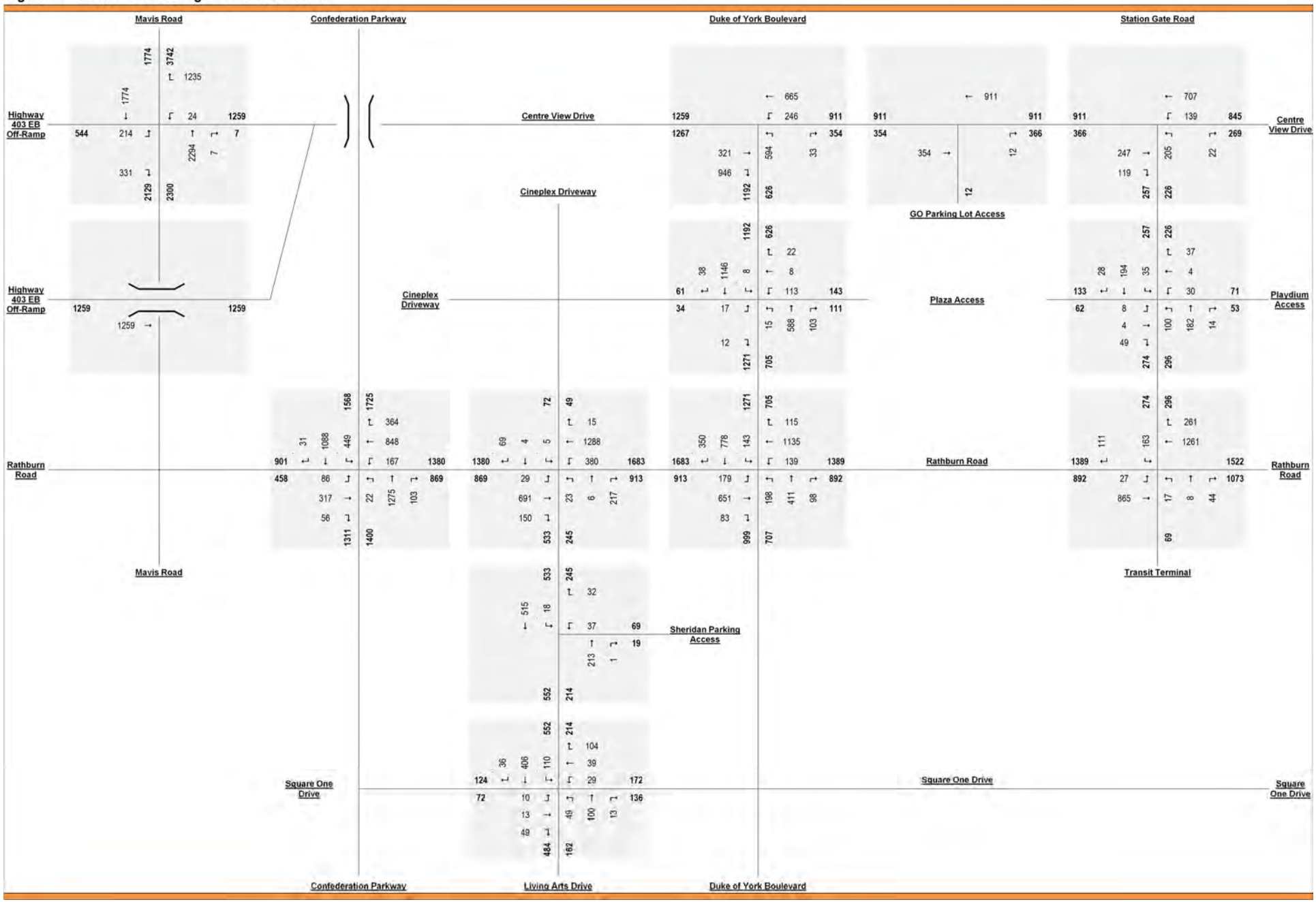


Figure 8 - 2041 "Do Nothing" Traffic Volumes AM

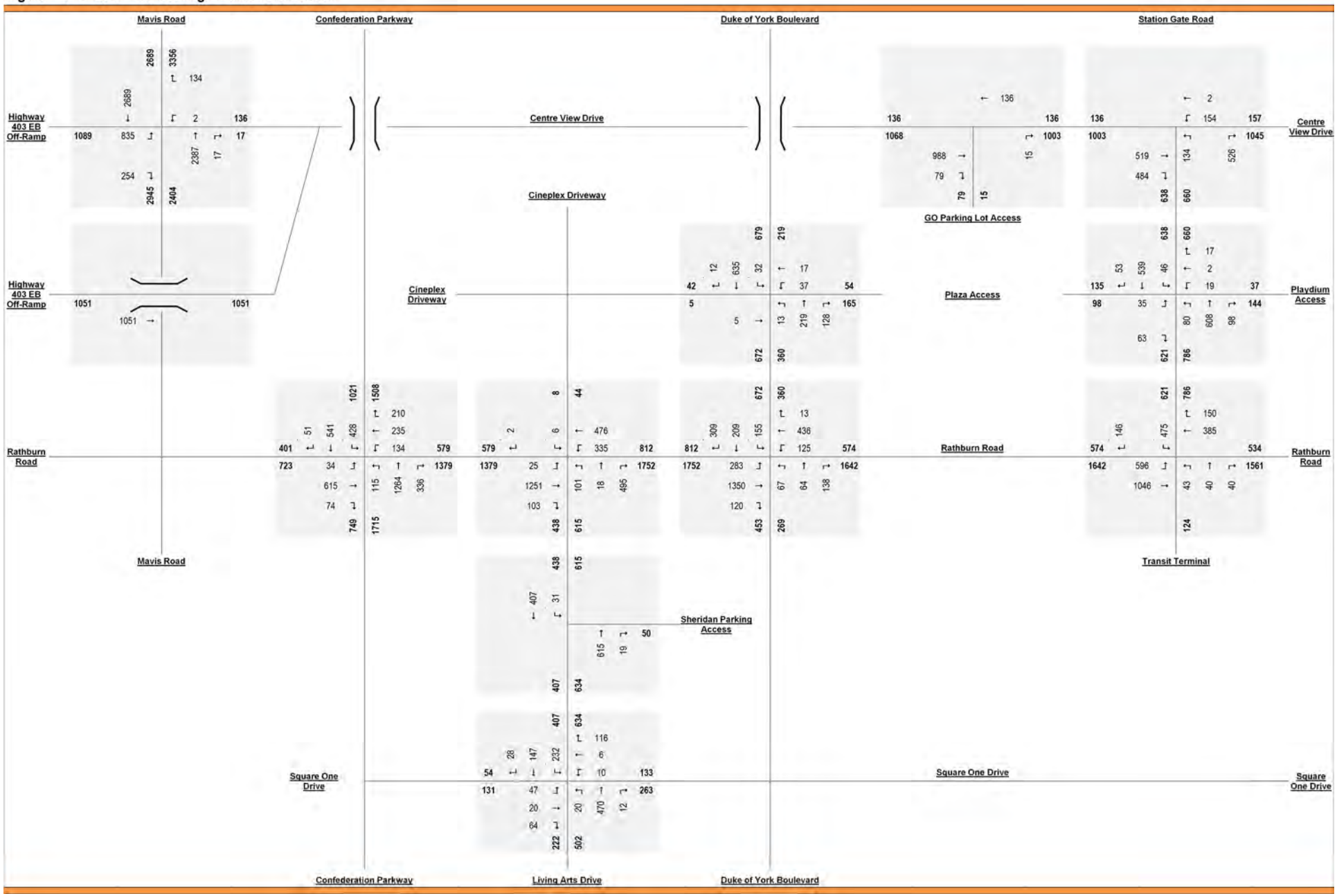


Figure 9 - 2041 "Do Nothing" Traffic Volumes PM

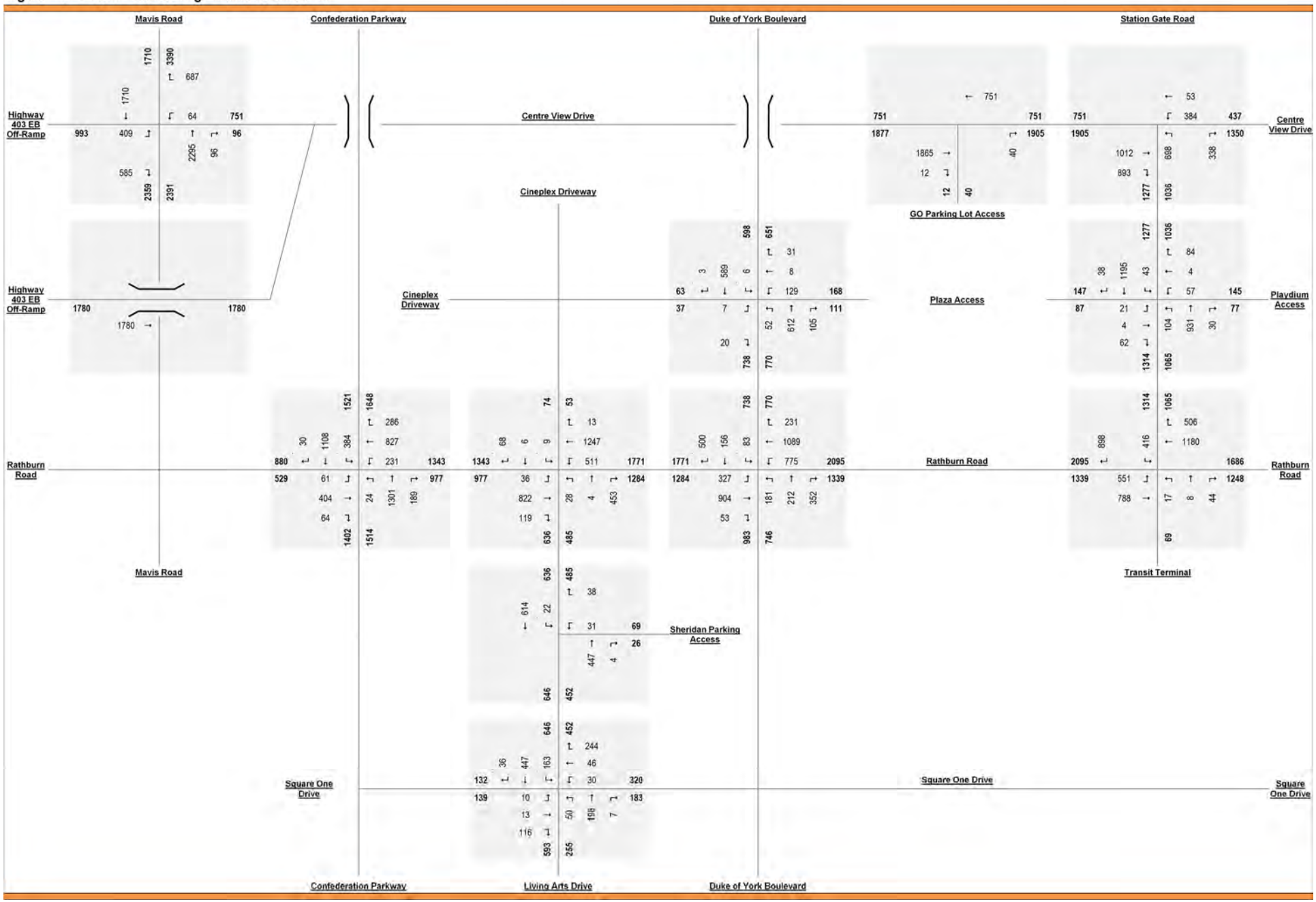


Figure 10 - 2021 With Extension Traffic Volumes AM

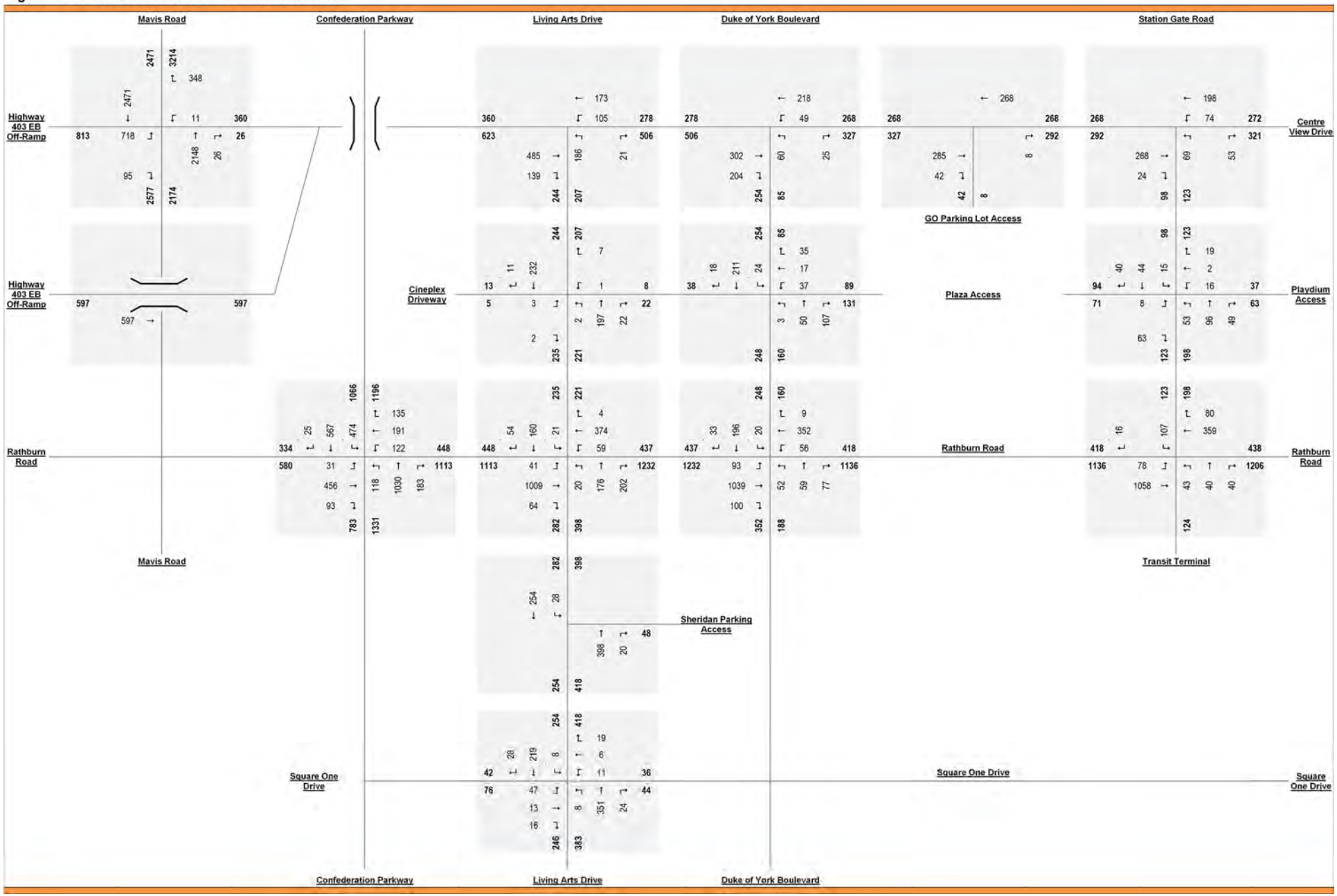


Figure 11 - 2021 With Extension Traffic Volumes PM

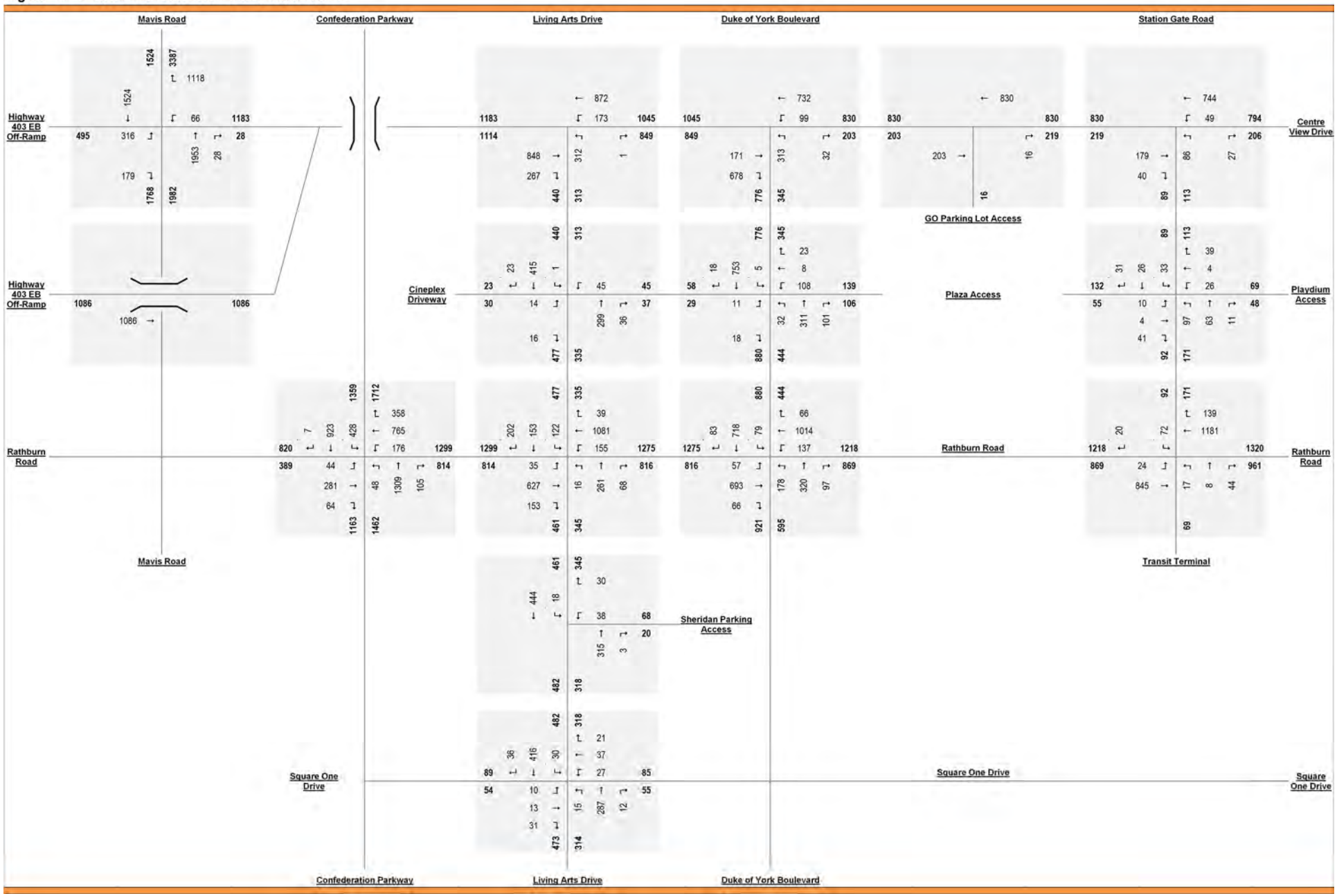


Figure 12 - 2031 With Extension Traffic Volumes AM

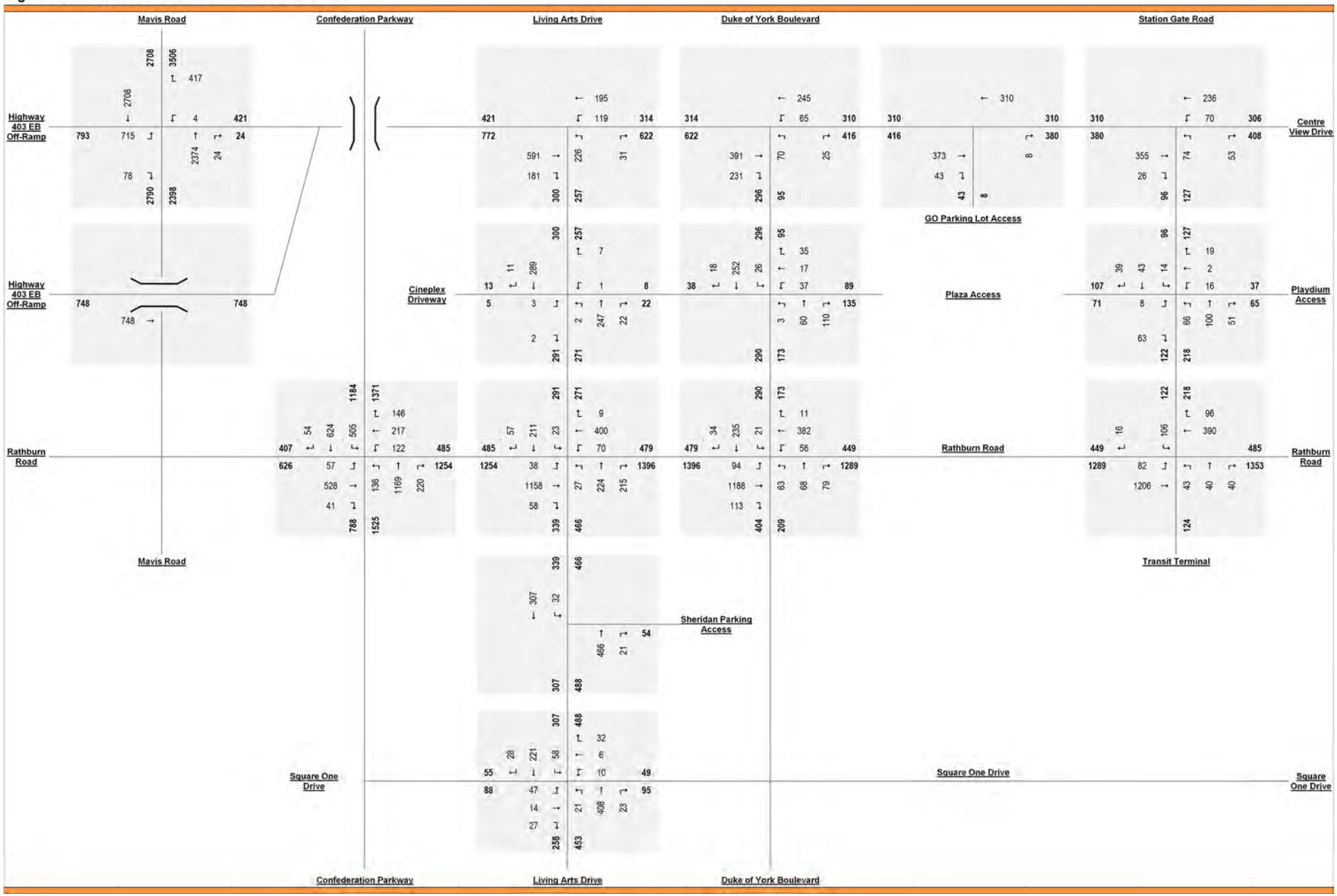


Figure 13 - 2031 With Extension Traffic Volumes PM

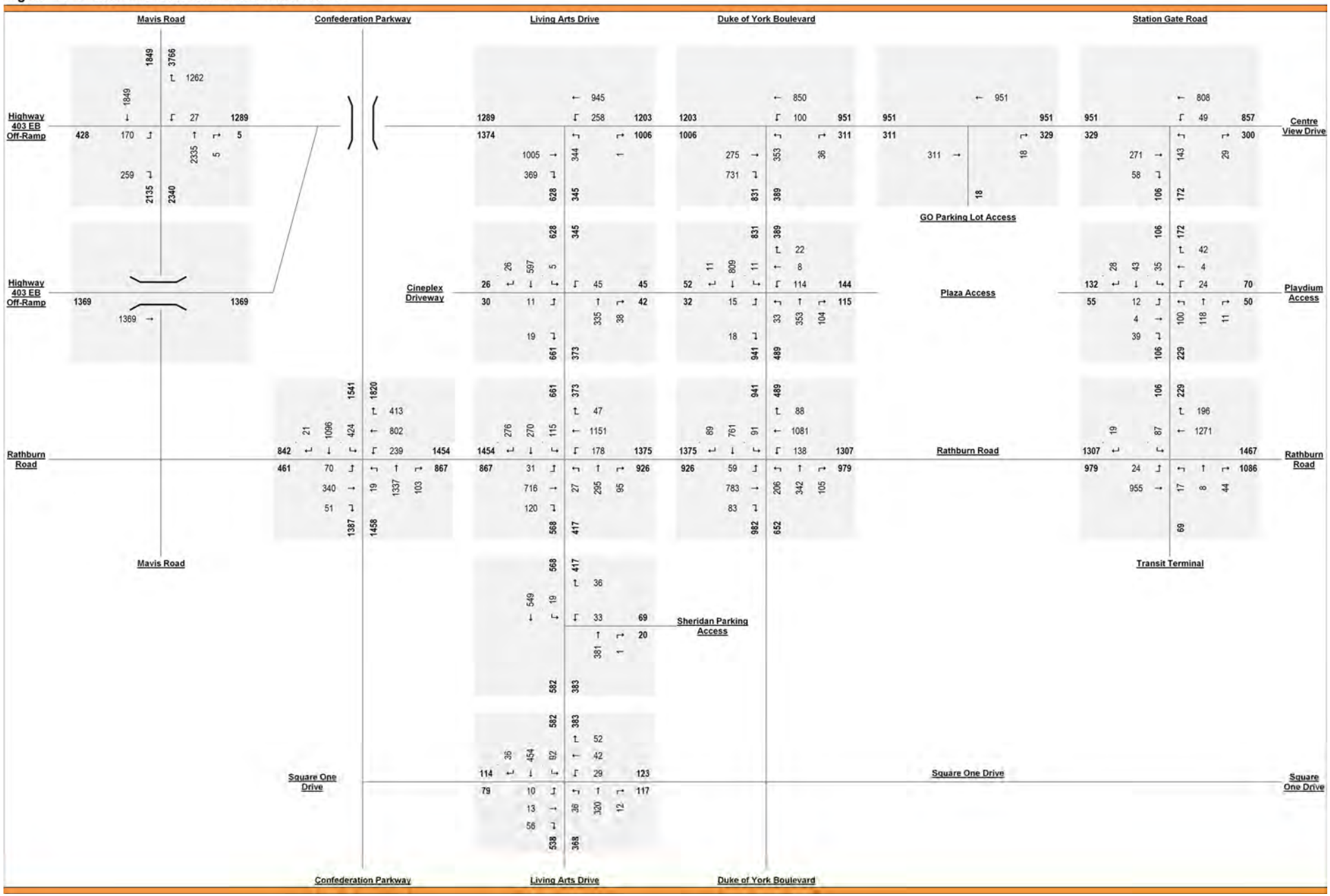


Figure 14 - 2041 With Extension Traffic Volumes AM

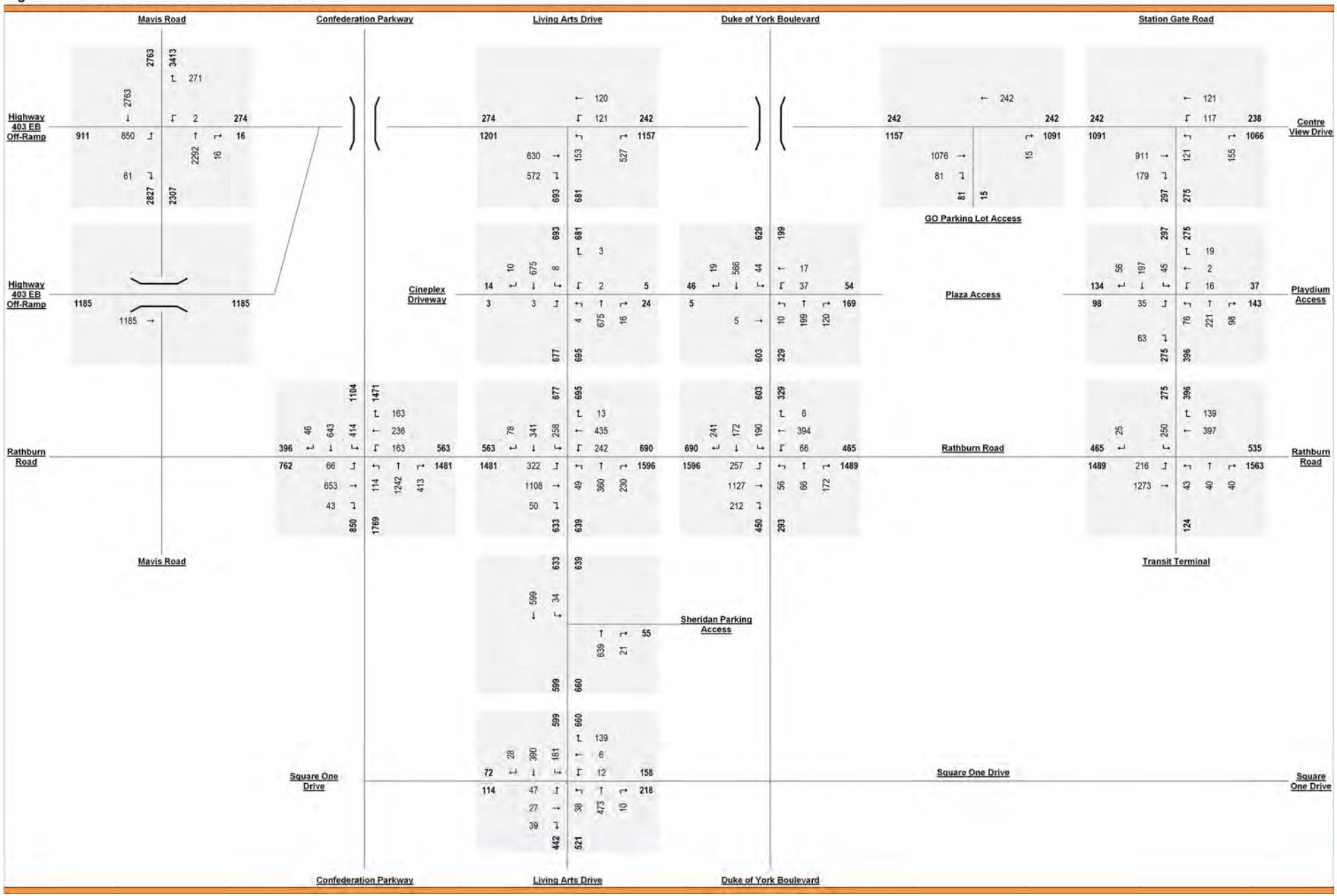
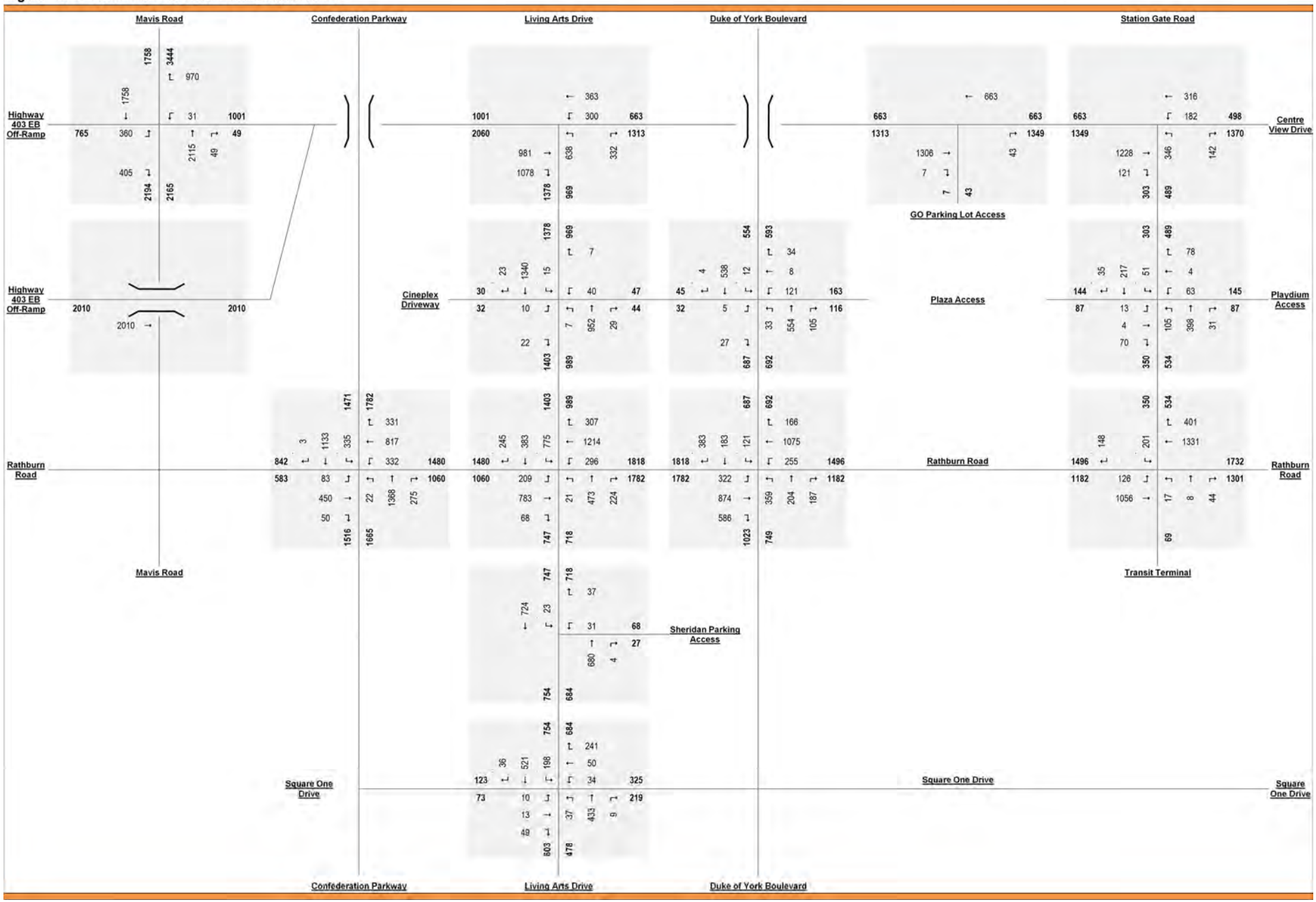


Figure 15 - 2041 With Extension Traffic Volumes PM



5.0 SCENARIO ASSESSMENT

5.1 "DO NOTHING" SCENARIO

The "Do Nothing" scenario assesses the 2021, 2031, and 2041 horizon year network operations without the extension of Living Arts Drive to Centre View Drive. Other planning assumptions, including the Hurontario LRT, MiWay route and service changes, background developments, and extension of Duke of York Boulevard are incorporated for their respective horizon years, as discussed previously in this report. Signal timing split and offset optimizations were conducted through Synchro and implemented into the VISSIM models. The Synchro and VISSIM analysis measures of effectiveness are summarized in **Table 9** to **Table 14** for the "Do Nothing" scenario.

5.1.1 2021 Horizon Year

5.1.1.1 Traffic Operations

The 2021 "Do Nothing" Synchro operational analysis indicates that several intersections are anticipated to operate at capacity during the p.m. peak hour. It should be noted that the Synchro models do not incorporate phases for the future Hurontario LRT and, as such, do not account for additional delay incurred from resulting from its operation. Detailed results show high delay and long queueing is anticipated within the Study Area network at several intersections, with poor results observed at the intersections of Centre View Drive/Mavis Road, and at the intersections of Rathburn Road West with Confederation Parkway, Duke of York Boulevard, and Station Gate Road.

Table 9 - "Do Nothing" Scenario – 2021 – Measures of Effectiveness (Synchro)

Intersection	AM Peak Hour			PM Peak Hour		
	Volume	Delay	V/C	Volume	Delay	V/C
Centre View Dr / Mavis Rd	5,950	26.6	0.81	5,129	91.1	>1.00
Centre View Dr / Duke of York Blvd	1,011	12.6	0.29	2,388	18.2	0.65
Centre View Dr / Station Gate Rd	689	8.7	0.18	1,221	10.4	0.39
Rathburn Rd / Station Gate Rd	1,864	12.9	0.54	2,424	34.9	0.78
Rathburn Rd / Duke of York Blvd	2,344	37.8	0.80	3,662	83.1	>1.00
Rathburn Rd / Living Arts Dr	2,060	17.9	0.54	2,419	18.2	0.45
Rathburn Rd / Confederation Pkwy	3,497	116	>1.00	4,327	101	>1.00
Square One Dr / Living Arts Dr	630	14.7	0.42	725	14.5	0.40

Delay: LOS A-C (Green), LOS D (Yellow), LOS E (Purple), LOS F (Red)
V/C: 0.00-0.84 (Green), 0.85-0.99 (Purple), 1.00+ (Red)

5.1.1.2 Microscopic Modelling

Excessive delays and queues are observed forming in the p.m. peak hour of the 2021 horizon year, resulting in some vehicles not being able to enter the VISSIM network. The a.m. peak hour simulation indicates acceptable delay, however, several intersections in the p.m. peak hour operate at LOS E or worse.

Table 10 - "Do Nothing" Scenario – 2021 – Measures of Effectiveness (VISSIM)

Intersection	AM Peak Hour		PM Peak Hour	
	Volume	Delay	Volume	Delay
Centre View Dr / Mavis Rd	5,893	20.6	4,772	33.4
Centre View Dr / Duke of York Blvd	1,078	11.1	1,852	86.6
Centre View Dr / Station Gate Rd	755	5.0	1,159	6.8
Rathburn Rd / Station Gate Rd	1,846	23.9	2,067	60.0
Rathburn Rd / Duke of York Blvd	2,357	41.7	2,887	62.2
Rathburn Rd / Living Arts Dr	2,023	29.6	1,784	99.3
Rathburn Rd / Confederation Pkwy	3,412	45.1	2,902	84.8
Square One Dr / Living Arts Dr	602	10.9	553	18.7

Delay: LOS A-C (Green), LOS D (Yellow), LOS E (Purple), LOS F (Red)

5.1.2 2031 Horizon Year

5.1.2.1 Traffic Operations

The poor operations observed in the 2021 horizon year are noted to become exacerbated in the 2031 horizon year. The intersection of Rathburn Road West/Duke of York Boulevard is anticipated to approach capacity during the a.m. peak hour.

Table 11 - "Do Nothing" Scenario – 2031 – Measures of Effectiveness (Synchro)

Intersection	AM Peak Hour			PM Peak Hour		
	Volume	Delay	V/C	Volume	Delay	V/C
Centre View Dr / Mavis Rd	6,176	27.2	0.82	5,878	>120	>1.00
Centre View Dr / Duke of York Blvd	1,295	12.2	0.39	2,804	19.2	0.74
Centre View Dr / Station Gate Rd	854	8.4	0.22	1,437	11.3	0.44
Rathburn Rd / Station Gate Rd	2,059	13.7	0.61	2,757	44.8	0.87
Rathburn Rd / Duke of York Blvd	2,666	49.7	0.91	4,280	>120	>1.00
Rathburn Rd / Living Arts Dr	2,260	21.3	0.61	2,875	21.4	0.58
Rathburn Rd / Confederation Pkwy	3,817	>120	>1.00	4,807	>120	>1.00
Square One Dr / Living Arts Dr	734	15.6	0.44	958	15.8	0.46

Delay: LOS A-C (Green), LOS D (Yellow), LOS E (Purple), LOS F (Red)
V/C: 0.00-0.84 (Green), 0.85-0.99 (Purple), 1.00+ (Red)

5.1.2.2 Microscopic Modelling

As the VISSIM analysis for the "Do Nothing" scenario progresses through the 2031 and 2041 horizon years, a greater proportion of vehicles are denied entry to (i.e. unable to enter) the Study Area network due to extensive queueing. Although the Study Area network is projected to experience growth over the horizon years considered as part of this study, it is observed that the number of vehicles processed at Study Area intersections in later horizon years is actually less than the number processed in preceding horizon years. This reduction is likely due to increasing congestion resulting from excessive queueing at the through and turning movements of several Study Area intersections, which therefore blocks lanes and reduces the capacity of the approaches. Under actual conditions, the simulated delays and queues would not be experienced to the extent observed in the analysis due to the perceived costs to drivers being too high. Instead, drivers would find different routes outside of the Study Area network, spread out the time at which they travel to avoid the most congested periods, switch to other modes of transportation, or avoid the area altogether.

Table 12 - "Do Nothing" Scenario – 2031 – Measures of Effectiveness (VISSIM)

Intersection	AM Peak Hour		PM Peak Hour	
	Volume	Delay	Volume	Delay
Centre View Dr / Mavis Rd	6,113	20.2	5,091	28.3
Centre View Dr / Duke of York Blvd	1,320	11.4	1,354	118
Centre View Dr / Station Gate Rd	905	5.2	1,051	10.5
Rathburn Rd / Station Gate Rd	1,951	25.0	1,672	57.4
Rathburn Rd / Duke of York Blvd	2,570	46.7	2,256	67.6
Rathburn Rd / Living Arts Dr	2,089	44.3	1,485	94.4
Rathburn Rd / Confederation Pkwy	3,460	50.8	2,309	88.6
Square One Dr / Living Arts Dr	693	11.9	493	61.4

Delay: LOS A-C (Green), LOS D (Yellow), LOS E (Purple), LOS F (Red)

5.1.3 2041 Horizon Year

5.1.3.1 Traffic Operations

In the 2041 horizon year under the "Do Nothing" scenario, all vehicles entering and exiting the core of the Study Area network using Centre View Drive are forced to use Station Gate Road due to the grade separation at Centre View Drive/Duke of York Boulevard. This results in the intersections of Station Gate Road with Centre View Drive and Rathburn Road West becoming overcapacity. It is noted that the operations during the a.m. peak hour have significantly deteriorated compared to those during the 2031 horizon year.

Table 13 - "Do Nothing" Scenario – 2041 – Measures of Effectiveness (Synchro)

Intersection	AM Peak Hour			PM Peak Hour		
	Volume	Delay	V/C	Volume	Delay	V/C
Centre View Dr / Mavis Rd	6,318	32.6	0.91	5,846	47.3	0.99
Centre View Dr / Station Gate Rd	1,820	19.2	0.67	3,378	>120	>1.00
Rathburn Rd / Station Gate Rd	2,921	>120	>1.00	4,408	>120	>1.00
Rathburn Rd / Duke of York Blvd	3,267	100	>1.00	4,862	>120	>1.00
Rathburn Rd / Living Arts Dr	2,813	39.9	0.93	3,316	35.3	0.80
Rathburn Rd / Confederation Pkwy	4,037	>120	>1.00	4,908	117.4	>1.00
Square One Dr / Living Arts Dr	1,172	>120	>1.00	1,359	17.7	0.55

Delay: LOS A-C (Green), LOS D (Yellow), LOS E (Purple), LOS F (Red)
V/C: 0.00-0.84 (Green), 0.85-0.99 (Purple), 1.00+ (Red)

5.1.3.2 Microscopic Modelling

By the 2041 horizon year under the "Do Nothing" scenario, the intersections within the Study Area network are largely characterized by unacceptable delay, with most intersections operating at LOS F in the p.m. peak hour. Due to the large number of vehicles that are unable to enter the VISSIM network in the 2041 horizon year, the model is not considered to be reliable.

Table 14 - "Do Nothing" Scenario – 2041 – Measures of Effectiveness (VISSIM)

Intersection	AM Peak Hour		PM Peak Hour	
	Volume	Delay	Volume	Delay
Centre View Dr / Mavis Rd	6,254	23.0	4,782	26.7
Centre View Dr / Station Gate Rd	1,146	35.7	948	82.4
Rathburn Rd / Station Gate Rd	1,818	62.5	1,432	96.4
Rathburn Rd / Duke of York Blvd	2,046	86.9	1,189	>120
Rathburn Rd / Living Arts Dr	1,363	>120	755	>120
Rathburn Rd / Confederation Pkwy	1,610	>120	640	>120
Square One Dr / Living Arts Dr	597	>120	306	>120

Delay: LOS A-C (Green), LOS D (Yellow), LOS E (Purple), LOS F (Red)

5.2 "WITH EXTENSION" SCENARIO

The "With Extension" scenario assesses the 2021, 2031, and 2041 horizon year network operations with the extension of Living Arts Drive to Centre View Drive. For the purposes of this analysis, the following configuration for the extension was assumed:

- **2-lane cross-section** (except at intersections)

- **Living Arts Drive/Rathburn Road West** - signalized intersection, with auxiliary turn lanes (as required);
- **Living Arts Drive/Cineplex Access** - single-lane roundabout; and
- **Living Arts Drive/Centre View Drive** - signalized intersection, with auxiliary turn lanes (as required) and including an advanced left turn phase to accommodate the higher volumes for the westbound left turn movement anticipated during the p.m. peak hour (actuation provided through a detector located within the limits of the proposed westbound left turn lane).

All anticipated network changes, including the Hurontario LRT, MiWay route and service changes, background developments, and extension of Duke of York Boulevard are incorporated in their respective horizon years. Signal timing and offset optimizations were conducted through Synchro and implemented into each VISSIM scenario. The Synchro and VISSIM analysis measures of effectiveness for the "With Extension" scenario are summarized in **Table 15** to **Table 21**.

5.2.1 2021 Horizon Year

5.2.1.1 Traffic Operations

The Synchro operational analysis of the "With Extension" scenario under the 2021 horizon year indicates that the extension of Living Arts Drive to Centre View Drive would alleviate some of the congestion experienced along the southbound approach to Rathburn Road West/Duke of York Boulevard and at the intersections of Station Gate Road with Centre View Drive and Rathburn Road West.

Higher volumes are forecast at the intersection of Rathburn Road West with Confederation Parkway in the p.m. peak hour under the "With Extension" scenario, resulting in poorer operations than recorded under the "Do Nothing" scenario. Regional modelling outputs indicate that northbound through trips at this intersection will increase, and it has been assumed that this growth is attributable to trips for which the origins and destinations are located outside of the Study Area. Similarly, the higher projected volumes on the westbound approach of this intersection can be attributed to increased connectivity between Rathburn Road West and Centre View Drive, which will change trip characteristics within, and adjacent to, the Study Area, and allow higher utilization of these movements by motorists.

Table 15 - With Extension Scenario – 2021 – Measures of Effectiveness (Synchro)

Intersection	AM Peak Hour			PM Peak Hour		
	Volume	Delay	V/C	Volume	Delay	V/C
Centre View Dr / Mavis Rd	5,817	28.6	0.82	5,183	104	>1.00
Centre View Dr / Duke of York Blvd	859	13.3	0.21	2,024	17.5	0.53
Centre View Dr / Station Gate Rd	688	8.6	0.17	1,125	7.5	0.35
Rathburn Rd / Station Gate Rd	1,821	16.7	0.55	2,350	38.9	0.65
Rathburn Rd / Duke of York Blvd	2,086	32.7	0.67	3,509	42.5	>1.00
Rathburn Rd / Living Arts Dr	2,183	23.2	0.58	2,911	24.7	0.66
Rathburn Rd / Confederation Pkwy	3,426	94.1	>1.00	4,509	>120	>1.00
Square One Dr / Living Arts Dr	749	16.5	0.57	935	14.0	0.44
Centre View Dr / Living Arts Dr	1,109	13.2	0.31	2,471	17.7	0.63

Delay: LOS A-C (Green), LOS D (Yellow), LOS E (Purple), LOS F (Red)
V/C: 0.00-0.84 (Green), 0.85-0.99 (Purple), 1.00+ (Red)

5.2.1.2 Microscopic Modelling

The overall intersection operations for the "With Extension" scenario under the 2021 horizon year (summarized in **Table 16)** indicates that traffic operations would be improved through the extension of Living Arts Drive; however, it is noted that vehicles continue to be blocked from entering the VISSIM network in the 2021 p.m. peak hour indicating reduced reliability of the model.

Table 16 - With Extension Scenario – 2021 – Measures of Effectiveness (VISSIM)

Intersection	AM Peak Hour		PM Peak Hour	
	Volume	Delay	Volume	Delay
Centre View Dr / Mavis Rd	5,758	20.8	4,696	33.5
Centre View Dr / Duke of York Blvd	892	9.2	1,636	36.9
Centre View Dr / Station Gate Rd	772	5.0	1,181	5.9
Rathburn Rd / Station Gate Rd	1,791	31.2	2,146	63.1
Rathburn Rd / Duke of York Blvd	2,128	47.7	3,203	66.9
Rathburn Rd / Living Arts Dr	2,170	41.5	2,723	54.1
Rathburn Rd / Confederation Pkwy	3,340	43.9	4,206	49.7
Square One Dr / Living Arts Dr	725	10.3	863	12.6
Centre View Dr / Living Arts Dr	1,082	14.9	2,007	75.1

Delay: LOS A-C (Green), LOS D (Yellow), LOS E (Purple), LOS F (Red)

5.2.2 2031 Horizon Year

5.2.2.1 Traffic Operations

Relative to the "Do Nothing" scenario, the 2031 "With Extension" operational analysis indicates improved operations at the intersections of Rathburn Road West with Station Gate Road and Duke of York Boulevard, and Centre View Drive/Duke of York Boulevard. The intersection of Rathburn Road West/Living Arts Drive is observed to have poorer operations due to the increase in volume associated with the extension of Living Arts Drive to Centre View Drive; however, this intersection continues to show acceptable delay and volume to capacity ratios.

Table 17 - With Extension Scenario – 2031 – Measures of Effectiveness (Synchro)

Intersection	AM Peak Hour			PM Peak Hour		
	Volume	Delay	V/C	Volume	Delay	V/C
Centre View Dr / Mavis Rd	6,320	32.4	0.93	5,906	>120	>1.00
Centre View Dr / Duke of York Blvd	1,026	12.9	0.25	2,345	21.9	0.57
Centre View Dr / Station Gate Rd	814	8.1	0.21	1,357	9.7	0.42
Rathburn Rd / Station Gate Rd	2,020	15.6	0.61	2,621	54.8	0.75
Rathburn Rd / Duke of York Blvd	2,344	42.9	0.77	3,826	54.6	>1.00
Rathburn Rd / Living Arts Dr	2,491	25.7	0.69	3,320	35.7	0.84
Rathburn Rd / Confederation Pkwy	3,819	>120	>1.00	4,915	>120	>1.00
Square One Dr / Living Arts Dr	896	19.2	0.65	1,152	15.0	0.49
Centre View Dr / Living Arts Dr	1,343	14.2	0.40	2,923	24.7	0.81

Delay: LOS A-C (Green), LOS D (Yellow), LOS E (Purple), LOS F (Red)
V/C: 0.00-0.84 (Green), 0.85-0.99 (Purple), 1.00+ (Red)

5.2.2.2 Microscopic Modelling

In the 2031 "With Extension" scenario it is observed that the number of vehicles being processed at many intersections in the p.m. peak hour are lower than those being processed in the 2021 scenario. The reduction in the number of vehicles processed at the intersections is likely due to the extensive queueing which results in restricted flows and reduction in approach capacity, which in turn increases the proportion of vehicles denied entry and reduces model reliability.

Table 18 - With Extension Scenario – 2031 – Measures of Effectiveness (VISSIM)

Intersection	AM Peak Hour		PM Peak Hour	
	Volume	Delay	Volume	Delay
Centre View Dr / Mavis Rd	6,189	23.1	5,207	33.7
Centre View Dr / Duke of York Blvd	1,019	8.6	1,564	116
Centre View Dr / Station Gate Rd	873	4.8	1,166	29.7
Rathburn Rd / Station Gate Rd	1,899	21.1	2,041	72.9
Rathburn Rd / Duke of York Blvd	2,274	49.0	2,972	86.7
Rathburn Rd / Living Arts Dr	2,328	50.9	2,591	62.9
Rathburn Rd / Confederation Pkwy	3,365	55.3	4,281	50.3
Square One Dr / Living Arts Dr	862	11.6	921	23.8
Centre View Dr / Living Arts Dr	1,289	14.8	1,856	118

Delay: LOS A-C (Green), LOS D (Yellow), LOS E (Purple), LOS F (Red)

5.2.3 2041 Horizon Year

5.2.3.1 Traffic Operations

Under the "With Extension" scenario in the 2041 horizon year, the performance of traffic operations is anticipated to decrease relative to the 2031 horizon year due to both growth in traffic volumes and the implementation of the grade separation at Centre View Drive/Duke of York Boulevard (thereby diverting traffic from the Centre View Drive/Duke of York Boulevard to Centre View Drive/Living Arts Drive). The p.m. peak hour is largely characterized by various intersections within the Study Area network operating at capacity, with the exception of Square One Drive/Living Arts Drive.

Similarly, the performance of traffic operations at the intersection of Centre View Drive/Mavis Road is anticipated to decrease under the "With Extension" scenario relative to the "Do Nothing" scenario, due to a significant increase in the projected number of westbound right turning vehicles at this intersection. The higher projected volumes for the westbound right-turn movement at this intersection can be attributed to increased connectivity between Rathburn Road West and Centre View Drive, which will change trip characteristics within, and adjacent to, the Study Area, and allow higher utilization of this movement by motorists.

The performance of traffic operations at the intersection of Rathburn Road West/Living Arts Drive is also anticipated to decrease relative to the "Do Nothing" scenario due to a significant increase in north-south traffic volumes on Living Arts Drive.

Table 19 - With Extension Scenario – 2041 – Measures of Effectiveness (Synchro)

Intersection	AM Peak Hour			PM Peak Hour		
	Volume	Delay	V/C	Volume	Delay	V/C
Centre View Dr / Mavis Rd	6,255	29.3	0.89	5,688	72.3	>1.00
Centre View Dr / Station Gate Rd	1,604	11.4	0.45	2,336	37.7	>1.00
Rathburn Rd / Station Gate Rd	2,424	26.2	0.81	3,332	>120	>1.00
Rathburn Rd / Duke of York Blvd	2,958	55.6	0.96	4,714	>120	>1.00
Rathburn Rd / Living Arts Dr	3,487	53.1	>1.00	4,998	>120	>1.00
Rathburn Rd / Confederation Pkwy	4,197	>120	>1.00	5,200	>120	>1.00
Square One Dr / Living Arts Dr	1,391	111	>1.00	1,630	19.9	0.66
Centre View Dr / Living Arts Dr	2,124	27.9	0.76	3,692	91.4	>1.00

Delay: LOS A-C (Green), LOS D (Yellow), LOS E (Purple), LOS F (Red)
V/C: 0.00-0.84 (Green), 0.85-0.99 (Purple), 1.00+ (Red)

5.2.3.2 Microscopic Modelling

While the 2041 "With Extension" scenario indicates improved operations in the p.m. peak hour relative to the 2031 horizon year, it should be noted that fewer vehicles are processed at the intersections despite the increase in forecast traffic volumes. The corresponding improvement in traffic operations is, therefore, attributable to this restricted flow of vehicles. As previously discussed, the VISSIM model experiences an increased proportion of vehicles denied entry in the future horizon years which results in decreased reliability of model results.

Table 20 - With Extension Scenario – 2041 – Measures of Effectiveness (VISSIM)

Intersection	AM Peak Hour		PM Peak Hour	
	Volume	Delay	Volume	Delay
Centre View Dr / Mavis Rd	6,186	20.5	4,731	20.5
Centre View Dr / Station Gate Rd	1,453	0.0	1,209	0.0
Rathburn Rd / Station Gate Rd	2,295	42.5	2,108	42.5
Rathburn Rd / Duke of York Blvd	2,768	51.1	2,765	51.1
Rathburn Rd / Living Arts Dr	2,898	58.8	2,509	58.8
Rathburn Rd / Confederation Pkwy	3,181	67.4	3,201	67.4
Square One Dr / Living Arts Dr	1,198	28.1	811	28.1
Centre View Dr / Living Arts Dr	1,618	60.9	1,282	115

Delay: LOS A-C (Green), LOS D (Yellow), LOS E (Purple), LOS F (Red)

5.2.4 All-Way Stop-Control at Living Arts / Cineplex Access Intersection

This section assesses traffic operations at the Study Area network intersections with all-way stop-control (AWSC) at the proposed Living Arts Drive / Cineplex Access intersection. This analysis was

conducted to evaluate potential methods of control for the proposed intersection through a comparison with the analysis conducted for the same intersection operating as a roundabout (discussed in preceding sections of this document), and to ensure that such methods provide an appropriate level of operational performance.

A detailed comparison of results between roundabout intersection control and all-way stop control is provided in **Table 21** for the 2041 horizon year (i.e. the scenario with the highest traffic volumes), while the corresponding Synchro analysis outputs are provided in **Appendix D**. HCM 2000 results do not provide delay and LOS for roundabouts, therefore, a comparison of HCM 2010 results has been provided.

Table 21 – 2041 AWSC at Living Arts Dr / Cineplex - Comparison – HCM 2010 Measures of Effectiveness (Synchro)

Intersection	Approach	AM Peak				PM Peak			
		Rndbt		AWSC		Rndbt		AWSC	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Living Arts Drive / Cineplex Access	EB	A	7	B	11	C	18	B	13
	WB	A	7	B	10	B	12	B	14
	NB	B	14	F	71	E	47	F	300
	SB	B	14	F	68	F	210	F	573
Overall Intersection		***B***	***14***	***F***	***69***	***F***	***138***	***F***	***445***

Delay: LOS A-C (Green), LOS D (Yellow), LOS E (Purple), LOS F (Red)

Following comparison of the Synchro analysis results, it was found that traffic operations at the proposed Living Arts Drive / Cineplex Access intersection would be improved through implementation of a roundabout. During the p.m. peak hour of the 2041 horizon year (i.e. the scenario with the highest traffic volumes), both the southbound and northbound approaches are anticipated to operate at capacity and at LOS F under the AWSC scenario, while only the southbound approach of the proposed intersection is anticipated to operate at LOS F and at capacity under the roundabout scenario.

A comparison of traffic operations for the broader Study Area network under both the roundabout and AWSC scenarios is summarized in **Table 22** and **Table 23** for the a.m. and p.m. peak hours, with Synchro analysis outputs provided in **Appendix D** for reference. It should be noted that there was no material change to the operations of other signalized intersections in the Study Area network (i.e. particularly the intersections of Living Arts Drive & Rathburn Road West and Living Arts Drive & Centre View Drive) between the roundabout and AWSC scenarios. Under either the roundabout or AWSC scenarios, consideration should be given to the potential for queue spillback from the adjacent signalized intersections to ensure that all road users are appropriately accommodated when travelling on the extension.

Table 22 - AWSC at Living Arts Dr / Cineplex – Network Comparison - AM Measures of Effectiveness (Synchro)

Intersection	2021				2031				2041			
	Delay		V/C		Delay		V/C		Delay		V/C	
	Rdbt	AWSC	Rdbt	AWSC	Rdbt	AWSC	Rdbt	AWSC	Rdbt	AWSC	Rdbt	AWSC
Centre View Dr / Mavis Rd	28.6	28.6	0.82	0.82	32.4	32.4	0.93	0.93	29.3	29.3	0.89	0.89
Centre View Dr / Duke of York Blvd	13.3	13.3	0.21	0.21	12.9	12.9	0.25	0.25	-	-	-	-
Centre View Dr / Station Gate Rd	8.6	8.6	0.17	0.17	8.1	8.1	0.21	0.21	11.4	11.4	0.45	0.45
Rathburn Rd / Station Gate Rd	16.7	16.7	0.55	0.55	15.6	15.6	0.61	0.61	26.2	26.2	0.81	0.81
Rathburn Rd / Duke of York Blvd	32.7	32.7	0.67	0.67	42.9	42.9	0.77	0.77	55.6	55.6	0.96	0.96
Rathburn Rd / Living Arts Dr	23.2	23.2	0.58	0.58	25.7	25.7	0.69	0.69	53.1	53.1	>1.00	>1.00
Rathburn Rd / Confederation Pkwy	94.1	94.1	>1.00	>1.00	>120	>120	>1.00	>1.00	>120	>120	>1.00	>1.00
Square One Dr / Living Arts Dr	16.5	16.5	0.57	0.57	19.2	19.2	0.65	0.65	111.4	111.4	>1.00	>1.00
Centre View Dr / Living Arts Dr	13.2	13.2	0.31	0.31	14.2	14.2	0.40	0.40	27.9	27.9	0.76	0.76

Delay: LOS A-C (Green), LOS D (Yellow), LOS E (Purple), LOS F (Red)
V/C: 0.00-0.84 (Green), 0.85-0.99 (Purple), 1.00+ (Red)

Table 23 - AWSC at Living Arts Dr / Cineplex – Network Comparison - PM Measures of Effectiveness (Synchro)

Intersection	2021				2031				2041			
	Delay		V/C		Delay		V/C		Delay		V/C	
	Rdbt	AWSC	Rdbt	AWSC	Rdbt	AWSC	Rdbt	AWSC	Rdbt	AWSC	Rdbt	AWSC
Centre View Dr / Mavis Rd	103.8	103.8	>1.00	>1.00	>120	>120	>1.00	>1.00	72.3	72.3	>1.00	>1.00
Centre View Dr / Duke of York Blvd	17.5	17.5	0.53	0.53	21.9	21.9	0.57	0.57	-	-	-	-
Centre View Dr / Station Gate Rd	7.5	7.5	0.35	0.35	9.7	9.7	0.42	0.42	37.7	37.7	>1.00	>1.00
Rathburn Rd / Station Gate Rd	38.9	38.9	0.65	0.65	54.8	54.8	0.75	0.75	>120	>120	>1.00	>1.00
Rathburn Rd / Duke of York Blvd	42.5	42.5	>1.00	>1.00	54.6	54.6	>1.00	>1.00	>120	>120	>1.00	>1.00
Rathburn Rd / Living Arts Dr	24.7	24.7	0.66	0.66	35.7	35.7	0.84	0.84	>120	>120	>1.00	>1.00
Rathburn Rd / Confederation Pkwy	>120	>120	>1.00	>1.00	>120	>120	>1.00	>1.00	>120	>120	>1.00	>1.00
Square One Dr / Living Arts Dr	14.0	14.0	0.44	0.44	15.0	15.0	0.49	0.49	19.9	19.9	0.66	0.66
Centre View Dr / Living Arts Dr	17.7	17.7	0.63	0.63	24.7	24.7	0.81	0.81	91.4	91.4	>1.00	>1.00

Delay: LOS A-C (Green), LOS D (Yellow), LOS E (Purple), LOS F (Red)
V/C: 0.00-0.84 (Green), 0.85-0.99 (Purple), 1.00+ (Red)

5.2.5 4-Lane Living Arts Drive Extension

This section assesses whether extending Living Arts Drive as a four-lane cross-section would alleviate the forecast deficiencies at the Study Area intersections. Because the p.m. peak hour reflects poorer operations in all horizon years than the a.m. peak hour, only the p.m. peak hour has been assessed through Synchro.

It has been assumed that only the extension of Living Arts Drive (i.e. between Centre View Drive and Rathburn Road West) would become a 4-lane cross-section; therefore, similar lane configurations as the intersections of Centre View Drive/Duke of York Boulevard and Rathburn Road West/Duke of York Boulevard have been assumed at the corresponding intersections with Living Arts Drive. It was also assumed that the potential roundabout at Living Arts Drive/Cineplex Access would be implemented with 2 circulating lanes. It should also be noted that the same traffic volumes were assumed for both the analysis of the 2-lane cross-section and the four-lane cross-section, as the assignment method used to develop these traffic volumes was not constrained by capacity. A comparison summary of the p.m. Synchro results for Living Arts Drive with a 2-lane cross-section and 4-lane cross section is provided in **Table 23**.

Table 24 - 4-Lane Living Arts Drive Extension - Comparison - PM Measures of Effectiveness (Synchro)

Intersection	2021				2031				2041			
	Delay		V/C		Delay		V/C		Delay		V/C	
	2-L	4-L	2-L	4-L	2-L	4-L	2-L	4-L	2-L	4-L	2-L	4-L
Centre View Dr / Mavis Rd	103.8	103.8	>1.00	>1.00	>120	>120	>1.00	>1.00	72.3	72.3	>1.00	>1.00
Centre View Dr / Duke of York Blvd	17.5	17.5	0.53	0.53	21.9	21.9	0.57	0.57	-	-	-	-
Centre View Dr / Station Gate Rd	7.5	7.5	0.35	0.35	9.7	9.7	0.42	0.42	37.7	37.7	>1.00	>1.00
Rathburn Rd / Station Gate Rd	38.9	38.8	0.65	0.65	54.8	54.8	0.75	0.75	>120	>120	>1.00	>1.00
Rathburn Rd / Duke of York Blvd	42.5	42.6	>1.00	>1.00	54.6	55.2	>1.00	>1.00	>120	>120	>1.00	>1.00
Rathburn Rd / Living Arts Dr	24.7	23.4	0.66	0.57	35.7	32.8	0.84	0.65	>120	>120	>1.00	>1.00
Rathburn Rd / Confederation Pkwy	>120	>120	>1.00	>1.00	>120	>120	>1.00	>1.00	>120	>120	>1.00	>1.00
Square One Dr / Living Arts Dr	14.0	14.0	0.44	0.44	15.0	15.0	0.49	0.49	19.9	19.9	0.66	0.66
Centre View Dr / Living Arts Dr	17.7	17.7	0.63	0.63	24.7	24.7	0.81	0.81	91.4	91.4	>1.00	>1.00

Delay: LOS A-C (Green), LOS D (Yellow), LOS E (Purple), LOS F (Red)
V/C: 0.00-0.84 (Green), 0.85-0.99 (Purple), 1.00+ (Red)

The results of the Synchro analysis for a 4-lane extension of Living Arts Drive are not shown to significantly improve operations at the intersection of Rathburn Road West/Living Arts Drive. This is attributable to the fact that improvements were only considered along the north leg of the Rathburn Road West/Living Arts Drive intersection, through the provision of an additional

northbound receiving lane and the separation of the southbound movements into dedicated left and through/right-turn lanes.

5.3 COMPARISON OF SCENARIOS

Traffic operations at the Study Area intersections of Rathburn Road West with Station Gate Road and Duke of York Boulevard are generally improved under the "With Extension" scenario, as compared to the "Do Nothing" scenario and, therefore, the extension of Living Arts Drive would be beneficial to the performance of the Study Area road network. In providing an additional north-south link between Centre View Drive and Rathburn Road West, the extension serves as an alternate link to accommodate the projected volume of north-south trips along Duke of York Boulevard and Station Gate Road.

The VISSIM models for both the "Do Nothing" and "With Extension" scenarios are shown to become increasingly unreliable in the horizon years as increasing amounts of vehicles are unable to enter the Study Area network. It is observed that regardless of the increase in travel demand, the number of vehicles processed at intersections is reduced with each successive horizon year due to the number of vehicles having limited entry to the Study Area.

Several supplementary analyses were conducted in order to validate the proposed configuration of the extension, including a comparison of cross-sections (i.e. 2-lane vs. 4-lane) and intersection control methods for the proposed Living Arts Drive/Cineplex Access intersection (i.e. roundabout vs. all-way stop-control). The analysis results indicate that implementation of a four-lane cross-section for the extension of Living Arts Drive would not result in a significant improvement to traffic operations, relative to a two-lane extension. Comparison of analysis results for the Living Arts Drive/Cineplex Access intersection operating under either roundabout or all-way stop-control indicates that the roundabout provides improved traffic operations, as compared to all-way stop control. It was also found that the method of intersection control does not have a significant effect on traffic operations within the larger study area.

The City's *Downtown21 Master Plan* emphasizes the application of urban design principles in downtown Mississauga, among other goals. It also encourages the creation of a multi-modal transportation network, which will facilitate the transition of trips to, from, and within downtown Mississauga using alternative modes of transportation such as walking, cycling, and transit. Considering the degree of both residential and commercial development currently forecast for downtown Mississauga, the introduction of a variety of improvements to the area transportation network – for example, the extension of Square One Drive, installation of cycling facilities on Rathburn Road West, the Hurontario LRT, and the proposed extension of Living Arts Drive – represents a significant opportunity to mitigate the impacts of growth by maximizing the potential of a multi-modal transportation system.

6.0 CONCLUSIONS

The conclusions of the Transportation and Traffic Analysis Report are as follows:

a) Existing conditions are generally characterized by good operations at the Study Area network intersections in the a.m. peak hour. The intersections of Centre View Drive/Mavis Road and Rathburn Road West/Confederation Parkway are approaching or operating at capacity in the p.m. peak hour.

b) The extension of Living Arts Drive, from Rathburn Road West to Centre View Drive, will provide an alternate route for motorists as capacity along Duke of York will be reduced (to 1 lane in each direction) with construction/implementation of the Hurontario LRT.

c) Under the "With Extension" scenario in the 2021 horizon year, the VISSIM models show queue spillback issues which prevent some vehicles from entering the Study Area network and reduce the reliability of the analysis results. The Synchro analysis in the p.m. peak hour indicates that the intersections of Centre View Drive/Mavis Road, and the intersections of Rathburn Road West with Confederation Parkway, Duke of York Boulevard, and Station Gate Road will approach or reach capacity.

d) Under the "With Extension" scenario in the 2031 horizon year, the high delay and large queues observed in the 2021 horizon year are further exacerbated. Operations with the extension of Living Arts Drive to Centre View Drive are improved at the intersections of Rathburn Road West with Station Gate Road and Duke of York Boulevard, and at the intersection of Centre View Drive/Duke of York Boulevard relative to the "Do Nothing" scenario.

e) Under the "With Extension" scenario in the 2041 horizon year, all intersections (apart from Square One Drive/Living Arts Drive) are anticipated to operate at capacity during the p.m. peak hour. Operations are exacerbated due to growth in traffic volumes and the grade separation at the intersection of Centre View Drive/Duke of York Boulevard.

f) Implementation of a roundabout at the proposed Living Arts Drive/Cineplex Access intersection would provide improved traffic operations, as compared to all-way stop control at the same intersection. No changes in traffic operations are observed at the signalized intersections at Centre View Drive/Living Arts Drive and Rathburn Road West/Living Arts Drive under either roundabout or all-way stop-control at the Living Arts Drive/Cineplex Access intersection.

g) The extension of Living Arts Drive with a four-lane cross-section would not significantly improve operations at the intersections of Living Arts Drive with Centre View Drive and Rathburn Road West.

Appendix A – TRAFFIC DATA

Turning Movement Count - Details Report

Location..... CENTRE VIEW DR @ DUKE OF YORK BLVD

Municipality..... Mississauga

Road 1 CENTRE VIEW DR **Road 2** DUKE OF YORK BLVD

Count Date..... Wednesday, December 04, 2013

		North Approach					South Approach					East Approach					West Approach				
Time Period		LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT
07:00	07:15	0	0	0	0	0	13	0	14	0	27	12	11	0	0	23	0	44	29	0	73
07:15	07:30	0	0	0	0	0	15	0	31	0	46	22	22	0	0	44	0	91	42	0	133
07:30	07:45	0	0	0	0	0	34	0	24	0	58	26	31	0	0	57	0	96	65	0	161
07:45	08:00	0	0	0	0	0	29	0	19	0	48	33	20	0	0	53	0	115	80	0	195
08:00	08:15	0	0	0	0	0	23	0	14	0	37	34	28	0	0	62	0	122	75	0	197
08:15	08:30	0	0	0	0	0	26	0	13	0	39	25	24	0	0	49	0	137	100	0	237
08:30	08:45	0	0	0	0	0	36	0	14	0	50	28	25	0	0	53	0	131	83	0	214
08:45	09:00	0	0	0	0	0	31	0	20	0	51	29	32	0	0	61	0	143	91	0	234
11:00	11:15	0	0	0	0	0	28	0	11	0	39	23	22	0	0	45	0	23	34	0	57
11:15	11:30	0	0	0	0	0	36	0	14	0	50	33	21	0	0	54	0	23	69	0	92
11:30	11:45	0	0	0	0	0	54	0	10	0	64	22	31	0	0	53	0	31	97	0	128
11:45	12:00	0	0	0	0	0	55	0	5	0	60	38	17	0	0	55	0	19	85	0	104
12:00	12:15	0	0	0	0	0	73	0	7	0	80	44	20	0	0	64	0	26	86	0	112
12:15	12:30	0	0	0	0	0	64	0	8	0	72	51	17	0	0	68	0	19	79	0	98
12:30	12:45	0	0	0	0	0	72	0	7	0	79	33	19	0	0	52	0	11	96	0	107
12:45	13:00	0	0	0	0	0	76	0	19	0	95	33	27	0	0	60	0	24	90	0	114
13:00	13:15	0	0	0	0	0	67	0	18	0	85	32	31	0	0	63	0	24	85	0	109
13:15	13:30	0	0	0	0	0	70	0	10	0	80	31	24	0	0	55	0	19	68	0	87
13:30	13:45	0	0	0	0	0	65	0	10	0	75	36	31	0	0	67	0	20	67	0	87
13:45	14:00	0	0	0	0	0	59	0	15	0	74	31	28	0	0	59	0	23	60	0	83
15:00	15:15	0	0	0	0	0	78	0	46	0	124	40	58	0	0	98	0	50	65	0	115
15:15	15:30	0	0	0	0	0	80	0	34	0	114	31	50	0	0	81	0	36	79	0	115
15:30	15:45	0	0	0	0	0	77	0	33	0	110	57	83	0	0	140	0	42	66	0	108
15:45	16:00	0	0	0	0	0	89	0	26	0	115	39	95	0	0	134	0	51	59	0	110
16:00	16:15	0	0	0	0	0	78	0	27	0	105	34	105	0	0	139	0	36	76	0	112
16:15	16:30	0	0	0	0	0	76	0	30	0	106	28	89	0	0	117	0	39	82	0	121
16:30	16:45	0	0	0	0	0	110	0	38	0	148	45	142	0	0	187	0	51	83	0	134
16:45	17:00	0	0	0	0	0	100	0	32	0	132	44	148	0	0	192	0	56	73	0	129
17:00	17:15	0	0	0	0	0	111	0	28	0	139	37	147	0	0	184	0	56	85	0	141
17:15	17:30	0	0	0	0	0	100	0	38	0	138	40	140	0	0	180	0	66	72	0	138
17:30	17:45	0	0	0	0	0	107	0	42	0	149	32	155	0	0	187	0	66	78	0	144
17:45	18:00	0	0	0	0	0	86	0	30	0	116	27	109	0	0	136	0	63	61	0	124
Total	.....	0	0	0	0	0	2018	0	687	0	2705	1070	1802	0	0	2872	0	1753	2360	0	4113

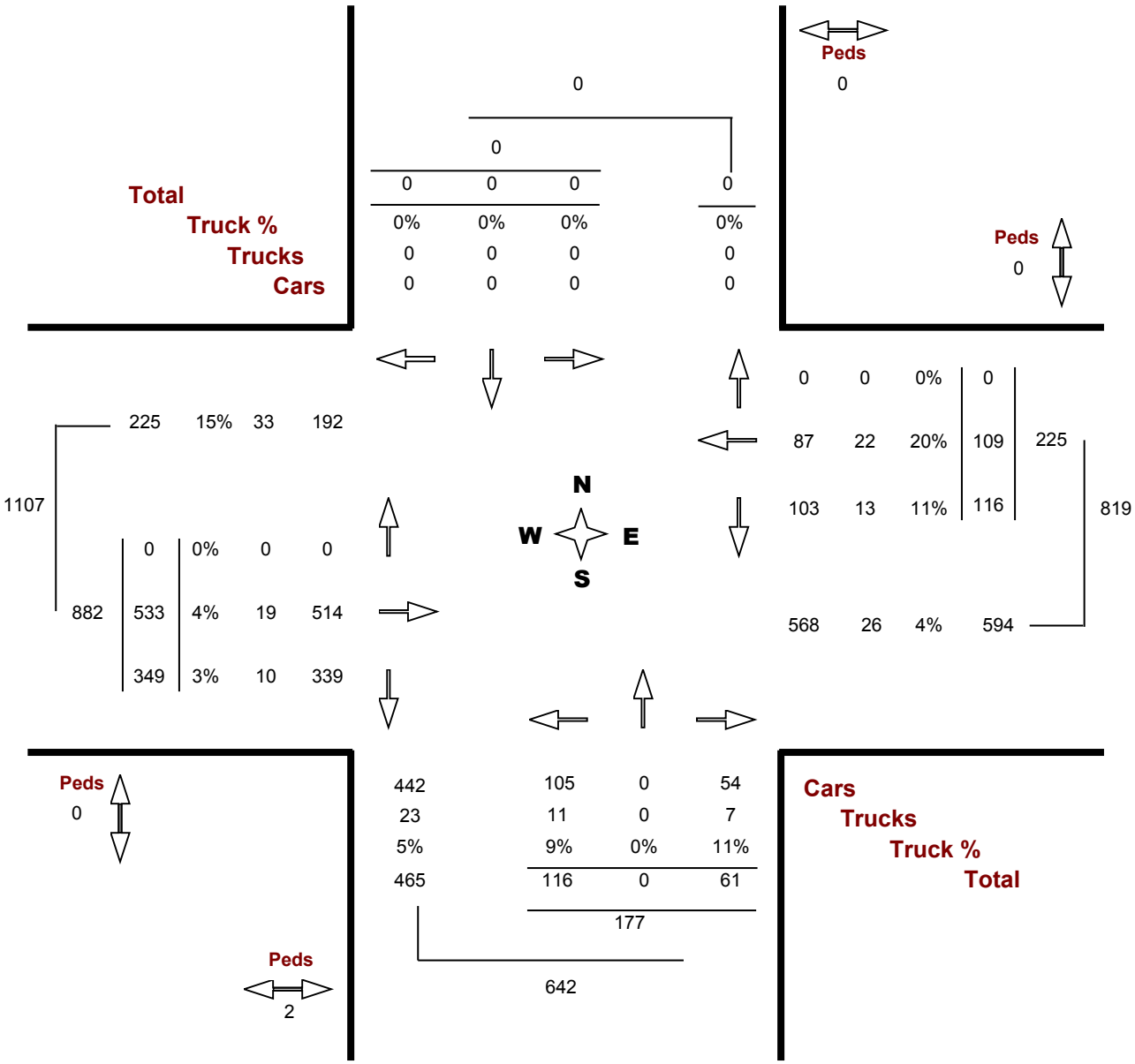
Turning Movements Report - AM Period

Location..... CENTRE VIEW DR @ DUKE OF YORK BLVD

Municipality..... Mississauga **GeoID.....** 347807

Count Date..... Wednesday, 04 December, 2013 **Peak Hour.....** 08:00 AM — 09:00 AM

Road 1 CENTRE VIEW DR **Road 2** DUKE OF YORK BLVD



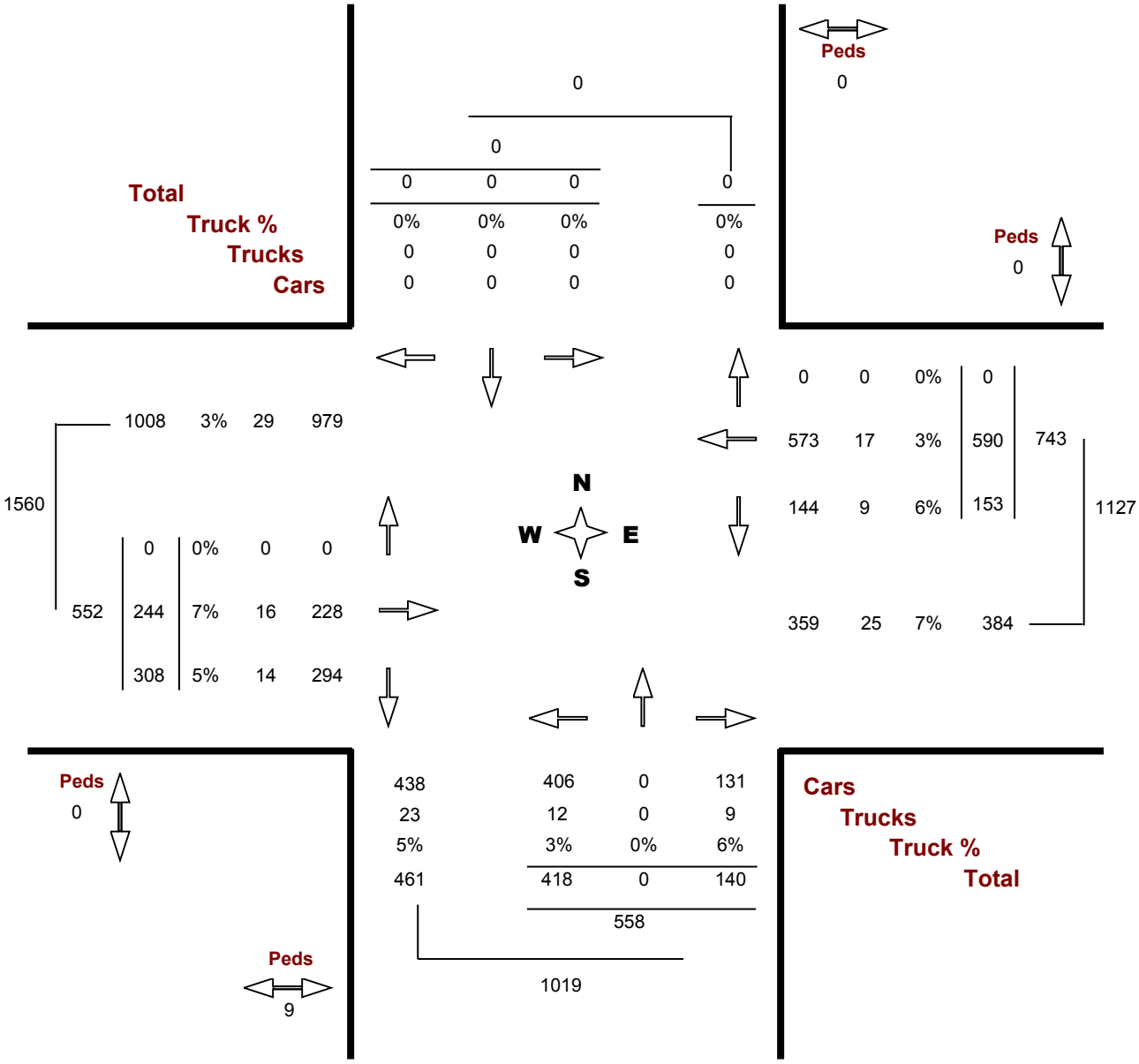
Turning Movements Report - PM Period

Location..... CENTRE VIEW DR @ DUKE OF YORK BLVD

Municipality..... Mississauga **GeoID.....** 347807

Count Date..... Wednesday, 04 December, 2013 **Peak Hour.....** 04:45 PM — 05:45 PM

Road 1 CENTRE VIEW DR **Road 2** DUKE OF YORK BLVD



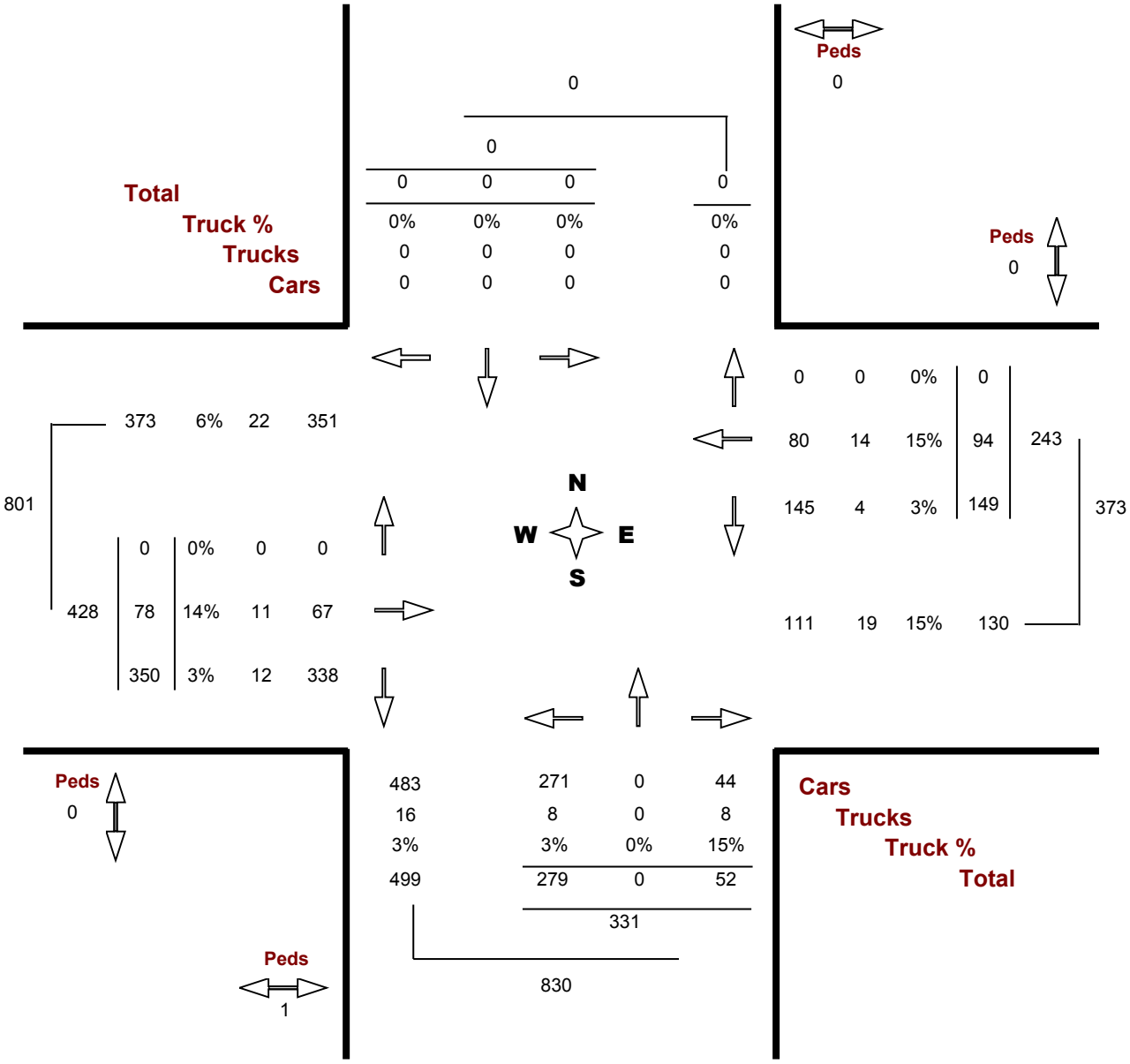
Turning Movements Report - MD Period

Location..... CENTRE VIEW DR @ DUKE OF YORK BLVD

Municipality..... Mississauga **GeoID.....** 347807

Count Date..... Wednesday, 04 December, 2013 **Peak Hour.....** 12:15 PM — 01:15 PM

Road 1 CENTRE VIEW DR **Road 2** DUKE OF YORK BLVD



Turning Movement Count - Details Report

Location..... RATHBURN RD W @ STATION GATE RD

Municipality..... Mississauga

Road 1 STATION GATE RD **Road 2** RATHBURN RD W

Count Date..... Thursday, October 02, 2014

		North Approach					South Approach					East Approach					West Approach				
Time Period		LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT
07:00	07:15	27	0	18	0	45	10	0	13	0	23	0	54	0	0	54	0	130	0	0	130
07:15	07:30	28	0	25	0	53	8	0	17	0	25	0	67	0	0	67	0	145	0	0	145
07:30	07:45	38	0	23	0	61	6	0	18	0	24	0	41	0	0	41	0	222	0	0	222
07:45	08:00	23	0	16	0	39	10	0	16	0	26	0	70	0	0	70	0	244	0	0	244
08:00	08:15	29	0	13	0	42	10	0	17	0	27	0	49	0	0	49	0	237	0	0	237
08:15	08:30	23	0	17	0	40	9	0	15	0	24	0	77	0	0	77	0	222	0	0	222
08:30	08:45	31	1	21	0	53	9	0	14	0	23	0	61	0	0	61	0	230	0	0	230
08:45	09:00	29	0	16	0	45	10	0	19	0	29	0	69	0	0	69	0	230	0	0	230
11:00	11:15	21	0	13	0	34	5	0	8	0	13	0	54	0	0	54	0	130	0	0	130
11:15	11:30	29	0	16	0	45	9	0	12	0	21	0	79	0	0	79	0	132	0	0	132
11:30	11:45	20	0	19	0	39	9	0	12	0	21	0	90	0	0	90	0	142	0	0	142
11:45	12:00	20	0	14	0	34	11	0	9	0	20	0	103	0	0	103	0	138	0	0	138
12:00	12:15	35	0	8	0	43	7	0	9	0	16	0	112	0	0	112	0	153	0	0	153
12:15	12:30	27	0	26	0	53	16	0	11	0	27	0	117	0	0	117	0	138	0	0	138
12:30	12:45	34	0	12	0	46	13	0	13	0	26	0	80	0	0	80	0	144	0	0	144
12:45	13:00	23	0	14	0	37	18	0	12	0	30	0	121	0	0	121	0	139	0	0	139
13:00	13:15	36	2	19	0	57	10	0	12	0	22	0	118	0	0	118	0	141	0	0	141
13:15	13:30	35	0	13	0	48	10	0	12	0	22	0	129	0	0	129	0	131	0	0	131
13:30	13:45	34	0	12	0	46	7	0	12	0	19	0	89	0	0	89	0	140	0	0	140
13:45	14:00	27	1	9	0	37	10	0	14	0	24	0	99	0	0	99	0	147	0	0	147
15:00	15:15	23	0	13	0	36	8	0	17	0	25	0	114	0	0	114	0	161	0	0	161
15:15	15:30	25	0	10	0	35	11	0	24	0	35	0	112	0	0	112	0	140	0	0	140
15:30	15:45	31	0	20	0	51	10	0	18	0	28	0	143	0	0	143	0	140	0	0	140
15:45	16:00	17	0	13	0	30	8	0	17	0	25	0	132	0	0	132	0	156	0	0	156
16:00	16:15	16	0	19	0	35	5	0	17	0	22	0	208	0	0	208	0	150	0	0	150
16:15	16:30	16	0	19	0	35	19	0	16	0	35	0	222	0	0	222	0	148	0	0	148
16:30	16:45	25	0	17	0	42	13	0	17	0	30	0	243	0	0	243	0	169	0	0	169
16:45	17:00	23	0	14	0	37	4	0	19	0	23	0	253	0	0	253	0	158	0	0	158
17:00	17:15	19	0	19	0	38	13	0	17	0	30	0	280	0	0	280	1	170	0	0	171
17:15	17:30	15	0	9	0	24	6	0	13	0	19	0	318	0	0	318	1	182	0	0	183
17:30	17:45	27	0	19	0	46	12	1	16	0	29	0	224	1	0	225	0	172	0	0	172
17:45	18:00	29	0	8	0	37	8	0	13	0	21	0	314	0	0	314	0	186	0	0	186
Total	.....	835	4	504	0	1343	314	1	469	0	784	0	4242	1	0	4243	2	5267	0	0	5269

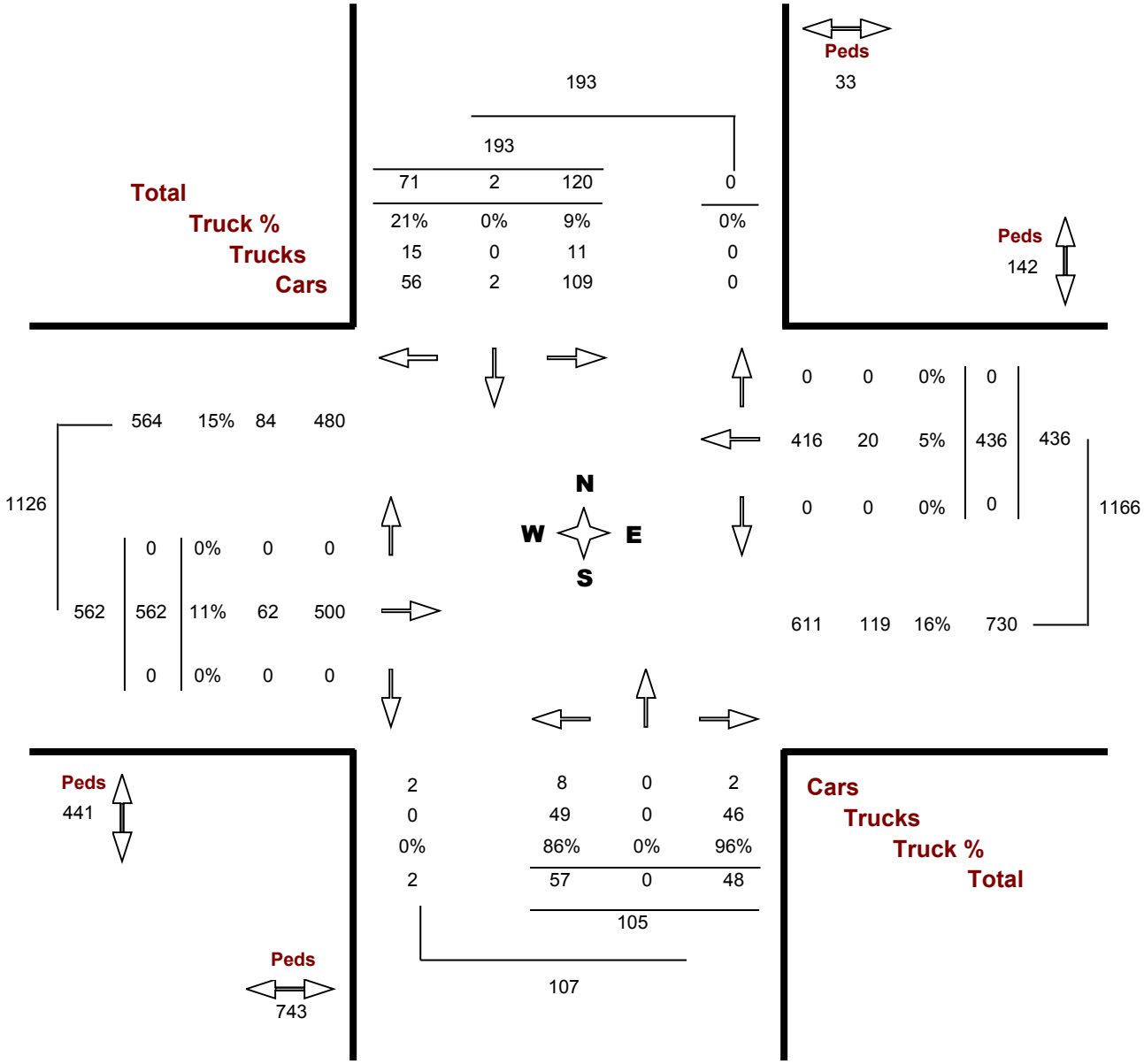
Turning Movements Report - MD Period

Location..... RATHBURN RD W @ STATION GATE RD

Municipality..... Mississauga **GeoID.....** 348082

Count Date..... Thursday, 02 October, 2014 **Peak Hour.....** 12:15 PM — 01:15 PM

Road 1 STATION GATE RD **Road 2** RATHBURN RD W



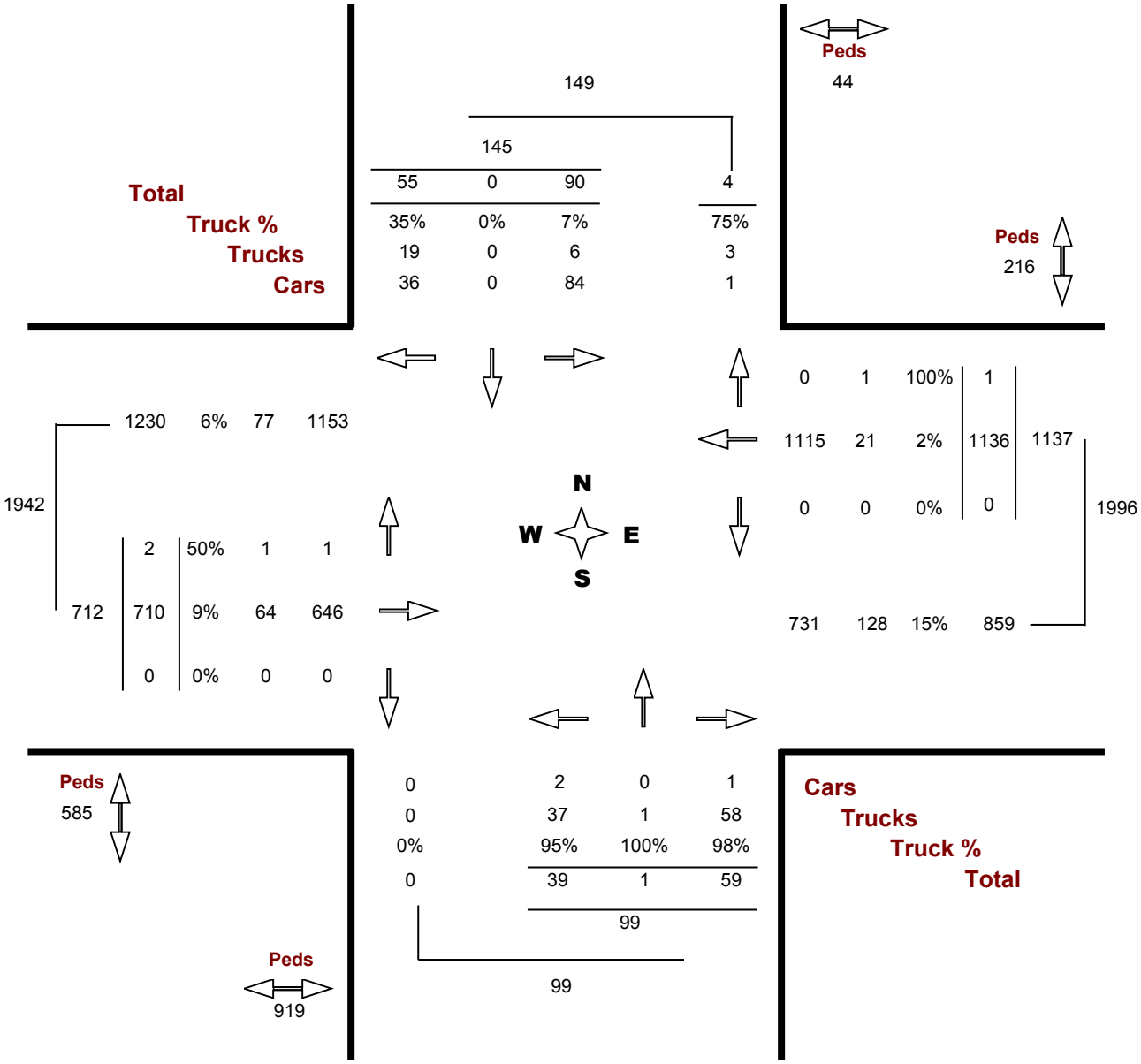
Turning Movements Report - PM Period

Location..... RATHBURN RD W @ STATION GATE RD

Municipality..... Mississauga **GeoID.....** 348082

Count Date..... Thursday, 02 October, 2014 **Peak Hour.....** 05:00 PM — 06:00 PM

Road 1 STATION GATE RD **Road 2** RATHBURN RD W



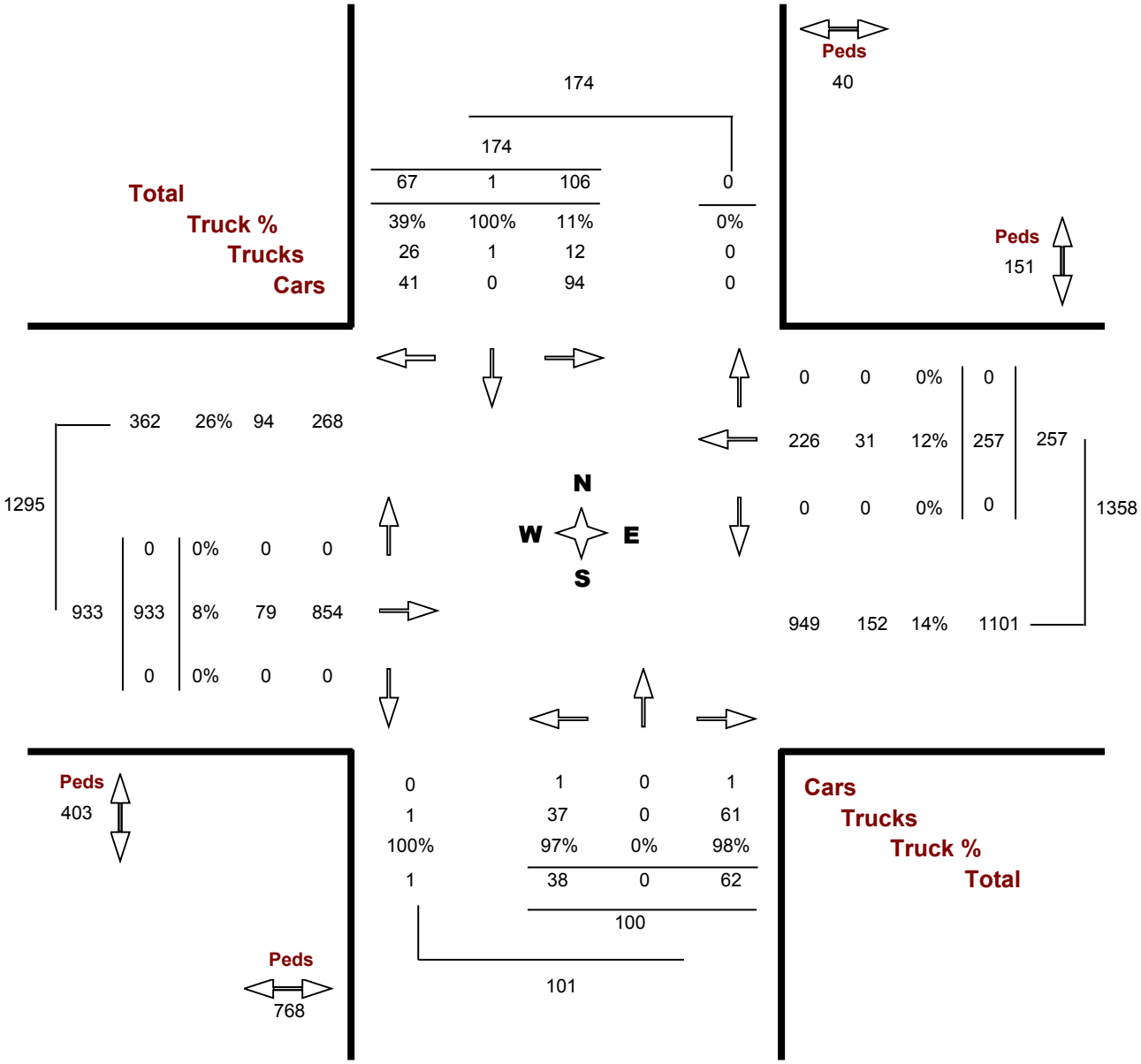
Turning Movements Report - AM Period

Location..... RATHBURN RD W @ STATION GATE RD

Municipality..... Mississauga **GeoID.....** 348082

Count Date..... Thursday, 02 October, 2014 **Peak Hour.....** 07:45 AM — 08:45 AM

Road 1 STATION GATE RD **Road 2** RATHBURN RD W



Turning Movement Count - Details Report

Location..... DUKE OF YORK BLVD @ RATHBURN RD W

Municipality..... Mississauga

Count Date..... Thursday, October 22, 2015

		North Approach					South Approach					East Approach					West Approach				
Time Period		LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT
07:00	07:15	13	29	20	0	62	5	10	7	0	22	9	71	13	0	93	28	184	8	0	220
07:15	07:30	18	21	30	0	69	3	32	7	0	42	2	97	5	0	104	34	240	8	0	282
07:30	07:45	25	47	18	0	90	17	32	14	0	63	16	62	7	0	85	44	191	18	0	253
07:45	08:00	19	41	31	0	91	17	23	15	0	55	13	100	8	0	121	46	252	15	0	313
08:00	08:15	14	54	20	0	88	14	31	19	0	64	14	53	6	0	73	20	219	27	0	266
08:15	08:30	12	42	14	0	68	14	21	14	0	49	19	69	12	0	100	25	224	31	0	280
08:30	08:45	19	49	24	0	92	9	28	19	0	56	18	80	9	0	107	34	226	28	0	288
08:45	09:00	11	47	18	0	76	31	24	7	0	62	11	80	7	0	98	37	225	31	0	293
11:00	11:15	20	39	19	0	78	12	21	10	0	43	11	43	12	0	66	24	121	10	0	155
11:15	11:30	29	63	22	0	114	18	43	20	0	81	19	84	17	0	120	23	153	22	0	198
11:30	11:45	17	85	16	0	118	29	44	13	0	86	10	74	17	0	101	40	108	21	0	169
11:45	12:00	24	101	13	0	138	27	32	18	0	77	15	82	16	0	113	19	141	17	0	177
12:00	12:15	15	75	30	0	120	37	44	22	0	103	20	96	15	0	131	28	169	10	0	207
12:15	12:30	17	40	19	0	76	28	51	14	0	93	16	65	29	0	110	20	125	29	0	174
12:30	12:45	48	97	15	0	160	31	49	20	0	100	15	96	14	0	125	25	114	5	0	144
12:45	13:00	34	56	24	0	114	29	36	11	0	76	21	74	20	0	115	11	112	26	0	149
13:00	13:15	20	69	21	0	110	34	38	15	0	87	14	89	14	0	117	32	130	10	0	172
13:15	13:30	21	56	13	0	90	39	53	15	0	107	12	72	10	0	94	18	104	14	0	136
13:30	13:45	25	67	11	0	103	36	46	18	0	100	21	82	15	0	118	15	116	22	0	153
13:45	14:00	16	59	15	0	90	44	54	15	0	113	20	90	17	0	127	25	136	29	0	190
15:00	15:15	23	33	28	0	84	23	61	30	0	114	14	100	14	0	128	22	120	21	0	163
15:15	15:30	35	54	16	0	105	30	56	22	0	108	7	125	18	0	150	27	153	13	0	193
15:30	15:45	63	61	36	0	160	68	116	27	0	211	22	206	16	0	244	44	256	18	0	318
15:45	16:00	27	48	32	0	107	45	99	27	0	171	24	132	18	0	174	24	196	22	0	242
16:00	16:15	35	54	18	0	107	53	102	21	0	176	25	213	19	0	257	31	195	19	0	245
16:15	16:30	21	58	22	0	101	45	79	17	0	141	23	197	17	0	237	26	144	22	0	192
16:30	16:45	16	57	18	0	91	42	85	21	0	148	17	195	19	0	231	15	110	28	0	153
16:45	17:00	26	94	21	0	141	44	70	18	0	132	35	250	23	0	308	30	184	15	0	229
17:00	17:15	22	96	16	0	134	48	94	14	0	156	30	246	11	0	287	38	180	18	0	236
17:15	17:30	22	76	17	0	115	44	90	20	0	154	38	236	27	0	301	32	189	27	0	248
17:30	17:45	23	80	17	0	120	35	73	21	0	129	39	256	18	0	313	26	188	15	0	229
17:45	18:00	24	86	18	0	128	39	82	17	0	138	34	250	17	0	301	27	176	14	0	217
Total	.....	754	1934	652	0	3340	990	1719	548	0	3257	604	3965	480	0	5049	890	5381	613	0	6884

Turning Movement Count - Cyclist Volume Report

Location..... DUKE OF YORK BLVD @ RATHBURN RD W

Municipality..... Mississauga

Count Date..... Thursday, October 22, 2015

Time Period		North Approach	South Approach	Street Total	East Approach	West Approach	Street Total	Grand Total
07:00	07:15	0	0	0	0	0	0	0
07:15	07:30	0	0	0	0	0	0	0
07:30	07:45	0	0	0	0	0	0	0
07:45	08:00	0	0	0	0	0	0	0
08:00	08:15	0	0	0	0	0	0	0
08:15	08:30	0	0	0	0	0	0	0
08:30	08:45	0	0	0	0	0	0	0
08:45	09:00	0	0	0	0	0	0	0
11:00	11:15	0	0	0	0	0	0	0
11:15	11:30	0	0	0	0	0	0	0
11:30	11:45	0	0	0	0	0	0	0
11:45	12:00	0	0	0	0	0	0	0
12:00	12:15	0	0	0	0	0	0	0
12:15	12:30	0	0	0	0	0	0	0
12:30	12:45	0	0	0	0	0	0	0
12:45	13:00	0	0	0	0	0	0	0
13:00	13:15	0	0	0	0	0	0	0
13:15	13:30	0	0	0	0	0	0	0
13:30	13:45	0	0	0	0	0	0	0
13:45	14:00	0	0	0	0	0	0	0
15:00	15:15	0	0	0	0	0	0	0
15:15	15:30	0	0	0	0	0	0	0
15:30	15:45	0	0	0	0	0	0	0
15:45	16:00	0	0	0	0	0	0	0
16:00	16:15	0	0	0	0	0	0	0
16:15	16:30	0	0	0	0	0	0	0
16:30	16:45	0	0	0	0	0	0	0
16:45	17:00	0	0	0	0	0	0	0
17:00	17:15	0	0	0	0	0	0	0
17:15	17:30	0	0	0	0	0	0	0
17:30	17:45	0	0	0	0	0	0	0
17:45	18:00	0	0	0	0	0	0	0
Total	.....	0	0	0	0	0	0	0

Turning Movement Count - Pedestrian Volume Report

Location..... DUKE OF YORK BLVD @ RATHBURN RD W

Municipality..... Mississauga

Count Date..... Thursday, October 22, 2015

Time Period		North Approach	South Approach	Street Total	East Approach	West Approach	Street Total	Grand Total
07:00	07:15	1	5	6	1	0	1	7
07:15	07:30	1	0	1	1	0	1	2
07:30	07:45	3	0	3	3	1	4	7
07:45	08:00	3	1	4	4	0	4	8
08:00	08:15	4	1	5	1	0	1	6
08:15	08:30	3	6	9	2	2	4	13
08:30	08:45	4	1	5	1	2	3	8
08:45	09:00	4	4	8	3	3	6	14
11:00	11:15	3	2	5	2	1	3	8
11:15	11:30	1	2	3	1	0	1	4
11:30	11:45	11	3	14	3	1	4	18
11:45	12:00	6	3	9	0	0	0	9
12:00	12:15	2	1	3	0	0	0	3
12:15	12:30	6	1	7	1	0	1	8
12:30	12:45	5	2	7	2	2	4	11
12:45	13:00	12	5	17	2	0	2	19
13:00	13:15	17	0	17	0	0	0	17
13:15	13:30	5	0	5	4	1	5	10
13:30	13:45	10	3	13	3	3	6	19
13:45	14:00	11	5	16	3	3	6	22
15:00	15:15	15	8	23	8	1	9	32
15:15	15:30	9	5	14	0	0	0	14
15:30	15:45	8	0	8	2	0	2	10
15:45	16:00	11	6	17	3	2	5	22
16:00	16:15	9	3	12	2	0	2	14
16:15	16:30	8	6	14	3	0	3	17
16:30	16:45	9	2	11	2	6	8	19
16:45	17:00	4	2	6	0	1	1	7
17:00	17:15	4	2	6	2	2	4	10
17:15	17:30	7	3	10	3	2	5	15
17:30	17:45	3	2	5	3	4	7	12
17:45	18:00	3	3	6	2	5	7	13
Total	.....	202	87	289	67	109	109	398

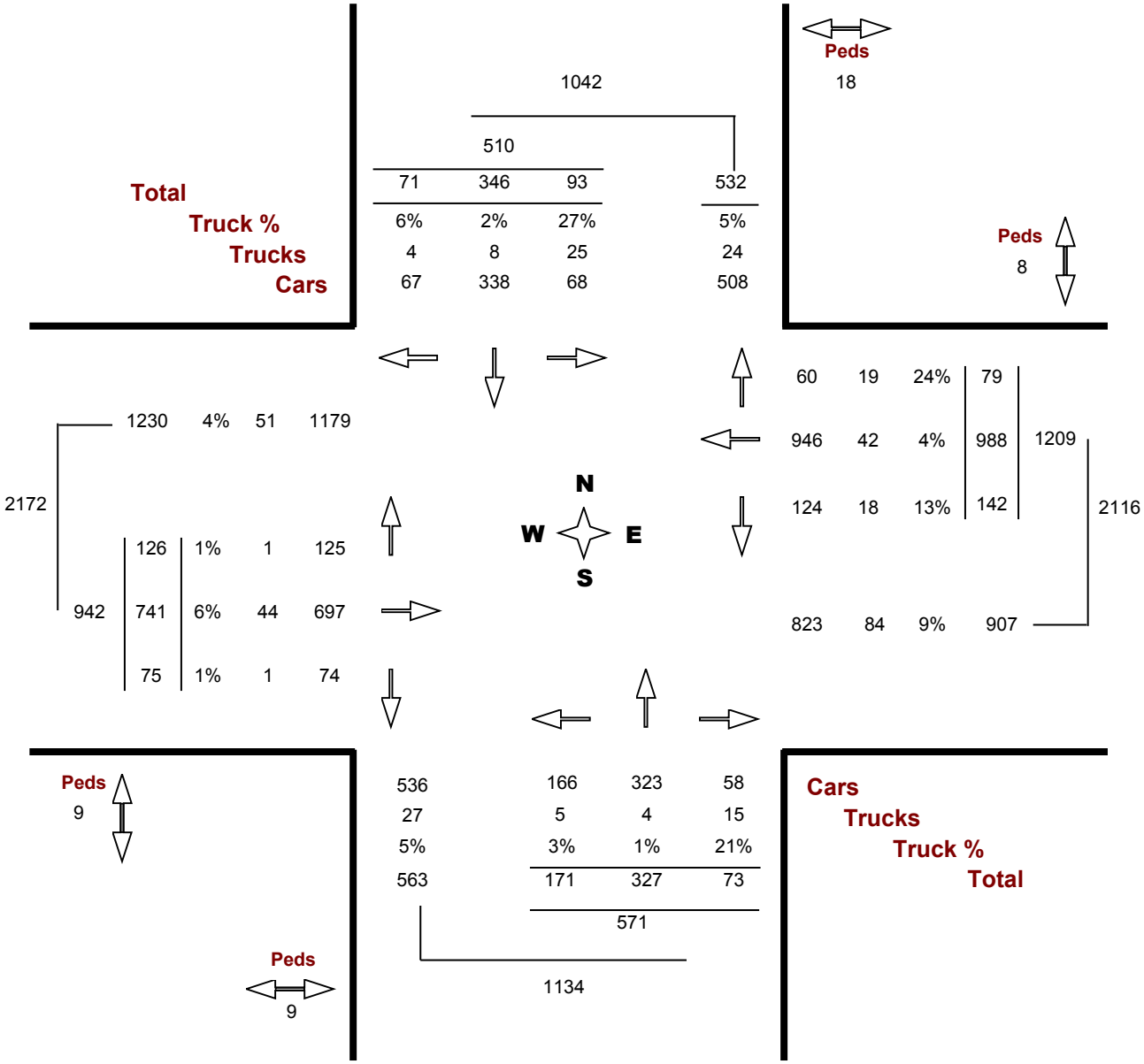
Turning Movements Report - PM Period

Location..... DUKE OF YORK BLVD @ RATHBURN RD W

Municipality..... Mississauga

GeoID..... 347959

Count Date..... Thursday, 22 October, 2015 **Peak Hour.....** 04:45 PM —— 05:45 PM



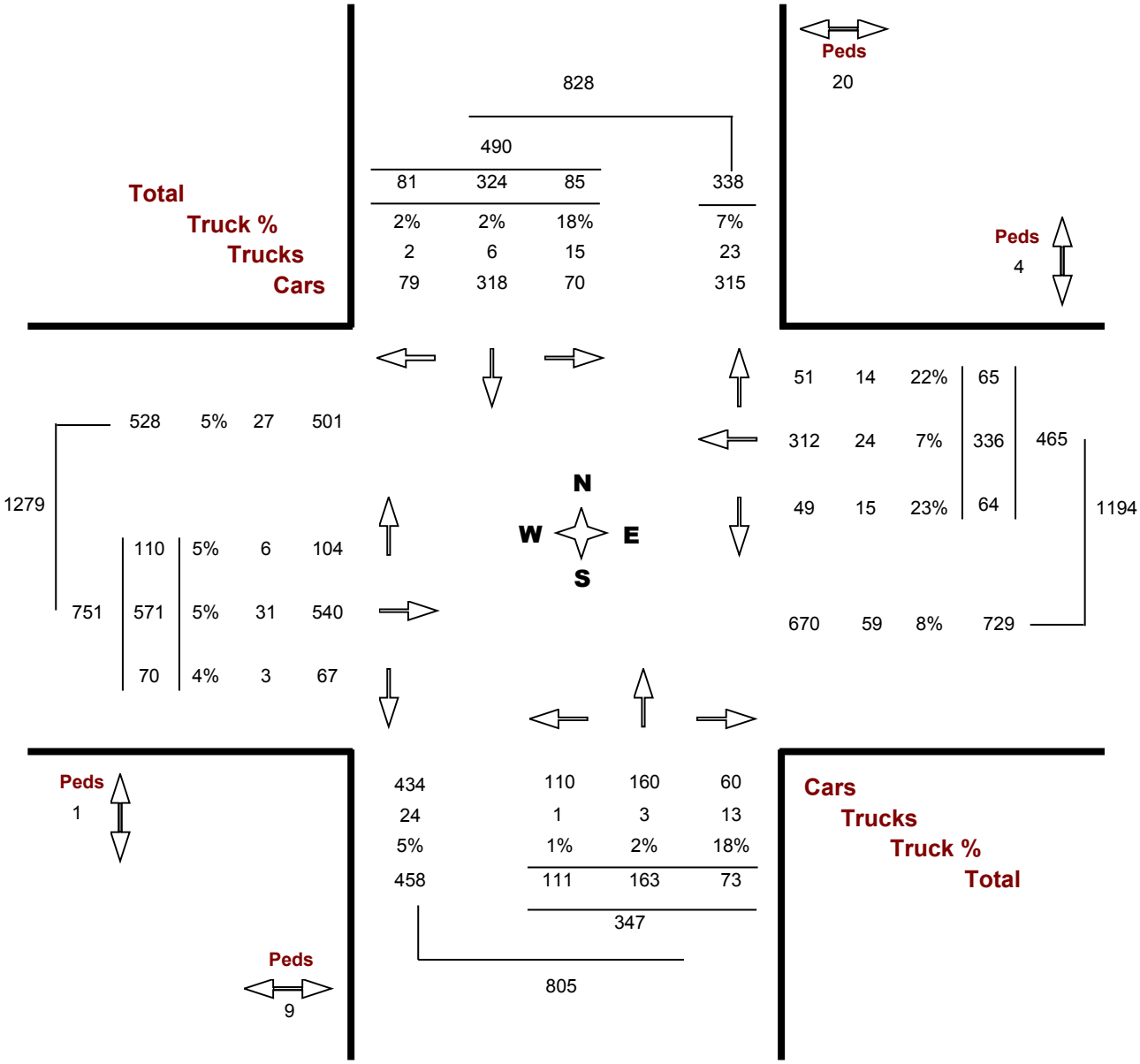
Turning Movements Report - MD Period

Location..... DUKE OF YORK BLVD @ RATHBURN RD W

Municipality..... Mississauga

GeoID..... 347959

Count Date..... Thursday, 22 October, 2015 **Peak Hour.....** 11:15 AM — 12:15 PM



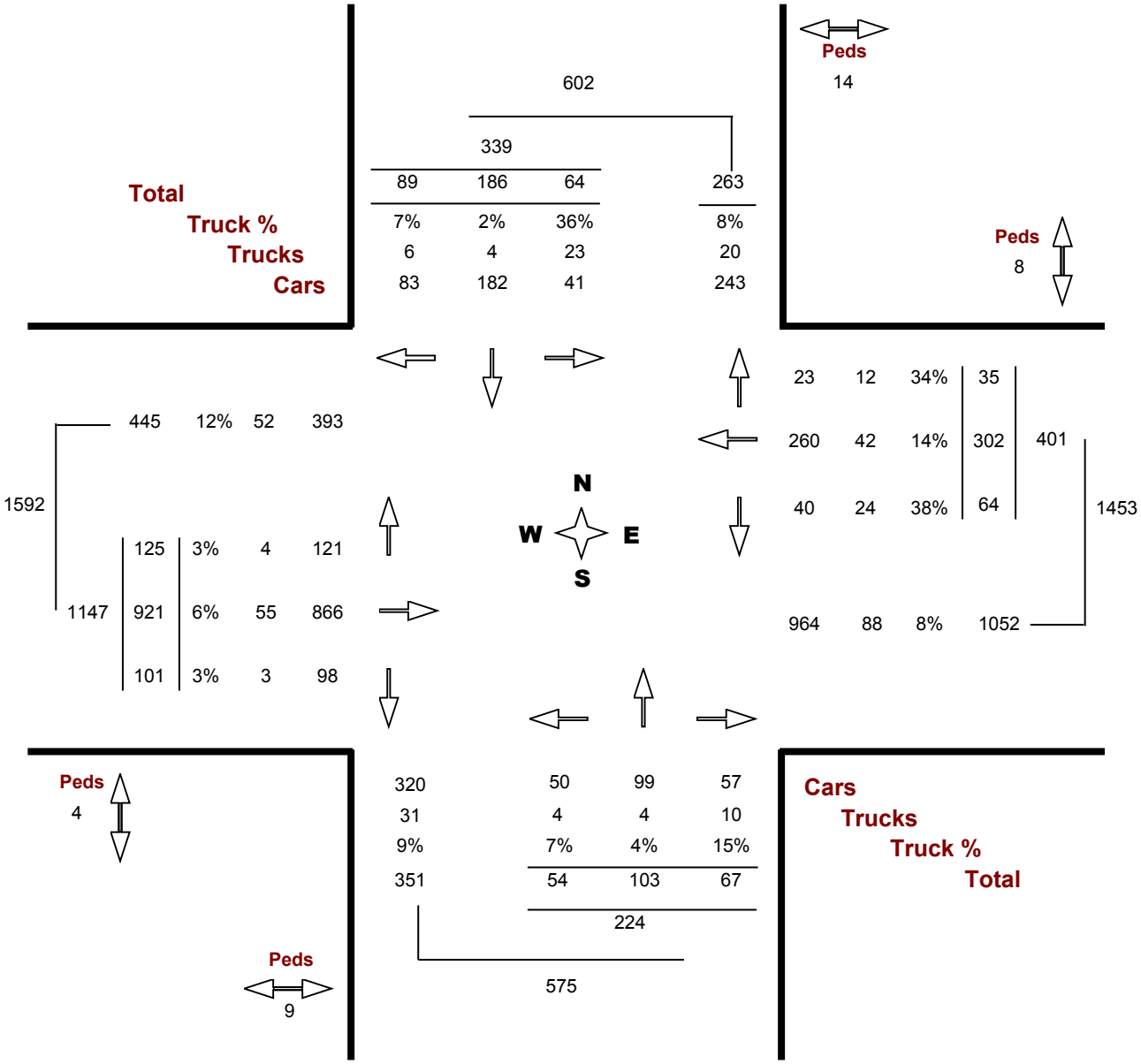
Turning Movements Report - AM Period

Location..... DUKE OF YORK BLVD @ RATHBURN RD W

Municipality..... Mississauga

GeoID..... 347959

Count Date..... Thursday, 22 October, 2015 **Peak Hour.....** 07:45 AM —— 08:45 AM



Turning Movement Count - Details Report

Location..... CENTRE VIEW DR @ DUKE OF YORK BLVD

Municipality..... Mississauga

Count Date..... Tuesday, February 09, 2016

		North Approach					South Approach					East Approach					West Approach				
Time Period		LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT
07:00	07:15	0	0	0	0	0	13	0	3	0	16	11	9	0	0	20	0	22	13	0	35
07:15	07:30	0	0	0	0	0	11	0	20	0	31	20	23	0	0	43	0	67	30	0	97
07:30	07:45	0	0	0	0	0	21	0	20	0	41	17	17	0	0	34	0	75	36	0	111
07:45	08:00	0	0	0	0	0	19	0	18	0	37	36	22	0	0	58	0	86	50	0	136
08:00	08:15	0	0	0	0	0	14	0	8	0	22	18	24	0	0	42	0	115	50	0	165
08:15	08:30	0	0	0	0	0	17	0	10	0	27	22	22	0	0	44	0	100	50	0	150
08:30	08:45	0	0	0	0	0	14	0	8	0	22	36	32	0	0	68	0	149	65	0	214
08:45	09:00	0	0	0	0	0	16	0	5	0	21	26	24	0	0	50	0	122	53	0	175
11:00	11:15	0	0	0	0	0	15	0	10	0	25	22	14	0	0	36	0	22	45	0	67
11:15	11:30	0	0	0	0	0	37	0	6	0	43	21	13	0	0	34	0	14	65	0	79
11:30	11:45	0	0	0	0	0	38	0	7	0	45	31	22	0	0	53	0	17	75	0	92
11:45	12:00	0	0	0	0	0	32	0	4	0	36	27	17	0	0	44	0	22	73	0	95
12:00	12:15	0	0	0	0	0	34	0	9	0	43	25	22	0	0	47	0	25	46	0	71
12:15	12:30	0	0	0	0	0	31	0	3	0	34	38	27	0	0	65	0	17	54	0	71
12:30	12:45	2	0	0	0	2	46	0	17	0	63	17	29	0	0	46	0	14	58	0	72
12:45	13:00	0	0	0	0	0	37	0	3	0	40	19	12	0	0	31	0	30	62	0	92
13:00	13:15	0	0	0	0	0	41	0	8	0	49	16	24	0	0	40	0	23	57	0	80
13:15	13:30	0	0	0	0	0	58	0	7	0	65	18	21	0	0	39	0	21	48	0	69
13:30	13:45	0	0	0	0	0	43	0	8	0	51	27	25	0	0	52	0	18	54	0	72
13:45	14:00	0	0	0	0	0	45	0	9	0	54	32	18	0	0	50	0	16	53	0	69
15:00	15:15	0	0	0	0	0	31	0	11	0	42	31	23	0	0	54	0	23	29	0	52
15:15	15:30	0	0	0	0	0	40	0	15	0	55	32	20	0	0	52	0	17	41	0	58
15:30	15:45	0	0	0	0	0	50	0	11	0	61	22	25	0	0	47	0	25	50	0	75
15:45	16:00	0	0	0	0	0	52	0	5	0	57	30	31	0	0	61	0	25	72	0	97
16:00	16:15	0	0	0	0	0	87	0	4	0	91	37	45	0	0	82	0	15	69	0	84
16:15	16:30	0	0	0	0	0	56	0	7	0	63	40	47	0	0	87	0	31	63	0	94
16:30	16:45	0	0	0	0	0	104	0	12	0	116	40	94	0	0	134	0	13	75	0	88
16:45	17:00	0	0	0	0	0	86	0	4	0	90	44	104	0	0	148	0	28	72	0	100
17:00	17:15	0	0	0	0	0	80	0	5	0	85	51	126	0	0	177	0	12	76	0	88
17:15	17:30	0	0	0	0	0	86	0	9	0	95	30	144	0	0	174	0	25	56	0	81
17:30	17:45	0	0	0	0	0	72	0	7	0	79	50	155	0	0	205	0	32	83	0	115
17:45	18:00	0	0	0	0	0	74	0	5	0	79	44	86	0	0	130	0	35	99	0	134
Total	.....	2	0	0	0	2	1400	0	278	0	1678	930	1317	0	0	2247	0	1256	1822	0	3078

Turning Movement Count - Cyclist Volume Report

Location..... CENTRE VIEW DR @ DUKE OF YORK BLVD

Municipality..... Mississauga

Count Date..... Tuesday, February 09, 2016

Time Period		North Approach	South Approach	Street Total	East Approach	West Approach	Street Total	Grand Total
07:00	07:15	0	0	0	0	0	0	0
07:15	07:30	0	0	0	0	0	0	0
07:30	07:45	0	0	0	0	0	0	0
07:45	08:00	0	0	0	0	0	0	0
08:00	08:15	0	0	0	0	0	0	0
08:15	08:30	0	0	0	0	0	0	0
08:30	08:45	0	0	0	0	0	0	0
08:45	09:00	0	0	0	0	0	0	0
11:00	11:15	0	0	0	0	0	0	0
11:15	11:30	0	0	0	0	0	0	0
11:30	11:45	0	0	0	0	0	0	0
11:45	12:00	0	0	0	0	0	0	0
12:00	12:15	0	0	0	0	0	0	0
12:15	12:30	0	0	0	0	0	0	0
12:30	12:45	0	0	0	0	0	0	0
12:45	13:00	0	0	0	0	0	0	0
13:00	13:15	0	0	0	0	0	0	0
13:15	13:30	0	0	0	0	0	0	0
13:30	13:45	0	0	0	0	0	0	0
13:45	14:00	0	0	0	0	0	0	0
15:00	15:15	0	0	0	0	0	0	0
15:15	15:30	0	0	0	0	0	0	0
15:30	15:45	0	0	0	0	0	0	0
15:45	16:00	0	0	0	0	0	0	0
16:00	16:15	0	0	0	0	0	0	0
16:15	16:30	0	0	0	0	0	0	0
16:30	16:45	0	0	0	0	0	0	0
16:45	17:00	0	0	0	0	0	0	0
17:00	17:15	0	0	0	0	0	0	0
17:15	17:30	0	0	0	0	0	0	0
17:30	17:45	0	0	0	0	0	0	0
17:45	18:00	0	0	0	0	0	0	0
Total	.....	0	0	0	0	0	0	0

Turning Movement Count - Pedestrian Volume Report

Location..... CENTRE VIEW DR @ DUKE OF YORK BLVD

Municipality..... Mississauga

Count Date..... Tuesday, February 09, 2016

Time Period		North Approach	South Approach	Street Total	East Approach	West Approach	Street Total	Grand Total
07:00	07:15	0	0	0	0	0	0	0
07:15	07:30	0	0	0	0	0	0	0
07:30	07:45	0	0	0	0	0	0	0
07:45	08:00	0	0	0	0	0	0	0
08:00	08:15	0	0	0	0	0	0	0
08:15	08:30	0	0	0	0	0	0	0
08:30	08:45	0	0	0	0	0	0	0
08:45	09:00	0	0	0	0	0	0	0
11:00	11:15	0	0	0	0	0	0	0
11:15	11:30	0	0	0	0	0	0	0
11:30	11:45	0	0	0	0	0	0	0
11:45	12:00	0	0	0	0	0	0	0
12:00	12:15	0	0	0	0	0	0	0
12:15	12:30	0	1	1	0	0	0	1
12:30	12:45	0	0	0	0	0	0	0
12:45	13:00	0	0	0	0	0	0	0
13:00	13:15	0	0	0	0	0	0	0
13:15	13:30	0	0	0	0	0	0	0
13:30	13:45	0	0	0	0	0	0	0
13:45	14:00	0	0	0	0	0	0	0
15:00	15:15	0	0	0	0	0	0	0
15:15	15:30	0	0	0	0	0	0	0
15:30	15:45	0	0	0	0	0	0	0
15:45	16:00	0	0	0	0	0	0	0
16:00	16:15	0	1	1	0	0	0	1
16:15	16:30	0	0	0	0	0	0	0
16:30	16:45	0	0	0	0	0	0	0
16:45	17:00	0	0	0	0	0	0	0
17:00	17:15	0	0	0	0	0	0	0
17:15	17:30	0	0	0	0	0	0	0
17:30	17:45	0	0	0	0	0	0	0
17:45	18:00	0	0	0	0	0	0	0
Total	.....	0	2	2	0	0	0	2

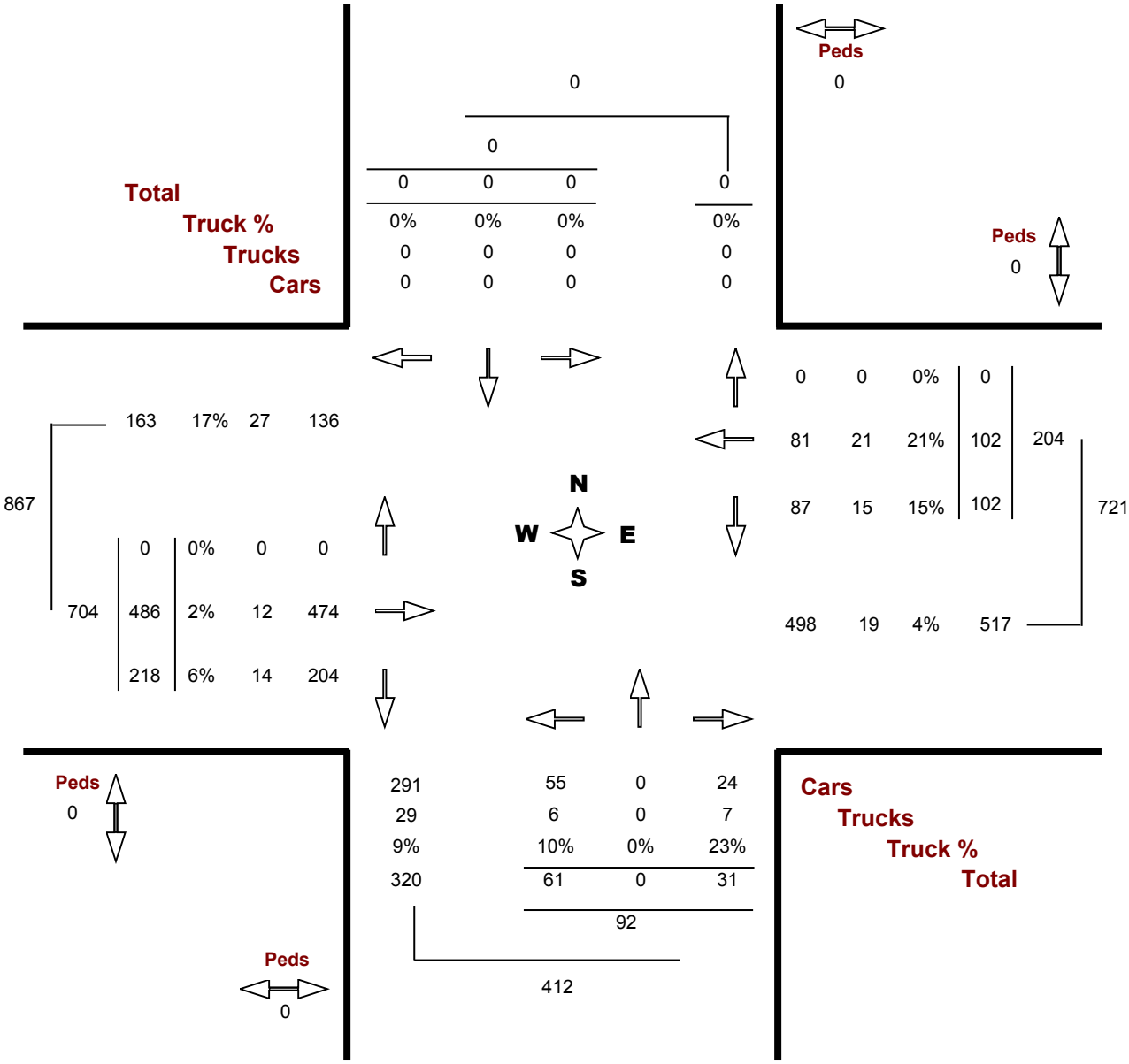
Turning Movements Report - AM Period

Location..... CENTRE VIEW DR @ DUKE OF YORK BLVD

Municipality..... Mississauga

GeoID..... 347807

Count Date..... Tuesday, 09 February, 2016 **Peak Hour.....** 08:00 AM —— 09:00 AM



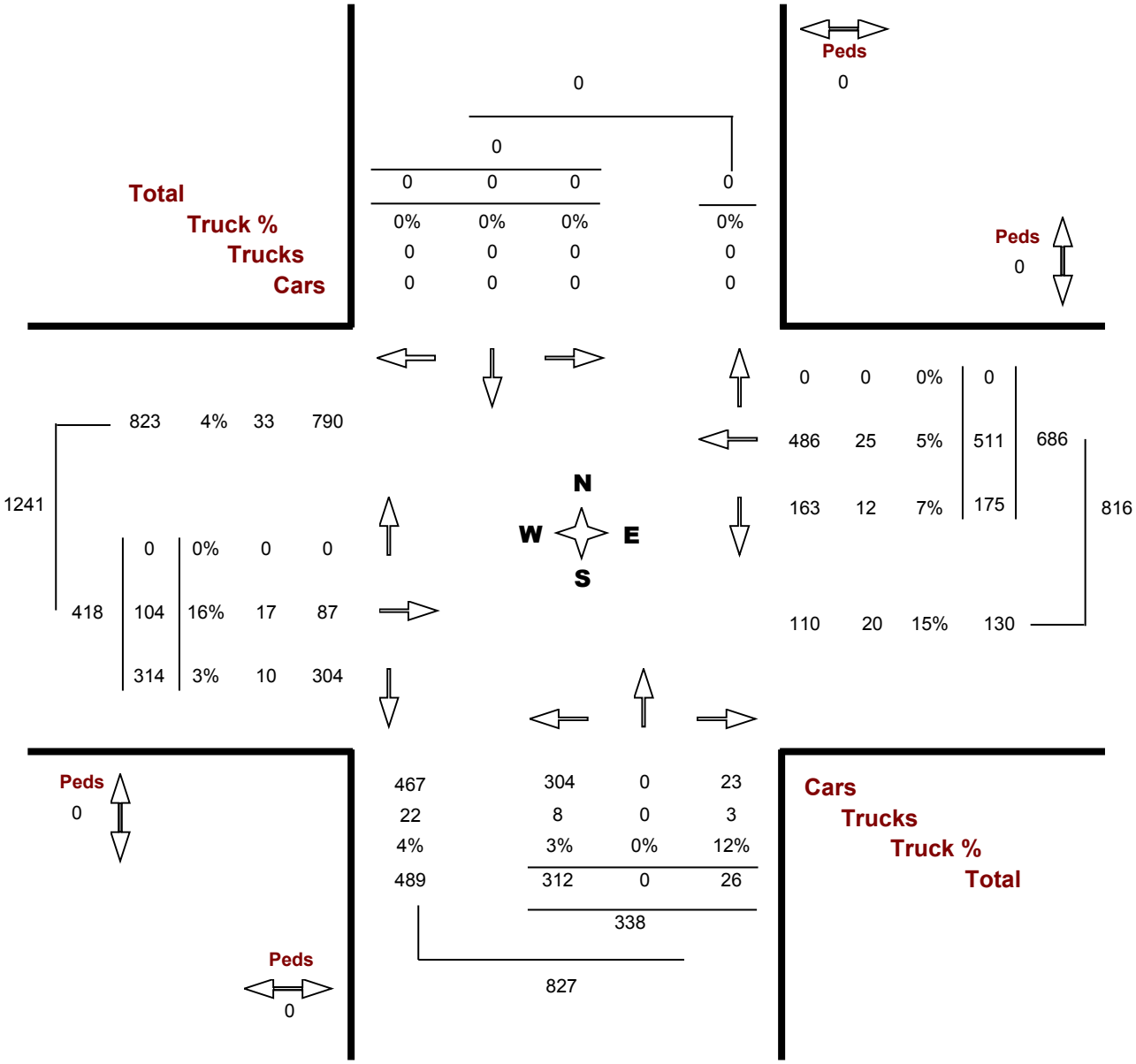
Turning Movements Report - PM Period

Location..... CENTRE VIEW DR @ DUKE OF YORK BLVD

Municipality..... Mississauga

GeoID..... 347807

Count Date..... Tuesday, 09 February, 2016 **Peak Hour.....** 05:00 PM —— 06:00 PM



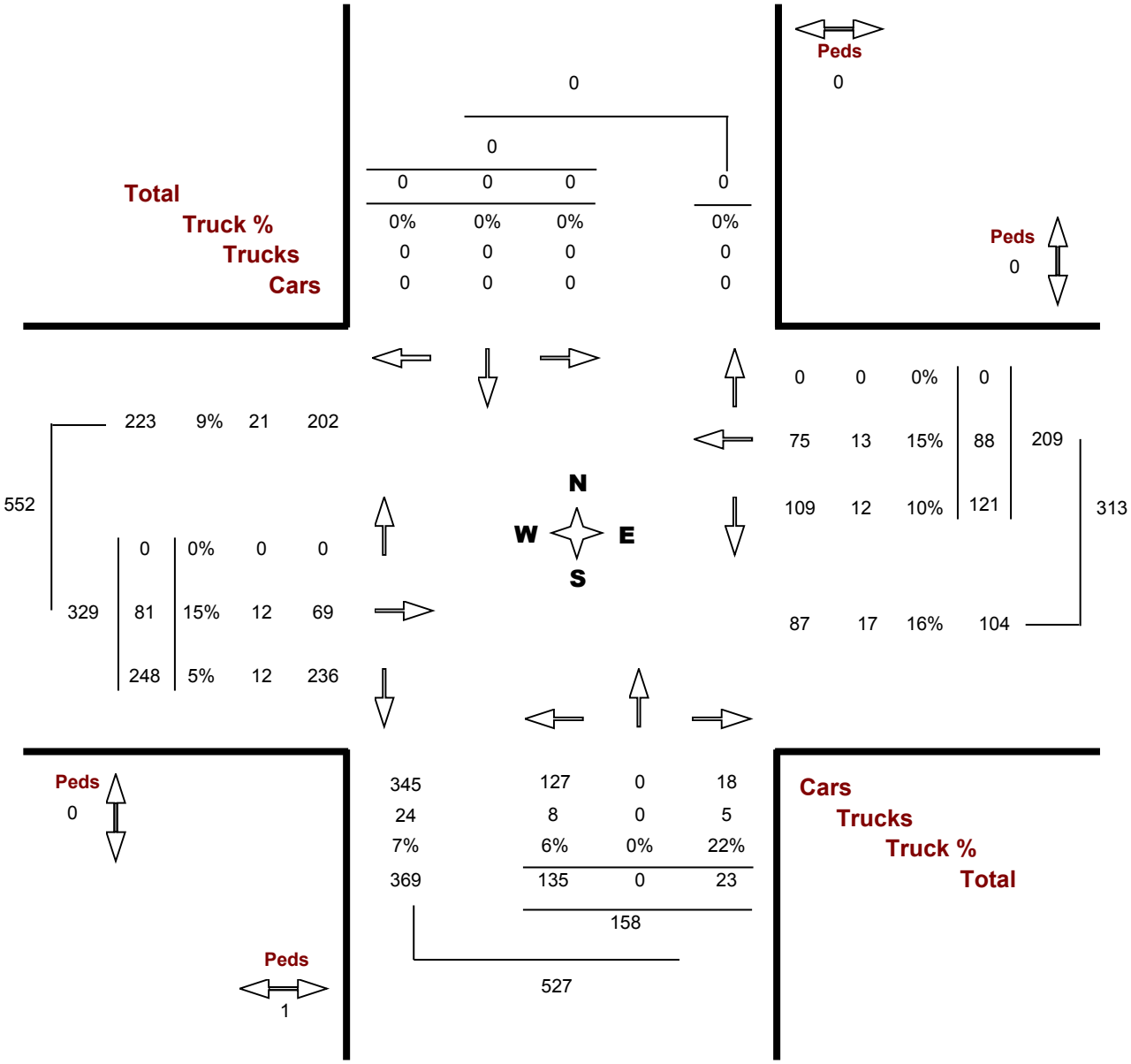
Turning Movements Report - MD Period

Location..... CENTRE VIEW DR @ DUKE OF YORK BLVD

Municipality..... Mississauga

GeoID..... 347807

Count Date..... Tuesday, 09 February, 2016 **Peak Hour.....** 11:30 AM — 12:30 PM



Turning Movement Count - Details Report

Location..... 403 HWY @ MAVIS RD / CENTRE VIEW DR

Municipality..... Mississauga

Count Date..... Tuesday, December 13, 2016

		North Approach					South Approach					East Approach					West Approach				
Time Period		LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT
07:00	07:15	0	233	0	0	233	0	424	1	0	425	1	0	22	0	23	83	0	2	0	85
07:15	07:30	0	383	0	0	383	0	462	5	0	467	5	0	32	0	37	157	0	5	0	162
07:30	07:45	0	452	0	0	452	0	551	5	0	556	1	0	32	0	33	156	0	2	0	158
07:45	08:00	0	630	0	0	630	0	555	4	0	559	2	0	38	0	40	160	0	1	0	161
08:00	08:15	0	606	0	0	606	0	576	7	0	583	2	0	35	0	37	193	0	3	0	196
08:15	08:30	0	639	0	0	639	0	564	8	0	572	2	0	35	0	37	153	0	5	0	158
08:30	08:45	0	544	0	0	544	0	557	9	0	566	2	0	61	0	63	172	0	2	0	174
08:45	09:00	0	497	0	0	497	0	565	7	0	572	1	0	29	0	30	95	0	5	0	100
11:00	11:15	0	390	0	0	390	0	418	4	0	422	2	0	64	0	66	94	0	6	0	100
11:15	11:30	0	336	0	0	336	0	341	4	0	345	4	0	58	0	62	107	0	18	0	125
11:30	11:45	0	382	0	0	382	0	465	3	0	468	3	0	97	0	100	110	0	27	0	137
11:45	12:00	0	386	0	0	386	0	440	6	0	446	1	0	73	0	74	89	0	18	0	107
12:00	12:15	0	372	0	0	372	0	386	2	0	388	4	0	97	0	101	108	0	15	0	123
12:15	12:30	0	499	0	0	499	0	408	5	0	413	4	0	84	0	88	143	0	25	0	168
12:30	12:45	0	533	0	0	533	0	401	1	0	402	3	0	99	0	102	91	0	10	0	101
12:45	13:00	0	435	0	0	435	0	403	7	0	410	9	0	106	0	115	93	0	14	0	107
13:00	13:15	0	464	0	0	464	0	426	2	0	428	8	0	113	0	121	101	0	18	0	119
13:15	13:30	0	468	9	0	477	0	420	5	0	425	1	0	114	0	115	78	0	15	0	93
13:30	13:45	0	462	0	0	462	0	420	2	0	422	5	0	119	0	124	108	0	12	0	120
13:45	14:00	0	412	0	0	412	0	381	3	0	384	4	0	119	0	123	119	0	6	0	125
15:00	15:15	0	430	0	0	430	0	467	3	0	470	7	0	158	0	165	97	0	45	0	142
15:15	15:30	0	442	0	0	442	0	528	4	0	532	9	0	160	0	169	78	0	37	0	115
15:30	15:45	0	505	0	0	505	0	571	2	0	573	11	0	191	0	202	122	0	45	0	167
15:45	16:00	0	451	0	0	451	0	521	4	0	525	16	0	145	0	161	92	0	83	0	175
16:00	16:15	0	331	0	0	331	0	534	3	0	537	20	0	158	0	178	78	0	63	0	141
16:15	16:30	0	399	0	0	399	0	463	1	0	464	26	0	207	0	233	93	0	29	0	122
16:30	16:45	0	348	0	0	348	0	490	4	0	494	48	0	222	0	270	77	0	37	0	114
16:45	17:00	0	237	0	0	237	0	395	0	0	395	61	0	201	0	262	75	0	21	0	96
17:00	17:15	0	268	0	0	268	0	422	1	0	423	51	0	218	0	269	34	0	10	0	44
17:15	17:30	0	273	0	0	273	0	397	5	0	402	73	0	229	0	302	45	0	9	0	54
17:30	17:45	0	352	0	0	352	0	514	1	0	515	49	0	209	0	258	47	0	13	0	60
17:45	18:00	0	342	0	0	342	0	409	3	0	412	46	0	188	0	234	32	0	9	0	41
Total	.....	0	13501	9	0	13510	0	14874	121	0	14995	481	0	3713	0	4194	3280	0	610	0	3890

Turning Movement Count - Cyclist Volume Report

Location..... 403 HWY @ MAVIS RD / CENTRE VIEW DR

Municipality..... Mississauga

Count Date..... Tuesday, December 13, 2016

Time Period		North Approach	South Approach	Street Total	East Approach	West Approach	Street Total	Grand Total
07:00	07:15	9	6	15	8	5	13	28
07:15	07:30	1	3	4	0	0	0	4
07:30	07:45	1	0	1	0	0	0	1
07:45	08:00	0	0	0	0	0	0	0
08:00	08:15	0	0	0	0	0	0	0
08:15	08:30	1	0	1	0	0	0	1
08:30	08:45	0	0	0	0	0	0	0
08:45	09:00	0	0	0	0	0	0	0
11:00	11:15	0	0	0	0	0	0	0
11:15	11:30	0	0	0	0	0	0	0
11:30	11:45	1	0	1	0	0	0	1
11:45	12:00	0	0	0	0	0	0	0
12:00	12:15	1	0	1	0	0	0	1
12:15	12:30	0	0	0	0	0	0	0
12:30	12:45	0	0	0	0	0	0	0
12:45	13:00	1	0	1	0	0	0	1
13:00	13:15	0	0	0	0	0	0	0
13:15	13:30	0	0	0	0	1	1	1
13:30	13:45	1	0	1	0	0	0	1
13:45	14:00	0	0	0	0	0	0	0
15:00	15:15	0	1	1	0	0	0	1
15:15	15:30	0	0	0	0	0	0	0
15:30	15:45	0	0	0	0	0	0	0
15:45	16:00	0	0	0	0	0	0	0
16:00	16:15	1	0	1	0	0	0	1
16:15	16:30	1	0	1	0	0	0	1
16:30	16:45	0	0	0	0	0	0	0
16:45	17:00	0	0	0	0	0	0	0
17:00	17:15	0	0	0	0	0	0	0
17:15	17:30	0	0	0	0	1	1	1
17:30	17:45	0	0	0	0	0	0	0
17:45	18:00	0	0	0	0	0	0	0
Total	.....	18	10	28	8	7	15	43

Turning Movement Count - Pedestrian Volume Report

Location..... 403 HWY @ MAVIS RD / CENTRE VIEW DR

Municipality..... Mississauga

Count Date..... Tuesday, December 13, 2016

Time Period		North Approach	South Approach	Street Total	East Approach	West Approach	Street Total	Grand Total
07:00	07:15	0	0	0	0	0	0	0
07:15	07:30	0	0	0	0	0	0	0
07:30	07:45	0	0	0	0	0	0	0
07:45	08:00	0	0	0	0	0	0	0
08:00	08:15	0	0	0	0	0	0	0
08:15	08:30	0	0	0	0	0	0	0
08:30	08:45	0	0	0	0	0	0	0
08:45	09:00	0	0	0	0	0	0	0
11:00	11:15	0	0	0	0	0	0	0
11:15	11:30	0	0	0	0	0	0	0
11:30	11:45	0	0	0	0	0	0	0
11:45	12:00	0	0	0	0	0	0	0
12:00	12:15	0	0	0	1	0	1	1
12:15	12:30	0	0	0	0	0	0	0
12:30	12:45	0	0	0	0	0	0	0
12:45	13:00	0	0	0	0	0	0	0
13:00	13:15	0	0	0	0	0	0	0
13:15	13:30	0	0	0	0	0	0	0
13:30	13:45	0	0	0	0	0	0	0
13:45	14:00	0	0	0	0	0	0	0
15:00	15:15	0	0	0	0	0	0	0
15:15	15:30	0	0	0	0	0	0	0
15:30	15:45	0	0	0	0	0	0	0
15:45	16:00	0	0	0	0	0	0	0
16:00	16:15	0	0	0	0	0	0	0
16:15	16:30	0	0	0	1	0	1	1
16:30	16:45	0	0	0	0	0	0	0
16:45	17:00	0	0	0	0	0	0	0
17:00	17:15	0	0	0	0	0	0	0
17:15	17:30	0	0	0	0	0	0	0
17:30	17:45	0	0	0	0	0	0	0
17:45	18:00	0	0	0	0	0	0	0
Total	.....	0	0	0	2	2	2	2

Turning Movements Report - AM Period

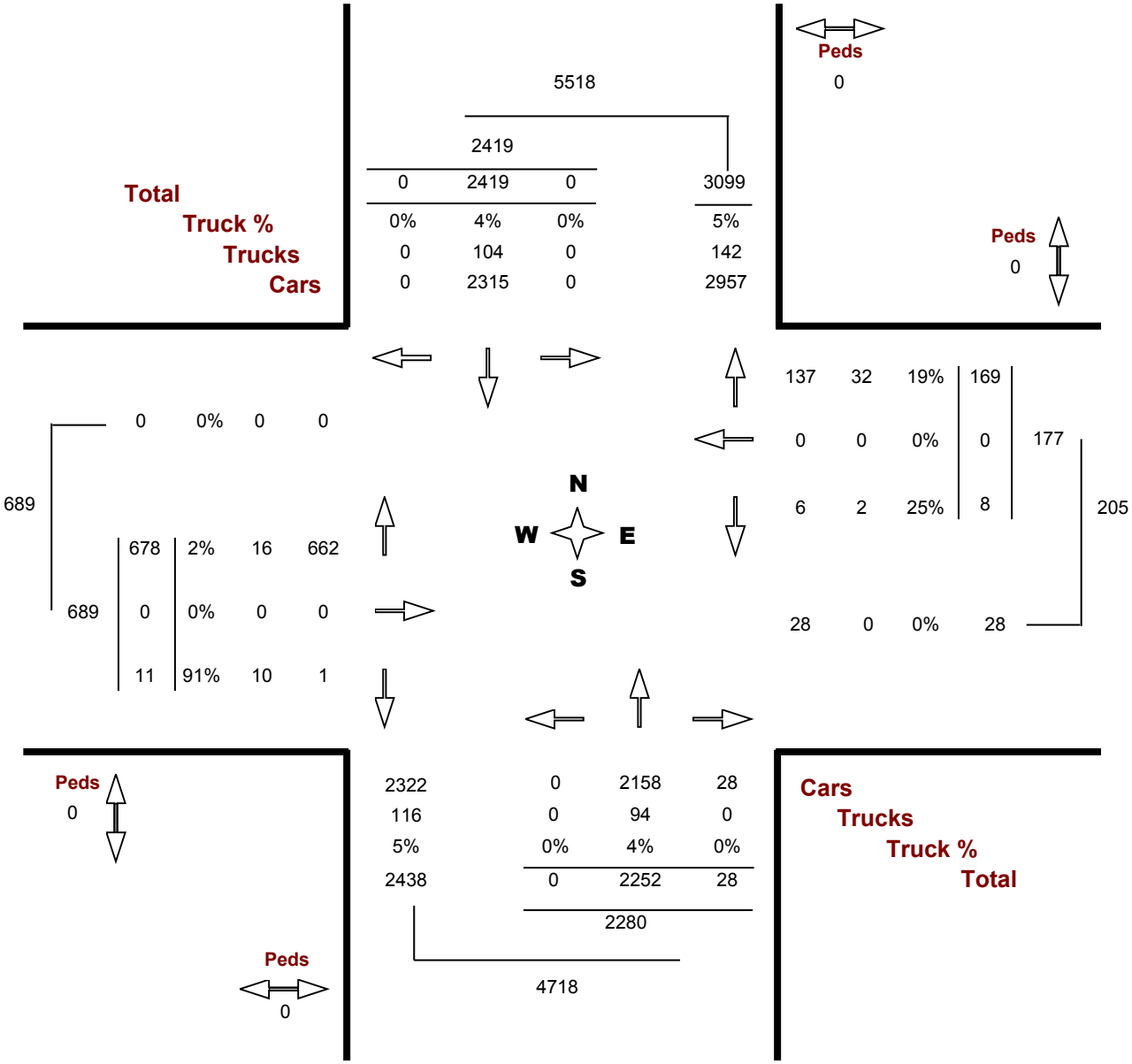
Location..... 403 HWY @ MAVIS RD / CENTRE VIEW DR

Municipality..... Mississauga

GeoID..... 347375

Count Date..... Tuesday, 13 December, 2016

Peak Hour..... 07:45 AM —— 08:45 AM



Turning Movements Report - PM Period

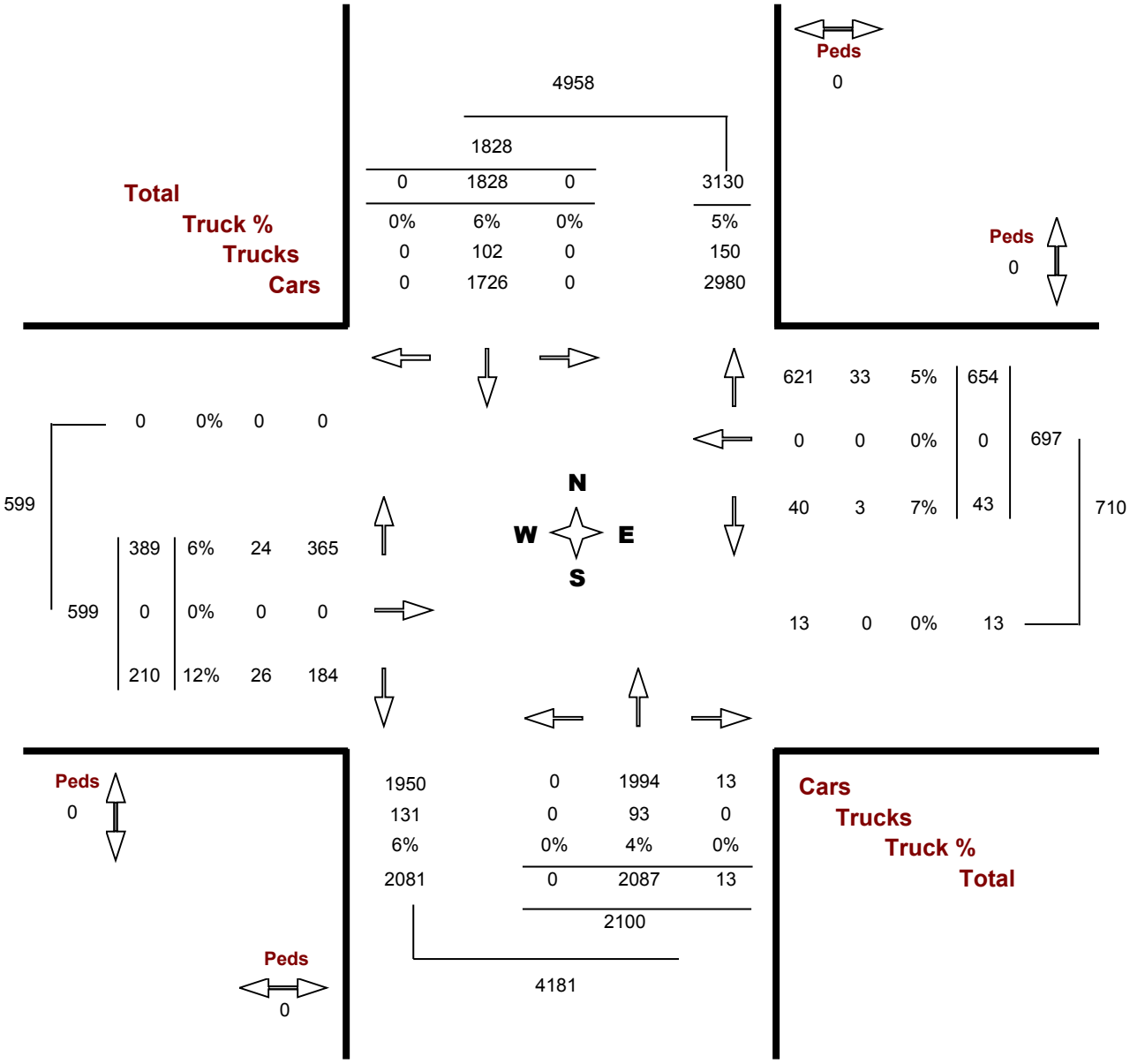
Location..... 403 HWY @ MAVIS RD / CENTRE VIEW DR

Municipality..... Mississauga

GeoID..... 347375

Count Date..... Tuesday, 13 December, 2016

Peak Hour..... 03:00 PM —— 04:00 PM



Turning Movements Report - MD Period

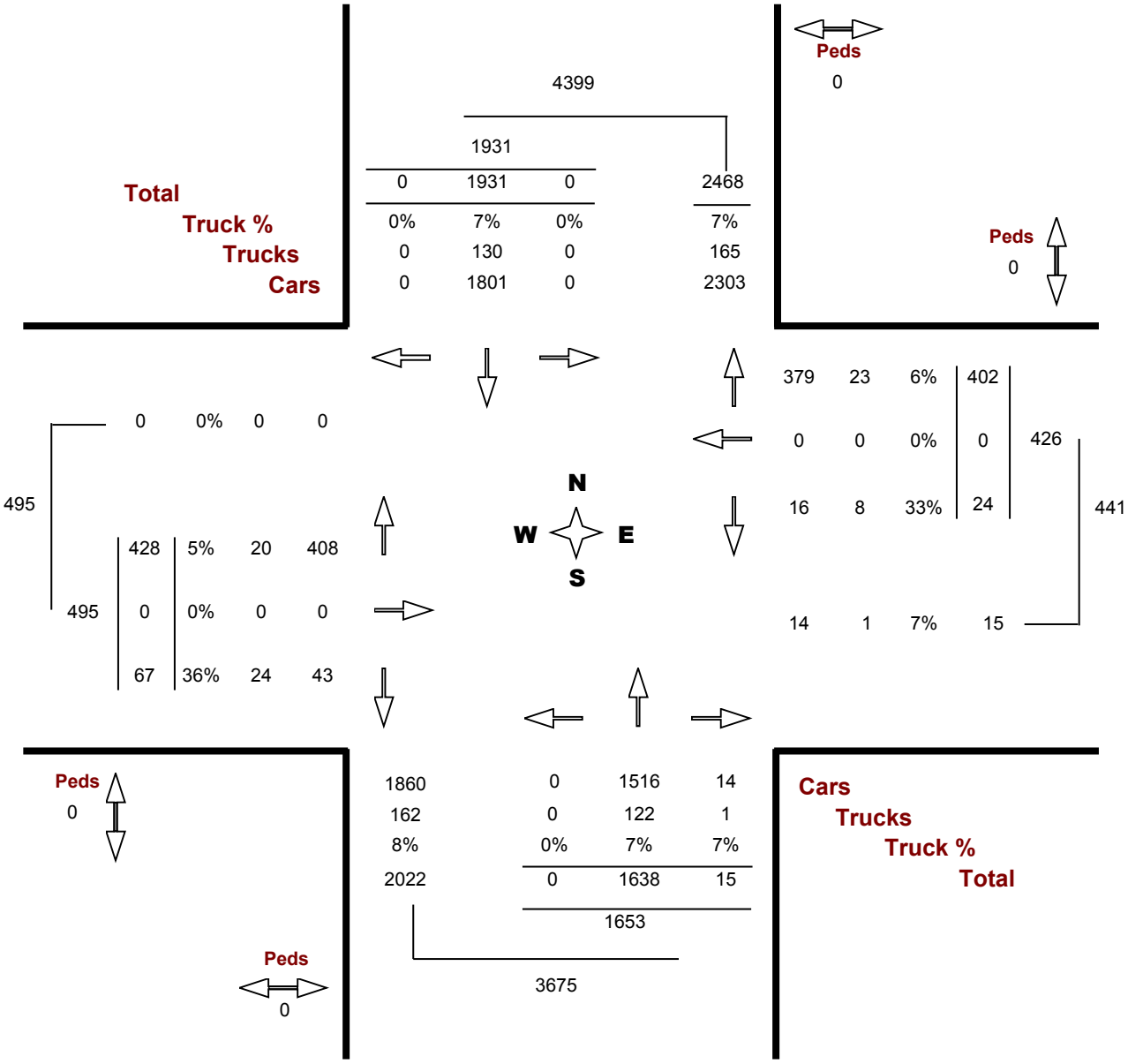
Location..... 403 HWY @ MAVIS RD / CENTRE VIEW DR

Municipality..... Mississauga

GeoID..... 347375

Count Date..... Tuesday, 13 December, 2016

Peak Hour..... 12:15 PM —— 01:15 PM



Turning Movement Count - Details Report

Location..... RATHBURN RD W / LIVING ARTS DR @ UNNAMED UCOM

Municipality..... Mississauga

Count Date..... Wednesday, March 02, 2016

		North Approach					South Approach					East Approach					West Approach				
Time Period		LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT
07:00	07:15	0	0	1	0	1	1	1	24	0	26	13	48	0	0	61	6	122	8	0	136
07:15	07:30	0	0	1	0	1	1	1	28	0	30	12	69	2	0	83	8	193	8	0	209
07:30	07:45	1	0	1	0	2	5	2	48	0	55	17	67	1	0	85	4	243	7	0	254
07:45	08:00	2	2	1	0	5	6	1	52	0	59	21	83	3	0	107	7	255	16	0	278
08:00	08:15	0	1	0	0	1	4	2	49	0	55	21	76	1	0	98	2	206	15	0	223
08:15	08:30	0	0	3	0	3	0	0	48	0	48	29	89	0	0	118	8	242	13	0	263
08:30	08:45	1	1	1	0	3	5	1	47	0	53	32	83	1	0	116	5	240	9	0	254
08:45	09:00	1	1	2	0	4	4	1	45	0	50	28	89	1	0	118	4	223	8	0	235
11:00	11:15	0	0	0	0	0	7	0	20	0	27	16	98	1	0	115	1	126	6	0	133
11:15	11:30	0	0	1	0	1	8	0	21	0	29	13	94	1	0	108	1	137	5	0	143
11:30	11:45	3	1	0	0	4	5	0	33	0	38	20	103	4	0	127	8	154	8	0	170
11:45	12:00	0	2	6	0	8	8	0	34	0	42	26	96	3	0	125	3	168	8	0	179
12:00	12:15	2	1	3	0	6	15	1	25	0	41	20	98	3	0	121	6	134	6	0	146
12:15	12:30	1	3	2	0	6	4	0	26	0	30	17	105	0	0	122	4	119	11	0	134
12:30	12:45	2	4	6	0	12	10	3	34	0	47	25	111	1	0	137	3	106	13	0	122
12:45	13:00	1	4	2	0	7	9	1	25	0	35	27	103	5	0	135	4	152	7	0	163
13:00	13:15	1	2	4	0	7	7	0	28	0	35	28	120	3	0	151	4	138	8	0	150
13:15	13:30	2	0	12	0	14	20	2	29	0	51	18	112	2	0	132	10	122	11	0	143
13:30	13:45	1	1	5	0	7	16	2	17	0	35	25	101	5	0	131	8	127	7	0	142
13:45	14:00	2	2	4	0	8	14	2	23	0	39	23	113	6	0	142	12	123	12	0	147
15:00	15:15	1	1	1	0	3	10	2	37	0	49	29	130	0	0	159	0	105	11	0	116
15:15	15:30	5	0	5	0	10	18	1	54	0	73	21	147	0	0	168	2	129	10	0	141
15:30	15:45	1	0	5	0	6	10	0	23	0	33	26	154	2	0	182	5	131	9	0	145
15:45	16:00	6	1	7	0	14	16	1	30	0	47	32	168	1	0	201	4	166	11	0	181
16:00	16:15	4	0	8	0	12	15	1	31	0	47	24	193	4	0	221	1	169	9	0	179
16:15	16:30	1	0	3	0	4	11	0	19	0	30	43	203	5	0	251	9	136	9	0	154
16:30	16:45	3	2	9	0	14	11	1	26	0	38	31	254	4	0	289	5	160	8	0	173
16:45	17:00	2	2	8	0	12	8	2	29	0	39	31	221	2	0	254	9	160	11	0	180
17:00	17:15	5	6	26	0	37	14	1	26	0	41	41	291	5	0	337	11	159	10	0	180
17:15	17:30	1	1	8	0	10	5	1	20	0	26	29	252	5	0	286	9	159	8	0	176
17:30	17:45	1	1	7	0	9	5	1	19	0	25	27	261	5	0	293	10	159	9	0	178
17:45	18:00	2	1	11	0	14	8	2	25	0	35	35	271	6	0	312	12	165	12	0	189
Total	.....	52	40	153	0	245	280	33	995	0	1308	800	4403	82	0	5285	185	5128	303	0	5616

Turning Movement Count - Cyclist Volume Report

Location..... RATHBURN RD W / LIVING ARTS DR @ UNNAMED UCOM

Municipality..... Mississauga

Count Date..... Wednesday, March 02, 2016

Time Period		North Approach	South Approach	Street Total	East Approach	West Approach	Street Total	Grand Total
07:00	07:15	0	0	0	0	0	0	0
07:15	07:30	0	0	0	0	0	0	0
07:30	07:45	0	0	0	0	0	0	0
07:45	08:00	0	0	0	0	0	0	0
08:00	08:15	0	0	0	0	0	0	0
08:15	08:30	0	0	0	0	0	0	0
08:30	08:45	0	0	0	0	0	0	0
08:45	09:00	0	0	0	0	0	0	0
11:00	11:15	0	0	0	0	0	0	0
11:15	11:30	0	0	0	0	0	0	0
11:30	11:45	0	0	0	0	0	0	0
11:45	12:00	0	0	0	0	0	0	0
12:00	12:15	0	0	0	0	0	0	0
12:15	12:30	0	0	0	0	0	0	0
12:30	12:45	0	0	0	0	0	0	0
12:45	13:00	0	0	0	0	0	0	0
13:00	13:15	0	0	0	0	0	0	0
13:15	13:30	0	0	0	0	0	0	0
13:30	13:45	0	0	0	0	0	0	0
13:45	14:00	0	0	0	0	0	0	0
15:00	15:15	0	0	0	0	0	0	0
15:15	15:30	0	0	0	0	0	0	0
15:30	15:45	0	0	0	0	0	0	0
15:45	16:00	0	0	0	0	0	0	0
16:00	16:15	0	0	0	0	0	0	0
16:15	16:30	0	0	0	0	0	0	0
16:30	16:45	0	0	0	0	0	0	0
16:45	17:00	0	0	0	0	0	0	0
17:00	17:15	0	0	0	0	0	0	0
17:15	17:30	0	0	0	0	0	0	0
17:30	17:45	0	0	0	0	0	0	0
17:45	18:00	0	0	0	0	0	0	0
Total	.....	0	0	0	0	0	0	0

Turning Movement Count - Pedestrian Volume Report

Location..... RATHBURN RD W / LIVING ARTS DR @ UNNAMED UCOM

Municipality..... Mississauga

Count Date..... Wednesday, March 02, 2016

Time Period		North Approach	South Approach	Street Total	East Approach	West Approach	Street Total	Grand Total
07:00	07:15	1	1	2	5	0	5	7
07:15	07:30	5	1	6	5	4	9	15
07:30	07:45	3	0	3	5	0	5	8
07:45	08:00	2	2	4	8	0	8	12
08:00	08:15	3	3	6	8	2	10	16
08:15	08:30	2	2	4	8	1	9	13
08:30	08:45	2	1	3	2	1	3	6
08:45	09:00	0	2	2	3	2	5	7
11:00	11:15	0	1	1	0	1	1	2
11:15	11:30	0	3	3	1	0	1	4
11:30	11:45	1	6	7	3	4	7	14
11:45	12:00	0	4	4	4	3	7	11
12:00	12:15	1	2	3	6	0	6	9
12:15	12:30	0	4	4	0	1	1	5
12:30	12:45	3	1	4	8	1	9	13
12:45	13:00	6	7	13	6	1	7	20
13:00	13:15	3	4	7	5	4	9	16
13:15	13:30	2	1	3	1	1	2	5
13:30	13:45	1	1	2	2	1	3	5
13:45	14:00	4	2	6	4	3	7	13
15:00	15:15	1	2	3	6	2	8	11
15:15	15:30	0	13	13	13	4	17	30
15:30	15:45	5	8	13	7	5	12	25
15:45	16:00	1	7	8	7	3	10	18
16:00	16:15	3	6	9	5	9	14	23
16:15	16:30	0	3	3	0	2	2	5
16:30	16:45	2	9	11	20	2	22	33
16:45	17:00	0	7	7	3	1	4	11
17:00	17:15	11	8	19	18	7	25	44
17:15	17:30	1	2	3	4	1	5	8
17:30	17:45	4	2	6	4	5	9	15
17:45	18:00	3	2	5	5	5	10	15
Total	.....	70	117	187	176	252	252	439

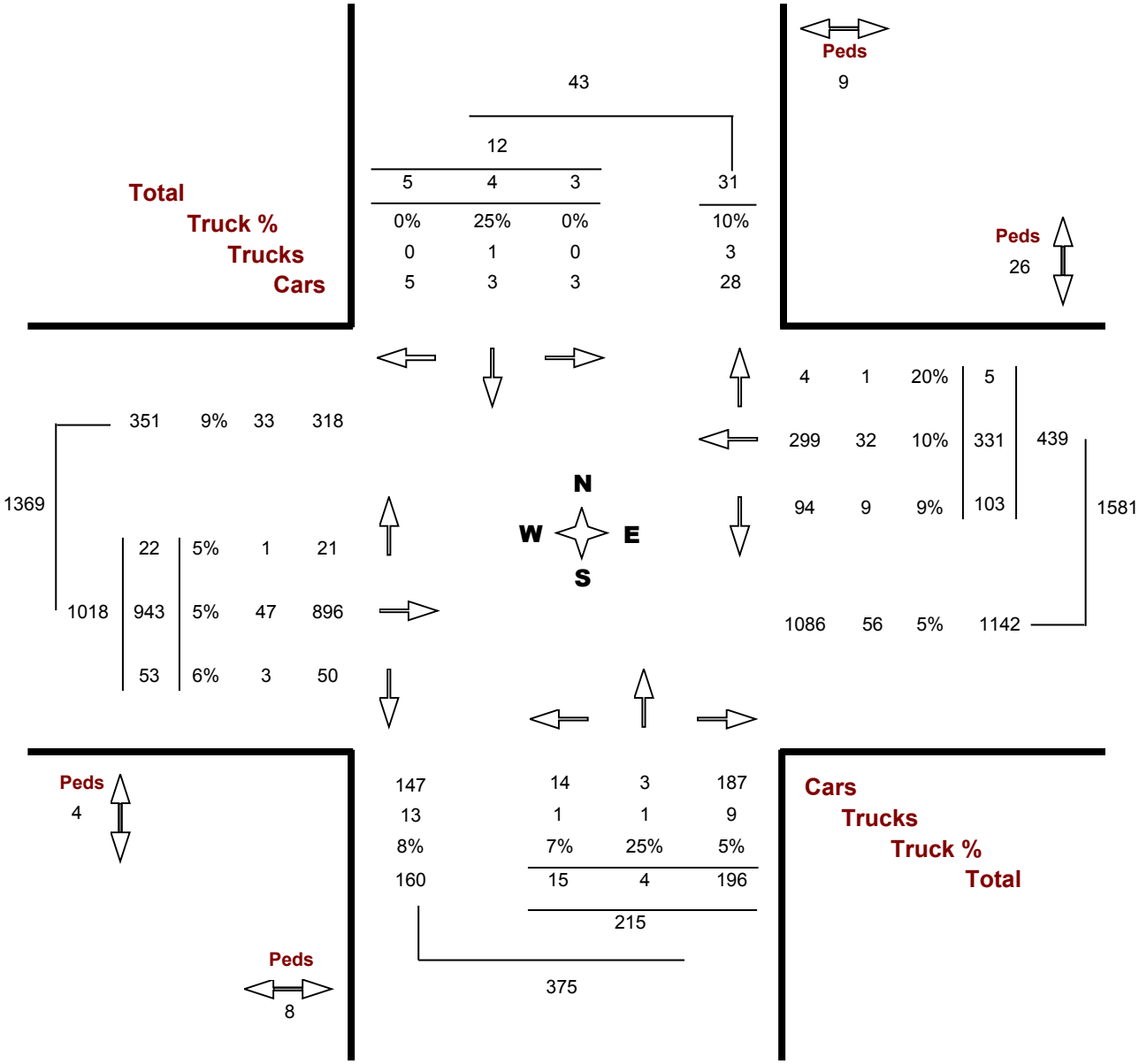
Turning Movements Report - AM Period

Location..... RATHBURN RD W / LIVING ARTS DR @ UNNAMED UCOM

Municipality..... Mississauga

GeoID..... 347867

Count Date..... Wednesday, 02 March, 2016 **Peak Hour.....** 07:45 AM — 08:45 AM



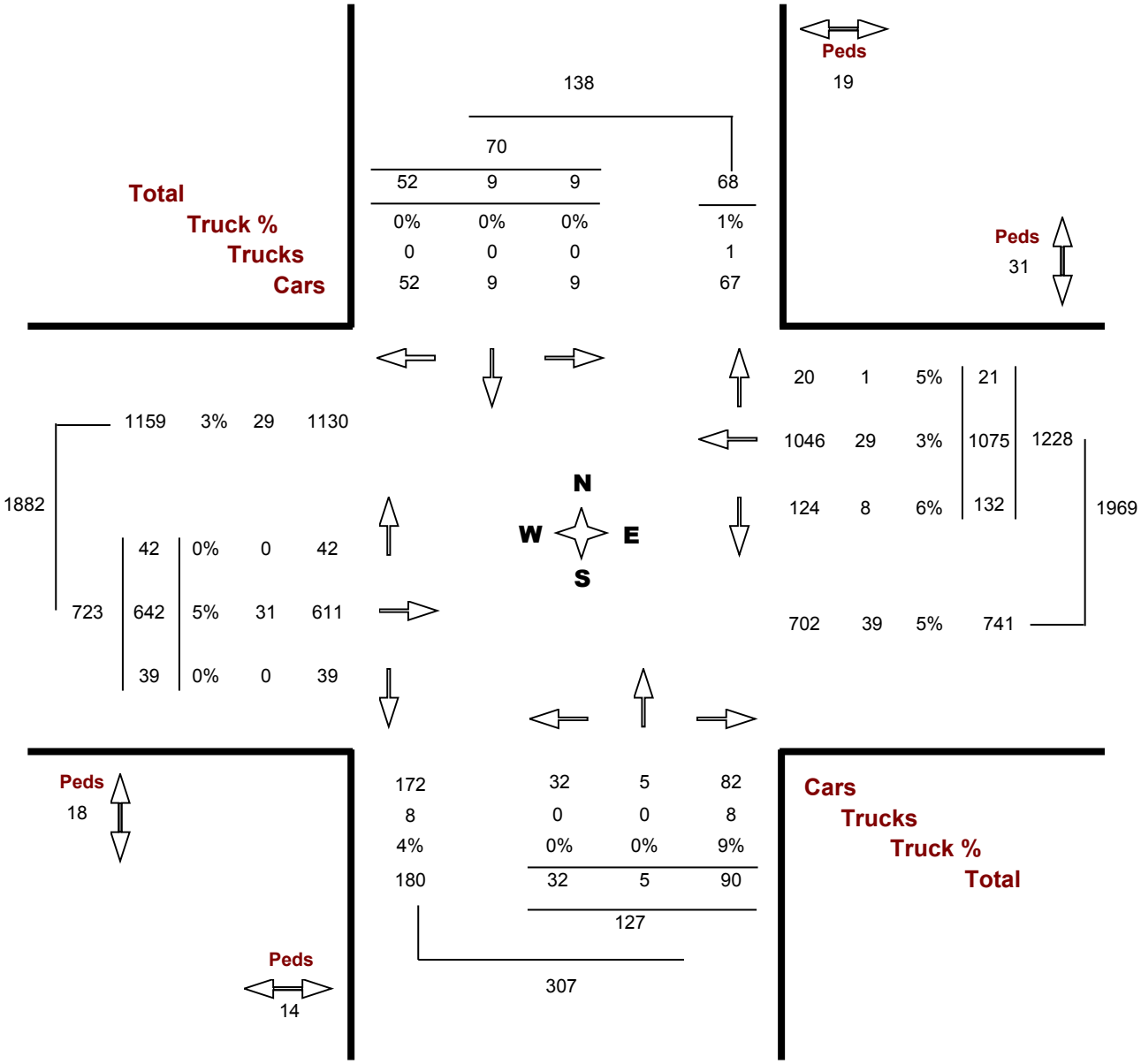
Turning Movements Report - PM Period

Location..... RATHBURN RD W / LIVING ARTS DR @ UNNAMED UCOM

Municipality..... Mississauga

GeoID..... 347867

Count Date..... Wednesday, 02 March, 2016 **Peak Hour.....** 05:00 PM — 06:00 PM



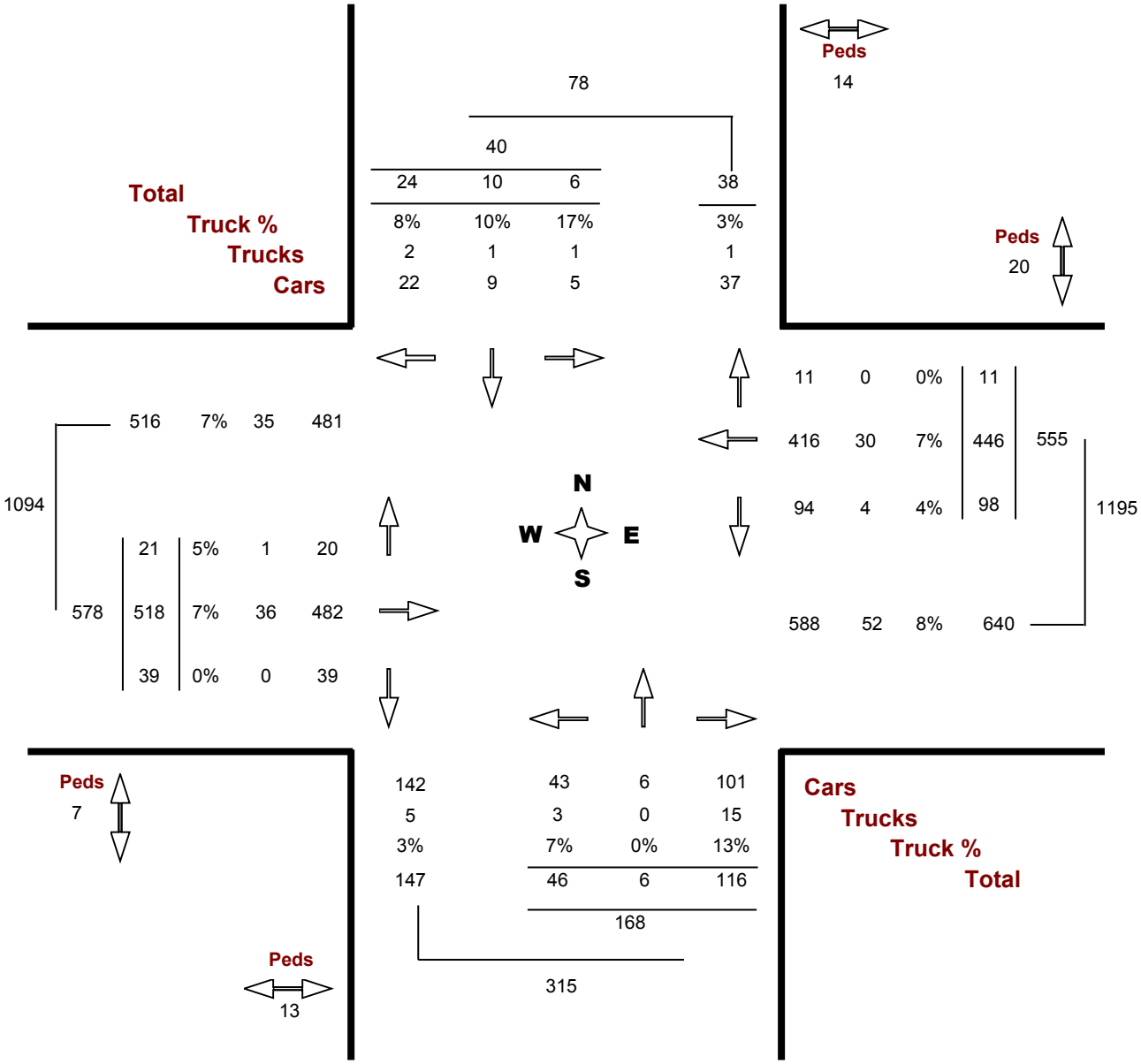
Turning Movements Report - MD Period

Location..... RATHBURN RD W / LIVING ARTS DR @ UNNAMED UCOM

Municipality..... Mississauga

GeoID..... 347867

Count Date..... Wednesday, 02 March, 2016 **Peak Hour.....** 12:30 PM —— 01:30 PM



Turning Movement Count - Details Report

Location..... CENTRE VIEW DR @ STATION GATE RD

Municipality..... Mississauga

Count Date..... Wednesday, January 11, 2017

		North Approach					South Approach					East Approach					West Approach				
Time Period		LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT
07:00	07:15	0	0	0	0	0	8	0	9	0	17	11	10	0	0	21	0	41	11	0	52
07:15	07:30	0	0	0	0	0	15	0	20	0	35	19	12	0	0	31	0	47	14	0	61
07:30	07:45	0	0	0	0	0	26	0	30	0	56	30	27	0	0	57	0	66	26	0	92
07:45	08:00	0	0	0	0	0	30	0	19	0	49	17	20	0	0	37	0	65	15	0	80
08:00	08:15	0	0	0	0	0	9	0	19	0	28	10	23	0	0	33	0	74	9	0	83
08:15	08:30	0	0	0	0	0	12	0	10	0	22	10	22	0	0	32	0	110	5	0	115
08:30	08:45	0	0	0	0	0	9	0	10	0	19	18	21	0	0	39	0	123	1	0	124
08:45	09:00	0	0	0	0	0	10	0	4	0	14	14	11	0	0	25	0	96	5	0	101
11:00	11:15	0	0	0	0	0	6	0	4	0	10	10	8	2	0	20	0	8	8	0	16
11:15	11:30	0	0	0	0	0	7	0	2	0	9	22	17	0	0	39	0	30	16	0	46
11:30	11:45	0	0	0	0	0	4	0	6	0	10	9	21	0	0	30	0	29	14	0	43
11:45	12:00	0	0	0	0	0	3	0	4	0	7	20	36	0	0	56	0	11	8	0	19
12:00	12:15	0	0	0	0	0	10	0	5	0	15	22	46	0	0	68	0	16	10	0	26
12:15	12:30	0	0	0	0	0	11	0	7	0	18	33	51	0	0	84	0	17	11	0	28
12:30	12:45	0	0	0	0	0	20	0	5	0	25	21	31	0	0	52	0	9	17	0	26
12:45	13:00	0	0	0	0	0	8	0	7	0	15	20	41	0	0	61	0	12	12	0	24
13:00	13:15	0	0	0	0	0	14	0	3	0	17	14	31	0	0	45	0	12	16	0	28
13:15	13:30	0	0	0	0	0	7	0	2	0	9	24	18	0	0	42	0	7	21	0	28
13:30	13:45	0	0	0	0	0	20	0	4	0	24	18	31	0	0	49	0	7	8	0	15
13:45	14:00	0	0	0	0	0	12	0	2	0	14	15	21	0	0	36	0	9	7	0	16
15:00	15:15	0	1	0	0	1	9	0	9	0	18	21	28	0	0	49	0	7	12	0	19
15:15	15:30	0	0	0	0	0	13	0	7	0	20	23	17	0	0	40	0	7	16	0	23
15:30	15:45	0	0	0	0	0	14	0	7	0	21	13	35	0	0	48	0	20	9	0	29
15:45	16:00	0	0	0	0	0	13	0	6	0	19	24	51	0	0	75	0	20	20	0	40
16:00	16:15	0	0	0	0	0	17	0	9	0	26	26	42	0	0	68	0	19	20	0	39
16:15	16:30	0	0	0	0	0	14	0	6	0	20	30	49	0	0	79	0	23	24	0	47
16:30	16:45	0	0	0	0	0	20	0	4	0	24	12	39	0	0	51	0	18	16	0	34
16:45	17:00	0	0	0	0	0	23	0	14	0	37	27	62	0	0	89	0	17	11	0	28
17:00	17:15	0	0	0	0	0	19	0	4	0	23	32	107	0	0	139	0	30	18	0	48
17:15	17:30	0	0	0	0	0	15	0	14	0	29	27	110	0	0	137	0	15	23	0	38
17:30	17:45	0	0	0	0	0	18	0	13	0	31	24	83	0	0	107	0	27	25	0	52
17:45	18:00	0	0	0	0	0	19	0	9	0	28	23	78	0	0	101	0	20	15	0	35
Total	.....	0	1	0	0	1	435	0	274	0	709	639	1199	2	0	1840	0	1012	443	0	1455

Turning Movement Count - Cyclist Volume Report

Location..... CENTRE VIEW DR @ STATION GATE RD

Municipality..... Mississauga

Count Date..... Wednesday, January 11, 2017

Time Period		North Approach	South Approach	Street Total	East Approach	West Approach	Street Total	Grand Total
07:00	07:15	0	0	0	0	0	0	0
07:15	07:30	0	0	0	0	1	1	1
07:30	07:45	0	0	0	0	0	0	0
07:45	08:00	0	0	0	0	0	0	0
08:00	08:15	0	0	0	0	0	0	0
08:15	08:30	0	0	0	0	0	0	0
08:30	08:45	0	0	0	1	0	1	1
08:45	09:00	0	0	0	0	0	0	0
11:00	11:15	0	0	0	0	0	0	0
11:15	11:30	0	0	0	0	0	0	0
11:30	11:45	0	0	0	0	0	0	0
11:45	12:00	0	0	0	0	0	0	0
12:00	12:15	0	0	0	0	0	0	0
12:15	12:30	0	0	0	0	0	0	0
12:30	12:45	0	0	0	0	0	0	0
12:45	13:00	0	0	0	0	0	0	0
13:00	13:15	0	0	0	0	0	0	0
13:15	13:30	0	0	0	0	0	0	0
13:30	13:45	0	0	0	0	0	0	0
13:45	14:00	0	0	0	0	0	0	0
15:00	15:15	0	1	1	0	1	1	2
15:15	15:30	0	0	0	0	0	0	0
15:30	15:45	0	0	0	0	0	0	0
15:45	16:00	0	0	0	0	0	0	0
16:00	16:15	0	0	0	0	0	0	0
16:15	16:30	0	0	0	0	0	0	0
16:30	16:45	0	0	0	0	0	0	0
16:45	17:00	0	0	0	0	0	0	0
17:00	17:15	0	0	0	0	0	0	0
17:15	17:30	0	0	0	0	0	0	0
17:30	17:45	0	0	0	0	0	0	0
17:45	18:00	0	0	0	0	0	0	0
Total	.....	0	1	1	1	2	3	4

Turning Movement Count - Pedestrian Volume Report

Location..... CENTRE VIEW DR @ STATION GATE RD

Municipality..... Mississauga

Count Date..... Wednesday, January 11, 2017

Time Period		North Approach	South Approach	Street Total	East Approach	West Approach	Street Total	Grand Total
07:00	07:15	0	12	12	0	0	0	12
07:15	07:30	0	25	25	0	0	0	25
07:30	07:45	0	3	3	0	0	0	3
07:45	08:00	0	19	19	0	0	0	19
08:00	08:15	0	7	7	0	0	0	7
08:15	08:30	0	13	13	0	0	0	13
08:30	08:45	0	6	6	0	0	0	6
08:45	09:00	0	2	2	0	0	0	2
11:00	11:15	0	5	5	0	0	0	5
11:15	11:30	0	4	4	0	0	0	4
11:30	11:45	0	6	6	0	0	0	6
11:45	12:00	0	11	11	0	0	0	11
12:00	12:15	0	4	4	0	0	0	4
12:15	12:30	0	2	2	0	0	0	2
12:30	12:45	0	5	5	0	0	0	5
12:45	13:00	0	10	10	0	0	0	10
13:00	13:15	0	11	11	0	0	0	11
13:15	13:30	0	12	12	0	0	0	12
13:30	13:45	0	13	13	0	0	0	13
13:45	14:00	0	6	6	0	0	0	6
15:00	15:15	0	9	9	0	0	0	9
15:15	15:30	0	17	17	0	0	0	17
15:30	15:45	0	13	13	0	0	0	13
15:45	16:00	0	4	4	0	0	0	4
16:00	16:15	0	8	8	0	0	0	8
16:15	16:30	0	19	19	0	0	0	19
16:30	16:45	0	13	13	0	0	0	13
16:45	17:00	0	29	29	0	0	0	29
17:00	17:15	0	28	28	0	0	0	28
17:15	17:30	0	19	19	0	0	0	19
17:30	17:45	0	16	16	0	0	0	16
17:45	18:00	0	8	8	0	0	0	8
Total	.....	0	359	359	0	0	0	359

Turning Movements Report - MD Period

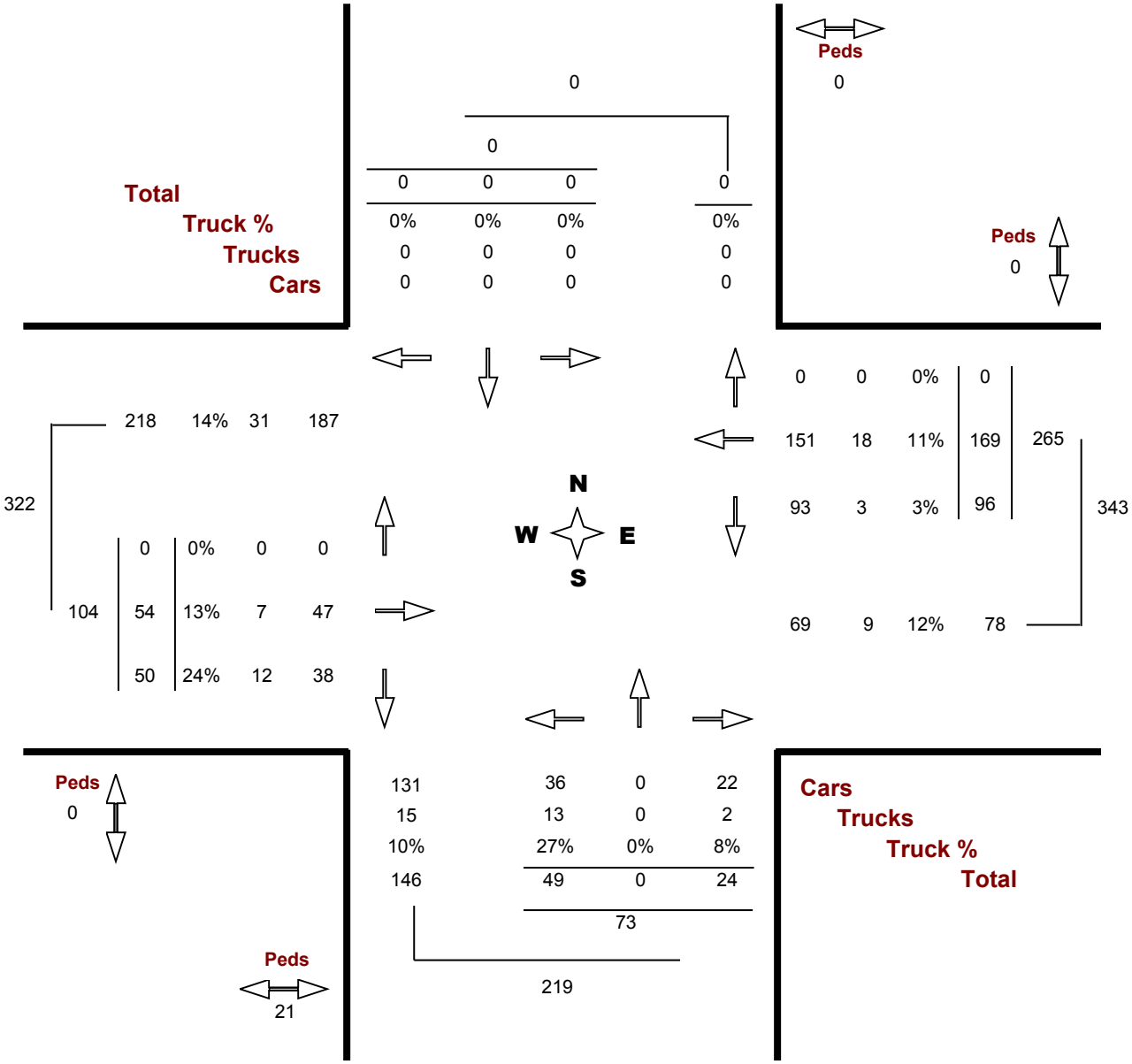
Location..... CENTRE VIEW DR @ STATION GATE RD

Municipality..... Mississauga

GeoID..... 436028

Count Date..... Wednesday, 11 January, 2017

Peak Hour..... 12:00 PM —— 01:00 PM



Turning Movements Report - PM Period

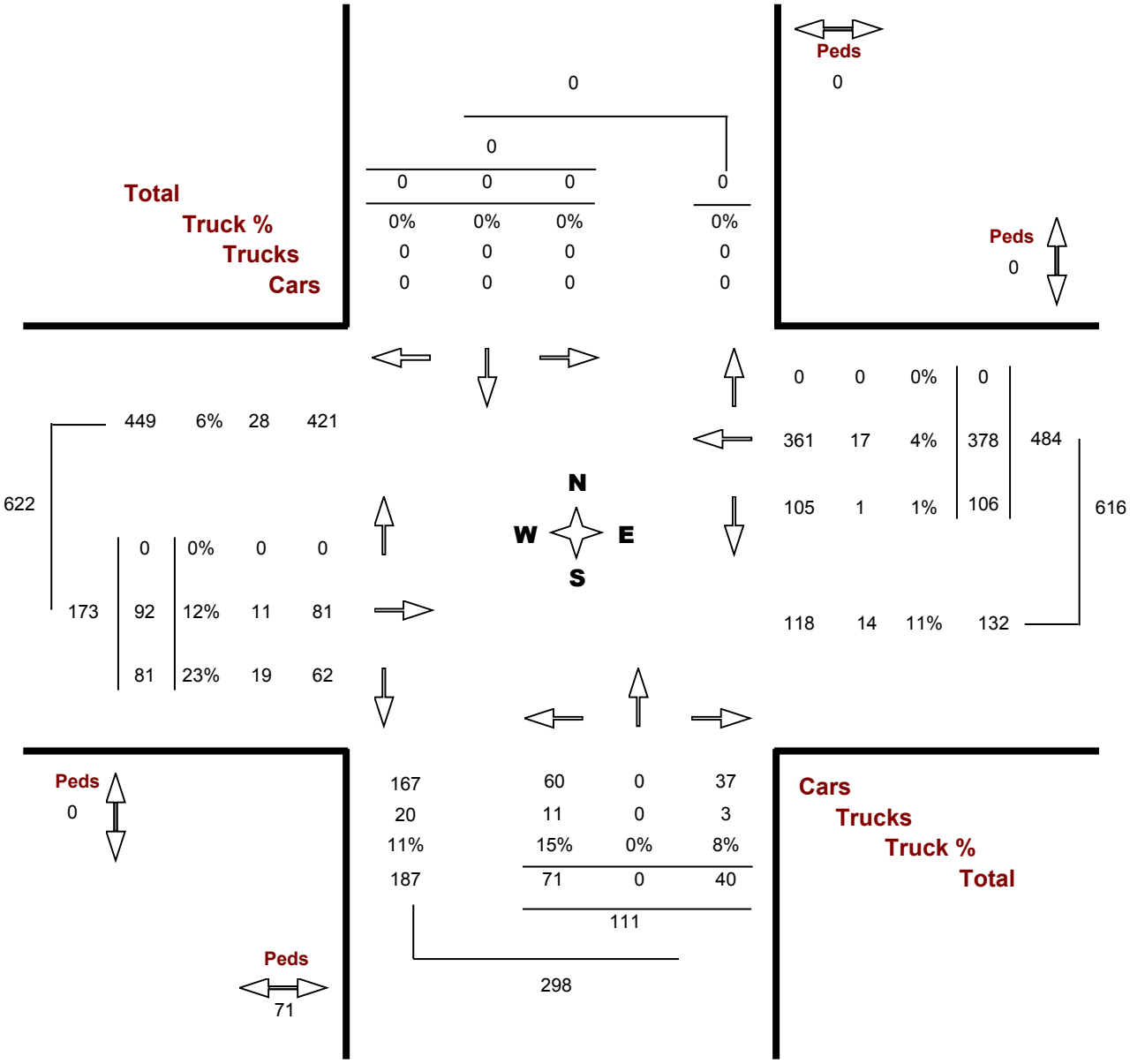
Location..... CENTRE VIEW DR @ STATION GATE RD

Municipality..... Mississauga

GeoID..... 436028

Count Date..... Wednesday, 11 January, 2017

Peak Hour..... 05:00 PM —— 06:00 PM



Turning Movements Report - AM Period

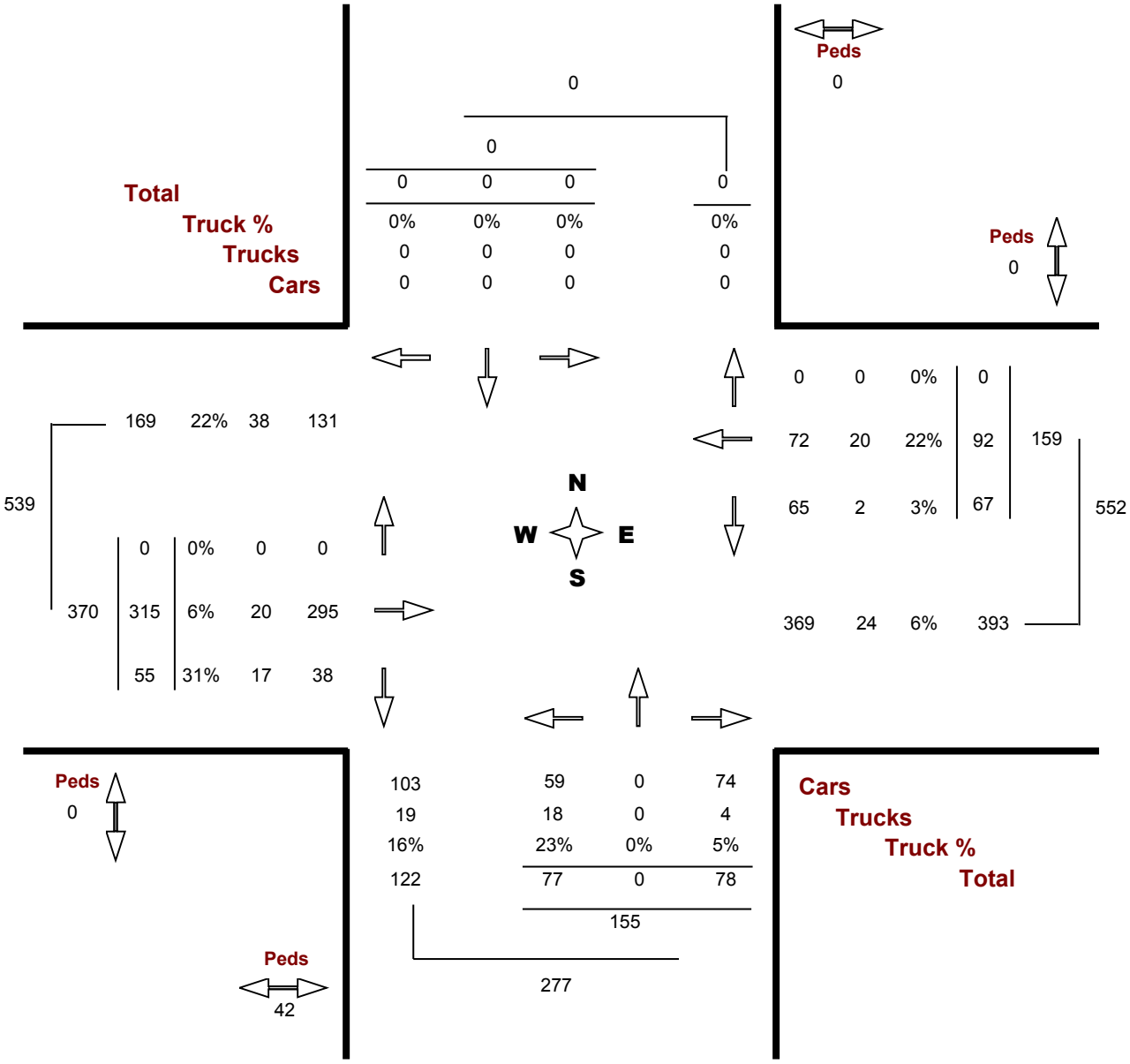
Location..... CENTRE VIEW DR @ STATION GATE RD

Municipality..... Mississauga

GeoID..... 436028

Count Date..... Wednesday, 11 January, 2017

Peak Hour..... 07:30 AM — 08:30 AM



Turning Movement Count - Details Report

Location..... CONFEDERATION PKY @ RATHBURN RD W

Municipality..... Mississauga

Count Date..... Wednesday, January 18, 2017

		North Approach					South Approach					East Approach					West Approach				
Time Period		LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT
07:00	07:15	55	102	11	0	168	16	72	15	0	103	10	20	14	0	44	25	66	16	0	107
07:15	07:30	89	140	10	0	239	22	89	28	0	139	4	27	17	0	48	13	93	18	0	124
07:30	07:45	98	151	3	0	252	26	121	33	0	180	6	41	37	0	84	39	147	22	0	208
07:45	08:00	127	194	6	0	327	39	181	31	0	251	25	52	33	0	110	30	162	20	0	212
08:00	08:15	99	156	9	0	264	38	179	30	0	247	33	48	31	0	112	23	121	26	0	170
08:15	08:30	88	64	6	0	158	23	176	45	0	244	19	50	36	0	105	13	113	19	0	145
08:30	08:45	86	79	12	0	177	27	185	32	0	244	27	41	29	0	97	20	103	21	0	144
08:45	09:00	86	74	9	0	169	30	187	26	0	243	28	42	25	0	95	17	100	15	0	132
11:00	11:15	57	88	3	0	148	10	73	11	0	94	14	30	36	0	80	9	49	19	0	77
11:15	11:30	54	85	5	0	144	11	80	16	0	107	20	39	51	0	110	10	59	21	0	90
11:30	11:45	70	103	5	0	178	13	109	14	0	136	25	56	35	0	116	11	74	14	0	99
11:45	12:00	78	103	10	0	191	24	157	22	0	203	35	55	38	0	128	13	113	18	0	144
12:00	12:15	75	77	4	0	156	21	208	20	0	249	23	82	50	0	155	17	89	16	0	122
12:15	12:30	48	97	5	0	150	27	103	17	0	147	15	66	53	0	134	14	85	20	0	119
12:30	12:45	80	80	9	0	169	30	160	22	0	212	14	73	59	0	146	12	97	20	0	129
12:45	13:00	67	83	5	0	155	31	170	22	0	223	29	80	44	0	153	15	101	17	0	133
13:00	13:15	65	96	6	0	167	23	122	15	0	160	19	82	62	0	163	14	87	22	0	123
13:15	13:30	51	62	7	0	120	22	154	24	0	200	15	50	53	0	118	16	69	10	0	95
13:30	13:45	52	55	5	0	112	18	147	21	0	186	12	45	51	0	108	7	58	9	0	74
13:45	14:00	52	54	7	0	113	22	154	19	0	195	15	50	47	0	112	7	57	5	0	69
15:00	15:15	57	112	18	0	187	36	134	18	0	188	12	63	69	0	144	19	72	13	0	104
15:15	15:30	56	100	15	0	171	34	213	25	0	272	31	84	71	0	186	26	66	25	0	117
15:30	15:45	61	150	6	0	217	27	220	21	0	268	51	129	72	0	252	16	60	7	0	83
15:45	16:00	68	87	4	0	159	27	198	17	0	242	29	109	72	0	210	16	81	19	0	116
16:00	16:15	55	112	21	0	188	22	208	17	0	247	33	136	69	0	238	12	97	24	0	133
16:15	16:30	85	131	5	0	221	28	399	26	0	453	32	278	92	0	402	15	65	11	0	91
16:30	16:45	109	156	5	0	270	71	312	23	0	406	33	284	78	0	395	23	131	10	0	164
16:45	17:00	108	75	10	0	193	19	348	25	0	392	37	285	90	0	412	6	115	14	0	135
17:00	17:15	73	146	7	0	226	13	242	27	0	282	16	179	81	0	276	11	66	15	0	92
17:15	17:30	72	157	9	0	238	10	235	20	0	265	18	181	82	0	281	11	60	16	0	87
17:30	17:45	65	157	9	0	231	12	221	19	0	252	17	167	75	0	259	7	58	17	0	82
17:45	18:00	75	146	11	0	232	17	267	21	0	305	25	201	89	0	315	8	71	16	0	95
Total	.....	2361	3472	257	0	6090	789	5824	722	0	7335	722	3125	1741	0	5588	495	2785	535	0	3815

Turning Movement Count - Cyclist Volume Report

Location..... CONFEDERATION PKY @ RATHBURN RD W

Municipality..... Mississauga

Count Date..... Wednesday, January 18, 2017

Time Period		North Approach	South Approach	Street Total	East Approach	West Approach	Street Total	Grand Total
07:00	07:15	0	0	0	0	0	0	0
07:15	07:30	0	2	2	0	0	0	2
07:30	07:45	0	0	0	0	0	0	0
07:45	08:00	0	0	0	1	0	1	1
08:00	08:15	0	1	1	0	0	0	1
08:15	08:30	3	1	4	1	0	1	5
08:30	08:45	0	0	0	0	0	0	0
08:45	09:00	0	0	0	0	0	0	0
11:00	11:15	0	0	0	0	0	0	0
11:15	11:30	0	0	0	0	0	0	0
11:30	11:45	0	0	0	0	0	0	0
11:45	12:00	0	2	2	0	0	0	2
12:00	12:15	0	0	0	0	0	0	0
12:15	12:30	0	0	0	0	1	1	1
12:30	12:45	0	1	1	0	1	1	2
12:45	13:00	1	0	1	0	2	2	3
13:00	13:15	0	0	0	0	0	0	0
13:15	13:30	0	1	1	0	0	0	1
13:30	13:45	0	0	0	0	0	0	0
13:45	14:00	1	0	1	5	0	5	6
15:00	15:15	1	0	1	0	0	0	1
15:15	15:30	0	0	0	0	0	0	0
15:30	15:45	0	1	1	0	0	0	1
15:45	16:00	0	1	1	0	0	0	1
16:00	16:15	0	0	0	0	0	0	0
16:15	16:30	0	0	0	0	2	2	2
16:30	16:45	1	0	1	0	2	2	3
16:45	17:00	0	1	1	0	0	0	1
17:00	17:15	1	0	1	0	0	0	1
17:15	17:30	0	0	0	0	0	0	0
17:30	17:45	0	0	0	0	0	0	0
17:45	18:00	1	11	12	0	1	1	13
Total	.....	9	22	31	7	9	16	47

Turning Movement Count - Pedestrian Volume Report

Location..... CONFEDERATION PKY @ RATHBURN RD W

Municipality..... Mississauga

Count Date..... Wednesday, January 18, 2017

Time Period		North Approach	South Approach	Street Total	East Approach	West Approach	Street Total	Grand Total
07:00	07:15	2	4	6	0	1	1	7
07:15	07:30	4	4	8	0	0	0	8
07:30	07:45	4	7	11	1	1	2	13
07:45	08:00	2	12	14	0	1	1	15
08:00	08:15	2	13	15	0	0	0	15
08:15	08:30	6	5	11	0	2	2	13
08:30	08:45	3	3	6	2	1	3	9
08:45	09:00	3	15	18	7	1	8	26
11:00	11:15	0	4	4	0	0	0	4
11:15	11:30	4	4	8	1	2	3	11
11:30	11:45	4	4	8	2	0	2	10
11:45	12:00	3	2	5	1	2	3	8
12:00	12:15	1	4	5	0	0	0	5
12:15	12:30	4	14	18	0	0	0	18
12:30	12:45	0	1	1	0	0	0	1
12:45	13:00	4	4	8	0	2	2	10
13:00	13:15	3	3	6	0	1	1	7
13:15	13:30	6	3	9	3	1	4	13
13:30	13:45	1	2	3	2	1	3	6
13:45	14:00	4	5	9	3	1	4	13
15:00	15:15	11	4	15	2	0	2	17
15:15	15:30	3	1	4	0	2	2	6
15:30	15:45	13	9	22	0	0	0	22
15:45	16:00	6	2	8	0	0	0	8
16:00	16:15	6	8	14	0	11	11	25
16:15	16:30	0	9	9	0	0	0	9
16:30	16:45	0	8	8	0	0	0	8
16:45	17:00	3	2	5	0	0	0	5
17:00	17:15	3	3	6	3	0	3	9
17:15	17:30	0	0	0	0	0	0	0
17:30	17:45	1	2	3	2	3	5	8
17:45	18:00	1	18	19	8	5	13	32
Total	.....	107	179	286	37	75	75	361

Turning Movements Report - MD Period

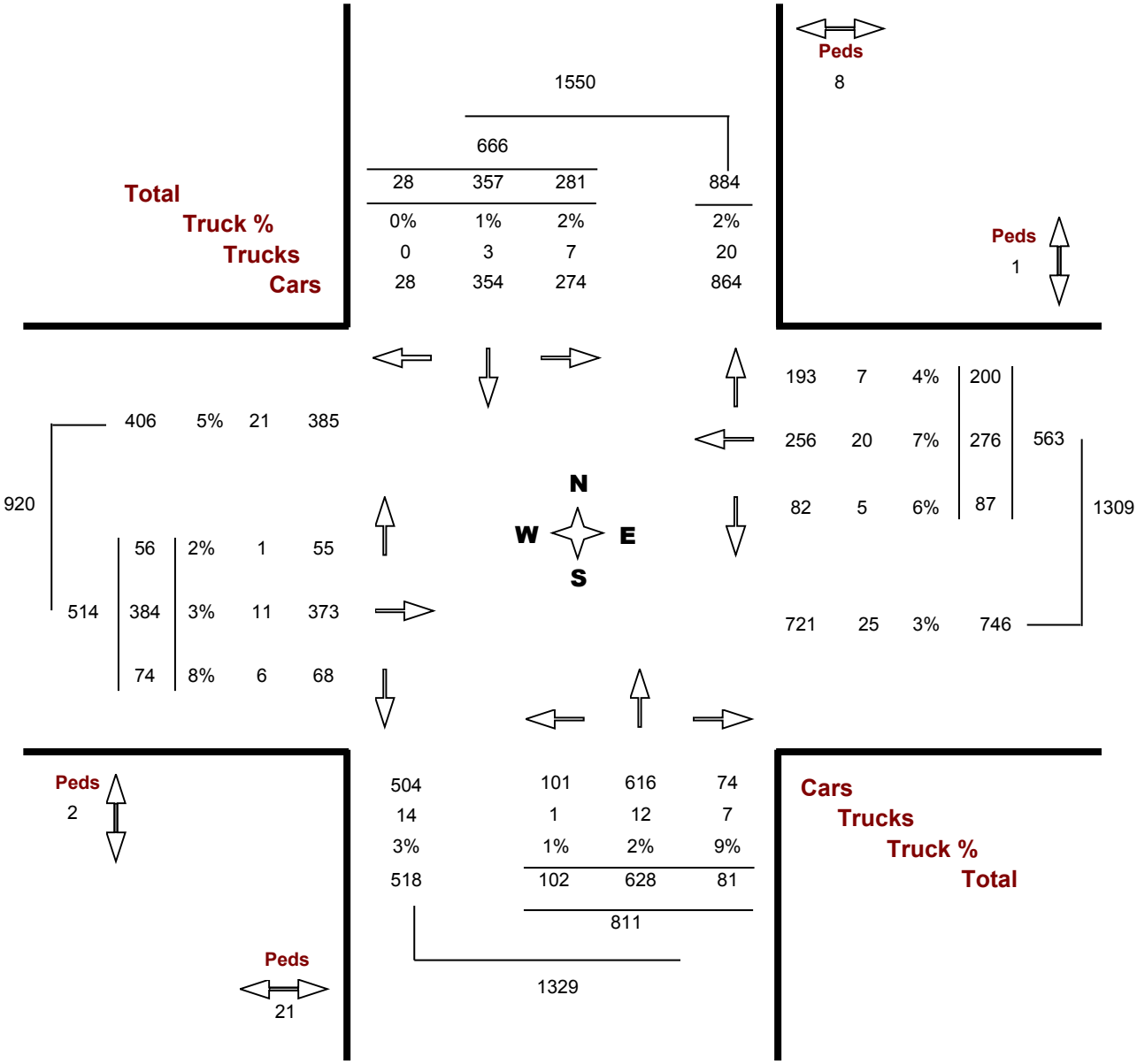
Location..... CONFEDERATION PKY @ RATHBURN RD W

Municipality..... Mississauga

GeoID..... 415674

Count Date..... Wednesday, 18 January, 2017

Peak Hour..... 11:45 AM — 12:45 PM



Turning Movements Report - PM Period

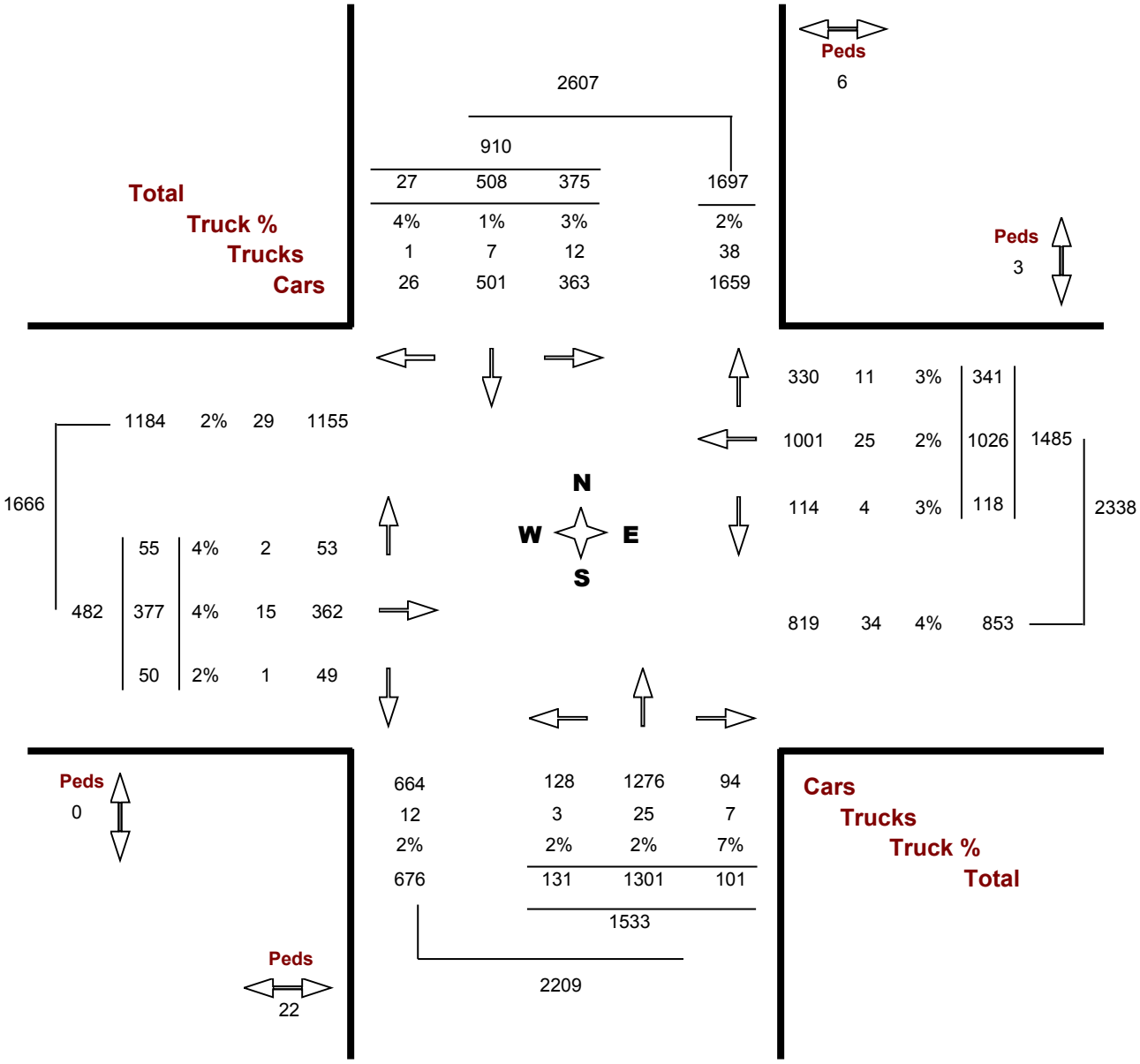
Location..... CONFEDERATION PKY @ RATHBURN RD W

Municipality..... Mississauga

GeoID..... 415674

Count Date..... Wednesday, 18 January, 2017

Peak Hour..... 04:15 PM —— 05:15 PM



Turning Movements Report - AM Period

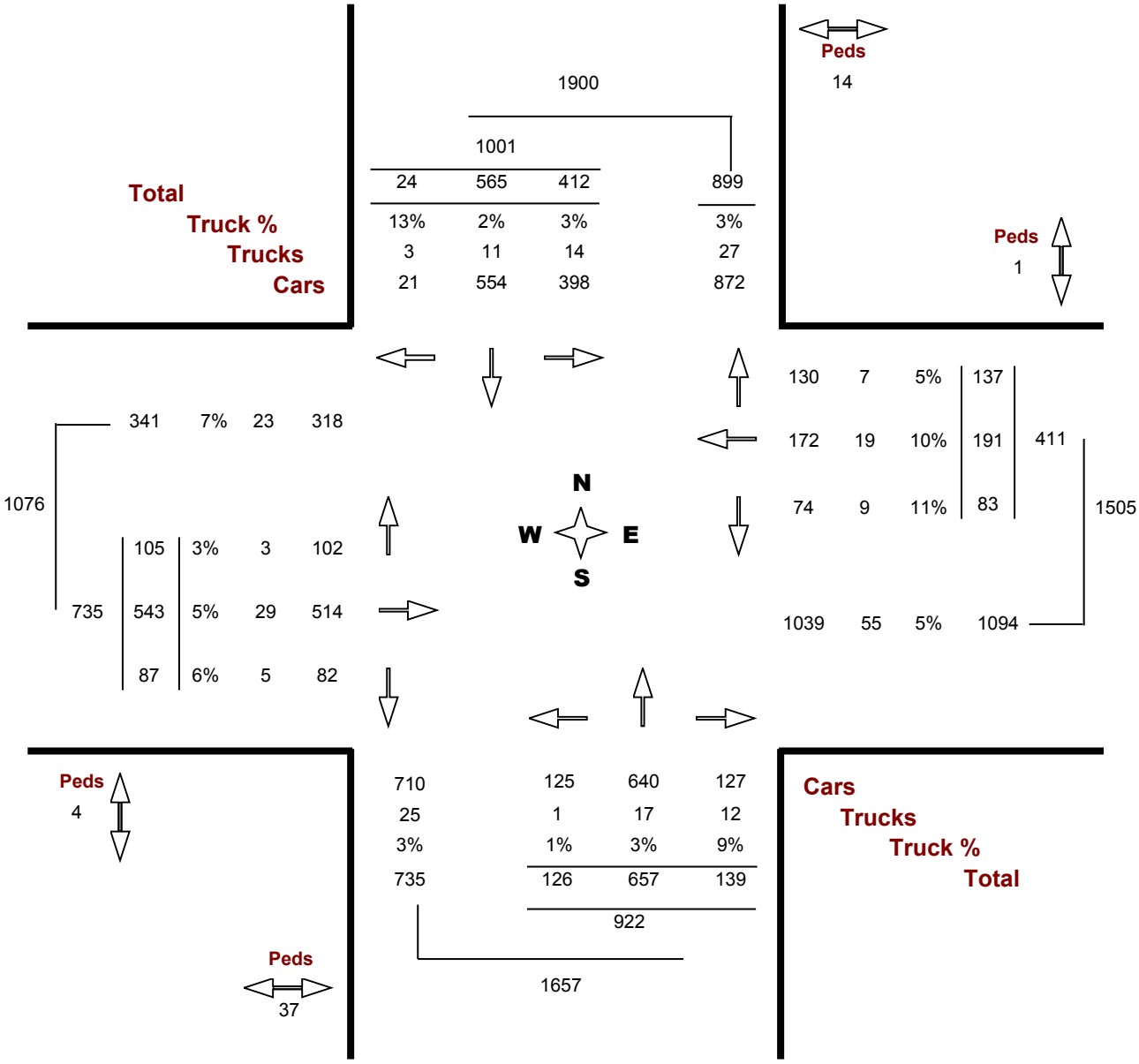
Location..... CONFEDERATION PKY @ RATHBURN RD W

Municipality..... Mississauga

GeoID..... 415674

Count Date..... Wednesday, 18 January, 2017

Peak Hour..... 07:30 AM — 08:30 AM



Turning Movement Count - Details Report

Location..... RATHBURN RD W @ STATION GATE RD

Municipality..... Mississauga

Count Date..... Thursday, January 12, 2017

		North Approach					South Approach					East Approach					West Approach				
Time Period		LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT
07:00	07:15	17	0	10	0	27	11	0	15	0	26	0	30	16	0	46	13	75	0	0	88
07:15	07:30	38	0	23	0	61	8	0	16	0	24	0	72	20	0	92	47	200	0	0	247
07:30	07:45	46	0	32	0	78	7	0	13	0	20	0	43	21	0	64	40	230	0	0	270
07:45	08:00	30	0	27	0	57	12	0	14	0	26	0	62	20	0	82	13	237	0	0	250
08:00	08:15	41	0	20	0	61	7	0	11	0	18	0	69	22	0	91	25	236	0	0	261
08:15	08:30	25	0	22	0	47	10	0	12	0	22	0	49	15	0	64	17	274	0	0	291
08:30	08:45	32	0	18	0	50	4	0	11	0	15	0	57	15	0	72	16	284	0	0	300
08:45	09:00	19	0	21	0	40	6	0	11	0	17	0	57	14	0	71	12	287	0	0	299
11:00	11:15	33	0	10	0	43	10	0	10	0	20	0	68	17	0	85	9	122	0	0	131
11:15	11:30	39	0	16	0	55	6	0	6	0	12	0	77	16	0	93	12	134	0	0	146
11:30	11:45	35	0	12	0	47	8	0	7	0	15	0	118	16	0	134	13	151	0	0	164
11:45	12:00	26	0	14	0	40	7	0	10	0	17	0	114	17	0	131	4	153	0	0	157
12:00	12:15	49	0	25	0	74	5	0	6	0	11	0	100	24	0	124	13	166	0	0	179
12:15	12:30	27	0	21	0	48	8	0	9	0	17	0	101	15	0	116	14	148	0	0	162
12:30	12:45	32	0	11	0	43	7	0	5	0	12	0	80	15	0	95	8	136	0	0	144
12:45	13:00	31	0	22	0	53	7	0	7	0	14	0	142	25	0	167	5	190	0	0	195
13:00	13:15	45	0	23	0	68	6	0	6	0	12	0	138	15	0	153	17	198	0	0	215
13:15	13:30	52	0	17	0	69	8	0	6	0	14	0	104	22	0	126	9	130	0	0	139
13:30	13:45	41	0	17	0	58	8	0	10	0	18	0	135	22	0	157	11	159	0	0	170
13:45	14:00	28	0	21	0	49	7	0	9	0	16	0	123	26	0	149	13	174	0	0	187
15:00	15:15	49	0	11	0	60	14	0	13	0	27	0	142	25	0	167	8	188	0	0	196
15:15	15:30	41	0	7	0	48	11	0	11	0	22	0	232	32	0	264	5	175	0	0	180
15:30	15:45	35	0	19	0	54	11	0	14	0	25	0	181	26	0	207	7	151	0	0	158
15:45	16:00	37	0	19	0	56	11	0	7	0	18	0	186	28	0	214	11	174	0	0	185
16:00	16:15	51	0	26	0	77	10	0	14	0	24	0	261	37	0	298	27	207	0	0	234
16:15	16:30	45	0	34	0	79	10	0	12	0	22	0	359	42	0	401	29	203	0	0	232
16:30	16:45	48	0	16	0	64	8	0	16	0	24	0	359	39	0	398	16	253	0	0	269
16:45	17:00	37	1	30	0	68	12	0	9	0	21	0	319	25	0	344	22	224	1	0	247
17:00	17:15	55	0	30	0	85	10	0	10	0	20	0	472	43	0	515	17	208	0	0	225
17:15	17:30	30	0	30	0	60	8	0	13	0	21	0	432	37	0	469	22	215	0	0	237
17:30	17:45	66	0	70	0	136	16	0	14	0	30	0	426	53	0	479	29	253	0	0	282
17:45	18:00	49	0	38	0	87	9	0	7	0	16	0	399	33	0	432	41	289	0	0	330
Total	.....	1229	1	712	0	1942	282	0	334	0	616	0	5507	793	0	6300	545	6224	1	0	6770

Turning Movement Count - Cyclist Volume Report

Location..... RATHBURN RD W @ STATION GATE RD

Municipality..... Mississauga

Count Date..... Thursday, January 12, 2017

Time Period		North Approach	South Approach	Street Total	East Approach	West Approach	Street Total	Grand Total
07:00	07:15	0	0	0	0	0	0	0
07:15	07:30	0	0	0	1	0	1	1
07:30	07:45	0	0	0	1	0	1	1
07:45	08:00	0	0	0	0	0	0	0
08:00	08:15	1	0	1	0	0	0	1
08:15	08:30	0	0	0	0	0	0	0
08:30	08:45	0	0	0	6	2	8	8
08:45	09:00	0	0	0	0	0	0	0
11:00	11:15	0	0	0	0	0	0	0
11:15	11:30	0	0	0	0	0	0	0
11:30	11:45	0	0	0	0	0	0	0
11:45	12:00	0	0	0	0	0	0	0
12:00	12:15	0	0	0	0	0	0	0
12:15	12:30	0	0	0	0	0	0	0
12:30	12:45	0	0	0	0	0	0	0
12:45	13:00	0	0	0	1	0	1	1
13:00	13:15	0	0	0	0	0	0	0
13:15	13:30	0	0	0	0	0	0	0
13:30	13:45	0	0	0	0	0	0	0
13:45	14:00	0	0	0	0	0	0	0
15:00	15:15	0	0	0	0	1	1	1
15:15	15:30	0	0	0	0	0	0	0
15:30	15:45	0	3	3	0	1	1	4
15:45	16:00	0	0	0	0	1	1	1
16:00	16:15	0	0	0	1	0	1	1
16:15	16:30	0	1	1	0	0	0	1
16:30	16:45	0	0	0	0	1	1	1
16:45	17:00	0	0	0	0	2	2	2
17:00	17:15	0	3	3	0	0	0	3
17:15	17:30	0	0	0	0	0	0	0
17:30	17:45	0	0	0	0	1	1	1
17:45	18:00	0	2	2	1	0	1	3
Total	.....	1	9	10	11	9	20	30

Turning Movement Count - Pedestrian Volume Report

Location..... RATHBURN RD W @ STATION GATE RD

Municipality..... Mississauga

Count Date..... Thursday, January 12, 2017

Time Period		North Approach	South Approach	Street Total	East Approach	West Approach	Street Total	Grand Total
07:00	07:15	18	50	68	59	0	59	127
07:15	07:30	37	102	139	90	41	131	270
07:30	07:45	46	71	117	107	81	188	305
07:45	08:00	19	68	87	60	43	103	190
08:00	08:15	43	38	81	74	48	122	203
08:15	08:30	25	110	135	62	26	88	223
08:30	08:45	12	114	126	50	60	110	236
08:45	09:00	20	107	127	52	48	100	227
11:00	11:15	27	87	114	70	37	107	221
11:15	11:30	24	83	107	68	41	109	216
11:30	11:45	27	116	143	48	46	94	237
11:45	12:00	14	58	72	22	48	70	142
12:00	12:15	37	106	143	43	44	87	230
12:15	12:30	33	85	118	70	60	130	248
12:30	12:45	27	103	130	36	72	108	238
12:45	13:00	7	94	101	50	36	86	187
13:00	13:15	36	74	110	84	70	154	264
13:15	13:30	20	101	121	30	55	85	206
13:30	13:45	18	143	161	44	63	107	268
13:45	14:00	26	92	118	52	53	105	223
15:00	15:15	36	178	214	85	102	187	401
15:15	15:30	40	87	127	103	90	193	320
15:30	15:45	58	293	351	115	123	238	589
15:45	16:00	26	235	261	109	122	231	492
16:00	16:15	24	246	270	71	104	175	445
16:15	16:30	46	186	232	154	166	320	552
16:30	16:45	20	337	357	153	184	337	694
16:45	17:00	30	207	237	125	277	402	639
17:00	17:15	79	376	455	255	147	402	857
17:15	17:30	46	214	260	148	142	290	550
17:30	17:45	83	393	476	260	234	494	970
17:45	18:00	82	295	377	89	135	224	601
Total	.....	1086	4849	5935	2838	5636	5636	11571

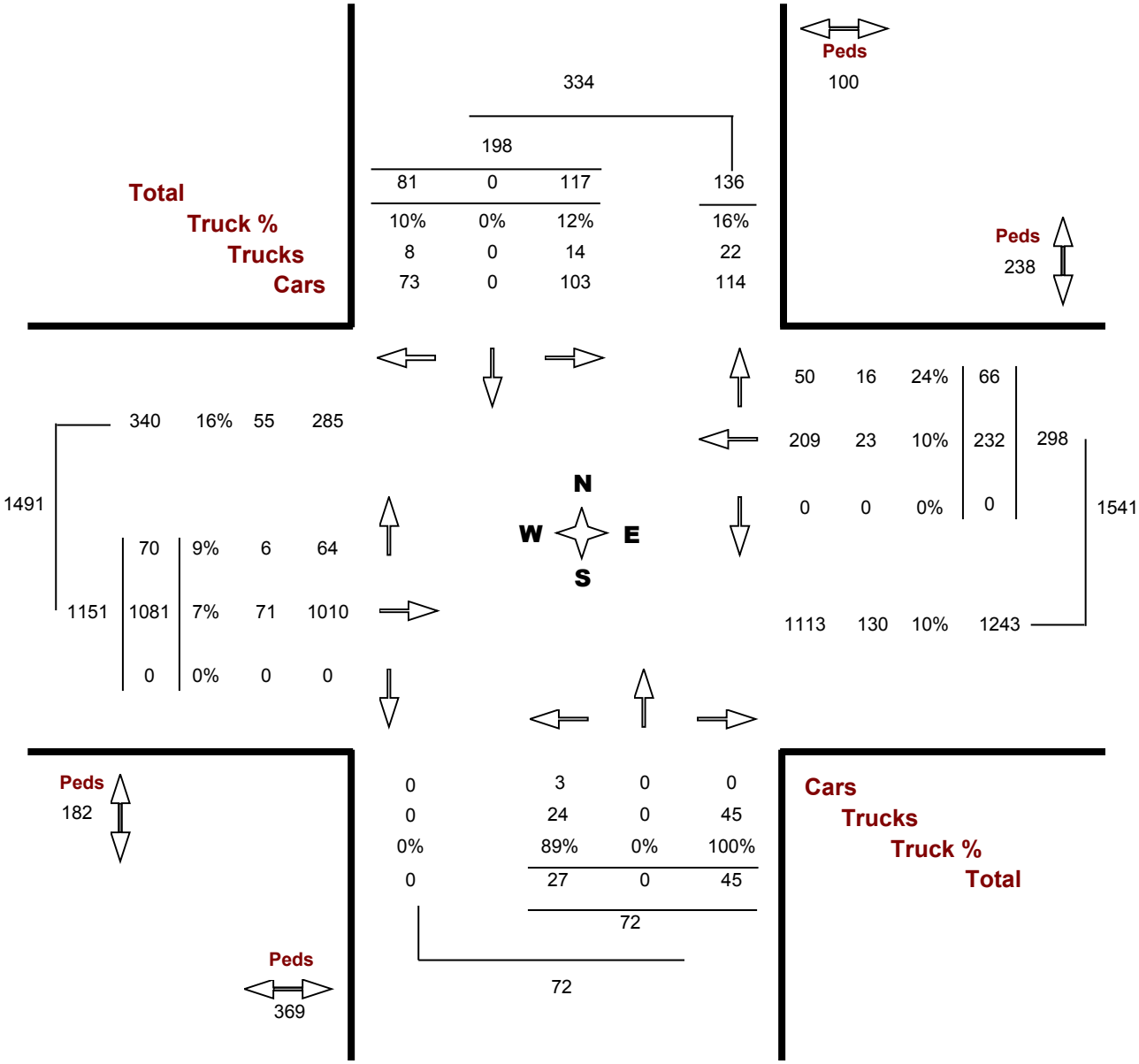
Turning Movements Report - AM Period

Location..... RATHBURN RD W @ STATION GATE RD

Municipality..... Mississauga

GeoID..... 348082

Count Date..... Thursday, 12 January, 2017 **Peak Hour.....** 08:00 AM —— 09:00 AM



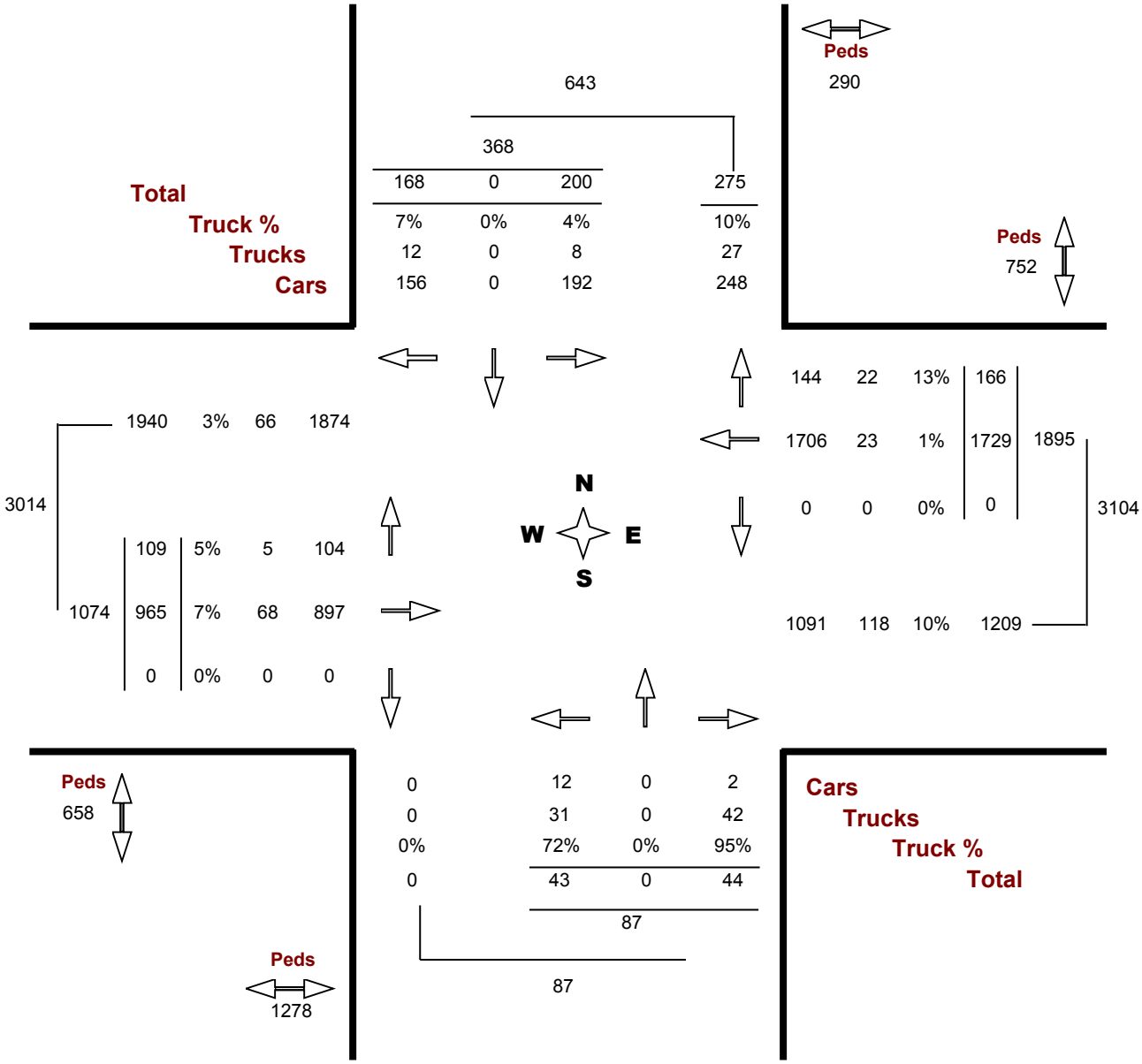
Turning Movements Report - PM Period

Location..... RATHBURN RD W @ STATION GATE RD

Municipality..... Mississauga

GeoID..... 348082

Count Date..... Thursday, 12 January, 2017 **Peak Hour.....** 05:00 PM — 06:00 PM



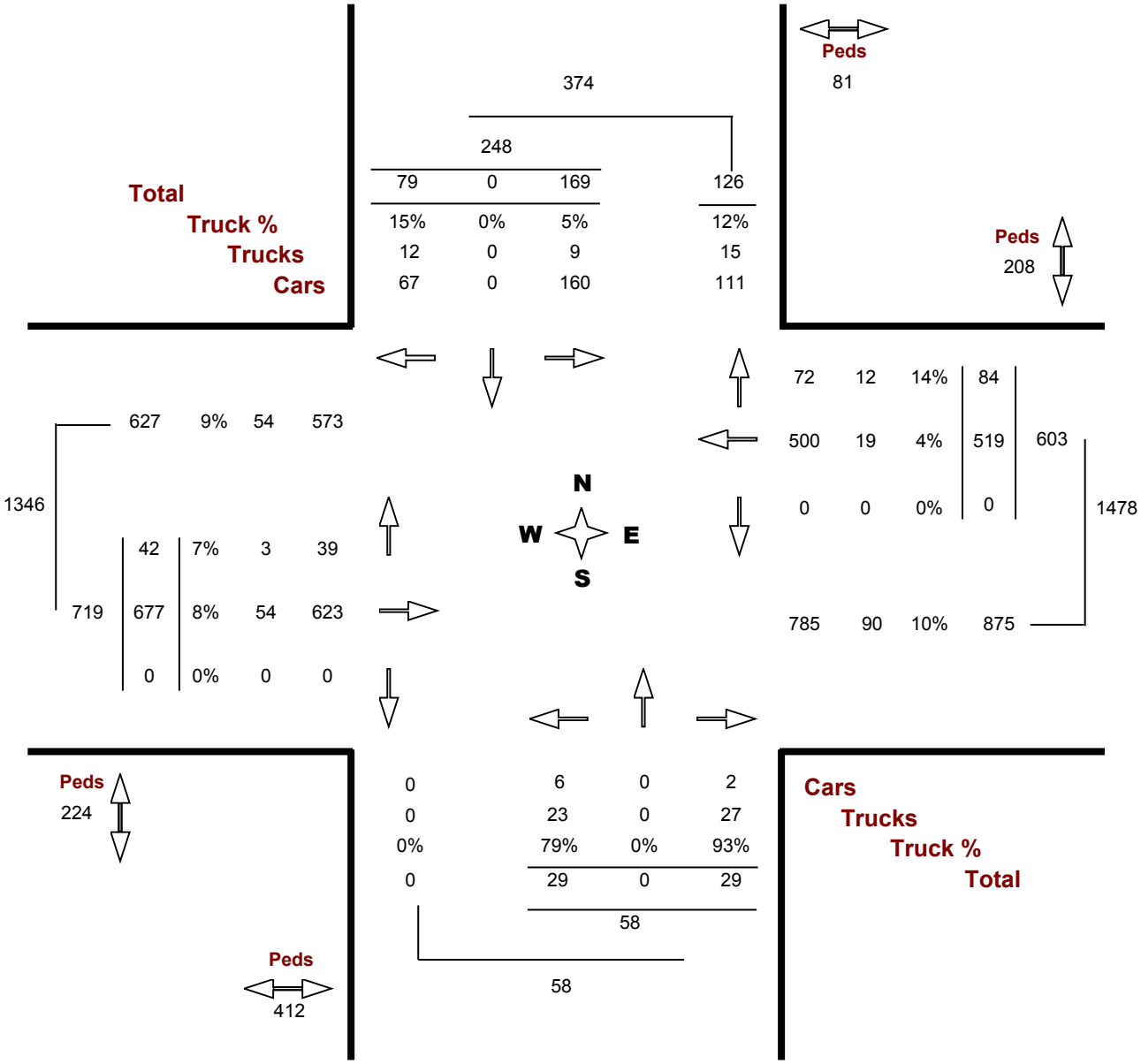
Turning Movements Report - MD Period

Location..... RATHBURN RD W @ STATION GATE RD

Municipality..... Mississauga

GeoID..... 348082

Count Date..... Thursday, 12 January, 2017 **Peak Hour.....** 12:45 PM —— 01:45 PM



Turning Movement Count - Details Report

Location..... LIVING ARTS DR @ SQUARE ONE DR

Municipality..... Mississauga

Count Date..... Thursday, January 12, 2017

		North Approach					South Approach					East Approach					West Approach				
Time Period		LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT	LT	TH	RT	U-Turn	TOT
07:00	07:15	1	9	0	0	10	0	11	1	0	12	0	1	1	0	2	7	1	6	0	14
07:15	07:30	5	11	0	0	16	0	12	1	0	13	0	0	0	0	0	11	2	4	0	17
07:30	07:45	2	17	0	0	19	0	21	0	0	21	4	0	5	0	9	6	2	1	0	9
07:45	08:00	2	15	3	0	20	2	23	2	0	27	3	2	4	0	9	6	2	4	0	12
08:00	08:15	3	20	7	0	30	1	54	8	0	63	4	2	4	0	10	15	6	11	0	32
08:15	08:30	4	17	5	0	26	0	20	1	0	21	3	0	1	0	4	6	3	0	0	9
08:30	08:45	1	7	3	0	11	0	9	1	0	10	1	2	0	0	3	1	1	1	0	3
08:45	09:00	2	25	3	0	30	1	27	4	0	32	3	1	3	0	7	9	3	6	0	18
11:00	11:15	5	13	5	0	23	3	18	5	0	26	7	3	5	0	15	9	4	7	0	20
11:15	11:30	0	16	6	0	22	2	16	5	0	23	7	4	5	0	16	4	3	4	0	11
11:30	11:45	4	18	3	0	25	2	21	5	0	28	8	9	8	0	25	2	7	3	0	12
11:45	12:00	7	16	4	0	27	0	34	1	0	35	6	4	3	0	13	9	6	8	0	23
12:00	12:15	4	29	8	0	41	1	23	6	0	30	8	8	6	0	22	5	2	6	0	13
12:15	12:30	5	17	5	0	27	1	33	3	0	37	3	6	4	0	13	7	2	5	0	14
12:30	12:45	9	34	3	0	46	3	24	3	0	30	5	2	4	0	11	4	6	5	0	15
12:45	13:00	5	20	7	0	32	1	23	3	0	27	6	4	1	0	11	5	2	2	0	9
13:00	13:15	2	20	8	0	30	2	26	7	0	35	8	4	7	0	19	8	3	8	0	19
13:15	13:30	4	18	5	0	27	1	23	4	0	28	6	7	0	0	13	8	3	8	0	19
13:30	13:45	4	12	3	0	19	1	19	5	0	25	8	4	0	0	12	3	4	5	0	12
13:45	14:00	7	32	2	0	41	1	31	7	0	39	5	5	4	0	14	4	2	5	0	11
15:00	15:15	3	25	7	0	35	4	30	1	0	35	8	10	2	0	20	5	3	5	0	13
15:15	15:30	4	28	12	0	44	4	25	5	0	34	3	4	1	0	8	3	2	6	0	11
15:30	15:45	2	29	5	0	36	1	27	6	0	34	11	7	2	0	20	5	2	6	0	13
15:45	16:00	11	32	4	0	47	2	36	4	0	42	5	11	3	0	19	4	3	5	0	12
16:00	16:15	1	32	13	0	46	3	39	6	0	48	10	15	2	0	27	3	6	10	0	19
16:15	16:30	2	30	5	0	37	2	30	5	0	37	8	4	1	0	13	2	5	5	0	12
16:30	16:45	1	33	8	0	42	5	43	6	0	54	6	9	3	0	18	3	1	0	0	4
16:45	17:00	6	50	9	0	65	4	24	9	0	37	10	9	7	0	26	3	3	5	0	11
17:00	17:15	4	48	9	0	61	2	32	4	0	38	9	8	2	0	19	2	2	3	0	7
17:15	17:30	4	37	8	0	49	2	35	2	0	39	6	10	4	0	20	1	1	4	0	6
17:30	17:45	4	38	19	0	61	3	42	2	0	47	8	7	3	0	18	1	2	9	0	12
17:45	18:00	5	59	22	0	86	8	33	7	0	48	11	12	4	0	27	8	8	10	0	26
Total	.....	123	807	201	0	1131	62	864	129	0	1055	190	174	99	0	463	169	102	167	0	438

Turning Movement Count - Cyclist Volume Report

Location..... LIVING ARTS DR @ SQUARE ONE DR

Municipality..... Mississauga

Count Date..... Thursday, January 12, 2017

Time Period		North Approach	South Approach	Street Total	East Approach	West Approach	Street Total	Grand Total
07:00	07:15	0	0	0	0	0	0	0
07:15	07:30	0	0	0	0	0	0	0
07:30	07:45	0	0	0	0	0	0	0
07:45	08:00	0	0	0	0	0	0	0
08:00	08:15	0	0	0	0	0	0	0
08:15	08:30	0	0	0	0	0	0	0
08:30	08:45	0	0	0	0	0	0	0
08:45	09:00	0	0	0	0	0	0	0
11:00	11:15	0	0	0	0	0	0	0
11:15	11:30	0	0	0	0	0	0	0
11:30	11:45	0	0	0	0	0	0	0
11:45	12:00	0	0	0	0	0	0	0
12:00	12:15	0	0	0	0	0	0	0
12:15	12:30	0	0	0	0	0	0	0
12:30	12:45	0	0	0	0	0	0	0
12:45	13:00	0	0	0	0	0	0	0
13:00	13:15	0	0	0	0	0	0	0
13:15	13:30	0	0	0	0	0	0	0
13:30	13:45	0	0	0	0	0	0	0
13:45	14:00	0	0	0	0	0	0	0
15:00	15:15	0	0	0	0	0	0	0
15:15	15:30	0	0	0	0	0	0	0
15:30	15:45	0	0	0	0	0	0	0
15:45	16:00	0	0	0	0	0	0	0
16:00	16:15	0	0	0	0	0	0	0
16:15	16:30	0	0	0	0	0	0	0
16:30	16:45	0	1	1	0	0	0	1
16:45	17:00	0	0	0	0	0	0	0
17:00	17:15	0	0	0	0	0	0	0
17:15	17:30	0	0	0	0	0	0	0
17:30	17:45	0	0	0	0	0	0	0
17:45	18:00	0	1	1	0	0	0	1
Total	.....	0	2	2	0	0	0	2

Turning Movement Count - Pedestrian Volume Report

Location..... LIVING ARTS DR @ SQUARE ONE DR

Municipality..... Mississauga

Count Date..... Thursday, January 12, 2017

Time Period		North Approach	South Approach	Street Total	East Approach	West Approach	Street Total	Grand Total
07:00	07:15	4	2	6	0	4	4	10
07:15	07:30	0	2	2	0	1	1	3
07:30	07:45	1	3	4	0	1	1	5
07:45	08:00	2	4	6	3	3	6	12
08:00	08:15	3	7	10	1	2	3	13
08:15	08:30	0	4	4	0	3	3	7
08:30	08:45	0	1	1	0	1	1	2
08:45	09:00	0	9	9	1	2	3	12
11:00	11:15	4	5	9	1	2	3	12
11:15	11:30	1	8	9	0	2	2	11
11:30	11:45	1	10	11	3	5	8	19
11:45	12:00	2	3	5	0	1	1	6
12:00	12:15	2	11	13	3	3	6	19
12:15	12:30	8	5	13	1	11	12	25
12:30	12:45	2	11	13	1	0	1	14
12:45	13:00	3	6	9	2	2	4	13
13:00	13:15	0	4	4	0	0	0	4
13:15	13:30	2	9	11	2	7	9	20
13:30	13:45	1	6	7	1	0	1	8
13:45	14:00	5	8	13	0	3	3	16
15:00	15:15	1	10	11	1	1	2	13
15:15	15:30	3	6	9	4	5	9	18
15:30	15:45	4	11	15	4	1	5	20
15:45	16:00	1	10	11	2	1	3	14
16:00	16:15	3	6	9	0	3	3	12
16:15	16:30	5	6	11	1	4	5	16
16:30	16:45	1	8	9	2	2	4	13
16:45	17:00	0	10	10	0	2	2	12
17:00	17:15	3	10	13	3	4	7	20
17:15	17:30	2	16	18	3	4	7	25
17:30	17:45	3	7	10	6	4	10	20
17:45	18:00	3	17	20	0	4	4	24
Total	.....	70	235	305	45	133	133	438

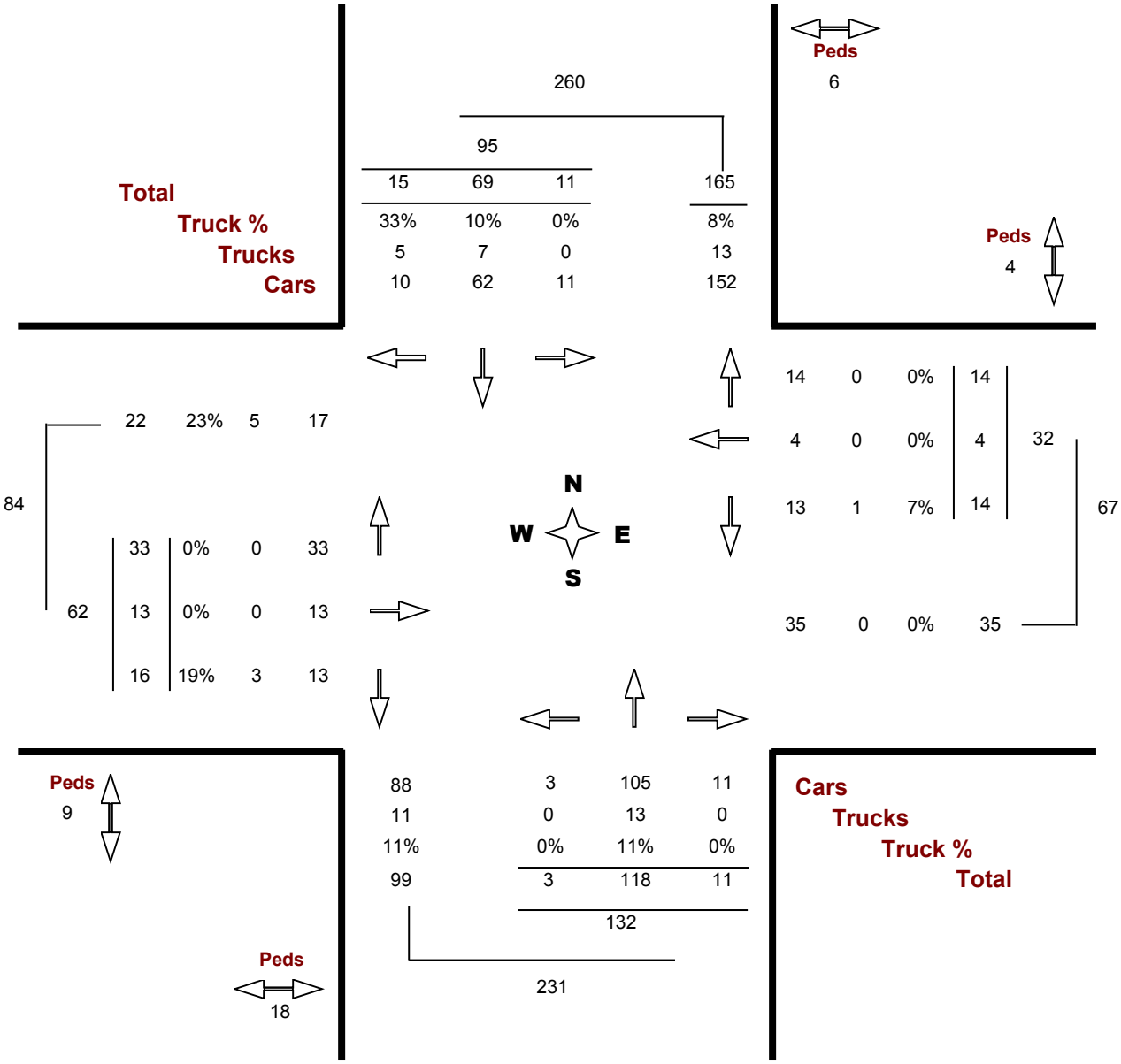
Turning Movements Report - AM Period

Location..... LIVING ARTS DR @ SQUARE ONE DR

Municipality..... Mississauga

GeoID..... 1049366

Count Date..... Thursday, 12 January, 2017 **Peak Hour.....** 07:30 AM —— 08:30 AM



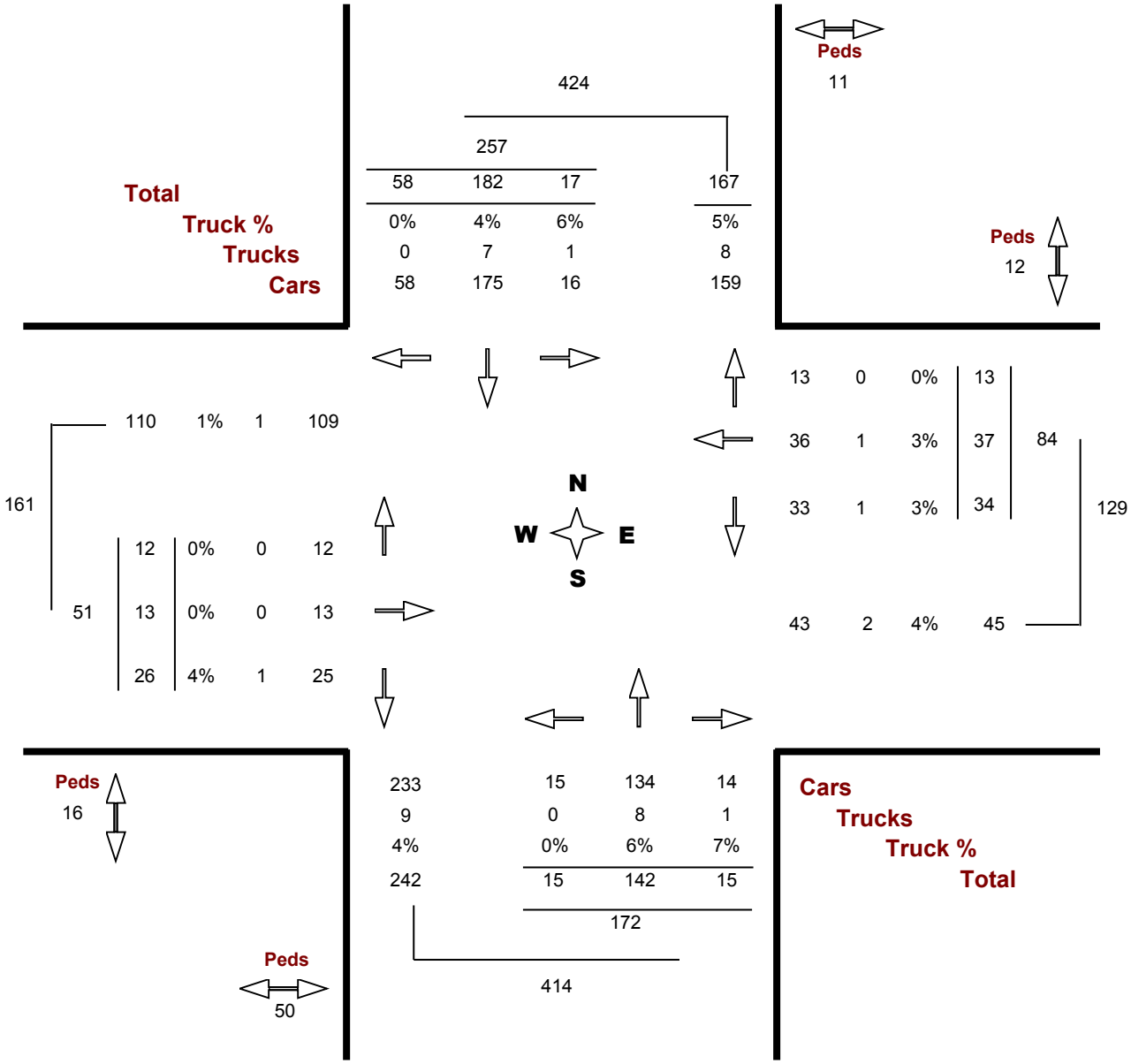
Turning Movements Report - PM Period

Location..... LIVING ARTS DR @ SQUARE ONE DR

Municipality..... Mississauga

GeoID..... 1049366

Count Date..... Thursday, 12 January, 2017 **Peak Hour.....** 05:00 PM — 06:00 PM



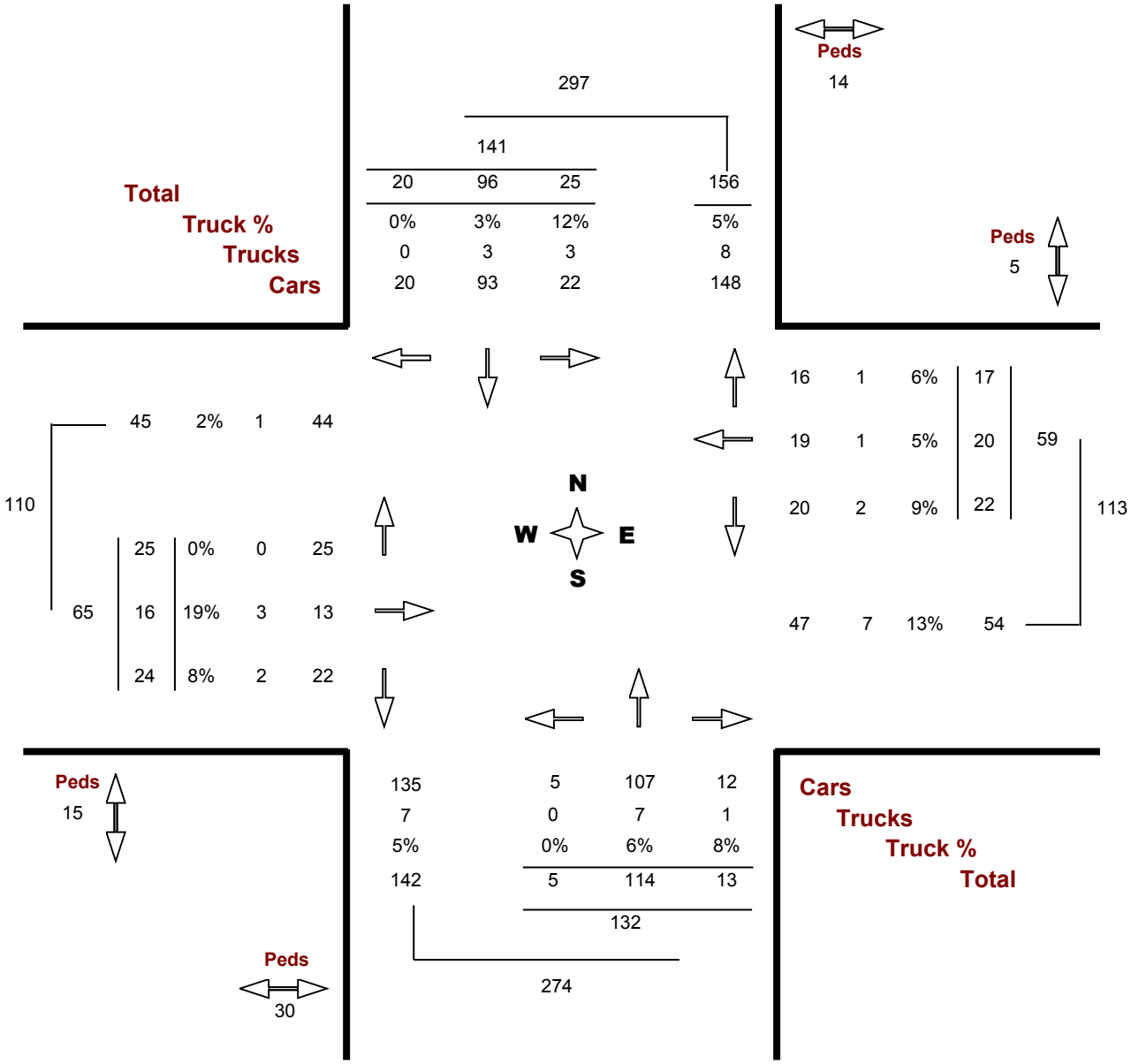
Turning Movements Report - MD Period

Location..... LIVING ARTS DR @ SQUARE ONE DR

Municipality..... Mississauga

GeoID..... 1049366

Count Date..... Thursday, 12 January, 2017 **Peak Hour.....** 11:45 AM — 12:45 PM



Ontario

INTERSECTION LAYOUT SHEET

Date: 12 November 2014 Day: Wednesday Request # 097 Observer(s) Video

Gretch Code (LHRS O/S): 2482630000 Ramp # 52, 53

Hwy # 403 Location MAVIS RD IC SOUTH RAMP

Reg/Mun Mississauga Town/City

Comments One left lane SB of the intersection are blocked off due to construction

Segment 1 - AM or PM (Please Circle **ONE**) Weather Cloudy

DATASETS

For office use only:

Edit File:

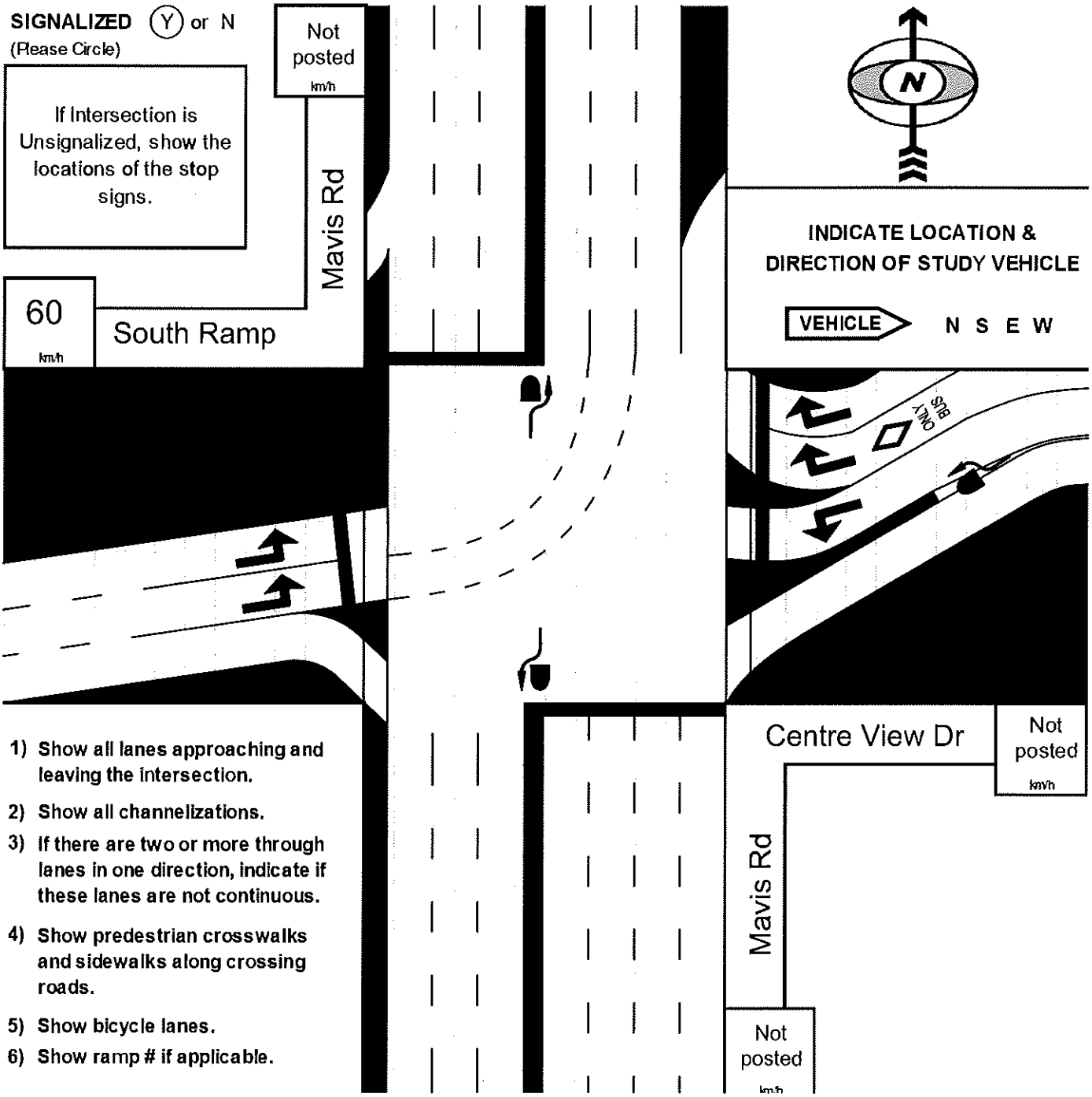
AM Peak

PM Peak

Processed by:

SIGNALIZED (Y) or N
(Please Circle)

If Intersection is Unsignalized, show the locations of the stop signs.



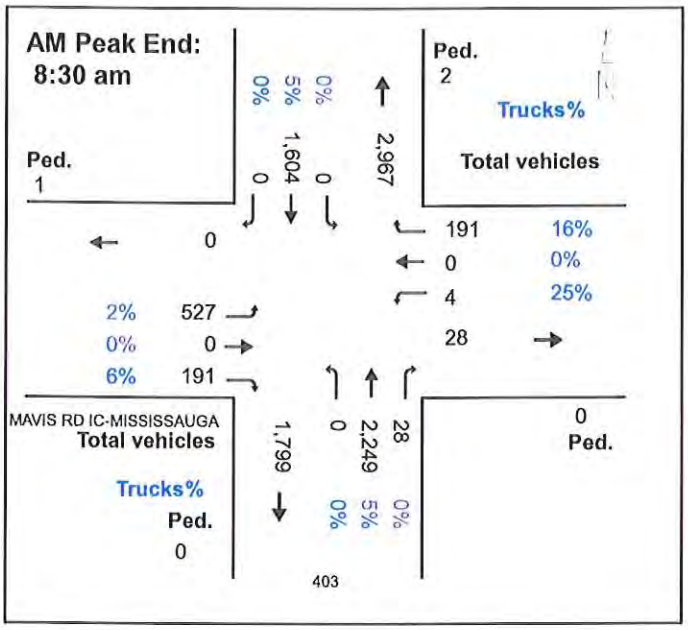
1) Show all lanes approaching and leaving the intersection.
2) Show all channelizations.
3) If there are two or more through lanes in one direction, indicate if these lanes are not continuous.
4) Show predestrian crosswalks and sidewalks along crossing roads.
5) Show bicycle lanes.
6) Show ramp # if applicable.

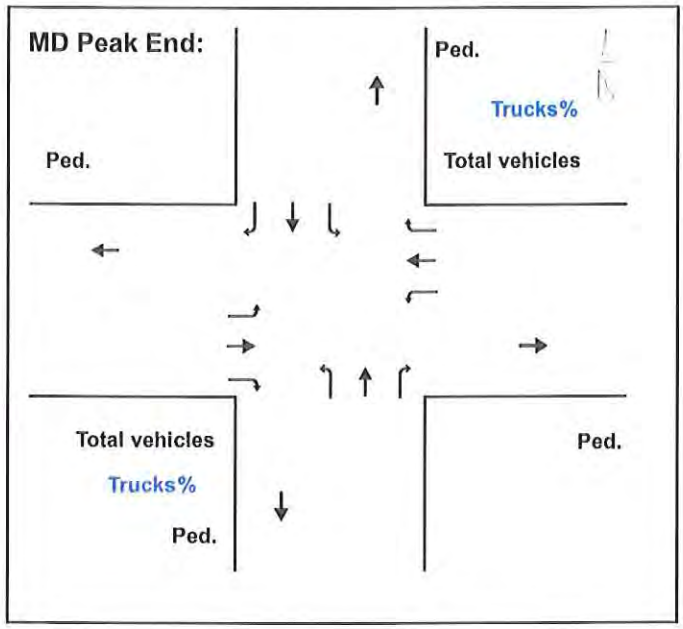
Ontario

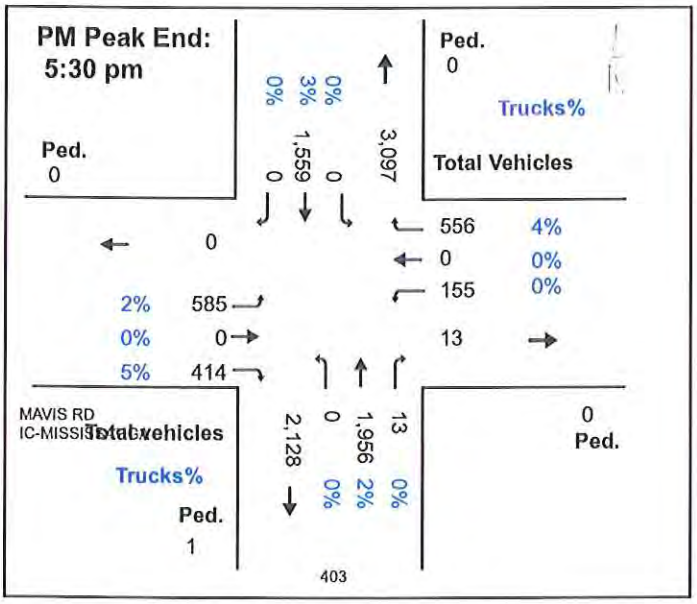
HWY 403 @ MAVIS RD IC-MISSISSAUGA

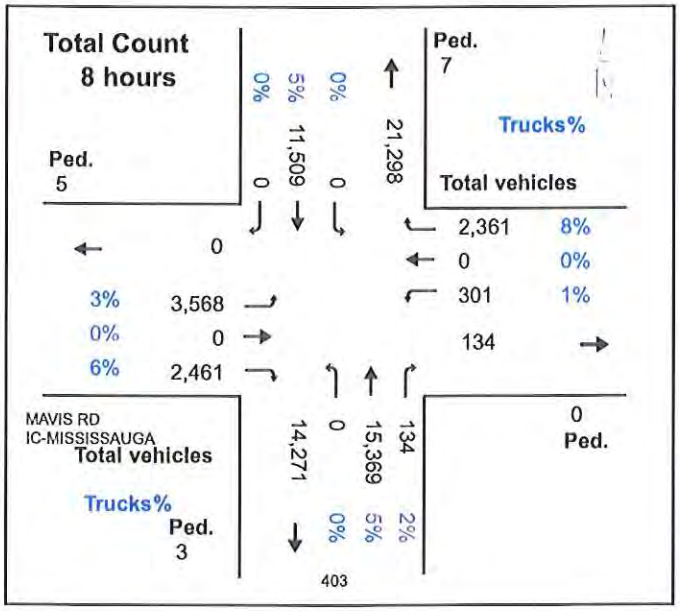
Central

Intersection ID:482630000(--S--) **Count Day:Wednesday** **Count Date: 12-Nov-2014**









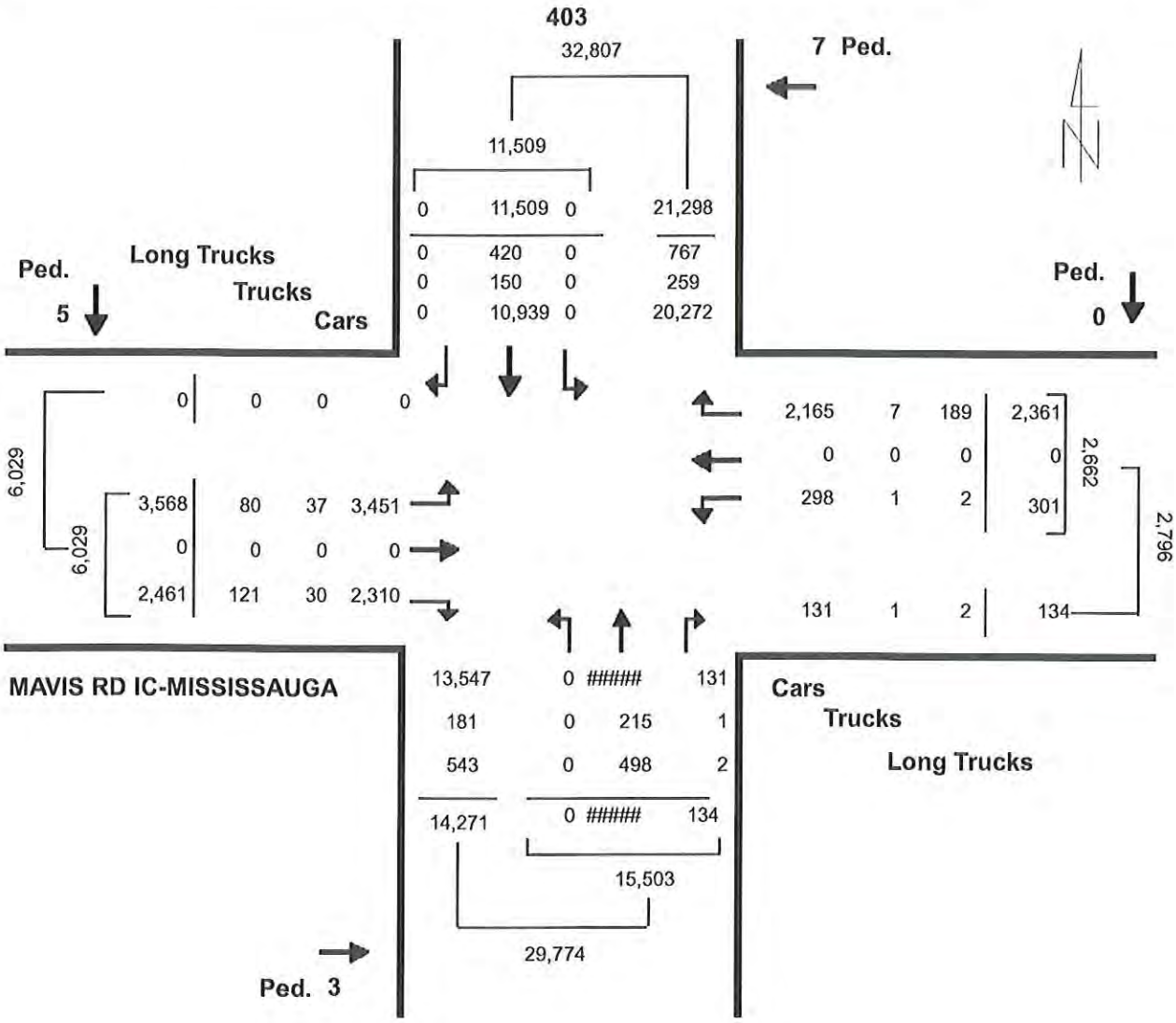
Traffic
Engineering
Software

COUNT TOTAL

HWY 403 @ MAVIS RD IC-MISSISSAUGA

Central

Intersection ID:482630000(--S--) **Date: 12-Nov-2014**



15 MIN REPORT

Intersection ID:482630000(--S--) **HWY 403 @ MAVIS RD IC-MISSISSAUGA** **Municipality: Central** **Date: 12-Nov-2014**

	NORTH APPROACH										EAST APPROACH										SOUTH APPROACH										WEST APPROACH									
Time	Cars			Trucks			Heavies			Ped	Cars			Trucks			Heavies			Ped	Cars			Trucks			Heavies			Ped	Cars			Trucks			Heavies			Ped	Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
Period1																																									
6:15	0	101	0	0	1	0	0	5	0	0	1	0	4	0	0	0	0	0	4	0	0	271	2	0	4	0	0	10	0	0	39	0	34	0	0	0	2	0	2	0	480
6:30	0	176	0	0	2	0	0	11	0	0	1	0	15	0	0	0	0	0	1	0	0	348	1	0	1	0	0	13	0	0	50	0	57	0	0	1	0	0	2	0	679
6:45	0	208	0	0	2	0	0	7	0	1	1	0	17	0	0	0	0	0	6	0	0	392	6	0	7	0	0	17	0	0	77	0	61	2	0	0	2	0	0	0	806
7:00	0	260	0	0	2	0	0	16	0	0	1	0	29	0	0	0	0	0	2	0	0	371	5	0	4	0	0	15	0	0	68	0	69	0	0	0	0	0	6	0	848
7:15	0	327	0	0	0	0	0	20	0	0	0	0	28	0	0	0	0	0	7	0	0	423	4	0	5	0	0	27	0	0	79	0	72	1	0	0	4	0	4	0	1001
7:30	0	331	0	0	3	0	0	16	0	1	0	0	40	0	0	0	0	0	7	0	0	470	6	0	6	0	0	18	0	0	119	0	58	0	0	0	8	0	4	0	1087
7:45	0	355	0	0	5	0	0	11	0	0	1	0	38	0	0	1	0	0	10	0	0	542	11	0	5	0	0	25	0	0	129	0	42	0	0	1	2	0	4	1	1183
8:00	0	399	0	0	5	0	0	8	0	0	1	0	45	0	0	0	0	0	6	0	0	556	4	0	10	0	0	27	0	0	130	0	46	1	0	0	3	0	2	0	1243
8:15	0	380	0	0	6	0	0	14	0	1	1	0	39	0	0	0	0	0	7	0	0	542	6	0	7	0	0	19	0	0	139	0	46	1	0	1	0	0	1	0	1210
8:30	0	392	0	0	6	0	0	23	0	1	0	0	38	0	0	0	1	0	7	0	0	495	7	0	5	0	0	16	0	0	120	0	45	1	0	1	1	0	2	0	1161
8:45	0	363	0	0	4	0	0	17	0	0	3	0	32	0	0	0	1	0	9	0	0	482	3	0	5	0	0	22	0	0	128	0	47	0	0	0	1	0	7	0	1124
9:00	0	417	0	0	4	0	0	15	0	0	0	0	29	0	0	0	0	0	4	0	0	518	7	0	15	0	0	13	0	0	114	0	55	0	0	1	4	0	8	0	1204
9:15	0	341	0	0	8	0	0	7	0	1	0	0	27	0	0	0	0	0	6	0	0	446	6	0	5	0	0	24	0	0	123	0	60	0	0	2	2	0	6	0	1064
9:30	0	329	0	0	6	0	0	26	0	0	1	0	21	0	0	0	0	0	5	0	0	436	4	0	8	0	0	20	0	0	71	0	59	1	0	2	2	0	5	0	996
9:45	0	335	0	0	9	0	0	19	0	0	1	0	37	0	0	1	0	0	5	0	0	337	2	0	3	0	0	19	0	0	96	0	77	2	0	1	6	0	4	0	954
10:00	0	315	0	0	7	0	0	17	0	0	0	0	32	0	0	1	0	0	4	0	0	390	7	0	8	0	0	16	0	0	76	0	82	5	0	2	3	0	8	0	973
Period2																																									
14:15	0	328	0	0	10	0	0	22	0	0	1	0	80	0	0	0	0	0	4	0	0	439	5	0	9	0	0	30	1	0	75	0	69	0	0	1	6	0	4	2	1086
14:30	0	327	0	0	5	0	0	8	0	0	1	0	78	0	0	0	0	0	5	0	0	442	1	0	13	0	0	19	0	0	92	0	83	1	0	1	3	0	3	0	1082
14:45	0	336	0	0	12	0	0	17	0	0	1	0	85	0	0	0	0	0	6	0	0	497	3	0	6	1	0	12	0	1	81	0	78	0	0	2	5	0	5	0	1148
15:00	0	396	0	0	6	0	0	19	0	0	4	0	91	0	0	0	0	0	5	0	0	474	2	0	14	0	0	18	0	0	73	0	66	1	0	1	4	0	3	0	1177
15:15	0	339	0	0	8	0	0	13	0	0	3	0	86	0	0	0	0	0	7	0	0	503	2	0	16	0	0	16	0	0	95	0	69	3	0	2	2	0	3	0	1167
15:30	0	435	0	0	8	0	0	8	0	0	2	0	72	0	0	1	0	0	5	0	0	515	4	0	6	0	0	16	0	0	105	0	80	3	0	2	1	0	1	0	1264
15:45	0	345	0	0	6	0	0	9	0	1	9	0	97	0	0	0	0	0	8	0	0	468	2	0	6	0	0	13	0	0	100	0	74	2	0	1	2	0	5	2	1150
16:00	0	391	0	0	3	0	0	24	0	0	7	0	83	0	0	1	0	0	5	0	0	518	4	0	10	0	0	14	0	0	119	0	88	1	0	2	2	0	4	0	1276
16:15	0	369	0	0	1	0	0	11	0	1	22	0	92	0	0	1	0	0	6	0	0	505	5	0	12	0	0	9	1	0	123	0	103	1	0	1	2	0	7	0	1272
16:30	0	370	0	0	3	0	0	7	0	0	14	0	113	0	0	0	0	0	11	0	0	469	2	0	4	0	0	11	0	0	167	0	74	3	0	1	3	0	5	0	1257
16:45	0	387	0	0	2	0	0	7	0	0	23	0	140	0	0	0	0	0	6	0	0	491	5	0	2	0	0	9	0	0	142	0	91	1	0	1	1	0	6	0	1314
17:00	0	394	0	0	2	0	0	11	0	0	25	0	125	0	0	0	0	0	4	0	0	504	2	0	4	0	0	10	0	1	137	0	98	2	0	1	4	0	3	0	1327
17:15	0	414	0	0	5	0	0	7	0	0	45	0	114	1	0	0	0	0	5	0	0	470	1	0	5	0	0	10	0	0	126	0	111	3	0	2	0	0	4	0	1323
17:30	0	319	0	0	5	0	0	6	0	0	61	0	155	0	0	0	0	0	7	0	0	448	5	0	0	0	0	3	0	0	166	0	95	0	0	0	3	0	2	0	1275
17:45	0	397	0	0	1	0	0	13	0	0	47	0	136	0	0	0	0	0	7	0	0	469	2	0	6	0	0	5	0	0	132	0	91	0	0	0	0	0	0	0	1306
18:00	0	363	0	0	3	0	0	6	0	0	21	0	147	0	0	1	0	0	8	0	0	425	5	0	4	0	0	2	0	1	160	0	130	2	0	0	2	0	1	0	1281

SEVEN DAY HOURLY REPORT

VDS Station1:	410DN0220DSR				
HIGHWAY:	403	STREAM:	OTHER	DIRECTION:	OTHER
LHRS / OFFSET:	48263 / 0	GPS:	(43.584, -79.661)	CONFIDENCE LEVEL:	95%
DESCRIPTION	403 E/B TO CENTERVIEW DRIVE RAMP				

HOUR-ENDING	MON	TUE	WED	THU	FRI	SAT	SUN
	14-Nov-16	15-Nov-16	16-Nov-16	17-Nov-16	18-Nov-16	19-Nov-16	20-Nov-16
	Loops	Loops	Loops	Loops	Loops	Loops	Loops
01:00	118	109	124	108	156	248	242
02:00	55	53	61	59	72	140	166
03:00	45	37	44	42	56	99	119
04:00	31	26	48	27	57	75	73
05:00	58	37	43	48	57	58	49
06:00	171	178	181	175	157	87	57
07:00	412	396	426	415	463	162	80
08:00	626	617	591	646	743	256	127
09:00	683	706	647	706	790	463	128
10:00	615	585	442	543	625	569	338
11:00	550	601	591	608	654	739	504
12:00	595	618	619	636	695	705	647
13:00	591	604	552	549	634	745	698
14:00	573	628	558	591	663	682	764
15:00	576	566	657	590	635	821	698
16:00	744	762	744	797	775	817	686
17:00	820	845	833	866	835	849	710
18:00	987	868	998	1065	982	803	715
19:00	774	876	818	873	857	854	607
20:00	607	622	625	684	804	595	475
21:00	504	564	538	589	624	463	473
22:00	459	452	481	456	483	396	355
23:00	302	331	267	341	408	400	301
24:00	197	222	152	236	325	327	189

24 Hr Total	11,093	11,303	11,040	11,650	12,550	11,353	9,201
A.M. Total	3,959	3,963	3,817	4,013	4,525	3,601	2,530
P.M. Total	7,134	7,340	7,223	7,637	8,025	7,752	6,671
Noon-Noon		11,097	11,157	11,236	12,162	11,626	10,282
Highest Hour Starting	17:00	18:00	17:00	17:00	17:00	18:00	13:00
Highest Hour Volume	987	876	998	1,065	982	854	764

ADT = 11,170 AWD = 11,413

ADT (Average Daily Traffic)-The average daily volume of the days being displayed

AWD (Average Weekday Traffic) - The average weekday traffic based on data taken from Monday @noon to Friday @noon.

Jun 21, 2017 09:53:51

SEVEN DAY HOURLY REPORT

VDS Station1:	410DN0220DSR				
HIGHWAY:	403	STREAM:	OTHER	DIRECTION:	OTHER
LHRS / OFFSET:	48263 / 0	GPS:	(43.584, -79.661)	CONFIDENCE LEVEL:	95%
DESCRIPTION	403 E/B TO CENTERVIEW DRIVE RAMP				

HOUR-ENDING	MON	TUE	WED	THU	FRI	SAT	SUN
	03-Apr-17	04-Apr-17	05-Apr-17	06-Apr-17	07-Apr-17	08-Apr-17	09-Apr-17
	Loops	Loops	Loops	Loops	Loops	Loops	Loops
01:00	153	145	137	136	111	259	281
02:00	49	63	55	59	78	125	182
03:00	35	36	55	40	52	111	139
04:00	23	32	33	38	39	74	80
05:00	55	61	52	54	43	45	45
06:00	154	160	162	158	134	70	63
07:00	412	419	428	403	336	127	67
08:00	605	486	653	550	531	257	158
09:00	580	524	673	562	539	415	187
10:00	516	471	545	429	465	534	340
11:00	572	594	518	590	520	741	497
12:00	606	587	594	593	560	776	688
13:00	494	595	588	561	619	858	697
14:00	535	549	576	490	591	788	708
15:00	597	594	598	550	652	840	770
16:00	795	745	681	683	761	805	760
17:00	779	815	896	788	837	800	761
18:00	916	934	932	850	918	807	694
19:00	793	757	831	764	783	776	582
20:00	622	590	686	599	710	634	505
21:00	538	569	615	511	623	549	547
22:00	418	496	498	468	561	482	480
23:00	302	367	373	344	428	450	354
24:00	218	248	263	237	342	368	218

24 Hr Total	10,767	10,837	11,442	10,457	11,233	11,691	9,803
A.M. Total	3,760	3,578	3,905	3,612	3,408	3,534	2,727
P.M. Total	7,007	7,259	7,537	6,845	7,825	8,157	7,076
Noon-Noon		10,585	11,164	11,149	10,253	11,359	10,884
Highest Hour Starting	17:00	17:00	17:00	17:00	17:00	12:00	14:00
Highest Hour Volume	916	934	932	850	918	858	770

ADT = 10,890 AWD = 10,788

ADT (Average Daily Traffic)-The average daily volume of the days being displayed

AWD (Average Weekday Traffic) - The average weekday traffic based on data taken from Monday @noon to Friday @noon.

Jun 21, 2017 09:54:15

SEVEN DAY HOURLY REPORT

VDS Station1:	410DN0220DSR				
HIGHWAY:	403	STREAM:	OTHER	DIRECTION:	OTHER
LHRS / OFFSET:	48263 / 0	GPS:	(43.584, -79.661)	CONFIDENCE LEVEL:	95%
DESCRIPTION	403 E/B TO CENTERVIEW DRIVE RAMP				

HOUR-ENDING	MON	TUE	WED	THU	FRI	SAT	SUN
	05-Jun-17	06-Jun-17	07-Jun-17	08-Jun-17	09-Jun-17	10-Jun-17	11-Jun-17
	Loops	Loops	Loops	Loops	Loops	Loops	Loops
01:00	167	189	178	234	212	342	398
02:00	97	90	89	98	89	212	247
03:00	48	41	55	66	83	146	178
04:00	30	45	43	52	50	85	94
05:00	50	67	73	56	74	55	72
06:00	156	179	198	192	193	96	67
07:00	411	399	412	373	419	154	83
08:00	581	539	593	533	681	282	154
09:00	781	651	702	672	839	416	180
10:00	645	608	547	593	631	567	348
11:00	566	556	667	627	682	676	468
12:00	592	606	641	641	649	776	664
13:00	606	655	670	631	709	868	667
14:00	627	627	629	622	637	856	726
15:00	620	596	643	610	694	833	754
16:00	729	690	772	700	790	799	734
17:00	847	761	891	917	991	812	749
18:00	960	918	987	886	982	805	672
19:00	830	860	846	901	897	810	625
20:00	631	713	737	713	802	665	610
21:00	632	633	668	725	784	673	648
22:00	480	494	535	519	531	542	553
23:00	402	409	425	473	459	543	491
24:00	282	250	289	340	396	465	360

24 Hr Total	11,770	11,576	12,290	12,174	13,274	12,478	10,542
A.M. Total	4,124	3,970	4,198	4,137	4,602	3,807	2,953
P.M. Total	7,646	7,606	8,092	8,037	8,672	8,671	7,589
Noon-Noon		11,616	11,804	12,229	12,639	12,479	11,624
Highest Hour Starting	17:00	17:00	17:00	16:00	16:00	12:00	14:00
Highest Hour Volume	960	918	987	917	991	868	754

ADT = 12,015 AWD = 12,072

ADT (Average Daily Traffic)-The average daily volume of the days being displayed

AWD (Average Weekday Traffic) - The average weekday traffic based on data taken from Monday @noon to Friday @noon.

SEVEN DAY HOURLY REPORT

VDS Station1:	410DN0230DSR				
HIGHWAY:	403	STREAM:	OTHER	DIRECTION:	OTHER
LHRS / OFFSET:	48263 / 0	GPS:	(43.584, -79.661)	CONFIDENCE LEVEL:	95%
DESCRIPTION	403 E/B TO MAVIS RAMP				

HOUR-ENDING	MON	TUE	WED	THU	FRI	SAT	SUN
	14-Nov-16	15-Nov-16	16-Nov-16	17-Nov-16	18-Nov-16	19-Nov-16	20-Nov-16
	Loops	Loops	Loops	Loops	Loops	Loops	Loops
01:00	23	20	19	17	37	54	73
02:00	11	6	12	5	11	34	39
03:00	13	7	8	5	8	18	24
04:00	5	4	3	1	4	12	10
05:00	12	12	13	8	9	11	6
06:00	41	42	47	42	47	16	12
07:00	183	183	176	192	176	46	30
08:00	485	485	531	537	508	89	57
09:00	733	704	661	682	619	253	104
10:00	511	489	503	486	431	344	168
11:00	321	331	381	391	375	476	327
12:00	329	397	387	371	463	485	462
13:00	350	390	367	314	428	549	487
14:00	322	307	302	341	405	588	551
15:00	311	269	275	279	383	597	513
16:00	288	311	306	296	376	658	458
17:00	320	337	325	324	418	661	402
18:00	379	440	380	471	521	766	362
19:00	395	447	462	449	536	811	278
20:00	269	292	256	315	442	556	203
21:00	184	187	197	211	249	303	173
22:00	105	155	154	179	192	209	82
23:00	96	98	75	102	153	158	92
24:00	33	50	25	56	102	87	35

24 Hr Total	5,719	5,963	5,865	6,074	6,893	7,781	4,948
A.M. Total	2,667	2,680	2,741	2,737	2,688	1,838	1,312
P.M. Total	3,052	3,283	3,124	3,337	4,205	5,943	3,636
Noon-Noon		5,732	6,024	5,861	6,025	6,043	7,255
Highest Hour Starting	08:00	08:00	08:00	08:00	08:00	18:00	13:00
Highest Hour Volume	733	704	661	682	619	811	551

ADT = 6,178 AWD = 5,910

ADT (Average Daily Traffic)-The average daily volume of the days being displayed

AWD (Average Weekday Traffic) - The average weekday traffic based on data taken from Monday @noon to Friday @noon.

Jun 21, 2017 09:53:44

SEVEN DAY HOURLY REPORT

VDS Station1:	410DN0230DSR				
HIGHWAY:	403	STREAM:	OTHER	DIRECTION:	OTHER
LHRS / OFFSET:	48263 / 0	GPS:	(43.584, -79.661)	CONFIDENCE LEVEL:	95%
DESCRIPTION	403 E/B TO MAVIS RAMP				

HOUR-ENDING	MON	TUE	WED	THU	FRI	SAT	SUN
	03-Apr-17	04-Apr-17	05-Apr-17	06-Apr-17	07-Apr-17	08-Apr-17	09-Apr-17
	Loops	Loops	Loops	Loops	Loops	Loops	Loops
01:00	25	28	32	26	27	67	59
02:00	10	14	12	10	12	21	34
03:00	13	4	8	8	9	23	20
04:00	6	6	3	5	4	11	17
05:00	8	10	11	10	13	10	10
06:00	43	44	42	48	52	7	7
07:00	182	180	185	180	164	41	26
08:00	442	415	513	443	426	93	54
09:00	654	664	761	645	601	239	99
10:00	577	542	540	530	530	276	140
11:00	330	382	348	384	376	411	299
12:00	371	332	372	405	389	478	394
13:00	334	341	363	354	401	492	410
14:00	319	283	290	285	350	523	435
15:00	238	267	257	284	289	490	407
16:00	286	311	270	277	361	449	407
17:00	307	307	328	334	417	459	327
18:00	351	406	367	380	465	392	275
19:00	380	441	440	408	472	469	239
20:00	243	276	288	290	387	351	175
21:00	169	206	210	215	274	221	166
22:00	135	150	147	112	205	195	111
23:00	77	94	90	85	149	126	82
24:00	44	50	49	67	82	87	42

24 Hr Total	5,544	5,753	5,926	5,785	6,455	5,931	4,235
A.M. Total	2,661	2,621	2,827	2,694	2,603	1,677	1,159
P.M. Total	2,883	3,132	3,099	3,091	3,852	4,254	3,076
Noon-Noon		5,504	5,959	5,793	5,694	5,529	5,413
Highest Hour Starting	08:00	08:00	08:00	08:00	08:00	13:00	13:00
Highest Hour Volume	654	664	761	645	601	523	435

ADT = 5,661 AWD = 5,738

ADT (Average Daily Traffic)-The average daily volume of the days being displayed

AWD (Average Weekday Traffic) - The average weekday traffic based on data taken from Monday @noon to Friday @noon.

Jun 21, 2017 09:53:22

SEVEN DAY HOURLY REPORT

VDS Station1:	410DN0230DSR				
HIGHWAY:	403	STREAM:	OTHER	DIRECTION:	OTHER
LHRS / OFFSET:	48263 / 0	GPS:	(43.584, -79.661)	CONFIDENCE LEVEL:	95%
DESCRIPTION	403 E/B TO MAVIS RAMP				

HOUR-ENDING	MON	TUE	WED	THU	FRI	SAT	SUN
	05-Jun-17	06-Jun-17	07-Jun-17	08-Jun-17	09-Jun-17	10-Jun-17	11-Jun-17
	Loops	Loops	Loops	Loops	Loops	Loops	Loops
01:00	46	41	44	60	36	80	77
02:00	18	19	14	23	23	40	33
03:00	11	6	10	8	8	24	24
04:00	6	3	8	3	6	14	15
05:00	11	18	22	15	15	9	14
06:00	40	50	49	49	43	21	9
07:00	171	181	189	156	177	40	24
08:00	434	448	488	436	464	79	47
09:00	696	731	775	779	718	239	87
10:00	447	600	578	592	480	308	143
11:00	295	322	330	363	343	368	297
12:00	336	356	300	328	375	452	430
13:00	342	351	312	344	386	459	394
14:00	300	393	336	294	320	514	428
15:00	291	300	269	273	277	573	477
16:00	319	279	288	309	347	476	385
17:00	300	330	344	347	386	459	373
18:00	387	394	394	379	459	428	347
19:00	444	490	472	474	446	385	271
20:00	301	318	303	333	441	393	203
21:00	184	195	218	228	264	250	158
22:00	127	163	168	181	176	144	114
23:00	94	122	111	124	139	160	129
24:00	48	53	79	78	89	109	66

24 Hr Total	5,648	6,163	6,101	6,176	6,418	6,024	4,545
A.M. Total	2,511	2,775	2,807	2,812	2,688	1,674	1,200
P.M. Total	3,137	3,388	3,294	3,364	3,730	4,350	3,345
Noon-Noon		5,912	6,195	6,106	6,052	5,404	5,550
Highest Hour Starting	08:00	08:00	08:00	08:00	08:00	14:00	14:00
Highest Hour Volume	696	731	775	779	718	573	477

ADT = 5,868 AWD = 6,066

ADT (Average Daily Traffic)-The average daily volume of the days being displayed

AWD (Average Weekday Traffic) - The average weekday traffic based on data taken from Monday @noon to Friday @noon.

SEVEN DAY HOURLY REPORT

VDS Station1:	410DN0260DER				
HIGHWAY:	403	STREAM:	OTHER	DIRECTION:	OTHER
LHRS / OFFSET:	48263 / 0	GPS:	(43.587, -79.658)	CONFIDENCE LEVEL:	95%
DESCRIPTION	MAVIS N/B TO 403 E/B RAMP				

HOUR-ENDING	MON	TUE	WED	THU	FRI	SAT	SUN
	05-Jun-17	06-Jun-17	07-Jun-17	08-Jun-17	09-Jun-17	10-Jun-17	11-Jun-17
	Loops	Loops	Loops	Loops	Loops	Loops	Loops
01:00	100	88	90	131	127	189	233
02:00	60	69	68	68	64	115	148
03:00	34	44	46	50	62	90	88
04:00	69	54	58	78	59	56	69
05:00	121	134	158	151	146	94	68
06:00	428	439	465	468	459	185	103
07:00	874	853	906	877	851	286	136
08:00	1020	1007	1025	1050	988	393	208
09:00	1036	1041	1071	1001	973	546	284
10:00	752	796	803	813	811	597	459
11:00	584	653	659	660	694	654	603
12:00	589	558	603	642	641	695	576
13:00	616	627	619	612	701	734	591
14:00	667	657	637	670	755	676	592
15:00	751	705	728	693	778	670	550
16:00	689	685	740	734	666	676	580
17:00	521	479	529	542	515	661	519
18:00	458	450	482	399	494	631	494
19:00	534	514	503	494	548	580	567
20:00	453	521	505	591	635	521	456
21:00	399	466	454	534	579	474	470
22:00	356	411	403	451	383	408	327
23:00	334	358	325	404	426	457	352
24:00	166	199	213	224	281	354	236

24 Hr Total	11,611	11,808	12,090	12,337	12,636	10,742	8,709
A.M. Total	5,667	5,736	5,952	5,989	5,875	3,900	2,975
P.M. Total	5,944	6,072	6,138	6,348	6,761	6,842	5,734
Noon-Noon		11,680	12,024	12,127	12,223	10,661	9,817
Highest Hour Starting	08:00	08:00	08:00	07:00	07:00	12:00	10:00
Highest Hour Volume	1,036	1,041	1,071	1,050	988	734	603

ADT = 11,419 AWD = 12,014

ADT (Average Daily Traffic)-The average daily volume of the days being displayed

AWD (Average Weekday Traffic) - The average weekday traffic based on data taken from Monday @noon to Friday @noon.

Jun 16, 2017 09:56:35

SEVEN DAY HOURLY REPORT

VDS Station1:	410DN0230DER				
HIGHWAY:	403	STREAM:	OTHER	DIRECTION:	OTHER
LHRS / OFFSET:	48263 / 0	GPS:	(43.585, -79.661)	CONFIDENCE LEVEL:	95%
DESCRIPTION	MAVIS S/B TO 403 E/B RAMP				

HOUR-ENDING	MON	TUE	WED	THU	FRI	SAT	SUN
	05-Jun-17	06-Jun-17	07-Jun-17	08-Jun-17	09-Jun-17	10-Jun-17	11-Jun-17
	Loops	Loops	Loops	Loops	Loops	Loops	Loops
01:00	67	61	63	70	71	147	180
02:00	34	36	37	24	42	78	113
03:00	27	28	20	28	34	56	60
04:00	29	30	38	35	37	39	53
05:00	73	83	68	72	81	59	59
06:00	252	253	282	272	265	98	55
07:00	462	464	502	477	461	198	130
08:00	580	575	580	572	544	250	189
09:00	637	630	589	607	578	446	226
10:00	494	528	482	513	490	523	366
11:00	326	339	389	388	407	476	460
12:00	357	358	366	326	377	527	437
13:00	308	314	341	337	356	481	527
14:00	332	329	378	351	352	486	381
15:00	397	372	414	361	369	498	444
16:00	325	310	368	325	374	469	422
17:00	265	252	262	235	312	427	399
18:00	272	245	308	301	307	418	395
19:00	314	309	328	307	403	450	373
20:00	324	325	361	374	416	392	377
21:00	295	279	351	333	384	361	341
22:00	220	236	261	283	270	294	279
23:00	188	231	193	251	287	289	259
24:00	136	144	124	146	187	242	157

24 Hr Total	6,714	6,731	7,105	6,988	7,404	7,704	6,682
A.M. Total	3,338	3,385	3,416	3,384	3,387	2,897	2,328
P.M. Total	3,376	3,346	3,689	3,604	4,017	4,807	4,354
Noon-Noon		6,761	6,762	7,073	6,991	6,914	7,135
Highest Hour Starting	08:00	08:00	08:00	08:00	08:00	11:00	12:00
Highest Hour Volume	637	630	589	607	578	527	527

ADT = 7,047 AWD = 6,897

ADT (Average Daily Traffic)-The average daily volume of the days being displayed

AWD (Average Weekday Traffic) - The average weekday traffic based on data taken from Monday @noon to Friday @noon.

Jun 16, 2017 09:56:51

07:45 USER 2/4 PRINT CDT 48 96 207 213 257 331 703 704

CYCLE DEFINITION TABLE: 48

PHASE	DIR	VEH MIN	PED MIN	PED CLEAR	AMBER	ALL RED	COMM DELAY	SPECIAL FEATURE	STREET NAME
1							1		
2	NS		8	11	4	3	1	C	LIVING ARTS
3							1		
4	EW		8	12	4	4	1		SQUARE ONE DR
5							1		
6							1		
7							1		
8							1		

VALID SPECIAL FUNCTIONS(Y/N)

1	2	3	1&2	1&3	2&3	ALL
Y	Y	Y	Y	Y	Y	Y

CYCLE DEFINITION TABLE: 96

PHASE	DIR	VEH MIN	PED MIN	PED CLEAR	AMBER	ALL RED	COMM DELAY	SPECIAL FEATURE	STREET NAME
1							1		
2	EB		11	17	4	4	1	C	RATHBURN RD
3	SBL	5			3		1		CONFEDERATION
4	NB		10	14	4	4	1		CONFEDERATION
5	EBL	5			3		1		RATHBURN RD
6	WB		11	17	4	4	1	C	RATHBURN RD
7	NBL	5			3		1		CONFEDERATION
8	SB		10	14	4	4	1		CONFEDERATION

VALID SPECIAL FUNCTIONS(Y/N)

1	2	3	1&2	1&3	2&3	ALL
Y	Y	Y	Y	Y	Y	Y

CYCLE DEFINITION TABLE: 207

PHASE	DIR	VEH MIN	PED MIN	PED CLEAR	AMBER	ALL RED	COMM DELAY	SPECIAL FEATURE	STREET NAME
1							1		
2	EW		12	18	5	2	1	C	CENTRE VIEW DR
3							1		
4	NB	8			4	3	1		DUKE OF YORK
5							1		
6							1		
7							1		
8							1		

VALID SPECIAL FUNCTIONS(Y/N)

1	2	3	1&2	1&3	2&3	ALL
Y	Y	Y	Y	Y	Y	Y

CYCLE DEFINITION TABLE: 213

PHASE	DIR	VEH MIN	PED MIN	PED CLEAR	AMBER	ALL RED	COMM DELAY	SPECIAL FEATURE	STREET NAME
1	WBL	5			3		1		RATHBURN
2	EB		11	16	4	4	1	C	RATHBURN
3	SBL	5			3		1		DUKE OF YORK
4	NB		11	16	4	4	1		DUKE OF YORK
5							1		
6	WB		11	16	4	4	1	C	RATHBURN
7	NBL	5			3		1		DUKE OF YORK

CYCLE DEFINITION TABLE: 213

PHASE	DIR	VEH MIN	PED MIN	PED CLEAR	AMBER	ALL RED	COMM DELAY	SPECIAL FEATURE	STREET NAME
8	SB		11	16	4	4	1		DUKE OF YORK

VALID SPECIAL FUNCTIONS(Y/N)

1	2	3	1&2	1&3	2&3	ALL
Y	Y	Y	Y	Y	Y	Y

CYCLE DEFINITION TABLE: 257

PHASE	DIR	VEH MIN	PED MIN	PED CLEAR	AMBER	ALL RED	COMM DELAY	SPECIAL FEATURE	STREET NAME
1							1		
2	EW		10	21	4	4	1	C	RATHBURN RD
3	NBL	8			3		1		TRANSIT TERM
4	NS		12	24	4	4	1		TRAN TER/STA GT
5							1		
6							1		
7							1		
8							1		

VALID SPECIAL FUNCTIONS(Y/N)

1	2	3	1&2	1&3	2&3	ALL
Y	Y	Y	Y	Y	Y	Y

CYCLE DEFINITION TABLE: 331

PHASE	DIR	VEH MIN	PED MIN	PED CLEAR	AMBER	ALL RED	COMM DELAY	SPECIAL FEATURE	STREET NAME
1							1		
2	NS		8	10	5	2	1	C	MAVIS RD
3	WBR	5			3		1		CENTREVIEW
4	EB		8	10	4	2	1		403 SOUTH TERM
5							1		
6							1		
7							1		
8							1		

VALID SPECIAL FUNCTIONS(Y/N)

1	2	3	1&2	1&3	2&3	ALL
Y	Y	Y	Y	Y	Y	Y

CYCLE DEFINITION TABLE: 703

PHASE	DIR	VEH MIN	PED MIN	PED CLEAR	AMBER	ALL RED	COMM DELAY	SPECIAL FEATURE	STREET NAME
1	WBL	5			3		1		RATHBURN RD
2	EW		8	9	4	3	1	C	RATHBURN RD
3							1		
4	NS		8	12	4	3	1		LIVING ARTS DR
5							1		
6							1		
7							1		
8							1		

VALID SPECIAL FUNCTIONS(Y/N)

1	2	3	1&2	1&3	2&3	ALL
Y	Y	Y	Y	Y	Y	Y

CYCLE DEFINITION TABLE: 704

PHASE	DIR	VEH MIN	PED MIN	PED CLEAR	AMBER	ALL RED	COMM DELAY	SPECIAL FEATURE	STREET NAME
1							1		

CYCLE DEFINITION TABLE: 704

PHASE	DIR	VEH MIN	PED MIN	PED CLEAR	AMBER	ALL RED	COMM DELAY	SPECIAL FEATURE	STREET NAME
2	EW		9	12	4	3	1	C	CENTRE VIEW
3							1		
4	NB	8			4	3	1		STATION GATE
5							1		
6							1		
7							1		
8							1		

VALID SPECIAL FUNCTIONS(Y/N)

1	2	3	1&2	1&3	2&3	ALL
Y	Y	Y	Y	Y	Y	Y

07:45 USER 2/4 PRINT SPF 1-32, INT 48 96 207 213 257 331 703 704

SPECIAL FUNCTIONS

INTERSECTION 48 LIVING ARTS@ SQ ONE

SPECIAL IN(Y)/OUT(N)

FUNCTION #	1 NA	2 PED	3 CAL	PHASE OMIT SPF2 Y=ON
1	Y	Y	N	
2	Y	Y	N	
3	Y	Y	N	
4	Y	N	N	
5	N	N	N	
6	N	N	N	
7	N	N	N	
8	N	N	N	
9	N	N	N	
10	N	N	N	
11	N	N	N	
12	N	N	N	
13	N	N	N	
14	N	N	N	
15	N	N	N	
16	N	N	N	
17	N	N	N	
18	N	N	N	
19	N	N	N	
20	N	N	N	
21	N	N	N	
22	N	N	N	
23	N	N	N	
24	N	N	N	
25	N	N	N	
26	N	N	N	
27	N	N	N	
28	N	N	N	
29	N	N	N	
30	N	N	N	
31	Y	N	N	
32	N	N	N	

INTERSECTION 96 RATHBURN @ CONFED

	NA	EBL	CAL	PHASE OMIT BUT SPF2 Y=ON
1	Y	Y	N	
2	Y	Y	N	
3	Y	N	N	
4	N	N	N	
5	N	N	N	
6	N	N	N	
7	N	N	N	
8	N	N	N	
9	N	N	N	
10	N	N	N	
11	N	N	N	
12	N	N	N	
13	N	N	N	

SPECIAL FUNCTIONS

INTERSECTION 96 RATHBURN @ CONFED

SPECIAL FUNCTION #	IN(Y)/OUT(N) 1	2	3
14	N	N	N
15	N	N	N
16	N	N	N
17	N	N	N
18	N	N	N
19	N	N	N
20	N	N	N
21	N	N	N
22	N	N	N
23	N	N	N
24	N	N	N
25	N	N	Y
26	N	N	Y
27	N	N	Y
28	N	N	N
29	N	N	N
30	N	N	N
31	Y	N	N
32	N	N	N

INTERSECTION 207 CENTREVIEW @ DUKE OF

	NA	NA	CAL PHASE OMIT
1	Y	Y	N
2	Y	Y	N
3	Y	Y	N
4	Y	Y	Y
5	N	N	N
6	N	N	N
7	N	N	N
8	N	N	N
9	N	N	N
10	N	N	N
11	N	N	N
12	N	N	N
13	N	N	N
14	N	N	N
15	N	N	N
16	N	N	N
17	N	N	N
18	N	N	N
19	N	N	N
20	N	N	N
21	N	N	N
22	N	N	N
23	N	N	N
24	N	N	N
25	N	N	N
26	N	N	N
27	N	N	N
28	N	N	N

SPECIAL FUNCTIONS

INTERSECTION 207 CENTREVIEW @ DUKE OF

SPECIAL FUNCTION #	IN(Y)/OUT(N) 1	2	3
29	N	N	N
30	N	N	N
31	Y	Y	N
32	N	N	N

INTERSECTION 213 RATHBURN@DUKEOFYORK

	WBL	PED	CFT PHASE OMIT
1	N	N	N
2	N	N	N
3	N	N	Y
4	N	N	N
5	N	N	N
6	N	N	N
7	N	N	N
8	N	N	N
9	N	N	N
10	N	N	N
11	N	N	N
12	N	N	N
13	N	N	N
14	N	N	N
15	N	N	N
16	N	N	N
17	N	N	N
18	N	N	N
19	N	N	N
20	N	N	N
21	N	N	N
22	N	N	N
23	N	N	N
24	N	N	N
25	N	N	N
26	N	N	N
27	N	N	N
28	N	N	N
29	N	N	N
30	N	N	N
31	N	N	Y
32	N	N	N

INTERSECTION 257 RATHBURN @ TRANSIT T

	NA	PED	CAL PHASE OMIT BUT SPF2 Y=ON
1	Y	Y	N
2	Y	Y	N
3	Y	Y	N
4	Y	N	N
5	N	N	N
6	N	N	N
7	N	N	N
8	N	N	N
9	N	N	N

SPECIAL FUNCTIONS

INTERSECTION 257 RATHBURN @ TRANSIT T

SPECIAL FUNCTION #	IN(Y)/OUT(N) 1	2	3
10	N	N	N
11	N	N	N
12	N	N	N
13	N	N	N
14	N	N	N
15	N	N	N
16	N	N	N
17	N	N	N
18	N	N	N
19	N	N	N
20	N	N	N
21	N	N	N
22	N	N	N
23	N	N	N
24	N	N	N
25	N	N	N
26	N	N	N
27	N	N	N
28	N	N	N
29	N	N	N
30	N	N	N
31	Y	Y	N
32	N	N	N

INTERSECTION 331 MAVIS @ 403 S TERM

	NA	NA	CAL PHASE OMIT
1	N	N	N
2	N	N	N
3	N	N	N
4	N	N	N
5	N	N	N
6	N	N	N
7	N	N	N
8	N	N	N
9	N	N	N
10	N	N	N
11	N	N	N
12	N	N	N
13	N	N	N
14	N	N	N
15	N	N	N
16	N	N	N
17	N	N	N
18	N	N	N
19	N	N	N
20	N	N	N
21	Y	Y	N
22	Y	Y	N
23	Y	Y	N
24	N	N	N

SPECIAL FUNCTIONS

INTERSECTION 331 MAVIS @ 403 S TERM

SPECIAL FUNCTION #	IN(Y)/OUT(N) 1	2	3
25	N	N	N
26	N	N	N
27	N	N	N
28	N	N	N
29	N	N	N
30	N	N	N
31	Y	Y	N
32	N	N	N

INTERSECTION 703 RATHBURN@LIVING ARTS

	WBL	PED	CFT
1	N	N	Y
2	N	N	Y
3	N	N	Y
4	N	N	N
5	N	N	N
6	N	N	N
7	N	N	N
8	N	N	N
9	N	N	N
10	N	N	N
11	N	N	N
12	N	N	N
13	N	N	N
14	N	N	N
15	N	N	N
16	N	N	N
17	N	N	N
18	N	N	N
19	N	N	N
20	N	N	N
21	N	N	N
22	N	N	N
23	N	N	N
24	N	N	N
25	N	N	N
26	N	N	N
27	N	N	N
28	N	N	N
29	N	N	N
30	N	N	N
31	N	N	N
32	N	N	N

PHASE OMIT BUT SPF2 Y=ON

INTERSECTION 704 CENTREVIEW @ STATION

	NA	PED	CAL
1	Y	N	N
2	Y	N	N
3	Y	N	N
4	N	N	N
5	N	N	N

SPECIAL FUNCTIONS
INTERSECTION 704 CENTREVIEW @ STATION

SPECIAL FUNCTION #	IN(Y)/OUT(N) 1	2	3
6	N	N	N
7	N	N	N
8	N	N	N
9	N	N	N
10	N	N	N
11	N	N	N
12	N	N	N
13	N	N	N
14	N	N	N
15	N	N	N
16	N	N	N
17	N	N	N
18	N	N	N
19	N	N	N
20	N	N	N
21	N	N	N
22	N	N	N
23	N	N	N
24	N	N	N
25	N	N	N
26	N	N	N
27	N	N	N
28	N	N	N
29	N	N	N
30	N	N	N
31	Y	N	N
32	N	N	N

07:46 USER 2/4 PRINT SPLIT 1-32, INT 48 96 207 213 257 331 703 704

SPLIT TABLE

INTERSECTION 48 LIVING ARTS@ SQ ONE

TABLE NO.	(SPLIT) PHASE NUMBER 1	2	3	4	5	6	7	8	(MAX SPLIT) PHASE NUMBER 1	2	3	4	5	6	7	8
		NS		EW												
1		61		39						0		0				
2		61		39						0		0				
3		61		39						0		0				
4		0		0						0		0				
5		0		0						0		0				
6		0		0						0		0				
7		0		0						0		0				
8		0		0						0		0				
9		0		0						0		0				
10		0		0						0		0				
11		0		0						0		0				
12		0		0						0		0				
13		0		0						0		0				
14		0		0						0		0				
15		0		0						0		0				
16		0		0						0		0				
17		0		0						0		0				
18		0		0						0		0				
19		0		0						0		0				
20		0		0						0		0				
21		0		0						0		0				
22		0		0						0		0				
23		0		0						0		0				
24		0		0						0		0				
25		0		0						0		0				
26		0		0						0		0				
27		0		0						0		0				
28		0		0						0		0				
29		0		0						0		0				
30		0		0						0		0				
31		0		0						0		0				
32		0		0						0		0				

INTERSECTION 96 RATHBURN @ CONFED

	EB	SBL	NB	EBL	WB	NBL	SB							
1	45	18	37	0	45	18	37	0	0	0	0	0	0	0
2	44	13	43	0	44	13	43	0	0	0	0	0	0	0
3	48	14	38	12	36	10	42	0	0	0	19	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SPLIT TABLE

INTERSECTION 96 RATHBURN @ CONFED

TABLE	(SPLIT) PHASE NUMBER								(MAX SPLIT) PHASE NUMBER							
NO.	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
14		0	0	0	0	0	0	0		0	0	0	0	0	0	0
15		0	0	0	0	0	0	0		0	0	0	0	0	0	0
16		0	0	0	0	0	0	0		0	0	0	0	0	0	0
17		0	0	0	0	0	0	0		0	0	0	0	0	0	0
18		0	0	0	0	0	0	0		0	0	0	0	0	0	0
19		0	0	0	0	0	0	0		0	0	0	0	0	0	0
20		0	0	0	0	0	0	0		0	0	0	0	0	0	0
21		0	0	0	0	0	0	0		0	0	0	0	0	0	0
22		0	0	0	0	0	0	0		0	0	0	0	0	0	0
23		0	0	0	0	0	0	0		0	0	0	0	0	0	0
24		0	0	0	0	0	0	0		0	0	0	0	0	0	0
25		0	0	0	0	0	0	0		0	0	0	0	0	0	0
26		0	0	0	0	0	0	0		0	0	0	0	0	0	0
27		0	0	0	0	0	0	0		0	0	0	0	0	0	0
28		0	0	0	0	0	0	0		0	0	0	0	0	0	0
29		0	0	0	0	0	0	0		0	0	0	0	0	0	0
30		0	0	0	0	0	0	0		0	0	0	0	0	0	0
31		0	0	0	0	0	0	0		0	0	0	0	0	0	0
32		0	0	0	0	0	0	0		0	0	0	0	0	0	0

INTERSECTION 207 CENTREVIEW @ DUKE OF

	EW	NB		
1	0	0	0	0
2	48	52	0	0
3	60	40	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0
20	0	0	0	0
21	0	0	0	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0
25	0	0	0	0
26	0	0	0	0
27	0	0	0	0
28	0	0	0	0

SPLIT TABLE

INTERSECTION 207 CENTREVIEW @ DUKE OF

TABLE	(SPLIT) PHASE NUMBER								(MAX SPLIT) PHASE NUMBER							
NO.	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
29		0		0						0		0				
30		0		0						0		0				
31		0		0						0		0				
32		0		0						0		0				

INTERSECTION 213 RATHBURN@DUKEOFYORK

	WBL	EB	SBL	NB	WB	NBL	SB								
1	11	45	10	34	56	10	34	15	0	0	0	0	0	0
2	16	35	11	38	51	14	35	21	0	0	0	0	0	0
3	11	39	11	39	50	18	32	18	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0	0	0	0	0	0

INTERSECTION 257 RATHBURN @ TRANSIT T

	EW	NBL	NS			
1	48	11	41	0	0	0
2	48	11	41	0	0	0
3	52	10	38	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0

SPLIT TABLE

INTERSECTION 257 RATHBURN @ TRANSIT T

TABLE	(SPLIT) PHASE NUMBER								(MAX SPLIT) PHASE NUMBER							
NO.	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
10		0	0	0						0	0	0				
11		0	0	0						0	0	0				
12		0	0	0						0	0	0				
13		0	0	0						0	0	0				
14		0	0	0						0	0	0				
15		0	0	0						0	0	0				
16		0	0	0						0	0	0				
17		0	0	0						0	0	0				
18		0	0	0						0	0	0				
19		0	0	0						0	0	0				
20		0	0	0						0	0	0				
21		0	0	0						0	0	0				
22		0	0	0						0	0	0				
23		0	0	0						0	0	0				
24		0	0	0						0	0	0				
25		0	0	0						0	0	0				
26		0	0	0						0	0	0				
27		0	0	0						0	0	0				
28		0	0	0						0	0	0				
29		0	0	0						0	0	0				
30		0	0	0						0	0	0				
31		0	0	0						0	0	0				
32		0	0	0						0	0	0				

INTERSECTION 331 MAVIS @ 403 S TERM

	NS	WBR	EB													
1	60	11	29							0	0	0				
2	61	12	27							0	0	0				
3	50	11	39							0	0	0				
4	0	0	0							0	0	0				
5	0	0	0							0	0	0				
6	0	0	0							0	0	0				
7	0	0	0							0	0	0				
8	0	0	0							0	0	0				
9	0	0	0							0	0	0				
10	0	0	0							0	0	0				
11	0	0	0							0	0	0				
12	0	0	0							0	0	0				
13	0	0	0							0	0	0				
14	0	0	0							0	0	0				
15	0	0	0							0	0	0				
16	0	0	0							0	0	0				
17	0	0	0							0	0	0				
18	0	0	0							0	0	0				
19	0	0	0							0	0	0				
20	0	0	0							0	0	0				
21	0	0	0							0	0	0				
22	0	0	0							0	0	0				
23	0	0	0							0	0	0				
24	0	0	0							0	0	0				

SPLIT TABLE

INTERSECTION 331 MAVIS @ 403 S TERM

TABLE	(SPLIT) PHASE NUMBER								(MAX SPLIT) PHASE NUMBER							
NO.	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
25		0	0	0						0	0	0				
26		0	0	0						0	0	0				
27		0	0	0						0	0	0				
28		0	0	0						0	0	0				
29		0	0	0						0	0	0				
30		0	0	0						0	0	0				
31		0	0	0						0	0	0				
32		0	0	0						0	0	0				

INTERSECTION 703 RATHBURN@LIVING ARTS

	WBL	EW	NS			
1	9	71	20	15	0	0
2	11	64	25	15	0	0
3	10	60	30	16	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
13	0	0	0	0	0	0
14	0	0	0	0	0	0
15	0	0	0	0	0	0
16	0	0	0	0	0	0
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	0	0	0	0	0	0
20	0	0	0	0	0	0
21	0	0	0	0	0	0
22	0	0	0	0	0	0
23	0	0	0	0	0	0
24	0	0	0	0	0	0
25	0	0	0	0	0	0
26	0	0	0	0	0	0
27	0	0	0	0	0	0
28	0	0	0	0	0	0
29	0	0	0	0	0	0
30	0	0	0	0	0	0
31	0	0	0	0	0	0
32	0	0	0	0	0	0

INTERSECTION 704 CENTREVIEW @ STATION

	EW	NB		
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0

SPLIT TABLE

INTERSECTION 704 CENTREVIEW @ STATION

TABLE	(SPLIT) PHASE NUMBER								(MAX SPLIT) PHASE NUMBER							
NO.	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
6		0		0						0		0				
7		0		0						0		0				
8		0		0						0		0				
9		0		0						0		0				
10		0		0						0		0				
11		0		0						0		0				
12		0		0						0		0				
13		0		0						0		0				
14		0		0						0		0				
15		0		0						0		0				
16		0		0						0		0				
17		0		0						0		0				
18		0		0						0		0				
19		0		0						0		0				
20		0		0						0		0				
21		0		0						0		0				
22		0		0						0		0				
23		0		0						0		0				
24		0		0						0		0				
25		0		0						0		0				
26		0		0						0		0				
27		0		0						0		0				
28		0		0						0		0				
29		0		0						0		0				
30		0		0						0		0				
31		0		0						0		0				
32		0		0						0		0				

07:47 USER 2/4 PRINT OFFSET 1-32, INT 48 96 207 213 257 331 703 704

OFFSET TABLE

INTERSECTION 48 LIVING ARTS@ SQ ONE

OFFSET #	OFFSET %
1	58
2	58
3	58
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	0
12	0
13	0
14	0
15	0
16	0
17	0
18	0
19	0
20	0
21	0
22	0
23	0
24	0
25	0
26	0
27	0
28	0
29	0
30	0
31	0
32	0

INTERSECTION 96 RATHBURN @ CONFED

1	37
2	31
3	2
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	0
12	0
13	0
14	0
15	0
16	0

OFFSET TABLE

INTERSECTION 96 RATHBURN @ CONFED

OFFSET #	OFFSET %
17	0
18	0
19	0
20	0
21	0
22	0
23	0
24	0
25	0
26	0
27	0
28	0
29	0
30	0
31	0
32	0

INTERSECTION 207 CENTREVIEW @ DUKE OF

1	0
2	56
3	80
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	0
12	0
13	0
14	0
15	0
16	0
17	0
18	0
19	0
20	0
21	0
22	0
23	0
24	0
25	0
26	0
27	0
28	0
29	0
30	0
31	0
32	0

OFFSET TABLE

INTERSECTION 213 RATHBURN@DUKEOFYORK

OFFSET #	OFFSET %
1	60
2	58
3	81
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	0
12	0
13	0
14	0
15	0
16	0
17	0
18	0
19	0
20	0
21	0
22	0
23	0
24	0
25	0
26	0
27	0
28	0
29	0
30	0
31	0
32	0

INTERSECTION 257 RATHBURN @ TRANSIT T

1	63
2	52
3	65
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	0
12	0
13	0
14	0
15	0
16	0
17	0

OFFSET TABLE

INTERSECTION 257 RATHBURN @ TRANSIT T

OFFSET #	OFFSET %
18	0
19	0
20	0
21	0
22	0
23	0
24	0
25	0
26	0
27	0
28	0
29	0
30	0
31	0
32	0

INTERSECTION 331 MAVIS @ 403 S TERM

1	34
2	80
3	26
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	0
12	0
13	0
14	0
15	0
16	0
17	0
18	0
19	0
20	0
21	0
22	0
23	0
24	0
25	0
26	0
27	0
28	0
29	0
30	0
31	0
32	0

OFFSET TABLE

INTERSECTION 703 RATHBURN@LIVING ARTS

OFFSET #	OFFSET %
1	41
2	48
3	0
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	0
12	0
13	0
14	0
15	0
16	0
17	0
18	0
19	0
20	0
21	0
22	0
23	0
24	0
25	0
26	0
27	0
28	0
29	0
30	0
31	0
32	0

INTERSECTION 704 CENTREVIEW @ STATION

1	0
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	0
12	0
13	0
14	0
15	0
16	0
17	0

OFFSET TABLE

INTERSECTION 704 CENTREVIEW @ STATION

OFFSET #	OFFSET %
18	0
19	0
20	0
21	0
22	0
23	0
24	0
25	0
26	0
27	0
28	0
29	0
30	0
31	0
32	0

07:48 USER 2/4 PRINT DAILY INT REP, INT 48 96 207 213 257 331 703 704, AS 1-3

DAILY INTERSECTION REPORT FOR ACT SCH 1 (MON TUE WED THU FRI)

INT	TIME	SELECTION PLANS IN USE						ALTERNATES					
		MODE	CYC LEN	OFF NO.	SPLT NO.	SPEC FUNC	DUP ISEC	MODE	CYC LEN	OFF NO.	SPLT NO.	SPEC FUNC	DUP ISEC
48	00:00	/	/	/	/	/	/	LO	101	2	2	4	
48	07:00	1/1	/	/	/	1/1	/	CC	80	1	1	1	1082
48	09:00	1/1	/	/	/	1/1	/	CC	80	2	2	2	1082
48	16:00	1/1	/	/	/	1/1	/	CC	80	3	3	3	1082
48	18:30	1/1	/	/	/	1/1	/	CC	80	2	2	2	1082
96	00:00	/	/	/	/	/	/	LO	101	2	2	2	
96	07:00	1/1	/	/	/	1/1	/	CC	140	1	1	1	
96	09:00	1/1	/	/	/	1/1	/	CC	130	2	2	2	
96	16:00	1/1	/	/	/	1/1	/	CC	140	3	3	3	
96	18:30	1/1	/	/	/	1/1	/	CC	130	2	2	2	
207	00:00	/	/	/	/	/	/	LO	101	2	2	2	
207	09:00	1/1	/	/	/	1/1	/	CC	115	2	2	4	1055
207	16:00	1/1	/	/	/	1/1	/	CC	140	3	3	4	1055
207	18:30	1/1	/	/	/	1/1	/	CC	115	2	2	4	1055
213	00:00	/	/	/	/	/	/	LO	101	2	2	2	
213	07:00	1/1	/	/	/	1/1	/	CC	115	1	1	1	1055
213	09:00	1/1	/	/	/	1/1	/	CC	115	2	2	2	1055
213	16:00	1/1	/	/	/	1/1	/	CC	140	3	3	3	1055
213	18:30	1/1	/	/	/	1/1	/	CC	115	2	2	3	1055
257	00:00	/	/	/	/	/	/	LO	101	2	2	4	
257	07:00	1/1	/	/	/	1/1	/	CC	115	1	1	1	1055
257	09:00	1/1	/	/	/	1/1	/	CC	115	2	2	2	1055
257	16:00	1/1	/	/	/	1/1	/	CC	140	3	3	3	1055
257	18:30	1/1	/	/	/	1/1	/	CC	115	2	2	2	1055
331	00:00	/	/	/	/	/	/	LO	101	2	2	2	
331	06:00	1/1	/	/	/	1/1	/	CC	140	1	1	1	1016
331	09:30	1/1	/	/	/	1/1	/	CC	135	2	2	2	1016
331	15:00	1/1	/	/	/	1/1	/	CC	140	3	3	3	1016
331	19:30	1/1	/	/	/	1/1	/	CC	135	2	2	2	1016
703	00:00	/	/	/	/	/	/	LO	101	2	2	4	
703	07:00	1/1	/	/	/	1/1	/	CC	140	1	1	1	
703	09:00	1/1	/	/	/	1/1	/	CC	115	2	2	2	1055
703	16:00	1/1	/	/	/	1/1	/	CC	140	3	3	3	1055
703	18:30	1/1	/	/	/	1/1	/	CC	115	2	2	2	1055
704	00:00	/	/	/	/	/	/	LO	101	2	2	2	

DAILY INTERSECTION REPORT FOR ACT SCH 2 (SAT)

48	00:00	/	/	/	/	/	/	LO	101	2	2	4	
48	09:00	1/1	/	/	/	1/1	/	CC	80	2	2	2	
96	00:00	/	/	/	/	/	/	LO	101	2	2	2	
96	09:00	1/1	/	/	/	1/1	/	CC	130	2	2	2	
207	00:00	/	/	/	/	/	/	LO	101	2	2	2	
207	09:00	1/1	/	/	/	1/1	/	CC	115	2	2	4	1055
213	00:00	/	/	/	/	/	/	LO	101	2	2	2	
213	09:00	1/1	/	/	/	1/1	/	CC	115	2	2	3	1055
257	00:00	/	/	/	/	/	/	LO	101	2	2	4	
257	09:00	1/1	/	/	/	1/1	/	CC	115	2	2	2	1055
331	00:00	/	/	/	/	/	/	LO	101	2	2	2	
331	07:00	1/1	/	/	/	1/1	/	CC	135	2	2	2	1016

DAILY INTERSECTION REPORT FOR ACT SCH 2 (SAT)

INT	TIME	SELECTION PLANS IN USE						ALTERNATES				
		MODE	CYC LEN	OFF NO.	SPLT NO.	SPEC FUNC	DUP ISEC	MODE	CYC LEN	OFF NO.	SPLT NO.	SPEC FUNC	DUP ISEC
703	00:00	/	/	/	/	/	/	LO	101	2	2	4	
703	09:00	1/1	/	/	/	1/1	/	CC	115	2	2	2	1055
704	00:00	/	/	/	/	/	/	LO	101	2	2	2	

DAILY INTERSECTION REPORT FOR ACT SCH 3 (SUN HOL)

48	00:00	/	/	/	/	/	/	LO	101	2	2	2	
48	10:00	1/1	/	/	/	1/1	/	CC	80	2	2	2	
48	23:00	/	/	/	/	/	/	LO	101	2	2	2	
96	00:00	/	/	/	/	/	/	LO	101	2	2	2	
96	10:00	1/1	/	/	/	1/1	/	CC	130	2	2	2	
207	00:00	/	/	/	/	/	/	LO	101	2	2	2	
207	10:00	1/1	/	/	/	1/1	/	CC	115	2	2	4	1055
207	23:00	/	/	/	/	/	/	LO	101	2	2	2	
213	00:00	/	/	/	/	/	/	LO	101	2	2	2	
213	10:00	1/1	/	/	/	1/1	/	CC	115	2	2	3	1055
213	23:00	/	/	/	/	/	/	LO	101	2	2	2	
257	00:00	/	/	/	/	/	/	LO	101	2	2	4	
257	10:00	1/1	/	/	/	1/1	/	CC	115	2	2	2	1055
257	23:00	/	/	/	/	/	/	LO	101	2	2	2	1055
331	00:00	/	/	/	/	/	/	LO	101	2	2	2	
331	08:00	1/1	/	/	/	1/1	/	CC	135	2	2	2	1016
331	23:00	/	/	/	/	/	/	LO	101	2	2	2	
703	00:00	/	/	/	/	/	/	LO	101	2	2	4	
703	10:00	1/1	/	/	/	1/1	/	CC	115	2	2	2	1055
703	23:00	/	/	/	/	/	/	LO	101	2	2	4	
704	00:00	/	/	/	/	/	/	LO	101	2	2	2	

Appendix B - VISSIM MODEL DEVELOPMENT AND CALIBRATION REPORT

VISSIM Model Development and Calibration – Technical Report

Living Arts Drive Extension EA
City of Mississauga

Prepared for:
City of Mississauga

Prepared by:
Stantec Consulting Ltd.

October 31, 2017

Sign-off Sheet

This document entitled VISSIM Model Development and Calibration – Technical Report was prepared by Stantec Consulting Ltd. ("Stantec") for the account of City of Mississauga (the "Client"). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by _____

(signature)

Martin B. Kaczmarek, E.I.T.

Reviewed by _____

(signature)

Francois Tomeo, P. Eng.

Approved by _____

(signature)

Travis Brown, PMP.

Stantec

October 31, 2017

Table of Contents

1.0 INTRODUCTION 1.3

2.0 OBSERVED DATA 2.1
2.1 TRAFFIC VOLUMES AND SIGNAL TIMINGS 2.1
2.2 TRANSIT INFORMATION 2.1
2.3 ACTIVE TRANSPORTATION 2.3

3.0 METHODOLOGY 3.1
3.1 BASE YEAR TRAFFIC DEMAND 3.1
3.2 MODEL CALIBRATION AND RESULTS 3.1
3.2.1 Model Parameters 3.2
3.2.2 Traffic Volume Calibration Results (GEH) 3.3
3.2.3 Traffic Volume Calibration Results (Regression Analysis) 3.4
3.2.4 Validation 3.8
3.2.5 Operational Analysis Calibration 3.13

LIST OF TABLES

Table 1 - Existing Transit Routes 2.3
Table 2 - Global Model Parameters Applied 3.3
Table 3 - Model Calibration Criteria for Traffic Volumes 3.4
Table 5 - AM Operational Results Comparison 3.13
Table 6 - PM Operational Results Comparison 3.13

LIST OF FIGURES

Figure 1 - Study Area 1.1
Figure 2 - City Centre Transit Terminal Bus Stops 2.2
Figure 3 – AM Observed Flow vs. Modelled Flow at Network Turning Movements 3.6
Figure 4 - PM Observed Flow vs. Modelled Flow at Network Turning Movements 3.6
Figure 5 – AM Observed Flow vs. Modelled Flow at Network Links 3.7
Figure 6 – PM Observed Flow vs. Modelled Flow at Network Links 3.7
Figure 7 - Typical Traffic Conditions AM Peak Hour 3.9
Figure 8 - Modelled Conditions AM Peak Hour 3.10
Figure 9 - Typical Traffic Conditions PM Peak Hour 3.11
Figure 10 - Modelled Conditions PM Peak Hour 3.12

October 31, 2017

LIST OF APPENDICES

APPENDIX A TRAFFIC VOLUMES A.1
A.1 Unbalanced Volumes A.2
A.2 Balanced Volumes A.3

APPENDIX B CALIBRATION RESULTS B.1
B.1 Model Calibration by Turning Movement Volume B.2
B.2 Model Calibration by Link Volume B.3

APPENDIX C TRAVERSAL MATRICES C.1

1.0 INTRODUCTION

Stantec Consulting Ltd. was retained by the City of Mississauga (the City) to prepare a Transportation and Traffic Analysis Report as part of a Class Environmental Assessment (EA) for the extension of Living Arts Drive northerly to Centre View Drive. Living Arts Drive currently terminates at Rathburn Road, with a Cineplex Cinemas driveway comprising the north leg of the intersection at Living Arts Drive/Rathburn Road. Using PTV's VISSIM micro-simulation software package (Version 9.0) and TrafficWare's Synchro 9.1 software, models were developed to conduct analysis on existing conditions and will be used to assess future alternatives for the extension.

The objectives of this report are to:

- Explain the approach and methodology of the model development;
- Document the parameters and criteria that were used to calibrate the base year model;
- Present and interpret the results of the model calibration; and
- Describe the use and contribution of the model outputs to the Transportation and Traffic Analysis Report.

For the purpose of the traffic analysis, an expanded Study Area was used as illustrated in **Figure 1**. This expanded Study Area makes it possible to draw conclusions on the impact that extending Living Arts Drive to Centre View Drive will have on the local transportation network, and will provide justification for the preferred alternative. The traffic analysis Study Area is comprised of the following signalized intersections:

1. Centre View Drive / Mavis Road;
2. Centre View Drive / Duke of York Boulevard;
3. Centre View Drive / Station Gate Road;
4. Rathburn Road W / Station Gate Road;
5. Rathburn Road W / Duke of York Boulevard;
6. Rathburn Road W / Living Arts Drive;
7. Rathburn Road W / Confederation Parkway; and
8. Square One Drive / Living Arts Drive.

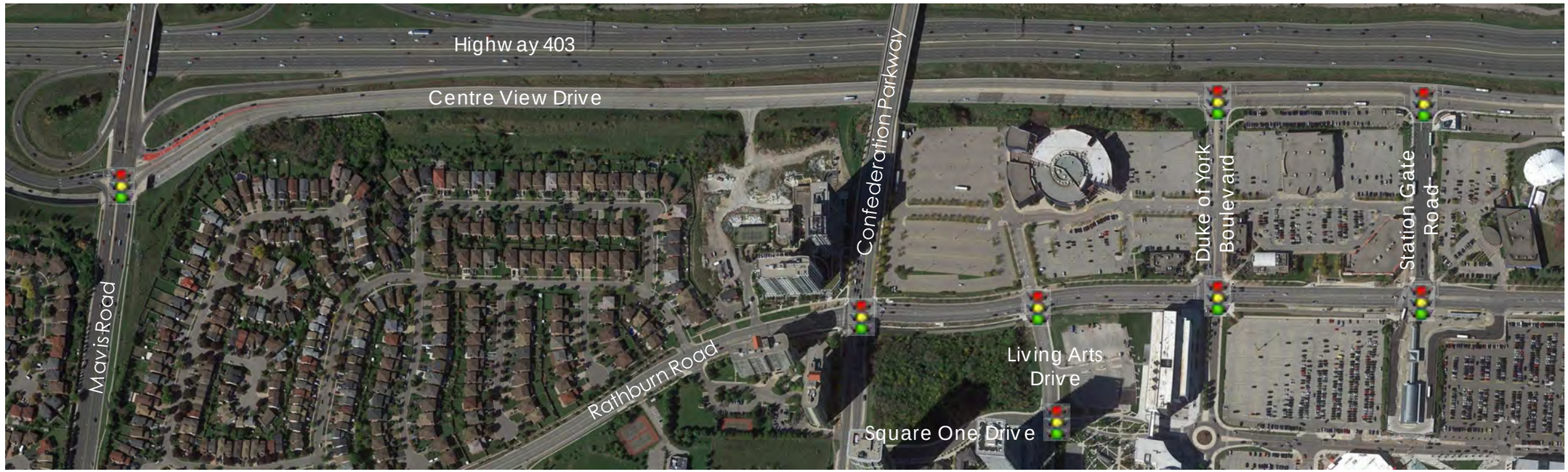


Figure 1 - Study Area

2.0 OBSERVED DATA

Various data were incorporated in to the a.m. and p.m. base year VISSIM models, including vehicle and pedestrian volumes, signal timing plans, and bus routes. This section details the data used in the micro-simulation model.

2.1 TRAFFIC VOLUMES AND SIGNAL TIMINGS

Turning movement count (TMC) data for the signalized intersections within the Study Area were provided by the City of Mississauga, with Highway 403 ramp volumes provided by the Ministry of Transportation. Count dates ranged from October 2015 to January 2017 for data provided by the City of Mississauga, while ramp volume counts were provided for the week of June 5, 2017 to June 11, 2017 by the Ministry of Transportation. Site visits were conducted on Wednesday, June 14, 2017 during the a.m. and p.m. peak hours, during which 15-minute spot check counts were conducted at the stop controlled intersections to estimate typical volumes.

Hourly volumes at all intersections within the Study Area were calculated for 15-minute increments and summed to determine the representative a.m. and p.m. peak hour of the Study Area network. Representative peak hours of 7:45 a.m. to 8:45 a.m., and 5:00 p.m. to 6:00 p.m. were used in the analysis as they represent the highest total volumes present on the network during the a.m. and p.m. peak periods, respectively. The hourly counts were balanced to represent 2017 conditions. The unbalanced and balanced existing 2017 base year a.m. and p.m. peak hour traffic volumes are shown in **Appendix A**.

Signal timing plans were provided by the City of Mississauga and incorporated in the VISSIM model.

2.2 TRANSIT INFORMATION

The Study Area is well serviced by public transit, with bus options available via GO Transit, MiWay, and Zum. The area around Station Gate Road serves as a transit hub and will be further enhanced through the future implementation of the Hurontario-Main light rail transit (LRT) and Mississauga's bus rapid transit (BRT) projects. The City Centre Transit Terminal exit is located on the south approach to the intersection of Rathburn Road W/Station Gate Road, with entry available to the east from Rathburn Road W. GO bus stops are provided along the sides of Station Gate Road and along the south side of Centre View Drive. Bus stops at the City Centre Transit Terminal as shown on the City of Mississauga website are illustrated in **Figure 2**.

The a.m. and p.m. transit schedules and routes were compiled from the public websites of MiWay, GO Transit, and Zum, and incorporated into the VISSIM model. Transit routes servicing the stops within the Study Area are summarized in **Table 1**.

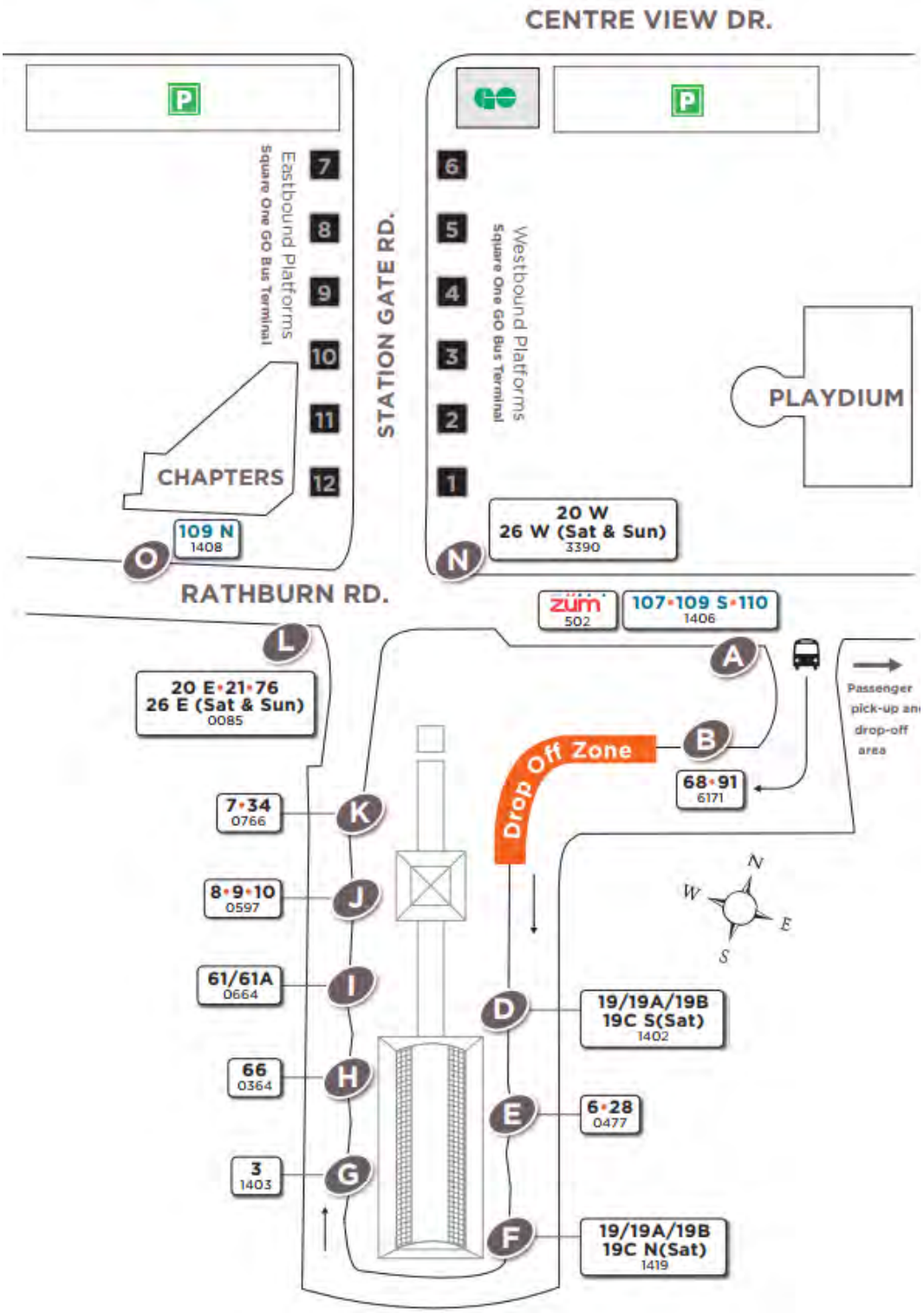


Figure 2 - City Centre Transit Terminal Bus Stops

Table 1 - Existing Transit Routes

Transit Agency	Route Number	Route Name
Miway	3	Bloor
	6	Credit Woodlands
	7	Airport
	8	Cawthra
	9	Rathburn-Thomas
	10	Bristol-Britannia
	19	Hurontario
	20	Rathburn
	28	Confederation
	34	Credit Valley
	61	Mavis
	66	McLaughlin
	68	Windsor Hill
	76	City Centre-Subway
	91	Hillcrest-Cooksville GO
	107	Malton Express
	109	Meadowvale Express N
	110	University Express
	302	Philip Pocock-Bloor West
	309	St. Joseph-Rathburn
	312	Gordon Graydon-City Centre
	315	Rick Hansen-City Centre
GO Transit	19	Mississauga/North York
	21	Milton
	25	Waterloo Mississauga
	29	Guelph/Mississauga
	40	Hamilton/Richmond Hill
	45	Mississauga/York U
	46	Oakville/York U
	47	Hamilton/York U
Zum	502	Main

2.3 ACTIVE TRANSPORTATION

As a large transit hub, the City Centre Transit Terminal generates a significant amount of pedestrian movements. To represent the delay caused by pedestrian crossings in the Study Area network, pedestrian volumes were incorporated in to the VISSIM and Synchro models.

3.0 METHODOLOGY

The vehicular impacts of the extension of Living Arts Drive northerly to Centre View Drive was assessed through a micro-simulation model using PTV's VISSIM 9.0 software package, and TrafficWare's Synchro 9.1 software for operational analysis. PTV's VISUM 14 software was utilized for adjusting traversal matrices. At the City's request, the Living Arts Drive Extension Class EA VISSIM model was based on the Square One Drive Extension Class EA model to keep the model assumptions and input data consistent such that the output data between the two models remain comparable. The Square One Drive Extension Class EA VISSIM model indicated that the study area road network would reach capacity in the horizon years; it had therefore been identified that additional analysis needed to be conducted using Synchro to more reliably assess the capacity of the intersections within the study area. Synchro analysis for existing conditions was therefore conducted for the Living Arts Drive Extension Class EA analysis to prepare for the possibility of the VISSIM model road network reaching or exceeding capacity.

3.1 BASE YEAR TRAFFIC DEMAND

The process for estimating the traffic demand for the Study Area network is summarized below. The unadjusted and adjusted matrices, along with a map indicating the location of each zone shown in the matrices, are provided in **Appendix C**.

1. The City of Mississauga provided traversal origin-destination matrices to determine the vehicle access and egress volumes of the Traffic Analysis Area for the a.m. and p.m. peak hours using the City's most recent Strategic Transportation Demand Emme Model.

2. The Traffic Analysis Zones (TAZs) used at the macroscopic level in the Emme model were refined into Internal Zones at the Micro Level (IZML) to model the travel demand at the microscopic level.

3. Manual adjustments were made to the traversal matrices previously estimated with the IZML to ensure that the origin and destination volumes were logical and to prepare for further adjustment using PTV's VISUM travel demand modeling software.

4. The manually adjusted traversal matrices were then adjusted according to the counted traffic volumes and link speeds using VISUM's TFlowFuzzy matrix adjustment function to reflect the vehicular travel demand dynamics that are observed through the TMCs during the existing a.m. and p.m. peak hours.

3.2 MODEL CALIBRATION AND RESULTS

The VISSIM model calibration was carried out at both the intersection level and link level for traffic volumes. Travel times were not incorporated into the model calibration due to the small size of the network, however, typical delays observed on Google Maps were cross referenced

with delays on the VISSIM model to match existing conditions. The quality of the base year a.m. and p.m. models is crucial as any modifications and parameters will be carried through to the forecast scenarios in order to accurately assess the impact of the extension of Living Arts Drive.

The quality of calibration is assessed based on the following elements:

1. Comparison of the observed and modelled intersection movement volumes using GEH;
2. Regression analysis of observed traffic counts versus modelled volumes;
3. Comparison of typical delays experienced on the network through Google Maps and the delays observed during the model simulation; and
4. Comparison between intersection operational analysis results from VISSIM and Synchro.

3.2.1 Model Parameters

To calibrate the base year model to the observed existing conditions of the network, a series of global model parameters were adjusted. The parameters are described as follow:

- Warmup – The amount of time, in minutes, that the model will simulate ahead of the defined model periods of 7:45-8:45 a.m. and 5:00-6:00 p.m. The warmup allows the model to get to normal running conditions before the model results are collected. Matrices with half of the volume of the following peak hour were used during the 60-minute warmup periods.
- Average standstill distance – The average desired distance between two cars.
- Additive part of safety distance – Value used for the computation of the desired safety distance and allows to adjust the time requirement values.
- Safety distance factor - Value used for the computation of the desired safety distance and allows to adjust the time requirement values. Larger values result in larger distributions of safety distance.
- Waiting time before diffusion – Defines the length of time until a vehicle waiting for an opportunity to change lanes will be removed from the simulation.
- Safety distance reduction factor (lane change) – During a lane change, VISSIM reduces the safety distance to the value that results from the multiplication of the original safety distance and the safety distance reduction factor. Once the lane change is completed, the original safety distance is taken into account again.
- Avoid long detours – Dynamic assignment parameter in which vehicles avoid paths that they identify as detours. A path is considered a detour if it replaces a section of an existing path with a section which is longer by at least the specified factor.

The input values applied for the global parameters in the Living Arts Drive EA base year network are summarized in **Table 2**.

Table 2 - Global Model Parameters Applied

Parameters	Input
Warmup, in minutes	60
Average Standstill Distance, in metres	1.5
Additive Part of Safety Distance	1.5
Safety Distance Factor	2.5
Wait Time Before Diffusion	120
Safety Distance Reduction Factor	0.5
Avoid Long Detours	1.5

During simulation of the p.m. peak hour, excessive queueing was observed along the southbound approach to Rathburn Road/Duke of York Boulevard. While signal detectors were not coded throughout the model, they were implemented at this intersection to ensure correct replication of observed conditions. The detectors' location and operation were incorporated as confirmed by the City.

3.2.2 Traffic Volume Calibration Results (GEH)

The GEH statistic was used to confirm the base year model output at both the turning movement, and link level. The formula for calculating the GEH is as follows:

GEH = $\sqrt{\frac{2(M-C)^2}{M+C}}$, where M = modelled hourly volume, C = observed hourly counts

GEH values provide an indication of the goodness of fit of modelled flows to observed flows as outlined below:

GEH < 5	Flows can be considered a good fit
5 < GEH < 10	Flows may require further investigation
GEH > 10	Flows cannot be considered to be a good fit

The GEH is used extensively in transportation modelling to measure the compatibility of traffic models. The non-linear nature of the GEH allows a single acceptance threshold to be applied in a wide range of traffic volumes without adjustments and hence can be utilized in networks of different road types. The calibration criteria for assessing the match between the traffic volumes generated by the model and real-world observed volumes are listed in **Table 3** and **Table 4**. These criteria, along with the recommended targets for each criterion, are consistent with the best practices set out through the following publications:

- *Traffic Analysis Toolbox Volume III: Guidelines for Applying Traffic Microsimulation Modelling Software*, United States Department of Transportation Federal Highway Administration, 2004;

- *Microsimulation Guidelines*, Wisconsin Department of Transportation, 2014;
- *Calibration of a Micro-Simulation Model in a Large Urban Network*, Oketch T. And Dilwaria, M., 2011

Table 3 - Model Calibration Criteria for Traffic Volumes

	AM Peak Hour		PM Peak Hour	
Criteria	**Target**	**Model**	**Target**	**Model**
Turns with GEH <= 5	> 75%	88%	> 75%	89%
Turns with GEH <= 10	> 85%	97%	> 85%	99%
GEH total	< 4	0.38	< 4	0.92
Links with GEH <= 5	> 75%	79%	> 75%	83%
Links with GEH <= 10	> 85%	96%	> 85%	100%
Links with GEH > 10	< 15%	4%	< 15%	0%
GEH total	< 4	2.07	< 4	1.22
Difference in Sum of All Link Flows	< 4%	2.2%	< 4%	1.0%
Links with Modelled Flows within 100 vph of Observed[1]	> 75%	70%	> 75%	86%
Links with Modelled Flows within 110 vph of Observed[1]	-	75%	-	100%
Links with Modelled Flows within 15% of Observed[2]	> 75%	100%	> 75%	100%

1 for links with flows under 700 vph
2 for links with flows between 700 vph and 2700 vph

As shown in **Table 3** and **Table 4**, the model outputs are well within the targets established for a good correlation. An exception to this is noted during the a.m. peak hour simulation for the "Links with Modelled Flows within 100 vph of Observed" criterion in which only 70% of the links met the threshold. Considering that only one link was found to be slightly over the 100 vph threshold, the it nonetheless is believed that the model is acceptably calibrated and that the simulation results would not significantly benefit from additional adjustment.

The calibration results for the individual turning movements and links are presented in **Appendix B**.

3.2.3 Traffic Volume Calibration Results (Regression Analysis)

In addition to the GEH calibration measures, the model calibration was also checked through linear regression analysis. A line of best fit was generated using the observed and modelled turning movement and link volumes, along with statistical measures of R-squared. R-squared measures how close the datapoints are to the fitted regression line. R-squared is always between 0 and 1 and represents a percentage; the higher the R-squared the better the model fits the data.

Figure 3 to **Figure 6** show the regression plots for turning movement volumes and for link volumes. The relationship between the observed data and modelled data at the turning movement and link levels are shown below, where M represents the modelled hourly volume and C represents the observed hourly volume.

AM Turning Movements: $M = 0.9895C + 2.9699$ $R^2 = 0.9954$

PM Turning Movements: $M = 0.9906C + 4.1461$ $R^2 = 0.9889$

AM Links: $M = 0.9893C + 12.463$ $R^2 = 0.9573$

PM Links: $M = 0.9602C + 29.274$ $R^2 = 0.9642$

The regression analyses generate R-squared values of 0.957 and above for the turning movements and links which signifies that the relationship explained by the linear regression is accurate for all vehicle volumes.

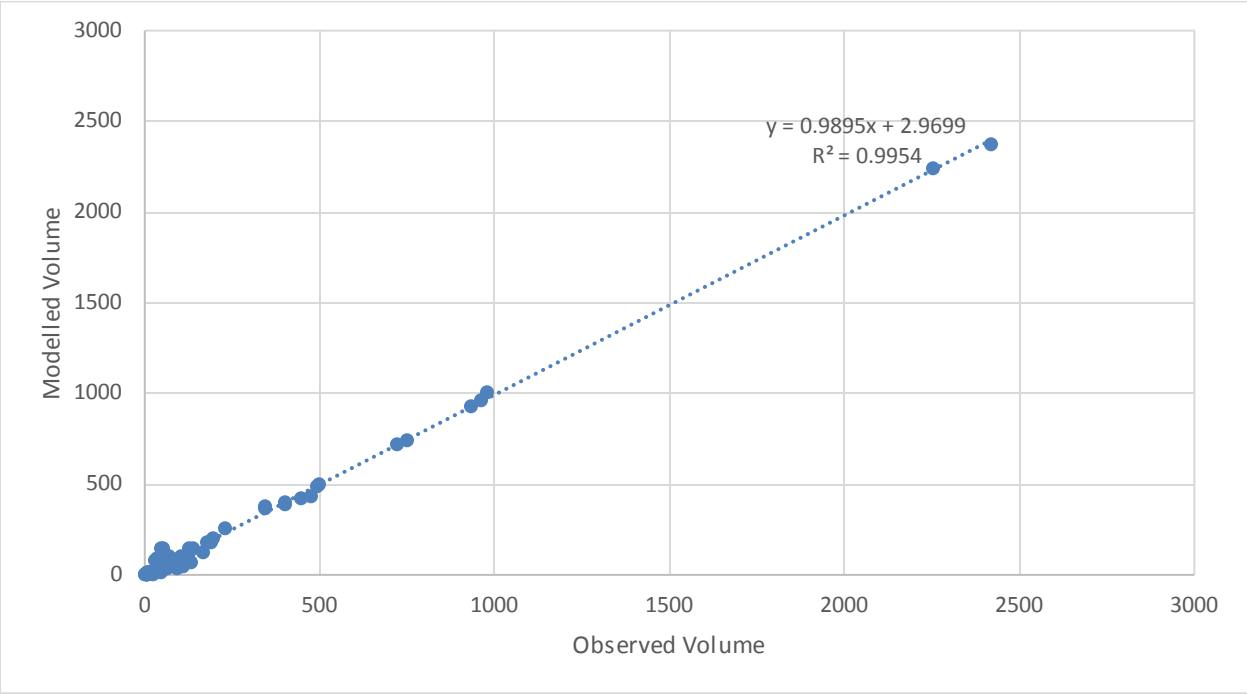


Figure 3 – AM Observed Flow vs. Modelled Flow at Network Turning Movements

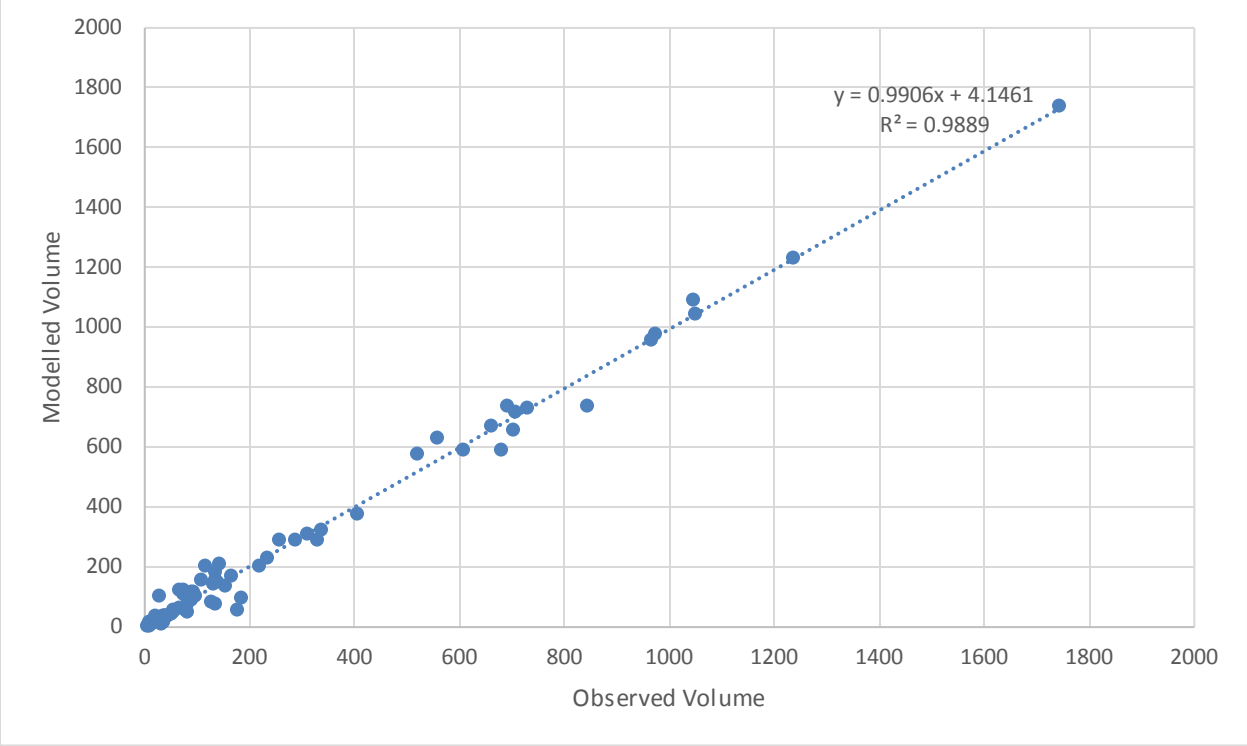


Figure 4 - PM Observed Flow vs. Modelled Flow at Network Turning Movements

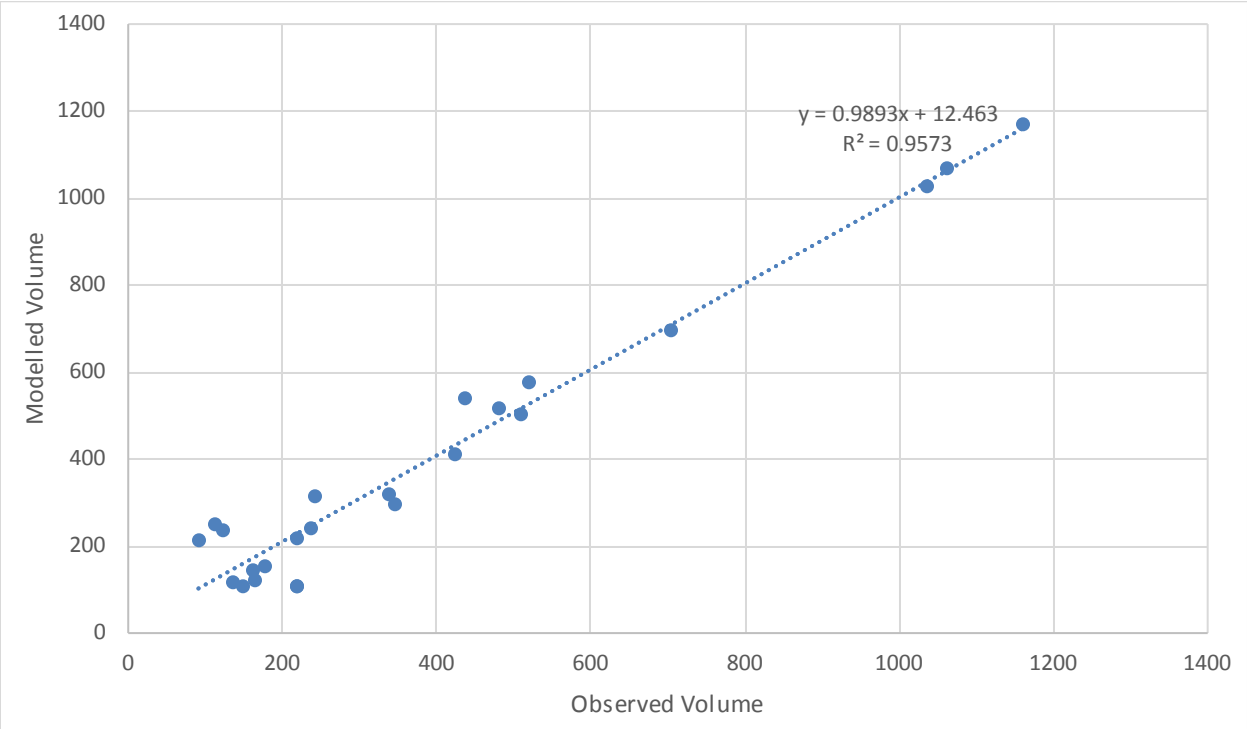


Figure 5 – AM Observed Flow vs. Modelled Flow at Network Links

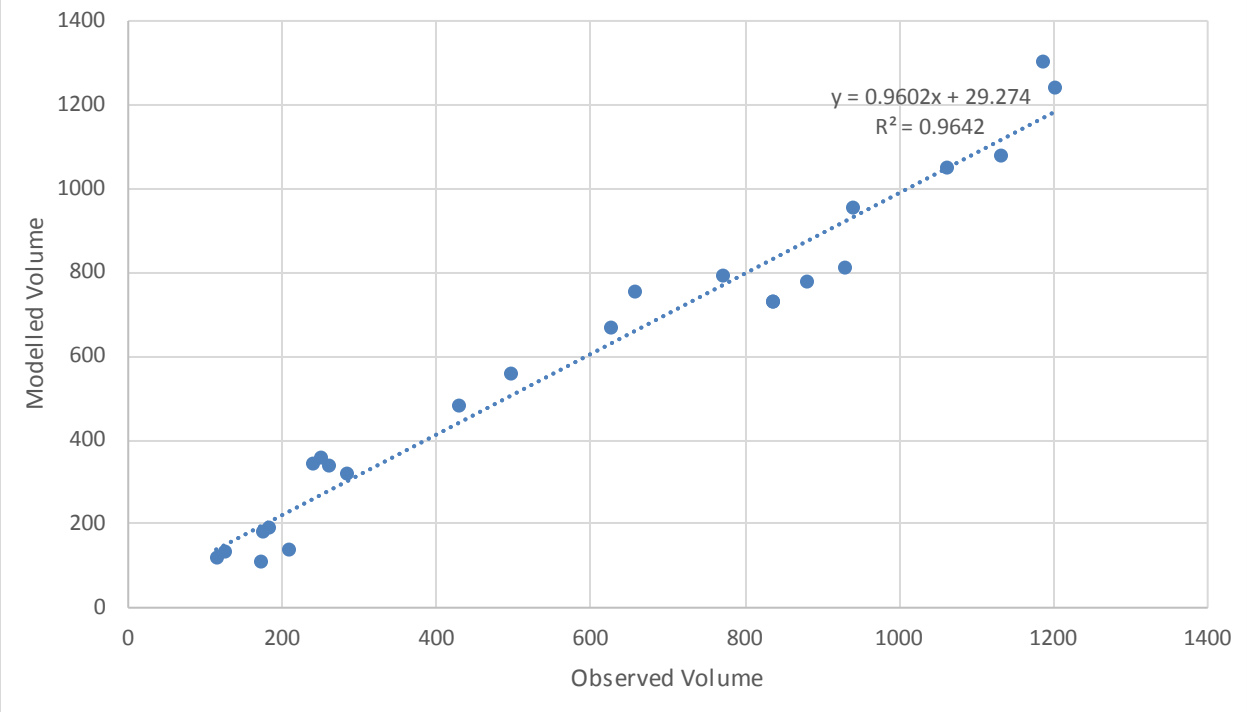


Figure 6 – PM Observed Flow vs. Modelled Flow at Network Links

3.2.4 Validation

Travel time runs were not conducted due to the short length of the Study Area network. In lieu of travel time validation, an additional validation step was conducted through a comparison of modelled speeds with typical 7:45-8:45 a.m. and 5:00-6:00 p.m. weekday traffic from Google Maps. Comparing the modelled and typical operations aids in identifying any deviations, for example, significant queueing and delay are simulated along an approach but there are no issues along the approach under typical conditions. In this case, the model would need to be reviewed to determine whether the deviation is caused by modelling errors, counts that are unrepresentative of typical conditions, balancing, or due to the historical data incorporated by Google Maps.

The average speeds relative to the posted speeds in VISSIM are shown on the links and connectors that comprise the Study Area network. The thresholds are as follows:

1. Green – 75% of posted speed or faster;
2. Orange – 15% to 75% of posted speed; and
3. Red – less than 15% of posted speed.

Figure 7 to **Figure 10** illustrate the typical a.m. and p.m. peak hour operations, respectively, and the modelled relative speeds. The modelled and typical conditions of the Study Area network largely resemble one another.

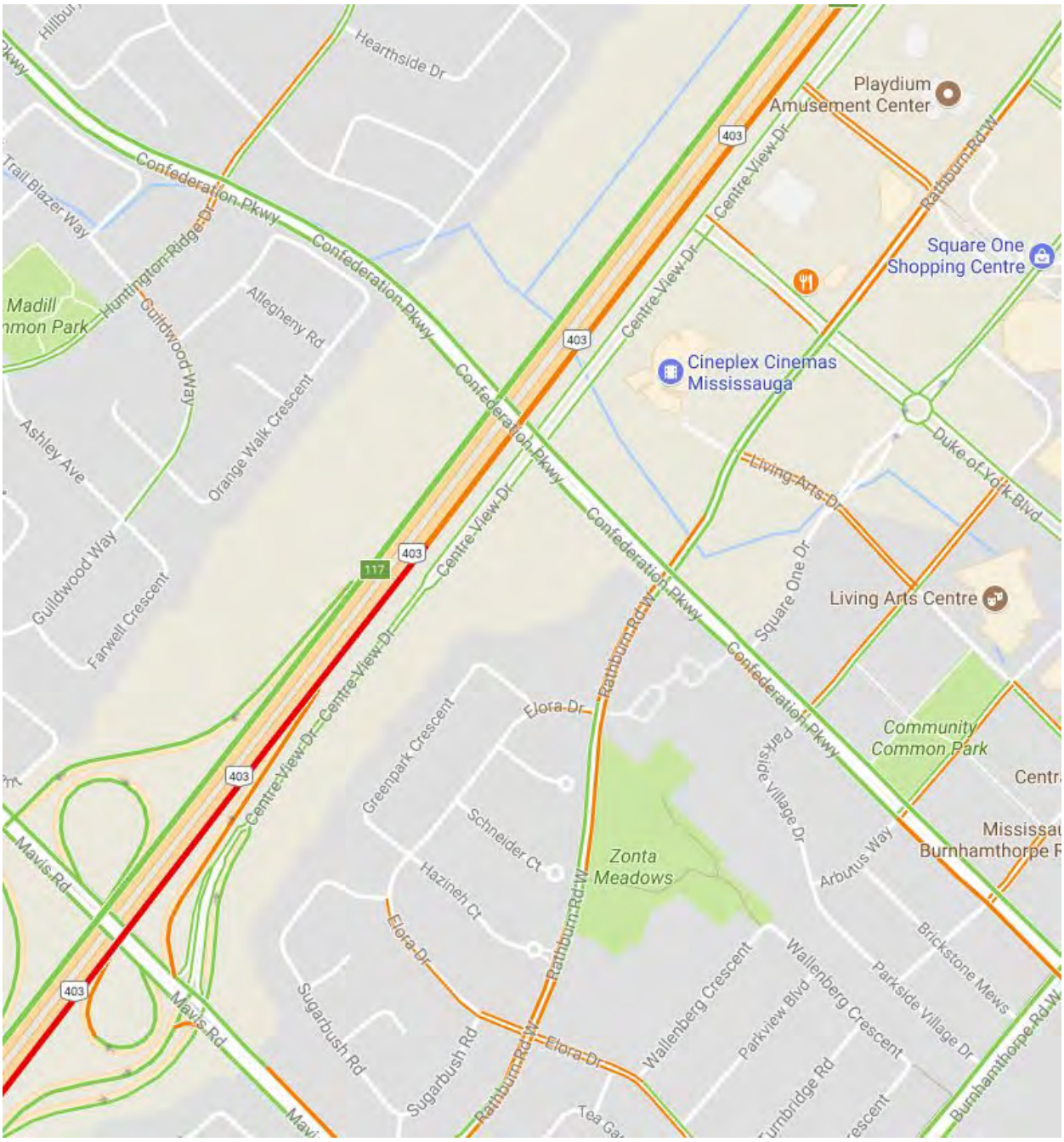


Figure 7 - Typical Traffic Conditions AM Peak Hour

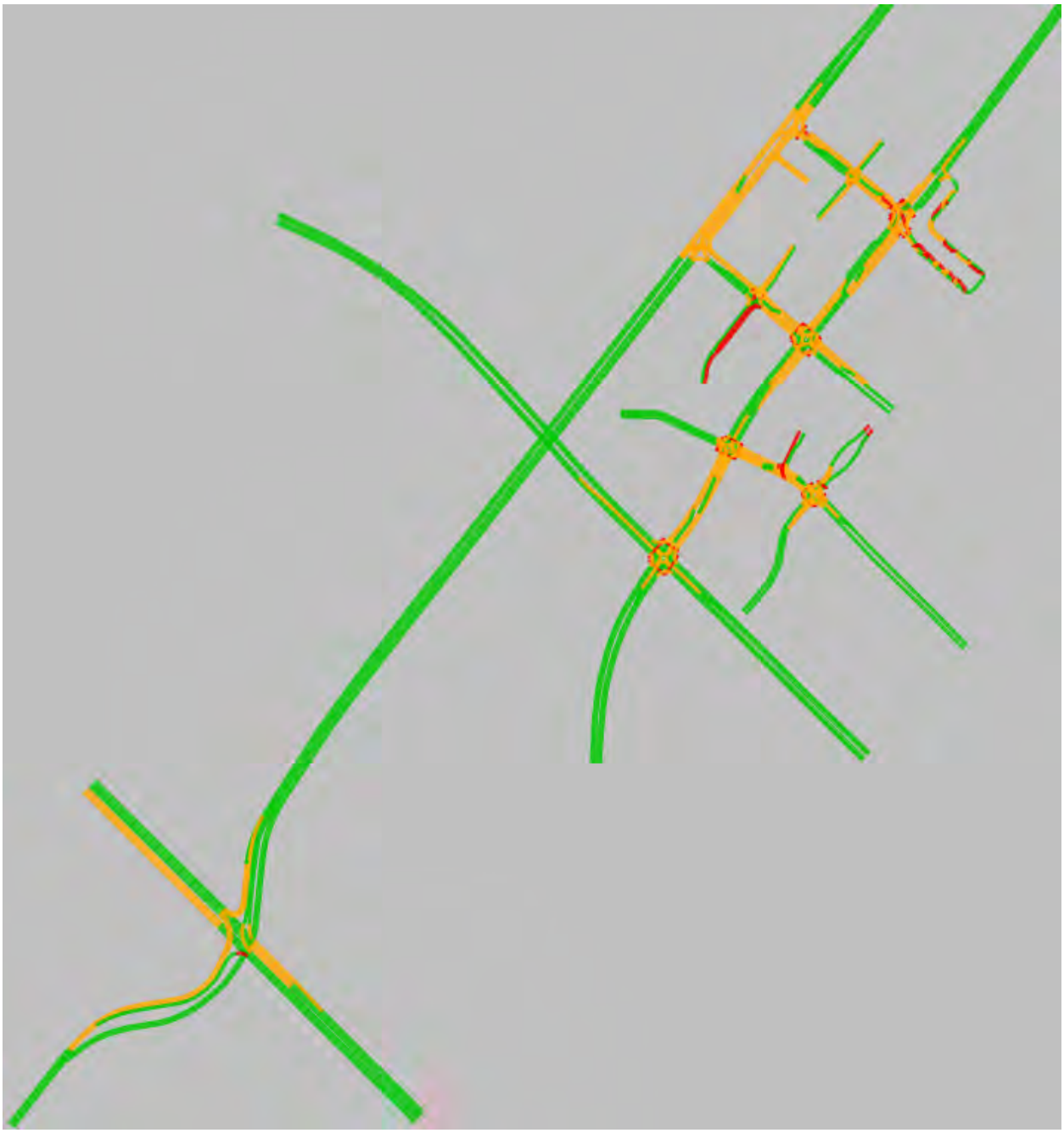


Figure 8 - Modelled Conditions AM Peak Hour

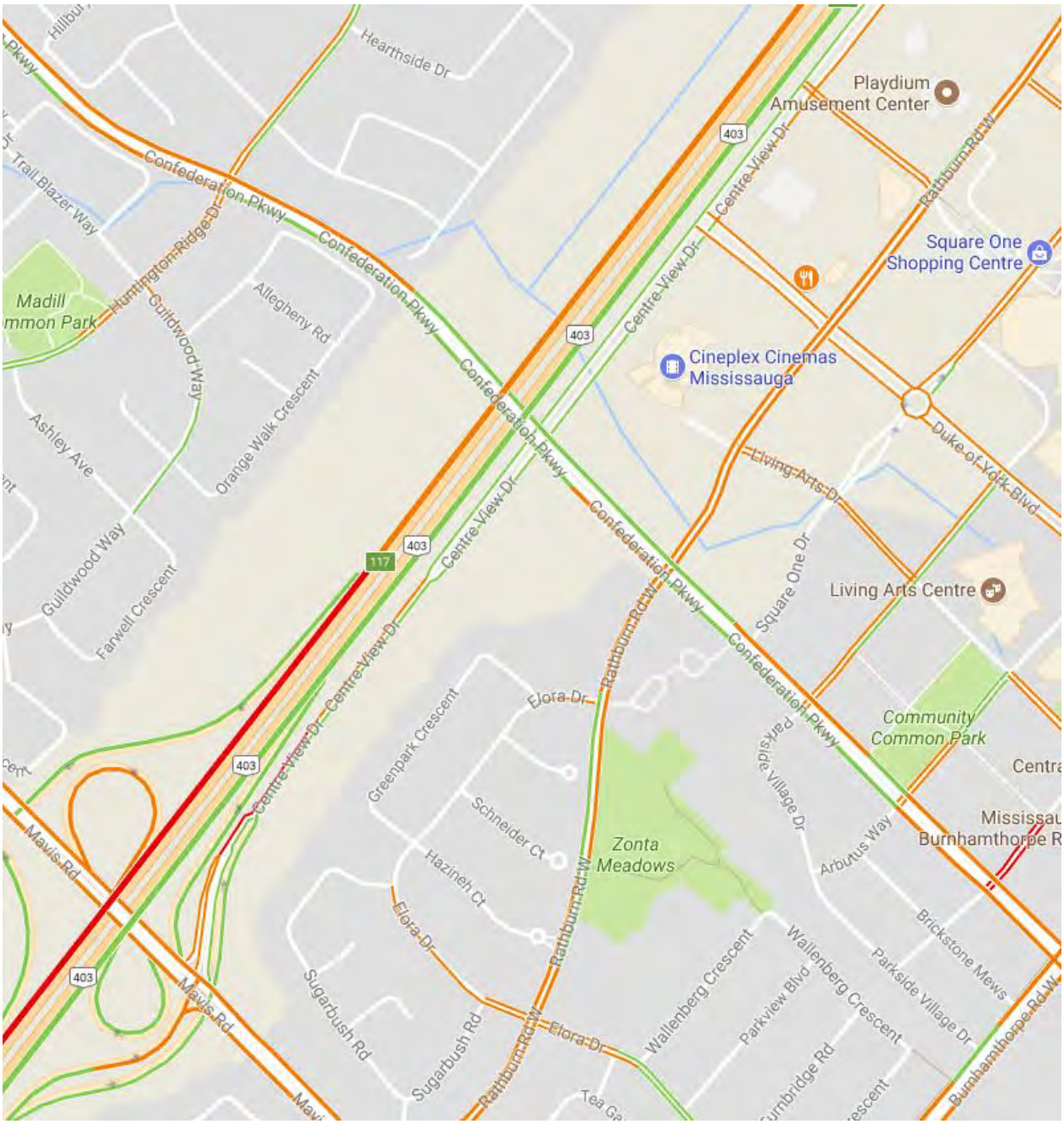


Figure 9 - Typical Traffic Conditions PM Peak Hour

Figure 10 - Modelled Conditions PM Peak Hour

3.2.5 Operational Analysis Calibration

An operational analysis was conducted for the Study Area network using TrafficWare's Synchro 9.1 software. The intersection results were extracted from both Synchro and VISSIM to identify any significant deviations. If any significant deviations are identified during this process, the cause must be investigated to determine whether the margin is related to coding errors or simply due to differences in the method of computation for the two software.

Table 4 - AM Operational Results Comparison

Intersection	VISSIM Results		Synchro Results	
	LOS	Delay	LOS	Delay
Mavis Road / Centre View Drive	C	27	C	26
Centre View Drive / Duke of York Boulevard	B	14	B	19
Centre View Drive / Station Gate Road	A	6	B	11
Rathburn Road / Station Gate Road	C	19	B	17
Rathburn Road / Duke of York Boulevard	C	22	C	29
Rathburn Road / Living Arts Drive	A	10	B	14
Rathburn Road / Confederation Parkway	D	35	E	73
Living Arts Drive / Square One Drive	B	12	B	14

As shown in **Table 5**, the analyses from VISSIM and Synchro during the a.m. peak hour largely output similar operational results, with the exception of the intersection of Rathburn Road/Confederation Parkway. The overall intersection delay for Rathburn Road/Confederation Parkway is exacerbated in the Synchro analysis due to the southbound left movement operating close to, or at capacity with a Level of Service (LOS) F and more than 120s of delay.

Table 5 - PM Operational Results Comparison

Intersection	VISSIM Results		Synchro Results	
	LOS	Delay	LOS	Delay
Mavis Road / Centre View Drive	C	29	E	77
Centre View Drive / Duke of York Boulevard	B	15	B	14
Centre View Drive / Station Gate Road	A	5	A	9
Rathburn Road / Station Gate Road	D	34	C	31
Rathburn Road / Duke of York Boulevard	D	36	D	50
Rathburn Road / Living Arts Drive	C	33	B	12
Rathburn Road / Confederation Parkway	D	49	E	79
Living Arts Drive / Square One Drive	B	12	B	13

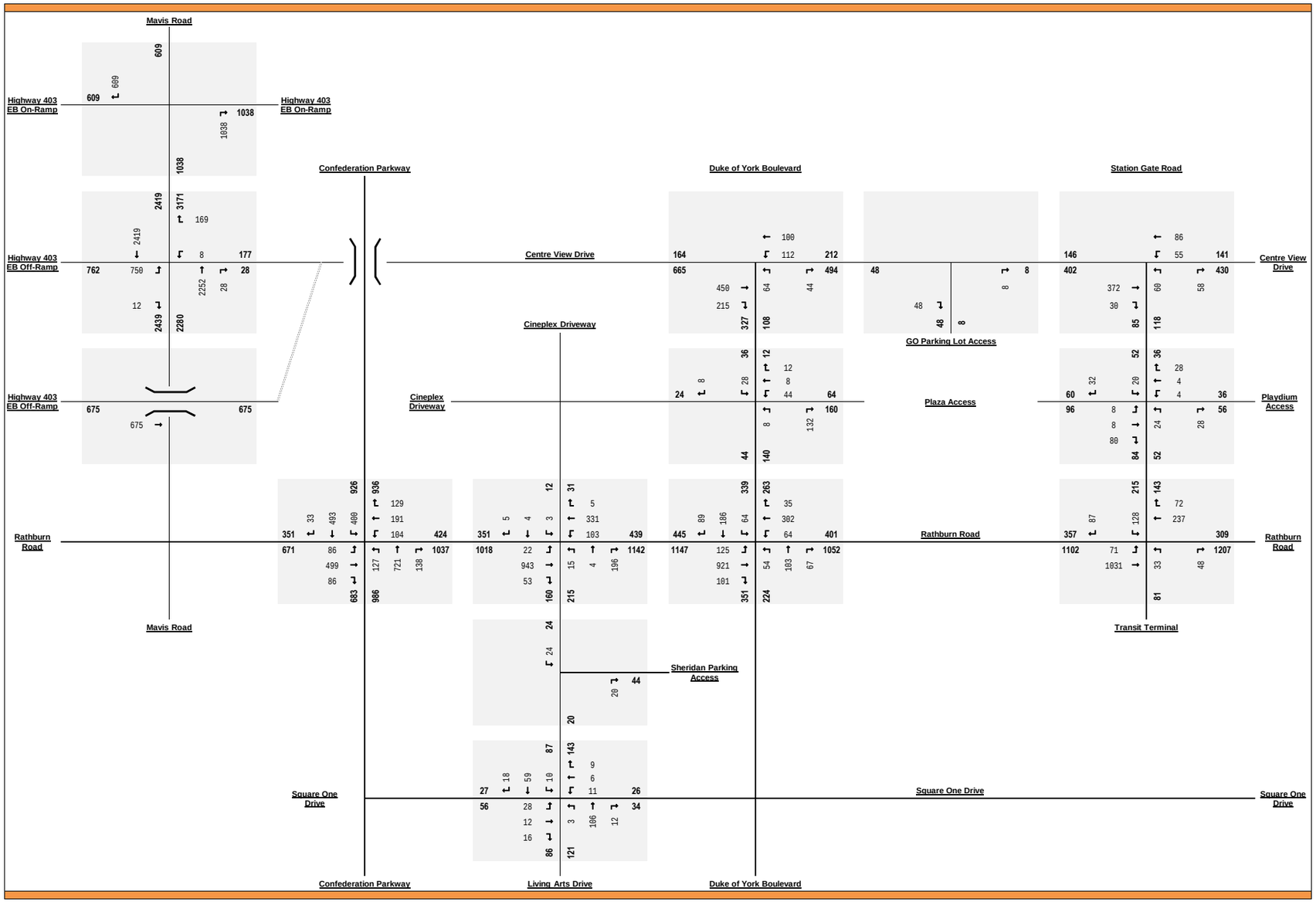
Similar to the variation in results during the a.m. peak hour at the intersection of Rathburn Road/Confederation Parkway, **Table 6** shows that some intersections during the p.m. peak hour operate differently between VISSIM and Synchro due to saturated movements in the Synchro analysis. The operational results at the intersection of Mavis Road/Centre View Drive, for

example, are exacerbated by the westbound right turning movement operating closet to or at capacity in Synchro. The westbound right movement operates at LOS F with more than 120s delay, significantly increasing the overall intersection delay. Delays along movements which are at or approaching capacity may operate under better conditions in the VISSIM analysis due to more aggressive behaviour and lower gap acceptance which better represent the existing conditions.

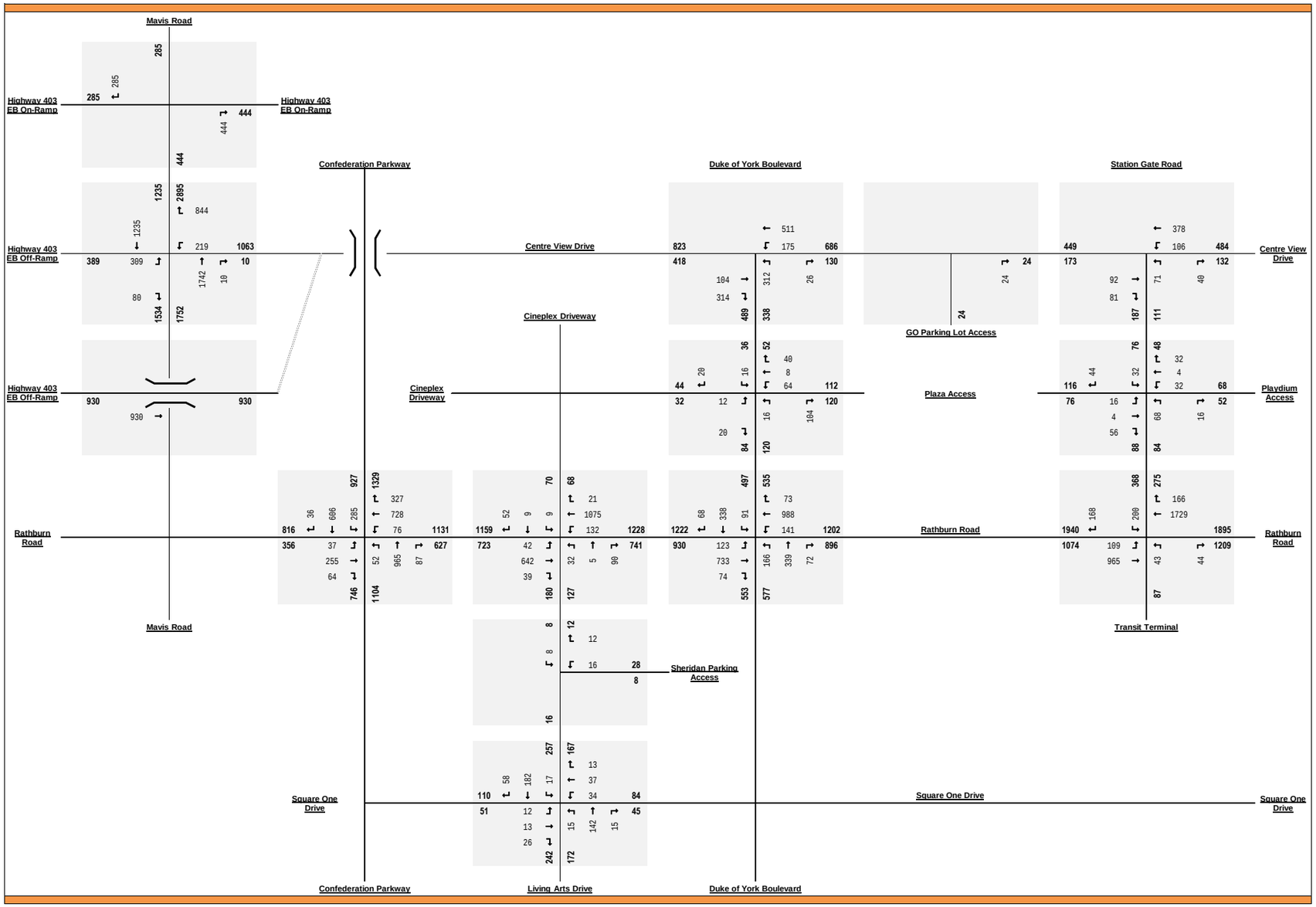
Appendix A TRAFFIC VOLUMES

A.1 UNBALANCED VOLUMES

Unbalanced AM Peak Hour

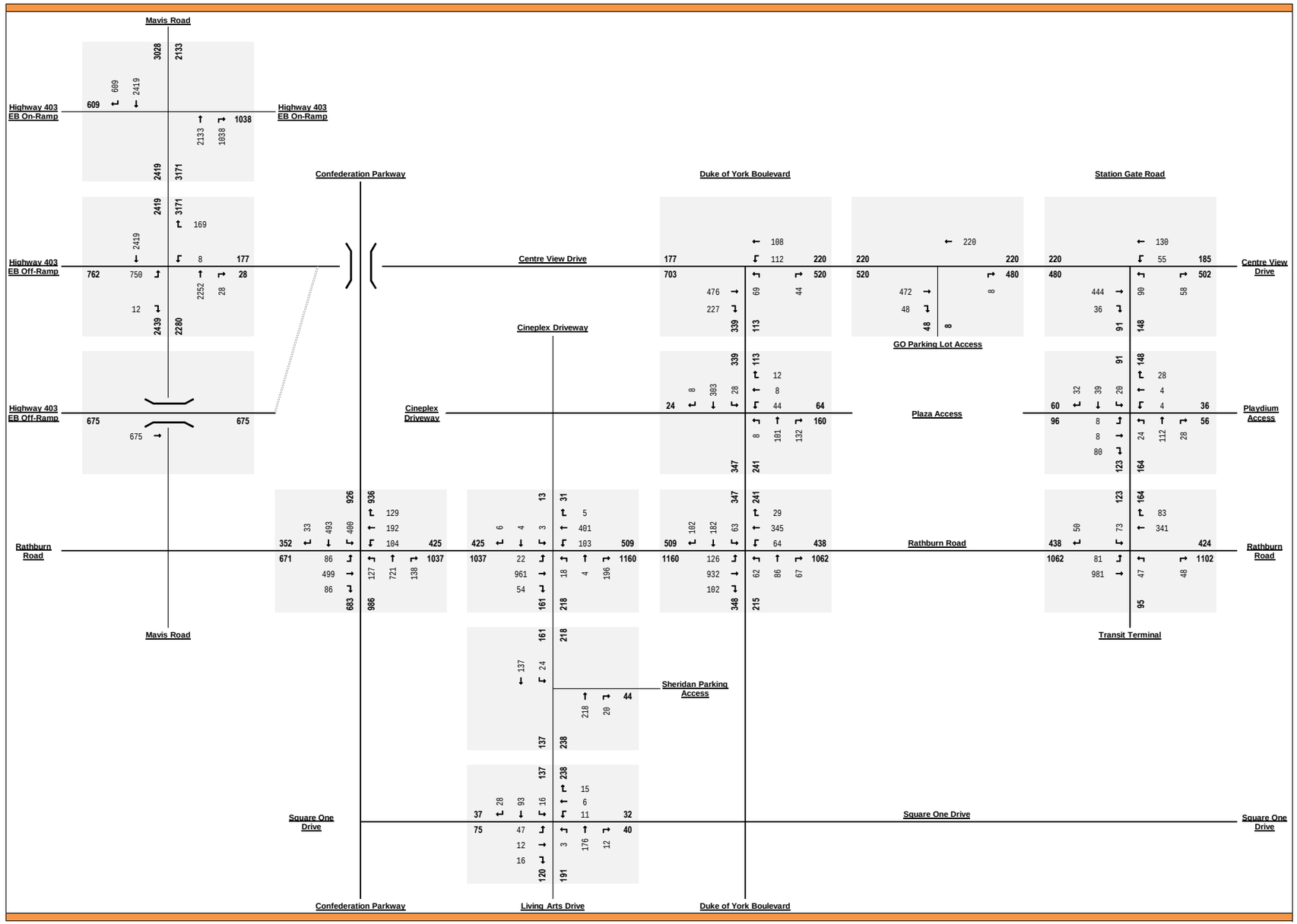


Unbalanced PM Peak Hour

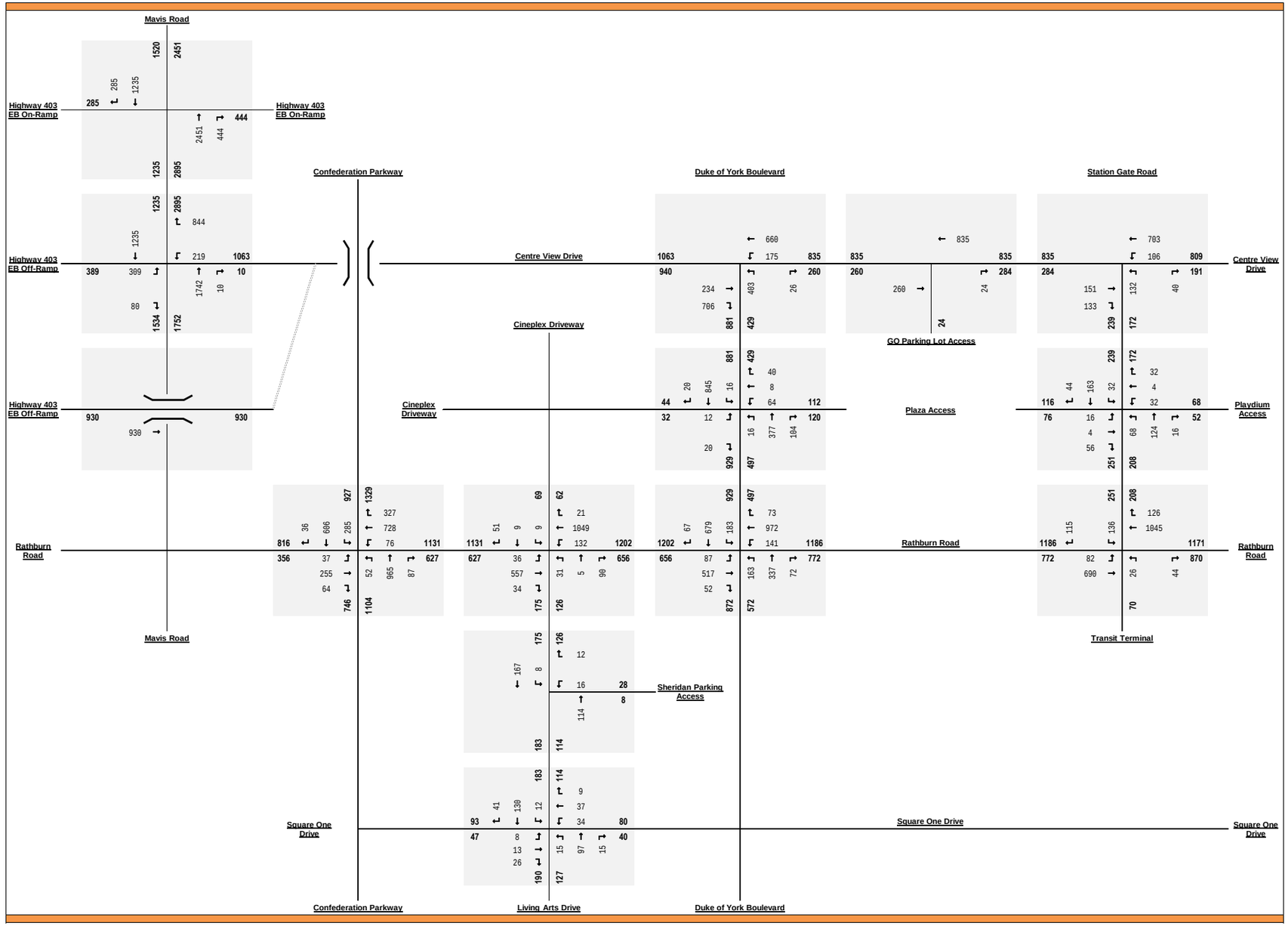


A.2 BALANCED VOLUMES

Balanced AM Peak Hour



Balanced PM Peak Hour



Appendix B CALIBRATION RESULTS

B.1 MODEL CALIBRATION BY TURNING MOVEMENT VOLUME

Mavis Road / Centre View Drive -- Signalized Intersection								TMC GEH Summary			Total Intersection GEH Summary		
Movement	AM							AM GEH			AM GEH		
	Obs	Modelled	GEH	Delay	LOS	Avg Q	Max Q	1-5	5-10	>10	1-5	5-10	>10
EBL	750	745	0.2	33.3	C	22.8	102.5	1	0	0			
EBT													
EBR	12	12	0.0	11.5	B	0.2	13.8	1	0	0			
WBL	8	8	0.0	25.1	C	0.3	9.9	1	0	0			
WBT													
WBR	169	131	3.1	5.0	A	0.0	0.8	1	0	0			
NBL													
NBT	2252	2238	0.3	24.2	C	36.2	233.3	1	0	0			
NBR	28	26	0.4	26.0	C	36.2	233.3	1	0	0			
SBL													
SBT	2419	2377	0.9	28.0	C	55.1	231.4	1	0	0			
SBR													
ALL	5638	5537	1.4	26.62	C	-	-				1	0	0

Centre View Drive / Duke of York Boulevard -- Signalized Intersection								TMC GEH Summary			Total Intersection GEH Summary		
Movement	AM							AM GEH			AM GEH		
	Obs	Modelled	GEH	Delay	LOS	Avg Q	Max Q	1-5	5-10	>10	1-5	5-10	>10
EBL													
EBT	476	433	2.0	22.2	C	9.0	56.4	1	0	0			
EBR	227	263	2.3	2.1	A	4.3	47.2	1	0	0			
WBL	112	58	5.9	28.1	C	1.9	23.8	0	1	0			
WBT	108	49	6.7	21.0	C	1.5	25.2	0	1	0			
WBR													
NBL	69	107	4.1	11.6	B	2.3	49.5	1	0	0			
NBT													
NBR	44	144	10.3	7.3	A	0.7	38.4	0	0	1			
SBL													
SBT													
SBR													
ALL	1036	1054	0.6	14.35	B	-	-				1	0	0

Centre View Drive / Station Gate Road -- Signalized Intersection								TMC GEH Summary			Total Intersection GEH Summary		
Movement	AM							AM GEH			AM GEH		
	Obs	Modelled	GEH	Delay	LOS	Avg Q	Max Q	1-5	5-10	>10	1-5	5-10	>10
EBL													
EBT	444	422	1.1	5.2	A	1.6	42.0	1	0	0			
EBR	36	94	7.2	0.2	A	0.1	33.5	0	1	0			
WBL	55	119	6.9	8.7	A	0.6	22.6	0	1	0			
WBT	130	70	6.0	3.8	A	0.2	12.0	0	1	0			
WBR													
NBL	90	38	6.5	15.8	B	0.9	26.4	0	1	0			
NBT													
NBR	58	70	1.5	5.9	A	0.5	23.0	1	0	0			
SBL													
SBT													
SBR													
ALL	813	813	0.0	5.56	A	-	-				1	0	0

Rathburn Road / Station Gate Road -- Unsignalized Intersection								TMC GEH Summary			Total Intersection GEH Summary		
Movement	AM							AM GEH			AM GEH		
	Obs	Modelled	GEH	Delay	LOS	Avg Q	Max Q	1-5	5-10	>10	1-5	5-10	>10
EBL	81	60	2.5	22.8	C	1.8	21.6	1	0	0			
EBT	981	1009	0.9	17.3	C	17.7	76.3	1	0	0			
EBR													
WBL													
WBT	341	371	1.6	23.0	C	8.7	50.3	1	0	0			
WBR	83	63	2.3	9.4	A	7.9	51.5	1	0	0			
NBL	47	21	4.5	66.1	F	3.8	26.1	1	0	0			
NBT													
NBR	48	37	1.7	14.2	B	1.0	18.1	1	0	0			
SBL	73	86	1.5	36.2	E	4.2	44.9	1	0	0			
SBT													
SBR	50	151	10.1	7.7	A	1.5	30.7	0	0	1			
ALL	1704	1798	2.2	18.98	C	-	-				1	0	0

Rathburn Road / Duke of York Boulevard -- Signalized Intersection								TMC GEH Summary			Total Intersection GEH Summary		
Movement	AM							AM GEH			AM GEH		
	Obs	Modelled	GEH	Delay	LOS	Avg Q	Max Q	1-5	5-10	>10	1-5	5-10	>10
EBL	126	151	2.1	24.4	C	5.6	48.6	1	0	0			
EBT	932	935	0.1	26.5	C	25.7	143.7	1	0	0			
EBR	102	85	1.8	12.1	B	26.2	144.7	1	0	0			
WBL	64	86	2.5	24.0	C	2.9	31.2	1	0	0			
WBT	345	375	1.6	9.8	A	5.4	37.8	1	0	0			
WBR	29	79	6.8	6.4	A	5.1	41.8	0	1	0			
NBL	62	51	1.5	24.5	C	1.7	22.9	1	0	0			
NBT	86	84	0.2	29.7	C	5.9	50.9	1	0	0			
NBR	67	97	3.3	17.4	B	5.5	52.8	1	0	0			
SBL	63	41	3.1	29.5	C	2.8	31.7	1	0	0			
SBT	182	179	0.2	30.0	C	8.6	63.2	1	0	0			
SBR	102	79	2.4	6.5	A	8.9	63.7	1	0	0			
ALL	2160	2242	1.7	21.53	C	-	-				1	0	0

Rathburn Road / Living Arts Drive -- Signalized Intersection								TMC GEH Summary			Total Intersection GEH Summary		
Movement	AM							AM GEH			AM GEH		
	Obs	Modelled	GEH	Delay	LOS	Avg Q	Max Q	1-5	5-10	>10	1-5	5-10	>10
EBL	22	8	3.6	12.2	B	0.1	7.7	1	0	0			
EBT	961	965	0.1	7.3	A	7.5	66.0	1	0	0			
EBR	54	54	0.0	9.9	A	8.1	67.4	1	0	0			
WBL	103	89	1.4	12.4	B	1.2	29.8	1	0	0			
WBT	401	395	0.3	11.4	B	5.2	51.8	1	0	0			
WBR	5	19	4.0	8.6	A	4.9	52.9	1	0	0			
NBL	18	18	0.0	54.7	D	1.5	20.1	1	0	0			
NBT	4	0	2.8	47.2	D	2.7	40.2	1	0	0			
NBR	196	202	0.4	9.7	A	3.7	40.9	1	0	0			
SBL	3	10	2.7	46.5	D	0.7	12.4	1	0	0			
SBT	4	0	2.8	0.0	A	0.4	12.4	1	0	0			
SBR	6	2	2.0	3.9	A	0.4	13.2	1	0	0			
ALL	1777	1762	0.4	9.60	A	-	-				1	0	0

Rathburn Road / Confederation Parkway -- Signalized Intersection								TMC GEH Summary			Total Intersection GEH Summary		
Movement	AM							AM GEH			AM GEH		
	Obs	Modelled	GEH	Delay	LOS	Avg Q	Max Q	1-5	5-10	>10	1-5	5-10	>10
EBL	86	84	0.2	33.1	C	4.1	38.6	1	0	0			
EBT	499	497	0.1	30.9	C	18.1	88.0	1	0	0			
EBR	86	84	0.2	24.5	C	18.9	90.0	1	0	0			
WBL	104	104	0.0	3.5	A	0.2	25.3	1	0	0			
WBT	192	183	0.7	25.5	C	9.2	56.9	1	0	0			
WBR	129	124	0.4	19.6	B	10.3	61.3	1	0	0			
NBL	127	127	0.0	21.7	C	3.8	36.1	1	0	0			
NBT	721	724	0.1	40.9	D	34.7	132.8	1	0	0			
NBR	138	143	0.4	39.4	D	36.2	135.3	1	0	0			
SBL	400	400	0.0	51.2	D	36.8	157.8	1	0	0			
SBT	493	490	0.1	37.3	D	18.0	82.7	1	0	0			
SBR	33	33	0.0	31.6	C	18.8	83.9	1	0	0			
ALL	3008	2993	0.3	35.23	D	-	-				1	0	0

Living Arts Drive / Square One Drive -- Signalized Intersection								TMC GEH Summary			Total Intersection GEH Summary		
Movement	AM							AM GEH			AM GEH		
	Obs	Modelled	GEH	Delay	LOS	Avg Q	Max Q	1-5	5-10	>10	1-5	5-10	>10
EBL	47	48	0.1	21.4	C	1.5	19.7	1	0	0			
EBT	12	12	0.0	19.8	C	0.4	12.4	1	0	0			
EBR	16	16	0.0	4.6	A	0.5	13.8	1	0	0			
WBL	11	11	0.0	18.4	C	0.3	10.0	1	0	0			
WBT	6	6	0.0	21.4	C	0.2	11.6	1	0	0			
WBR	15	15	0.0	5.6	A	0.2	12.0	1	0	0			
NBL	3	3	0.0	12.6	B	0.0	6.1	1	0	0			
NBT	176	179	0.2	11.8	B	3.1	40.5	1	0	0			
NBR	12	12	0.0	4.9	A	2.6	42.1	1	0	0			
SBL	16	14	0.5	14.6	B	0.2	11.8	1	0	0			
SBT	93	85	0.8	9.5	A	1.3	32.1	1	0	0			
SBR	28	20	1.6	4.7	A	0.9	33.2	1	0	0			
ALL	435	421	0.7	12.05	B	-	-				1	0	0

Mavis Road / Centre View Drive -- Signalized Intersection								TMC GEH Summary			Total Intersection GEH Summary		
Movement	PM							PM GEH			PM GEH		
	Obs	Modelled	GEH	Delay	LOS	Avg Q	Max Q	1-5	5-10	>10	1-5	5-10	>10
EBL	309	308	0.1	28.61	C	8.3	45.9	1	0	0			
EBT													
EBR	80	80	0.0	5.57	A	0.8	19.9	1	0	0			
WBL	219	203	1.1	36.19	D	11.5	88.4	1	0	0			
WBT													
WBR	844	740	3.7	54.89	D	250.9	479.0	1	0	0			
NBL													
NBT	1742	1738	0.1	23.95	C	21.8	137.2	1	0	0			
NBR	10	11	0.3	25.17	C	21.8	137.2	1	0	0			
SBL													
SBT	1235	1233	0.1	22.83	C	17.2	90.3	1	0	0			
SBR													
ALL	**4439**	**4313**	**1.9**	**29.51**	**C**	-	-				1	0	0

Centre View Drive / Duke of York Boulevard -- Signalized Intersection								TMC GEH Summary			Total Intersection GEH Summary		
Movement	PM							PM GEH			PM GEH		
	Obs	Modelled	GEH	Delay	LOS	Avg Q	Max Q	1-5	5-10	>10	1-5	5-10	>10
EBL													
EBT	234	233	0.1	18.35	B	12.8	97.4	1	0	0			
EBR	706	719	0.5	12.09	B	9.0	88.2	1	0	0			
WBL	175	58	10.8	19.48	B	1.2	22.9	0	0	1			
WBT	660	673	0.5	16.47	B	9.6	68.4	1	0	0			
WBR													
NBL	403	375	1.4	16.92	B	9.1	77.9	1	0	0			
NBT													
NBR	26	105	9.8	15.03	B	4.2	66.8	0	1	0			
SBL													
SBT													
SBR													
ALL	**2204**	**2163**	**0.9**	**15.31**	**B**	-	-				1	0	0

Centre View Drive / Station Gate Road -- Signalized Intersection								TMC GEH Summary			Total Intersection GEH Summary		
Movement	PM							PM GEH			PM GEH		
	Obs	Modelled	GEH	Delay	LOS	Avg Q	Max Q	1-5	5-10	>10	1-5	5-10	>10
EBL													
EBT	151	134	1.4	4.34	A	0.5	28.6	1	0	0			
EBR	133	186	4.2	1.07	A	0.2	33.1	1	0	0			
WBL	106	155	4.3	6.98	A	0.8	26.7	1	0	0			
WBT	703	656	1.8	4.73	A	1.9	30.0	1	0	0			
WBR													
NBL	132	74	5.7	15.96	B	1.7	35.3	0	1	0			
NBT													
NBR	40	37	0.5	6.37	A	0.3	16.7	1	0	0			
SBL													
SBT													
SBR													
ALL	**1265**	**1242**	**0.6**	**5.14**	**A**	-	-				1	0	0

Rathburn Road / Station Gate Road -- Unsignalized Intersection								TMC GEH Summary			Total Intersection GEH Summary		
Movement	PM							PM GEH			PM GEH		
	Obs	Modelled	GEH	Delay	LOS	Avg Q	Max Q	1-5	5-10	>10	1-5	5-10	>10
EBL	82	53	3.5	74.68	F	5.2	37.1	1	0	0			
EBT	690	738	1.8	30.88	D	21.9	97.2	1	0	0			
EBR													
WBL													
WBT	1045	1089	1.3	36.76	E	51.9	232.5	1	0	0			
WBR	126	86	3.9	26.46	D	52.5	233.8	1	0	0			
NBL	26	21	1.0	80.94	F	4.7	27.5	1	0	0			
NBT													
NBR	44	34	1.6	12.78	B	0.7	26.8	1	0	0			
SBL	136	152	1.3	41.04	E	12.6	101.9	1	0	0			
SBT													
SBR	115	205	7.1	17.54	C	6.2	80.2	0	1	0			
ALL	**2264**	**2378**	**2.4**	**34.07**	**D**	-	-				1	0	0

Rathburn Road / Duke of York Boulevard -- Signalized Intersection								TMC GEH Summary			Total Intersection GEH Summary		
Movement	PM							PM GEH			PM GEH		
	Obs	Modelled	GEH	Delay	LOS	Avg Q	Max Q	1-5	5-10	>10	1-5	5-10	>10
EBL	87	119	3.2	206.25	F	49.6	177.8	1	0	0			
EBT	517	576	2.5	32.08	C	18.7	95.9	1	0	0			
EBR	52	56	0.5	15.92	B	19.2	97.0	1	0	0			
WBL	141	209	5.1	25.47	C	7.1	57.2	0	1	0			
WBT	972	979	0.2	25.87	C	32.9	218.7	1	0	0			
WBR	73	112	4.1	18.37	B	33.3	222.7	1	0	0			
NBL	163	168	0.4	44.13	D	10.2	66.1	1	0	0			
NBT	337	327	0.5	31.58	C	14.2	67.8	1	0	0			
NBR	72	124	5.3	25.23	C	14.8	69.7	0	1	0			
SBL	183	95	7.5	28.44	C	7.1	84.7	0	1	0			
SBT	679	590	3.5	37.31	D	60.0	107.5	1	0	0			
SBR	67	126	6.0	25.19	C	60.4	107.9	0	1	0			
ALL	**3343**	**3481**	**2.4**	**36.02**	**D**	-	-				1	0	0

Rathburn Road / Living Arts Drive -- Signalized Intersection							
Movement	PM						
	Obs	Modelled	GEH	Delay	LOS	Avg Q	Max Q
EBL	36	18	3.5	51.42	D	0.9	16.2
EBT	557	630	3.0	24.01	C	15.3	83.7
EBR	34	18	3.1	19.82	B	16.0	85.1
WBL	132	155	1.9	19.49	B	3.1	60.4
WBT	1049	1044	0.2	42.03	D	63.5	207.7
WBR	21	40	3.4	47.04	D	63.9	208.8
NBL	31	12	4.1	36.94	D	0.6	12.4
NBT	5	5	0.0	33.61	C	1.7	37.4
NBR	90	117	2.7	9.93	A	2.1	38.2
SBL	9	19	2.7	46.94	D	1.8	22.1
SBT	9	6	1.1	34.64	C	1.3	22.1
SBR	51	44	1.0	14.79	B	1.6	22.9
ALL	**2024**	**2108**	**1.8**	**32.60**	**C**	-	-

TMC GEH Summary			Total Intersection GEH Summary		
PM GEH			PM GEH		
1-5	5-10	>10	1-5	5-10	>10
1	0	0			
1	0	0			
1	0	0			
1	0	0			
1	0	0			
1	0	0			
1	0	0			
1	0	0			
1	0	0			
1	0	0			
1	0	0			
1	0	0			
1	0	0			
			1	0	0

Rathburn Road / Confederation Parkway -- Signalized Intersection							
Movement	PM						
	Obs	Modelled	GEH	Delay	LOS	Avg Q	Max Q
EBL	37	37	0.0	31.85	C	1.4	20.1
EBT	255	290	2.1	26.84	C	9.6	59.2
EBR	64	64	0.0	18.76	B	9.7	61.2
WBL	76	57	2.3	16.33	B	0.0	4.2
WBT	728	730	0.1	65.06	E	93.1	185.5
WBR	327	291	2.0	79.38	E	97.0	190.0
NBL	52	51	0.1	23.95	C	1.6	20.7
NBT	965	959	0.2	41.67	D	44.2	166.2
NBR	87	91	0.4	39.12	D	45.8	168.6
SBL	285	288	0.2	88.44	F	51.1	171.9
SBT	606	594	0.5	32.81	C	19.2	86.8
SBR	36	36	0.0	28.27	C	20.0	88.0
ALL	**3518**	**3488**	**0.5**	**49.43**	**D**	-	-

TMC GEH Summary			Total Intersection GEH Summary		
PM GEH			PM GEH		
1-5	5-10	>10	1-5	5-10	>10
1	0	0			
1	0	0			
1	0	0			
1	0	0			
1	0	0			
1	0	0			
1	0	0			
1	0	0			
1	0	0			
1	0	0			
1	0	0			
1	0	0			
1	0	0			
			1	0	0

Living Arts Drive / Square One Drive -- Signalized Intersection							
Movement	PM						
	Obs	Modelled	GEH	Delay	LOS	Avg Q	Max Q
EBL	8	10	0.7	19.55	C	0.2	9.8
EBT	13	13	0.0	20.51	C	0.5	18.2
EBR	26	26	0.0	5.59	A	0.6	19.6
WBL	34	34	0.0	21.92	C	0.9	18.8
WBT	37	37	0.0	21.29	C	1.1	21.2
WBR	9	10	0.3	8.55	A	1.0	21.6
NBL	15	15	0.0	13.34	B	0.2	9.7
NBT	97	101	0.4	11.70	B	2.0	33.0
NBR	15	15	0.0	4.28	A	1.4	34.6
SBL	12	10	0.6	10.67	B	0.1	9.6
SBT	130	143	1.1	9.09	A	2.3	48.8
SBR	41	35	1.0	4.99	A	2.0	49.8
ALL	**437**	**449**	**0.6**	**11.70**	**B**	-	-

TMC GEH Summary			Total Intersection GEH Summary		
PM GEH			PM GEH		
1-5	5-10	>10	1-5	5-10	>10
1	0	0			
1	0	0			
1	0	0			
1	0	0			
1	0	0			
1	0	0			
1	0	0			
1	0	0			
1	0	0			
1	0	0			
1	0	0			
1	0	0			
1	0	0			
			1	0	0

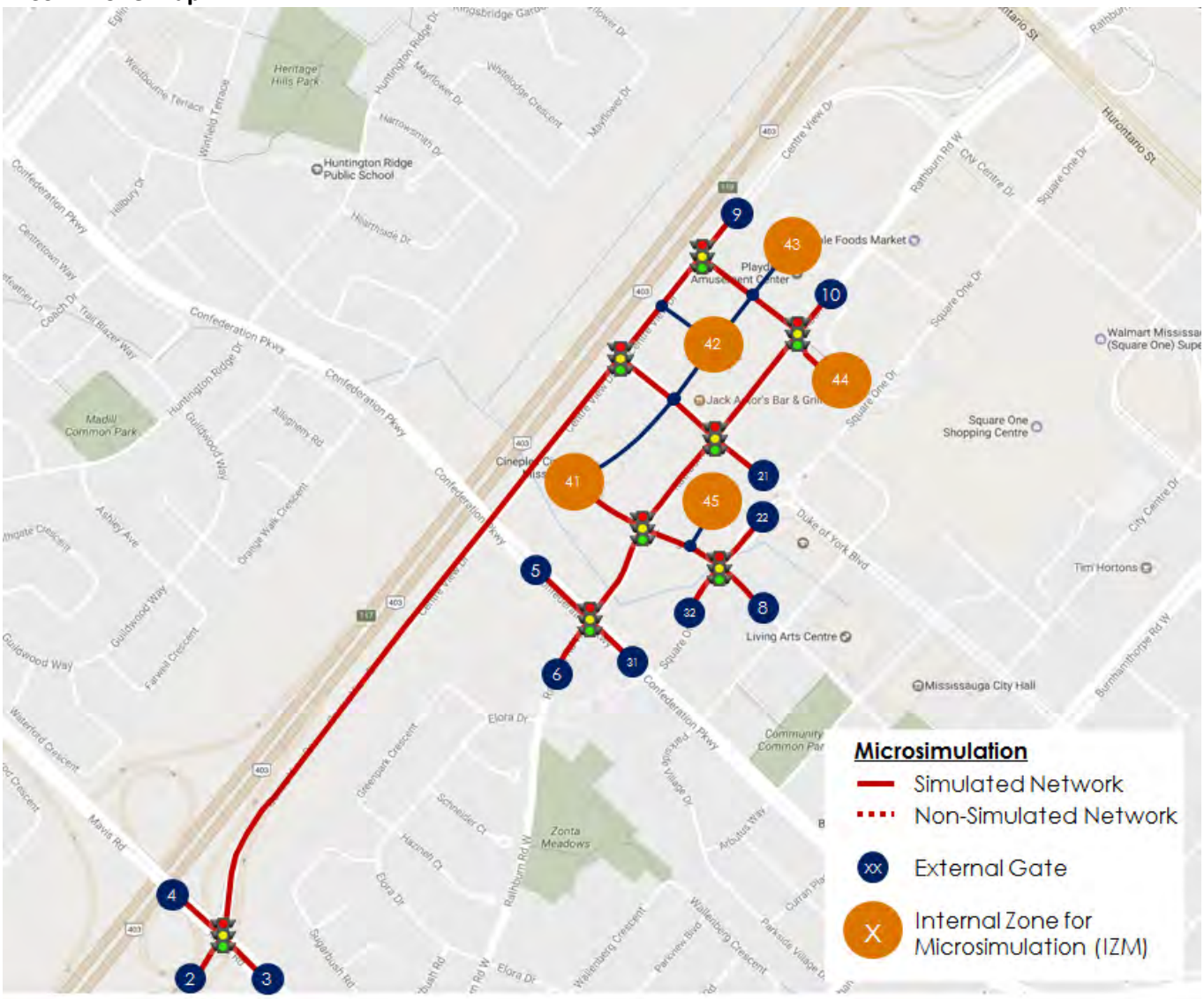
B.2 MODEL CALIBRATION BY LINK VOLUME

AM Peak Period							
Road Section		Direction	Observed	Average	% Diff	GEH	Vol Diff
Mavis Road	Duke of York Boulevard	EB	**703**	**696**	-1%	0.3	7
Duke of York Boulevard	GO Carpool Access		**520**	**577**	11%	2.4	-57
GO Carpool Access	Station Gate Road		**480**	**516**	8%	1.6	-36
Station Gate Road	GO Carpool Access	WB	**220**	**108**	-51%	8.7	112
GO Carpool Access	Duke of York Boulevard		**220**	**107**	-51%	8.8	113
Duke of York Boulevard	Mavis Road		**177**	**156**	-12%	1.6	21
Confederation Parkway	Living Arts Drive	EB	**1037**	**1027**	-1%	0.3	10
Living Arts Drive	Duke of York Boulevard		**1160**	**1171**	1%	0.3	-11
Duke of York Boulevard	Station Gate Road		**1062**	**1069**	1%	0.2	-7
Station Gate Road	Duke of York Boulevard	WB	**438**	**540**	23%	4.6	-102
Duke of York Boulevard	Living Arts Drive		**509**	**503**	-1%	0.3	6
Living Arts Drive	Confederation Parkway		**425**	**411**	-3%	0.7	14
Rathburn Road	Private Driveways	NB	**164**	**123**	-25%	3.4	41
Private Driveways	Centre View Drive		**148**	**108**	-27%	3.5	40
Centre View Drive	Private Driveways	SB	**91**	**213**	134%	9.9	-122
Private Driveways	Rathburn Road		**123**	**237**	93%	8.5	-114
Rathburn Road	Private Driveways	NB	**241**	**314**	30%	4.4	-73
Private Driveways	Centre View Drive		**113**	**251**	122%	10.2	-138
Centre View Drive	Private Driveways	SB	**339**	**321**	-5%	1.0	18
Private Driveways	Rathburn Road		**347**	**299**	-14%	2.7	48
Square One Drive	Sheridan Access	NB	**238**	**242**	2%	0.3	-4
Sheridan Access	Rathburn Road		**218**	**220**	1%	0.1	-2
Rathburn Road	Sheridan Access	SB	**161**	**143**	-11%	1.5	18
Sheridan Access	Square One Drive		**137**	**119**	-13%	1.6	18

PM Peak Period							
Road Section		Direction	Observed	Average	% Diff	GEH	Vol Diff
Mavis Road	Duke of York Boulevard	EB	**940**	**952**	1%	0.4	-12
Duke of York Boulevard	GO Carpool Access		**260**	**338**	30%	4.5	-78
GO Carpool Access	Station Gate Road		**284**	**320**	13%	2.1	-36
Station Gate Road	GO Carpool Access	WB	**835**	**730**	-13%	3.8	105
GO Carpool Access	Duke of York Boulevard		**835**	**731**	-12%	3.7	104
Duke of York Boulevard	Mavis Road		**1063**	**1048**	-1%	0.5	15
Confederation Parkway	Living Arts Drive	EB	**627**	**666**	6%	1.5	-39
Living Arts Drive	Duke of York Boulevard		**656**	**751**	14%	3.6	-95
Duke of York Boulevard	Station Gate Road		**772**	**791**	2%	0.7	-19
Station Gate Road	Duke of York Boulevard	WB	**1186**	**1300**	10%	3.2	-114
Duke of York Boulevard	Living Arts Drive		**1202**	**1239**	3%	1.1	-37
Living Arts Drive	Confederation Parkway		**1131**	**1078**	-5%	1.6	53
Rathburn Road	Private Driveways	NB	**208**	**139**	-33%	5.2	69
Private Driveways	Centre View Drive		**172**	**111**	-35%	5.1	61
Centre View Drive	Private Driveways	SB	**239**	**341**	43%	6.0	-102
Private Driveways	Rathburn Road		**251**	**357**	42%	6.1	-106
Rathburn Road	Private Driveways	NB	**497**	**558**	12%	2.7	-61
Private Driveways	Centre View Drive		**429**	**480**	12%	2.4	-51
Centre View Drive	Private Driveways	SB	**881**	**777**	-12%	3.6	104
Private Driveways	Rathburn Road		**929**	**811**	-13%	4.0	118
Square One Drive	Sheridan Access	NB	**114**	**121**	6%	0.6	-7
Sheridan Access	Rathburn Road		**126**	**134**	6%	0.7	-8
Rathburn Road	Sheridan Access	SB	**175**	**179**	2%	0.3	-4
Sheridan Access	Square One Drive		**183**	**188**	3%	0.4	-5

Appendix C TRAVERSAL MATRICES

VISSIM Zone Map



Existing AM Unadjusted

	2	3	4	5	6	8	9	10	21	22	31	32	41	42	43	44	45	**Total**
2	0	449	527	0	0	5	713	165	114	114	0	0	8	15	7	0	4	**2,121**
3	0	0	2296	0	0	0	145	0	0	0	0	0	0	2	3	0	0	**2,446**
4	0	1975	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1,975**
5	0	0	0	0	94	183	0	148	0	0	406	406	10	14	9	0	10	**1,281**
6	0	0	0	210	0	21	0	221	0	0	30	30	6	6	3	0	3	**532**
8	0	0	21	19	2	50	0	21	17	17	0	0	6	0	0	0	16	**170**
9	0	7	6	0	11	6	0	0	33	33	0	0	10	14	6	0	9	**135**
10	0	0	0	5	7	2	0	0	0	0	0	0	0	15	7	0	1	**37**
21	0	0	90	0	0	1	0	1	66	66	0	0	0	5	0	0	0	**229**
22	0	0	90	0	0	1	0	1	66	66	0	0	0	5	0	0	0	**229**
31	0	0	0	236	15	0	0	0	0	0	0	0	1	0	0	0	0	**251**
32	0	0	0	236	15	0	0	0	0	0	0	0	1	0	0	0	0	**251**
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total	**0**	**2,430**	**3,031**	**706**	**144**	**269**	**858**	**556**	**297**	**297**	**437**	**437**	**41**	**75**	**36**	**0**	**44**	**9,656**

Existing PM Unadjusted

	2	3	4	5	6	8	9	10	21	22	31	32	41	42	43	44	45	**Total**
2	0	465	666	0	0	30	21	90	91	91	0	0	2	6	1	0	0	**1,465**
3	0	0	2110	0	0	0	28	0	0	0	0	0	0	2	0	0	0	**2,140**
4	0	1646	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1,646**
5	0	0	0	0	251	44	0	17	0	0	343	343	2	1	2	0	0	**1,003**
6	0	0	0	111	0	2	0	26	0	0	13	13	1	0	0	0	0	**166**
8	0	0	6	317	18	59	0	4	8	8	0	0	3	0	0	0	0	**424**
9	0	291	462	0	130	5	0	0	3	3	0	0	2	6	1	0	0	**904**
10	0	0	24	124	202	7	0	0	0	0	0	0	3	6	1	0	0	**366**
21	0	0	109	1	0	9	0	0	56	56	0	0	0	0	0	0	0	**230**
22	0	0	109	1	0	9	0	0	56	56	0	0	0	0	0	0	0	**230**
31	0	0	0	365	20	0	0	0	0	0	0	0	0	0	0	0	0	**385**
32	0	0	0	365	20	0	0	0	0	0	0	0	0	0	0	0	0	**385**
41	0	0	5	7	5	10	11	0	0	0	0	0	0	0	0	0	0	**38**
42	0	0	17	5	5	0	23	6	3	3	0	0	0	0	0	0	0	**61**
43	0	0	6	2	3	0	9	2	1	1	0	0	0	0	0	0	0	**25**
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total	**0**	**2,404**	**3,513**	**1,298**	**655**	**174**	**92**	**146**	**219**	**219**	**356**	**356**	**13**	**21**	**5**	**0**	**0**	**9,470**

Existing AM Adjusted

	2	3	4	5	6	8	9	10	21	22	31	32	41	42	43	44	45	**Total**
2	0	12	744	0	0	12	389	15	170	11	0	0	11	52	0	0	5	**1,421**
3	0	0	2253	0	0	0	14	0	0	0	0	0	0	12	0	0	0	**2,279**
4	0	2419	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**2,419**
5	0	2	0	0	33	13	2	284	25	0	493	14	5	46	5	0	2	**926**
6	0	0	0	87	0	8	2	474	0	0	86	4	4	3	2	0	1	**670**
8	0	0	1	8	3	0	4	89	49	12	0	3	1	0	0	0	21	**191**
9	0	6	8	0	36	9	0	22	31	3	8	0	7	37	7	0	9	**184**
10	0	0	37	73	108	27	30	0	51	0	70	0	0	24	0	0	4	**424**
21	0	0	49	31	20	0	25	72	0	0	0	0	0	17	0	0	0	**215**
22	0	0	2	4	3	11	0	1	4	0	0	6	0	1	0	0	0	**32**
31	0	0	0	721	127	8	4	12	11	0	0	1	6	60	32	0	4	**985**
32	0	0	0	0	0	16	1	30	0	12	0	0	0	8	9	0	0	**75**
41	0	0	2	0	0	0	1	0	0	0	2	0	0	5	2	0	0	**13**
42	0	0	35	4	9	4	15	63	4	0	16	0	17	0	0	0	0	**167**
43	0	0	1	1	2	2	16	0	4	0	5	1	3	2	0	0	0	**37**
44	0	0	40	6	11	12	0	40	2	1	2	7	1	0	0	0	1	**124**
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total	**0**	**2,439**	**3,172**	**937**	**353**	**120**	**503**	**1,103**	**349**	**40**	**683**	**37**	**56**	**268**	**57**	**0**	**46**	**10,162**

Existing PM Adjusted

	2	3	4	5	6	8	9	10	21	22	31	32	41	42	43	44	45	**Total**
2	0	80	309	0	0	10	93	181	604	8	0	0	20	8	15	0	2	**1,330**
3	0	0	1741	0	0	0	6	0	0	0	0	0	2	2	0	0	1	**1,752**
4	0	1235	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1,235**
5	0	0	0	0	36	1	0	222	26	0	606	10	11	28	0	0	0	**939**
6	0	0	0	37	0	0	0	218	26	0	64	7	7	21	0	0	0	**381**
8	0	0	56	2	1	0	0	25	2	15	0	15	3	8	0	0	0	**127**
9	0	209	392	7	60	3	0	0	74	0	0	0	14	30	19	0	0	**809**
10	0	11	60	165	569	114	0	0	127	0	0	10	30	78	6	0	8	**1,179**
21	0	0	280	97	72	0	22	92	0	0	0	0	1	42	4	0	0	**611**
22	0	0	0	3	3	34	0	0	0	0	0	37	4	0	0	0	0	**81**
31	0	0	0	965	52	0	0	61	0	0	0	0	14	13	0	0	0	**1,105**
32	0	0	0	1	1	26	0	2	0	13	0	0	0	6	0	0	0	**49**
41	0	0	4	20	39	8	9	10	7	0	6	0	0	0	0	0	0	**102**
42	0	0	20	10	23	0	24	41	26	0	49	0	8	0	4	0	0	**205**
43	0	0	22	4	8	2	16	6	3	0	3	0	0	4	0	0	0	**68**
44	0	0	8	0	4	0	0	44	8	0	5	0	0	0	0	0	0	**69**
45	0	0	0	0	1	9	1	11	0	3	0	9	0	0	0	0	0	**34**
Total	**0**	**1,534**	**2,892**	**1,312**	**870**	**207**	**170**	**914**	**904**	**39**	**733**	**88**	**114**	**240**	**48**	**0**	**11**	**10,077**

Appendix C – DETAILED EVALUATION RESULTS

C.1 – EXISTING

Figure C1 - Synchro Existing 2017 Movement Delays AM

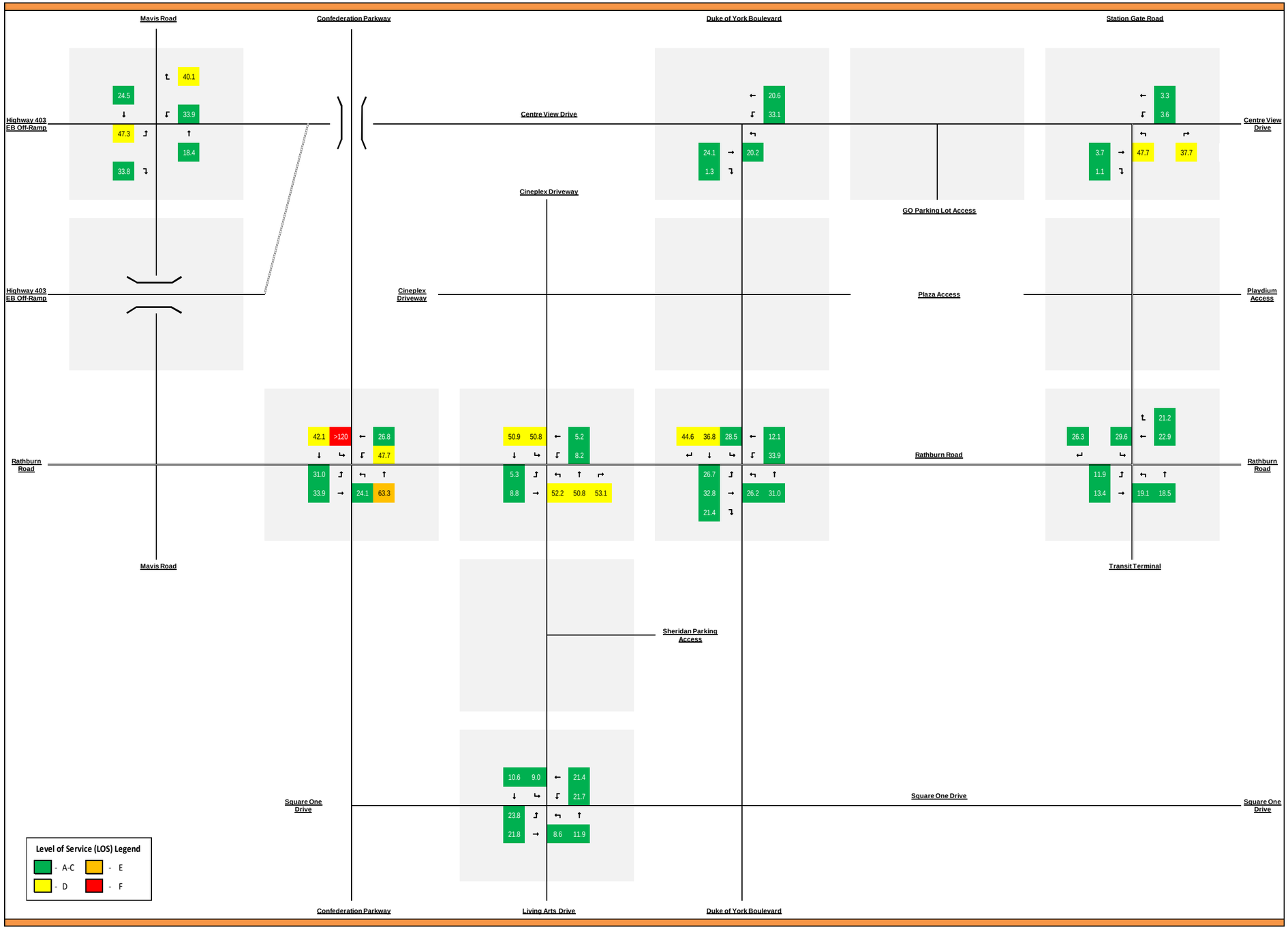


Figure C2 - Synchro Existing 2017 95th Percentile Queues AM

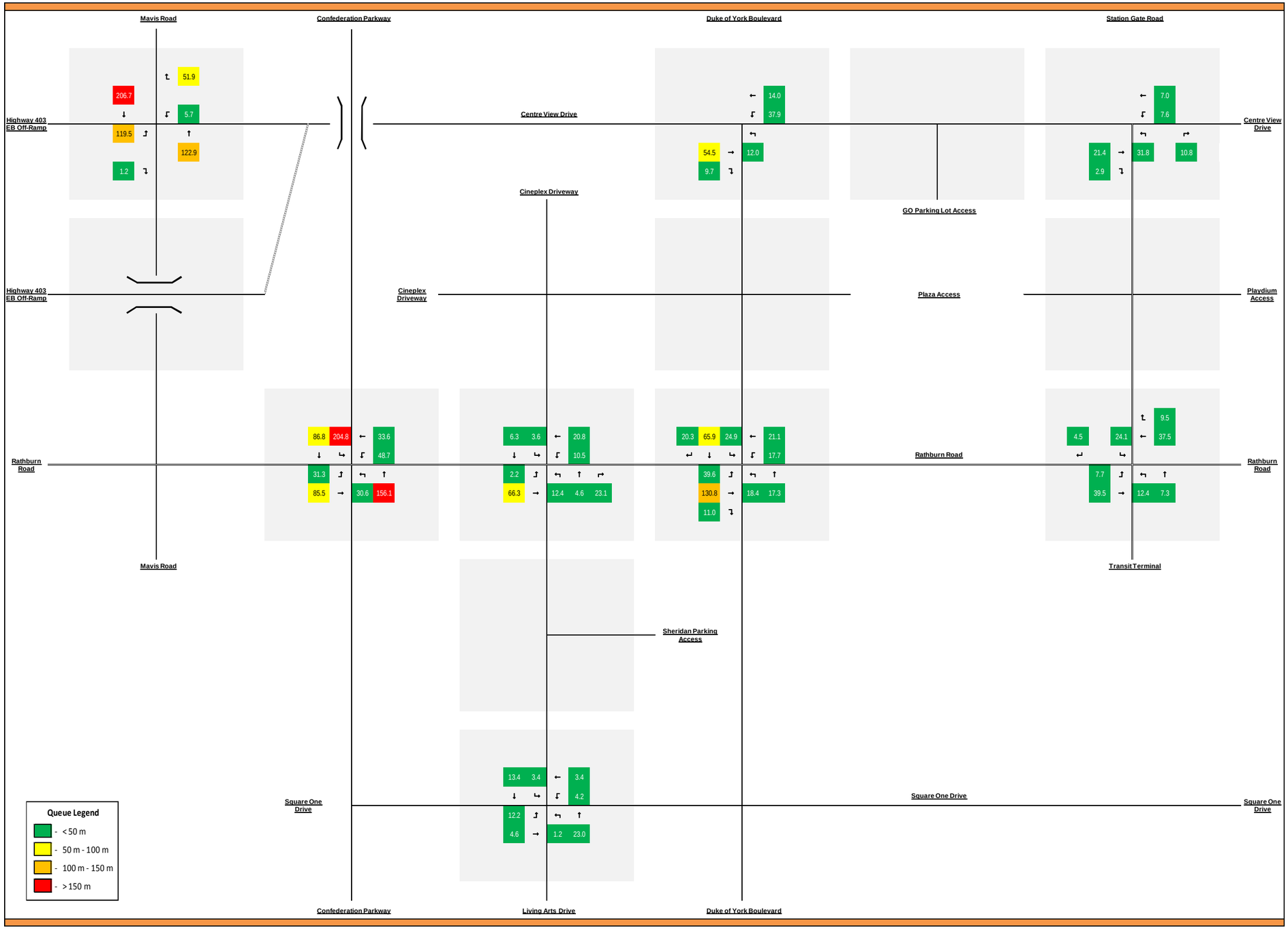


Figure C3 - Synchro Existing 2017 V/C AM

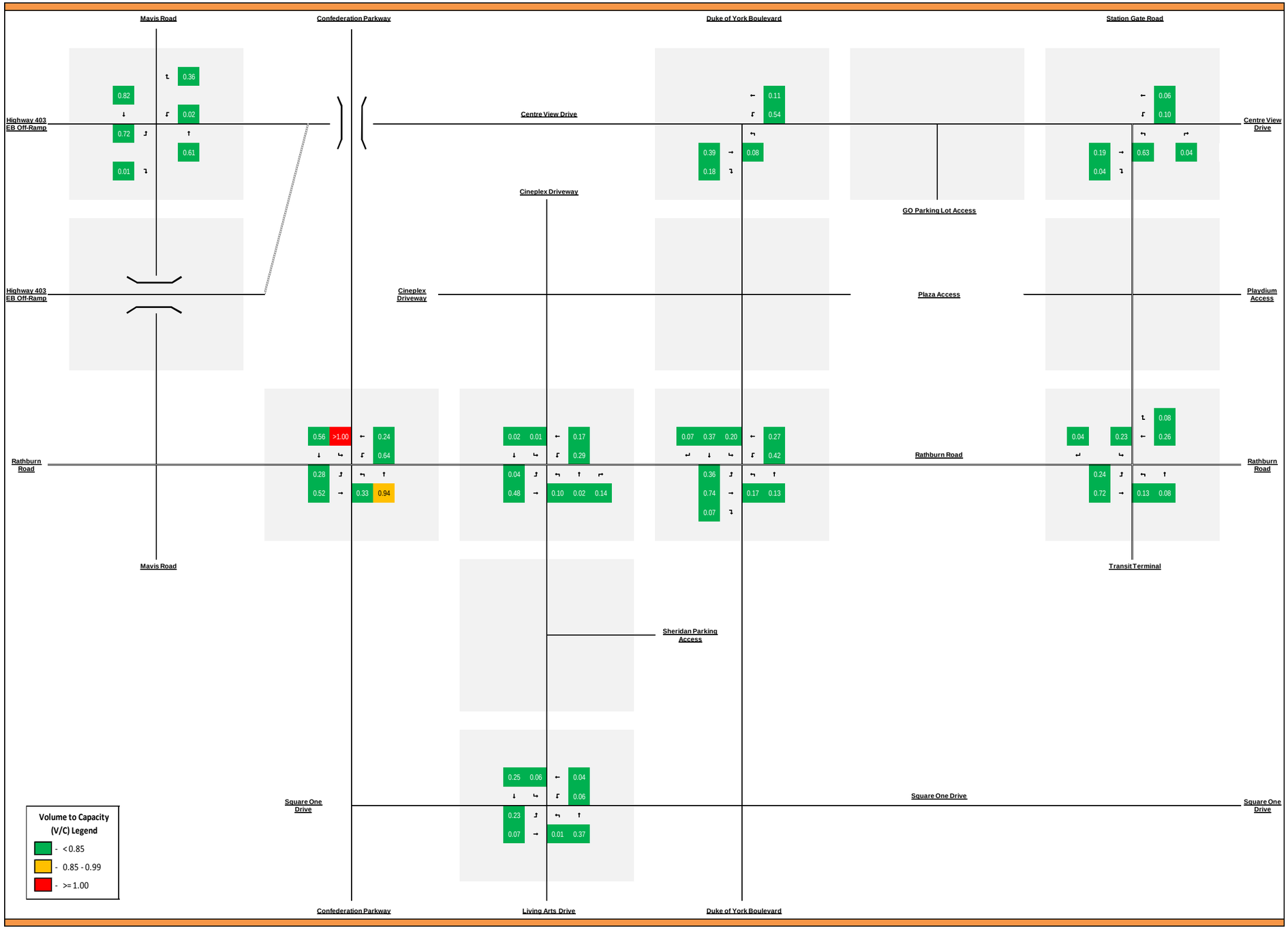


Figure C4 - Synchro Existing 2017 Movement Delays PM

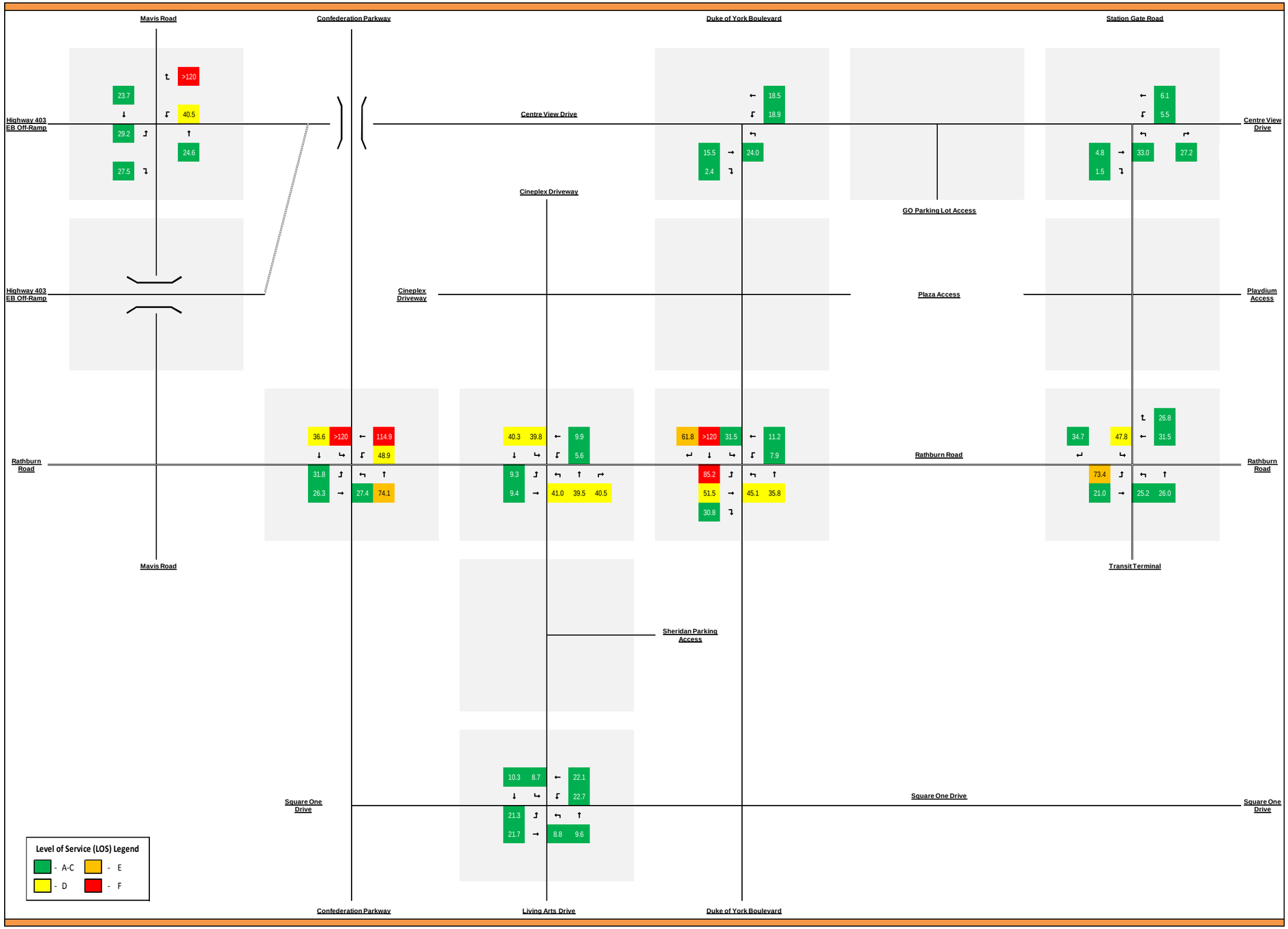


Figure C5 - Synchro Existing 2017 95th Percentile Queues PM

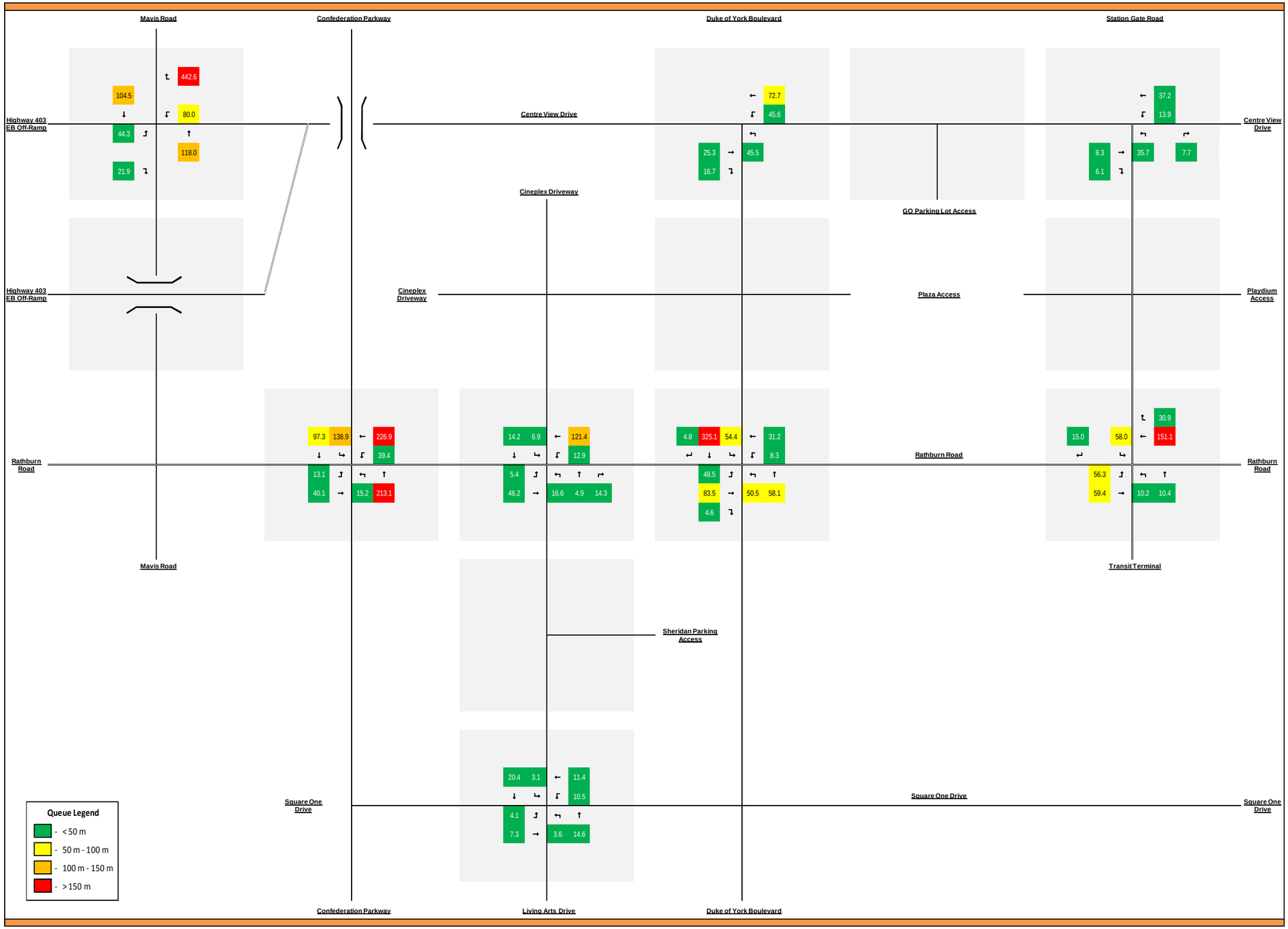


Figure C6 - Synchro Existing 2017 V/C PM

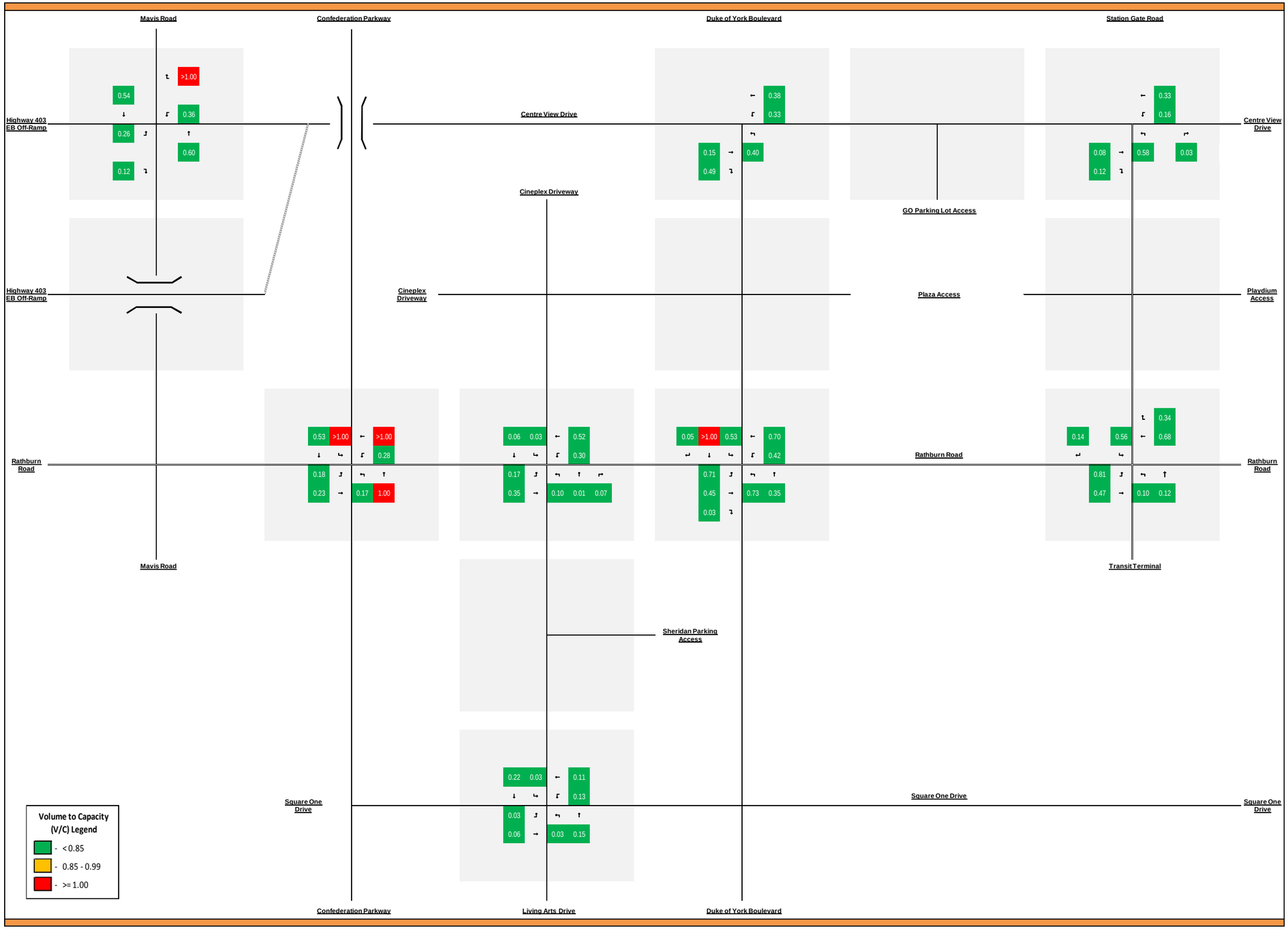


Figure C7 - VISSIM Existing 2017 Movement Delays AM

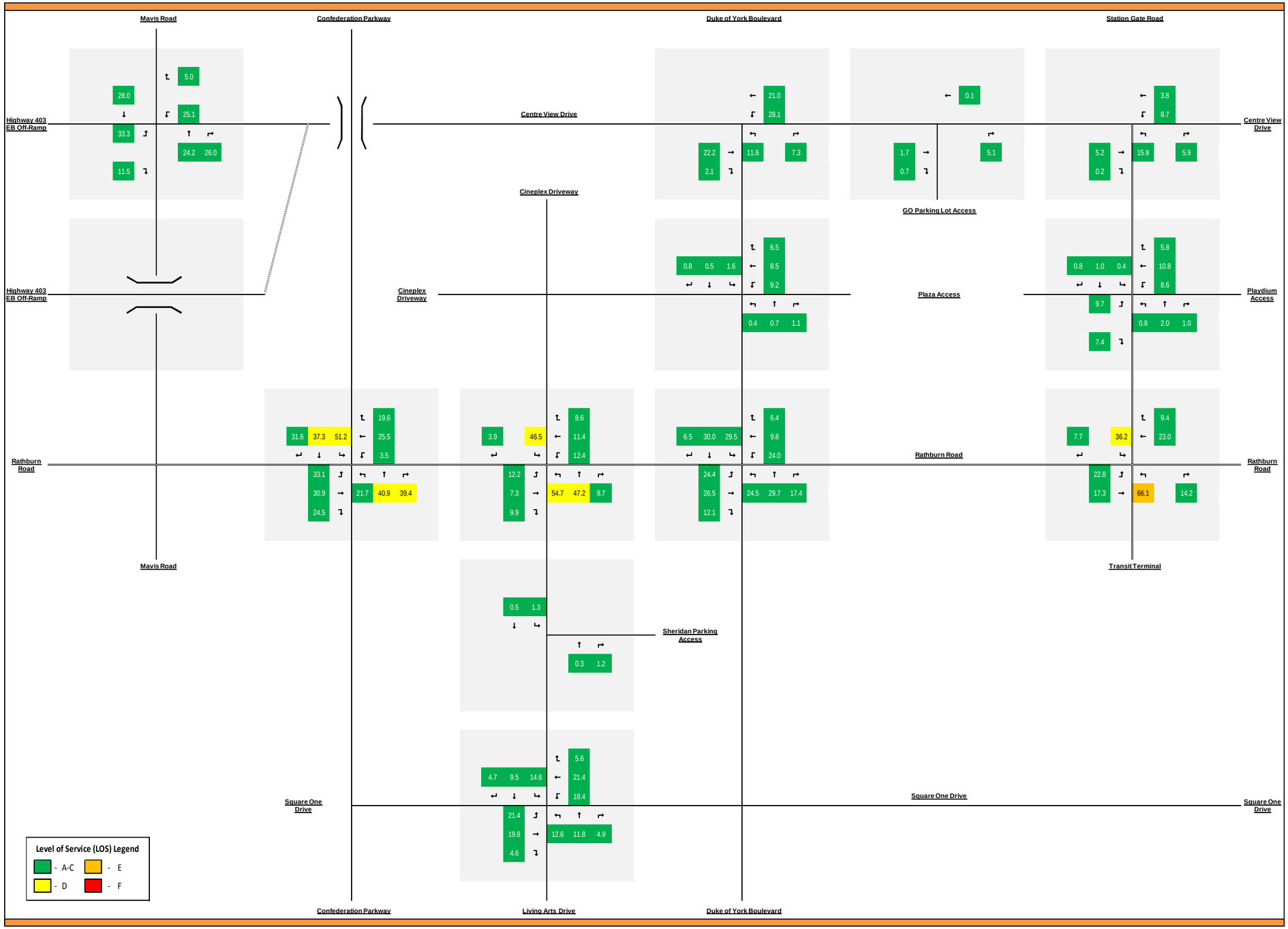


Figure C8 - VISSIM Existing 2017 Average Queues AM

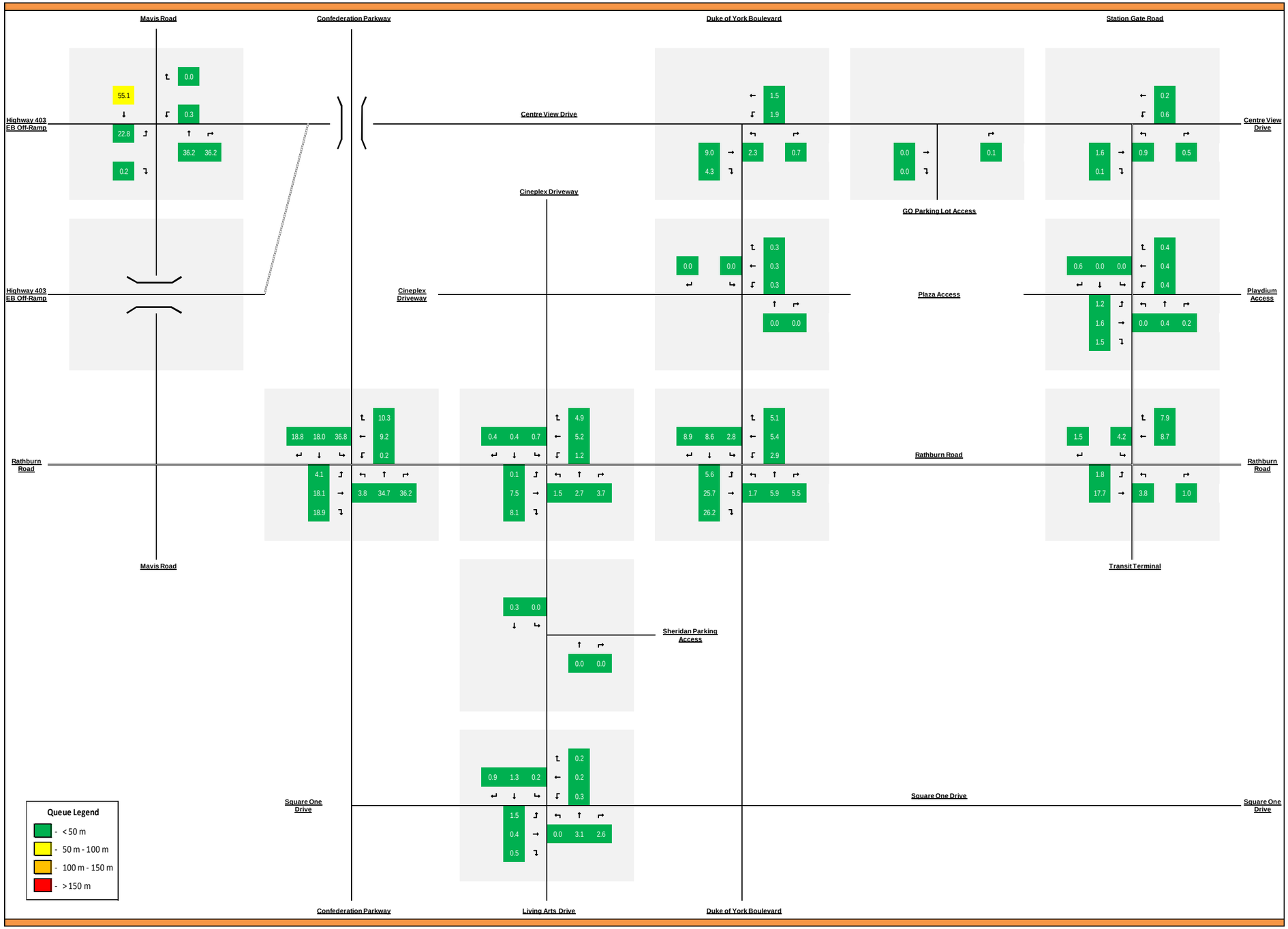


Figure C9 - VISSIM Existing 2017 Movement Delays PM

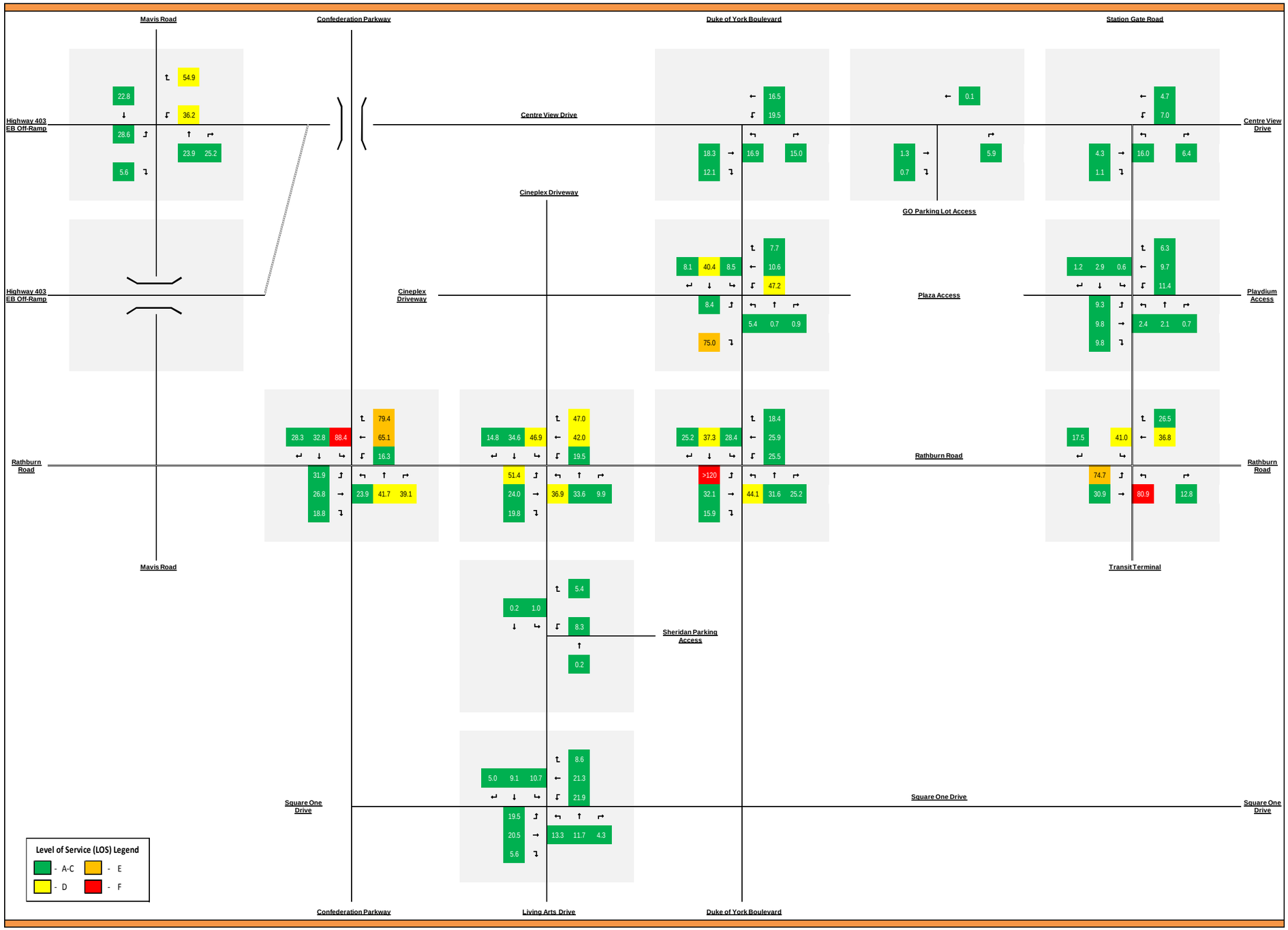
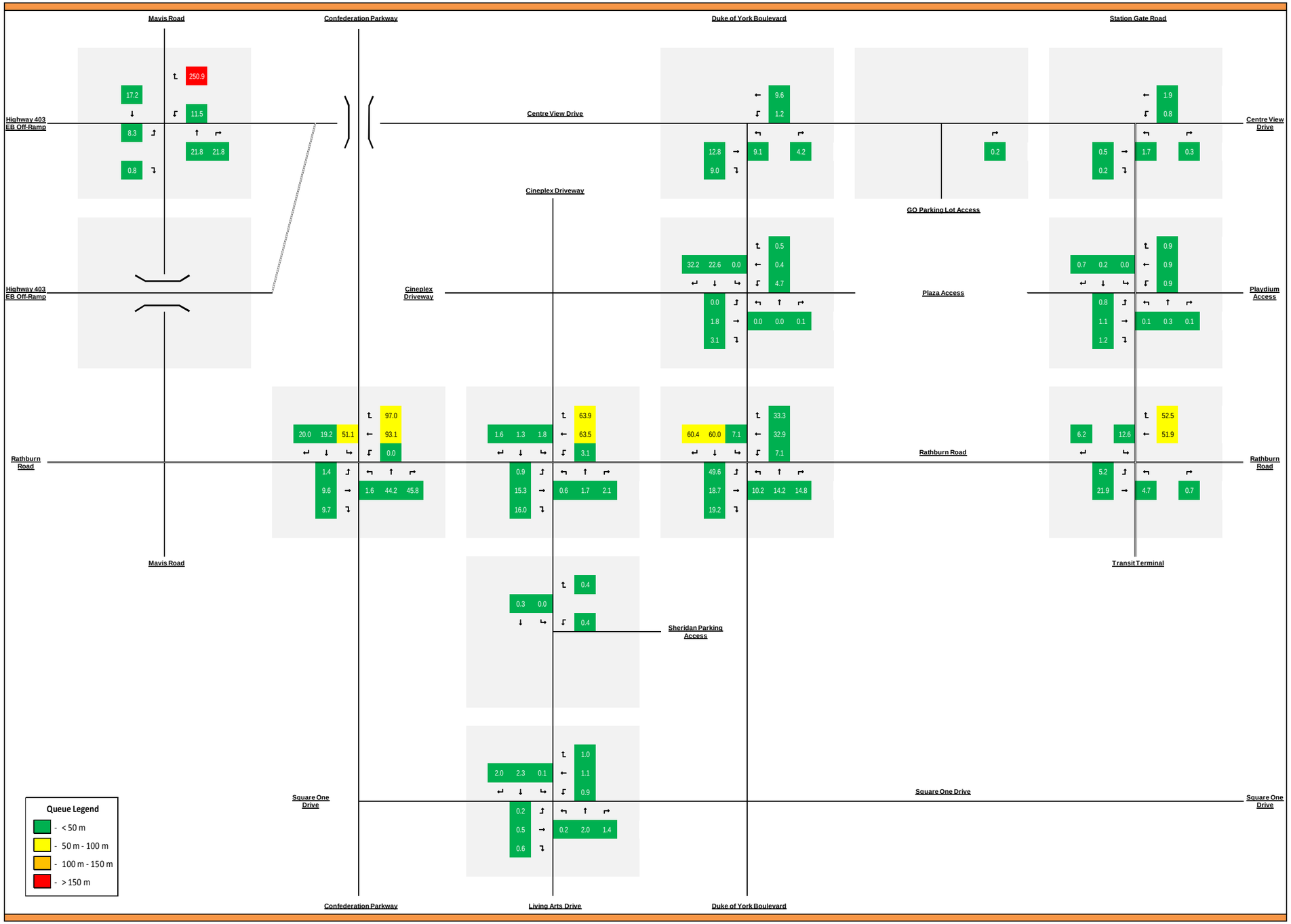


Figure C10 - VISSIM Existing 2017 Average Queues PM



C.2 – "DO NOTHING"

Figure C11 - Synchro 2021 "Do Nothing" Movement Delays AM

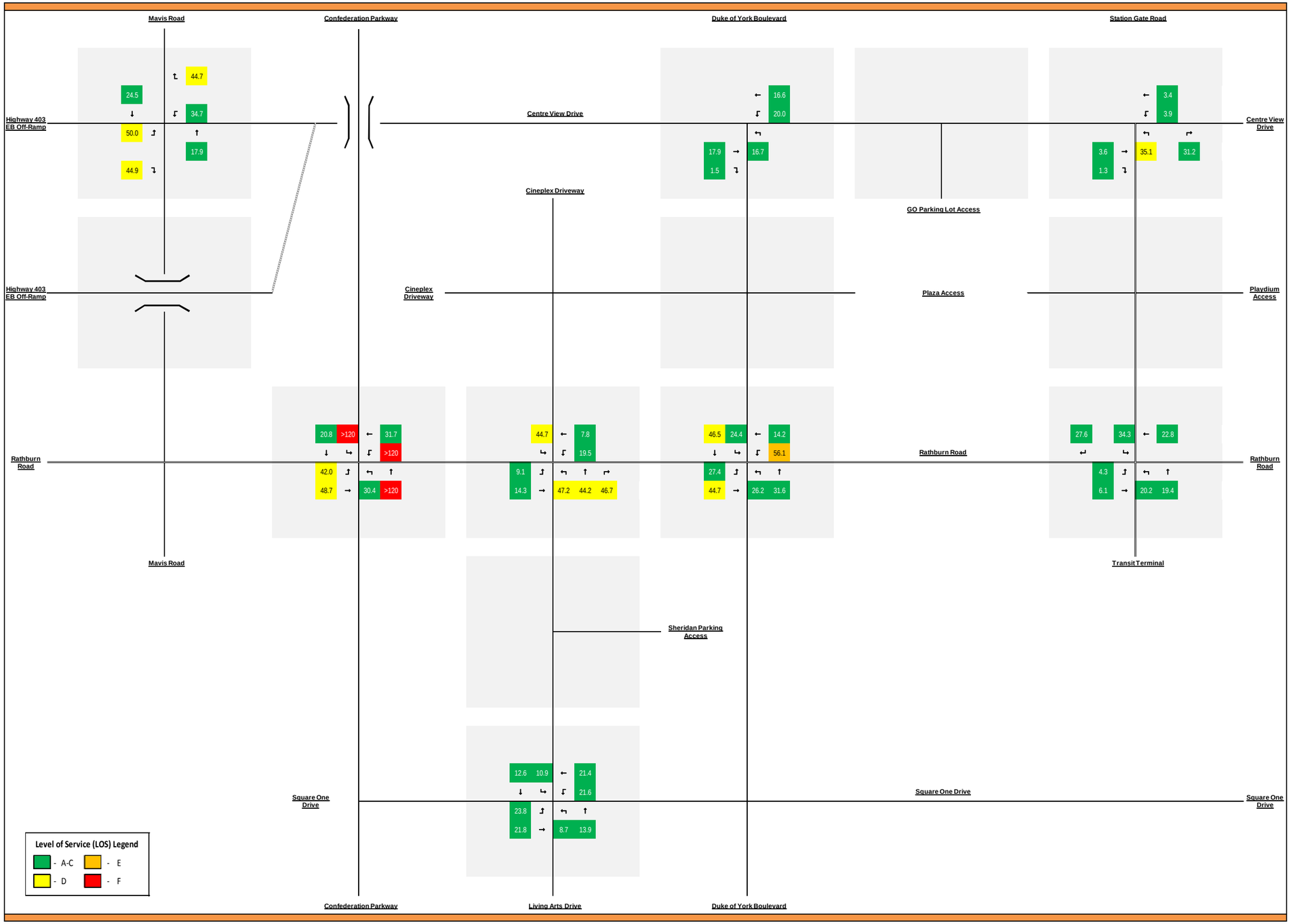


Figure C12 - Synchro 2021 "Do Nothing" 95th Percentile Queues AM

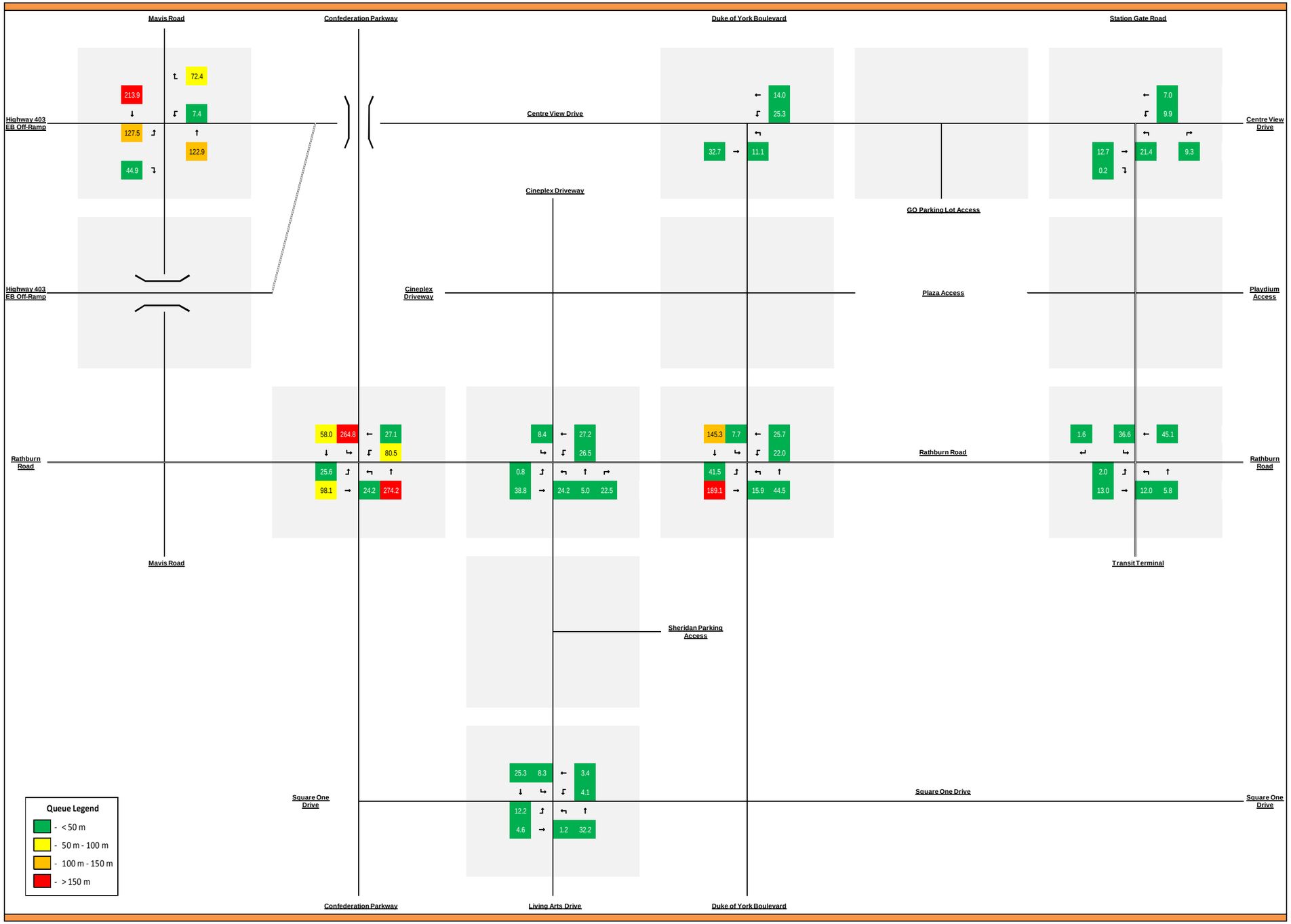


Figure C13 - Synchro 2021 "Do Nothing" V/C AM

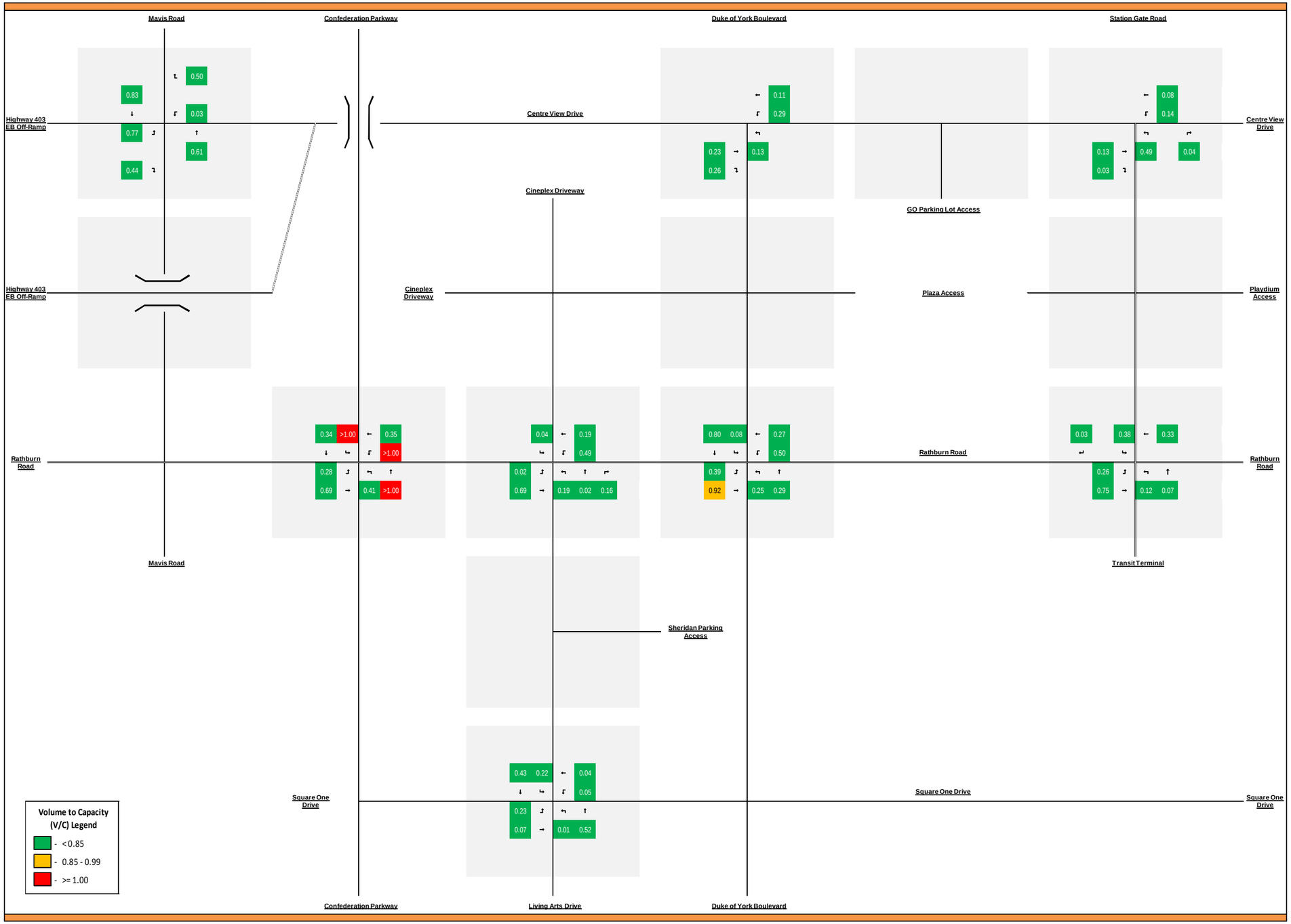


Figure C14 - Synchro 2021 "Do Nothing" Movement Delays PM

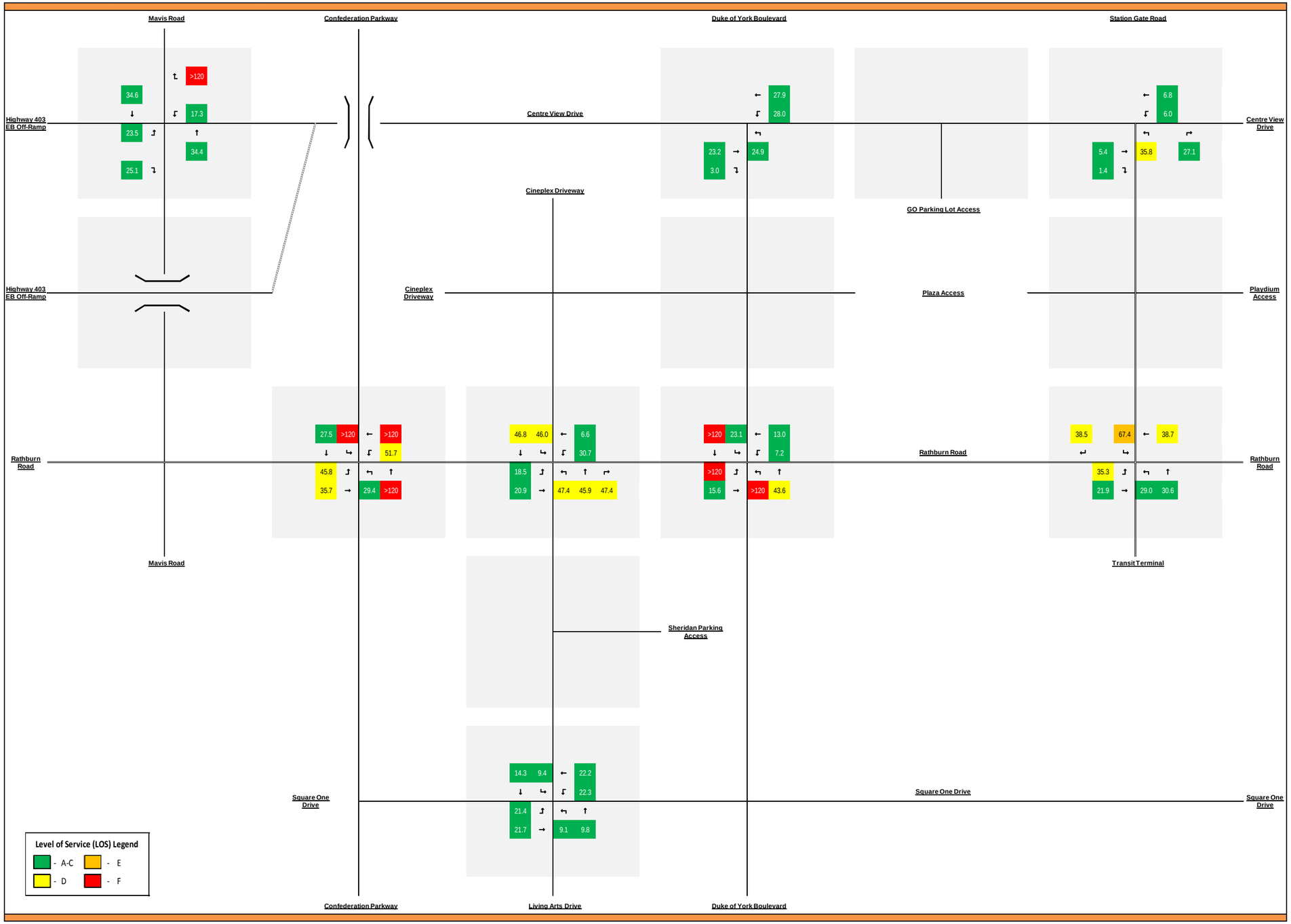


Figure C15 - Synchro 2021 "Do Nothing" 95th Percentile Queues PM

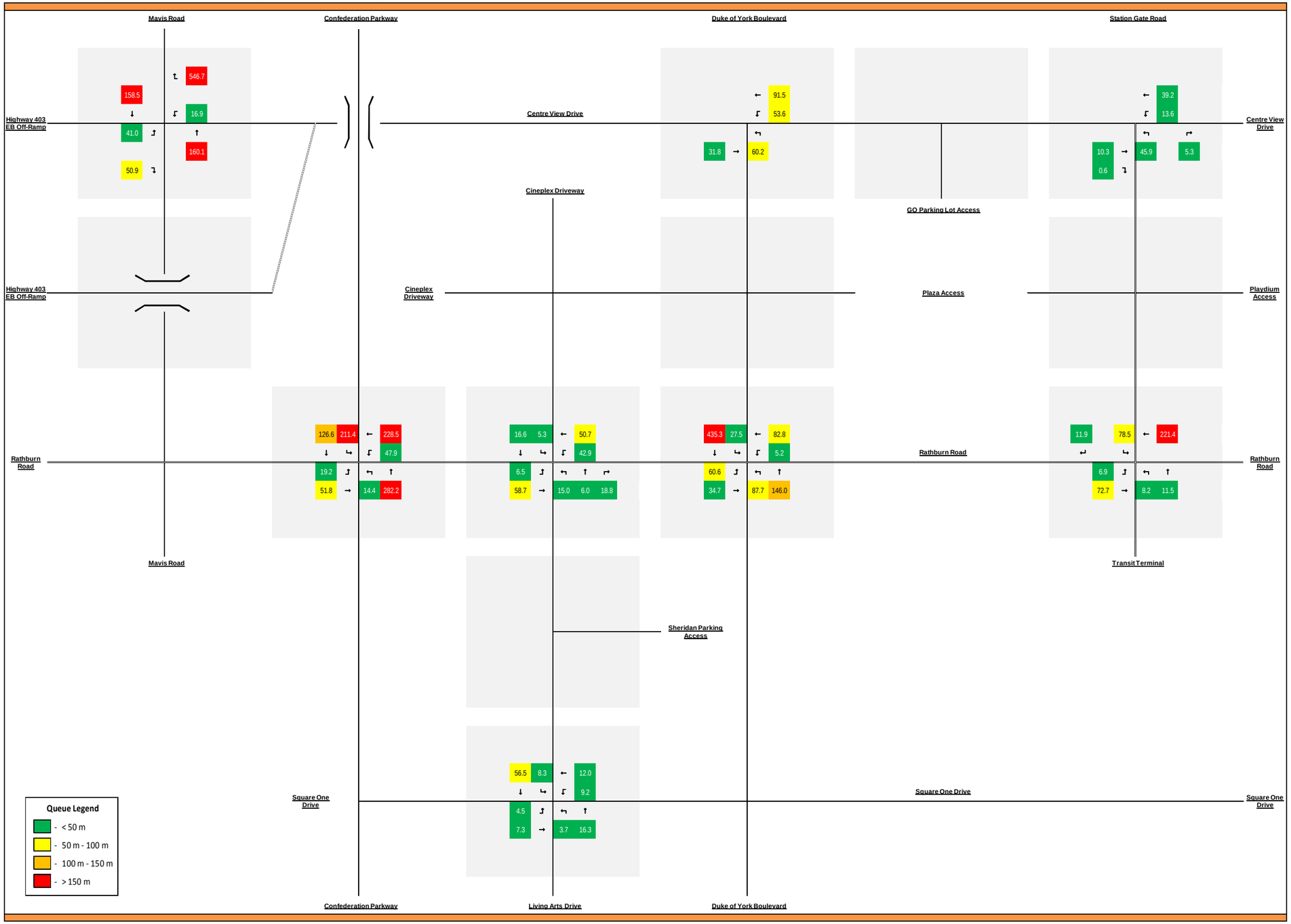


Figure C16 - Synchro 2021 "Do Nothing" VC PM

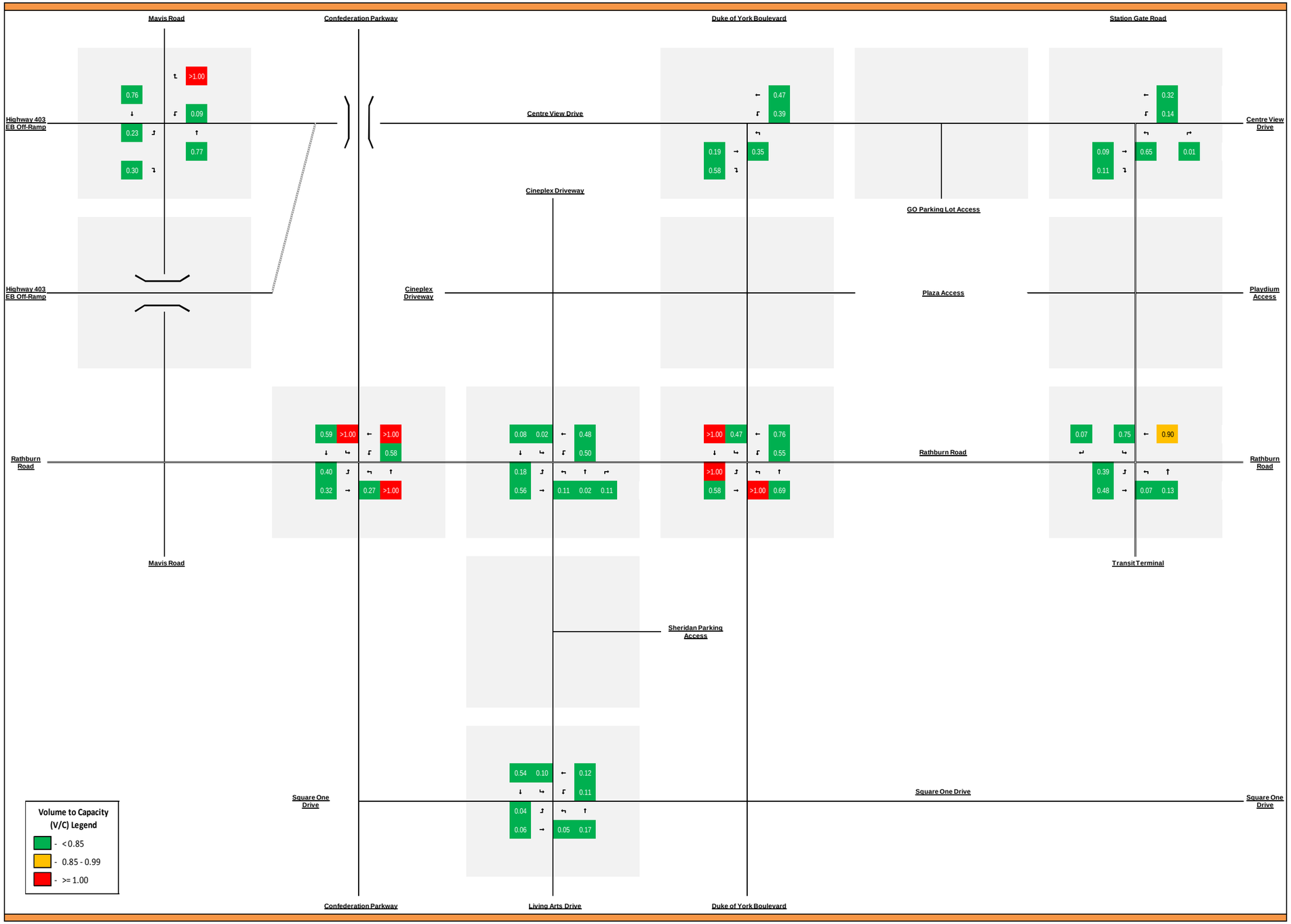


Figure C17 - Synchro 2031 "Do Nothing" Movement Delays AM

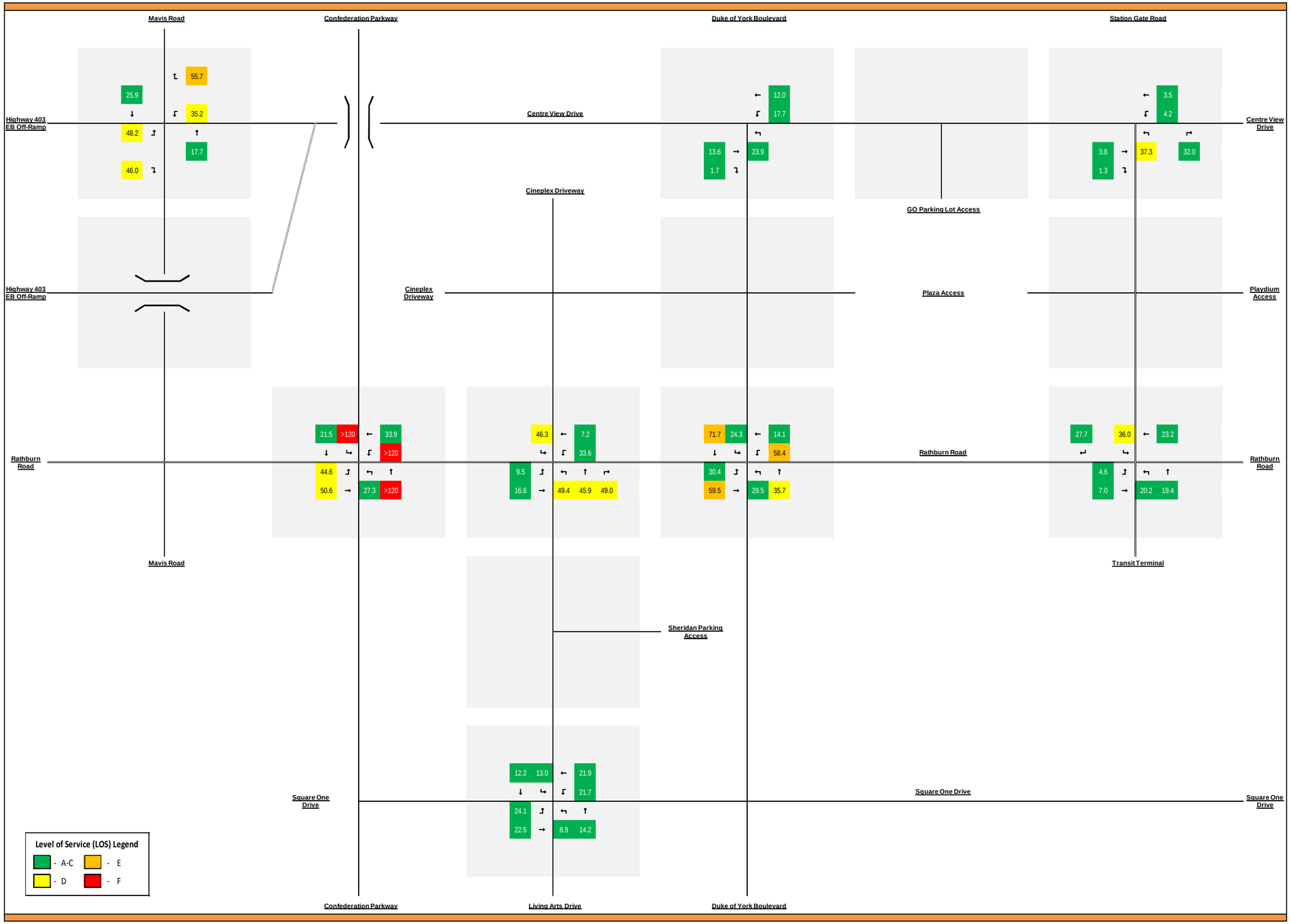


Figure C18 - Synchro 2031 "Do Nothing" 95th Percentile Queues AM

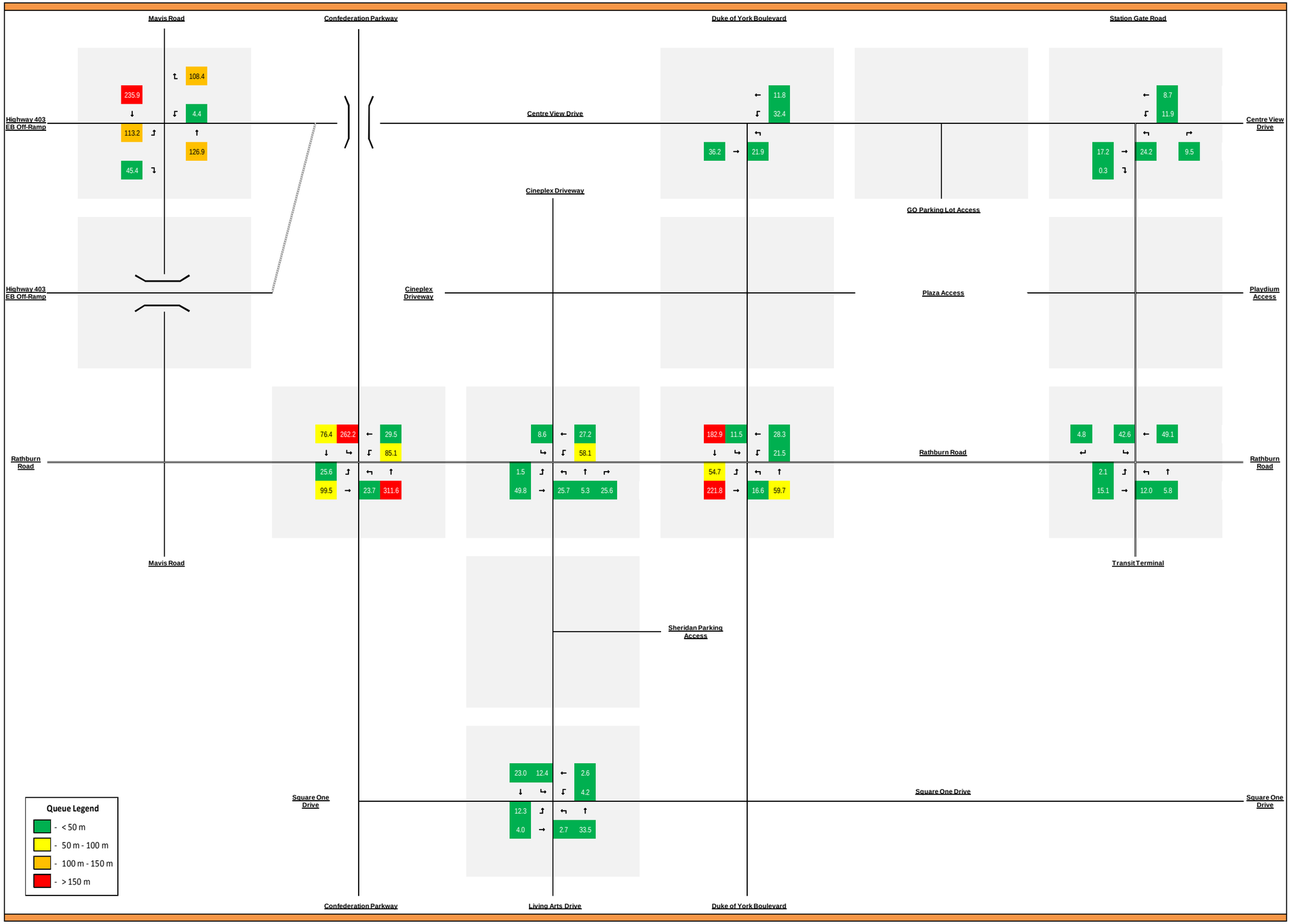


Figure C19 - Synchro 2031 "Do Nothing" VC AM

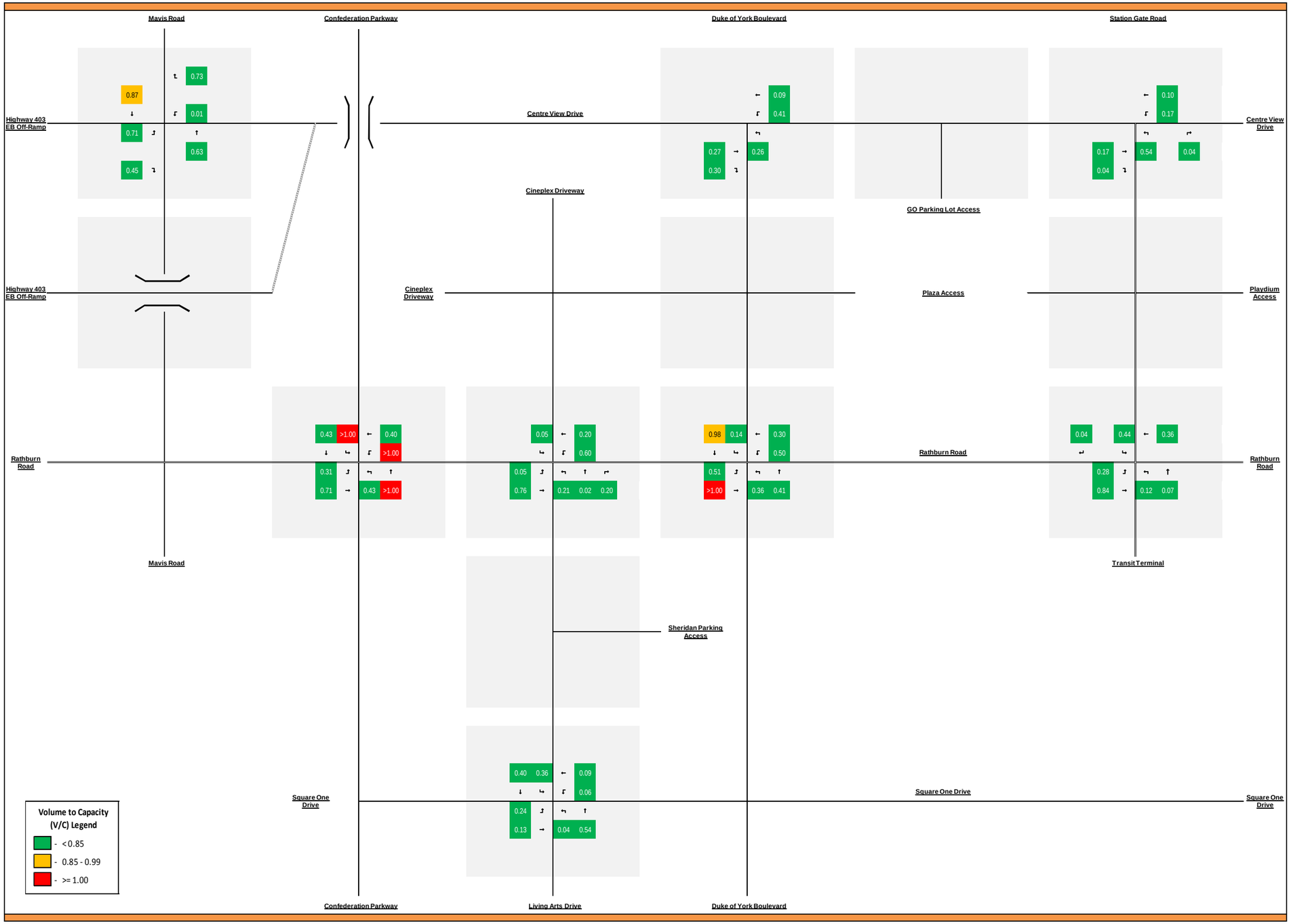


Figure C20 - Synchro 2031 "Do Nothing" Movement Delays PM

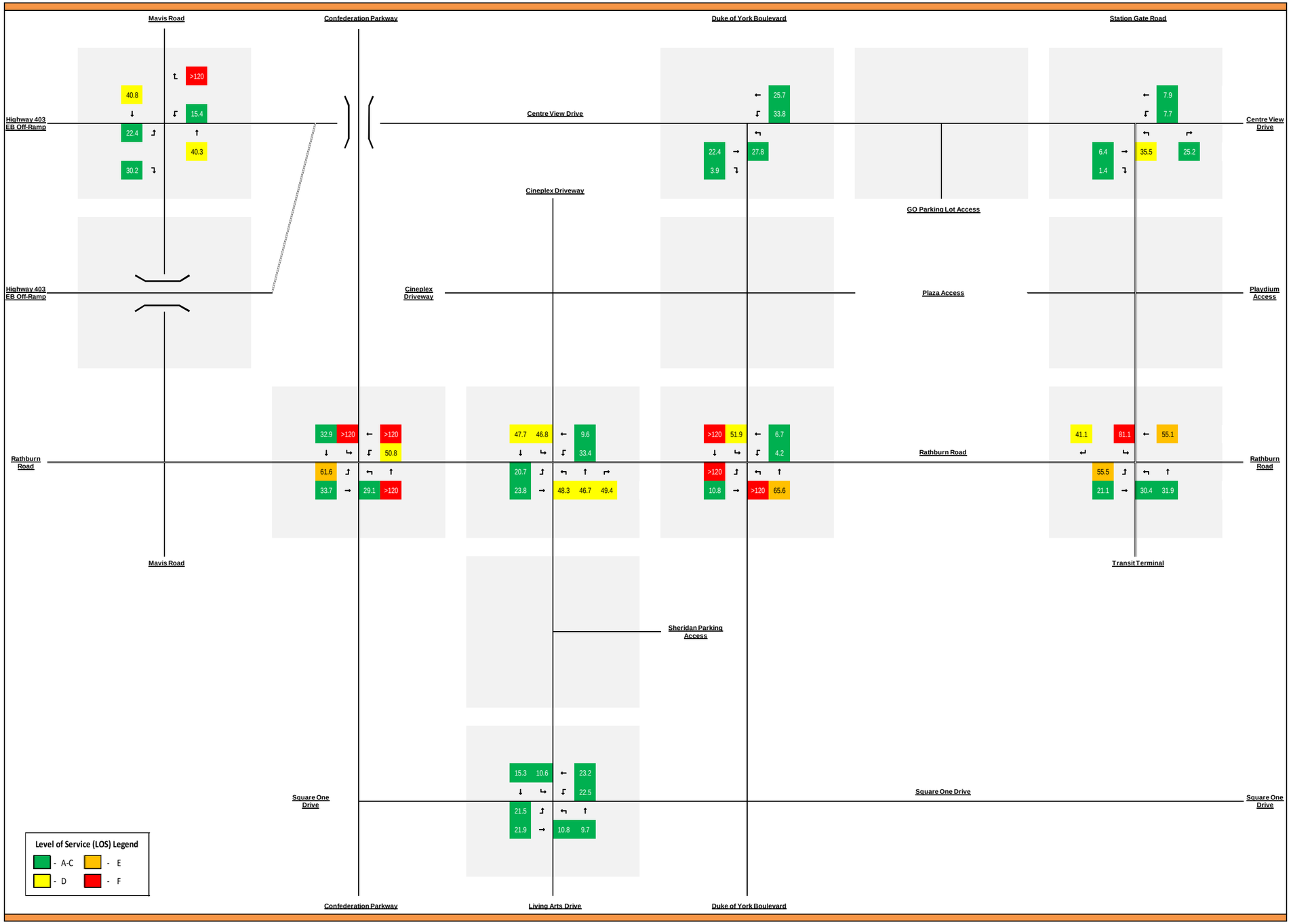


Figure C21 - Synchro 2031 "Do Nothing" 95th Percentile Queues PM

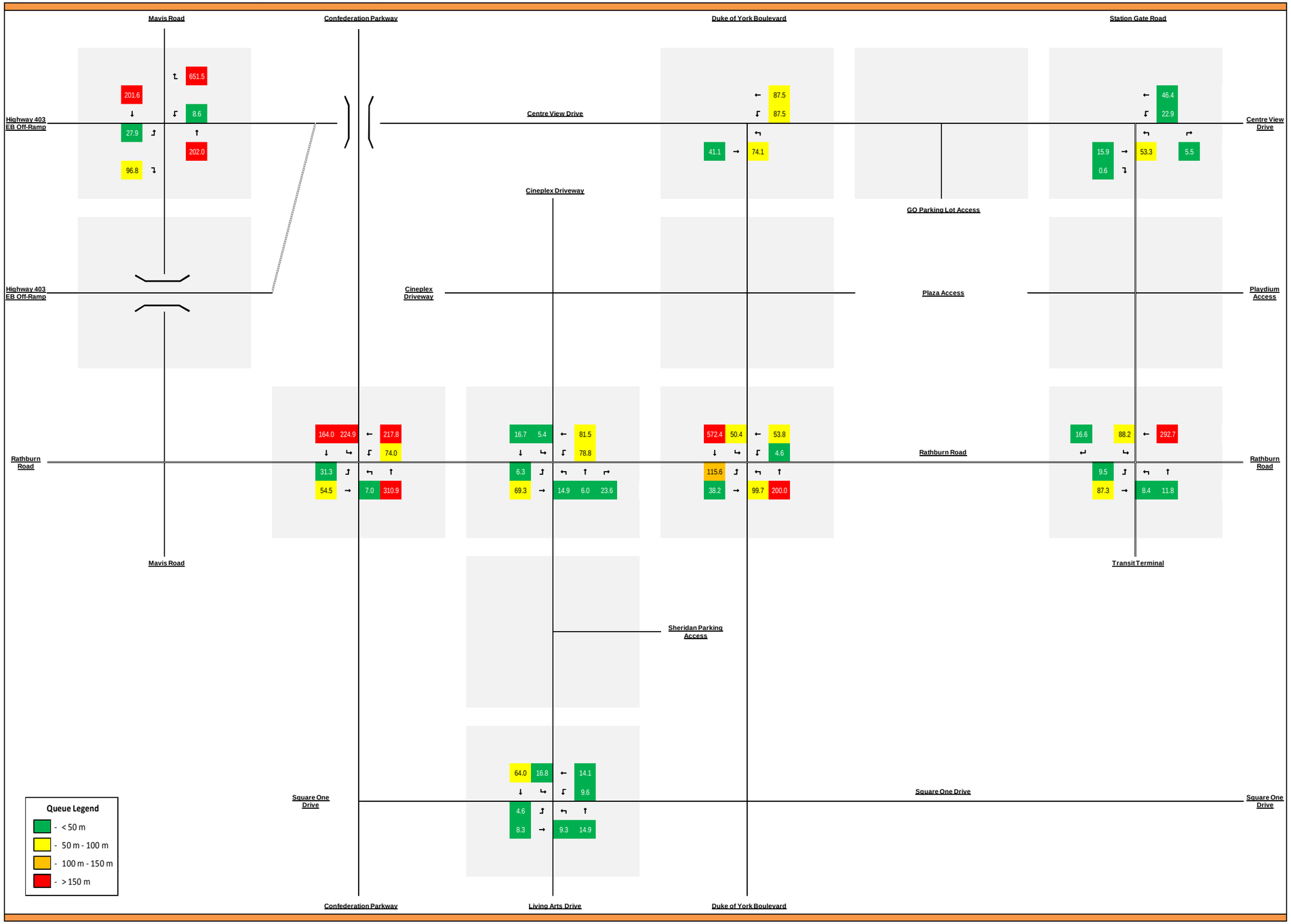


Figure C22 - Synchro 2031 "Do Nothing" VC PM

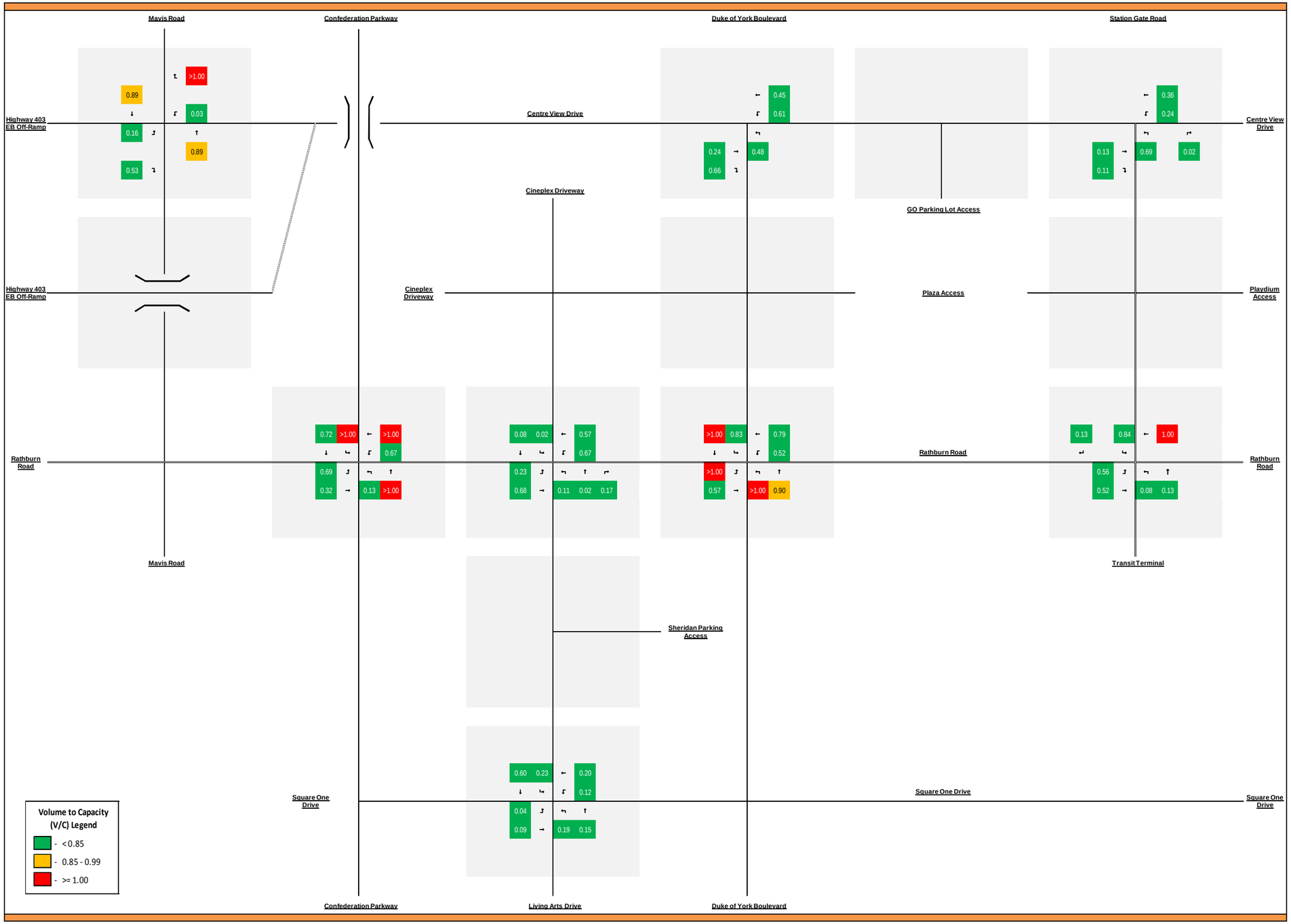


Figure C23 - Synchro 2041 "Do Nothing" Movement Delays AM

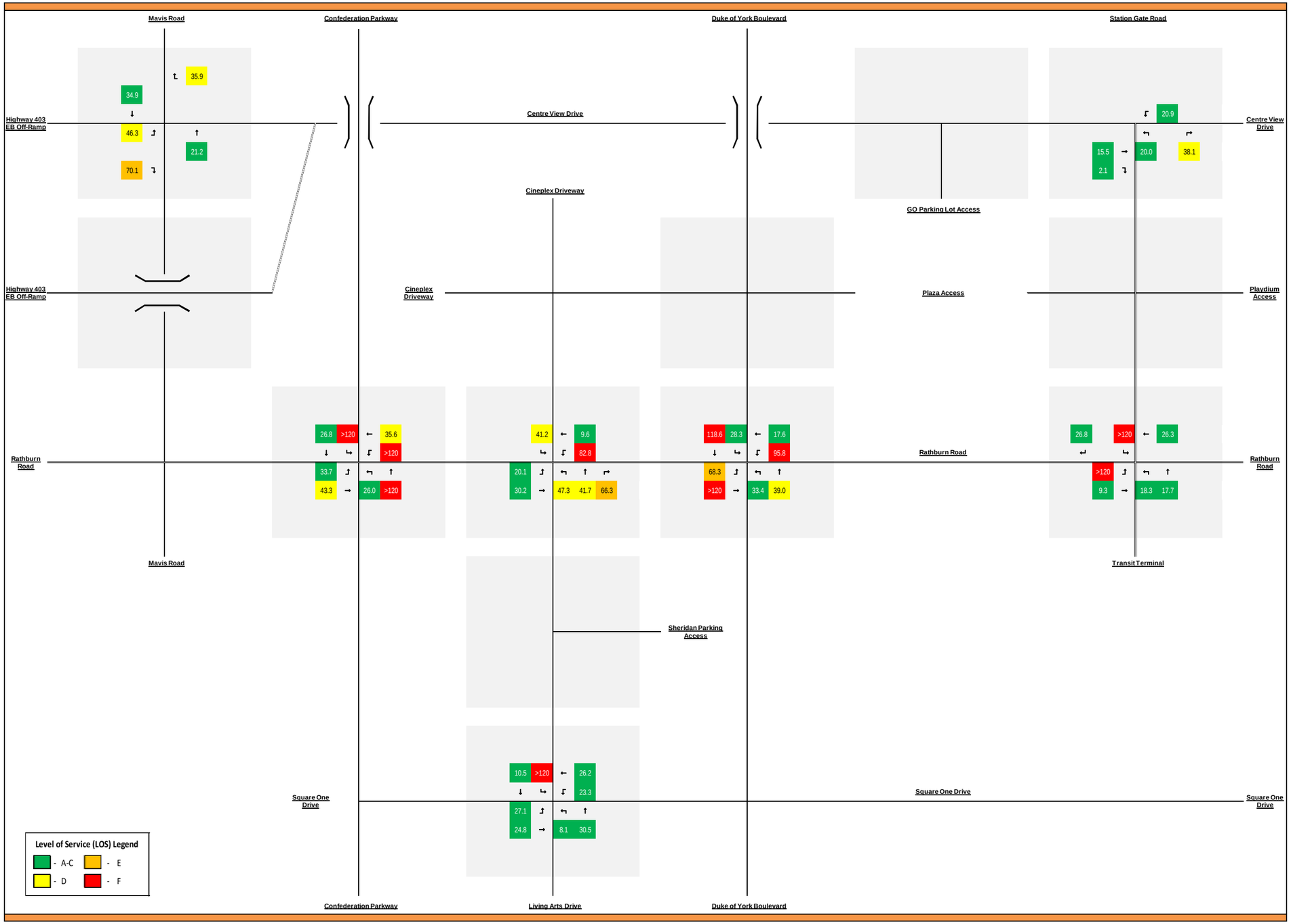


Figure C24 - Synchro 2041 "Do Nothing" 95th Percentile Queues AM

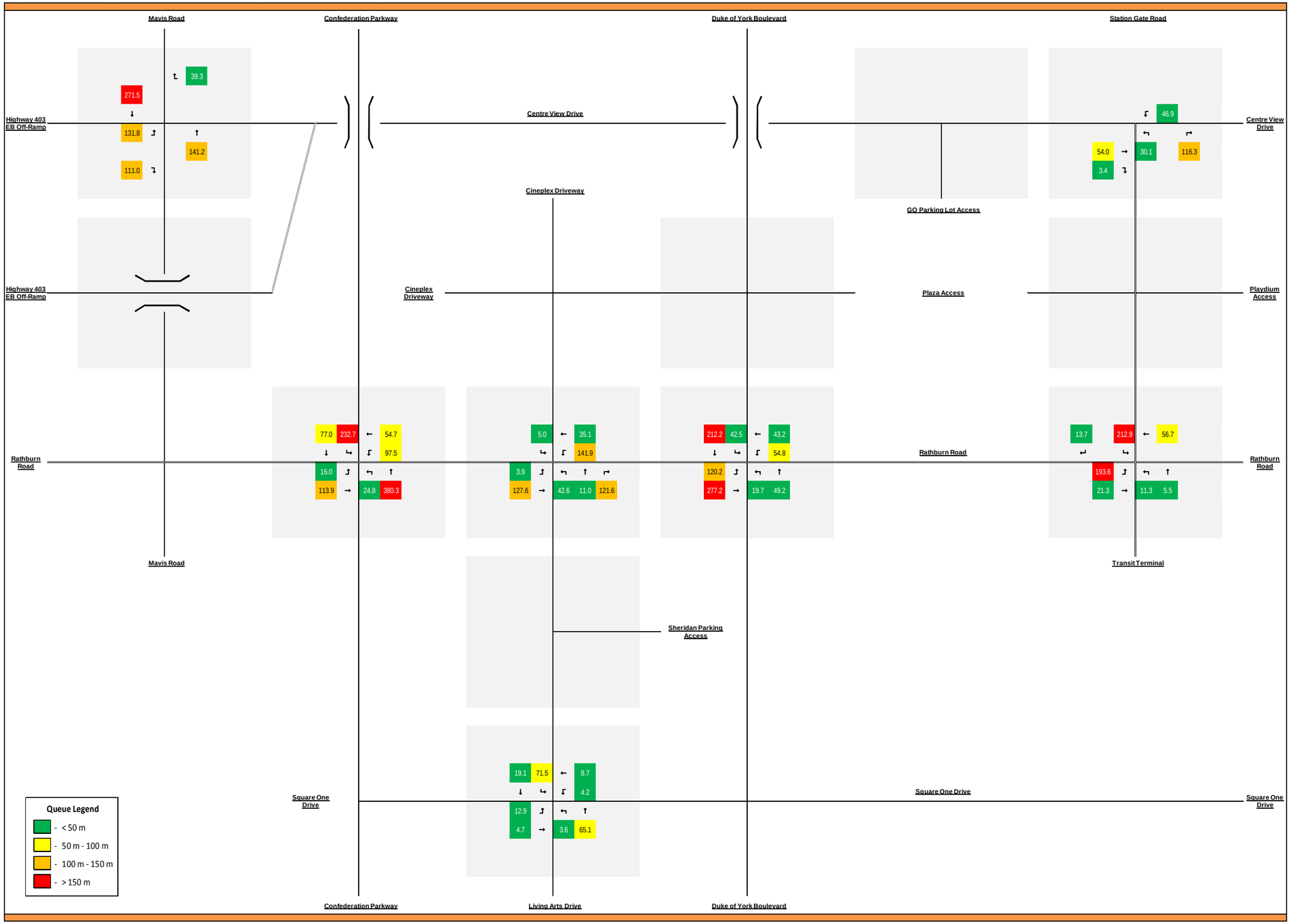


Figure C25 - Synchro 2041 "Do Nothing" VC AM

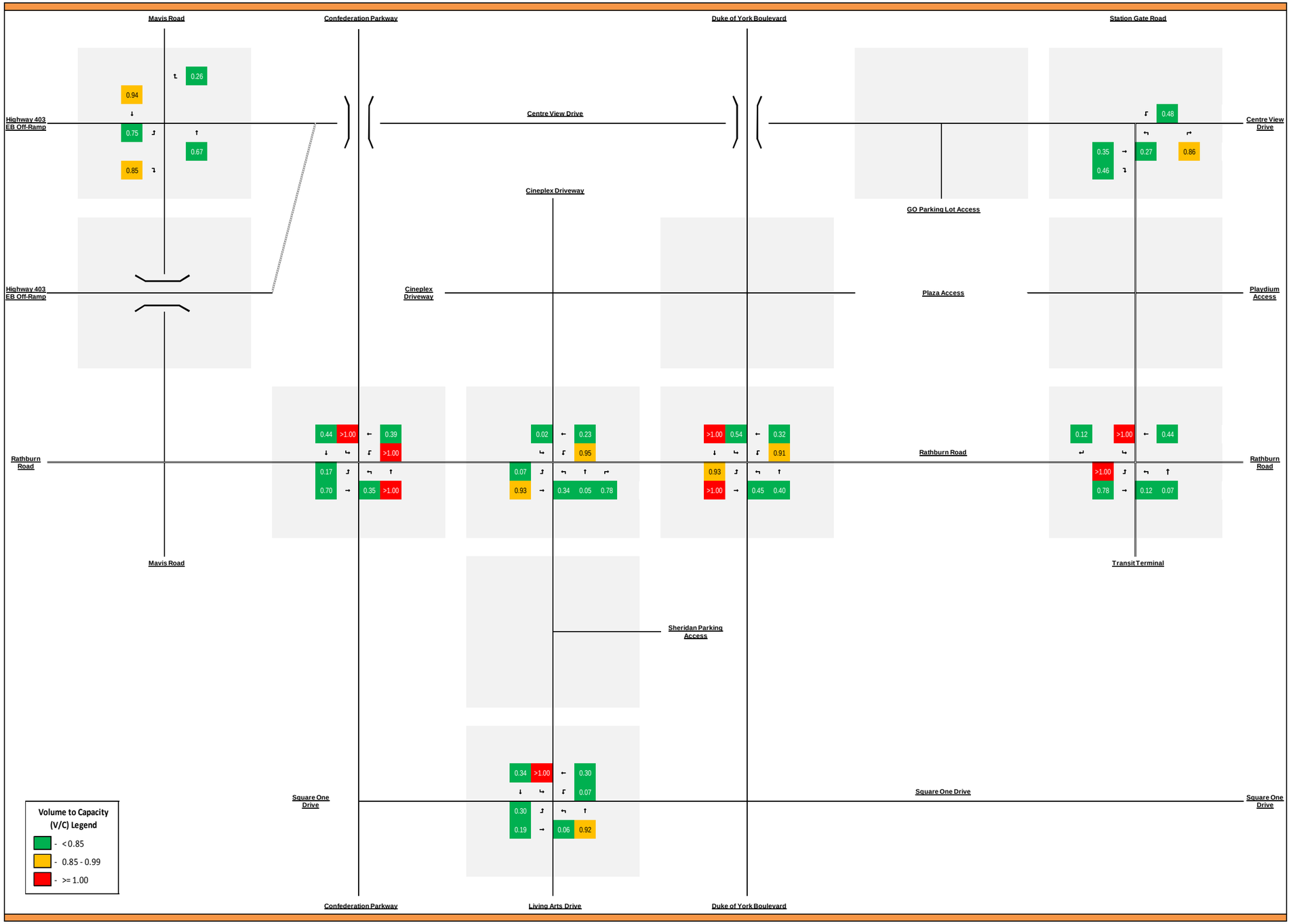


Figure C26 - Synchro 2041 "Do Nothing" Movement Delays PM

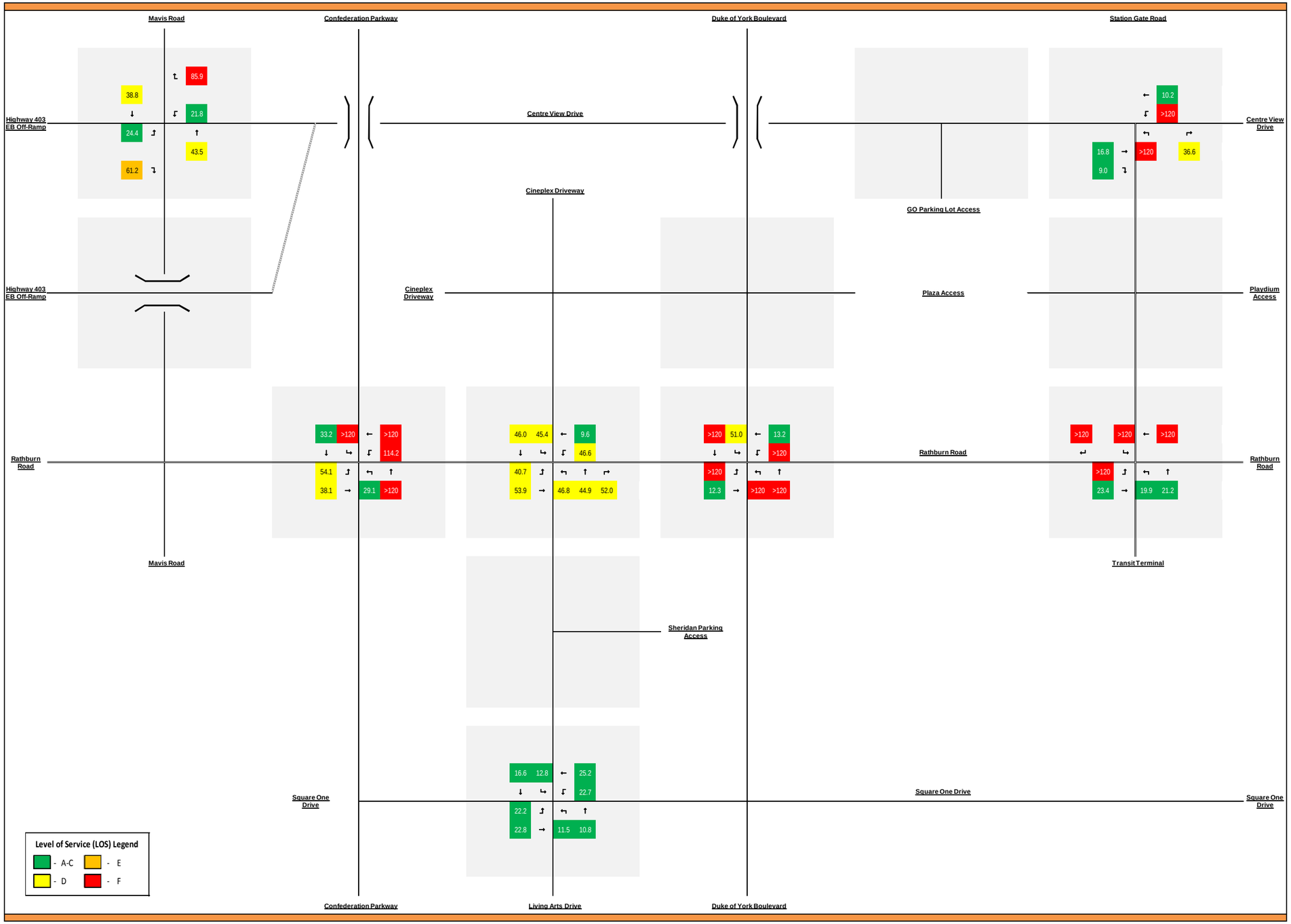


Figure C27 - Synchro 2041 "Do Nothing" 95th Percentile Queues PM

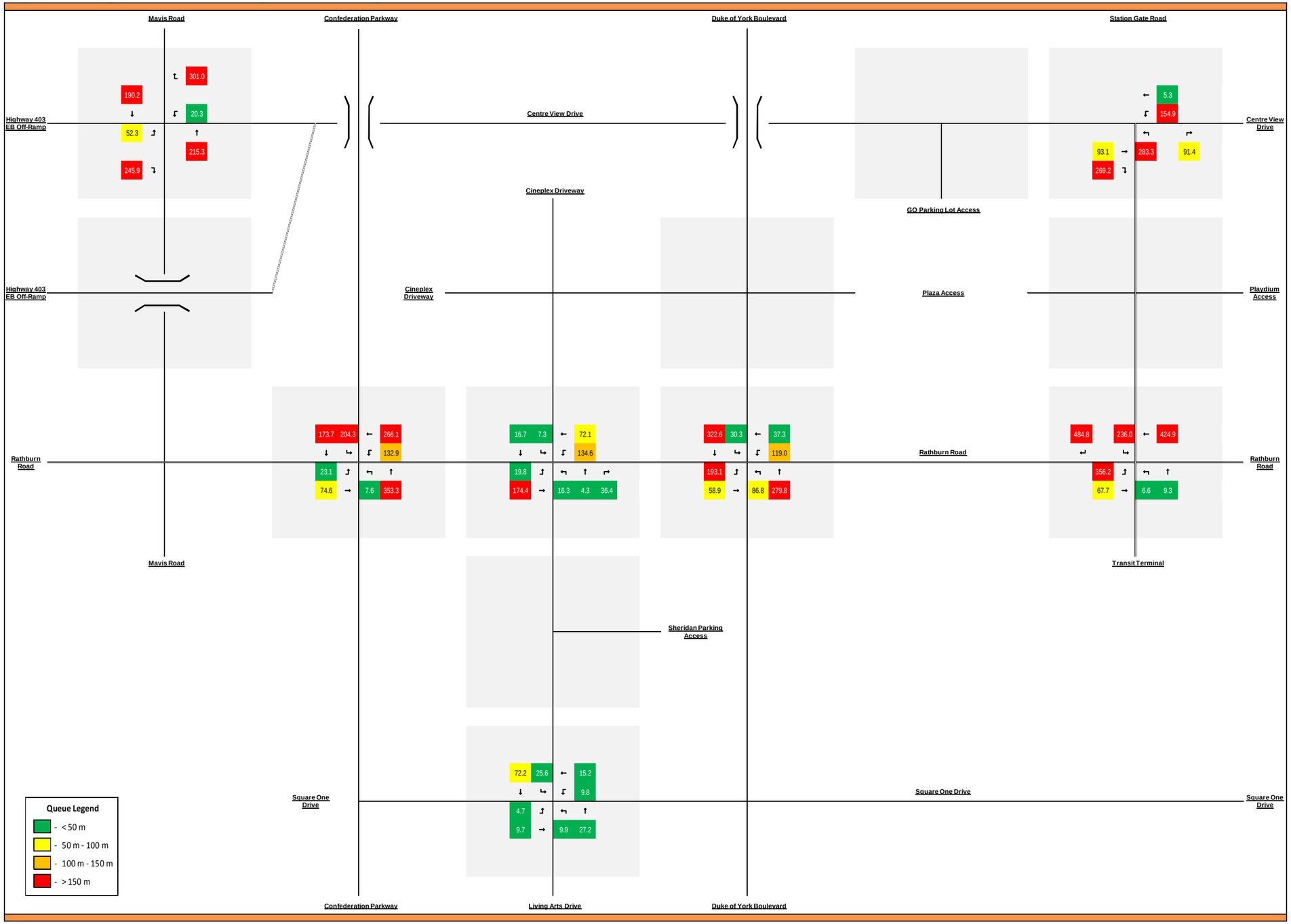


Figure C28 - Synchro 2041 "Do Nothing" VC PM

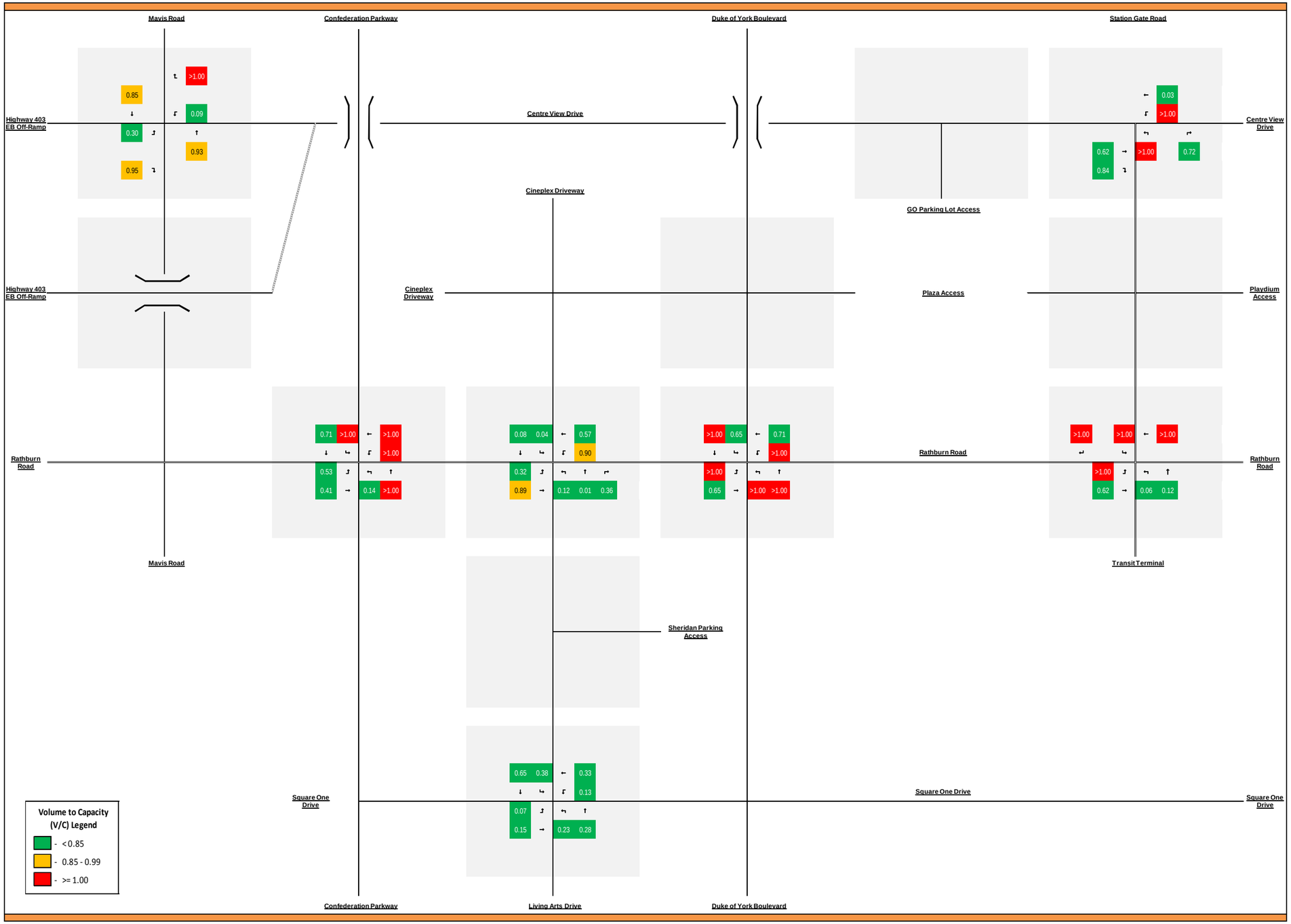


Figure C29 - VISSIM 2021 "Do Nothing" Movement Delays AM

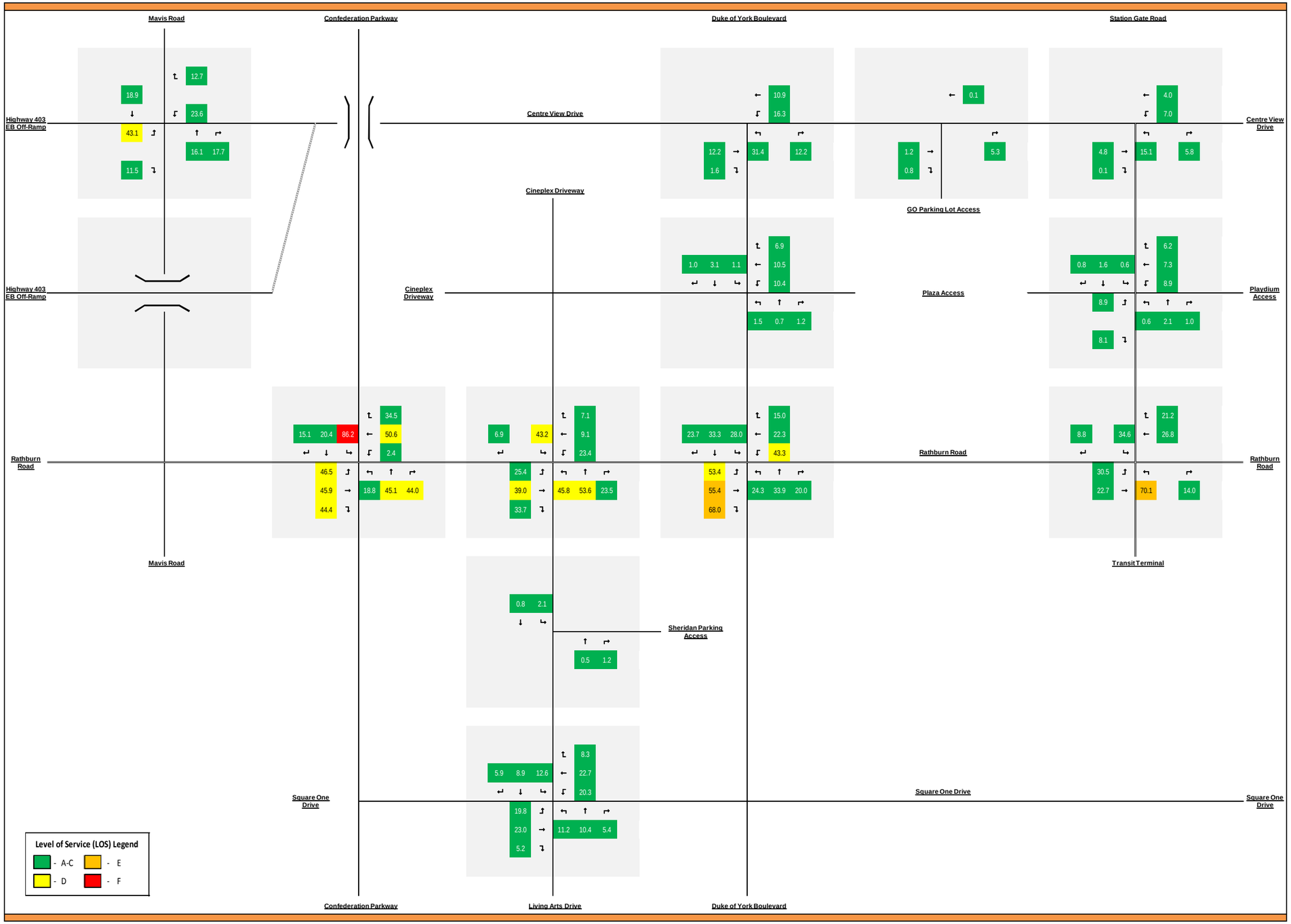


Figure C30 - VISSIM 2021 "Do Nothing" Average Queues AM

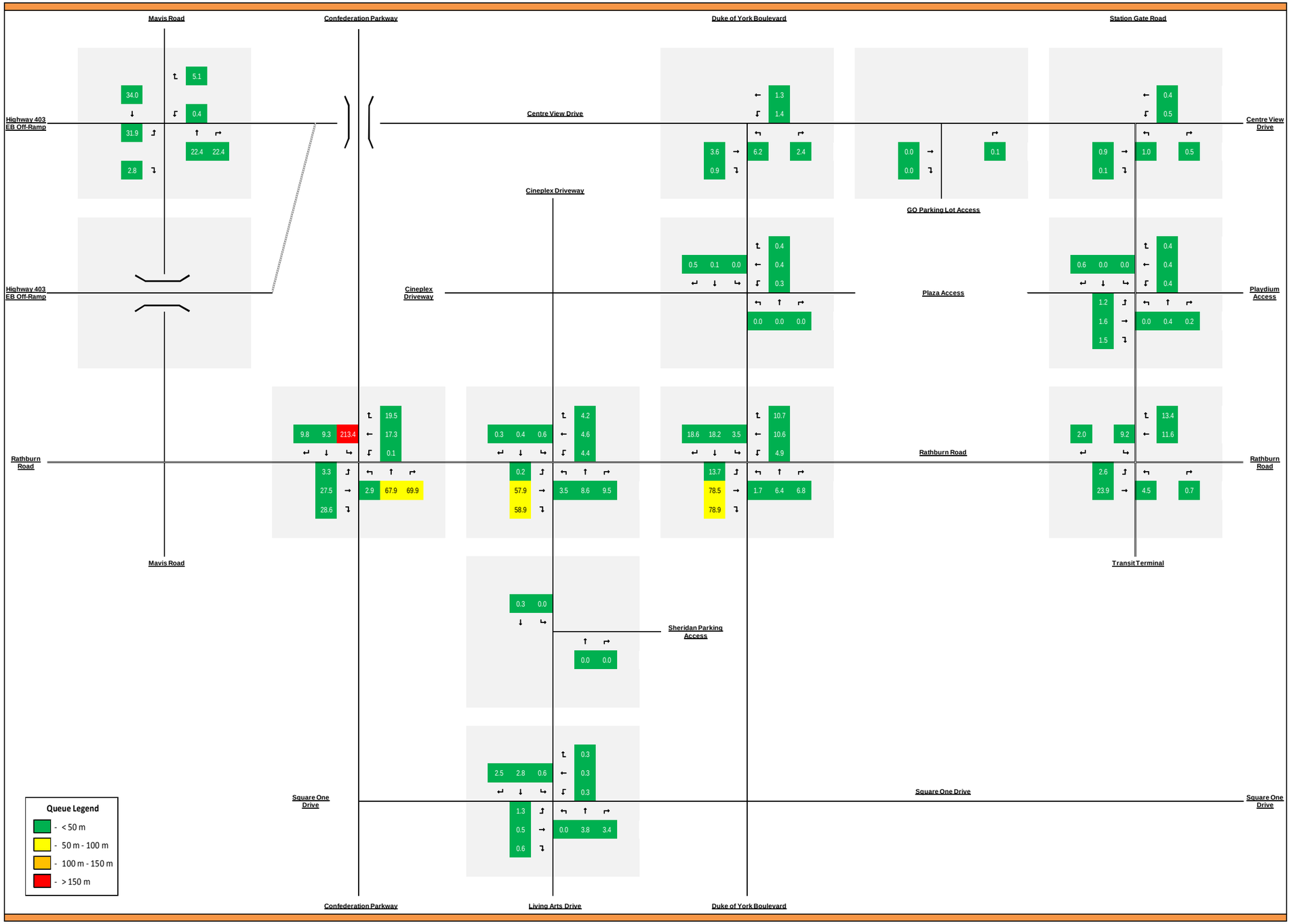


Figure C31 - VISSIM 2021 "Do Nothing" Movement Delays PM

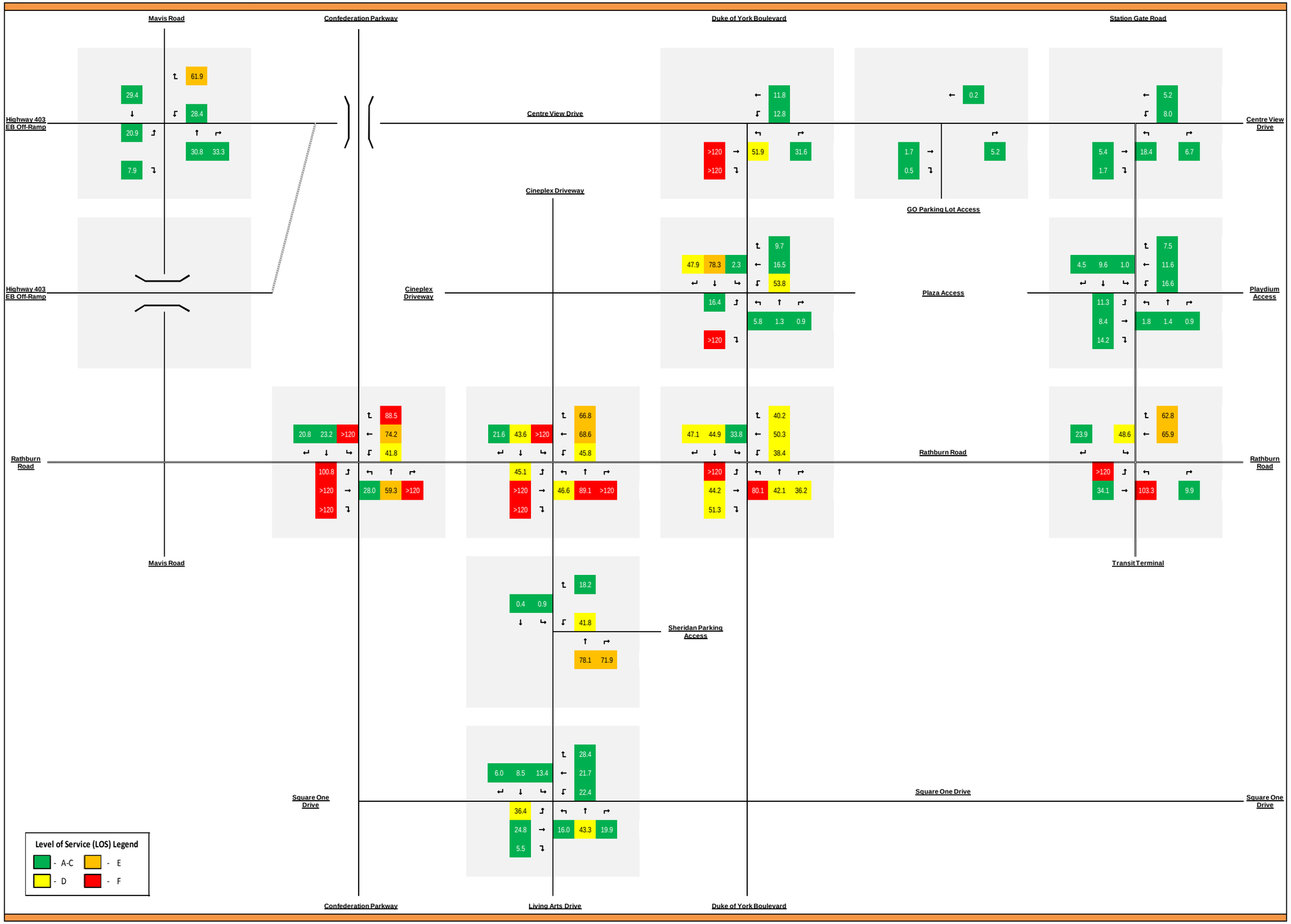


Figure C32 - VISSIM 2021 "Do Nothing" Average Queues PM

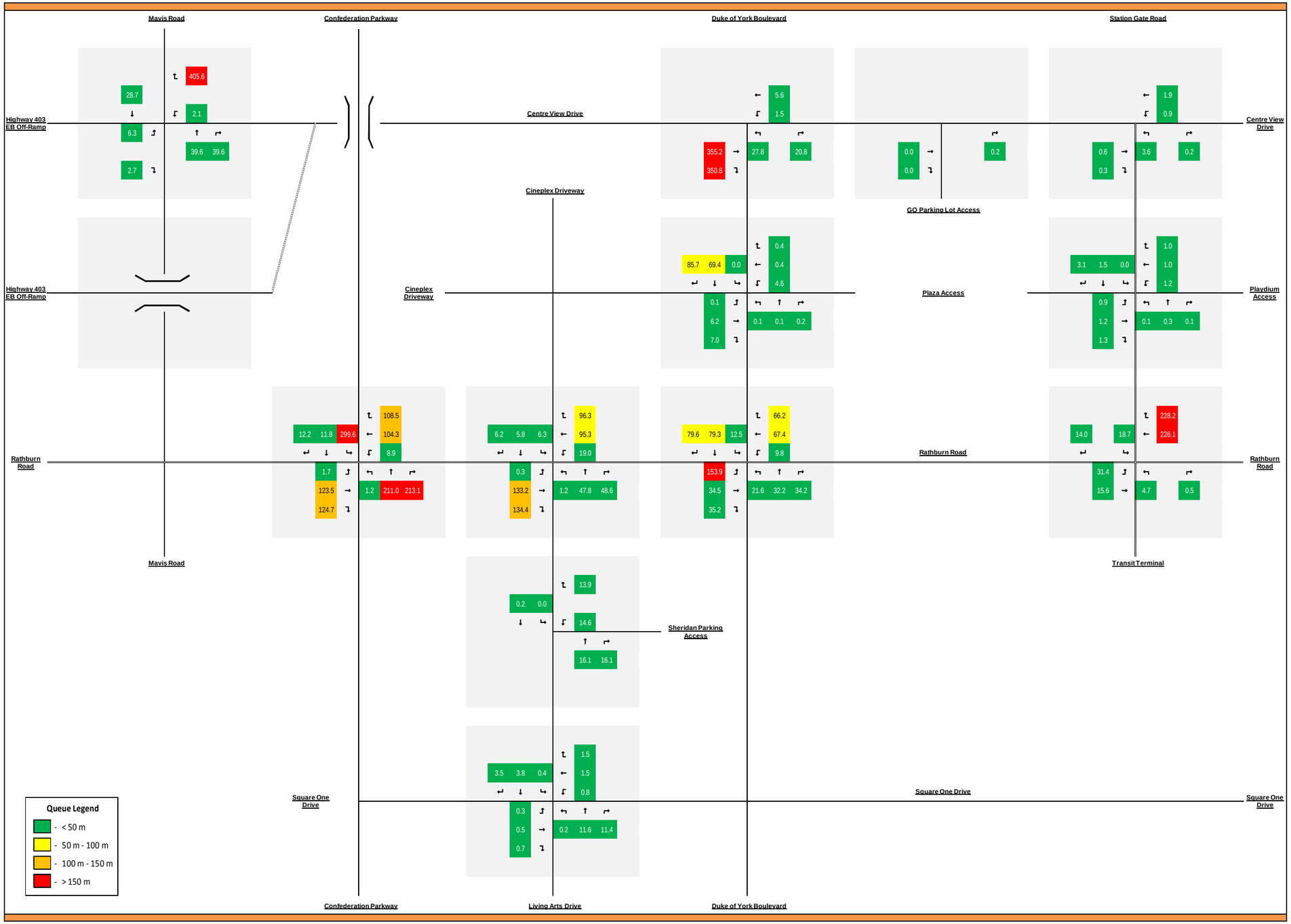


Figure C33 - VISSIM 2031 "Do Nothing" Movement Delays AM

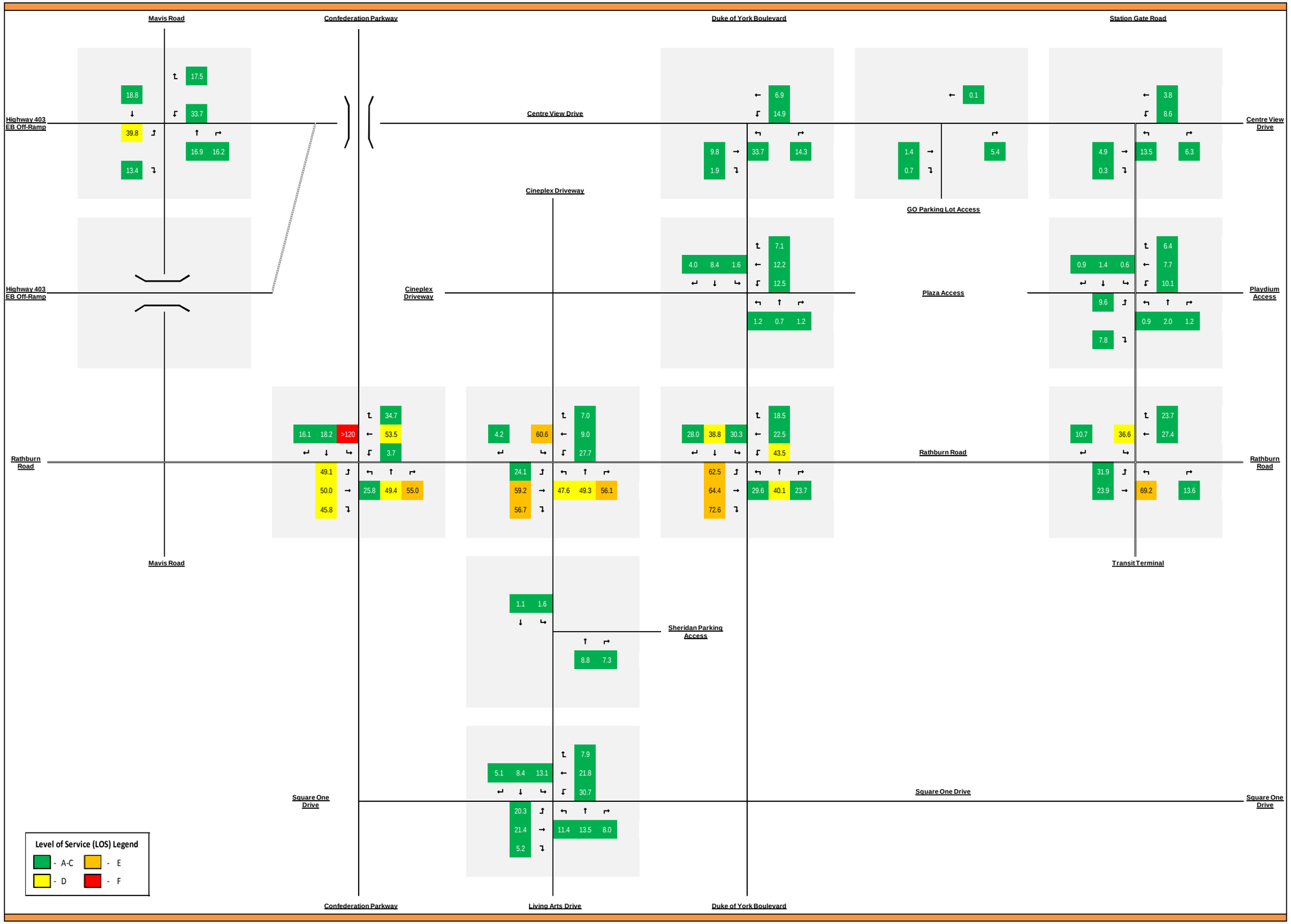


Figure C34 - VISSIM 2031 "Do Nothing" Average Queues AM

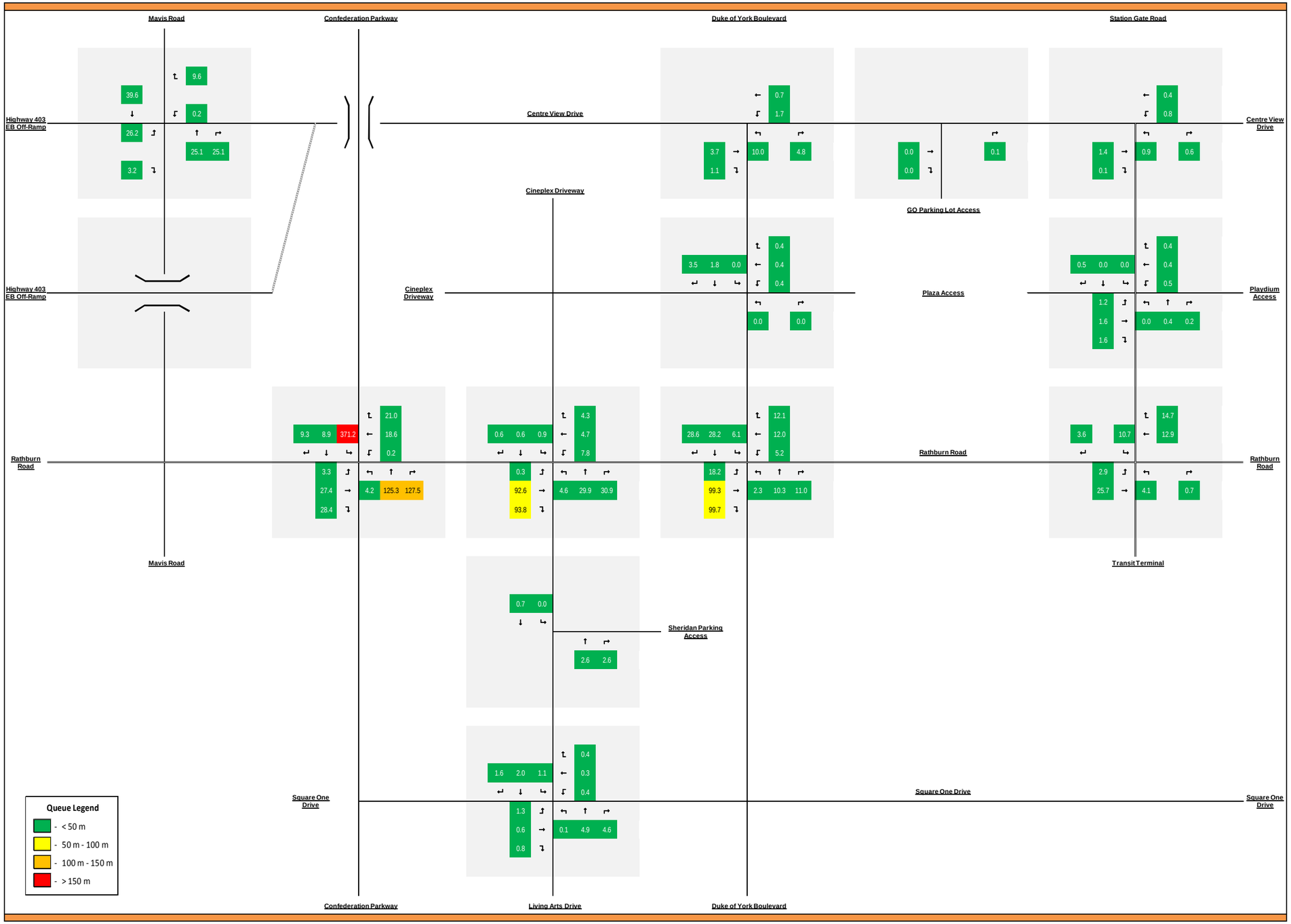


Figure C35 - VISSIM 2031 "Do Nothing" Movement Delays PM

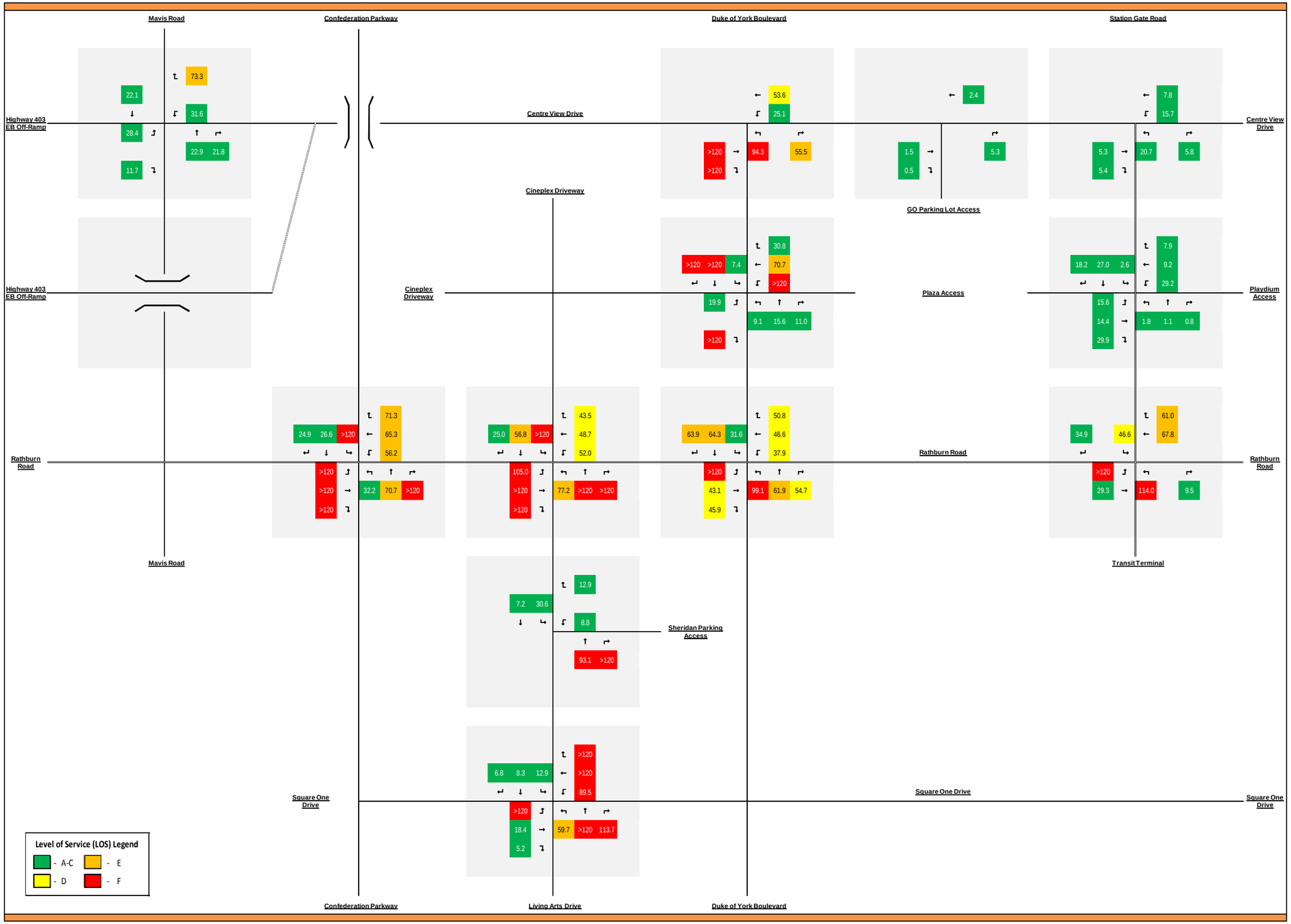


Figure C36 - VISSIM 2031 "Do Nothing" Average Queues PM

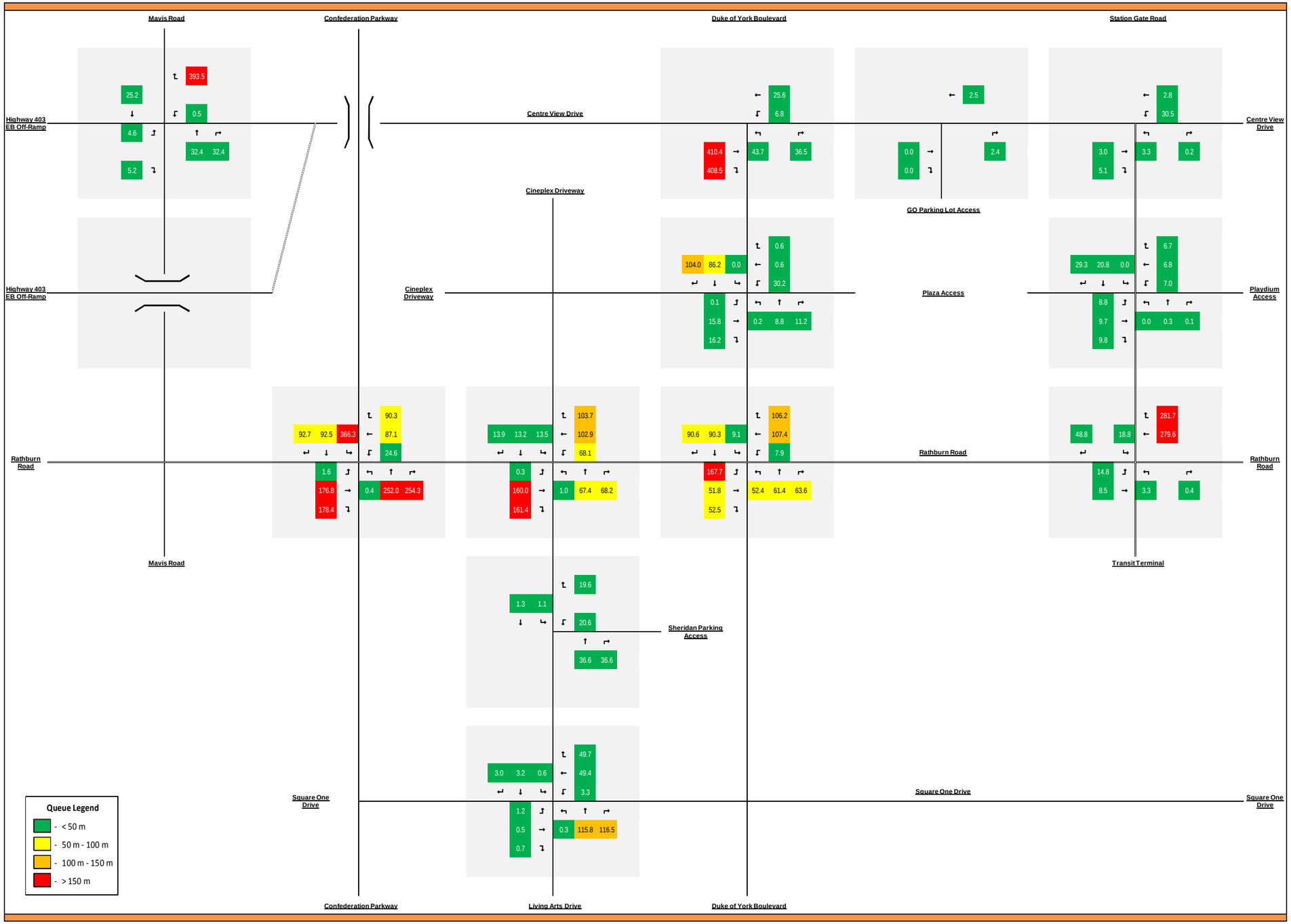


Figure C37 - VISSIM 2041 "Do Nothing" Movement Delays AM

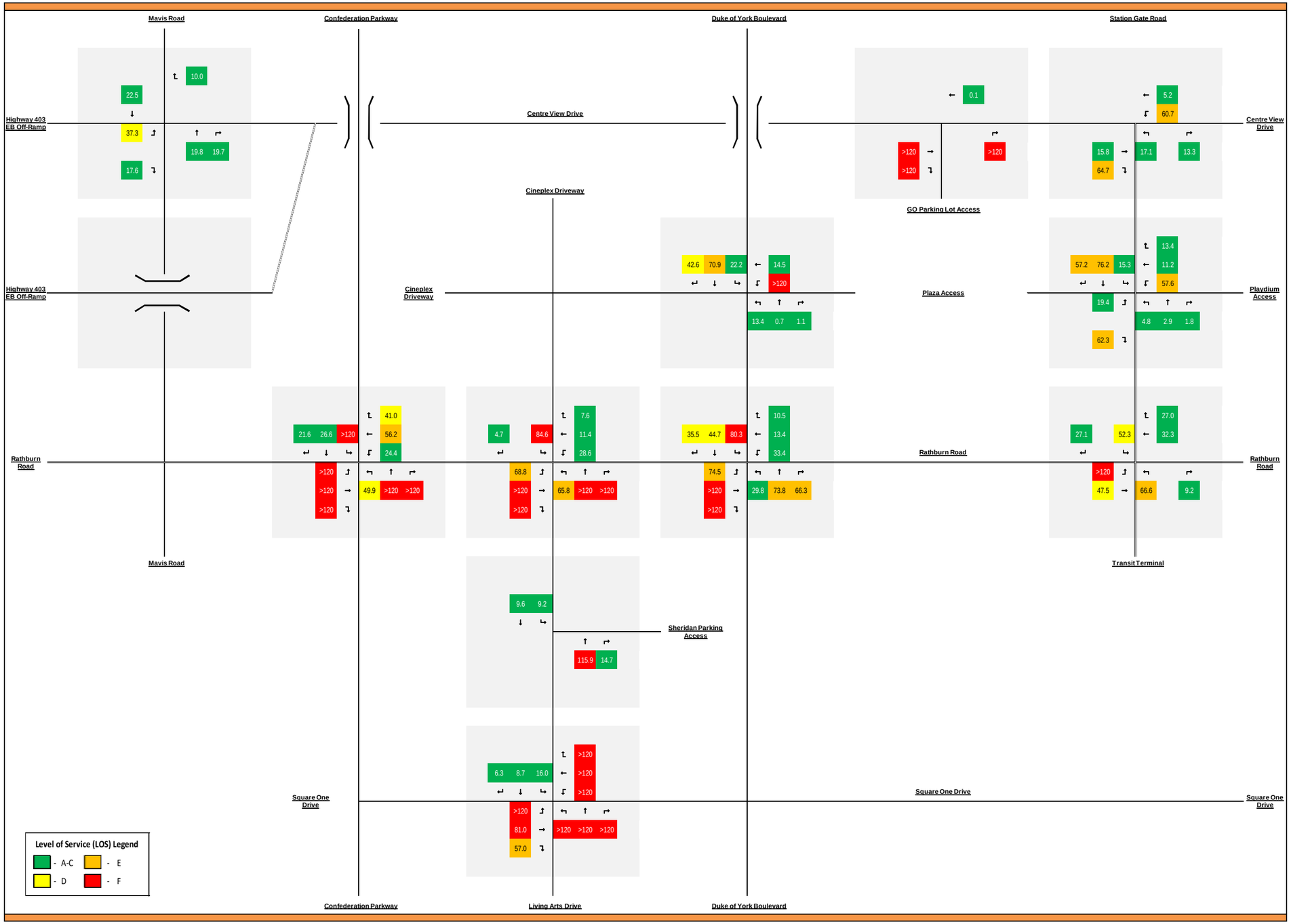


Figure C38 - VISSIM 2041 "Do Nothing" Average Queues AM

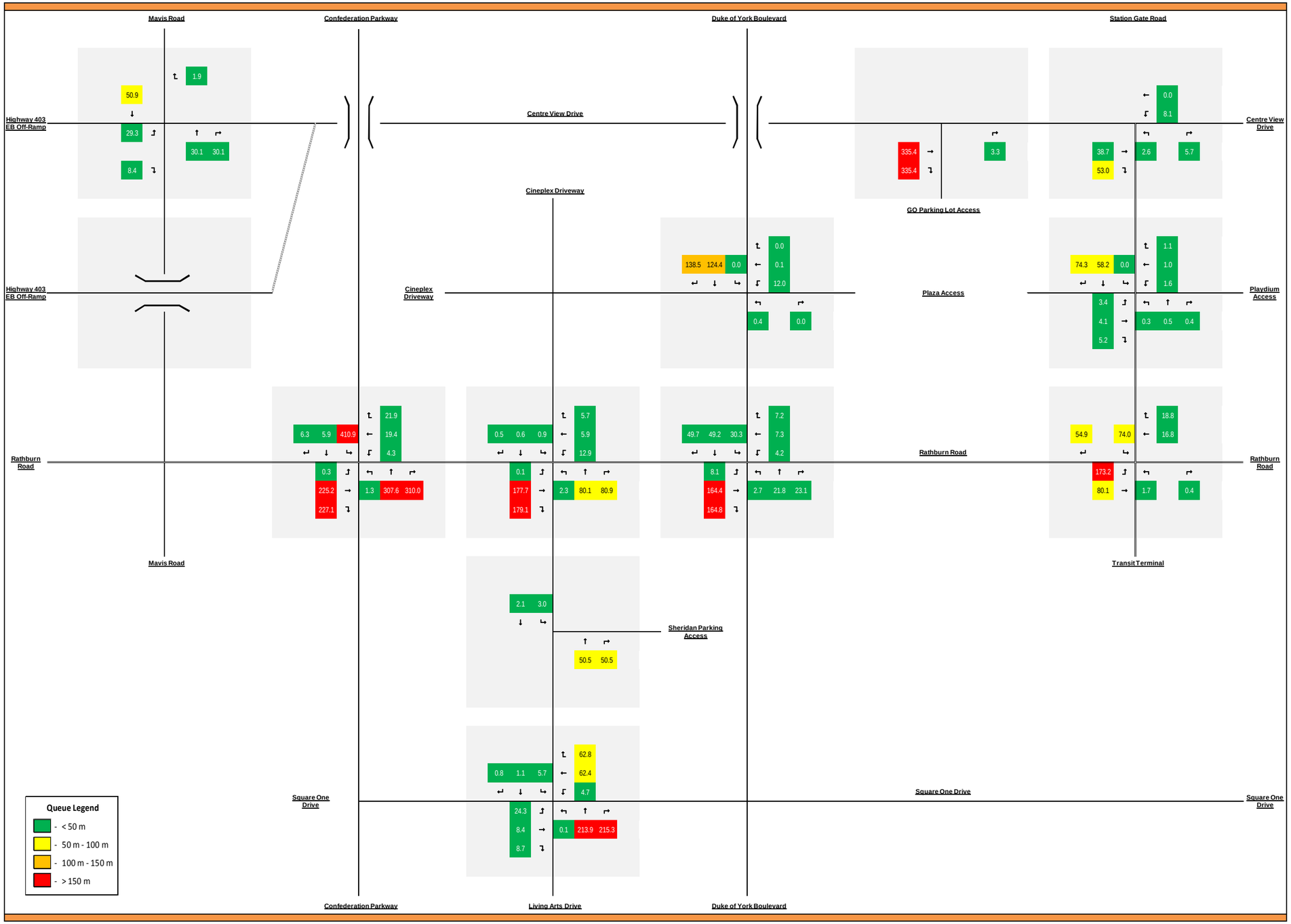


Figure C39 - VISSIM 2041 "Do Nothing" Movement Delays PM

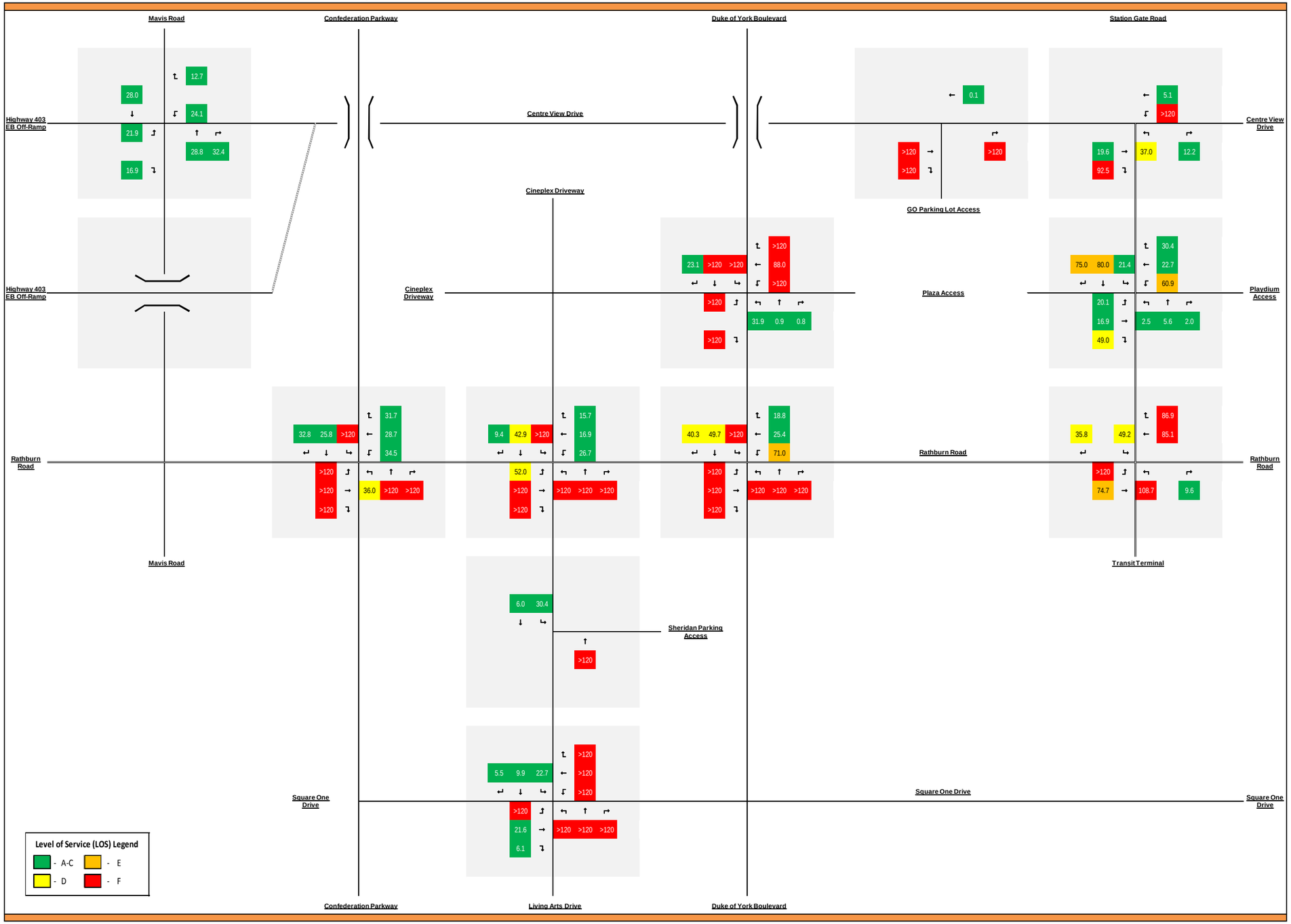
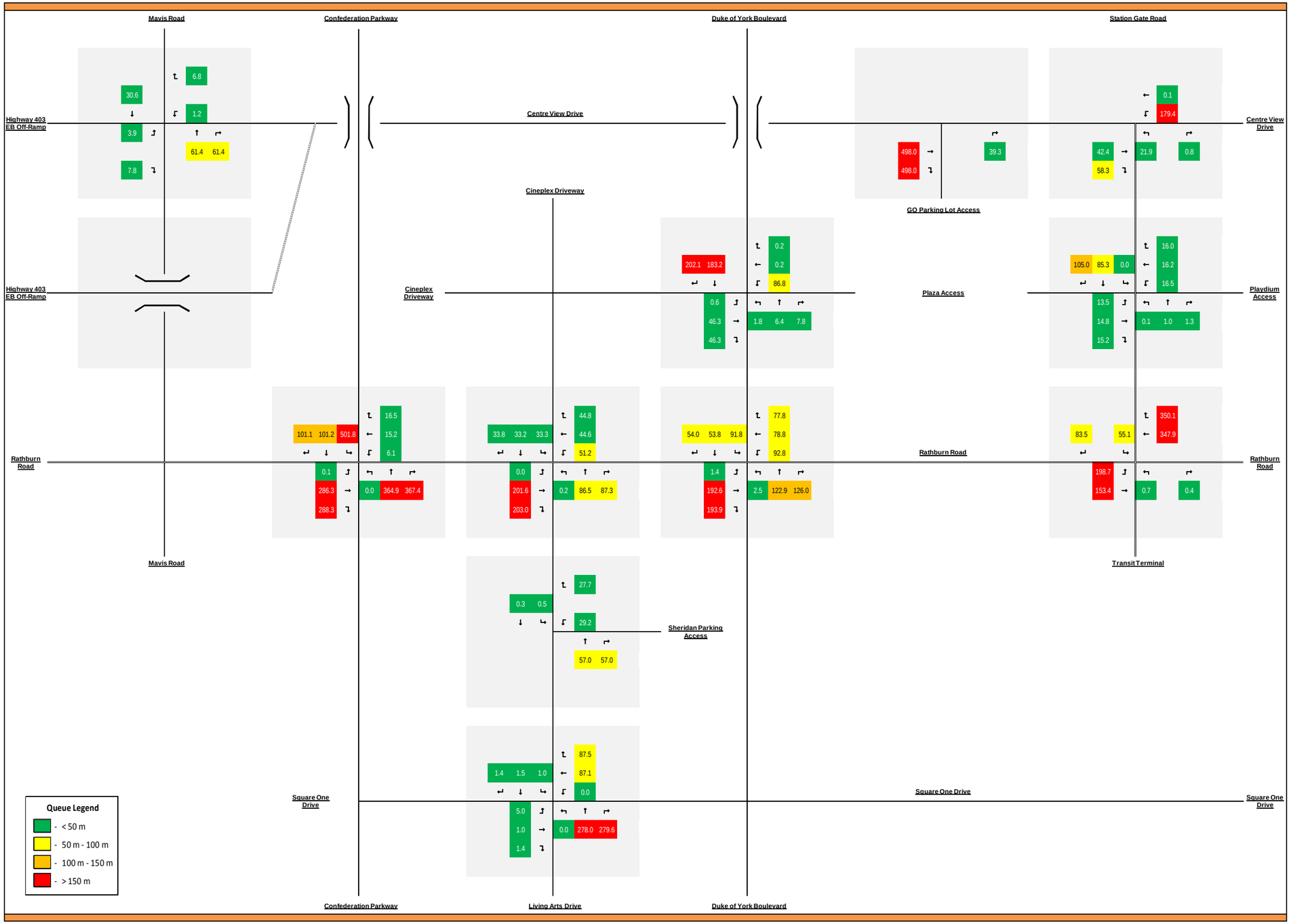


Figure C40 - VISSIM 2041 "Do Nothing" Average Queues PM



C.3 – WITH LIVING ARTS DRIVE EXTENSION

Figure C41 - Synchro 2021 With Extension Movement Delays AM

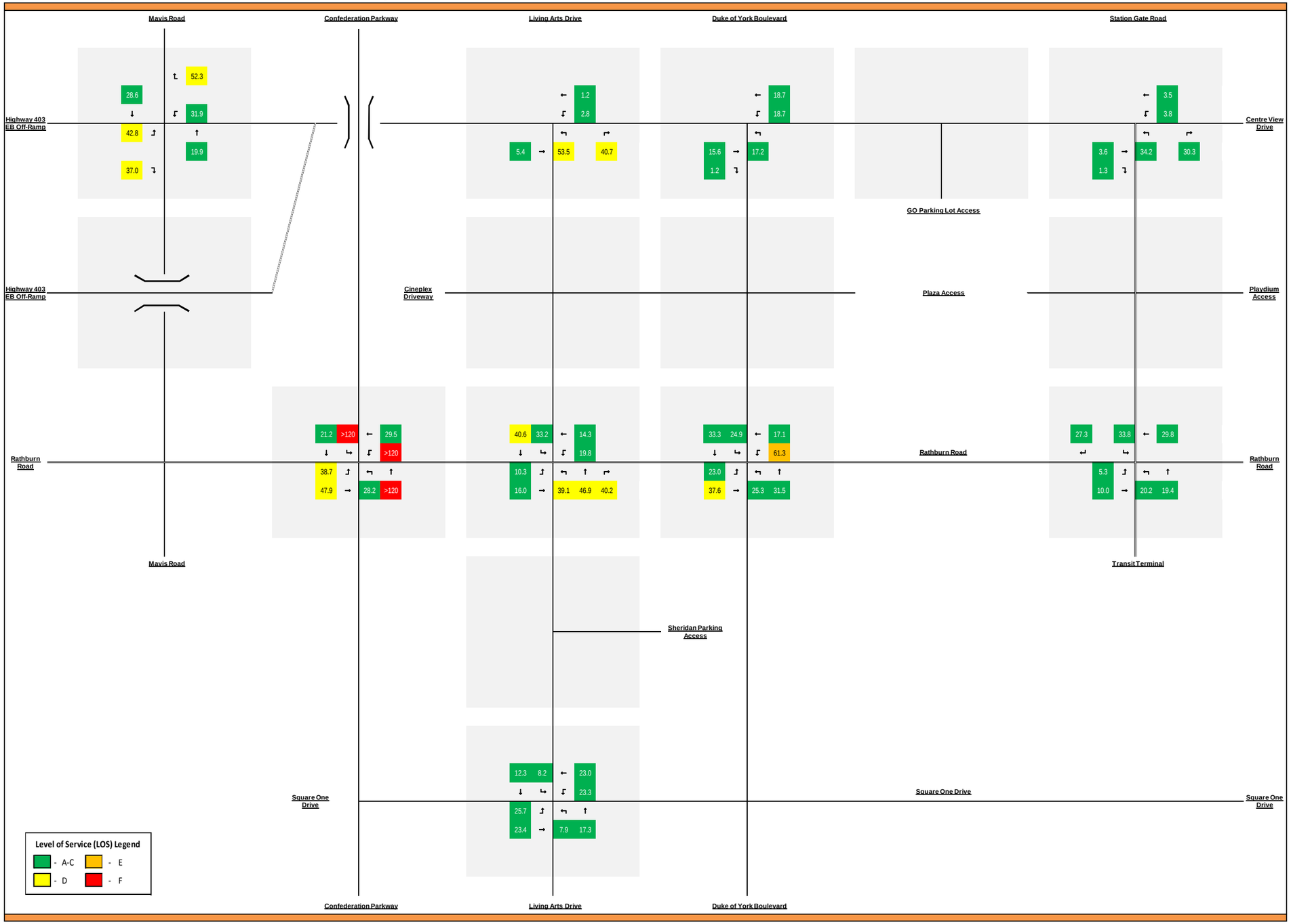


Figure C42 - Synchro 2021 With Extension 95th Percentile Queues AM

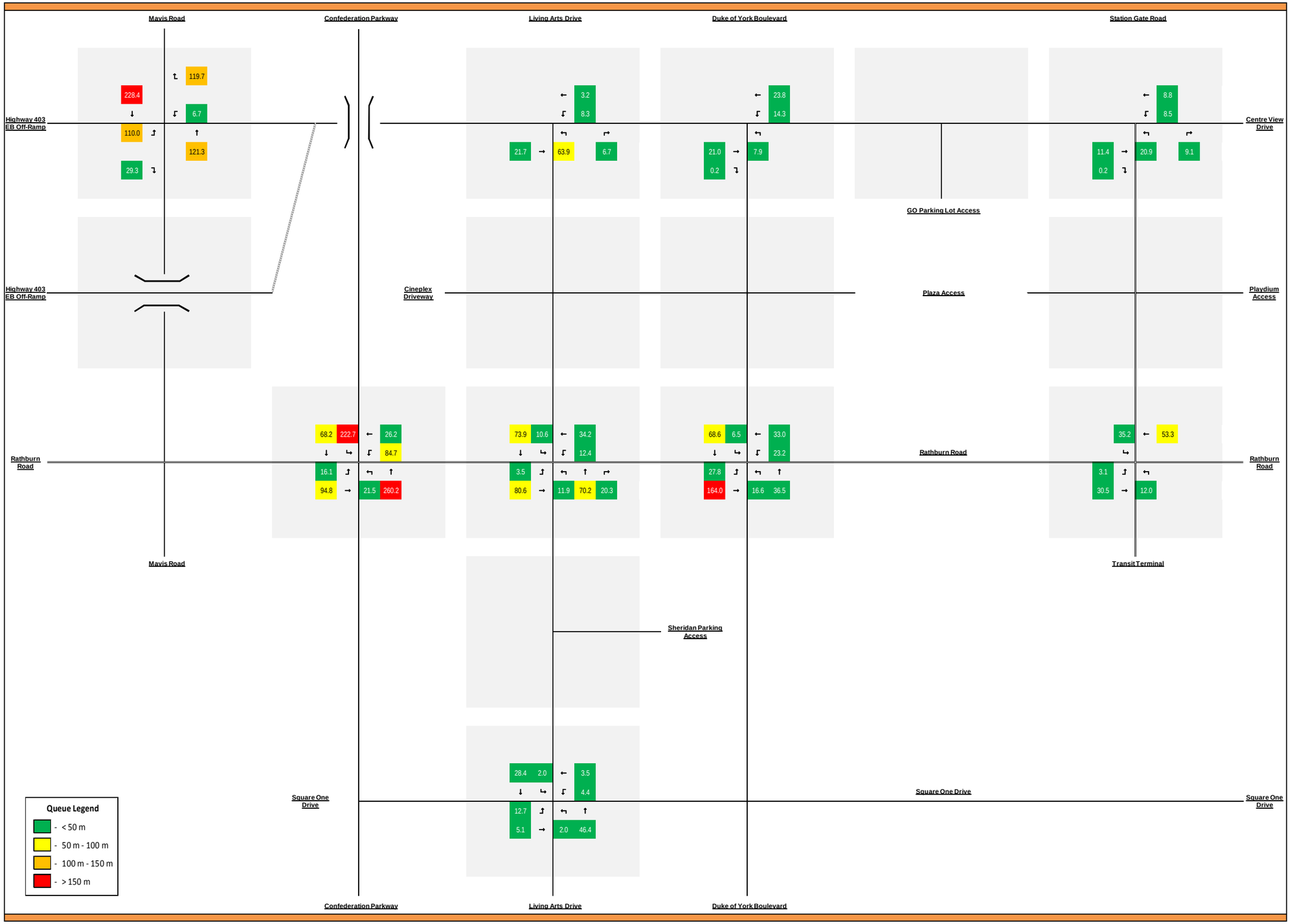


Figure C43 - Synchro 2021 With Extension VC AM

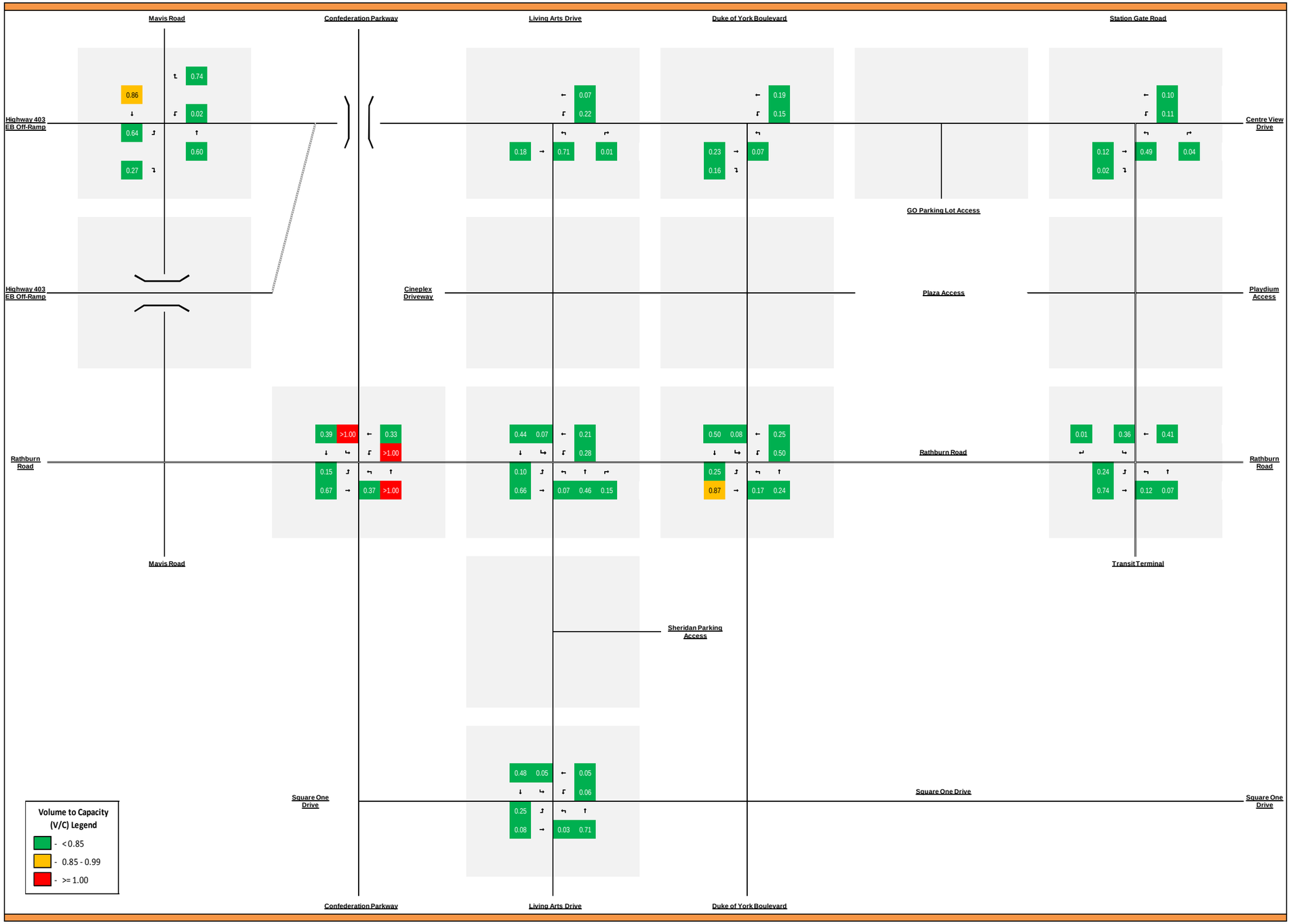


Figure C44 - Synchro 2021 With Extension Movement Delays PM

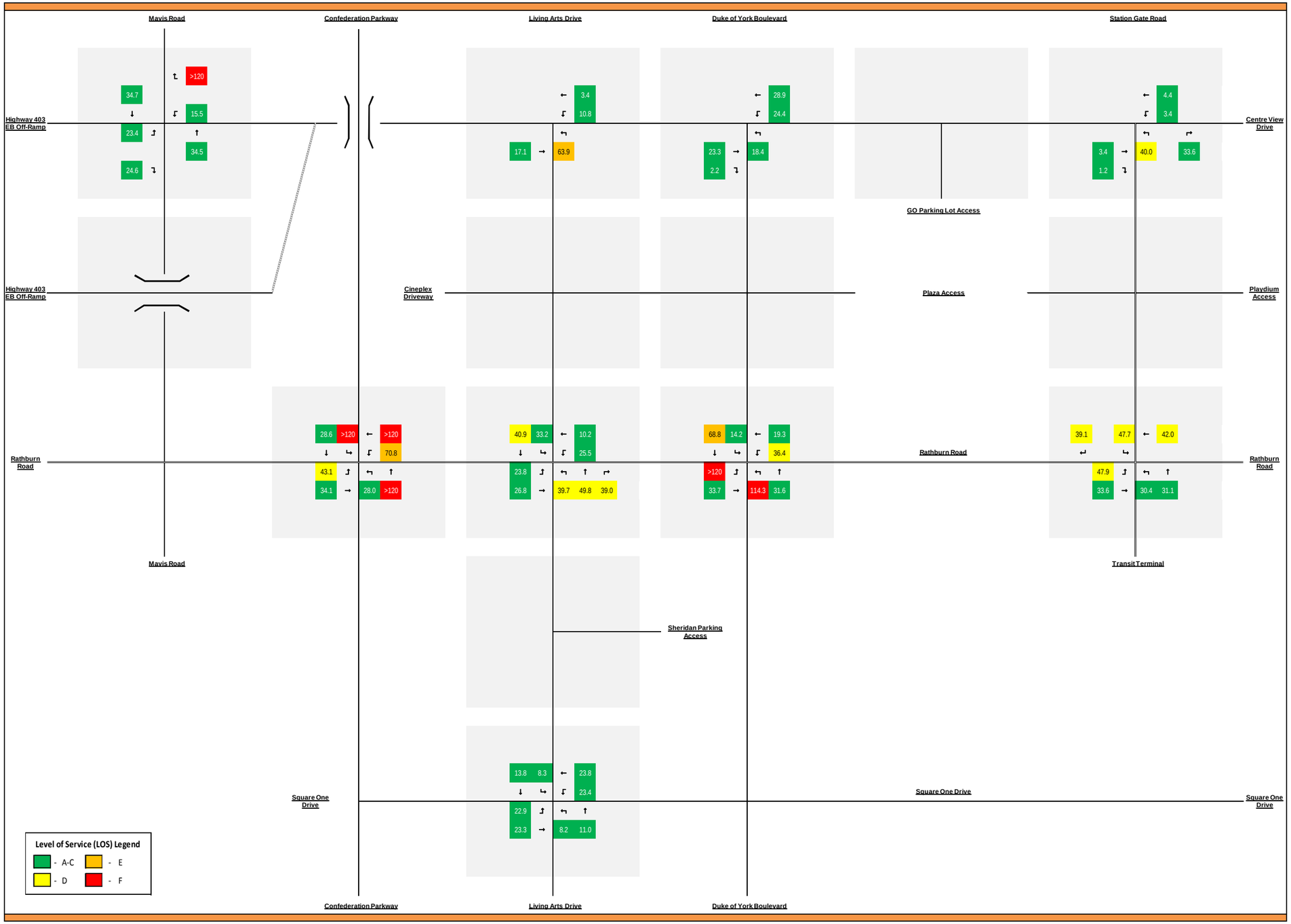


Figure C45 - Synchro 2021 With Extension 95th Percentile Queues PM

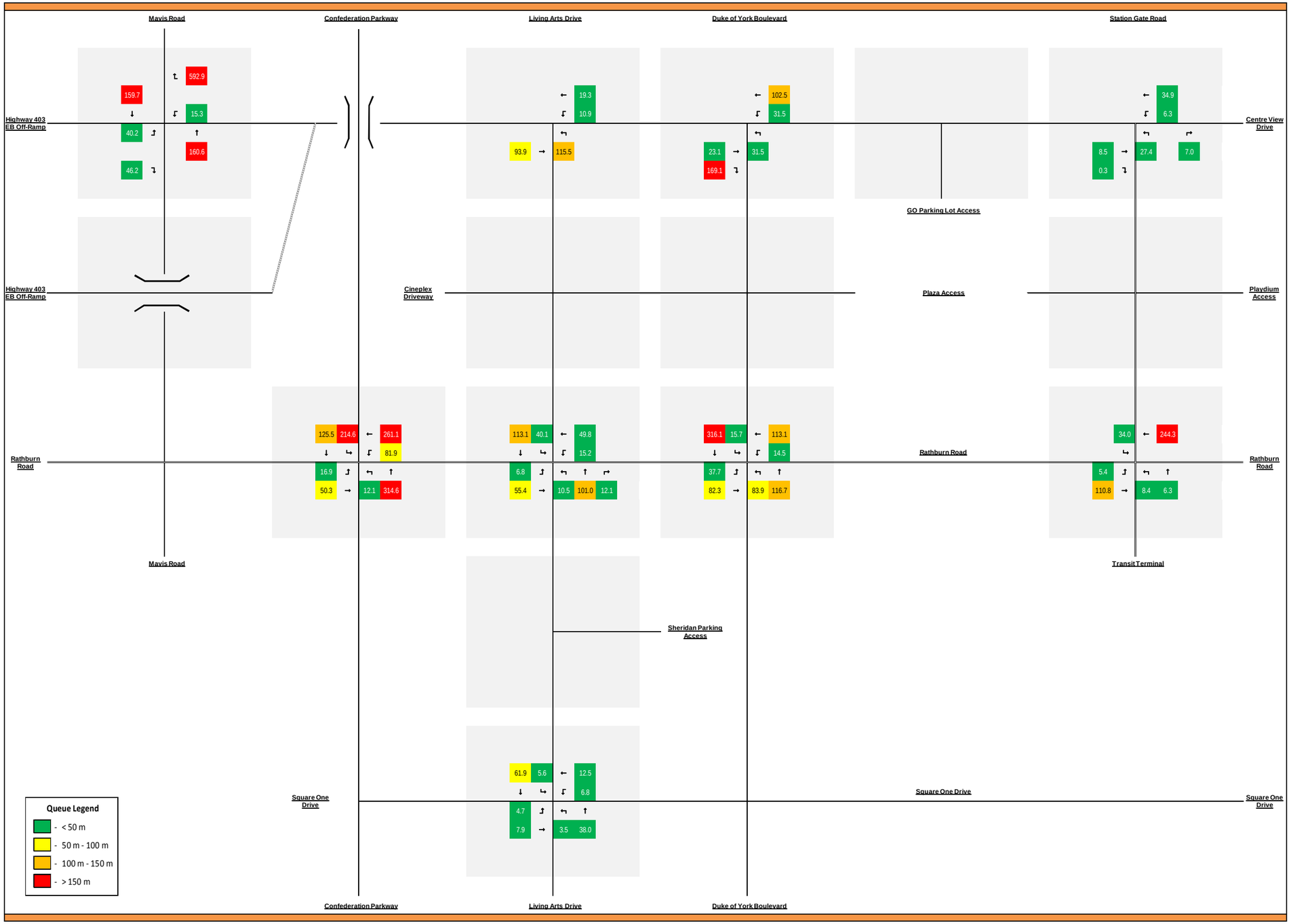


Figure C46 - Synchro 2021 With Extension VC PM

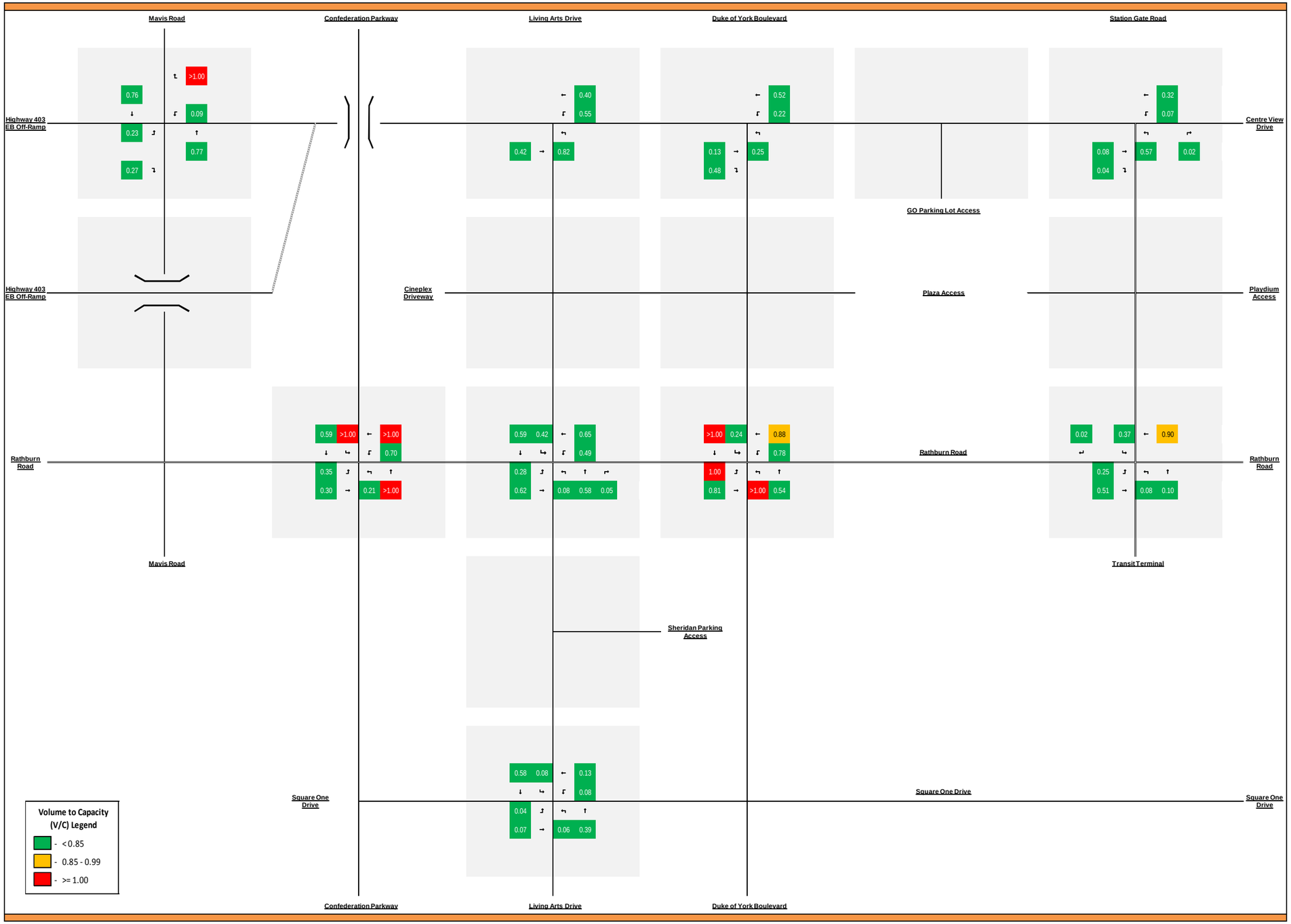


Figure C47 - Synchro 2031 With Extension Movement Delays AM

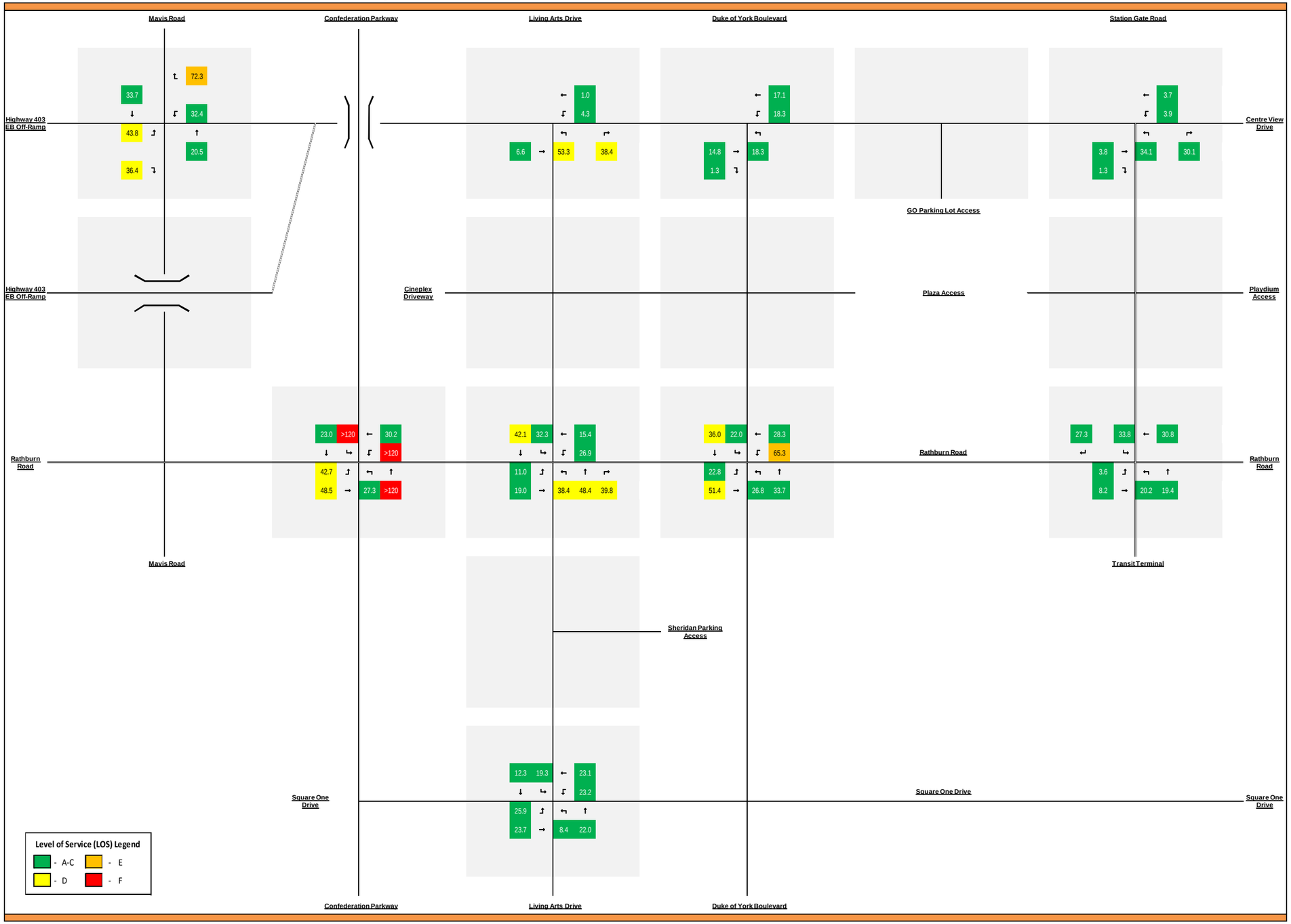


Figure C48 - Synchro 2031 With Extension 95th Percentile Queues AM

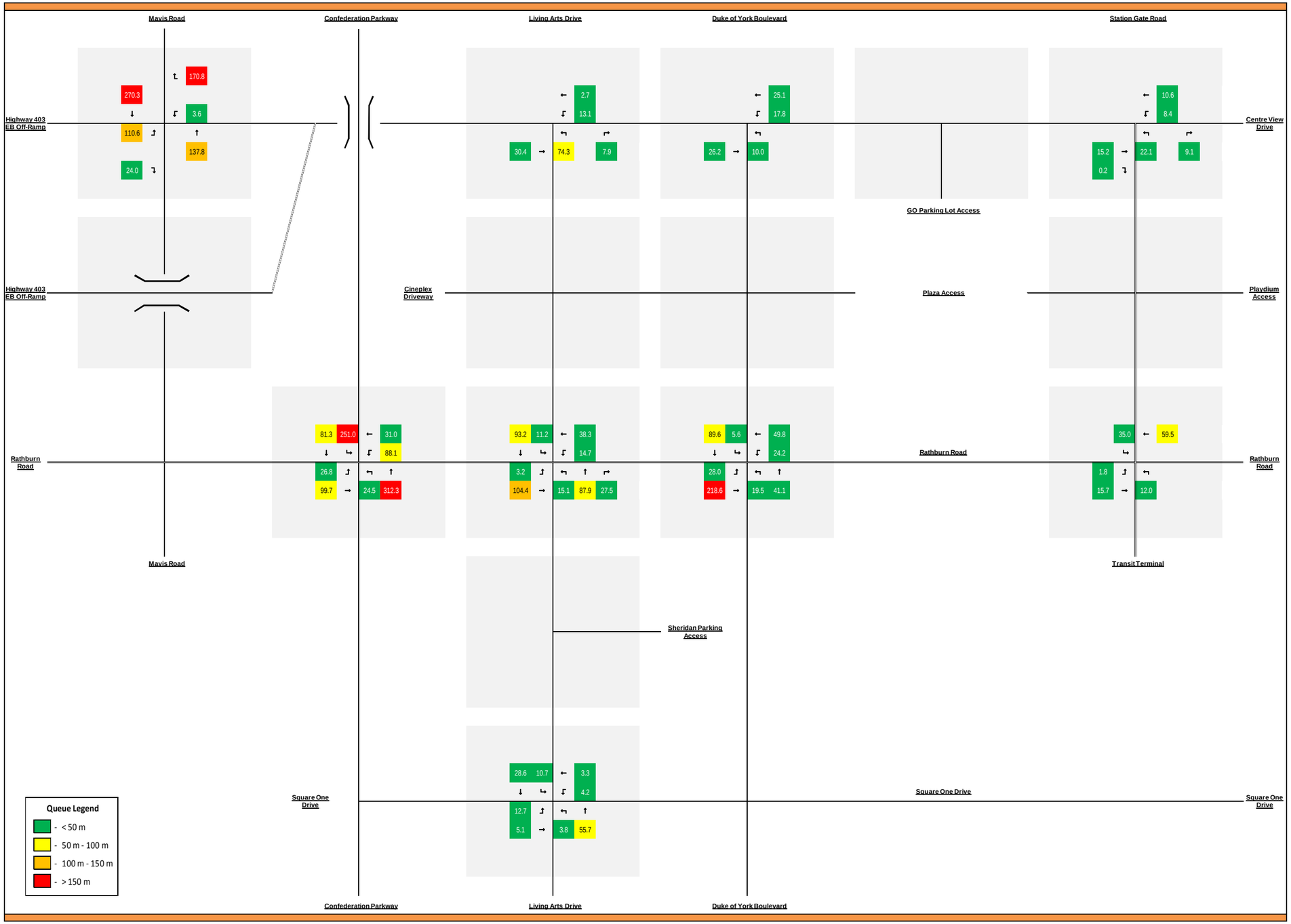


Figure C49 - Synchro 2031 With Extension VC AM

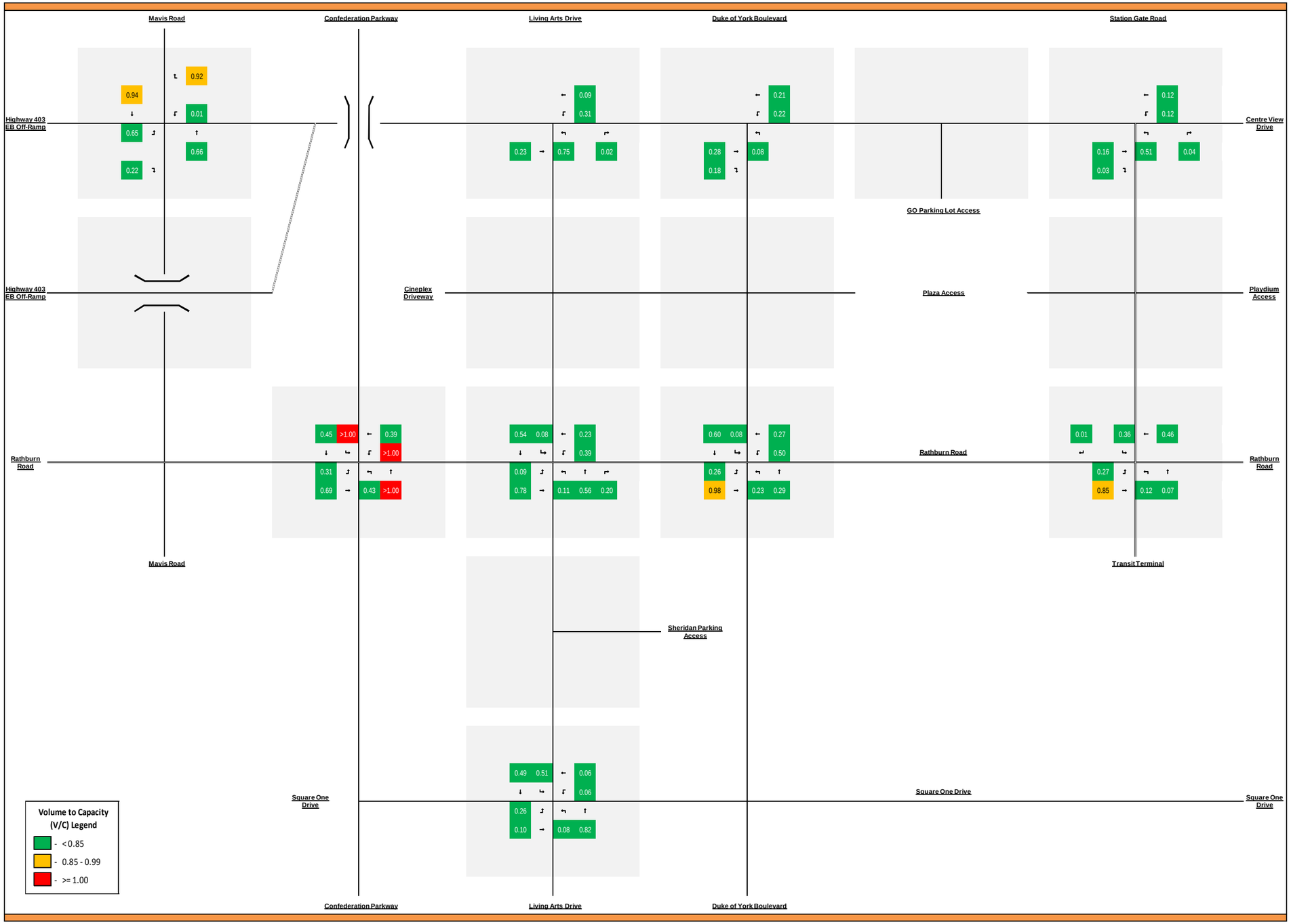


Figure C50 - Synchro 2031 With Extension Movement Delays PM

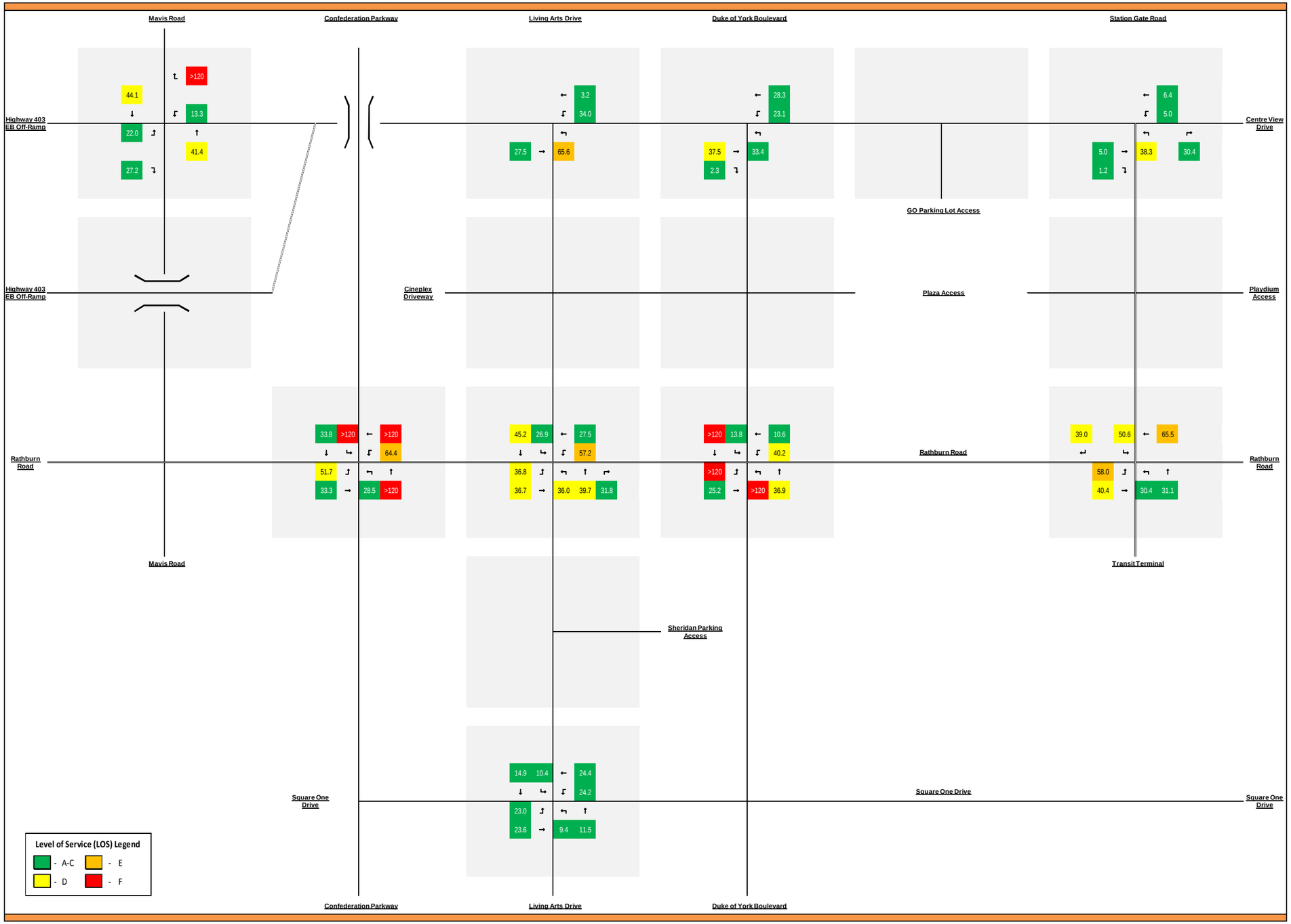


Figure C51 - Synchro 2031 With Extension 95th Percentile Queues PM

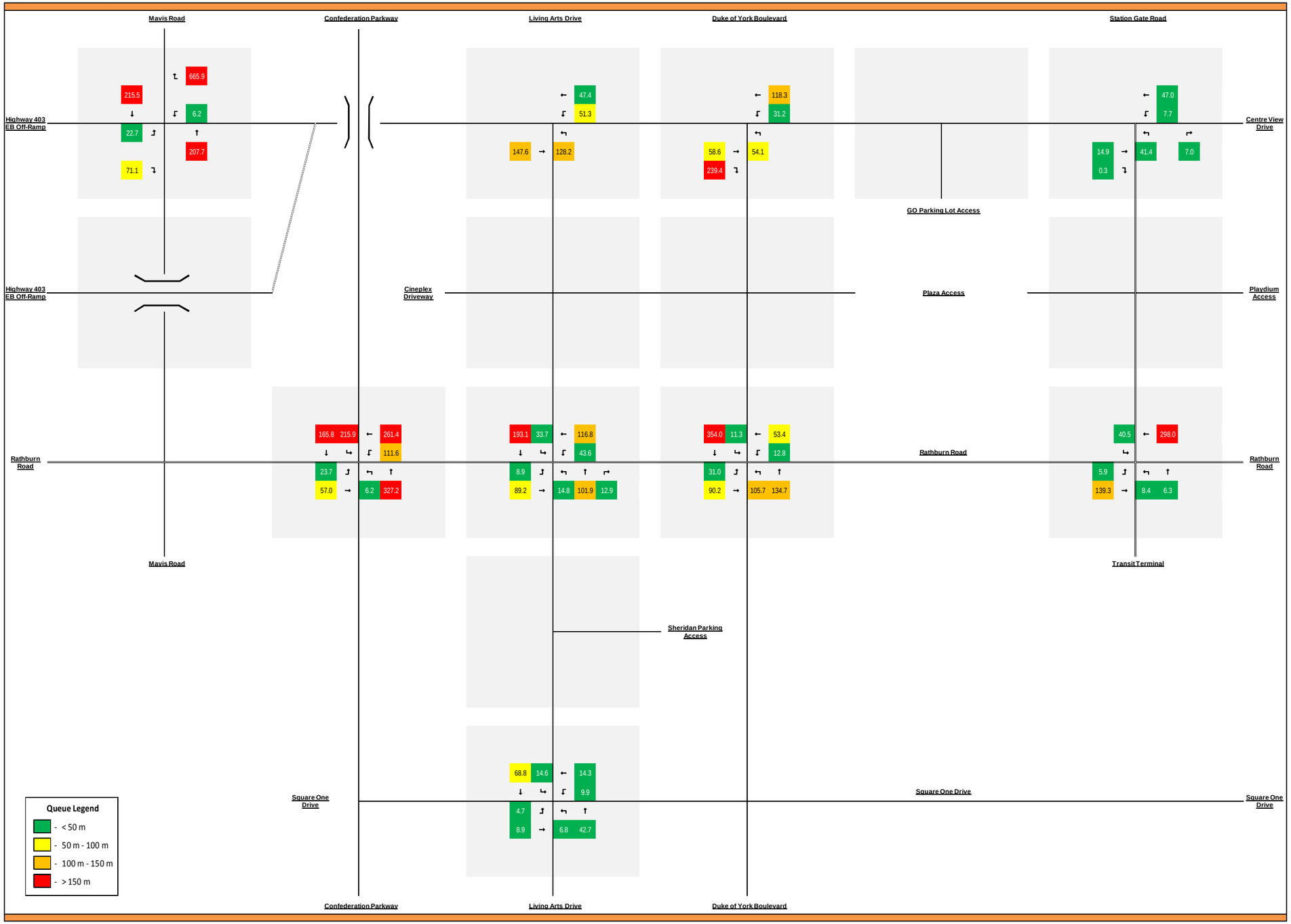


Figure C52 - Synchro 2031 With Extension VC PM

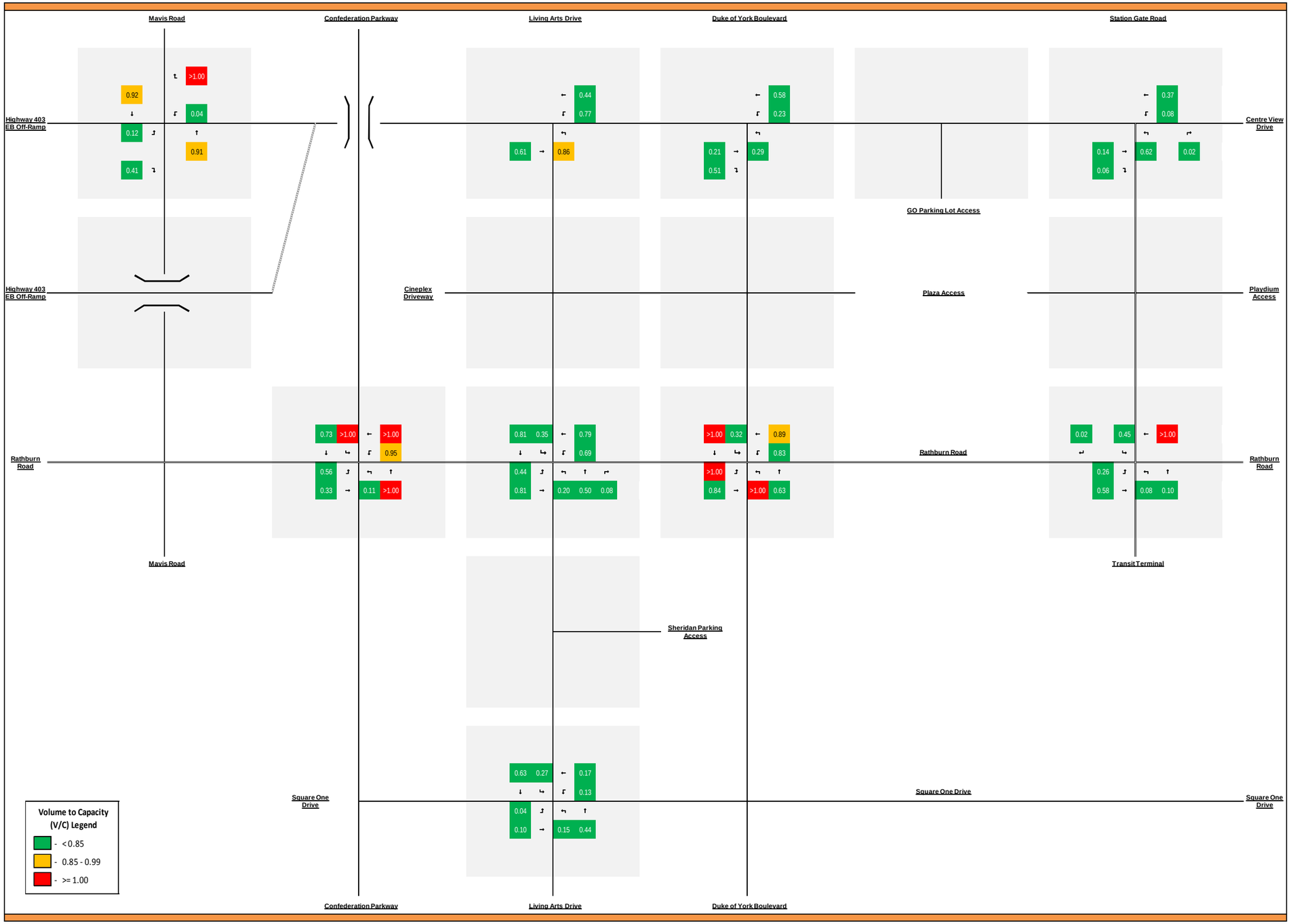


Figure C53 - Synchro 2041 With Extension Movement Delays AM

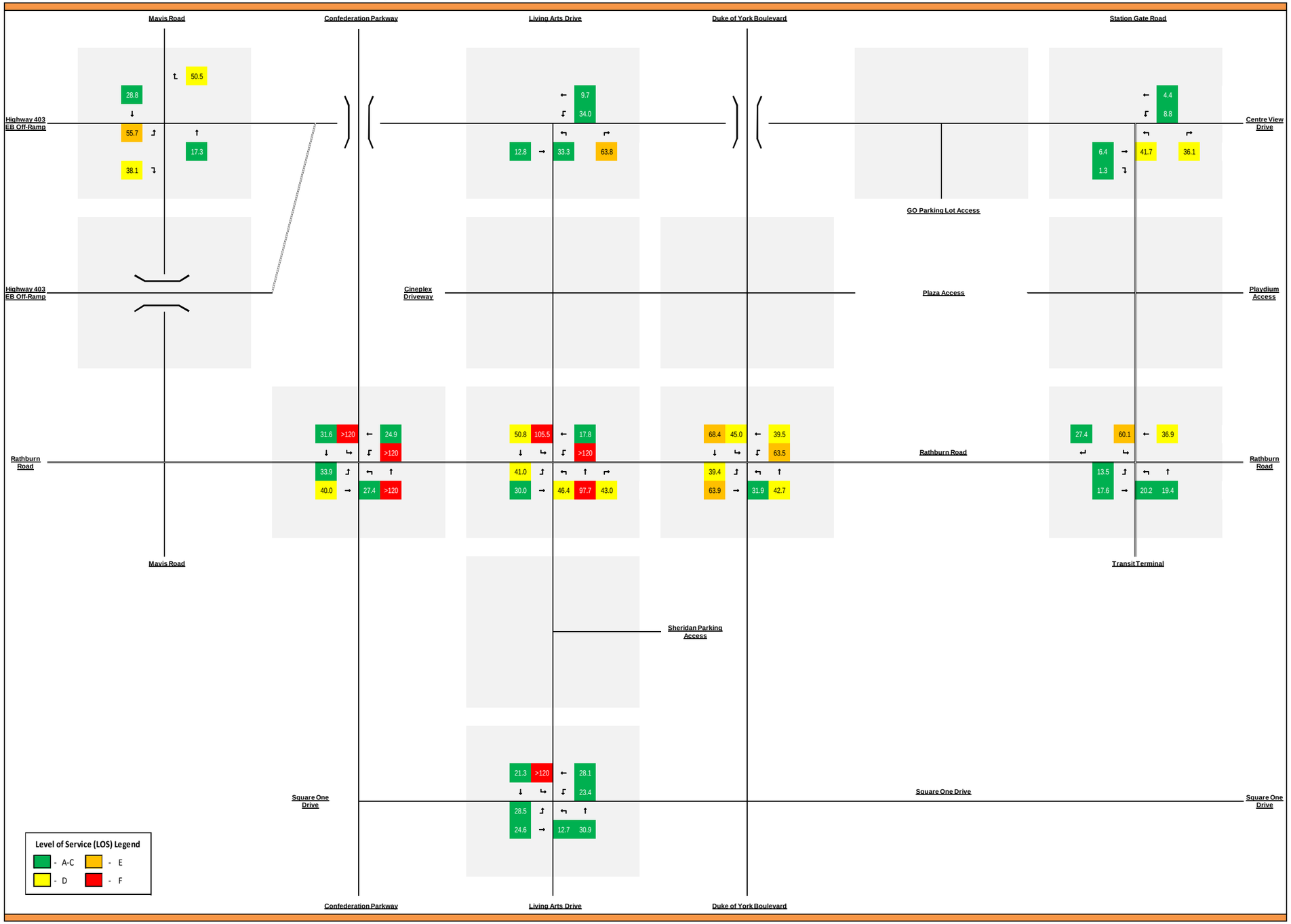


Figure C54 - Synchro 2041 With Extension 95th Percentile Queues AM

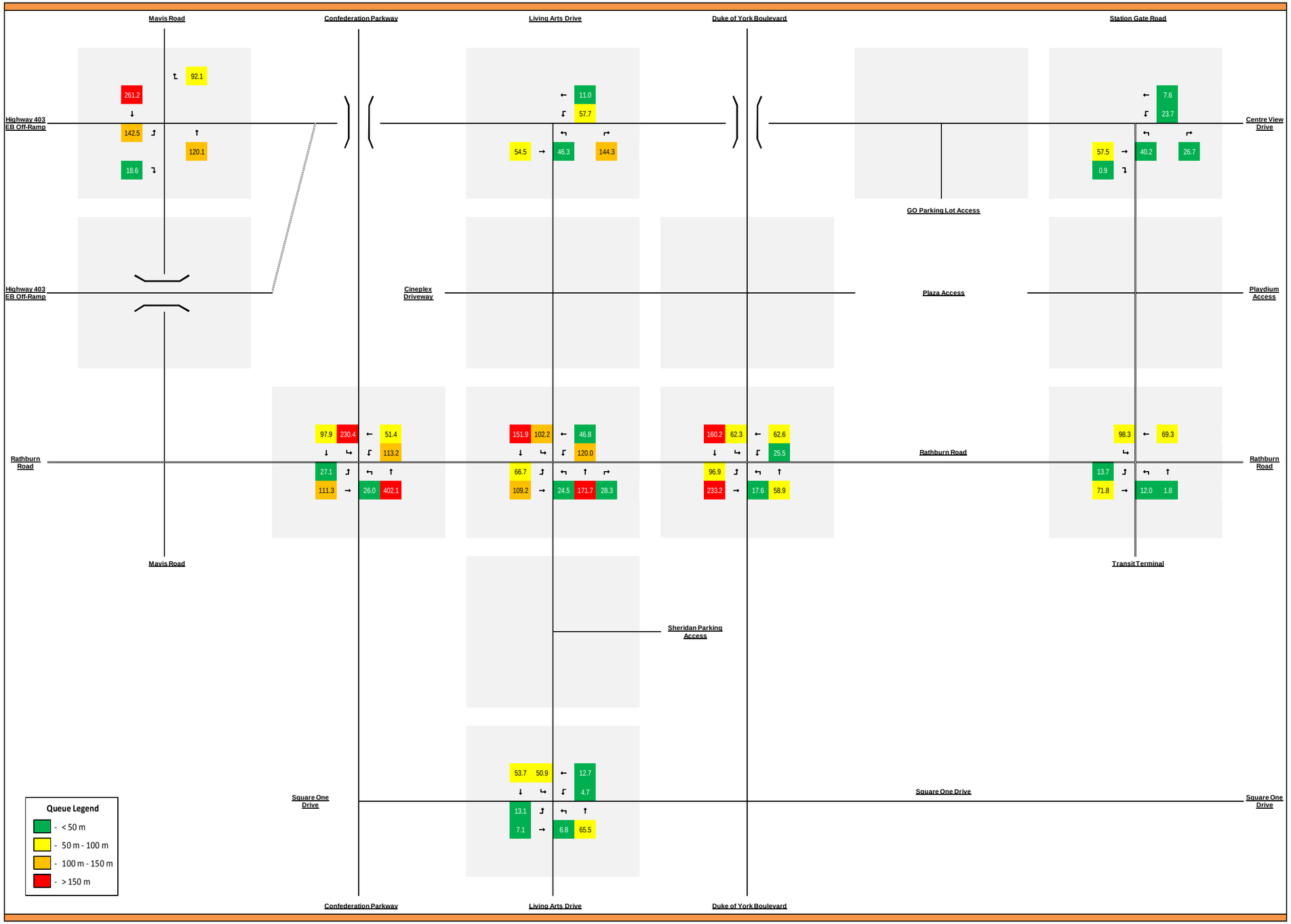


Figure C55 - Synchro 2041 With Extension VC AM

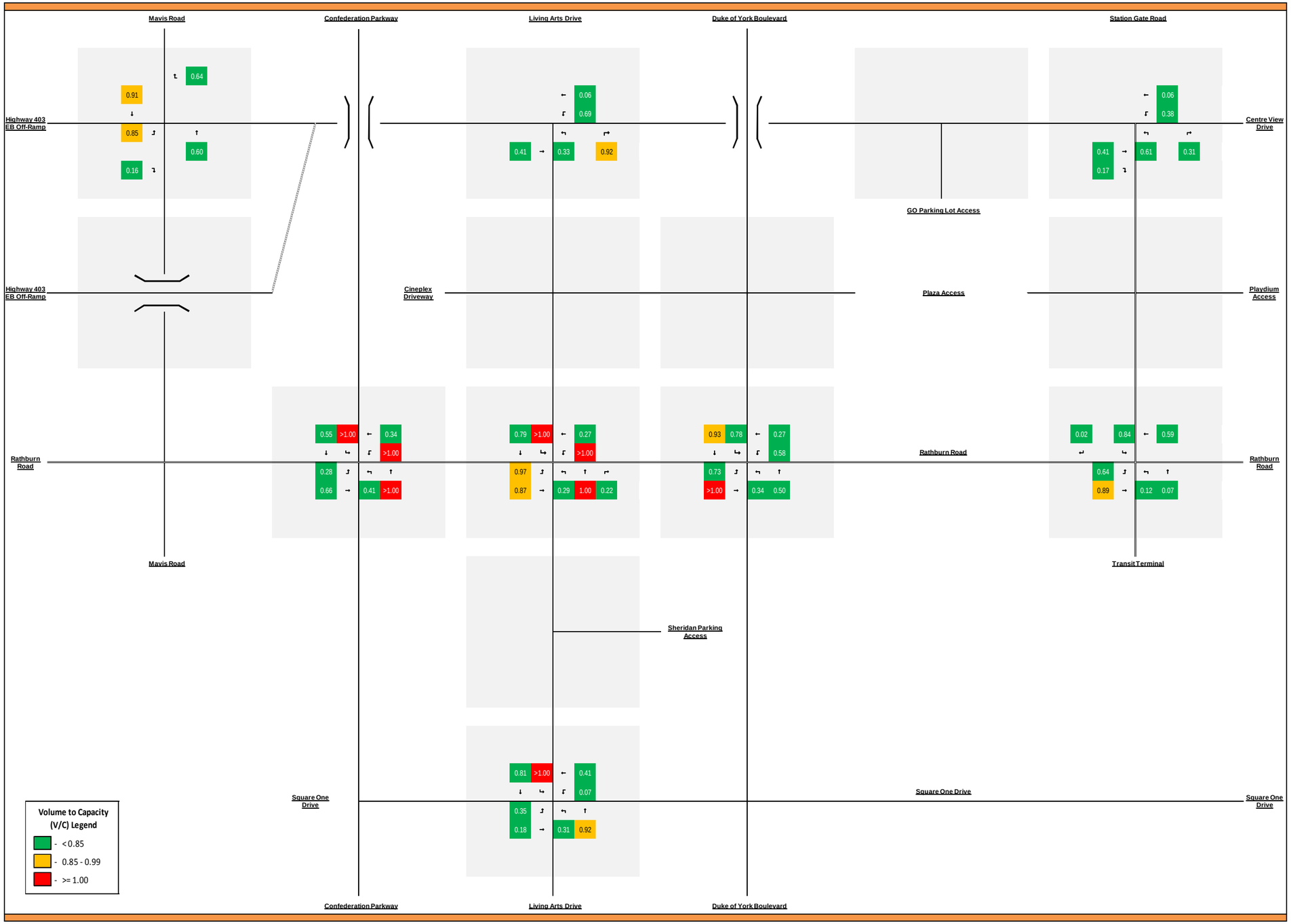


Figure C56 - Synchro 2041 With Extension Movement Delays PM

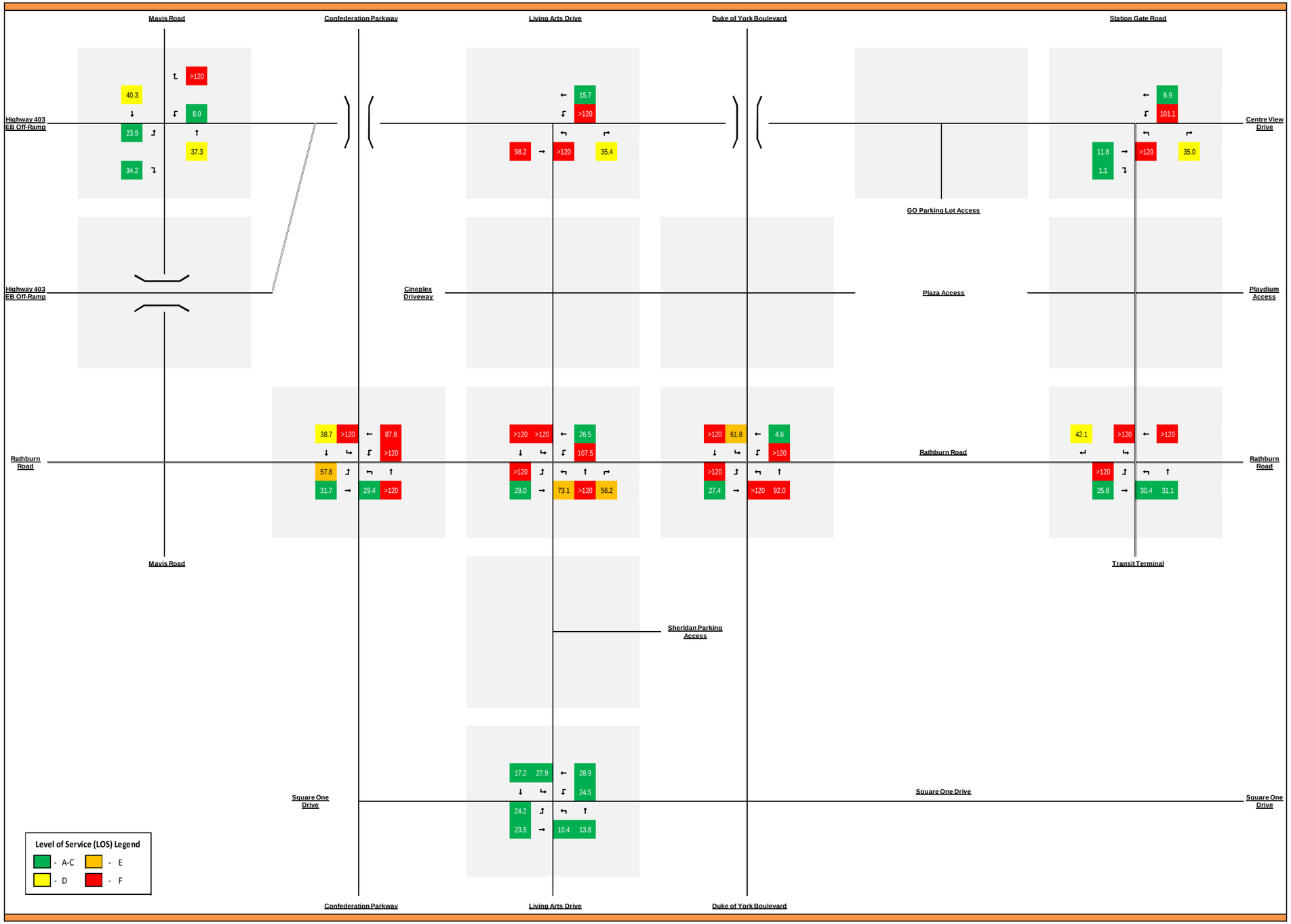


Figure C57 - Synchro 2041 With Extension 95th Percentile Queues PM

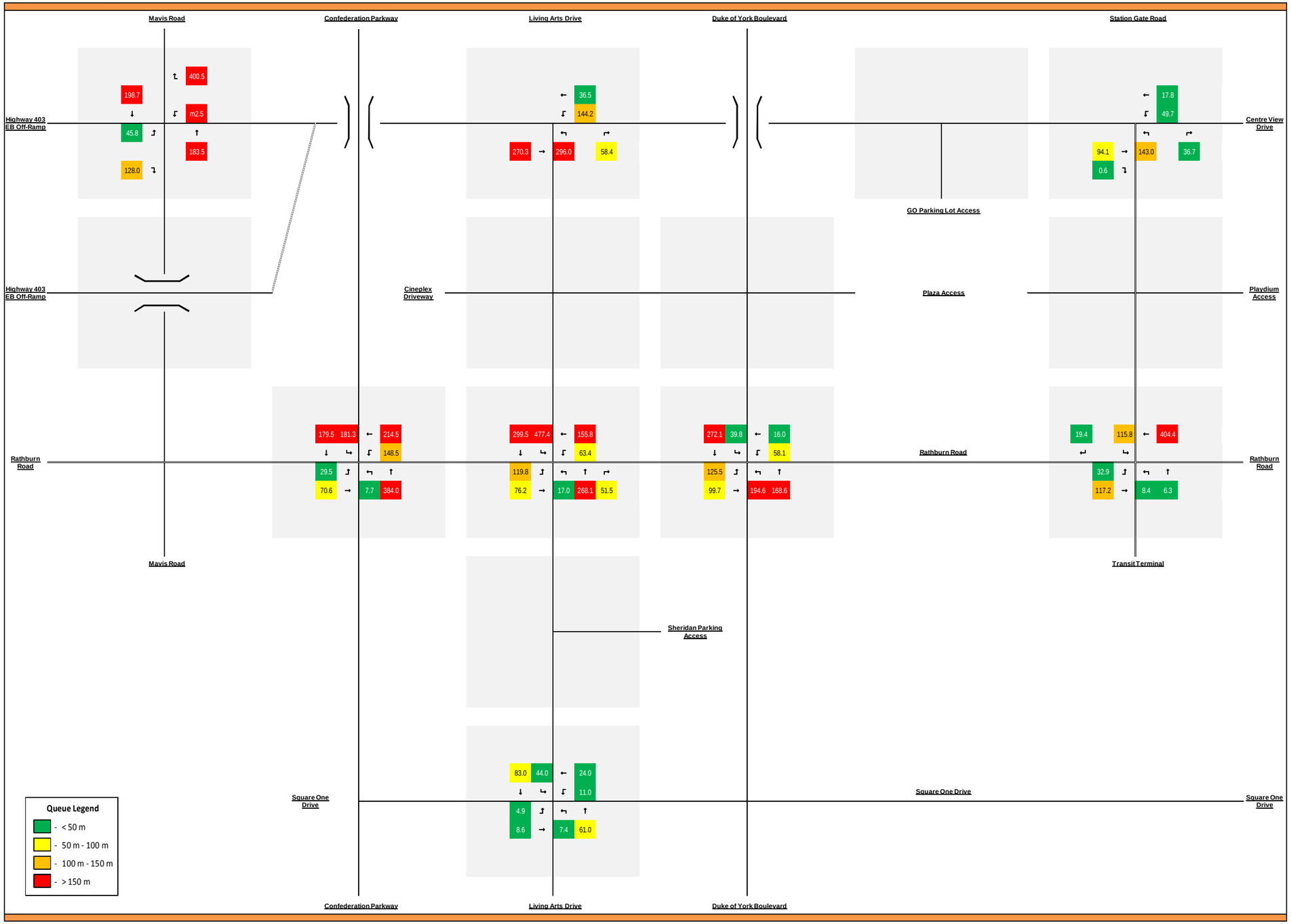


Figure C58 - Synchro 2041 With Extension VC PM

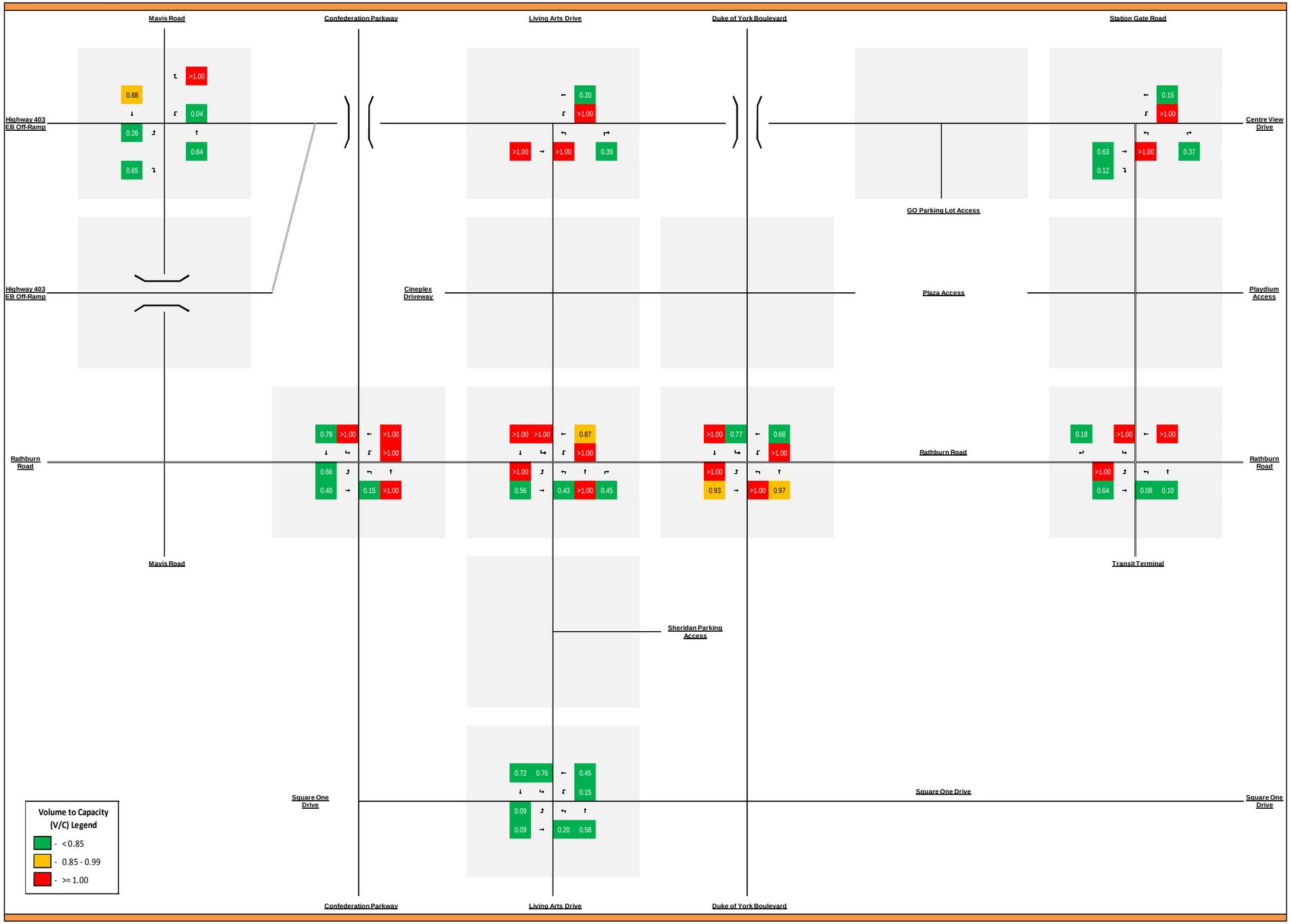


Figure C59 - VISSIM 2021 With Extension Movement Delays AM

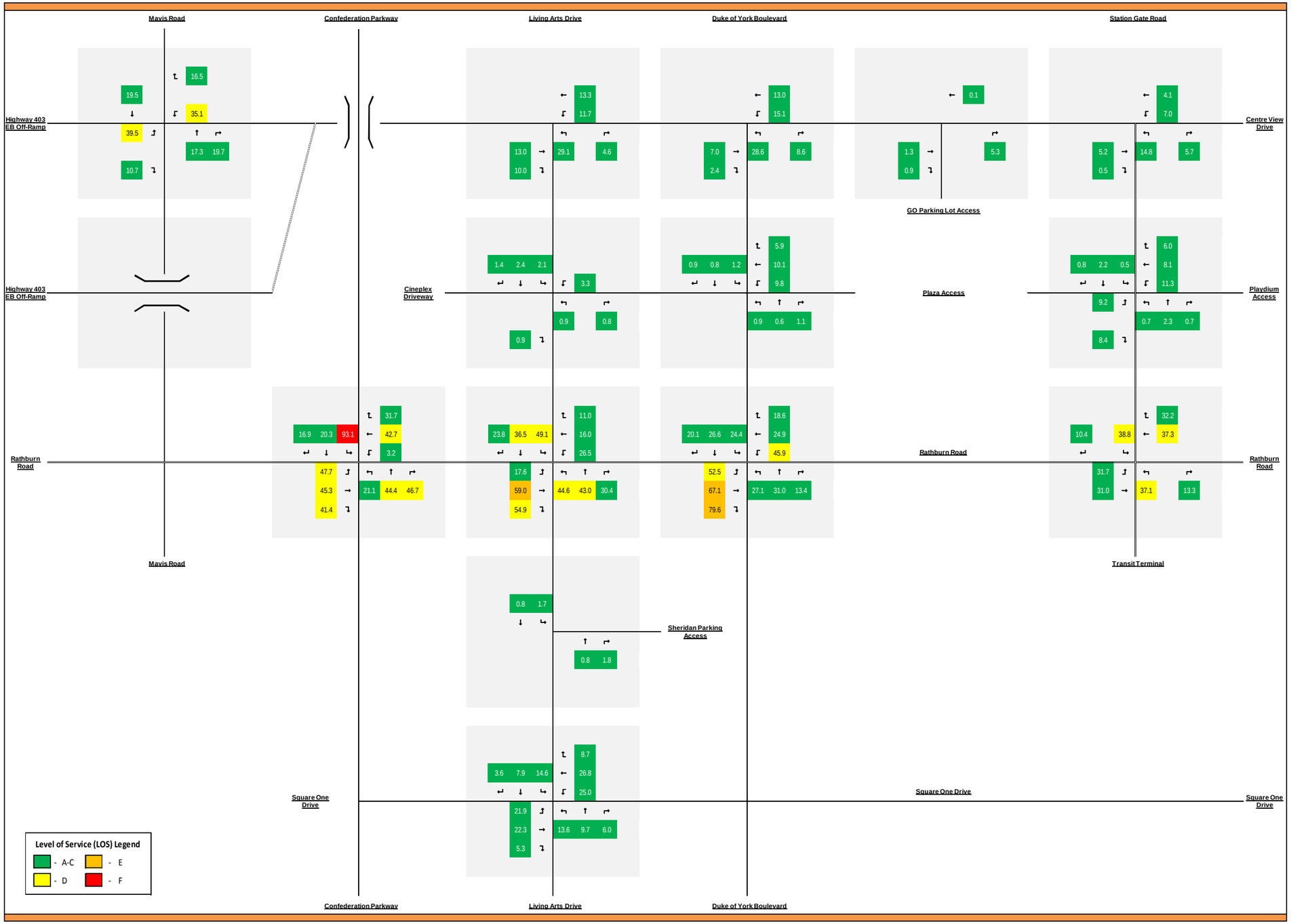


Figure C60 - VISSIM 2021 With Extension Average Queues AM

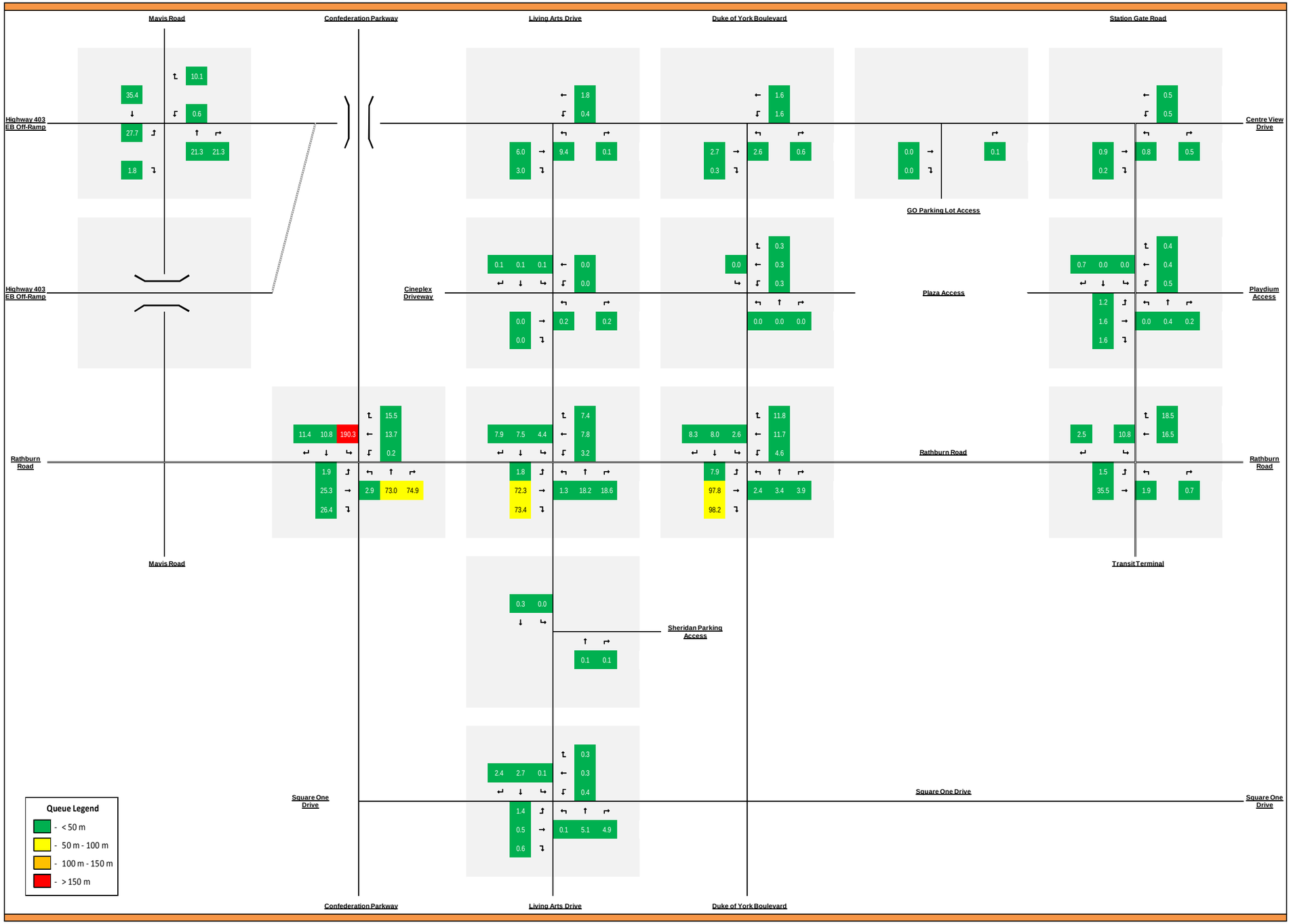


Figure C61 - VISSIM 2021 With Extension Movement Delays PM

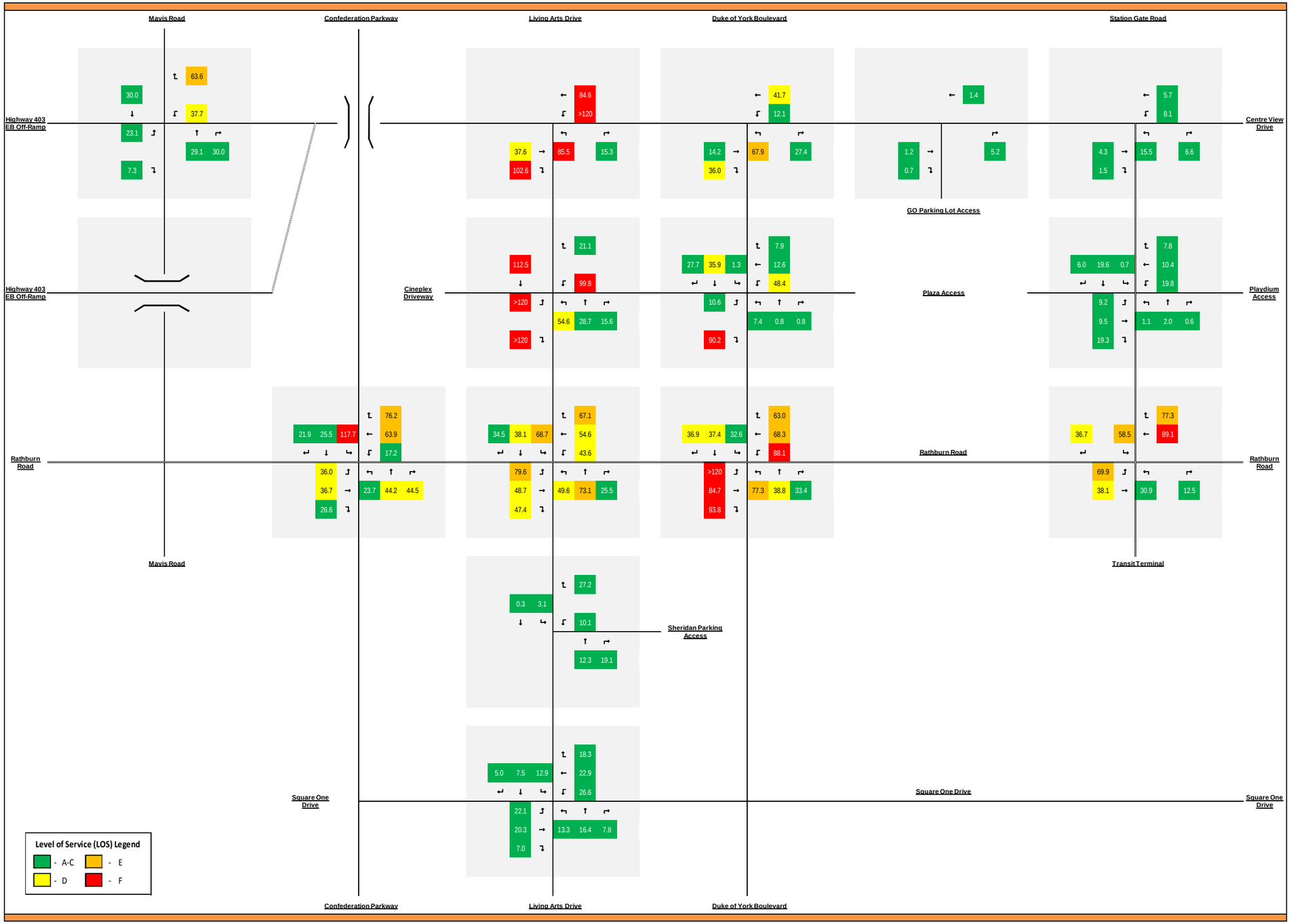


Figure C62 - VISSIM 2021 With Extension Average Queues PM

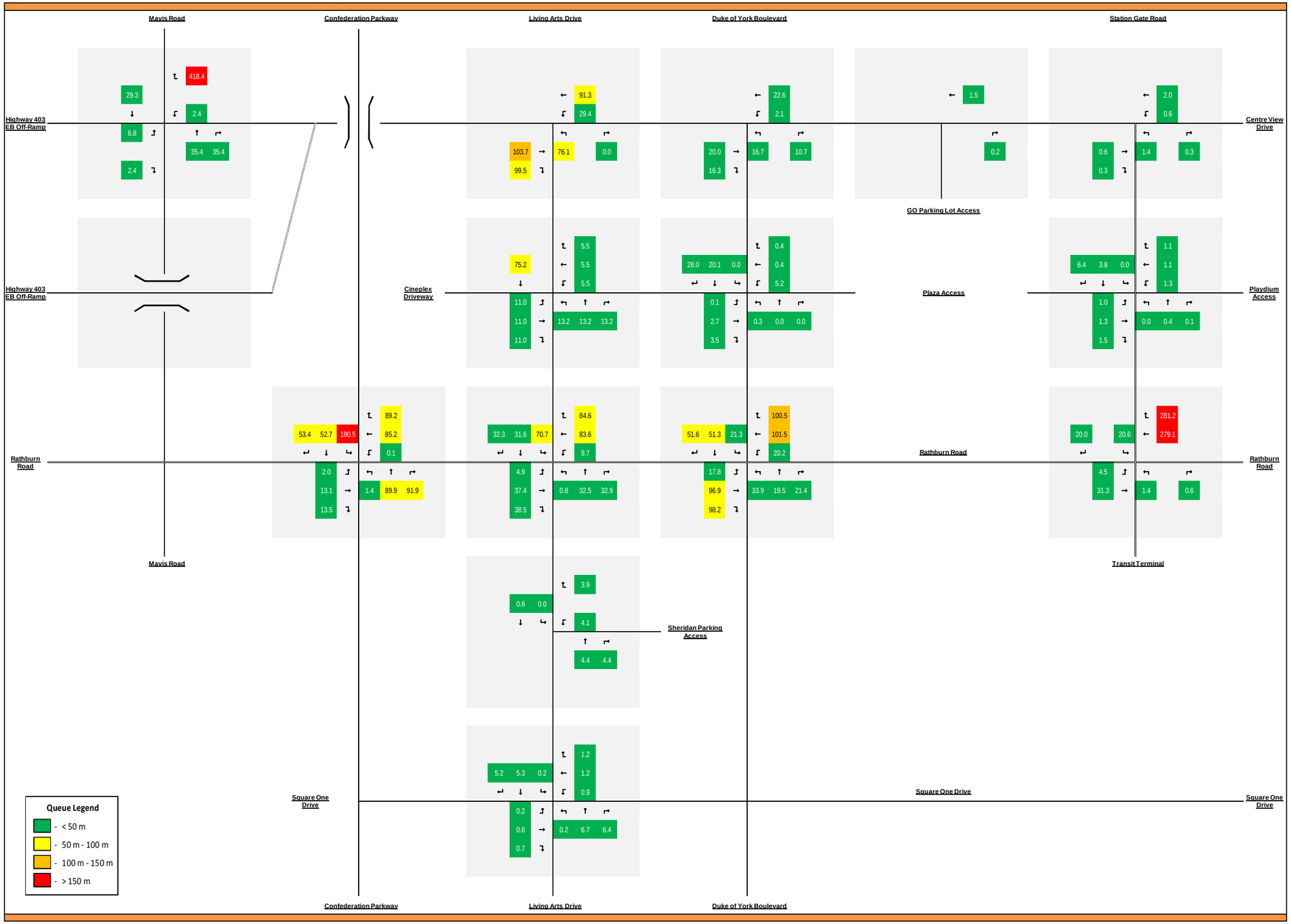


Figure C63 - VISSIM 2031 With Extension Movement Delays AM

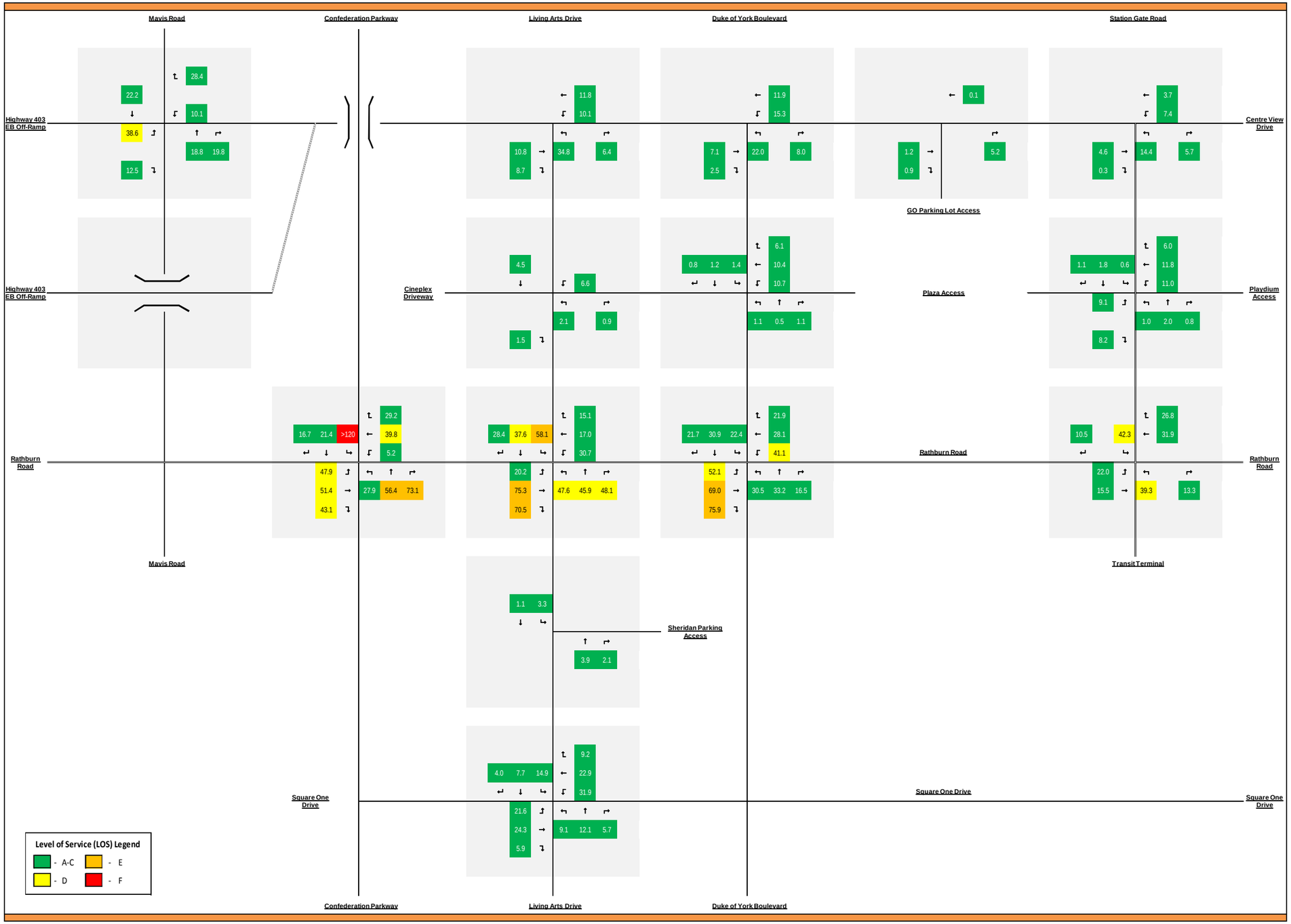


Figure C64 - VISSIM 2031 With Extension Average Queues AM

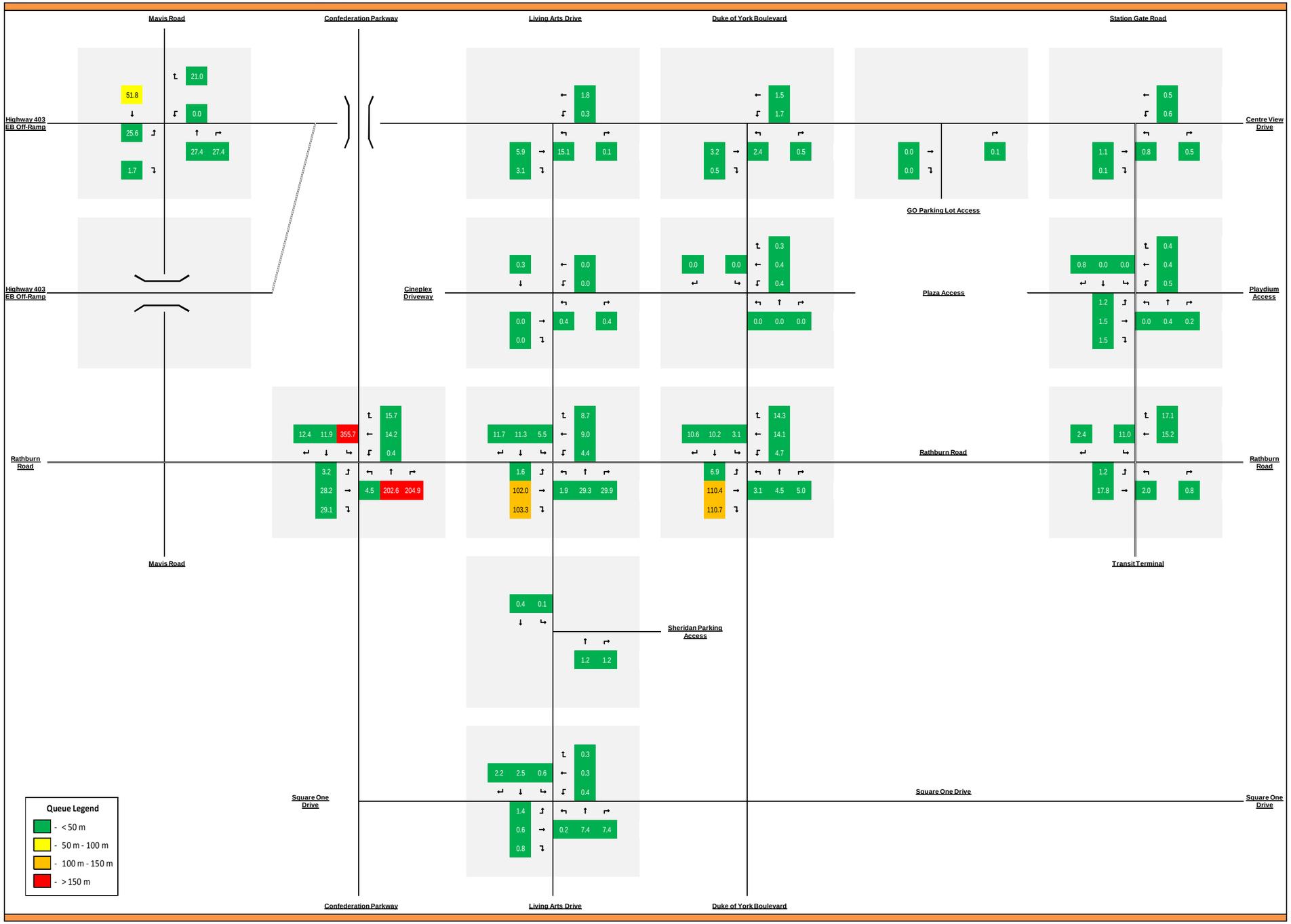


Figure C65 - VISSIM 2031 With Extension Movement Delays PM

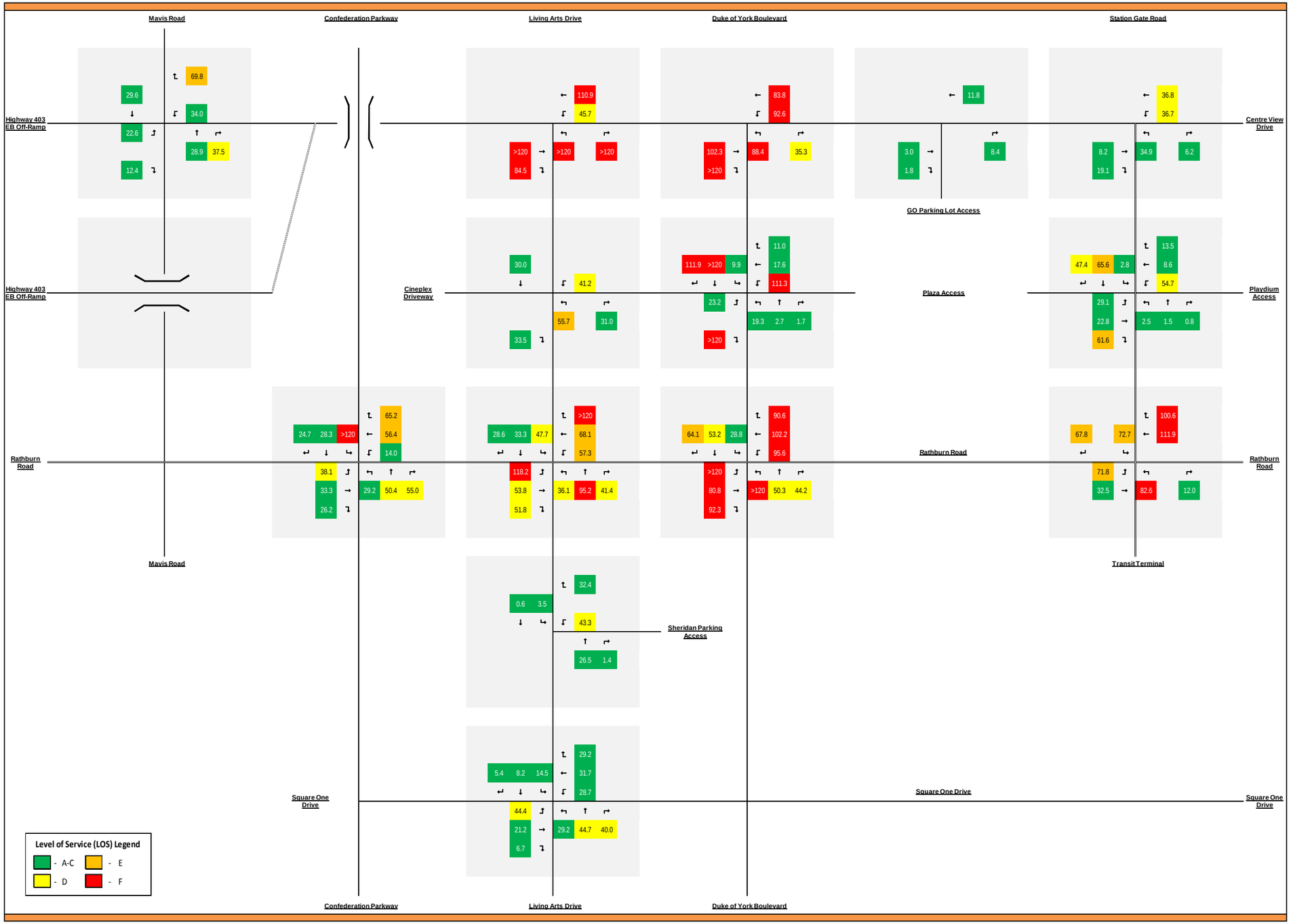


Figure C66 - VISSIM 2031 With Extension Average Queues PM

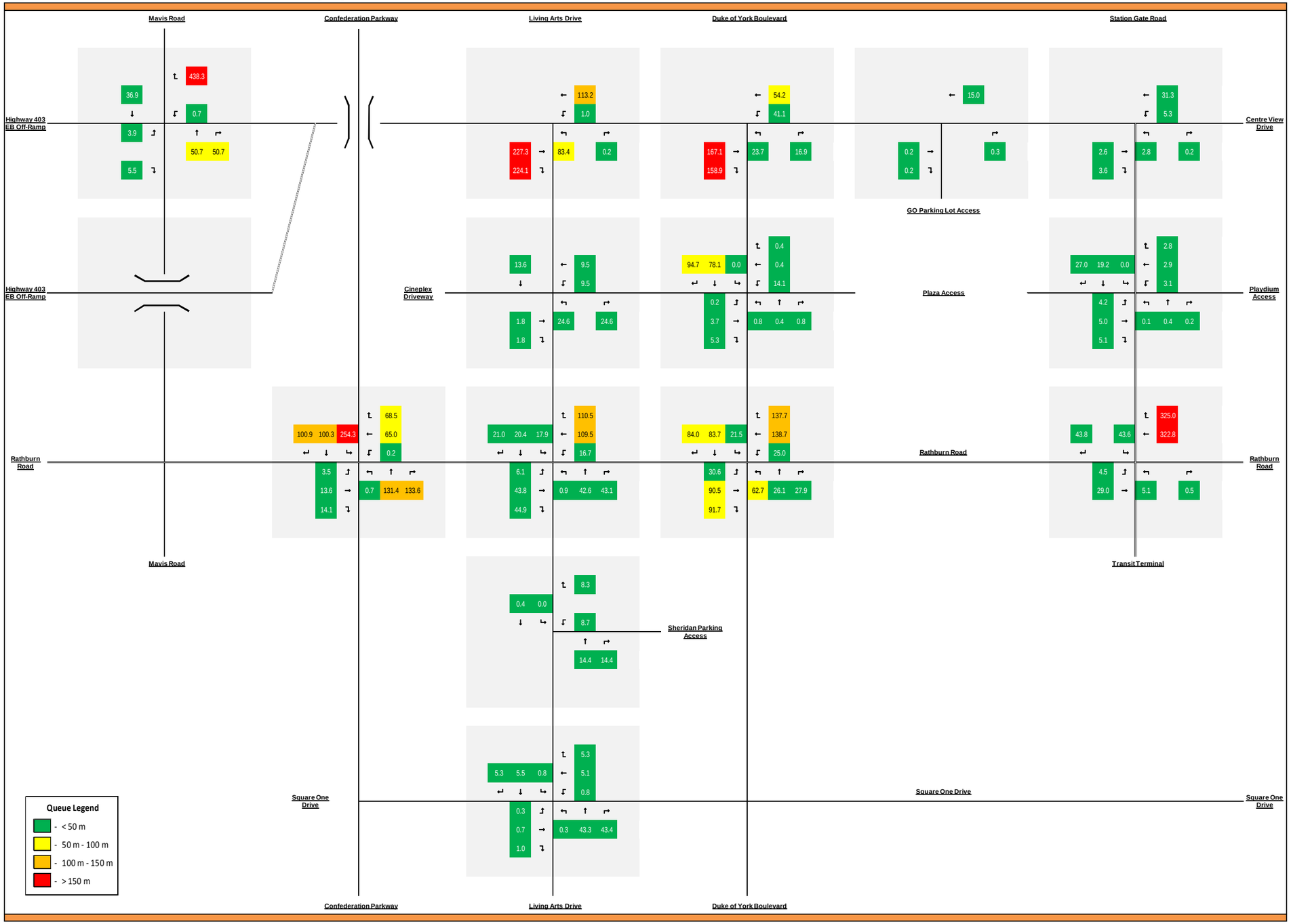


Figure C67 - VISSIM 2041 With Extension Movement Delays AM

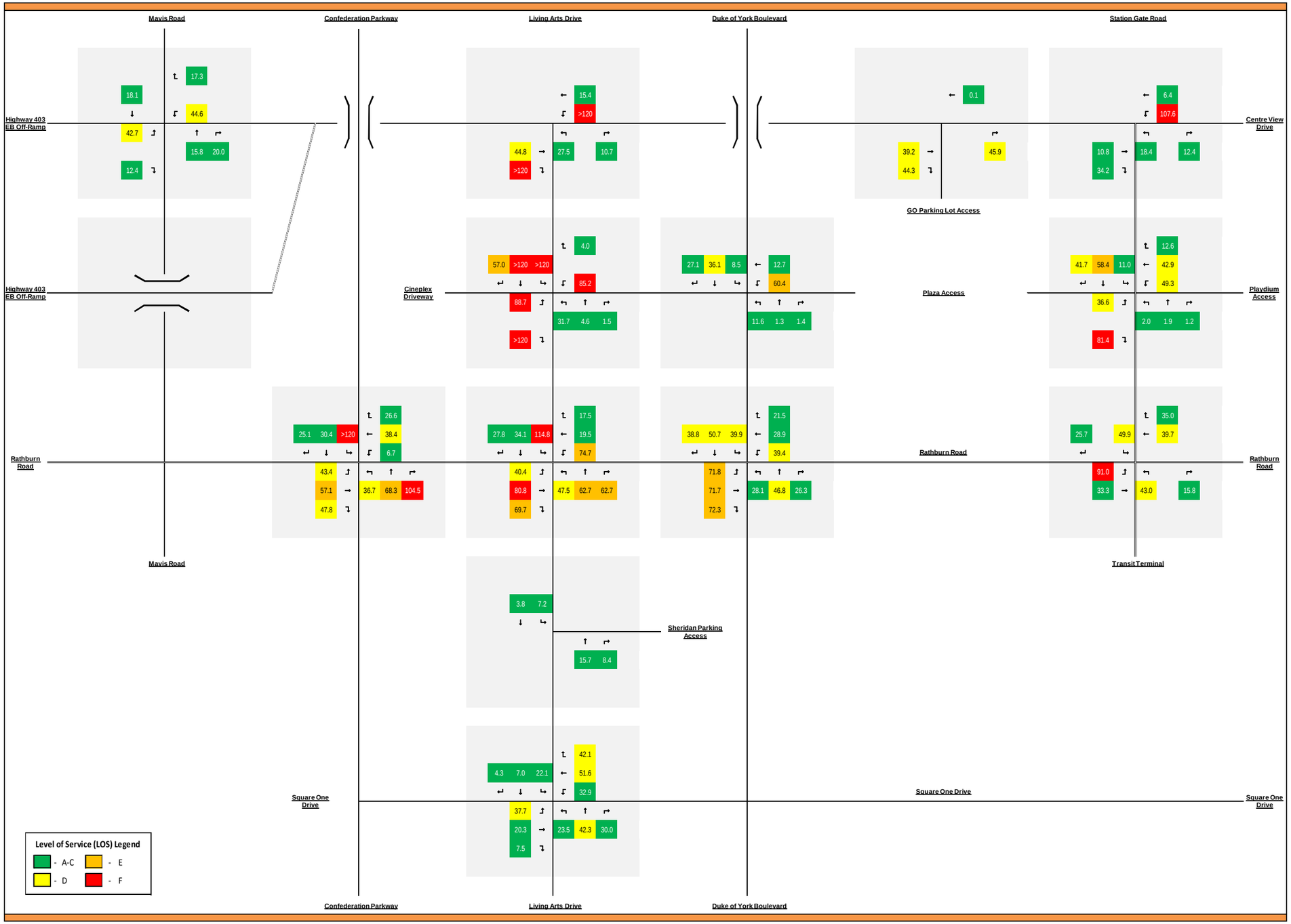


Figure C68 - VISSIM 2041 With Extension Average Queues AM

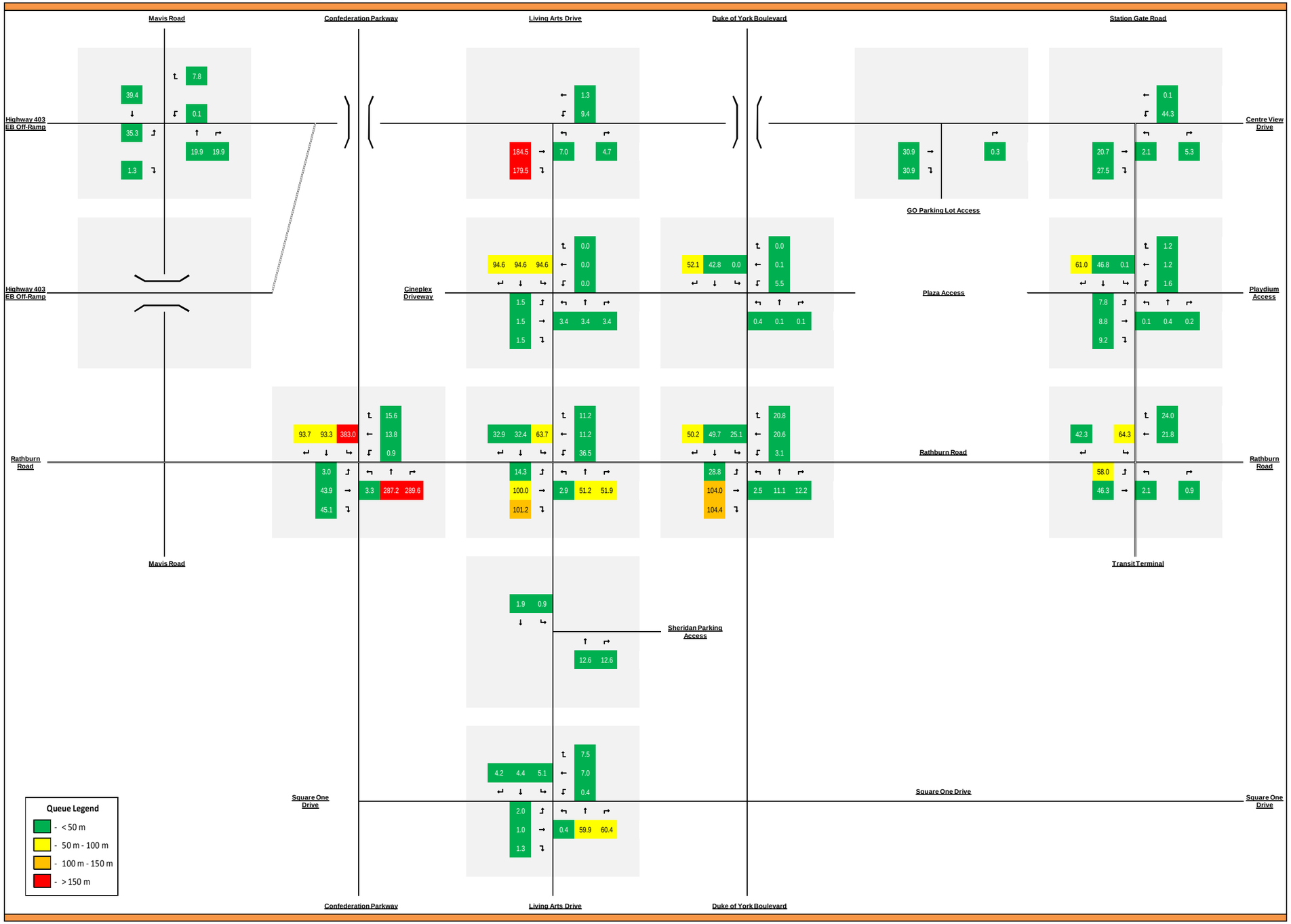


Figure C69 - VISSIM 2041 With Extension Movement Delays PM

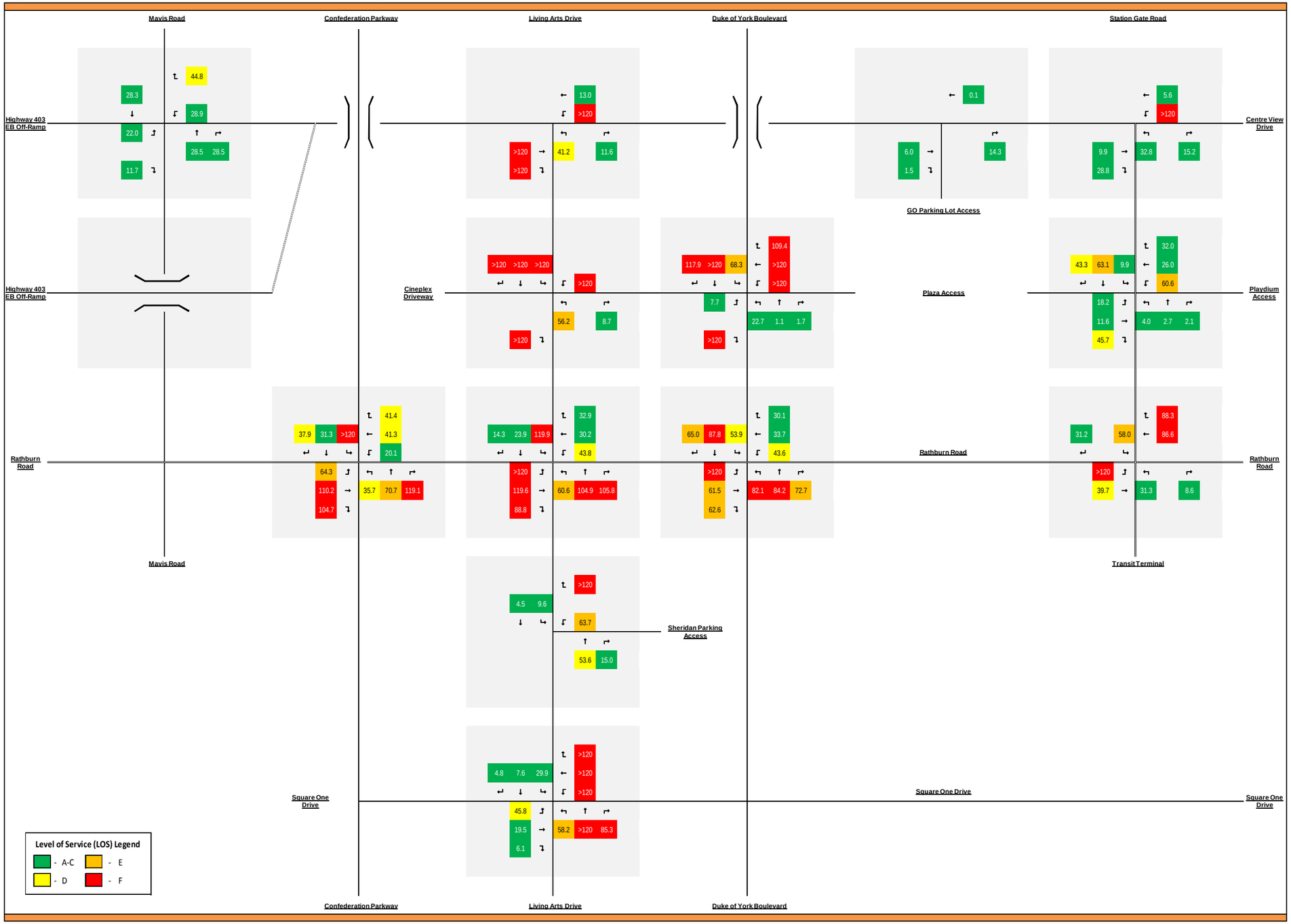


Figure C70 - VISSIM 2041 With Extension Average Queues PM

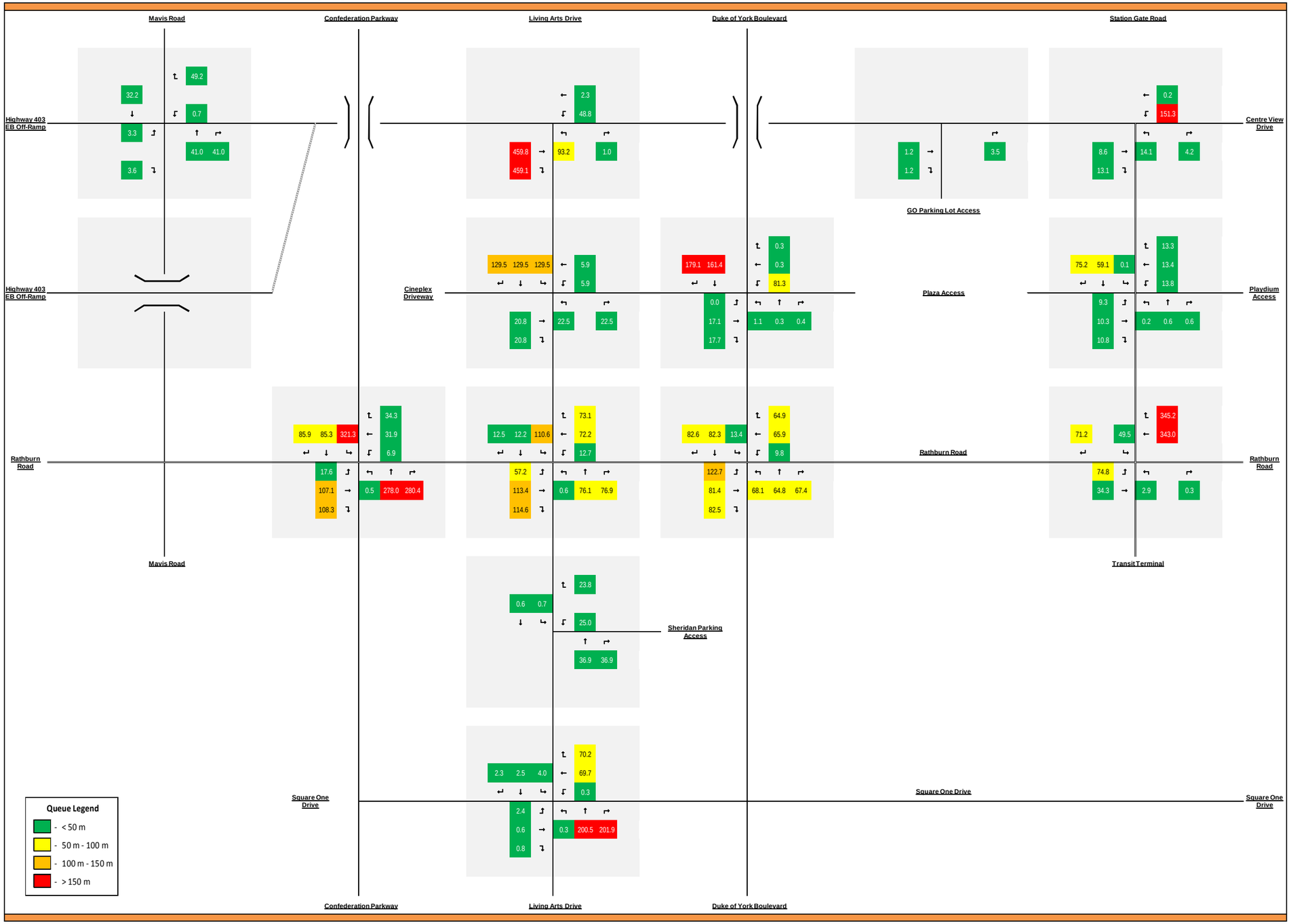


Figure C71 - Synchro 2021 With 4-Lane Extension Movement Delays PM

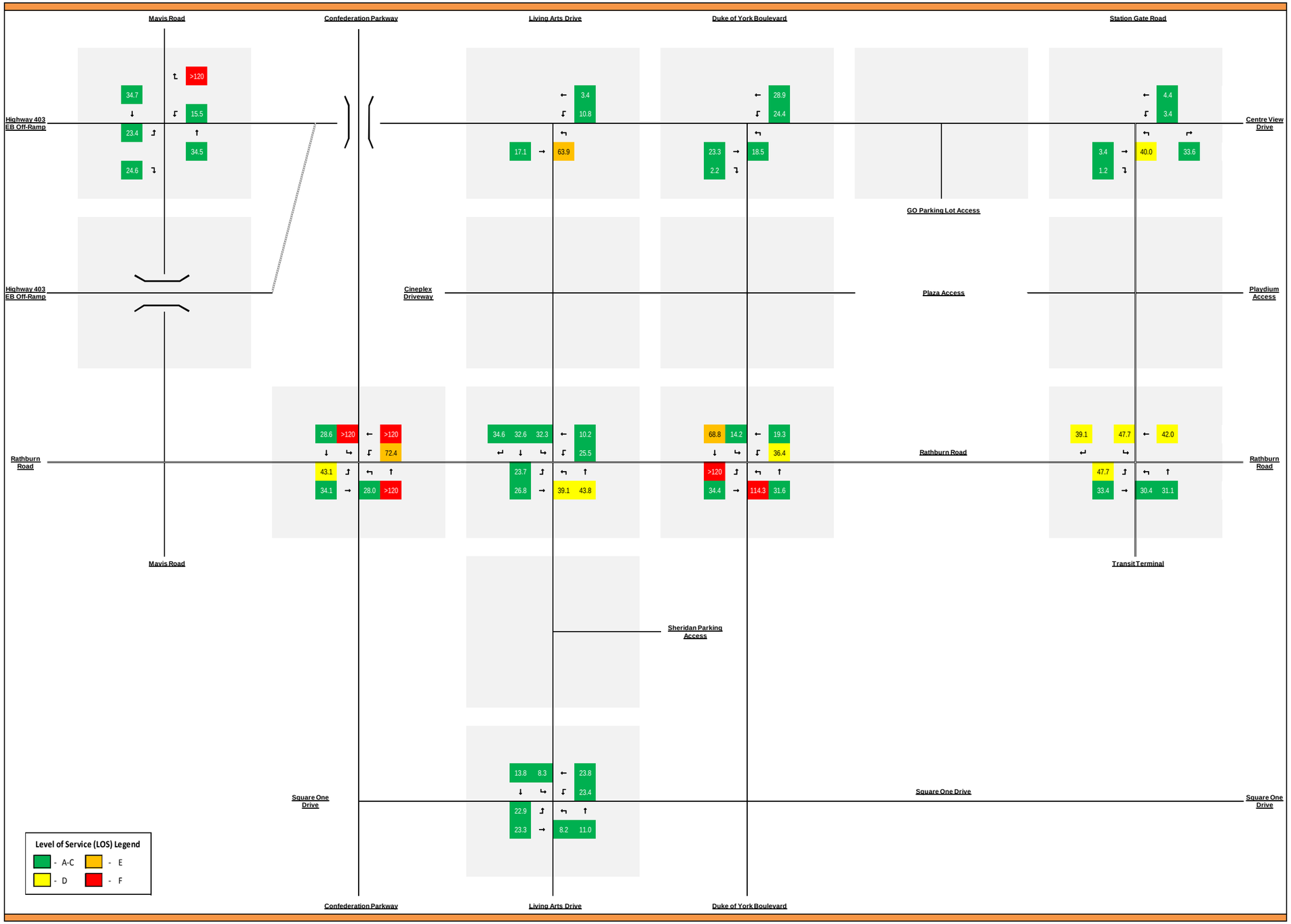


Figure C72 - Synchro 2021 With 4-Lane Extension 95th Percentile Queues PM

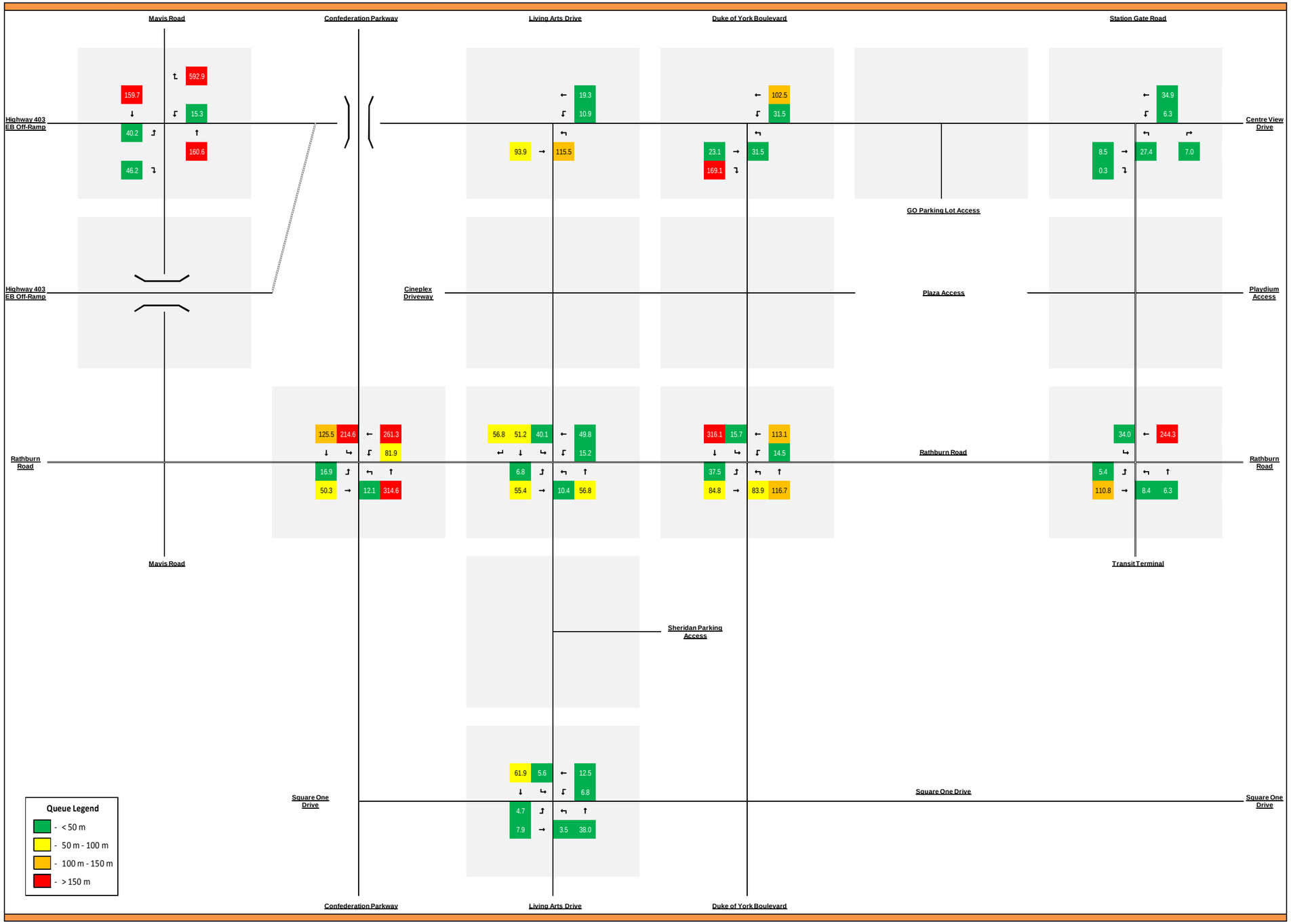


Figure C73 - Synchro 2021 With 4-Lane Extension VC PM

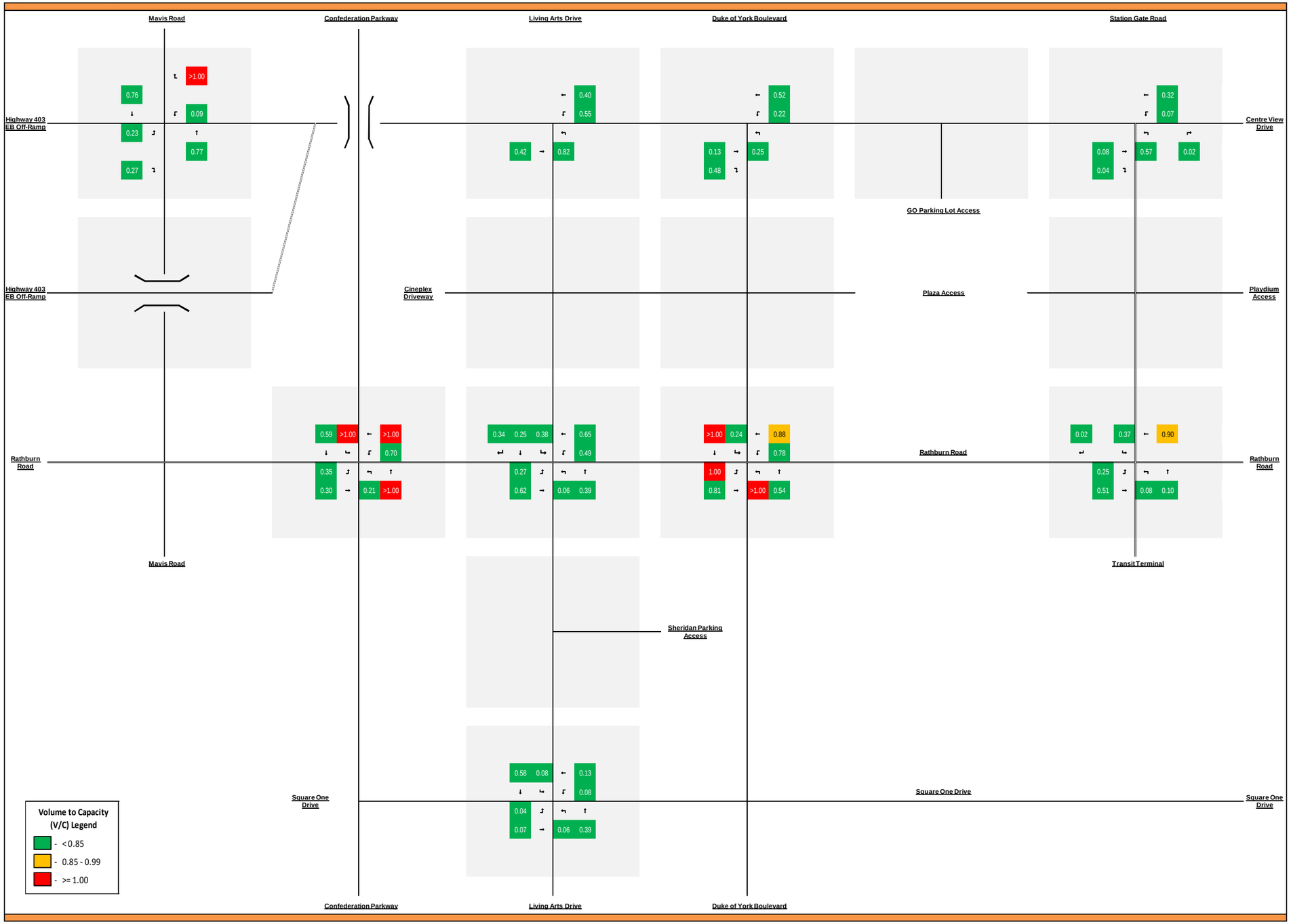


Figure C74 - Synchro 2031 With 4-Lane Extension Movement Delays PM

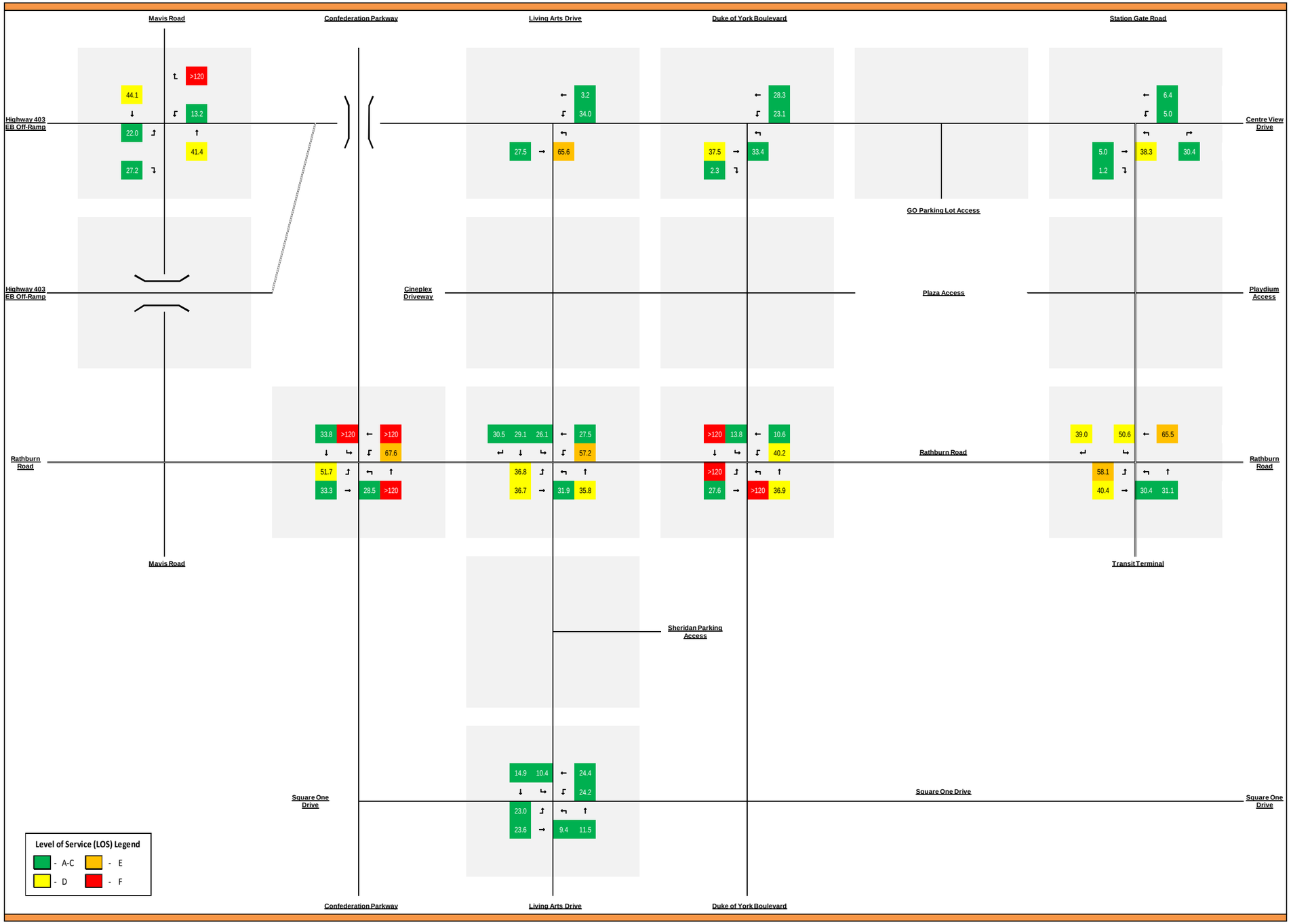


Figure C75 - Synchro 2031 With 4-Lane Extension 95th Percentile Queues PM

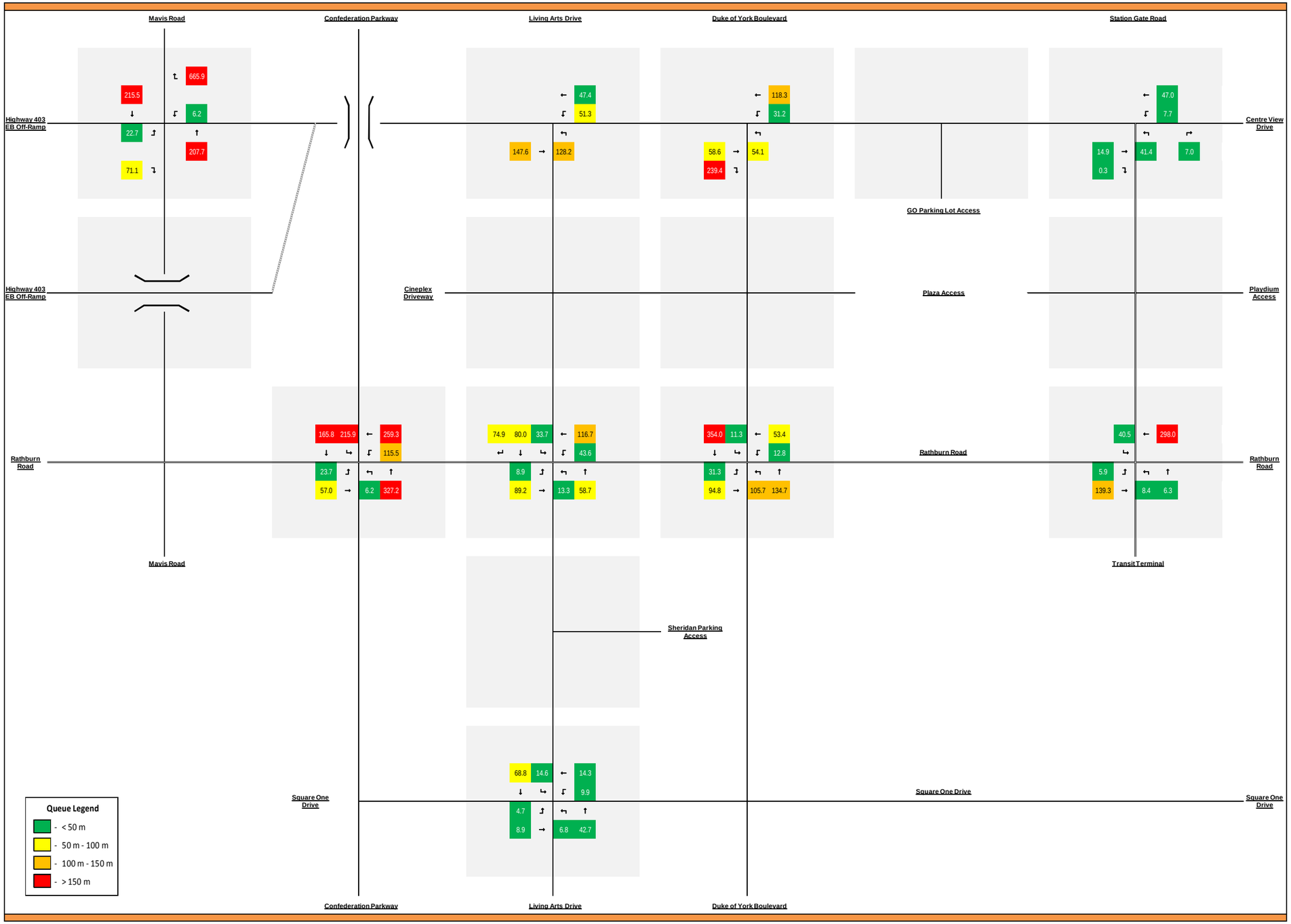


Figure C76 - Synchro 2031 With 4-Lane Extension VC PM

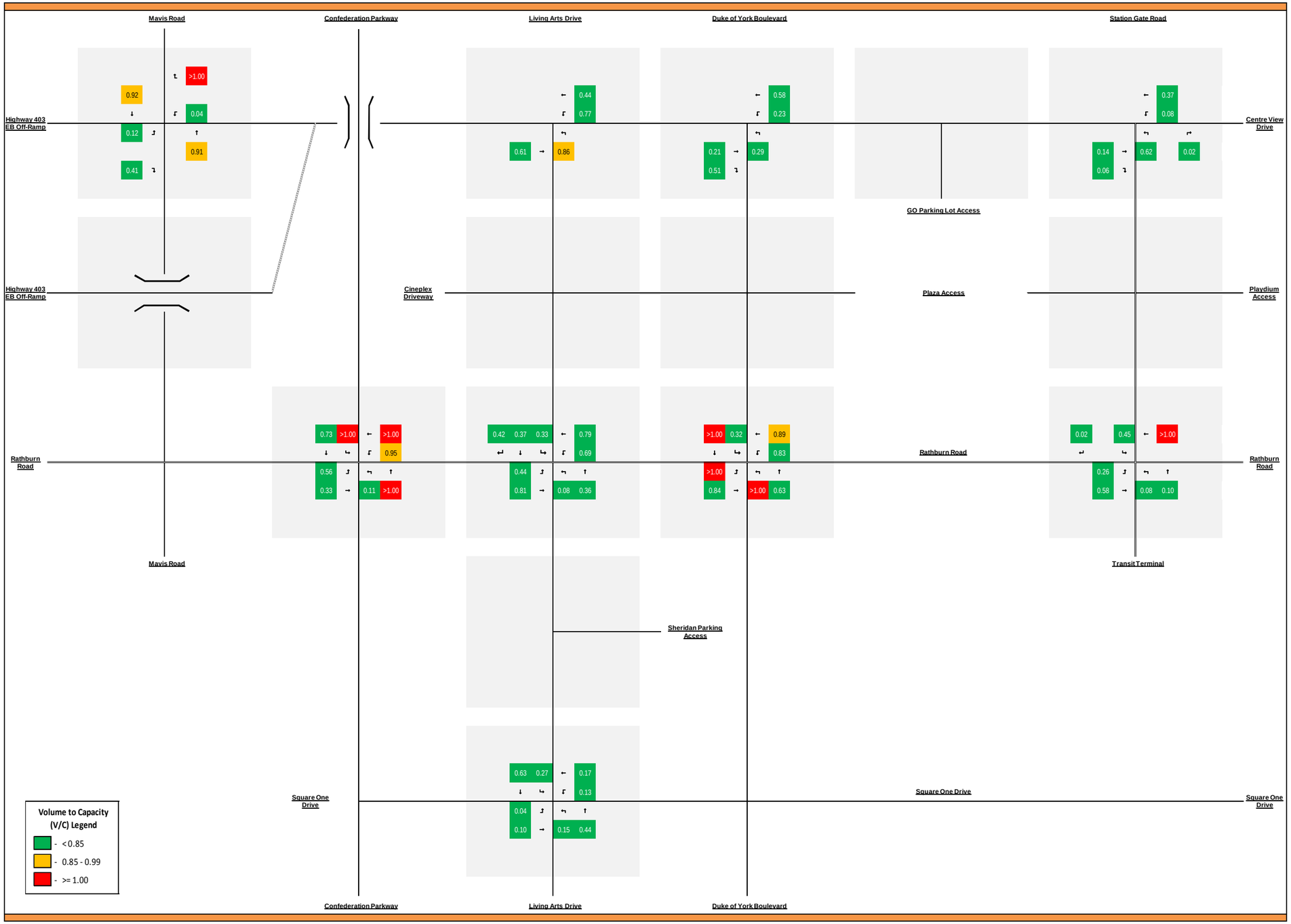


Figure C77 - Synchro 2041 With 4-Lane Extension Movement Delays PM

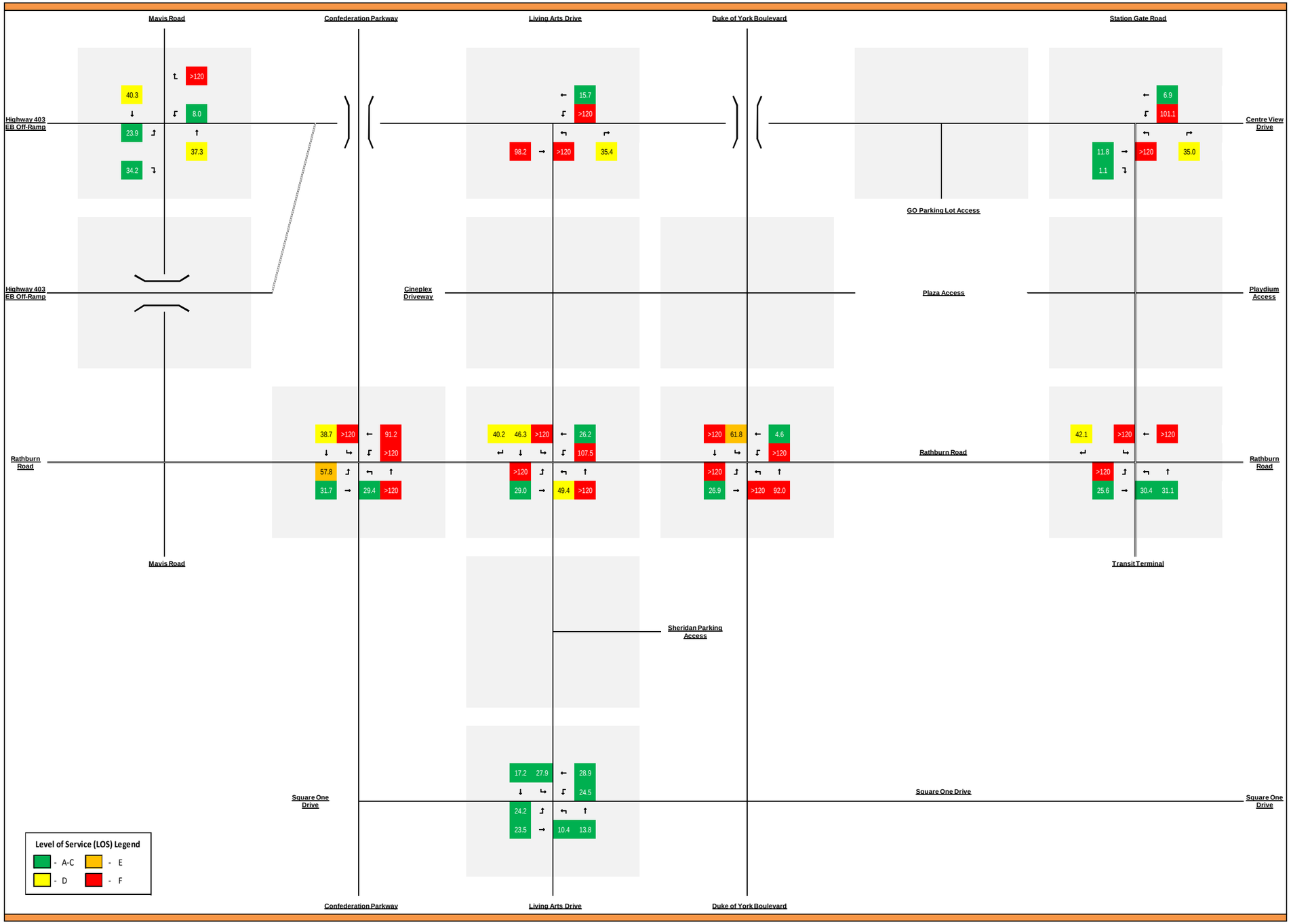


Figure C78 - Synchro 2041 With 4-Lane Extension 95th Percentile Queues PM

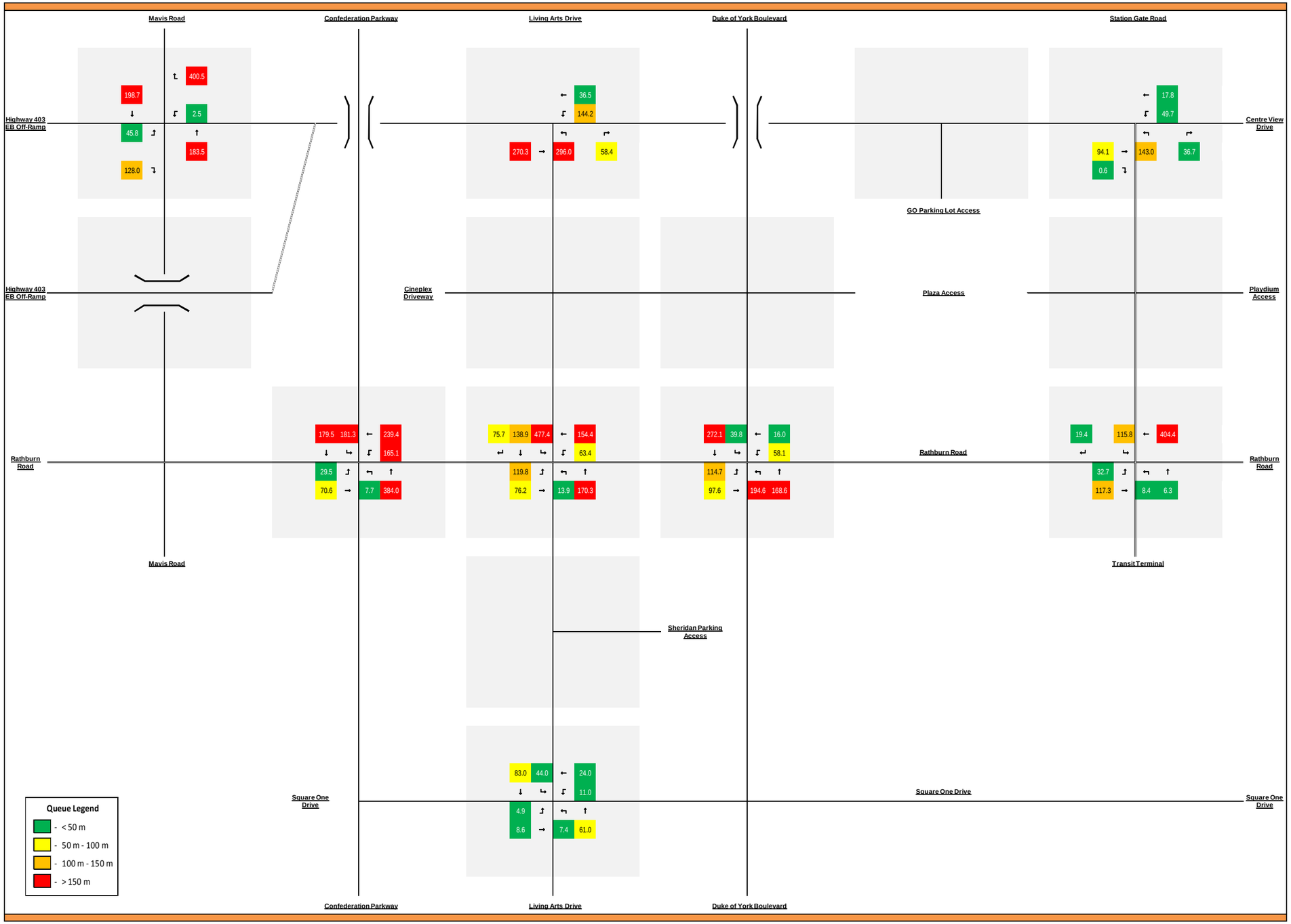
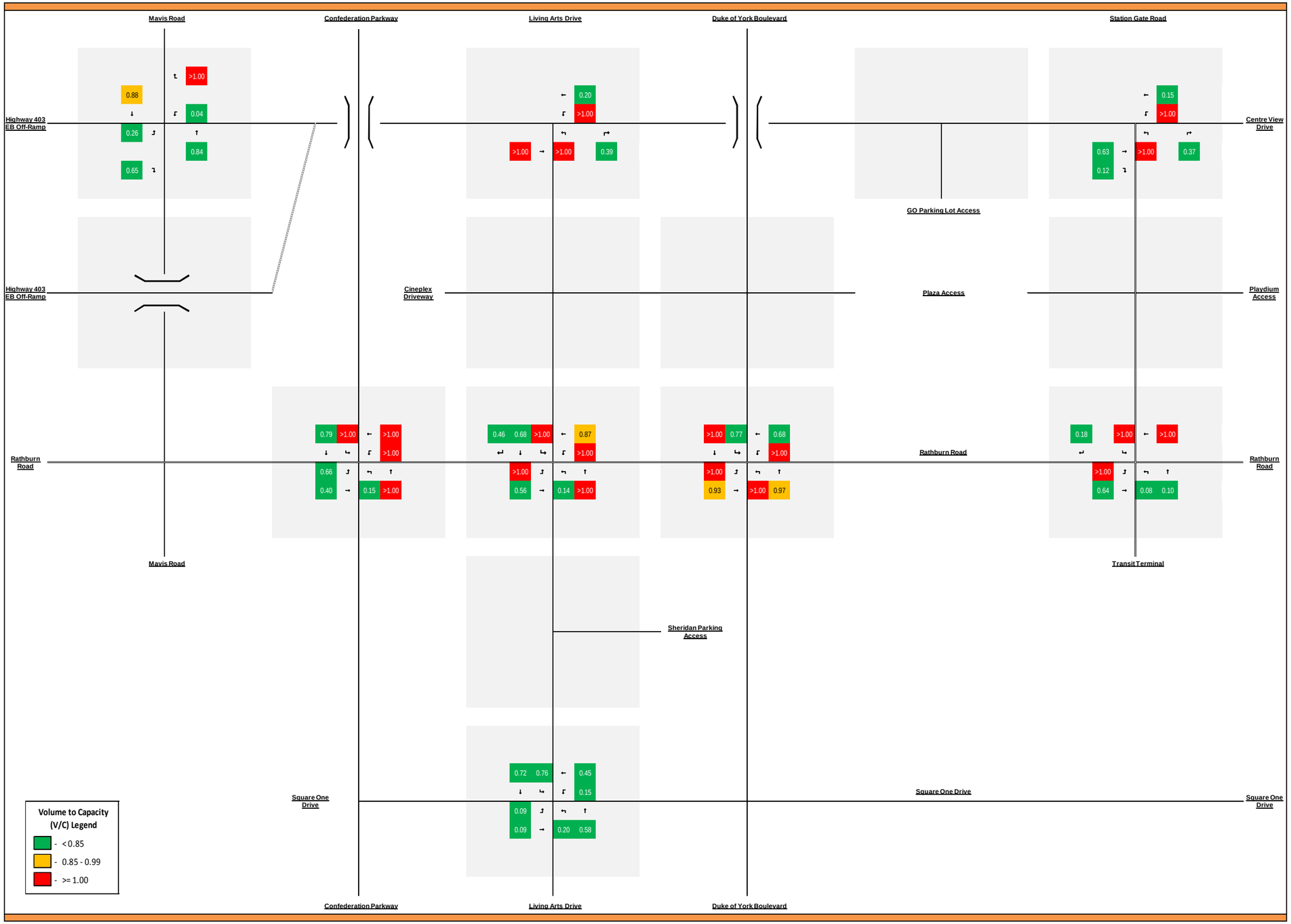


Figure C79 - Synchro 2041 With 4-Lane Extension VC PM



Appendix D – SYNCHRO ANALYSIS RESULTS

Queues
100: Mavis Road & Highway 403 EB Off-Ramp/Centre View Drive

10/04/2017

Lane Group	EBL	EBR	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	765	12	8	172	2327	2468
v/c Ratio	0.72	0.04	0.02	0.39	0.61	0.82
Control Delay	47.7	2.2	34.1	34.0	18.5	24.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.7	2.2	34.1	34.0	18.5	24.8
Queue Length 50th (m)	97.2	0.0	1.6	30.5	112.6	186.9
Queue Length 95th (m)	119.5	1.2	5.7	51.9	122.9	206.7
Internal Link Dist (m)					73.6	241.1
Turn Bay Length (m)		150.0				
Base Capacity (vph)	1066	284	448	442	3808	3025
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	0.72	0.04	0.02	0.39	0.61	0.82

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	750	0	12	8	0	169	0	2252	28	0	2419	0
Future Volume (vph)	750	0	12	8	0	169	0	2252	28	0	2419	0
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		7.0			7.0	
Lane Util. Factor	0.97		1.00	1.00		1.00		0.86			0.91	
Frt	1.00		0.85	1.00		0.85		1.00			1.00	
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (prot)	3471		855	1460		1372		6346			5043	
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (perm)	3471		855	1460		1372		6346			5043	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	765	0	12	8	0	172	0	2298	29	0	2468	0
RTOR Reduction (vph)	0	0	8	0	0	21	0	1	0	0	0	0
Lane Group Flow (vph)	765	0	4	8	0	151	0	2326	0	0	2468	0
Heavy Vehicles (%)	2%	0%	91%	25%	0%	19%	0%	4%	0%	0%	4%	0%
Turn Type	Perm		Perm	Perm		Perm		NA			NA	
Protected Phases								2			6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	43.0		43.0	43.0		43.0		84.0			84.0	
Effective Green, g (s)	43.0		43.0	43.0		43.0		84.0			84.0	
Actuated g/C Ratio	0.31		0.31	0.31		0.31		0.60			0.60	
Clearance Time (s)	6.0		6.0	6.0		6.0		7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0		3.0		3.0			3.0	
Lane Grp Cap (vph)	1066		262	448		421		3807			3025	
v/s Ratio Prot								0.37			c0.49	
v/s Ratio Perm	c0.22		0.00	0.01		0.11						
v/c Ratio	0.72		0.01	0.02		0.36		0.61			0.82	
Uniform Delay, d1	43.1		33.7	33.8		37.7		17.7			21.9	
Progression Factor	1.00		1.00	1.00		1.00		1.00			1.00	
Incremental Delay, d2	4.2		0.1	0.1		2.4		0.7			2.6	
Delay (s)	47.3		33.8	33.9		40.1		18.4			24.5	
Level of Service	D		C	C		D		B			C	
Approach Delay (s)		47.1			39.8			18.4			24.5	
Approach LOS		D			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	25.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	79.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL
Lane Group Flow (vph)	588	280	138	133	139
v/c Ratio	0.39	0.18	0.54	0.11	0.10
Control Delay	24.4	0.3	34.8	20.8	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	24.4	0.3	34.8	20.8	12.5
Queue Length 50th (m)	47.6	0.0	22.9	9.4	7.5
Queue Length 95th (m)	54.5	0.0	37.9	14.0	12.0
Internal Link Dist (m)	858.1			135.6	92.8
Turn Bay Length (m)			60.0		
Base Capacity (vph)	1493	1541	256	1259	1393
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	0.39	0.18	0.54	0.11	0.10

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	476	227	112	108	69	44
Future Volume (vph)	476	227	112	108	69	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	
Frt	1.00	0.85	1.00	1.00	0.94	
Flt Protected	1.00	1.00	0.95	1.00	0.97	
Satd. Flow (prot)	3579	1541	1587	3017	2960	
Flt Permitted	1.00	1.00	0.37	1.00	0.97	
Satd. Flow (perm)	3579	1541	615	3017	2960	
Peak-hour factor, PHF	0.81	0.81	0.81	0.81	0.81	0.81
Adj. Flow (vph)	588	280	138	133	85	54
RTOR Reduction (vph)	0	0	0	0	29	0
Lane Group Flow (vph)	588	280	138	133	110	0
Heavy Vehicles (%)	2%	6%	15%	21%	10%	23%
Turn Type	NA	pm+ov	Perm	NA	Prot	
Protected Phases	2	8		6	8	
Permitted Phases		2	6			
Actuated Green, G (s)	48.0	101.0	48.0	48.0	53.0	
Effective Green, g (s)	48.0	101.0	48.0	48.0	53.0	
Actuated g/C Ratio	0.42	0.88	0.42	0.42	0.46	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1493	1541	256	1259	1364	
v/s Ratio Prot	0.16	c0.08		0.04	0.04	
v/s Ratio Perm		0.10	c0.22			
v/c Ratio	0.39	0.18	0.54	0.11	0.08	
Uniform Delay, d1	23.4	1.0	25.2	20.4	17.4	
Progression Factor	1.00	1.00	1.00	1.00	1.16	
Incremental Delay, d2	0.8	0.3	7.9	0.2	0.1	
Delay (s)	24.1	1.3	33.1	20.6	20.2	
Level of Service	C	A	C	C	C	
Approach Delay (s)	16.8			27.0	20.2	
Approach LOS	B			C	C	

Intersection Summary			
HCM 2000 Control Delay	19.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	44.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	488	40	60	143	99	64
v/c Ratio	0.18	0.04	0.09	0.06	0.53	0.25
Control Delay	4.3	0.6	4.9	4.1	48.1	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.3	0.6	4.9	4.1	48.1	12.1
Queue Length 50th (m)	12.1	0.1	2.6	3.2	16.6	0.0
Queue Length 95th (m)	21.4	0.2	7.6	7.0	31.8	10.8
Internal Link Dist (m)	33.9			146.8	95.7	
Turn Bay Length (m)			60.0		35.0	
Base Capacity (vph)	2658	1036	645	2309	337	403
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	0.18	0.04	0.09	0.06	0.29	0.16

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	444	36	55	130	90	58
Future Volume (vph)	444	36	55	130	90	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.90	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3444	1117	1681	2992	1484	1555
Flt Permitted	1.00	1.00	0.47	1.00	0.95	1.00
Satd. Flow (perm)	3444	1117	839	2992	1484	1555
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	488	40	60	143	99	64
RTOR Reduction (vph)	0	0	0	0	0	57
Lane Group Flow (vph)	488	40	60	143	99	7
Confl. Peds. (#/hr)		45	45			
Heavy Vehicles (%)	6%	31%	3%	22%	23%	5%
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	2	8		6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	69.8	79.8	69.8	69.8	10.0	10.0
Effective Green, g (s)	69.8	79.8	69.8	69.8	10.0	10.0
Actuated g/C Ratio	0.74	0.85	0.74	0.74	0.11	0.11
Clearance Time (s)	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
Lane Grp Cap (vph)	2562	1117	624	2226	158	165
v/s Ratio Prot	c0.14	0.00		0.05	c0.07	
v/s Ratio Perm		0.03	0.07			0.00
v/c Ratio	0.19	0.04	0.10	0.06	0.63	0.04
Uniform Delay, d1	3.6	1.1	3.3	3.2	40.1	37.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.0	0.3	0.1	7.5	0.1
Delay (s)	3.7	1.1	3.6	3.3	47.7	37.7
Level of Service	A	A	A	A	D	D
Approach Delay (s)	3.5			3.4	43.7	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	10.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	93.8	Sum of lost time (s)	14.0
Intersection Capacity Utilization	48.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	83	1001	348	85	48	49	74	51
v/c Ratio	0.24	0.72	0.26	0.18	0.12	0.16	0.23	0.11
Control Delay	12.3	13.5	23.1	5.5	16.4	7.0	30.4	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.3	13.5	23.1	5.5	16.4	7.0	30.4	3.2
Queue Length 50th (m)	3.7	23.3	26.7	0.0	5.5	0.2	12.0	0.0
Queue Length 95th (m)	m7.7	39.5	37.5	9.5	12.4	7.3	24.1	4.5
Internal Link Dist (m)		202.3	126.7			25.6		
Turn Bay Length (m)	70.0			25.0			20.0	
Base Capacity (vph)	346	1394	1356	481	413	305	320	454
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	0.24	0.72	0.26	0.18	0.12	0.16	0.23	0.11

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	981	0	0	341	83	47	0	48	73	0	50
Future Volume (vph)	81	981	0	0	341	83	47	0	48	73	0	50
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	8.0		8.0		8.0
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00	1.00		1.00		1.00
Frpb, ped/bikes	1.00	1.00			1.00	0.80	1.00	0.76		1.00		0.82
Flpb, ped/bikes	0.89	1.00			1.00	1.00	0.84	1.00		0.78		1.00
Frt	1.00	1.00			1.00	0.85	1.00	0.85		1.00		0.85
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95		1.00
Satd. Flow (prot)	1485	3411			3318	1054	810	618		1271		1220
Flt Permitted	0.54	1.00			1.00	1.00	0.95	1.00		0.73		1.00
Satd. Flow (perm)	849	3411			3318	1054	810	618		970		1220
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	83	1001	0	0	348	85	48	0	49	74	0	51
RTOR Reduction (vph)	0	0	0	0	0	50	0	26	0	0	0	34
Lane Group Flow (vph)	83	1001	0	0	348	35	48	23	0	74	0	17
Confl. Peds. (#/hr)	99		330	330		99	177		246	246		177
Heavy Vehicles (%)	9%	7%	0%	0%	10%	24%	89%	0%	100%	12%	0%	10%
Turn Type	Perm	NA			NA	Perm	pm+pt	NA		Perm		Perm
Protected Phases		2			6		3	8				
Permitted Phases	2					6	8			4		4
Actuated Green, G (s)	47.0	47.0			47.0	47.0	52.0	52.0		38.0		38.0
Effective Green, g (s)	47.0	47.0			47.0	47.0	52.0	52.0		38.0		38.0
Actuated g/C Ratio	0.41	0.41			0.41	0.41	0.45	0.45		0.33		0.33
Clearance Time (s)	8.0	8.0			8.0	8.0	3.0	8.0		8.0		8.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0		3.0
Lane Grp Cap (vph)	346	1394			1356	430	366	279		320		403
v/s Ratio Prot		c0.29			0.10		c0.01	0.04				
v/s Ratio Perm	0.10					0.03	0.05			c0.08		0.01
v/c Ratio	0.24	0.72			0.26	0.08	0.13	0.08		0.23		0.04
Uniform Delay, d1	22.3	28.5			22.5	20.8	18.3	17.9		27.9		26.1
Progression Factor	0.48	0.39			1.00	1.00	1.00	1.00		1.00		1.00
Incremental Delay, d2	1.2	2.4			0.5	0.4	0.7	0.6		1.7		0.2
Delay (s)	11.9	13.4			22.9	21.2	19.1	18.5		29.6		26.3
Level of Service	B	B			C	C	B	B		C		C
Approach Delay (s)		13.3			22.6			18.8			28.3	
Approach LOS		B			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	17.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	82.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	138	1024	112	70	411	68	169	69	200	112
v/c Ratio	0.35	0.72	0.16	0.38	0.27	0.15	0.18	0.18	0.37	0.22
Control Delay	27.9	32.6	4.8	28.0	11.7	22.0	18.8	24.7	38.6	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.9	32.6	4.8	28.0	11.7	22.0	18.8	24.7	38.6	10.3
Queue Length 50th (m)	21.6	102.6	0.0	4.4	15.4	9.3	8.5	11.3	40.6	4.5
Queue Length 95th (m)	39.6	130.8	11.0	17.7	21.1	18.4	17.3	m22.7	63.4	17.2
Internal Link Dist (m)		171.5			202.3		102.8		69.7	
Turn Bay Length (m)	65.0			70.0		45.0		30.0		
Base Capacity (vph)	389	1423	705	204	1549	465	933	385	538	508
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	0.35	0.72	0.16	0.34	0.27	0.15	0.18	0.18	0.37	0.22

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)	126	932	102	64	345	29	62	86	67	63	182	102
Future Volume (vph)	126	932	102	64	345	29	62	86	67	63	182	102
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	8.0		3.0	8.0		3.0	8.0	8.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	0.99		1.00	1.00	0.98
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	1.00	0.85	1.00	0.99		1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1754	3444	1548	1322	3115		1702	3104		1335	1883	1500
Flt Permitted	0.51	1.00	1.00	0.14	1.00		0.59	1.00		0.64	1.00	1.00
Satd. Flow (perm)	943	3444	1548	197	3115		1064	3104		898	1883	1500
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	138	1024	112	70	379	32	68	95	74	69	200	112
RTOR Reduction (vph)	0	0	67	0	6	0	0	53	0	0	0	80
Lane Group Flow (vph)	138	1024	45	70	405	0	68	116	0	69	200	32
Confl. Peds. (#/hr)	14		9	9		14	4		8	8		4
Heavy Vehicles (%)	3%	6%	3%	38%	14%	34%	7%	4%	15%	36%	2%	7%
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2		2	6			8			4		4
Actuated Green, G (s)	46.3	46.3	46.3	56.4	56.4		39.3	32.6		39.9	32.9	32.9
Effective Green, g (s)	46.3	46.3	46.3	56.4	56.4		39.3	32.6		39.9	32.9	32.9
Actuated g/C Ratio	0.40	0.40	0.40	0.49	0.49		0.34	0.28		0.35	0.29	0.29
Clearance Time (s)	8.0	8.0	8.0	3.0	8.0		3.0	8.0		3.0	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
Lane Grp Cap (vph)	379	1386	623	166	1527		400	879		338	538	429
v/s Ratio Prot		c0.30		c0.03	0.13		0.01	0.04		c0.01	c0.11	
v/s Ratio Perm	0.15		0.03	0.18			0.05			0.06		0.02
v/c Ratio	0.36	0.74	0.07	0.42	0.27		0.17	0.13		0.20	0.37	0.07
Uniform Delay, d1	24.0	29.2	21.1	18.9	17.2		26.0	30.7		25.9	32.8	29.9
Progression Factor	1.00	1.00	1.00	1.70	0.68		1.00	1.00		1.09	1.06	1.48
Incremental Delay, d2	2.7	3.6	0.2	1.7	0.4		0.2	0.3		0.3	1.9	0.3
Delay (s)	26.7	32.8	21.4	33.9	12.1		26.2	31.0		28.5	36.8	44.6
Level of Service	C	C	C	C	B		C	C		C	D	D
Approach Delay (s)		31.1			15.3			29.6			37.6	
Approach LOS		C			B			C			D	

Intersection Summary			
HCM 2000 Control Delay	28.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	79.5%	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)	23	1079	110	432	19	4	209	3	10
v/c Ratio	0.04	0.48	0.28	0.17	0.10	0.02	0.53	0.01	0.04
Control Delay	5.4	8.8	5.6	5.2	52.8	51.2	11.8	51.0	34.8
Queue Delay	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.4	9.2	5.6	5.2	52.8	51.2	11.8	51.0	34.8
Queue Length 50th (m)	1.7	70.3	6.2	15.9	4.6	1.0	0.0	0.7	1.0
Queue Length 95th (m)	m2.2	m66.3	10.5	20.8	12.4	4.6	23.1	3.6	6.3
Internal Link Dist (m)		161.5		171.5		57.8			66.0
Turn Bay Length (m)	80.0		55.0		45.0				
Base Capacity (vph)	590	2261	386	2480	200	230	395	205	240
Starvation Cap Reductn	0	574	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	0.64	0.28	0.17	0.10	0.02	0.53	0.01	0.04

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)	22	961	54	103	401	5	18	4	196	3	4	6
Future Volume (vph)	22	961	54	103	401	5	18	4	196	3	4	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		3.0	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	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.93	1.00	0.99	
Flpb, ped/bikes	0.98	1.00		1.00	1.00		0.99	1.00	1.00	0.95	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1703	3437		1674	3307		1692	1537	1453	1726	1570	
Flt Permitted	0.50	1.00		0.21	1.00		0.75	1.00	1.00	0.76	1.00	
Satd. Flow (perm)	897	3437		378	3307		1337	1537	1453	1372	1570	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	23	1022	57	110	427	5	19	4	209	3	4	6
RTOR Reduction (vph)	0	3	0	0	1	0	0	0	178	0	5	0
Lane Group Flow (vph)	23	1076	0	110	432	0	19	4	31	3	5	0
Confl. Peds. (#/hr)	9		8	8		9	4		26	26		4
Heavy Vehicles (%)	5%	5%	6%	9%	10%	20%	7%	25%	5%	0%	25%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	92.0	92.0		105.0	105.0		21.0	21.0	21.0	21.0	21.0	
Effective Green, g (s)	92.0	92.0		105.0	105.0		21.0	21.0	21.0	21.0	21.0	
Actuated g/C Ratio	0.66	0.66		0.75	0.75		0.15	0.15	0.15	0.15	0.15	
Clearance Time (s)	7.0	7.0		3.0	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)	589	2258		376	2480		200	230	217	205	235	
v/s Ratio Prot		c0.31		c0.02	0.13			0.00			0.00	
v/s Ratio Perm	0.03			0.20			0.01		c0.02	0.00		
v/c Ratio	0.04	0.48		0.29	0.17		0.10	0.02	0.14	0.01	0.02	
Uniform Delay, d1	8.4	12.0		6.2	5.0		51.3	50.7	51.7	50.7	50.7	
Progression Factor	0.63	0.71		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	0.3		2.0	0.2		0.9	0.1	1.4	0.1	0.2	
Delay (s)	5.3	8.8		8.2	5.2		52.2	50.8	53.1	50.8	50.9	
Level of Service	A	A		A	A		D	D	D	D	D	
Approach Delay (s)		8.7			5.8			53.0			50.9	
Approach LOS		A			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.0
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	SBL	SBT
Lane Group Flow (vph)	102	696	124	383	151	1022	476	626
v/c Ratio	0.28	0.52	0.64	0.29	0.32	0.94	1.41	0.56
Control Delay	31.7	33.4	50.0	17.5	19.0	62.6	235.4	42.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.7	33.4	50.0	17.5	19.0	62.6	235.4	42.1
Queue Length 50th (m)	19.1	75.1	28.1	24.9	20.9	143.4	~159.9	75.5
Queue Length 95th (m)	31.3	85.5	48.7	33.6	30.6	156.1	#204.8	86.8
Internal Link Dist (m)		170.1		161.5		203.8		248.3
Turn Bay Length (m)	50.0		50.0		65.0		100.0	
Base Capacity (vph)	361	1331	194	1315	474	1085	337	1109
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	0.28	0.52	0.64	0.29	0.32	0.94	1.41	0.56

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)	86	499	86	104	192	129	127	721	138	400	493	33
Future Volume (vph)	86	499	86	104	192	129	127	721	138	400	493	33
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	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		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	0.99	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.94		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1753	3365		1621	3136		1806	3418		1772	3517	
Flt Permitted	0.50	1.00		0.29	1.00		0.29	1.00		0.09	1.00	
Satd. Flow (perm)	921	3365		496	3136		546	3418		170	3517	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	102	594	102	124	229	154	151	858	164	476	587	39
RTOR Reduction (vph)	0	10	0	0	83	0	0	11	0	0	3	0
Lane Group Flow (vph)	102	686	0	124	300	0	151	1011	0	476	623	0
Confl. Peds. (#/hr)	13		33	33		13	6		2	2		6
Heavy Vehicles (%)	3%	5%	6%	11%	10%	5%	1%	3%	9%	3%	2%	13%
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)	55.0	55.0		55.0	55.0		66.0	44.0		66.0	44.0	
Effective Green, g (s)	55.0	55.0		55.0	55.0		66.0	44.0		66.0	44.0	
Actuated g/C Ratio	0.39	0.39		0.39	0.39		0.47	0.31		0.47	0.31	
Clearance Time (s)	8.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	361	1321		194	1232		455	1074		331	1105	
v/s Ratio Prot		0.20			0.10		0.05	0.30		c0.23	0.18	
v/s Ratio Perm	0.11			c0.25			0.10			c0.45		
v/c Ratio	0.28	0.52		0.64	0.24		0.33	0.94		1.44	0.56	
Uniform Delay, d1	29.0	32.4		34.5	28.5		22.1	46.7		44.4	40.0	
Progression Factor	1.00	1.00		0.95	0.92		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.0	1.5		15.0	0.5		2.0	16.5		213.6	2.1	
Delay (s)	31.0	33.9		47.7	26.8		24.1	63.3		258.0	42.1	
Level of Service	C	C		D	C		C	E		F	D	
Approach Delay (s)		33.5			31.9			58.2			135.3	
Approach LOS		C			C			E			F	

Intersection Summary			
HCM 2000 Control Delay	72.7	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)	19.0
Intersection Capacity Utilization	99.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	87	52	20	39	6	348	30	224
v/c Ratio	0.23	0.12	0.06	0.08	0.01	0.37	0.06	0.26
Control Delay	24.4	13.0	22.1	11.6	8.7	11.9	9.2	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.4	13.0	22.1	11.6	8.7	11.9	9.2	9.5
Queue Length 50th (m)	10.2	2.5	2.2	1.2	0.4	27.9	2.0	14.6
Queue Length 95th (m)	12.2	4.6	4.2	3.4	1.2	23.0	3.4	13.4
Internal Link Dist (m)		141.1		97.5		112.5		34.9
Turn Bay Length (m)	20.0		20.0		25.0		25.0	
Base Capacity (vph)	384	443	346	485	626	929	542	868
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.12	0.06	0.08	0.01	0.37	0.06	0.26

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	12	16	11	6	15	3	176	12	16	93	28
Future Volume (vph)	47	12	16	11	6	15	3	176	12	16	93	28
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	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.97		1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		0.97	1.00		0.98	1.00		1.00	1.00	
Frt	1.00	0.91		1.00	0.89		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1815	1535		1655	1692		1788	1722		1816	1590	
Flt Permitted	0.73	1.00		0.72	1.00		0.62	1.00		0.53	1.00	
Satd. Flow (perm)	1398	1535		1260	1692		1164	1722		1010	1590	
Peak-hour factor, PHF	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Adj. Flow (vph)	87	22	30	20	11	28	6	326	22	30	172	52
RTOR Reduction (vph)	0	22	0	0	20	0	0	3	0	0	13	0
Lane Group Flow (vph)	87	30	0	20	19	0	6	345	0	30	211	0
Confl. Peds. (#/hr)	5		16	16		5	13		4	4		13
Heavy Vehicles (%)	0%	0%	19%	7%	0%	0%	0%	11%	0%	0%	10%	33%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	22.0	22.0		22.0	22.0		43.0	43.0		43.0	43.0	
Effective Green, g (s)	22.0	22.0		22.0	22.0		43.0	43.0		43.0	43.0	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.54	0.54		0.54	0.54	
Clearance Time (s)	8.0	8.0		8.0	8.0		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)	384	422		346	465		625	925		542	854	
v/s Ratio Prot		0.02			0.01			c0.20			0.13	
v/s Ratio Perm	c0.06			0.02			0.01			0.03		
v/c Ratio	0.23	0.07		0.06	0.04		0.01	0.37		0.06	0.25	
Uniform Delay, d1	22.4	21.4		21.4	21.3		8.6	10.7		8.8	9.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.4	0.3		0.3	0.2		0.0	1.2		0.2	0.7	
Delay (s)	23.8	21.8		21.7	21.4		8.6	11.9		9.0	10.6	
Level of Service	C	C		C	C		A	B		A	B	
Approach Delay (s)		23.0			21.5			11.8			10.4	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	45.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	44	8	12	8	101	132	28	303	8
Future Volume (Veh/h)	0	0	0	44	8	12	8	101	132	28	303	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	48	9	13	9	110	143	30	329	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)								94			117	
pX, platoon unblocked												
vC, conflicting volume	484	664	169	424	598	126	338			253		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	484	664	169	424	598	126	338			253		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	90	98	99	99			98		
cM capacity (veh/h)	441	368	845	502	402	900	1218			1309		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	0	0	48	22	9	73	180	30	219	119
Volume Left	0	0	48	0	9	0	0	30	0	0
Volume Right	0	0	0	13	0	0	143	0	0	9
cSH	1700	1700	502	597	1218	1700	1700	1309	1700	1700
Volume to Capacity	0.00	0.00	0.10	0.04	0.01	0.04	0.11	0.02	0.13	0.07
Queue Length 95th (m)	0.0	0.0	2.4	0.9	0.2	0.0	0.0	0.5	0.0	0.0
Control Delay (s)	0.0	0.0	12.9	11.3	8.0	0.0	0.0	7.8	0.0	0.0
Lane LOS	A	A	B	B	A			A		
Approach Delay (s)	0.0		12.4		0.3			0.6		
Approach LOS	A		B							

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	25.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	8	80	4	4	28	24	112	28	20	39	32
Future Volume (Veh/h)	8	8	80	4	4	28	24	112	28	20	39	32
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	9	87	4	4	30	26	122	30	22	42	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)								89			120	
pX, platoon unblocked	0.99	0.99		0.99	0.99	0.99				0.99		
vC, conflicting volume	310	308	60	366	310	137	77			152		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	298	296	60	356	299	124	77			139		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	98	91	99	99	97	98			98		
cM capacity (veh/h)	608	590	1006	523	588	918	1522			1431		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	105	38	26	152	22	77
Volume Left	9	4	26	0	22	0
Volume Right	87	30	0	30	0	35
cSH	901	806	1522	1700	1431	1700
Volume to Capacity	0.12	0.05	0.02	0.09	0.02	0.05
Queue Length 95th (m)	3.0	1.1	0.4	0.0	0.4	0.0
Control Delay (s)	9.5	9.7	7.4	0.0	7.6	0.0
Lane LOS	A	A	A		A	
Approach Delay (s)	9.5	9.7	1.1		1.7	
Approach LOS	A	A				

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	28.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	218	20	24	137
Future Volume (Veh/h)	0	0	218	20	24	137
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	237	22	26	149
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			59			82
pX, platoon unblocked	1.00					
vC, conflicting volume	449	130			259	
vC1, stage 1 conf vol	248					
vC2, stage 2 conf vol	201					
vCu, unblocked vol	448	130			259	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			98	
cM capacity (veh/h)	681	896			1303	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	158	101	26	149
Volume Left	0	0	0	26	0
Volume Right	0	0	22	0	0
cSH	1700	1700	1700	1303	1700
Volume to Capacity	0.00	0.09	0.06	0.02	0.09
Queue Length 95th (m)	0.0	0.0	0.0	0.5	0.0
Control Delay (s)	0.0	0.0	0.0	7.8	0.0
Lane LOS	A			A	
Approach Delay (s)	0.0	0.0		1.2	
Approach LOS	A				

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	16.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	472	48	0	220	0	8
Future Volume (Veh/h)	472	48	0	220	0	8
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)	513	52	0	239	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)	160			58		
pX, platoon unblocked			0.90		0.90	0.90
vC, conflicting volume			565		632	256
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			302		377	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)			1133		539	979

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	256	256	52	120	120	9
Volume Left	0	0	0	0	0	0
Volume Right	0	0	52	0	0	9
cSH	1700	1700	1700	1700	1700	979
Volume to Capacity	0.15	0.15	0.03	0.07	0.07	0.01
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.2
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	8.7
Lane LOS						A
Approach Delay (s)	0.0			0.0		8.7
Approach LOS						A

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	23.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	343	89	243	938	1947	1372
v/c Ratio	0.26	0.15	0.36	1.49	0.60	0.54
Control Delay	29.4	18.6	41.1	266.4	24.8	23.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.4	18.6	41.1	266.4	24.8	23.8
Queue Length 50th (m)	32.8	10.1	50.4	~362.5	106.8	90.9
Queue Length 95th (m)	44.3	21.9	80.0	#442.6	118.0	104.5
Internal Link Dist (m)					73.6	241.1
Turn Bay Length (m)		150.0				
Base Capacity (vph)	1312	591	670	629	3265	2544
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	0.26	0.15	0.36	1.49	0.60	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)	309	0	80	219	0	844	0	1742	10	0	1235	0
Future Volume (vph)	309	0	80	219	0	844	0	1742	10	0	1235	0
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		7.0			7.0	
Lane Util. Factor	0.97		1.00	1.00		1.00		0.86			0.91	
Frt	1.00		0.85	1.00		0.85		1.00			1.00	
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (prot)	3340		1458	1706		1555		6350			4948	
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (perm)	3340		1458	1706		1555		6350			4948	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	343	0	89	243	0	938	0	1936	11	0	1372	0
RTOR Reduction (vph)	0	0	19	0	0	19	0	0	0	0	0	0
Lane Group Flow (vph)	343	0	70	243	0	919	0	1947	0	0	1372	0
Heavy Vehicles (%)	6%	0%	12%	7%	0%	5%	0%	4%	0%	0%	6%	0%
Turn Type	Perm		Perm	Perm		Perm		NA			NA	
Protected Phases								2			6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	55.0		55.0	55.0		55.0		72.0			72.0	
Effective Green, g (s)	55.0		55.0	55.0		55.0		72.0			72.0	
Actuated g/C Ratio	0.39		0.39	0.39		0.39		0.51			0.51	
Clearance Time (s)	6.0		6.0	6.0		6.0		7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0		3.0		3.0			3.0	
Lane Grp Cap (vph)	1312		572	670		610		3265			2544	
v/s Ratio Prot								c0.31			0.28	
v/s Ratio Perm	0.10		0.05	0.14		c0.59						
v/c Ratio	0.26		0.12	0.36		1.51		0.60			0.54	
Uniform Delay, d1	28.8		27.1	30.1		42.5		23.8			22.9	
Progression Factor	1.00		1.00	1.30		1.33		1.00			1.00	
Incremental Delay, d2	0.5		0.4	1.4		236.0		0.8			0.8	
Delay (s)	29.2		27.5	40.5		292.6		24.6			23.7	
Level of Service	C		C	D		F		C			C	
Approach Delay (s)		28.9			240.8			24.6			23.7	
Approach LOS		C			F			C			C	

Intersection Summary			
HCM 2000 Control Delay	76.5	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)	13.0
Intersection Capacity Utilization	100.7%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL
Lane Group Flow (vph)	260	784	194	733	477
v/c Ratio	0.15	0.49	0.33	0.38	0.40
Control Delay	15.6	1.1	19.4	18.7	23.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.6	1.1	19.4	18.7	23.9
Queue Length 50th (m)	17.8	0.0	28.6	58.8	28.9
Queue Length 95th (m)	25.3	0.0	45.6	72.7	45.5
Internal Link Dist (m)	858.1			135.6	92.8
Turn Bay Length (m)			60.0		
Base Capacity (vph)	1730	1585	583	1911	1195
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	0.15	0.49	0.33	0.38	0.40

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	234	706	175	660	403	26
Future Volume (vph)	234	706	175	660	403	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	1.00	1.00	0.95	1.00	0.96	
Satd. Flow (prot)	3147	1585	1706	3476	3406	
Flt Permitted	1.00	1.00	0.59	1.00	0.96	
Satd. Flow (perm)	3147	1585	1061	3476	3406	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	260	784	194	733	448	29
RTOR Reduction (vph)	0	0	0	0	3	0
Lane Group Flow (vph)	260	784	194	733	474	0
Heavy Vehicles (%)	16%	3%	7%	5%	3%	12%
Turn Type	NA	pm+ov	Perm	NA	Prot	
Protected Phases	2	8		6	8	
Permitted Phases		2	6			
Actuated Green, G (s)	77.0	126.0	77.0	77.0	49.0	
Effective Green, g (s)	77.0	126.0	77.0	77.0	49.0	
Actuated g/C Ratio	0.55	0.90	0.55	0.55	0.35	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1730	1585	583	1911	1192	
v/s Ratio Prot	0.08	c0.17		0.21	0.14	
v/s Ratio Perm		0.32	0.18			
v/c Ratio	0.15	0.49	0.33	0.38	0.40	
Uniform Delay, d1	15.5	1.3	17.4	18.0	34.4	
Progression Factor	0.99	1.00	1.00	1.00	0.67	
Incremental Delay, d2	0.2	1.1	1.5	0.6	0.9	
Delay (s)	15.5	2.4	18.9	18.5	24.0	
Level of Service	B	A	B	B	C	
Approach Delay (s)	5.6			18.6	24.0	
Approach LOS	A			B	C	

Intersection Summary			
HCM 2000 Control Delay	14.1	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)	14.0
Intersection Capacity Utilization	65.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	166	146	116	773	145	44
v/c Ratio	0.08	0.16	0.17	0.33	0.58	0.16
Control Delay	5.4	1.1	6.5	6.6	38.6	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.4	1.1	6.5	6.6	38.6	10.2
Queue Length 50th (m)	3.8	0.4	5.5	22.0	19.2	0.0
Queue Length 95th (m)	8.3	0.7	13.9	37.2	35.7	7.7
Internal Link Dist (m)	33.9			146.8	95.7	
Turn Bay Length (m)			60.0		35.0	
Base Capacity (vph)	2144	1103	700	2309	788	773
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	0.13	0.17	0.33	0.18	0.06

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	151	133	106	703	132	40
Future Volume (vph)	151	133	106	703	132	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.88	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	0.90	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3259	1171	1621	3510	1587	1512
Flt Permitted	1.00	1.00	0.65	1.00	0.95	1.00
Satd. Flow (perm)	3259	1171	1104	3510	1587	1512
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	166	146	116	773	145	44
RTOR Reduction (vph)	0	0	0	0	0	37
Lane Group Flow (vph)	166	146	116	773	145	7
Confl. Peds. (#/hr)		71	71			
Heavy Vehicles (%)	12%	23%	1%	4%	15%	8%
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	2	8		6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	50.4	62.6	50.4	50.4	12.2	12.2
Effective Green, g (s)	50.4	62.6	50.4	50.4	12.2	12.2
Actuated g/C Ratio	0.66	0.82	0.66	0.66	0.16	0.16
Clearance Time (s)	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
Lane Grp Cap (vph)	2144	1171	726	2309	252	240
v/s Ratio Prot	0.05	0.02		c0.22	c0.09	
v/s Ratio Perm		0.10	0.11			0.00
v/c Ratio	0.08	0.12	0.16	0.33	0.58	0.03
Uniform Delay, d1	4.7	1.4	5.0	5.7	29.8	27.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.5	0.4	3.2	0.0
Delay (s)	4.8	1.5	5.5	6.1	33.0	27.2
Level of Service	A	A	A	A	C	C
Approach Delay (s)	3.2			6.1	31.6	
Approach LOS	A			A	C	

Intersection Summary			
HCM 2000 Control Delay	8.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	76.6	Sum of lost time (s)	14.0
Intersection Capacity Utilization	49.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	89	750	1136	137	28	48	148	125
v/c Ratio	0.82	0.47	0.68	0.40	0.09	0.21	0.56	0.33
Control Delay	79.0	21.1	31.8	17.1	22.1	11.8	49.2	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.0	21.1	31.8	17.1	22.1	11.8	49.2	8.1
Queue Length 50th (m)	12.6	53.3	127.0	12.8	4.3	1.5	34.0	0.0
Queue Length 95th (m)	#56.2	59.2	151.1	30.9	10.2	10.4	58.0	15.0
Internal Link Dist (m)		202.3	126.7			25.6		
Turn Bay Length (m)	70.0			25.0			20.0	
Base Capacity (vph)	109	1583	1677	341	327	227	263	380
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	0.82	0.47	0.68	0.40	0.09	0.21	0.56	0.33

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)	82	690	0	0	1045	126	26	0	44	136	0	115
Future Volume (vph)	82	690	0	0	1045	126	26	0	44	136	0	115
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	8.0		8.0		8.0
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00	1.00		1.00		1.00
Frpb, ped/bikes	1.00	1.00			1.00	0.46	1.00	0.58		1.00		0.60
Flpb, ped/bikes	0.94	1.00			1.00	1.00	0.63	1.00		0.61		1.00
Frt	1.00	1.00			1.00	0.85	1.00	0.85		1.00		0.85
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95		1.00
Satd. Flow (prot)	1638	3411			3614	664	665	486		1073		919
Flt Permitted	0.14	1.00			1.00	1.00	0.95	1.00		0.73		1.00
Satd. Flow (perm)	237	3411			3614	664	665	486		820		919
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	89	750	0	0	1136	137	28	0	48	148	0	125
RTOR Reduction (vph)	0	0	0	0	0	33	0	23	0	0	0	85
Lane Group Flow (vph)	89	750	0	0	1136	104	28	25	0	148	0	40
Confl. Peds. (#/hr)	290		1278	1278		290	658		752	752		658
Heavy Vehicles (%)	5%	7%	0%	0%	1%	13%	72%	0%	95%	4%	0%	7%
Turn Type	Perm	NA			NA	Perm	pm+pt	NA		Perm		Perm
Protected Phases		2			6		3	8				
Permitted Phases	2					6	8			4		4
Actuated Green, G (s)	65.0	65.0			65.0	65.0	59.0	59.0		45.0		45.0
Effective Green, g (s)	65.0	65.0			65.0	65.0	59.0	59.0		45.0		45.0
Actuated g/C Ratio	0.46	0.46			0.46	0.46	0.42	0.42		0.32		0.32
Clearance Time (s)	8.0	8.0			8.0	8.0	3.0	8.0		8.0		8.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0		3.0
Lane Grp Cap (vph)	110	1583			1677	308	280	204		263		295
v/s Ratio Prot		0.22			0.31		0.01	c0.05				
v/s Ratio Perm	c0.38					0.16	0.03			c0.18		0.04
v/c Ratio	0.81	0.47			0.68	0.34	0.10	0.12		0.56		0.14
Uniform Delay, d1	32.2	25.8			29.3	23.8	24.5	24.7		39.3		33.7
Progression Factor	0.95	0.78			1.00	1.00	1.00	1.00		1.00		1.00
Incremental Delay, d2	42.7	0.9			2.2	2.9	0.7	1.3		8.4		1.0
Delay (s)	73.4	21.0			31.5	26.8	25.2	26.0		47.8		34.7
Level of Service	E	C			C	C	C	C		D		C
Approach Delay (s)		26.5			31.0			25.7			41.8	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	30.5	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)	19.0
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	89	528	53	144	1066	166	417	187	693	68
v/c Ratio	0.71	0.45	0.09	0.40	0.70	0.72	0.36	0.50	1.14	0.12
Control Delay	88.0	52.1	7.3	8.8	11.2	45.7	34.5	29.4	123.3	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	88.0	52.1	7.3	8.8	11.3	45.7	34.5	29.4	123.3	3.1
Queue Length 50th (m)	21.1	63.6	0.5	4.8	24.7	27.5	43.7	33.1	~222.4	0.3
Queue Length 95th (m)	#48.5	83.5	4.6	m8.3	31.2	50.5	58.1	51.5	#323.9	4.8
Internal Link Dist (m)		171.5			202.3		102.8		69.7	
Turn Bay Length (m)	65.0			70.0		45.0		30.0		
Base Capacity (vph)	125	1178	599	369	1518	329	1155	378	609	556
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	37	0	0	0	0	1
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.45	0.09	0.39	0.72	0.50	0.36	0.49	1.14	0.12

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.

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)	87	517	52	141	972	73	163	337	72	183	679	67
Future Volume (vph)	87	517	52	141	972	73	163	337	72	183	679	67
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	8.0		3.0	8.0		3.0	8.0	8.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00		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		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1799	3444	1543	1610	3418		1772	3385		1432	1883	1491
Flt Permitted	0.19	1.00	1.00	0.35	1.00		0.08	1.00		0.47	1.00	1.00
Satd. Flow (perm)	368	3444	1543	594	3418		158	3385		715	1883	1491
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	89	528	53	144	992	74	166	344	73	187	693	68
RTOR Reduction (vph)	0	0	35	0	4	0	0	13	0	0	0	46
Lane Group Flow (vph)	89	528	18	144	1062	0	166	404	0	187	693	22
Confl. Peds. (#/hr)	17		10	10		17	13		10	10		13
Heavy Vehicles (%)	1%	6%	1%	13%	4%	24%	3%	1%	21%	27%	2%	6%
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2		2	6			8			4		4
Actuated Green, G (s)	47.9	47.9	47.9	62.0	62.0		60.9	47.2		57.1	45.3	45.3
Effective Green, g (s)	47.9	47.9	47.9	62.0	62.0		60.9	47.2		57.1	45.3	45.3
Actuated g/C Ratio	0.34	0.34	0.34	0.44	0.44		0.43	0.34		0.41	0.32	0.32
Clearance Time (s)	8.0	8.0	8.0	3.0	8.0		3.0	8.0		3.0	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
Lane Grp Cap (vph)	125	1178	527	343	1513		226	1141		352	609	482
v/s Ratio Prot		0.15		0.03	c0.31		c0.07	0.12		0.04	c0.37	
v/s Ratio Perm	0.24		0.01	0.15			0.25			0.17		0.01
v/c Ratio	0.71	0.45	0.03	0.42	0.70		0.73	0.35		0.53	1.14	0.05
Uniform Delay, d1	40.1	35.8	30.7	24.5	31.5		33.4	34.9		28.4	47.4	32.5
Progression Factor	1.43	1.41	1.00	0.30	0.29		1.00	1.00		1.06	1.04	1.90
Incremental Delay, d2	28.1	1.2	0.1	0.6	2.1		11.7	0.9		1.4	79.6	0.2
Delay (s)	85.2	51.5	30.8	7.9	11.2		45.1	35.8		31.5	128.7	61.8
Level of Service	F	D	C	A	B		D	D		C	F	E
Approach Delay (s)		54.3			10.8			38.4			104.8	
Approach LOS		D			B			D			F	

Intersection Summary			
HCM 2000 Control Delay	50.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	104.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	40	657	147	1189	34	6	100	10	67
v/c Ratio	0.17	0.35	0.29	0.52	0.10	0.01	0.24	0.03	0.15
Control Delay	9.8	9.4	4.7	10.0	41.6	39.8	8.9	40.2	13.4
Queue Delay	0.0	0.0	0.0	1.4	0.5	0.0	0.0	0.0	0.5
Total Delay	9.8	9.4	4.7	11.4	42.1	39.8	8.9	40.2	13.9
Queue Length 50th (m)	2.7	36.8	8.4	131.4	7.3	1.3	0.0	2.1	2.1
Queue Length 95th (m)	m5.4	m46.2	m13.1	123.7	16.6	4.9	14.3	6.9	14.2
Internal Link Dist (m)		161.5		171.5		57.8			66.0
Turn Bay Length (m)	80.0		55.0		45.0				
Base Capacity (vph)	231	1894	506	2292	330	480	421	338	444
Starvation Cap Reductn	0	0	0	846	0	0	0	0	0
Spillback Cap Reductn	0	0	0	278	147	0	0	0	184
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.35	0.29	0.82	0.19	0.01	0.24	0.03	0.26

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)	36	557	34	132	1049	21	31	5	90	9	9	51
Future Volume (vph)	36	557	34	132	1049	21	31	5	90	9	9	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		3.0	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	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.92	1.00	0.96	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		0.97	1.00	1.00	0.94	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	1.00	0.85	1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1802	3440		1713	3526		1762	1921	1385	1707	1606	
Flt Permitted	0.22	1.00		0.35	1.00		0.71	1.00	1.00	0.75	1.00	
Satd. Flow (perm)	420	3440		626	3526		1323	1921	1385	1355	1606	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	40	619	38	147	1166	23	34	6	100	10	10	57
RTOR Reduction (vph)	0	3	0	0	1	0	0	0	75	0	43	0
Lane Group Flow (vph)	40	654	0	147	1188	0	34	6	25	10	24	0
Confl. Peds. (#/hr)	19		14	14		19	18		31	31		18
Heavy Vehicles (%)	0%	5%	0%	6%	3%	5%	0%	0%	9%	0%	0%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	77.0	77.0		91.0	91.0		35.0	35.0	35.0	35.0	35.0	
Effective Green, g (s)	77.0	77.0		91.0	91.0		35.0	35.0	35.0	35.0	35.0	
Actuated g/C Ratio	0.55	0.55		0.65	0.65		0.25	0.25	0.25	0.25	0.25	
Clearance Time (s)	7.0	7.0		3.0	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)	231	1892		492	2291		330	480	346	338	401	
v/s Ratio Prot		0.19		0.02	c0.34			0.00			0.02	
v/s Ratio Perm	0.10			0.17			c0.03		0.02	0.01		
v/c Ratio	0.17	0.35		0.30	0.52		0.10	0.01	0.07	0.03	0.06	
Uniform Delay, d1	15.7	17.5		9.9	12.9		40.4	39.5	40.1	39.7	40.0	
Progression Factor	0.52	0.52		0.44	0.71		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.1	0.3		1.3	0.7		0.6	0.0	0.4	0.2	0.3	
Delay (s)	9.3	9.4		5.6	9.9		41.0	39.5	40.5	39.8	40.3	
Level of Service	A	A		A	A		D	D	D	D	D	
Approach Delay (s)		9.4			9.4			40.6			40.2	
Approach LOS		A			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	70.5%	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)	40	343	82	1135	56	1132	306	691
v/c Ratio	0.17	0.24	0.27	1.08	0.16	1.00	1.12	0.53
Control Delay	22.9	24.4	49.9	105.3	19.6	73.4	127.3	36.6
Queue Delay	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0
Total Delay	22.9	24.4	49.9	106.1	19.6	73.4	127.3	36.6
Queue Length 50th (m)	6.1	29.1	22.7	~183.4	7.8	164.2	~80.1	78.4
Queue Length 95th (m)	13.1	40.1	39.5	#227.1	15.2	#213.1	#138.9	97.3
Internal Link Dist (m)		170.1		161.5		203.8		248.3
Turn Bay Length (m)	50.0		50.0		65.0		100.0	
Base Capacity (vph)	234	1442	299	1051	351	1133	273	1305
Starvation Cap Reductn	0	0	0	2	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	0.17	0.24	0.27	1.08	0.16	1.00	1.12	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)	37	255	64	76	728	327	52	965	87	285	606	36
Future Volume (vph)	37	255	64	76	728	327	52	965	87	285	606	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		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		0.98	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.95		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1755	3386		1734	3381		1787	3510		1772	3572	
Flt Permitted	0.09	1.00		0.55	1.00		0.32	1.00		0.08	1.00	
Satd. Flow (perm)	164	3386		996	3381		593	3510		155	3572	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	40	274	69	82	783	352	56	1038	94	306	652	39
RTOR Reduction (vph)	0	16	0	0	37	0	0	5	0	0	3	0
Lane Group Flow (vph)	40	327	0	82	1098	0	56	1127	0	306	688	0
Confl. Peds. (#/hr)	5		23	23		5	8		13	13		8
Heavy Vehicles (%)	4%	4%	2%	3%	2%	3%	2%	2%	7%	3%	1%	4%
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	59.0	59.0		42.0	42.0		56.0	45.0		65.0	51.0	
Effective Green, g (s)	59.0	59.0		42.0	42.0		56.0	45.0		65.0	51.0	
Actuated g/C Ratio	0.42	0.42		0.30	0.30		0.40	0.32		0.46	0.36	
Clearance Time (s)	3.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	228	1426		298	1014		331	1128		268	1301	
v/s Ratio Prot	0.02	c0.10			c0.32		0.01	0.32		c0.14	0.19	
v/s Ratio Perm	0.06			0.08			0.05			c0.39		
v/c Ratio	0.18	0.23		0.28	1.08		0.17	1.00		1.14	0.53	
Uniform Delay, d1	30.1	25.9		37.4	49.0		26.3	47.5		44.3	35.0	
Progression Factor	1.00	1.00		1.25	1.28		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.7	0.4		2.0	52.0		1.1	26.6		98.8	1.5	
Delay (s)	31.8	26.3		48.9	114.9		27.4	74.1		143.0	36.6	
Level of Service	C	C		D	F		C	E		F	D	
Approach Delay (s)		26.9			110.5			71.9			69.3	
Approach LOS		C			F			E			E	

Intersection Summary			
HCM 2000 Control Delay	79.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	100.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	11	52	45	61	20	149	16	228
v/c Ratio	0.03	0.12	0.13	0.12	0.03	0.16	0.03	0.24
Control Delay	21.6	11.7	23.2	19.1	9.0	8.9	8.9	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.6	11.7	23.2	19.1	9.0	8.9	8.9	9.1
Queue Length 50th (m)	1.2	1.9	5.1	5.6	1.3	9.5	1.1	14.5
Queue Length 95th (m)	4.1	7.3	10.5	11.4	3.6	14.6	3.1	20.4
Internal Link Dist (m)		141.1		97.5		112.5		34.9
Turn Bay Length (m)	20.0		20.0		25.0		25.0	
Base Capacity (vph)	374	451	336	506	620	954	631	967
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	0.12	0.13	0.12	0.03	0.16	0.03	0.24

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	13	26	34	37	9	15	97	15	12	130	41
Future Volume (vph)	8	13	26	34	37	9	15	97	15	12	130	41
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	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.92		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		0.91	1.00		0.98	1.00		0.98	1.00	
Frt	1.00	0.90		1.00	0.97		1.00	0.98		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1803	1548		1607	1812		1780	1763		1686	1774	
Flt Permitted	0.72	1.00		0.72	1.00		0.62	1.00		0.66	1.00	
Satd. Flow (perm)	1361	1548		1223	1812		1155	1763		1176	1774	
Peak-hour factor, PHF	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Adj. Flow (vph)	11	17	35	45	49	12	20	129	20	16	173	55
RTOR Reduction (vph)	0	25	0	0	9	0	0	7	0	0	14	0
Lane Group Flow (vph)	11	27	0	45	52	0	20	142	0	16	214	0
Confl. Peds. (#/hr)	11		50	50		11	16		12	12		16
Heavy Vehicles (%)	0%	0%	4%	3%	3%	0%	0%	6%	7%	6%	4%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	22.0	22.0		22.0	22.0		43.0	43.0		43.0	43.0	
Effective Green, g (s)	22.0	22.0		22.0	22.0		43.0	43.0		43.0	43.0	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.54	0.54		0.54	0.54	
Clearance Time (s)	8.0	8.0		8.0	8.0		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)	374	425		336	498		620	947		632	953	
v/s Ratio Prot		0.02			0.03			0.08			c0.12	
v/s Ratio Perm	0.01			c0.04			0.02			0.01		
v/c Ratio	0.03	0.06		0.13	0.11		0.03	0.15		0.03	0.22	
Uniform Delay, d1	21.2	21.4		21.8	21.7		8.7	9.3		8.7	9.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.3		0.8	0.4		0.1	0.3		0.1	0.5	
Delay (s)	21.3	21.7		22.7	22.1		8.8	9.6		8.7	10.3	
Level of Service	C	C		C	C		A	A		A	B	
Approach Delay (s)		21.6			22.3			9.5			10.2	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	13.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.19		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	45.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	0	20	64	8	40	16	377	104	16	845	20
Future Volume (Veh/h)	12	0	20	64	8	40	16	377	104	16	845	20
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	0	22	70	9	43	17	410	113	17	918	22
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								94			117	
pX, platoon unblocked	0.92	0.92		0.92	0.92	0.92				0.92		
vC, conflicting volume	1250	1520	470	1016	1474	262	940			523		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1102	1396	470	849	1346	32	940			315		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	90	100	96	68	93	95	98			99		
cM capacity (veh/h)	135	124	540	219	133	955	725			1146		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	13	22	70	52	17	273	250	17	612	328
Volume Left	13	0	70	0	17	0	0	17	0	0
Volume Right	0	22	0	43	0	0	113	0	0	22
cSH	135	540	219	462	725	1700	1700	1146	1700	1700
Volume to Capacity	0.10	0.04	0.32	0.11	0.02	0.16	0.15	0.01	0.36	0.19
Queue Length 95th (m)	2.4	1.0	10.0	2.9	0.5	0.0	0.0	0.3	0.0	0.0
Control Delay (s)	34.6	11.9	29.0	13.8	10.1	0.0	0.0	8.2	0.0	0.0
Lane LOS	D	B	D	B	B			A		
Approach Delay (s)	20.3		22.5		0.3			0.1		
Approach LOS	C		C							

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	40.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	4	56	32	4	32	68	124	16	32	163	44
Future Volume (Veh/h)	16	4	56	32	4	32	68	124	16	32	163	44
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	17	4	61	35	4	35	74	135	17	35	177	48
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								89			120	
pX, platoon unblocked												
vC, conflicting volume	591	571	201	602	586	144	225			152		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	591	571	201	602	586	144	225			152		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	99	93	90	99	96	94			98		
cM capacity (veh/h)	375	397	840	356	389	904	1344			1429		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	82	74	74	152	35	225
Volume Left	17	35	74	0	35	0
Volume Right	61	35	0	17	0	48
cSH	641	503	1344	1700	1429	1700
Volume to Capacity	0.13	0.15	0.06	0.09	0.02	0.13
Queue Length 95th (m)	3.3	3.9	1.3	0.0	0.6	0.0
Control Delay (s)	11.4	13.4	7.8	0.0	7.6	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	11.4	13.4	2.6		1.0	
Approach LOS	B	B				

Intersection Summary			
Average Delay	4.3		
Intersection Capacity Utilization	32.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	16	12	114	0	8	167
Future Volume (Veh/h)	16	12	114	0	8	167
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)	17	13	124	0	9	182
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			59			82
pX, platoon unblocked	0.98					
vC, conflicting volume	324	62			124	
vC1, stage 1 conf vol	124					
vC2, stage 2 conf vol	200					
vCu, unblocked vol	294	62			124	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	99			99	
cM capacity (veh/h)	763	990			1461	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	30	62	62	9	182
Volume Left	17	0	0	9	0
Volume Right	13	0	0	0	0
cSH	847	1700	1700	1461	1700
Volume to Capacity	0.04	0.04	0.04	0.01	0.11
Queue Length 95th (m)	0.8	0.0	0.0	0.1	0.0
Control Delay (s)	9.4	0.0	0.0	7.5	0.0
Lane LOS	A			A	
Approach Delay (s)	9.4	0.0		0.4	
Approach LOS	A				

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	18.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	260	0	0	835	0	24
Future Volume (Veh/h)	260	0	0	835	0	24
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)	283	0	0	908	0	26
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	160			58		
pX, platoon unblocked			0.97		0.92	0.97
vC, conflicting volume			283		737	142
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			206		401	60
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	97
cM capacity (veh/h)			1325		530	965

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	142	142	0	454	454	26
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	26
cSH	1700	1700	1700	1700	1700	965
Volume to Capacity	0.08	0.08	0.00	0.27	0.27	0.03
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.6
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	8.8
Lane LOS						A
Approach Delay (s)	0.0			0.0		8.8
Approach LOS						A

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	26.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	800	134	12	228	2358	2540
v/c Ratio	0.77	0.48	0.03	0.53	0.61	0.83
Control Delay	50.4	37.2	35.0	40.1	18.0	24.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.4	37.2	35.0	40.1	18.0	24.9
Queue Length 50th (m)	104.0	23.3	2.4	45.4	112.7	194.1
Queue Length 95th (m)	127.5	44.9	7.4	72.4	122.9	213.9
Internal Link Dist (m)					73.6	241.1
Turn Bay Length (m)		150.0				
Base Capacity (vph)	1041	278	438	433	3851	3061
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	0.77	0.48	0.03	0.53	0.61	0.83

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	784	0	131	12	0	223	0	2267	44	0	2489	0
Future Volume (vph)	784	0	131	12	0	223	0	2267	44	0	2489	0
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		7.0			7.0	
Lane Util. Factor	0.97		1.00	1.00		1.00		0.86			0.91	
Frt	1.00		0.85	1.00		0.85		1.00			1.00	
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (prot)	3471		855	1460		1372		6341			5043	
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (perm)	3471		855	1460		1372		6341			5043	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	800	0	134	12	0	228	0	2313	45	0	2540	0
RTOR Reduction (vph)	0	0	22	0	0	22	0	2	0	0	0	0
Lane Group Flow (vph)	800	0	112	12	0	206	0	2356	0	0	2540	0
Heavy Vehicles (%)	2%	0%	91%	25%	0%	19%	0%	4%	0%	0%	4%	0%
Turn Type	Perm		Perm	Perm		Perm		NA			NA	
Protected Phases								2			6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	42.0		42.0	42.0		42.0		85.0			85.0	
Effective Green, g (s)	42.0		42.0	42.0		42.0		85.0			85.0	
Actuated g/C Ratio	0.30		0.30	0.30		0.30		0.61			0.61	
Clearance Time (s)	6.0		6.0	6.0		6.0		7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0		3.0		3.0			3.0	
Lane Grp Cap (vph)	1041		256	438		411		3849			3061	
v/s Ratio Prot								0.37			c0.50	
v/s Ratio Perm	c0.23		0.13	0.01		0.15						
v/c Ratio	0.77		0.44	0.03		0.50		0.61			0.83	
Uniform Delay, d1	44.6		39.5	34.6		40.4		17.2			21.8	
Progression Factor	1.00		1.00	1.00		1.00		1.00			1.00	
Incremental Delay, d2	5.5		5.4	0.1		4.3		0.7			2.8	
Delay (s)	50.0		44.9	34.7		44.7		17.9			24.5	
Level of Service	D		D	C		D		B			C	
Approach Delay (s)		49.3			44.2			17.9			24.5	
Approach LOS		D			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	26.6	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)	13.0
Intersection Capacity Utilization	83.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL
Lane Group Flow (vph)	400	393	117	154	184
v/c Ratio	0.23	0.26	0.29	0.11	0.15
Control Delay	18.1	0.4	20.6	16.8	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	18.1	0.4	20.6	16.8	12.5
Queue Length 50th (m)	27.0	0.0	15.5	9.7	6.9
Queue Length 95th (m)	32.7	0.0	25.3	14.0	11.1
Internal Link Dist (m)	858.1			135.6	92.8
Turn Bay Length (m)			60.0		
Base Capacity (vph)	1711	1541	406	1442	1246
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	0.23	0.26	0.29	0.11	0.15

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	324	318	95	125	110	39
Future Volume (vph)	324	318	95	125	110	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	
Frt	1.00	0.85	1.00	1.00	0.96	
Flt Protected	1.00	1.00	0.95	1.00	0.96	
Satd. Flow (prot)	3579	1541	1587	3017	3046	
Flt Permitted	1.00	1.00	0.51	1.00	0.96	
Satd. Flow (perm)	3579	1541	848	3017	3046	
Peak-hour factor, PHF	0.81	0.81	0.81	0.81	0.81	0.81
Adj. Flow (vph)	400	393	117	154	136	48
RTOR Reduction (vph)	0	0	0	0	29	0
Lane Group Flow (vph)	400	393	117	154	155	0
Heavy Vehicles (%)	2%	6%	15%	21%	10%	23%
Turn Type	NA	pm+ov	Perm	NA	Prot	
Protected Phases	2	8		6	8	
Permitted Phases		2	6			
Actuated Green, G (s)	55.0	101.0	55.0	55.0	46.0	
Effective Green, g (s)	55.0	101.0	55.0	55.0	46.0	
Actuated g/C Ratio	0.48	0.88	0.48	0.48	0.40	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1711	1541	405	1442	1218	
v/s Ratio Prot	0.11	c0.10		0.05	0.05	
v/s Ratio Perm		0.15	c0.14			
v/c Ratio	0.23	0.26	0.29	0.11	0.13	
Uniform Delay, d1	17.6	1.1	18.2	16.5	21.8	
Progression Factor	1.00	1.00	1.00	1.00	0.76	
Incremental Delay, d2	0.3	0.4	1.8	0.1	0.2	
Delay (s)	17.9	1.5	20.0	16.6	16.7	
Level of Service	B	A	B	B	B	
Approach Delay (s)	9.8			18.1	16.7	
Approach LOS	A			B	B	

Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	39.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	332	30	95	167	75	58
v/c Ratio	0.13	0.03	0.13	0.07	0.40	0.23
Control Delay	4.1	0.7	5.0	4.1	36.5	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.1	0.7	5.0	4.1	36.5	11.1
Queue Length 50th (m)	6.9	0.1	3.8	3.3	9.7	0.0
Queue Length 95th (m)	12.7	0.2	9.9	7.0	21.4	9.3
Internal Link Dist (m)	33.9			146.8	95.7	
Turn Bay Length (m)			60.0		35.0	
Base Capacity (vph)	2577	1065	717	2239	728	792
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	0.13	0.03	0.13	0.07	0.10	0.07

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	302	27	86	152	68	53
Future Volume (vph)	302	27	86	152	68	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.91	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3444	1137	1680	2992	1484	1555
Flt Permitted	1.00	1.00	0.55	1.00	0.95	1.00
Satd. Flow (perm)	3444	1137	975	2992	1484	1555
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	332	30	95	167	75	58
RTOR Reduction (vph)	0	0	0	0	0	52
Lane Group Flow (vph)	332	30	95	167	75	6
Confl. Peds. (#/hr)		45	45			
Heavy Vehicles (%)	6%	31%	3%	22%	23%	5%
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	2	8		6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	55.0	62.9	55.0	55.0	7.9	7.9
Effective Green, g (s)	55.0	62.9	55.0	55.0	7.9	7.9
Actuated g/C Ratio	0.72	0.82	0.72	0.72	0.10	0.10
Clearance Time (s)	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
Lane Grp Cap (vph)	2463	1137	697	2139	152	159
v/s Ratio Prot	0.10	0.00		0.06	c0.05	
v/s Ratio Perm		0.02	c0.10			0.00
v/c Ratio	0.13	0.03	0.14	0.08	0.49	0.04
Uniform Delay, d1	3.5	1.3	3.5	3.3	32.6	31.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.4	0.1	2.5	0.1
Delay (s)	3.6	1.3	3.9	3.4	35.1	31.2
Level of Service	A	A	A	A	D	C
Approach Delay (s)	3.4			3.6	33.4	
Approach LOS	A			A	C	

Intersection Summary			
HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.18		
Actuated Cycle Length (s)	76.9	Sum of lost time (s)	14.0
Intersection Capacity Utilization	48.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	83	1091	450	44	41	114	38
v/c Ratio	0.26	0.75	0.34	0.11	0.14	0.38	0.09
Control Delay	4.5	6.2	21.4	17.4	5.9	35.2	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.5	6.2	21.4	17.4	5.9	35.2	1.2
Queue Length 50th (m)	1.7	11.3	32.6	5.3	0.0	19.9	0.0
Queue Length 95th (m)	m2.0	m13.0	45.1	12.0	5.8	36.6	1.6
Internal Link Dist (m)		202.3	126.7		25.6		
Turn Bay Length (m)	70.0					20.0	
Base Capacity (vph)	320	1453	1309	399	295	304	434
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	0.26	0.75	0.34	0.11	0.14	0.38	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	1069	0	0	358	83	43	0	40	112	0	37
Future Volume (vph)	81	1069	0	0	358	83	43	0	40	112	0	37
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	8.0		8.0		8.0
Lane Util. Factor	1.00	0.95			0.95		1.00	1.00		1.00		1.00
Frpb, ped/bikes	1.00	1.00			0.96		1.00	0.76		1.00		0.82
Flpb, ped/bikes	0.90	1.00			1.00		0.84	1.00		0.78		1.00
Frt	1.00	1.00			0.97		1.00	0.85		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1515	3411			3030		810	618		1267		1220
Flt Permitted	0.47	1.00			1.00		0.95	1.00		0.73		1.00
Satd. Flow (perm)	753	3411			3030		810	618		974		1220
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	83	1091	0	0	365	85	44	0	41	114	0	38
RTOR Reduction (vph)	0	0	0	0	18	0	0	23	0	0	0	26
Lane Group Flow (vph)	83	1091	0	0	432	0	44	18	0	114	0	12
Confl. Peds. (#/hr)	99		330	330		99	177		246	246		177
Heavy Vehicles (%)	9%	7%	0%	0%	10%	24%	89%	0%	100%	12%	0%	10%
Turn Type	Perm	NA			NA		pm+pt	NA		Perm		Perm
Protected Phases		2			6		3	8				
Permitted Phases	2						8			4		4
Actuated Green, G (s)	49.0	49.0			49.0		50.0	50.0		36.0		36.0
Effective Green, g (s)	49.0	49.0			49.0		50.0	50.0		36.0		36.0
Actuated g/C Ratio	0.43	0.43			0.43		0.43	0.43		0.31		0.31
Clearance Time (s)	8.0	8.0			8.0		3.0	8.0		8.0		8.0
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0		3.0
Lane Grp Cap (vph)	320	1453			1291		352	268		304		381
v/s Ratio Prot		c0.32			0.14		c0.01	0.03				
v/s Ratio Perm	0.11						0.04			c0.12		0.01
v/c Ratio	0.26	0.75			0.33		0.12	0.07		0.38		0.03
Uniform Delay, d1	21.3	27.8			22.1		19.4	18.9		30.7		27.4
Progression Factor	0.16	0.15			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	1.0	1.9			0.7		0.7	0.5		3.5		0.2
Delay (s)	4.3	6.1			22.8		20.2	19.4		34.3		27.6
Level of Service	A	A			C		C	B		C		C
Approach Delay (s)		6.0			22.8			19.8			32.6	
Approach LOS		A			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	82.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	146	1268	62	420	57	172	25	426
v/c Ratio	0.38	0.89	0.44	0.27	0.22	0.33	0.07	0.82
Control Delay	28.0	40.9	41.6	13.7	23.2	27.2	19.7	47.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.0	40.9	41.6	13.7	23.2	27.2	19.7	47.9
Queue Length 50th (m)	23.1	140.6	8.6	19.4	7.7	24.0	3.0	83.5
Queue Length 95th (m)	41.5	#189.1	22.0	25.7	15.9	44.5	7.7	#145.3
Internal Link Dist (m)		171.5		202.3		102.8		69.7
Turn Bay Length (m)	65.0		70.0		45.0		30.0	
Base Capacity (vph)	389	1423	155	1571	271	527	392	517
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	0.38	0.89	0.40	0.27	0.21	0.33	0.06	0.82

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)	133	1054	100	56	370	12	52	84	73	23	238	149
Future Volume (vph)	133	1054	100	56	370	12	52	84	73	23	238	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.93		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1754	3400		1323	3167		1705	1621		1335	1730	
Flt Permitted	0.51	1.00		0.08	1.00		0.24	1.00		0.65	1.00	
Satd. Flow (perm)	935	3400		113	3167		427	1621		911	1730	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	146	1158	110	62	407	13	57	92	80	25	262	164
RTOR Reduction (vph)	0	6	0	0	2	0	0	26	0	0	19	0
Lane Group Flow (vph)	146	1262	0	62	418	0	57	146	0	25	407	0
Confl. Peds. (#/hr)	14		9	9		14	4		8	8		4
Heavy Vehicles (%)	3%	6%	3%	38%	14%	34%	7%	4%	15%	36%	2%	7%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	46.2	46.2		55.8	55.8		42.1	35.6		38.3	33.7	
Effective Green, g (s)	46.2	46.2		55.8	55.8		42.1	35.6		38.3	33.7	
Actuated g/C Ratio	0.40	0.40		0.49	0.49		0.37	0.31		0.33	0.29	
Clearance Time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	375	1365		124	1536		228	501		320	506	
v/s Ratio Prot		c0.37		c0.03	0.13		c0.01	0.09		0.00	c0.24	
v/s Ratio Perm	0.16			0.21			0.08			0.02		
v/c Ratio	0.39	0.92		0.50	0.27		0.25	0.29		0.08	0.80	
Uniform Delay, d1	24.4	32.7		22.5	17.6		25.6	30.1		26.1	37.6	
Progression Factor	1.00	1.00		2.36	0.79		1.00	1.00		0.93	0.90	
Incremental Delay, d2	3.0	12.0		3.1	0.4		0.6	1.5		0.1	12.6	
Delay (s)	27.4	44.7		56.1	14.2		26.2	31.6		24.4	46.5	
Level of Service	C	D		E	B		C	C		C	D	
Approach Delay (s)		42.9			19.6			30.3			45.3	
Approach LOS		D			B			C			D	

Intersection Summary			
HCM 2000 Control Delay	37.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	83.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	11	1264	169	439	52	5	238	12	2
v/c Ratio	0.02	0.69	0.48	0.19	0.19	0.02	0.49	0.04	0.00
Control Delay	9.2	14.3	12.8	7.8	47.9	44.6	9.0	45.1	0.0
Queue Delay	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.2	16.4	12.8	7.8	47.9	44.6	9.0	45.1	0.0
Queue Length 50th (m)	0.8	59.7	13.1	20.7	12.0	1.1	0.0	2.7	0.0
Queue Length 95th (m)	m0.8	m38.8	26.5	27.2	24.2	5.0	22.5	8.4	0.0
Internal Link Dist (m)		161.5		171.5		57.8			66.0
Turn Bay Length (m)	80.0		55.0		45.0				
Base Capacity (vph)	477	1825	355	2295	279	318	489	283	702
Starvation Cap Reductn	0	399	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	0.89	0.48	0.19	0.19	0.02	0.49	0.04	0.00

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)	10	1051	137	159	411	2	49	5	224	11	0	2
Future Volume (vph)	10	1051	137	159	411	2	49	5	224	11	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		3.0	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	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	0.93	1.00	0.98	
Flpb, ped/bikes	0.98	1.00		1.00	1.00		0.99	1.00	1.00	0.95	1.00	
Frt	1.00	0.98		1.00	1.00		1.00	1.00	0.85	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1703	3392		1674	3314		1691	1537	1453	1726	1600	
Flt Permitted	0.50	1.00		0.12	1.00		0.76	1.00	1.00	0.75	1.00	
Satd. Flow (perm)	891	3392		218	3314		1347	1537	1453	1371	1600	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	11	1118	146	169	437	2	52	5	238	12	0	2
RTOR Reduction (vph)	0	7	0	0	0	0	0	0	189	0	2	0
Lane Group Flow (vph)	11	1257	0	169	439	0	52	5	49	12	0	0
Confl. Peds. (#/hr)	9		8	8		9	4		26	26		4
Heavy Vehicles (%)	5%	5%	6%	9%	10%	20%	7%	25%	5%	0%	25%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	75.0	75.0		97.0	97.0		29.0	29.0	29.0	29.0	29.0	
Effective Green, g (s)	75.0	75.0		97.0	97.0		29.0	29.0	29.0	29.0	29.0	
Actuated g/C Ratio	0.54	0.54		0.69	0.69		0.21	0.21	0.21	0.21	0.21	
Clearance Time (s)	7.0	7.0		3.0	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)	477	1817		348	2296		279	318	300	283	331	
v/s Ratio Prot		c0.37		c0.07	0.13			0.00			0.00	
v/s Ratio Perm	0.01			0.27			c0.04		0.03	0.01		
v/c Ratio	0.02	0.69		0.49	0.19		0.19	0.02	0.16	0.04	0.00	
Uniform Delay, d1	15.3	24.0		14.7	7.6		45.8	44.1	45.6	44.4	44.0	
Progression Factor	0.59	0.59		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	0.2		4.8	0.2		1.5	0.1	1.2	0.3	0.0	
Delay (s)	9.1	14.3		19.5	7.8		47.2	44.2	46.7	44.7	44.0	
Level of Service	A	B		B	A		D	D	D	D	D	
Approach Delay (s)		14.2			11.0			46.8			44.6	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.0
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	SBL	SBT
Lane Group Flow (vph)	65	674	135	416	160	1453	658	604
v/c Ratio	0.28	0.70	1.19	0.42	0.38	1.25	1.35	0.34
Control Delay	43.1	47.8	184.9	20.9	16.4	159.3	204.3	20.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.1	47.8	184.9	20.9	16.4	159.3	204.3	20.7
Queue Length 50th (m)	14.1	85.6	~45.6	21.1	16.7	~263.5	~221.7	50.0
Queue Length 95th (m)	25.6	98.1	#80.5	27.1	24.2	#274.2	#264.8	58.0
Internal Link Dist (m)		170.1		161.5		203.8		248.3
Turn Bay Length (m)	50.0		50.0		65.0		100.0	
Base Capacity (vph)	229	968	113	997	421	1161	488	1792
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	0.28	0.70	1.19	0.42	0.38	1.25	1.35	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)	55	466	100	113	192	157	134	1042	179	553	471	36
Future Volume (vph)	55	466	100	113	192	157	134	1042	179	553	471	36
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	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		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	0.99	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.93		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1755	3342		1622	3115		1804	3429		1772	3508	
Flt Permitted	0.43	1.00		0.23	1.00		0.42	1.00		0.08	1.00	
Satd. Flow (perm)	802	3342		396	3115		804	3429		149	3508	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	65	555	119	135	229	187	160	1240	213	658	561	43
RTOR Reduction (vph)	0	13	0	0	107	0	0	10	0	0	4	0
Lane Group Flow (vph)	65	661	0	135	309	0	160	1443	0	658	600	0
Confl. Peds. (#/hr)	13		33	33		13	6		2	2		6
Heavy Vehicles (%)	3%	5%	6%	11%	10%	5%	1%	3%	9%	3%	2%	13%
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)	40.0	40.0		40.0	40.0		56.6	47.0		84.0	71.4	
Effective Green, g (s)	40.0	40.0		40.0	40.0		56.6	47.0		84.0	71.4	
Actuated g/C Ratio	0.29	0.29		0.29	0.29		0.40	0.34		0.60	0.51	
Clearance Time (s)	8.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	229	954		113	890		393	1151		483	1789	
v/s Ratio Prot		0.20			0.10		0.03	0.42		c0.33	0.17	
v/s Ratio Perm	0.08			c0.34			0.14			c0.49		
v/c Ratio	0.28	0.69		1.19	0.35		0.41	1.25		1.36	0.34	
Uniform Delay, d1	38.9	44.5		50.0	39.6		27.3	46.5		44.7	20.3	
Progression Factor	1.00	1.00		0.86	0.77		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.1	4.1		145.9	1.1		3.1	121.4		176.0	0.5	
Delay (s)	42.0	48.7		189.1	31.7		30.4	167.9		220.7	20.8	
Level of Service	D	D		F	C		C	F		F	C	
Approach Delay (s)		48.1			70.2			154.3			125.0	
Approach LOS		D			E			F			F	

Intersection Summary			
HCM 2000 Control Delay	115.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.33		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	118.5%	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)	87	52	19	37	6	482	94	389
v/c Ratio	0.23	0.12	0.05	0.08	0.01	0.52	0.22	0.43
Control Delay	24.4	13.0	22.0	11.8	8.7	14.1	11.4	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.4	13.0	22.0	11.8	8.7	14.1	11.4	12.6
Queue Length 50th (m)	10.2	2.5	2.1	1.2	0.4	42.8	7.0	31.8
Queue Length 95th (m)	12.2	4.6	4.1	3.4	1.2	32.2	8.3	25.3
Internal Link Dist (m)		141.1		97.5		112.5		34.9
Turn Bay Length (m)	20.0		20.0		25.0		25.0	
Base Capacity (vph)	385	443	346	485	500	928	426	896
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.12	0.05	0.08	0.01	0.52	0.22	0.43

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	12	16	10	6	14	3	237	23	51	182	28
Future Volume (vph)	47	12	16	10	6	14	3	237	23	51	182	28
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	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.97		1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		0.97	1.00		0.99	1.00		1.00	1.00	
Frt	1.00	0.91		1.00	0.89		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1815	1535		1655	1697		1798	1718		1819	1654	
Flt Permitted	0.73	1.00		0.72	1.00		0.49	1.00		0.41	1.00	
Satd. Flow (perm)	1400	1535		1260	1697		932	1718		793	1654	
Peak-hour factor, PHF	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Adj. Flow (vph)	87	22	30	19	11	26	6	439	43	94	337	52
RTOR Reduction (vph)	0	22	0	0	19	0	0	5	0	0	7	0
Lane Group Flow (vph)	87	30	0	19	18	0	6	477	0	94	382	0
Confl. Peds. (#/hr)	5		16	16		5	13		4	4		13
Heavy Vehicles (%)	0%	0%	19%	7%	0%	0%	0%	11%	0%	0%	10%	33%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	22.0	22.0		22.0	22.0		43.0	43.0		43.0	43.0	
Effective Green, g (s)	22.0	22.0		22.0	22.0		43.0	43.0		43.0	43.0	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.54	0.54		0.54	0.54	
Clearance Time (s)	8.0	8.0		8.0	8.0		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)	385	422		346	466		500	923		426	889	
v/s Ratio Prot		0.02			0.01			c0.28			0.23	
v/s Ratio Perm	c0.06			0.02			0.01			0.12		
v/c Ratio	0.23	0.07		0.05	0.04		0.01	0.52		0.22	0.43	
Uniform Delay, d1	22.4	21.4		21.3	21.3		8.6	11.9		9.7	11.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.4	0.3		0.3	0.2		0.0	2.1		1.2	1.5	
Delay (s)	23.8	21.8		21.6	21.4		8.7	13.9		10.9	12.6	
Level of Service	C	C		C	C		A	B		B	B	
Approach Delay (s)		23.0			21.5			13.9			12.3	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	37	17	35	2	114	113	24	373	16
Future Volume (Veh/h)	0	0	0	37	17	35	2	114	113	24	373	16
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	40	18	38	2	124	123	26	405	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)								94			117	
pX, platoon unblocked												
vC, conflicting volume	578	716	211	444	664	124	422			247		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	578	716	211	444	664	124	422			247		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	92	95	96	100			98		
cM capacity (veh/h)	362	346	794	489	372	904	1134			1316		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	0	0	40	56	2	83	164	26	270	152
Volume Left	0	0	40	0	2	0	0	26	0	0
Volume Right	0	0	0	38	0	0	123	0	0	17
cSH	1700	1700	489	619	1134	1700	1700	1316	1700	1700
Volume to Capacity	0.00	0.00	0.08	0.09	0.00	0.05	0.10	0.02	0.16	0.09
Queue Length 95th (m)	0.0	0.0	2.0	2.3	0.0	0.0	0.0	0.5	0.0	0.0
Control Delay (s)	0.0	0.0	13.0	11.4	8.2	0.0	0.0	7.8	0.0	0.0
Lane LOS	A	A	B	B	A			A		
Approach Delay (s)	0.0		12.1		0.1			0.5		
Approach LOS	A		B							

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	27.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	0	63	19	2	17	56	98	51	6	67	39
Future Volume (Veh/h)	8	0	63	19	2	17	56	98	51	6	67	39
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	0	68	21	2	18	61	107	55	7	73	42
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								89			120	
pX, platoon unblocked												
vC, conflicting volume	356	392	94	412	386	134	115			162		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	356	392	94	412	386	134	115			162		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	93	96	100	98	96			100		
cM capacity (veh/h)	565	519	963	494	523	914	1474			1417		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	77	41	61	162	7	115
Volume Left	9	21	61	0	7	0
Volume Right	68	18	0	55	0	42
cSH	890	621	1474	1700	1417	1700
Volume to Capacity	0.09	0.07	0.04	0.10	0.00	0.07
Queue Length 95th (m)	2.2	1.6	1.0	0.0	0.1	0.0
Control Delay (s)	9.4	11.2	7.5	0.0	7.6	0.0
Lane LOS	A	B	A		A	
Approach Delay (s)	9.4	11.2	2.1		0.4	
Approach LOS	A	B				

Intersection Summary				
Average Delay	3.7			
Intersection Capacity Utilization	23.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	278	21	35	261
Future Volume (Veh/h)	0	0	278	21	35	261
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	302	23	38	284
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			59			82
pX, platoon unblocked	0.98					
vC, conflicting volume	674	162			325	
vC1, stage 1 conf vol	314					
vC2, stage 2 conf vol	360					
vCu, unblocked vol	654	162			325	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			97	
cM capacity (veh/h)	569	854			1231	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	201	124	38	284
Volume Left	0	0	0	38	0
Volume Right	0	0	23	0	0
cSH	1700	1700	1700	1231	1700
Volume to Capacity	0.00	0.12	0.07	0.03	0.17
Queue Length 95th (m)	0.0	0.0	0.0	0.7	0.0
Control Delay (s)	0.0	0.0	0.0	8.0	0.0
Lane LOS	A			A	
Approach Delay (s)	0.0	0.0		0.9	
Approach LOS	A				

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	18.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	322	41	0	221	0	8
Future Volume (Veh/h)	322	41	0	221	0	8
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)	350	45	0	240	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)	160			58		
pX, platoon unblocked			0.96		0.96	0.96
vC, conflicting volume			395		470	175
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			273		352	43
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)			1229		592	972

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	175	175	45	120	120	9
Volume Left	0	0	0	0	0	0
Volume Right	0	0	45	0	0	9
cSH	1700	1700	1700	1700	1700	972
Volume to Capacity	0.10	0.10	0.03	0.07	0.07	0.01
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.2
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	8.7
Lane LOS						A
Approach Delay (s)	0.0			0.0		8.7
Approach LOS						A

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	18.9%	ICU Level of Service	A
Analysis Period (min)	15		

Queues
100: Mavis Road & Highway 403 EB Off-Ramp/Centre View Drive

11/07/2017

Lane Group	EBL	EBR	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	358	217	70	1174	2196	1684
v/c Ratio	0.23	0.32	0.09	1.61	0.77	0.76
Control Delay	23.6	22.0	17.5	306.3	34.6	34.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.6	22.0	17.5	306.3	34.6	34.8
Queue Length 50th (m)	30.5	31.9	9.4	~471.3	146.1	140.1
Queue Length 95th (m)	41.0	50.9	16.9	#546.7	160.1	158.5
Internal Link Dist (m)					73.6	241.1
Turn Bay Length (m)		150.0				
Base Capacity (vph)	1526	683	779	727	2855	2226
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	0.23	0.32	0.09	1.61	0.77	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)	322	0	195	63	0	1057	0	1955	22	0	1516	0
Future Volume (vph)	322	0	195	63	0	1057	0	1955	22	0	1516	0
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		7.0			7.0	
Lane Util. Factor	0.97		1.00	1.00		1.00		0.86			0.91	
Frt	1.00		0.85	1.00		0.85		1.00			1.00	
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (prot)	3340		1458	1706		1555		6347			4948	
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (perm)	3340		1458	1706		1555		6347			4948	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	358	0	217	70	0	1174	0	2172	24	0	1684	0
RTOR Reduction (vph)	0	0	17	0	0	17	0	1	0	0	0	0
Lane Group Flow (vph)	358	0	200	70	0	1157	0	2195	0	0	1684	0
Heavy Vehicles (%)	6%	0%	12%	7%	0%	5%	0%	4%	0%	0%	6%	0%
Turn Type	Perm		Perm	Perm		Perm		NA			NA	
Protected Phases								2			6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	64.0		64.0	64.0		64.0		63.0			63.0	
Effective Green, g (s)	64.0		64.0	64.0		64.0		63.0			63.0	
Actuated g/C Ratio	0.46		0.46	0.46		0.46		0.45			0.45	
Clearance Time (s)	6.0		6.0	6.0		6.0		7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0		3.0		3.0			3.0	
Lane Grp Cap (vph)	1526		666	779		710		2856			2226	
v/s Ratio Prot								c0.35			0.34	
v/s Ratio Perm	0.11		0.14	0.04		c0.74						
v/c Ratio	0.23		0.30	0.09		1.63		0.77			0.76	
Uniform Delay, d1	23.1		23.9	21.5		38.0		32.4			32.1	
Progression Factor	1.00		1.00	0.79		0.69		1.00			1.00	
Incremental Delay, d2	0.4		1.2	0.2		289.3		2.1			2.5	
Delay (s)	23.5		25.1	17.3		315.5		34.4			34.6	
Level of Service	C		C	B		F		C			C	
Approach Delay (s)		24.1			298.7			34.4			34.6	
Approach LOS		C			F			C			C	

Intersection Summary			
HCM 2000 Control Delay	91.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	117.5%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL
Lane Group Flow (vph)	266	924	184	740	536
v/c Ratio	0.19	0.58	0.39	0.47	0.35
Control Delay	23.4	1.6	28.7	28.2	24.8
Queue Delay	0.0	0.4	1.1	0.0	0.0
Total Delay	23.4	1.9	29.8	28.2	24.8
Queue Length 50th (m)	22.6	0.0	33.4	74.2	52.1
Queue Length 95th (m)	m31.8	0.0	53.6	91.5	m60.2
Internal Link Dist (m)	858.1			135.6	92.8
Turn Bay Length (m)			60.0		
Base Capacity (vph)	1416	1585	475	1564	1536
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	223	134	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.19	0.68	0.54	0.47	0.35

Intersection Summary

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	239	832	166	666	453	30
Future Volume (vph)	239	832	166	666	453	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	1.00	1.00	0.95	1.00	0.96	
Satd. Flow (prot)	3147	1585	1706	3476	3406	
Flt Permitted	1.00	1.00	0.59	1.00	0.96	
Satd. Flow (perm)	3147	1585	1055	3476	3406	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	266	924	184	740	503	33
RTOR Reduction (vph)	0	0	0	0	3	0
Lane Group Flow (vph)	266	924	184	740	533	0
Heavy Vehicles (%)	16%	3%	7%	5%	3%	12%
Turn Type	NA	pm+ov	Perm	NA	Prot	
Protected Phases	2	8		6	8	
Permitted Phases		2	6			
Actuated Green, G (s)	63.0	126.0	63.0	63.0	63.0	
Effective Green, g (s)	63.0	126.0	63.0	63.0	63.0	
Actuated g/C Ratio	0.45	0.90	0.45	0.45	0.45	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1416	1585	474	1564	1532	
v/s Ratio Prot	0.08	c0.26		0.21	0.16	
v/s Ratio Perm		0.32	0.17			
v/c Ratio	0.19	0.58	0.39	0.47	0.35	
Uniform Delay, d1	23.1	1.5	25.7	26.9	25.1	
Progression Factor	0.99	1.00	1.00	1.00	0.97	
Incremental Delay, d2	0.3	1.6	2.4	1.0	0.4	
Delay (s)	23.2	3.0	28.0	27.9	24.9	
Level of Service	C	A	C	C	C	
Approach Delay (s)	7.6			28.0	24.9	
Approach LOS	A			C	C	

Intersection Summary			
HCM 2000 Control Delay	18.2	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)	14.0
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	184	123	100	730	186	20
v/c Ratio	0.09	0.13	0.15	0.32	0.65	0.07
Control Delay	6.2	1.0	7.2	7.4	41.3	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.2	1.0	7.2	7.4	41.3	12.1
Queue Length 50th (m)	4.8	0.3	5.2	23.0	26.3	0.0
Queue Length 95th (m)	10.3	0.6	13.6	39.2	45.9	5.3
Internal Link Dist (m)	33.9			146.8	95.7	
Turn Bay Length (m)			60.0		35.0	
Base Capacity (vph)	2102	1096	677	2264	710	688
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	0.09	0.11	0.15	0.32	0.26	0.03

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	167	112	91	664	169	18
Future Volume (vph)	167	112	91	664	169	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.88	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	0.89	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3259	1169	1617	3510	1587	1512
Flt Permitted	1.00	1.00	0.64	1.00	0.95	1.00
Satd. Flow (perm)	3259	1169	1082	3510	1587	1512
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	184	123	100	730	186	20
RTOR Reduction (vph)	0	0	0	0	0	16
Lane Group Flow (vph)	184	123	100	730	186	4
Confl. Peds. (#/hr)		71	71			
Heavy Vehicles (%)	12%	23%	1%	4%	15%	8%
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	2	8		6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	51.9	66.4	51.9	51.9	14.5	14.5
Effective Green, g (s)	51.9	66.4	51.9	51.9	14.5	14.5
Actuated g/C Ratio	0.65	0.83	0.65	0.65	0.18	0.18
Clearance Time (s)	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
Lane Grp Cap (vph)	2103	1169	698	2265	286	272
v/s Ratio Prot	0.06	0.02		c0.21	c0.12	
v/s Ratio Perm		0.09	0.09			0.00
v/c Ratio	0.09	0.11	0.14	0.32	0.65	0.01
Uniform Delay, d1	5.4	1.3	5.6	6.4	30.6	27.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.4	0.4	5.2	0.0
Delay (s)	5.4	1.4	6.0	6.8	35.8	27.1
Level of Service	A	A	A	A	D	C
Approach Delay (s)	3.8			6.7	35.0	
Approach LOS	A			A	C	

Intersection Summary			
HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	80.4	Sum of lost time (s)	14.0
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	27	849	1451	18	48	167	66
v/c Ratio	0.38	0.48	0.90	0.06	0.23	0.75	0.22
Control Delay	39.6	22.1	39.2	25.8	14.1	68.7	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.6	22.1	39.2	25.8	14.1	68.7	10.6
Queue Length 50th (m)	3.7	63.5	185.0	3.0	1.6	42.5	0.0
Queue Length 95th (m)	m6.9	72.7	221.4	8.2	11.5	#78.5	11.9
Internal Link Dist (m)		202.3	126.7		25.6		
Turn Bay Length (m)	70.0					20.0	
Base Capacity (vph)	71	1754	1620	294	205	222	297
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	0.38	0.48	0.90	0.06	0.23	0.75	0.22

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)	25	781	0	0	1114	221	17	0	44	154	0	61
Future Volume (vph)	25	781	0	0	1114	221	17	0	44	154	0	61
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	8.0		8.0		8.0
Lane Util. Factor	1.00	0.95			0.95		1.00	1.00		1.00		1.00
Frpb, ped/bikes	1.00	1.00			0.91		1.00	0.58		1.00		0.60
Flpb, ped/bikes	1.00	1.00			1.00		0.63	1.00		0.61		1.00
Frt	1.00	1.00			0.98		1.00	0.85		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1738	3411			3147		665	486		1073		919
Flt Permitted	0.08	1.00			1.00		0.95	1.00		0.73		1.00
Satd. Flow (perm)	138	3411			3147		665	486		820		919
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	849	0	0	1211	240	18	0	48	167	0	66
RTOR Reduction (vph)	0	0	0	0	2	0	0	25	0	0	0	48
Lane Group Flow (vph)	27	849	0	0	1449	0	18	23	0	167	0	18
Confl. Peds. (#/hr)	290		1278	1278		290	658		752	752		658
Heavy Vehicles (%)	5%	7%	0%	0%	1%	13%	72%	0%	95%	4%	0%	7%
Turn Type	Perm	NA			NA		pm+pt	NA		Perm		Perm
Protected Phases		2			6		3	8				
Permitted Phases	2						8			4		4
Actuated Green, G (s)	72.0	72.0			72.0		52.0	52.0		38.0		38.0
Effective Green, g (s)	72.0	72.0			72.0		52.0	52.0		38.0		38.0
Actuated g/C Ratio	0.51	0.51			0.51		0.37	0.37		0.27		0.27
Clearance Time (s)	8.0	8.0			8.0		3.0	8.0		8.0		8.0
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0		3.0
Lane Grp Cap (vph)	70	1754			1618		247	180		222		249
v/s Ratio Prot		0.25			c0.46		0.01	c0.05				
v/s Ratio Perm	0.20						0.02			c0.20		0.02
v/c Ratio	0.39	0.48			0.90		0.07	0.13		0.75		0.07
Uniform Delay, d1	20.6	22.0			30.6		28.4	29.1		46.7		37.9
Progression Factor	1.08	0.96			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	13.1	0.8			8.1		0.6	1.5		20.8		0.6
Delay (s)	35.3	21.9			38.7		29.0	30.6		67.4		38.5
Level of Service	D	C			D		C	C		E		D
Approach Delay (s)		22.3			38.7			30.1			59.2	
Approach LOS		C			D			C			E	

Intersection Summary			
HCM 2000 Control Delay	34.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	92.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	129	658	141	1076	182	453	132	966
v/c Ratio	1.28	0.59	0.52	0.76	1.06	0.69	0.45	1.38
Control Delay	198.1	15.5	8.7	13.1	117.2	43.7	21.6	212.8
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	198.1	15.5	8.7	13.2	117.2	43.7	21.6	212.8
Queue Length 50th (m)	~35.1	19.3	2.9	40.7	~38.4	104.7	16.9	~354.5
Queue Length 95th (m)	#60.6	34.7	m5.2	m82.8	#87.7	146.0	27.5	#435.3
Internal Link Dist (m)		171.5		202.3		102.8		69.7
Turn Bay Length (m)	65.0		70.0		45.0		30.0	
Base Capacity (vph)	101	1124	273	1409	172	652	305	698
Starvation Cap Reductn	0	0	0	23	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	1.28	0.59	0.52	0.78	1.06	0.69	0.43	1.38

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)	126	579	66	138	958	96	178	347	97	129	735	212
Future Volume (vph)	126	579	66	138	958	96	178	347	97	129	735	212
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.99		1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1800	3398		1614	3390		1772	1753		1435	1792	
Flt Permitted	0.16	1.00		0.26	1.00		0.08	1.00		0.28	1.00	
Satd. Flow (perm)	310	3398		441	3390		145	1753		417	1792	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	129	591	67	141	978	98	182	354	99	132	750	216
RTOR Reduction (vph)	0	6	0	0	5	0	0	7	0	0	7	0
Lane Group Flow (vph)	129	652	0	141	1071	0	182	446	0	132	959	0
Confl. Peds. (#/hr)	17		10	10		17	13		10	10		13
Heavy Vehicles (%)	1%	6%	1%	13%	4%	24%	3%	1%	21%	27%	2%	6%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	46.1	46.1		58.0	58.0		60.5	51.5		65.5	54.0	
Effective Green, g (s)	46.1	46.1		58.0	58.0		60.5	51.5		65.5	54.0	
Actuated g/C Ratio	0.33	0.33		0.41	0.41		0.43	0.37		0.47	0.39	
Clearance Time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	102	1118		257	1404		167	644		278	691	
v/s Ratio Prot		0.19		0.03	c0.32		c0.07	0.25		c0.04	c0.54	
v/s Ratio Perm	c0.42			0.19			0.40			0.18		
v/c Ratio	1.26	0.58		0.55	0.76		1.09	0.69		0.47	1.39	
Uniform Delay, d1	47.0	39.0		27.7	35.1		38.1	37.5		24.4	43.0	
Progression Factor	0.42	0.35		0.22	0.31		1.00	1.00		0.90	0.91	
Incremental Delay, d2	169.8	1.9		1.2	2.0		95.7	6.0		1.1	182.2	
Delay (s)	189.3	15.6		7.2	13.0		133.7	43.6		23.1	221.4	
Level of Service	F	B		A	B		F	D		C	F	
Approach Delay (s)		44.0			12.4			69.4			197.6	
Approach LOS		D			B			E			F	

Intersection Summary			
HCM 2000 Control Delay	83.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.28		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
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
Lane Group Flow (vph)	37	879	290	1207	27	7	152	6	82
v/c Ratio	0.18	0.57	0.49	0.48	0.11	0.02	0.39	0.02	0.22
Control Delay	19.4	20.4	18.5	6.7	48.0	46.2	10.1	46.4	14.4
Queue Delay	0.0	1.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Total Delay	19.4	21.4	18.5	6.9	48.0	46.2	10.1	46.4	14.4
Queue Length 50th (m)	4.8	62.1	28.5	45.7	6.2	1.6	0.0	1.4	2.3
Queue Length 95th (m)	m6.5	m58.7	m42.9	m50.7	15.0	6.0	18.8	5.3	16.6
Internal Link Dist (m)		161.5		171.5		57.8			66.0
Turn Bay Length (m)	80.0		55.0		45.0				
Base Capacity (vph)	201	1546	591	2498	252	370	389	260	365
Starvation Cap Reductn	0	392	0	492	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	0.18	0.76	0.49	0.60	0.11	0.02	0.39	0.02	0.22

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)	33	629	162	261	1075	12	24	6	137	5	9	65
Future Volume (vph)	33	629	162	261	1075	12	24	6	137	5	9	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		3.0	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	
Frpb, ped/bikes	1.00	0.98		1.00	1.00		1.00	1.00	0.92	1.00	0.96	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		0.97	1.00	1.00	0.94	1.00	
Frt	1.00	0.97		1.00	1.00		1.00	1.00	0.85	1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1798	3349		1722	3534		1763	1921	1385	1707	1596	
Flt Permitted	0.23	1.00		0.22	1.00		0.70	1.00	1.00	0.75	1.00	
Satd. Flow (perm)	441	3349		391	3534		1306	1921	1385	1354	1596	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	37	699	180	290	1194	13	27	7	152	6	10	72
RTOR Reduction (vph)	0	16	0	0	1	0	0	0	123	0	58	0
Lane Group Flow (vph)	37	863	0	290	1206	0	27	7	29	6	24	0
Confl. Peds. (#/hr)	19		14	14		19	18		31	31		18
Heavy Vehicles (%)	0%	5%	0%	6%	3%	5%	0%	0%	9%	0%	0%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	64.0	64.0		99.0	99.0		27.0	27.0	27.0	27.0	27.0	
Effective Green, g (s)	64.0	64.0		99.0	99.0		27.0	27.0	27.0	27.0	27.0	
Actuated g/C Ratio	0.46	0.46		0.71	0.71		0.19	0.19	0.19	0.19	0.19	
Clearance Time (s)	7.0	7.0		3.0	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)	201	1530		580	2499		251	370	267	261	307	
v/s Ratio Prot		c0.26		c0.11	0.34			0.00			0.01	
v/s Ratio Perm	0.08			0.24			0.02		c0.02	0.00		
v/c Ratio	0.18	0.56		0.50	0.48		0.11	0.02	0.11	0.02	0.08	
Uniform Delay, d1	22.5	27.8		10.7	9.1		46.6	45.8	46.6	45.8	46.3	
Progression Factor	0.78	0.73		2.71	0.68		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.9	0.7		1.6	0.4		0.9	0.1	0.8	0.2	0.5	
Delay (s)	18.5	20.9		30.7	6.6		47.4	45.9	47.4	46.0	46.8	
Level of Service	B	C		C	A		D	D	D	D	D	
Approach Delay (s)		20.8			11.3			47.4			46.7	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	71.0%	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)	54	374	149	1103	68	1401	473	1029
v/c Ratio	0.39	0.33	0.58	1.19	0.25	1.15	1.22	0.59
Control Delay	37.0	33.7	52.8	135.0	16.9	117.5	158.0	27.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.0	33.7	52.8	135.0	16.9	117.5	158.0	27.7
Queue Length 50th (m)	9.7	38.2	31.6	~190.3	7.7	~239.0	~143.8	105.5
Queue Length 95th (m)	19.2	51.8	47.9	#228.5	14.4	#282.2	#211.4	126.6
Internal Link Dist (m)		170.1		161.5		203.8		248.3
Turn Bay Length (m)	50.0		50.0		65.0		100.0	
Base Capacity (vph)	140	1141	255	930	269	1221	387	1744
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	0.39	0.33	0.58	1.19	0.25	1.15	1.22	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)	50	280	68	139	706	320	63	1199	104	440	930	27
Future Volume (vph)	50	280	68	139	706	320	63	1199	104	440	930	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		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		0.98	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.95		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)	1755	3389		1736	3380		1788	3512		1772	3593	
Flt Permitted	0.10	1.00		0.53	1.00		0.26	1.00		0.08	1.00	
Satd. Flow (perm)	185	3389		967	3380		485	3512		145	3593	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	54	301	73	149	759	344	68	1289	112	473	1000	29
RTOR Reduction (vph)	0	15	0	0	38	0	0	5	0	0	2	0
Lane Group Flow (vph)	54	359	0	149	1065	0	68	1396	0	473	1027	0
Confl. Peds. (#/hr)	5		23	23		5	8		13	13		8
Heavy Vehicles (%)	4%	4%	2%	3%	2%	3%	2%	2%	7%	3%	1%	4%
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	46.5	46.5		37.0	37.0		55.1	48.5		77.5	67.9	
Effective Green, g (s)	46.5	46.5		37.0	37.0		55.1	48.5		77.5	67.9	
Actuated g/C Ratio	0.33	0.33		0.26	0.26		0.39	0.35		0.55	0.49	
Clearance Time (s)	3.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	134	1125		255	893		252	1216		382	1742	
v/s Ratio Prot	c0.02	0.11			c0.32		0.01	0.40		c0.23	0.29	
v/s Ratio Perm	0.12			0.15			0.09			c0.46		
v/c Ratio	0.40	0.32		0.58	1.19		0.27	1.15		1.24	0.59	
Uniform Delay, d1	37.0	34.9		44.8	51.5		26.8	45.8		46.2	26.0	
Progression Factor	1.00	1.00		0.96	0.97		1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.8	0.7		8.6	97.0		2.6	76.7		127.8	1.5	
Delay (s)	45.8	35.7		51.7	146.8		29.4	122.5		173.9	27.5	
Level of Service	D	D		D	F		C	F		F	C	
Approach Delay (s)		36.9			135.5			118.2			73.6	
Approach LOS		D			F			F			E	

Intersection Summary			
HCM 2000 Control Delay	101.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	115.3%	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)	13	52	37	77	20	166	64	536
v/c Ratio	0.04	0.12	0.11	0.15	0.05	0.17	0.10	0.55
Control Delay	21.7	11.7	22.9	16.2	9.4	9.2	9.7	14.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
Total Delay	21.7	11.7	22.9	16.2	9.4	9.2	9.7	15.3
Queue Length 50th (m)	1.5	1.9	4.2	5.5	1.4	11.0	4.5	48.6
Queue Length 95th (m)	4.5	7.3	9.2	12.0	3.7	16.3	8.3	56.5
Internal Link Dist (m)		141.1		97.5		112.5		34.9
Turn Bay Length (m)	20.0		20.0		25.0		25.0	
Base Capacity (vph)	369	451	336	505	378	957	622	983
Starvation Cap Reductn	0	0	0	0	0	0	0	203
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	0.12	0.11	0.15	0.05	0.17	0.10	0.69

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	13	26	28	37	21	15	110	14	48	366	36
Future Volume (vph)	10	13	26	28	37	21	15	110	14	48	366	36
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	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.92		1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.91	1.00		0.99	1.00		0.98	1.00	
Frt	1.00	0.90		1.00	0.95		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1803	1548		1607	1766		1803	1770		1687	1820	
Flt Permitted	0.71	1.00		0.72	1.00		0.37	1.00		0.65	1.00	
Satd. Flow (perm)	1342	1548		1223	1766		703	1770		1158	1820	
Peak-hour factor, PHF	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Adj. Flow (vph)	13	17	35	37	49	28	20	147	19	64	488	48
RTOR Reduction (vph)	0	25	0	0	20	0	0	6	0	0	5	0
Lane Group Flow (vph)	13	27	0	37	57	0	20	160	0	64	531	0
Confl. Peds. (#/hr)	11		50	50		11	16		12	12		16
Heavy Vehicles (%)	0%	0%	4%	3%	3%	0%	0%	6%	7%	6%	4%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	22.0	22.0		22.0	22.0		43.0	43.0		43.0	43.0	
Effective Green, g (s)	22.0	22.0		22.0	22.0		43.0	43.0		43.0	43.0	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.54	0.54		0.54	0.54	
Clearance Time (s)	8.0	8.0		8.0	8.0		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)	369	425		336	485		377	951		622	978	
v/s Ratio Prot		0.02			c0.03			0.09			c0.29	
v/s Ratio Perm	0.01			0.03			0.03			0.06		
v/c Ratio	0.04	0.06		0.11	0.12		0.05	0.17		0.10	0.54	
Uniform Delay, d1	21.2	21.4		21.7	21.7		8.8	9.4		9.1	12.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.3		0.7	0.5		0.3	0.4		0.3	2.2	
Delay (s)	21.4	21.7		22.3	22.2		9.1	9.8		9.4	14.3	
Level of Service	C	C		C	C		A	A		A	B	
Approach Delay (s)		21.6			22.3			9.7			13.7	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	63.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	0	12	109	8	22	17	450	102	8	955	35
Future Volume (Veh/h)	12	0	12	109	8	22	17	450	102	8	955	35
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	0	13	118	9	24	18	489	111	9	1038	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)								94			117	
pX, platoon unblocked												
vC, conflicting volume	1384	1711	538	1130	1674	300	1076			600		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1384	1711	538	1130	1674	300	1076			600		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	85	100	97	21	90	97	97			99		
cM capacity (veh/h)	89	86	488	150	91	696	644			973		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	13	13	118	33	18	326	274	9	692	384
Volume Left	13	0	118	0	18	0	0	9	0	0
Volume Right	0	13	0	24	0	0	111	0	0	38
cSH	89	488	150	247	644	1700	1700	973	1700	1700
Volume to Capacity	0.15	0.03	0.79	0.13	0.03	0.19	0.16	0.01	0.41	0.23
Queue Length 95th (m)	3.7	0.6	37.7	3.5	0.7	0.0	0.0	0.2	0.0	0.0
Control Delay (s)	52.1	12.6	85.2	21.8	10.8	0.0	0.0	8.7	0.0	0.0
Lane LOS	F	B	F	C	B			A		
Approach Delay (s)	32.4		71.4		0.3			0.1		
Approach LOS	D		F							

Intersection Summary			
Average Delay	6.3		
Intersection Capacity Utilization	46.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	4	52	29	4	36	99	143	11	39	135	30
Future Volume (Veh/h)	6	4	52	29	4	36	99	143	11	39	135	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	4	57	32	4	39	108	155	12	42	147	33
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								89			120	
pX, platoon unblocked												
vC, conflicting volume	660	630	164	667	641	161	180			167		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	660	630	164	667	641	161	180			167		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	99	94	90	99	96	92			97		
cM capacity (veh/h)	328	357	881	318	352	884	1396			1411		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	68	75	108	167	42	180
Volume Left	7	32	108	0	42	0
Volume Right	57	39	0	12	0	33
cSH	699	480	1396	1700	1411	1700
Volume to Capacity	0.10	0.16	0.08	0.10	0.03	0.11
Queue Length 95th (m)	2.4	4.2	1.9	0.0	0.7	0.0
Control Delay (s)	10.7	13.9	7.8	0.0	7.6	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	10.7	13.9	3.1		1.4	
Approach LOS	B	B				

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	35.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	37	31	136	5	18	413
Future Volume (Veh/h)	37	31	136	5	18	413
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)	40	34	148	5	20	449
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			59			82
pX, platoon unblocked	0.95					
vC, conflicting volume	640	76			153	
vC1, stage 1 conf vol	150					
vC2, stage 2 conf vol	489					
vCu, unblocked vol	590	76			153	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	96			99	
cM capacity (veh/h)	551	969			1425	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	74	99	54	20	449
Volume Left	40	0	0	20	0
Volume Right	34	0	5	0	0
cSH	687	1700	1700	1425	1700
Volume to Capacity	0.11	0.06	0.03	0.01	0.26
Queue Length 95th (m)	2.7	0.0	0.0	0.3	0.0
Control Delay (s)	10.9	0.0	0.0	7.6	0.0
Lane LOS	B			A	
Approach Delay (s)	10.9	0.0		0.3	
Approach LOS	B				

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	32.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	270	0	0	833	0	10
Future Volume (Veh/h)	270	0	0	833	0	10
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	293	0	0	905	0	11
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	160			58		
pX, platoon unblocked			0.96		0.93	0.96
vC, conflicting volume			293		746	146
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			183		381	31
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)			1335		551	996

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	146	146	0	452	452	11
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	11
cSH	1700	1700	1700	1700	1700	996
Volume to Capacity	0.09	0.09	0.00	0.27	0.27	0.01
Queue Length 95th (m)	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	8.7
Lane LOS						A
Approach Delay (s)	0.0			0.0		8.7
Approach LOS						A

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	26.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	733	97	11	355	2219	2521
v/c Ratio	0.64	0.32	0.02	0.75	0.60	0.86
Control Delay	43.1	27.1	32.2	49.7	20.0	28.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.1	27.1	32.2	49.7	20.0	28.9
Queue Length 50th (m)	88.9	13.4	2.1	80.7	110.8	206.7
Queue Length 95th (m)	110.0	29.3	6.7	119.7	121.3	228.4
Internal Link Dist (m)					73.6	241.1
Turn Bay Length (m)		150.0				
Base Capacity (vph)	1140	301	479	471	3672	2917
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	0.64	0.32	0.02	0.75	0.60	0.86

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	718	0	95	11	0	348	0	2148	26	0	2471	0
Future Volume (vph)	718	0	95	11	0	348	0	2148	26	0	2471	0
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		7.0			7.0	
Lane Util. Factor	0.97		1.00	1.00		1.00		0.86			0.91	
Frt	1.00		0.85	1.00		0.85		1.00			1.00	
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (prot)	3471		855	1460		1372		6346			5043	
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (perm)	3471		855	1460		1372		6346			5043	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	733	0	97	11	0	355	0	2192	27	0	2521	0
RTOR Reduction (vph)	0	0	21	0	0	21	0	1	0	0	0	0
Lane Group Flow (vph)	733	0	76	11	0	334	0	2218	0	0	2521	0
Heavy Vehicles (%)	2%	0%	91%	25%	0%	19%	0%	4%	0%	0%	4%	0%
Turn Type	Perm		Perm	Perm		Perm		NA			NA	
Protected Phases								2			6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	46.0		46.0	46.0		46.0		81.0			81.0	
Effective Green, g (s)	46.0		46.0	46.0		46.0		81.0			81.0	
Actuated g/C Ratio	0.33		0.33	0.33		0.33		0.58			0.58	
Clearance Time (s)	6.0		6.0	6.0		6.0		7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0		3.0		3.0			3.0	
Lane Grp Cap (vph)	1140		280	479		450		3671			2917	
v/s Ratio Prot								0.35			c0.50	
v/s Ratio Perm	0.21		0.09	0.01		c0.24						
v/c Ratio	0.64		0.27	0.02		0.74		0.60			0.86	
Uniform Delay, d1	40.0		34.7	31.8		41.7		19.1			24.9	
Progression Factor	1.00		1.00	1.00		1.00		1.00			1.00	
Incremental Delay, d2	2.8		2.4	0.1		10.6		0.7			3.7	
Delay (s)	42.8		37.0	31.9		52.3		19.9			28.6	
Level of Service	D		D	C		D		B			C	
Approach Delay (s)		42.1			51.7			19.9			28.6	
Approach LOS		D			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	28.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	87.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL
Lane Group Flow (vph)	373	252	60	269	105
v/c Ratio	0.23	0.16	0.15	0.19	0.08
Control Delay	15.7	0.3	19.3	18.8	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.7	0.3	19.3	18.8	12.3
Queue Length 50th (m)	17.3	0.0	7.6	18.3	4.3
Queue Length 95th (m)	21.0	0.2	14.3	23.8	7.9
Internal Link Dist (m)	214.5			135.6	92.8
Turn Bay Length (m)			60.0		
Base Capacity (vph)	1649	1541	403	1390	1279
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	0.23	0.16	0.15	0.19	0.08

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	302	204	49	218	60	25
Future Volume (vph)	302	204	49	218	60	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	
Frt	1.00	0.85	1.00	1.00	0.96	
Flt Protected	1.00	1.00	0.95	1.00	0.97	
Satd. Flow (prot)	3579	1541	1587	3017	3022	
Flt Permitted	1.00	1.00	0.52	1.00	0.97	
Satd. Flow (perm)	3579	1541	876	3017	3022	
Peak-hour factor, PHF	0.81	0.81	0.81	0.81	0.81	0.81
Adj. Flow (vph)	373	252	60	269	74	31
RTOR Reduction (vph)	0	0	0	0	18	0
Lane Group Flow (vph)	373	252	60	269	87	0
Heavy Vehicles (%)	2%	6%	15%	21%	10%	23%
Turn Type	NA	pm+ov	Perm	NA	Prot	
Protected Phases	2	8		6	8	
Permitted Phases		2	6			
Actuated Green, G (s)	53.0	101.0	53.0	53.0	48.0	
Effective Green, g (s)	53.0	101.0	53.0	53.0	48.0	
Actuated g/C Ratio	0.46	0.88	0.46	0.46	0.42	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1649	1541	403	1390	1261	
v/s Ratio Prot	c0.10	c0.07		0.09	0.03	
v/s Ratio Perm		0.10	0.07			
v/c Ratio	0.23	0.16	0.15	0.19	0.07	
Uniform Delay, d1	18.7	1.0	17.9	18.3	20.1	
Progression Factor	0.82	1.00	1.00	1.00	0.85	
Incremental Delay, d2	0.3	0.2	0.8	0.3	0.1	
Delay (s)	15.6	1.2	18.7	18.7	17.2	
Level of Service	B	A	B	B	B	
Approach Delay (s)	9.8			18.7	17.2	
Approach LOS	A			B	B	

Intersection Summary			
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.21		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	39.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	295	26	81	218	76	58
v/c Ratio	0.12	0.03	0.11	0.10	0.40	0.23
Control Delay	4.1	0.8	5.0	4.2	35.3	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.1	0.8	5.0	4.2	35.3	10.8
Queue Length 50th (m)	6.1	0.1	3.2	4.4	9.5	0.0
Queue Length 95th (m)	11.4	0.2	8.5	8.8	20.9	9.1
Internal Link Dist (m)	33.9			146.8	95.7	
Turn Bay Length (m)			60.0		35.0	
Base Capacity (vph)	2557	1069	735	2221	788	853
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	0.02	0.11	0.10	0.10	0.07

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	268	24	74	198	69	53
Future Volume (vph)	268	24	74	198	69	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.91	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3444	1139	1677	2992	1484	1555
Flt Permitted	1.00	1.00	0.57	1.00	0.95	1.00
Satd. Flow (perm)	3444	1139	1009	2992	1484	1555
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	295	26	81	218	76	58
RTOR Reduction (vph)	0	0	0	0	0	52
Lane Group Flow (vph)	295	26	81	218	76	6
Confl. Peds. (#/hr)		45	45			
Heavy Vehicles (%)	6%	31%	3%	22%	23%	5%
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	2	8		6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	53.2	61.0	53.2	53.2	7.8	7.8
Effective Green, g (s)	53.2	61.0	53.2	53.2	7.8	7.8
Actuated g/C Ratio	0.71	0.81	0.71	0.71	0.10	0.10
Clearance Time (s)	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
Lane Grp Cap (vph)	2442	1139	715	2122	154	161
v/s Ratio Prot	c0.09	0.00		0.07	c0.05	
v/s Ratio Perm		0.02	0.08			0.00
v/c Ratio	0.12	0.02	0.11	0.10	0.49	0.04
Uniform Delay, d1	3.5	1.3	3.4	3.4	31.7	30.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.3	0.1	2.5	0.1
Delay (s)	3.6	1.3	3.8	3.5	34.2	30.3
Level of Service	A	A	A	A	C	C
Approach Delay (s)	3.4			3.6	32.5	
Approach LOS	A			A	C	

Intersection Summary			
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.17		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	48.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	80	1080	448	44	41	109	16
v/c Ratio	0.23	0.74	0.41	0.11	0.13	0.36	0.03
Control Delay	5.5	10.1	28.5	17.4	0.8	34.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.5	10.1	28.5	17.4	0.8	34.8	0.1
Queue Length 50th (m)	1.9	17.2	38.6	5.3	0.0	18.9	0.0
Queue Length 95th (m)	m3.1	30.5	53.3	12.0	0.0	35.2	0.0
Internal Link Dist (m)		202.3	126.7		25.6		
Turn Bay Length (m)	70.0					20.0	
Base Capacity (vph)	350	1453	1091	399	319	304	463
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	0.23	0.74	0.41	0.11	0.13	0.36	0.03

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)	78	1058	0	0	359	80	43	0	40	107	0	16
Future Volume (vph)	78	1058	0	0	359	80	43	0	40	107	0	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	8.0			8.0		3.0	8.0		8.0		8.0
Lane Util. Factor	1.00	0.95			0.95		1.00	1.00		1.00		1.00
Frpb, ped/bikes	1.00	1.00			0.96		1.00	0.76		1.00		0.82
Flpb, ped/bikes	0.97	1.00			1.00		0.84	1.00		0.78		1.00
Frt	1.00	1.00			0.97		1.00	0.85		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1620	3411			3038		810	618		1267		1220
Flt Permitted	0.41	1.00			1.00		0.95	1.00		0.73		1.00
Satd. Flow (perm)	692	3411			3038		810	618		974		1220
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	80	1080	0	0	366	82	44	0	41	109	0	16
RTOR Reduction (vph)	0	0	0	0	16	0	0	23	0	0	0	11
Lane Group Flow (vph)	80	1080	0	0	432	0	44	18	0	109	0	5
Confl. Peds. (#/hr)	99		330	330		99	177		246	246		177
Heavy Vehicles (%)	9%	7%	0%	0%	10%	24%	89%	0%	100%	12%	0%	10%
Turn Type	pm+pt	NA			NA		pm+pt	NA		Perm		Perm
Protected Phases	5	2			6		3	8				
Permitted Phases	2						8			4		4
Actuated Green, G (s)	49.0	49.0			39.8		50.0	50.0		36.0		36.0
Effective Green, g (s)	49.0	49.0			39.8		50.0	50.0		36.0		36.0
Actuated g/C Ratio	0.43	0.43			0.35		0.43	0.43		0.31		0.31
Clearance Time (s)	4.5	8.0			8.0		3.0	8.0		8.0		8.0
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0		3.0
Lane Grp Cap (vph)	332	1453			1051		352	268		304		381
v/s Ratio Prot	0.01	c0.32			0.14		c0.01	0.03				
v/s Ratio Perm	0.09						0.04			c0.11		0.00
v/c Ratio	0.24	0.74			0.41		0.12	0.07		0.36		0.01
Uniform Delay, d1	20.2	27.7			28.7		19.4	18.9		30.6		27.2
Progression Factor	0.25	0.28			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	0.2	2.1			1.2		0.7	0.5		3.3		0.1
Delay (s)	5.3	10.0			29.8		20.2	19.4		33.8		27.3
Level of Service	A	B			C		C	B		C		C
Approach Delay (s)		9.7			29.8			19.8			33.0	
Approach LOS		A			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	79.2%	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)	102	1252	62	397	57	150	22	251
v/c Ratio	0.24	0.83	0.43	0.24	0.16	0.29	0.06	0.52
Control Delay	23.1	34.4	44.5	16.0	23.9	23.0	19.9	35.3
Queue Delay	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.1	34.7	44.5	16.0	23.9	23.0	19.9	35.3
Queue Length 50th (m)	14.5	130.5	9.7	17.2	8.1	15.3	2.4	48.1
Queue Length 95th (m)	27.8	164.0	23.2	33.0	16.6	36.5	6.5	68.6
Internal Link Dist (m)		171.5		202.3		102.8		69.7
Turn Bay Length (m)	65.0		70.0		45.0		30.0	
Base Capacity (vph)	424	1515	157	1656	374	511	372	482
Starvation Cap Reductn	0	39	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	0.24	0.85	0.39	0.24	0.15	0.29	0.06	0.52

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	1039	100	56	352	9	52	59	77	20	196	33
Future Volume (vph)	93	1039	100	56	352	9	52	59	77	20	196	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.92		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1754	3400		1323	3173		1703	1575		1335	1826	
Flt Permitted	0.52	1.00		0.08	1.00		0.45	1.00		0.66	1.00	
Satd. Flow (perm)	956	3400		110	3173		812	1575		930	1826	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	102	1142	110	62	387	10	57	65	85	22	215	36
RTOR Reduction (vph)	0	6	0	0	1	0	0	37	0	0	5	0
Lane Group Flow (vph)	102	1246	0	62	396	0	57	113	0	22	246	0
Confl. Peds. (#/hr)	14		9	9		14	4		8	8		4
Heavy Vehicles (%)	3%	6%	3%	38%	14%	34%	7%	4%	15%	36%	2%	7%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	48.6	48.6		58.2	58.2		40.8	34.6		34.5	31.3	
Effective Green, g (s)	48.6	48.6		58.2	58.2		40.8	34.6		34.5	31.3	
Actuated g/C Ratio	0.42	0.42		0.51	0.51		0.35	0.30		0.30	0.27	
Clearance Time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	404	1436		125	1605		338	473		290	496	
v/s Ratio Prot		c0.37		c0.03	0.12		c0.01	0.07		0.00	c0.13	
v/s Ratio Perm	0.11			0.22			0.05			0.02		
v/c Ratio	0.25	0.87		0.50	0.25		0.17	0.24		0.08	0.50	
Uniform Delay, d1	21.5	30.3		20.8	16.0		25.1	30.3		28.6	35.2	
Progression Factor	1.00	1.00		2.81	1.04		1.00	1.00		0.87	0.85	
Incremental Delay, d2	1.5	7.3		2.9	0.4		0.2	1.2		0.1	3.5	
Delay (s)	23.0	37.6		61.3	17.1		25.3	31.5		24.9	33.3	
Level of Service	C	D		E	B		C	C		C	C	
Approach Delay (s)		36.5			23.0			29.8			32.6	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	32.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	82.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	44	1141	63	402	21	187	215	22	227
v/c Ratio	0.09	0.65	0.26	0.20	0.07	0.46	0.40	0.07	0.47
Control Delay	10.0	15.3	13.3	13.5	42.2	48.9	7.6	33.0	40.9
Queue Delay	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.0	16.5	13.3	13.5	42.2	48.9	7.6	33.0	40.9
Queue Length 50th (m)	3.4	105.0	6.5	25.8	4.6	45.4	0.0	4.2	48.2
Queue Length 95th (m)	m3.5	m80.6	12.4	34.2	11.9	70.2	20.3	10.6	73.9
Internal Link Dist (m)		161.5		171.5		57.8			66.0
Turn Bay Length (m)	80.0		55.0		45.0			30.0	
Base Capacity (vph)	474	1768	238	1962	291	406	542	334	484
Starvation Cap Reductn	0	383	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	0.82	0.26	0.20	0.07	0.46	0.40	0.07	0.47

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)	41	1009	64	59	374	4	20	176	202	21	160	54
Future Volume (vph)	41	1009	64	59	374	4	20	176	202	21	160	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		3.0	7.0		7.0	7.0	7.0	4.5	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.93	1.00	0.99	
Flpb, ped/bikes	0.98	1.00		1.00	1.00		0.99	1.00	1.00	0.98	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1701	3433		1674	3308		1695	1537	1453	1798	1549	
Flt Permitted	0.52	1.00		0.14	1.00		0.62	1.00	1.00	0.49	1.00	
Satd. Flow (perm)	923	3433		253	3308		1101	1537	1453	935	1549	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	44	1073	68	63	398	4	21	187	215	22	170	57
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	158	0	8	0
Lane Group Flow (vph)	44	1138	0	63	402	0	21	187	57	22	219	0
Confl. Peds. (#/hr)	9		8	8		9	4		26	26		4
Heavy Vehicles (%)	5%	5%	6%	9%	10%	20%	7%	25%	5%	0%	25%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		2		1	6			8		7	4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	70.2	70.2		81.2	81.2		37.0	37.0	37.0	44.8	44.8	
Effective Green, g (s)	70.2	70.2		81.2	81.2		37.0	37.0	37.0	44.8	44.8	
Actuated g/C Ratio	0.50	0.50		0.58	0.58		0.26	0.26	0.26	0.32	0.32	
Clearance Time (s)	7.0	7.0		3.0	7.0		7.0	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)	462	1721		227	1918		290	406	384	319	495	
v/s Ratio Prot		c0.33		c0.02	0.12			0.12		0.00	c0.14	
v/s Ratio Perm	0.05			0.14			0.02		0.04	0.02		
v/c Ratio	0.10	0.66		0.28	0.21		0.07	0.46	0.15	0.07	0.44	
Uniform Delay, d1	18.3	26.0		16.8	14.1		38.6	43.1	39.4	33.1	37.7	
Progression Factor	0.56	0.61		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	0.2		3.0	0.2		0.5	3.7	0.8	0.1	2.8	
Delay (s)	10.3	16.0		19.8	14.3		39.1	46.9	40.2	33.2	40.6	
Level of Service	B	B		B	B		D	D	D	C	D	
Approach Delay (s)		15.8			15.1			43.1			39.9	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	23.2	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)	21.5
Intersection Capacity Utilization	66.6%	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)	37	654	145	388	140	1444	564	705
v/c Ratio	0.15	0.67	1.21	0.39	0.35	1.17	1.25	0.39
Control Delay	39.6	47.1	184.0	20.3	15.4	125.8	167.6	21.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.6	47.1	184.0	20.3	15.4	125.8	167.6	21.2
Queue Length 50th (m)	7.7	82.5	~49.8	19.5	14.4	~249.4	~178.4	60.2
Queue Length 95th (m)	16.1	94.8	#84.7	26.2	21.5	#260.2	#222.7	68.2
Internal Link Dist (m)		170.1		161.5		203.8		248.3
Turn Bay Length (m)	50.0		50.0		65.0		100.0	
Base Capacity (vph)	242	969	120	986	402	1233	450	1821
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	0.15	0.67	1.21	0.39	0.35	1.17	1.25	0.39

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)	31	456	93	122	191	135	118	1030	183	474	567	25
Future Volume (vph)	31	456	93	122	191	135	118	1030	183	474	567	25
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	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		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	0.99	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.94		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1753	3348		1621	3131		1804	3425		1772	3536	
Flt Permitted	0.46	1.00		0.25	1.00		0.38	1.00		0.08	1.00	
Satd. Flow (perm)	849	3348		419	3131		729	3425		141	3536	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	37	543	111	145	227	161	140	1226	218	564	675	30
RTOR Reduction (vph)	0	12	0	0	92	0	0	10	0	0	2	0
Lane Group Flow (vph)	37	642	0	145	296	0	140	1434	0	564	703	0
Confl. Peds. (#/hr)	13		33	33		13	6		2	2		6
Heavy Vehicles (%)	3%	5%	6%	11%	10%	5%	1%	3%	9%	3%	2%	13%
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)	40.0	40.0		40.0	40.0		59.0	50.0		84.0	72.0	
Effective Green, g (s)	40.0	40.0		40.0	40.0		59.0	50.0		84.0	72.0	
Actuated g/C Ratio	0.29	0.29		0.29	0.29		0.42	0.36		0.60	0.51	
Clearance Time (s)	8.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	242	956		119	894		376	1223		445	1818	
v/s Ratio Prot		0.19			0.09		0.02	0.42		c0.28	0.20	
v/s Ratio Perm	0.04			c0.35			0.13			c0.48		
v/c Ratio	0.15	0.67		1.22	0.33		0.37	1.17		1.27	0.39	
Uniform Delay, d1	37.3	44.2		50.0	39.4		25.4	45.0		45.7	20.6	
Progression Factor	1.00	1.00		0.77	0.72		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.3	3.8		152.2	1.0		2.8	86.5		137.2	0.6	
Delay (s)	38.7	47.9		190.7	29.5		28.2	131.5		182.8	21.2	
Level of Service	D	D		F	C		C	F		F	C	
Approach Delay (s)		47.4			73.4			122.4			93.1	
Approach LOS		D			E			F			F	

Intersection Summary			
HCM 2000 Control Delay	94.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.27		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	114.0%	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)	87	54	20	46	15	694	15	458
v/c Ratio	0.25	0.13	0.06	0.10	0.03	0.71	0.05	0.49
Control Delay	26.4	14.2	23.6	11.5	8.1	17.9	8.6	12.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Total Delay	26.4	14.2	23.6	11.5	8.1	17.9	8.6	12.9
Queue Length 50th (m)	10.6	2.8	2.3	1.3	0.9	70.5	1.0	37.4
Queue Length 95th (m)	12.7	5.1	4.4	3.5	2.0	46.4	2.0	28.4
Internal Link Dist (m)		141.1		97.5		112.5		34.9
Turn Bay Length (m)	20.0		20.0		25.0		25.0	
Base Capacity (vph)	347	409	314	446	473	971	289	943
Starvation Cap Reductn	0	0	0	0	0	0	0	181
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	0.25	0.13	0.06	0.10	0.03	0.71	0.05	0.60

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	13	16	11	6	19	8	351	24	8	219	28
Future Volume (vph)	47	13	16	11	6	19	8	351	24	8	219	28
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	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.97		1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		0.97	1.00		0.99	1.00		1.00	1.00	
Frt	1.00	0.92		1.00	0.89		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1815	1547		1655	1679		1802	1722		1822	1668	
Flt Permitted	0.73	1.00		0.72	1.00		0.44	1.00		0.27	1.00	
Satd. Flow (perm)	1389	1547		1257	1679		843	1722		513	1668	
Peak-hour factor, PHF	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Adj. Flow (vph)	87	24	30	20	11	35	15	650	44	15	406	52
RTOR Reduction (vph)	0	23	0	0	26	0	0	3	0	0	6	0
Lane Group Flow (vph)	87	32	0	20	20	0	15	691	0	15	452	0
Confl. Peds. (#/hr)	5		16	16		5	13		4	4		13
Heavy Vehicles (%)	0%	0%	19%	7%	0%	0%	0%	11%	0%	0%	10%	33%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	20.0	20.0		20.0	20.0		45.0	45.0		45.0	45.0	
Effective Green, g (s)	20.0	20.0		20.0	20.0		45.0	45.0		45.0	45.0	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.56	0.56		0.56	0.56	
Clearance Time (s)	8.0	8.0		8.0	8.0		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)	347	386		314	419		474	968		288	938	
v/s Ratio Prot		0.02			0.01			c0.40			0.27	
v/s Ratio Perm	c0.06			0.02			0.02			0.03		
v/c Ratio	0.25	0.08		0.06	0.05		0.03	0.71		0.05	0.48	
Uniform Delay, d1	24.0	23.0		22.9	22.8		7.8	12.8		7.9	10.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.7	0.4		0.4	0.2		0.1	4.5		0.3	1.8	
Delay (s)	25.7	23.4		23.3	23.0		7.9	17.3		8.2	12.3	
Level of Service	C	C		C	C		A	B		A	B	
Approach Delay (s)		24.8			23.1			17.1			12.2	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	49.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	678	114	188	202	23
v/c Ratio	0.19	0.22	0.07	0.71	0.08
Control Delay	5.0	3.3	1.3	58.5	14.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	5.0	3.3	1.3	58.5	14.6
Queue Length 50th (m)	13.3	2.1	1.7	43.6	0.0
Queue Length 95th (m)	21.7	8.3	3.2	63.9	6.7
Internal Link Dist (m)	619.6		214.5	104.0	
Turn Bay Length (m)		50.0		45.0	
Base Capacity (vph)	3597	517	2569	591	544
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	0.19	0.22	0.07	0.34	0.04

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	485	139	105	173	186	21
Future Volume (vph)	485	139	105	173	186	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0		7.0	7.0	7.0	7.0
Lane Util. Factor	0.91		1.00	0.95	1.00	1.00
Frt	0.97		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	4970		1789	3579	1789	1601
Flt Permitted	1.00		0.38	1.00	0.95	1.00
Satd. Flow (perm)	4970		720	3579	1789	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	527	151	114	188	202	23
RTOR Reduction (vph)	28	0	0	0	0	19
Lane Group Flow (vph)	650	0	114	188	202	4
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Actuated Green, G (s)	82.6		82.6	82.6	18.4	18.4
Effective Green, g (s)	82.6		82.6	82.6	18.4	18.4
Actuated g/C Ratio	0.72		0.72	0.72	0.16	0.16
Clearance Time (s)	7.0		7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3569		517	2570	286	256
v/s Ratio Prot	0.13			0.05	c0.11	
v/s Ratio Perm			c0.16			0.00
v/c Ratio	0.18		0.22	0.07	0.71	0.01
Uniform Delay, d1	5.3		5.4	4.8	45.7	40.7
Progression Factor	1.00		0.34	0.23	1.00	1.00
Incremental Delay, d2	0.1		1.0	0.1	7.7	0.0
Delay (s)	5.4		2.8	1.2	53.5	40.7
Level of Service	A		A	A	D	D
Approach Delay (s)	5.4			1.8	52.2	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	46.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	37	17	35	3	50	107	24	211	18
Future Volume (Veh/h)	0	0	0	37	17	35	3	50	107	24	211	18
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	40	18	38	3	54	116	26	229	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)								94			117	
pX, platoon unblocked												
vC, conflicting volume	371	467	124	284	419	85	249			170		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	371	467	124	284	419	85	249			170		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	94	96	96	100			98		
cM capacity (veh/h)	516	482	903	635	513	957	1314			1405		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	0	0	40	56	3	36	134	26	153	96
Volume Left	0	0	40	0	3	0	0	26	0	0
Volume Right	0	0	0	38	0	0	116	0	0	20
cSH	1700	1700	635	749	1314	1700	1700	1405	1700	1700
Volume to Capacity	0.00	0.00	0.06	0.07	0.00	0.02	0.08	0.02	0.09	0.06
Queue Length 95th (m)	0.0	0.0	1.5	1.8	0.1	0.0	0.0	0.4	0.0	0.0
Control Delay (s)	0.0	0.0	11.0	10.2	7.7	0.0	0.0	7.6	0.0	0.0
Lane LOS	A	A	B	B	A			A		
Approach Delay (s)	0.0		10.6		0.1			0.7		
Approach LOS	A		B							

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	23.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	0	63	16	2	19	53	96	49	15	44	40
Future Volume (Veh/h)	8	0	63	16	2	19	53	96	49	15	44	40
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	0	68	17	2	21	58	104	53	16	48	43
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								89			120	
pX, platoon unblocked												
vC, conflicting volume	344	374	70	394	370	130	91			157		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	344	374	70	394	370	130	91			157		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	93	97	100	98	96			99		
cM capacity (veh/h)	573	529	993	507	532	919	1504			1423		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	77	40	58	157	16	91
Volume Left	9	17	58	0	16	0
Volume Right	68	21	0	53	0	43
cSH	915	665	1504	1700	1423	1700
Volume to Capacity	0.08	0.06	0.04	0.09	0.01	0.05
Queue Length 95th (m)	2.1	1.5	0.9	0.0	0.3	0.0
Control Delay (s)	9.3	10.8	7.5	0.0	7.6	0.0
Lane LOS	A	B	A		A	
Approach Delay (s)	9.3	10.8	2.0		1.1	
Approach LOS	A	B				

Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	24.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	398	20	28	254
Future Volume (Veh/h)	0	0	398	20	28	254
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	433	22	30	276
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			59			82
pX, platoon unblocked	0.93					
vC, conflicting volume	780	228			455	
vC1, stage 1 conf vol	444					
vC2, stage 2 conf vol	336					
vCu, unblocked vol	722	228			455	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			97	
cM capacity (veh/h)	528	775			1102	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	289	166	30	276
Volume Left	0	0	0	30	0
Volume Right	0	0	22	0	0
cSH	1700	1700	1700	1102	1700
Volume to Capacity	0.00	0.17	0.10	0.03	0.16
Queue Length 95th (m)	0.0	0.0	0.0	0.6	0.0
Control Delay (s)	0.0	0.0	0.0	8.4	0.0
Lane LOS	A			A	
Approach Delay (s)	0.0	0.0		0.8	
Approach LOS	A				

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	21.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	285	42	0	268	0	8
Future Volume (Veh/h)	285	42	0	268	0	8
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)	310	46	0	291	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)	160			58		
pX, platoon unblocked			0.96		0.96	0.96
vC, conflicting volume			356		456	155
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			246		328	37
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)			1264		618	986

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	155	155	46	146	146	9
Volume Left	0	0	0	0	0	0
Volume Right	0	0	46	0	0	9
cSH	1700	1700	1700	1700	1700	986
Volume to Capacity	0.09	0.09	0.03	0.09	0.09	0.01
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.2
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	8.7
Lane LOS						A
Approach Delay (s)	0.0			0.0		8.7
Approach LOS						A

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	17.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	3	0	2	1	0	7	2	197	22	0	232	11
Future Volume (veh/h)	3	0	2	1	0	7	2	197	22	0	232	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	0	2	1	0	8	2	214	24	0	252	12
Approach Volume (veh/h)		5			9			240			264	
Crossing Volume (veh/h)		253			219			3			3	
High Capacity (veh/h)		1136			1167			1381			1381	
High v/c (veh/h)		0.00			0.01			0.17			0.19	
Low Capacity (veh/h)		935			963			1158			1158	
Low v/c (veh/h)		0.01			0.01			0.21			0.23	

Intersection Summary			
Maximum v/c High	0.19		
Maximum v/c Low	0.23		
Intersection Capacity Utilization	23.3%	ICU Level of Service	A

Lane Group	EBL	EBR	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	351	199	73	1242	2201	1693
v/c Ratio	0.23	0.29	0.09	1.71	0.77	0.76
Control Delay	23.6	21.2	15.7	348.4	34.7	35.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.6	21.2	15.7	348.4	34.7	35.0
Queue Length 50th (m)	29.8	28.3	10.2	~511.1	146.8	141.3
Queue Length 95th (m)	40.2	46.2	m15.3	#592.9	160.6	159.7
Internal Link Dist (m)					73.6	241.1
Turn Bay Length (m)		150.0				
Base Capacity (vph)	1526	683	779	727	2856	2226
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	0.23	0.29	0.09	1.71	0.77	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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	316	0	179	66	0	1118	0	1953	28	0	1524	0
Future Volume (vph)	316	0	179	66	0	1118	0	1953	28	0	1524	0
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		7.0			7.0	
Lane Util. Factor	0.97		1.00	1.00		1.00		0.86			0.91	
Frt	1.00		0.85	1.00		0.85		1.00			1.00	
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (prot)	3340		1458	1706		1555		6344			4948	
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (perm)	3340		1458	1706		1555		6344			4948	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	351	0	199	73	0	1242	0	2170	31	0	1693	0
RTOR Reduction (vph)	0	0	17	0	0	17	0	1	0	0	0	0
Lane Group Flow (vph)	351	0	182	73	0	1225	0	2200	0	0	1693	0
Heavy Vehicles (%)	6%	0%	12%	7%	0%	5%	0%	4%	0%	0%	6%	0%
Turn Type	Perm		Perm	Perm		Perm		NA			NA	
Protected Phases								2			6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	64.0		64.0	64.0		64.0		63.0			63.0	
Effective Green, g (s)	64.0		64.0	64.0		64.0		63.0			63.0	
Actuated g/C Ratio	0.46		0.46	0.46		0.46		0.45			0.45	
Clearance Time (s)	6.0		6.0	6.0		6.0		7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0		3.0		3.0			3.0	
Lane Grp Cap (vph)	1526		666	779		710		2854			2226	
v/s Ratio Prot								c0.35			0.34	
v/s Ratio Perm	0.11		0.12	0.04		c0.79						
v/c Ratio	0.23		0.27	0.09		1.73		0.77			0.76	
Uniform Delay, d1	23.1		23.6	21.6		38.0		32.4			32.2	
Progression Factor	1.00		1.00	0.71		0.77		1.00			1.00	
Incremental Delay, d2	0.4		1.0	0.2		332.0		2.1			2.5	
Delay (s)	23.4		24.6	15.5		361.4		34.5			34.7	
Level of Service	C		C	B		F		C			C	
Approach Delay (s)		23.8			342.2			34.5			34.7	
Approach LOS		C			F			C			C	

Intersection Summary			
HCM 2000 Control Delay	103.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	121.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL
Lane Group Flow (vph)	190	753	110	813	384
v/c Ratio	0.13	0.48	0.22	0.52	0.25
Control Delay	23.5	9.3	24.9	29.1	18.0
Queue Delay	0.0	0.1	0.0	0.0	0.0
Total Delay	23.5	9.3	24.9	29.1	18.0
Queue Length 50th (m)	10.3	89.2	18.3	83.7	25.9
Queue Length 95th (m)	23.1	169.1	31.5	102.5	m31.5
Internal Link Dist (m)	220.9			135.6	92.8
Turn Bay Length (m)			60.0		
Base Capacity (vph)	1416	1585	510	1564	1529
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	98	7	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.13	0.51	0.22	0.52	0.25

Intersection Summary

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	171	678	99	732	313	32
Future Volume (vph)	171	678	99	732	313	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	1.00	1.00	0.95	1.00	0.96	
Satd. Flow (prot)	3147	1585	1706	3476	3385	
Flt Permitted	1.00	1.00	0.63	1.00	0.96	
Satd. Flow (perm)	3147	1585	1135	3476	3385	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	190	753	110	813	348	36
RTOR Reduction (vph)	0	0	0	0	6	0
Lane Group Flow (vph)	190	753	110	813	379	0
Heavy Vehicles (%)	16%	3%	7%	5%	3%	12%
Turn Type	NA	pm+ov	Perm	NA	Prot	
Protected Phases	2	8		6	8	
Permitted Phases		2	6			
Actuated Green, G (s)	63.0	126.0	63.0	63.0	63.0	
Effective Green, g (s)	63.0	126.0	63.0	63.0	63.0	
Actuated g/C Ratio	0.45	0.90	0.45	0.45	0.45	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1416	1585	510	1564	1523	
v/s Ratio Prot	0.06	c0.21		0.23	0.11	
v/s Ratio Perm		0.26	0.10			
v/c Ratio	0.13	0.48	0.22	0.52	0.25	
Uniform Delay, d1	22.5	1.2	23.5	27.6	23.8	
Progression Factor	1.03	1.00	1.00	1.00	0.76	
Incremental Delay, d2	0.2	0.9	1.0	1.2	0.3	
Delay (s)	23.3	2.2	24.4	28.9	18.4	
Level of Service	C	A	C	C	B	
Approach Delay (s)	6.4			28.3	18.4	
Approach LOS	A			C	B	

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)	140.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	197	44	54	818	95	30
v/c Ratio	0.08	0.05	0.07	0.31	0.47	0.14
Control Delay	4.1	0.7	4.7	4.9	40.7	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.1	0.7	4.7	4.9	40.7	13.0
Queue Length 50th (m)	4.2	0.1	2.2	21.5	13.7	0.0
Queue Length 95th (m)	8.5	0.3	6.3	34.9	27.4	7.0
Internal Link Dist (m)	33.9			146.8	95.7	
Turn Bay Length (m)			60.0		35.0	
Base Capacity (vph)	2469	1081	787	2659	599	589
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	0.04	0.07	0.31	0.16	0.05

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	179	40	49	744	86	27
Future Volume (vph)	179	40	49	744	86	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.86	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	0.89	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3259	1144	1613	3510	1587	1512
Flt Permitted	1.00	1.00	0.63	1.00	0.95	1.00
Satd. Flow (perm)	3259	1144	1066	3510	1587	1512
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	197	44	54	818	95	30
RTOR Reduction (vph)	0	0	0	0	0	27
Lane Group Flow (vph)	197	44	54	818	95	3
Confl. Peds. (#/hr)		71	71			
Heavy Vehicles (%)	12%	23%	1%	4%	15%	8%
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	2	8		6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	60.8	69.6	60.8	60.8	8.8	8.8
Effective Green, g (s)	60.8	69.6	60.8	60.8	8.8	8.8
Actuated g/C Ratio	0.73	0.83	0.73	0.73	0.11	0.11
Clearance Time (s)	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
Lane Grp Cap (vph)	2370	1144	775	2552	167	159
v/s Ratio Prot	0.06	0.00		c0.23	c0.06	
v/s Ratio Perm		0.03	0.05			0.00
v/c Ratio	0.08	0.04	0.07	0.32	0.57	0.02
Uniform Delay, d1	3.3	1.2	3.3	4.1	35.6	33.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.2	0.3	4.4	0.1
Delay (s)	3.4	1.2	3.4	4.4	40.0	33.6
Level of Service	A	A	A	A	D	C
Approach Delay (s)	3.0			4.3	38.5	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	7.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	83.6	Sum of lost time (s)	14.0
Intersection Capacity Utilization	48.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	26	918	1435	18	48	78	22
v/c Ratio	0.20	0.51	0.89	0.06	0.23	0.37	0.07
Control Delay	28.4	34.0	40.6	27.1	7.0	48.9	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.4	34.0	40.6	27.1	7.0	48.9	0.5
Queue Length 50th (m)	3.4	86.3	193.5	3.1	0.0	17.8	0.0
Queue Length 95th (m)	m5.4	110.8	#244.3	8.4	6.3	34.0	0.0
Internal Link Dist (m)		202.3	126.7		25.6		
Turn Bay Length (m)	70.0					20.0	
Base Capacity (vph)	137	1802	1621	285	213	210	300
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	0.19	0.51	0.89	0.06	0.23	0.37	0.07

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)	24	845	0	0	1181	139	17	0	44	72	0	20
Future Volume (vph)	24	845	0	0	1181	139	17	0	44	72	0	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	8.0			8.0		3.0	8.0		8.0		8.0
Lane Util. Factor	1.00	0.95			0.95		1.00	1.00		1.00		1.00
Frpb, ped/bikes	1.00	1.00			0.94		1.00	0.58		1.00		0.60
Flpb, ped/bikes	1.00	1.00			1.00		0.63	1.00		0.61		1.00
Frt	1.00	1.00			0.98		1.00	0.85		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1738	3411			3313		665	486		1073		919
Flt Permitted	0.06	1.00			1.00		0.95	1.00		0.73		1.00
Satd. Flow (perm)	108	3411			3313		665	486		820		919
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	918	0	0	1284	151	18	0	48	78	0	22
RTOR Reduction (vph)	0	0	0	0	6	0	0	31	0	0	0	16
Lane Group Flow (vph)	26	918	0	0	1429	0	18	17	0	78	0	6
Confl. Peds. (#/hr)	290		1278	1278		290	658		752	752		658
Heavy Vehicles (%)	5%	7%	0%	0%	1%	13%	72%	0%	95%	4%	0%	7%
Turn Type	pm+pt	NA			NA		pm+pt	NA		Perm		Perm
Protected Phases	5	2			6		3	8				
Permitted Phases	2						8			4		4
Actuated Green, G (s)	74.0	74.0			67.1		50.0	50.0		36.0		36.0
Effective Green, g (s)	74.0	74.0			67.1		50.0	50.0		36.0		36.0
Actuated g/C Ratio	0.53	0.53			0.48		0.36	0.36		0.26		0.26
Clearance Time (s)	3.0	8.0			8.0		3.0	8.0		8.0		8.0
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0		3.0
Lane Grp Cap (vph)	102	1802			1587		237	173		210		236
v/s Ratio Prot	0.01	c0.27			c0.43		0.01	c0.04				
v/s Ratio Perm	0.13						0.02			c0.10		0.01
v/c Ratio	0.25	0.51			0.90		0.08	0.10		0.37		0.02
Uniform Delay, d1	24.6	21.3			33.4		29.7	30.0		42.7		38.9
Progression Factor	1.91	1.55			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	1.0	0.7			8.6		0.6	1.1		5.0		0.2
Delay (s)	47.9	33.6			42.0		30.4	31.1		47.7		39.1
Level of Service	D	C			D		C	C		D		D
Approach Delay (s)		34.0			42.0			30.9			45.8	
Approach LOS		C			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	38.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	91.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	58	774	140	1102	182	426	81	818
v/c Ratio	1.00	0.81	0.74	0.88	0.99	0.55	0.23	1.03
Control Delay	145.0	33.8	35.9	19.8	97.9	31.3	11.5	69.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.4
Total Delay	145.0	33.8	35.9	19.8	97.9	31.3	11.5	92.7
Queue Length 50th (m)	5.6	38.4	7.8	49.8	34.3	83.8	5.0	~242.7
Queue Length 95th (m)	m#37.7	82.3	m14.5	113.1	#83.9	116.7	15.7	#316.1
Internal Link Dist (m)		171.5		202.3		102.8		69.7
Turn Bay Length (m)	65.0		70.0		45.0		30.0	
Base Capacity (vph)	58	953	188	1252	184	776	363	791
Starvation Cap Reductn	0	0	0	0	0	0	0	45
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	0.81	0.74	0.88	0.99	0.55	0.22	1.10

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.

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)	57	693	66	137	1014	66	178	320	97	79	718	83
Future Volume (vph)	57	693	66	137	1014	66	178	320	97	79	718	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.97		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1801	3405		1615	3430		1772	1744		1434	1840	
Flt Permitted	0.11	1.00		0.15	1.00		0.06	1.00		0.39	1.00	
Satd. Flow (perm)	210	3405		253	3430		121	1744		587	1840	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	58	707	67	140	1035	67	182	327	99	81	733	85
RTOR Reduction (vph)	0	5	0	0	3	0	0	8	0	0	3	0
Lane Group Flow (vph)	58	769	0	140	1099	0	182	418	0	81	815	0
Confl. Peds. (#/hr)	17		10	10		17	13		10	10		13
Heavy Vehicles (%)	1%	6%	1%	13%	4%	24%	3%	1%	21%	27%	2%	6%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	39.0	39.0		51.0	51.0		71.7	61.7		68.3	60.0	
Effective Green, g (s)	39.0	39.0		51.0	51.0		71.7	61.7		68.3	60.0	
Actuated g/C Ratio	0.28	0.28		0.36	0.36		0.51	0.44		0.49	0.43	
Clearance Time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	58	948		179	1249		179	768		336	788	
v/s Ratio Prot		0.23		0.05	c0.32		c0.07	0.24		0.01	0.44	
v/s Ratio Perm	c0.28			0.23			c0.45			0.10		
v/c Ratio	1.00	0.81		0.78	0.88		1.02	0.54		0.24	1.03	
Uniform Delay, d1	50.5	47.1		33.8	41.6		42.6	28.8		20.3	40.0	
Progression Factor	0.60	0.58		0.77	0.35		1.00	1.00		0.68	0.71	
Incremental Delay, d2	108.3	6.4		10.3	4.7		71.7	2.8		0.4	40.3	
Delay (s)	138.7	33.7		36.4	19.3		114.3	31.6		14.2	68.8	
Level of Service	F	C		D	B		F	C		B	E	
Approach Delay (s)		41.1			21.2			56.3			63.8	
Approach LOS		D			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	42.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	113.1%	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)	39	867	172	1244	18	290	76	136	394
v/c Ratio	0.28	0.63	0.48	0.65	0.08	0.58	0.18	0.40	0.61
Control Delay	25.4	26.2	19.7	10.3	40.9	50.6	8.9	32.4	36.8
Queue Delay	0.0	0.9	0.0	0.2	0.0	1.6	0.0	0.0	0.0
Total Delay	25.4	27.1	19.7	10.5	40.9	52.2	8.9	32.4	36.8
Queue Length 50th (m)	5.3	68.6	9.4	44.1	3.8	70.7	0.0	24.8	78.2
Queue Length 95th (m)	m6.8	m55.4	m15.2	m49.8	10.5	101.0	12.1	40.1	113.1
Internal Link Dist (m)		161.5		171.5		57.8			70.0
Turn Bay Length (m)	80.0		55.0		45.0			30.0	
Base Capacity (vph)	141	1381	358	1908	226	501	419	343	643
Starvation Cap Reductn	0	248	0	128	0	90	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	0.28	0.77	0.48	0.70	0.08	0.71	0.18	0.40	0.61

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)	35	627	153	155	1081	39	16	261	68	122	153	202
Future Volume (vph)	35	627	153	155	1081	39	16	261	68	122	153	202
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		3.0	7.0		7.0	7.0	7.0	3.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	0.92	1.00	0.97	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		0.98	1.00	1.00	0.99	1.00	
Frt	1.00	0.97		1.00	0.99		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1808	3355		1722	3511		1790	1921	1385	1810	1708	
Flt Permitted	0.18	1.00		0.20	1.00		0.46	1.00	1.00	0.35	1.00	
Satd. Flow (perm)	348	3355		354	3511		866	1921	1385	665	1708	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	39	697	170	172	1201	43	18	290	76	136	170	224
RTOR Reduction (vph)	0	15	0	0	2	0	0	0	56	0	33	0
Lane Group Flow (vph)	39	852	0	172	1242	0	18	290	20	136	361	0
Confl. Peds. (#/hr)	19		14	14		19	18		31	31		18
Heavy Vehicles (%)	0%	5%	0%	6%	3%	5%	0%	0%	9%	0%	0%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		2		1	6			8		7	4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	57.0	57.0		76.0	76.0		36.6	36.6	36.6	50.0	50.0	
Effective Green, g (s)	57.0	57.0		76.0	76.0		36.6	36.6	36.6	50.0	50.0	
Actuated g/C Ratio	0.41	0.41		0.54	0.54		0.26	0.26	0.26	0.36	0.36	
Clearance Time (s)	7.0	7.0		3.0	7.0		7.0	7.0	7.0	3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	141	1365		348	1905		226	502	362	322	610	
v/s Ratio Prot		0.25		0.06	c0.35			0.15		0.03	c0.21	
v/s Ratio Perm	0.11			0.21			0.02		0.01	0.12		
v/c Ratio	0.28	0.62		0.49	0.65		0.08	0.58	0.05	0.42	0.59	
Uniform Delay, d1	27.7	33.0		19.2	22.6		39.0	45.0	38.7	32.3	36.7	
Progression Factor	0.79	0.79		1.19	0.41		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.8	0.8		2.6	0.9		0.7	4.8	0.3	0.9	4.2	
Delay (s)	23.8	26.8		25.5	10.2		39.7	49.8	39.0	33.2	40.9	
Level of Service	C	C		C	B		D	D	D	C	D	
Approach Delay (s)		26.6			12.1			47.2			38.9	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	24.7	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)	20.0
Intersection Capacity Utilization	89.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	47	371	189	1208	52	1521	460	1000
v/c Ratio	0.34	0.31	0.70	1.23	0.20	1.22	1.32	0.59
Control Delay	34.1	32.3	72.4	163.3	16.4	145.0	197.0	28.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.1	32.3	72.4	163.3	16.4	145.0	197.0	28.8
Queue Length 50th (m)	8.2	37.0	54.8	~217.8	6.1	~271.6	~147.6	104.4
Queue Length 95th (m)	16.9	50.3	#81.9	#261.1	12.1	#314.6	#214.6	125.5
Internal Link Dist (m)		170.1		161.5		203.8		248.3
Turn Bay Length (m)	50.0		50.0		65.0		100.0	
Base Capacity (vph)	140	1190	270	979	266	1248	349	1701
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	0.34	0.31	0.70	1.23	0.20	1.22	1.32	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)	44	281	64	176	765	358	48	1309	105	428	923	7
Future Volume (vph)	44	281	64	176	765	358	48	1309	105	428	923	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		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		0.98	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.95		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)	1755	3395		1735	3376		1788	3517		1772	3608	
Flt Permitted	0.10	1.00		0.53	1.00		0.25	1.00		0.08	1.00	
Satd. Flow (perm)	176	3395		970	3376		473	3517		142	3608	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	47	302	69	189	823	385	52	1408	113	460	992	8
RTOR Reduction (vph)	0	14	0	0	40	0	0	5	0	0	1	0
Lane Group Flow (vph)	47	357	0	189	1168	0	52	1516	0	460	999	0
Confl. Peds. (#/hr)	5		23	23		5	8		13	13		8
Heavy Vehicles (%)	4%	4%	2%	3%	2%	3%	2%	2%	7%	3%	1%	4%
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	48.5	48.5		39.0	39.0		56.0	49.5		75.5	66.0	
Effective Green, g (s)	48.5	48.5		39.0	39.0		56.0	49.5		75.5	66.0	
Actuated g/C Ratio	0.35	0.35		0.28	0.28		0.40	0.35		0.54	0.47	
Clearance Time (s)	3.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	134	1176		270	940		250	1243		344	1700	
v/s Ratio Prot	c0.02	0.11			c0.35		0.01	0.43		c0.22	0.28	
v/s Ratio Perm	0.11			0.19			0.07			c0.50		
v/c Ratio	0.35	0.30		0.70	1.24		0.21	1.22		1.34	0.59	
Uniform Delay, d1	36.0	33.4		45.3	50.5		26.1	45.2		46.4	27.1	
Progression Factor	1.00	1.00		1.32	1.34		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.1	0.7		11.0	116.4		1.9	106.5		170.2	1.5	
Delay (s)	43.1	34.1		70.8	183.9		28.0	151.7		216.6	28.6	
Level of Service	D	C		E	F		C	F		F	C	
Approach Delay (s)		35.1			168.6			147.6			87.8	
Approach LOS		D			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	126.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.28		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	120.3%	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)	13	58	23	77	20	399	40	603
v/c Ratio	0.04	0.14	0.08	0.17	0.06	0.39	0.08	0.59
Control Delay	23.3	12.0	23.9	17.5	8.5	11.2	8.6	14.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2
Total Delay	23.3	12.0	23.9	17.5	8.5	11.2	8.6	15.3
Queue Length 50th (m)	1.5	2.0	2.7	5.8	1.3	31.0	2.6	54.3
Queue Length 95th (m)	4.7	7.9	6.8	12.5	3.5	38.0	5.6	61.9
Internal Link Dist (m)		141.1		97.5		112.5		34.9
Turn Bay Length (m)	20.0		20.0		25.0		25.0	
Base Capacity (vph)	335	413	304	462	356	1013	495	1029
Starvation Cap Reductn	0	0	0	0	0	0	0	220
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	0.14	0.08	0.17	0.06	0.39	0.08	0.75

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	13	31	17	37	21	15	287	12	30	416	36
Future Volume (vph)	10	13	31	17	37	21	15	287	12	30	416	36
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	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.92		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.91	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.89		1.00	0.95		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1803	1531		1608	1766		1806	1798		1699	1823	
Flt Permitted	0.71	1.00		0.72	1.00		0.33	1.00		0.49	1.00	
Satd. Flow (perm)	1342	1531		1218	1766		634	1798		880	1823	
Peak-hour factor, PHF	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Adj. Flow (vph)	13	17	41	23	49	28	20	383	16	40	555	48
RTOR Reduction (vph)	0	31	0	0	21	0	0	2	0	0	4	0
Lane Group Flow (vph)	13	27	0	23	56	0	20	397	0	40	599	0
Confl. Peds. (#/hr)	11		50	50		11	16		12	12		16
Heavy Vehicles (%)	0%	0%	4%	3%	3%	0%	0%	6%	7%	6%	4%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	20.0	20.0		20.0	20.0		45.0	45.0		45.0	45.0	
Effective Green, g (s)	20.0	20.0		20.0	20.0		45.0	45.0		45.0	45.0	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.56	0.56		0.56	0.56	
Clearance Time (s)	8.0	8.0		8.0	8.0		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)	335	382		304	441		356	1011		495	1025	
v/s Ratio Prot		0.02			c0.03			0.22			c0.33	
v/s Ratio Perm	0.01			0.02			0.03			0.05		
v/c Ratio	0.04	0.07		0.08	0.13		0.06	0.39		0.08	0.58	
Uniform Delay, d1	22.7	22.9		22.9	23.2		7.9	9.8		8.0	11.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.4		0.5	0.6		0.3	1.1		0.3	2.4	
Delay (s)	22.9	23.3		23.4	23.8		8.2	11.0		8.3	13.8	
Level of Service	C	C		C	C		A	B		A	B	
Approach Delay (s)		23.2			23.7			10.8			13.5	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1212	188	948	339	1
v/c Ratio	0.43	0.54	0.40	0.82	0.00
Control Delay	17.5	12.6	3.6	67.4	28.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.5	12.6	3.6	67.4	28.0
Queue Length 50th (m)	60.8	9.2	12.6	89.8	0.0
Queue Length 95th (m)	93.9	10.9	19.3	115.5	1.4
Internal Link Dist (m)	613.2		220.9	100.9	
Turn Bay Length (m)		50.0		45.0	
Base Capacity (vph)	2847	472	2398	600	538
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	0.43	0.40	0.40	0.56	0.00

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	848	267	173	872	312	1
Future Volume (vph)	848	267	173	872	312	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0		3.0	7.0	7.0	7.0
Lane Util. Factor	0.91		1.00	0.95	1.00	1.00
Frt	0.96		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	4957		1789	3579	1789	1601
Flt Permitted	1.00		0.18	1.00	0.95	1.00
Satd. Flow (perm)	4957		335	3579	1789	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	922	290	188	948	339	1
RTOR Reduction (vph)	28	0	0	0	0	1
Lane Group Flow (vph)	1184	0	188	948	339	0
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Actuated Green, G (s)	79.6		93.8	93.8	32.2	32.2
Effective Green, g (s)	79.6		93.8	93.8	32.2	32.2
Actuated g/C Ratio	0.57		0.67	0.67	0.23	0.23
Clearance Time (s)	7.0		3.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2818		340	2397	411	368
v/s Ratio Prot	0.24		c0.04	0.26	c0.19	
v/s Ratio Perm			c0.33			0.00
v/c Ratio	0.42		0.55	0.40	0.82	0.00
Uniform Delay, d1	17.1		10.1	10.4	51.2	41.5
Progression Factor	0.97		0.89	0.28	1.00	1.00
Incremental Delay, d2	0.5		1.8	0.4	12.7	0.0
Delay (s)	17.1		10.8	3.4	63.9	41.5
Level of Service	B		B	A	E	D
Approach Delay (s)	17.1			4.6	63.8	
Approach LOS	B			A	E	

Intersection Summary			
HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	0	18	108	8	23	32	311	101	5	753	18
Future Volume (Veh/h)	11	0	18	108	8	23	32	311	101	5	753	18
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	0	20	117	9	25	35	338	110	5	818	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)								94			117	
pX, platoon unblocked												
vC, conflicting volume	1106	1356	419	902	1311	224	838			448		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1106	1356	419	902	1311	224	838			448		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	92	100	97	46	94	97	96			100		
cM capacity (veh/h)	147	141	583	216	150	779	792			1109		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	12	20	117	34	35	225	223	5	545	293
Volume Left	12	0	117	0	35	0	0	5	0	0
Volume Right	0	20	0	25	0	0	110	0	0	20
cSH	147	583	216	369	792	1700	1700	1109	1700	1700
Volume to Capacity	0.08	0.03	0.54	0.09	0.04	0.13	0.13	0.00	0.32	0.17
Queue Length 95th (m)	2.0	0.8	21.8	2.3	1.1	0.0	0.0	0.1	0.0	0.0
Control Delay (s)	31.7	11.4	39.6	15.7	9.8	0.0	0.0	8.3	0.0	0.0
Lane LOS	D	B	E	C	A			A		
Approach Delay (s)	19.0		34.3		0.7			0.0		
Approach LOS	C		D							

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	45.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	4	41	26	4	39	97	63	11	33	26	31
Future Volume (Veh/h)	10	4	41	26	4	39	97	63	11	33	26	31
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	4	45	28	4	42	105	68	12	36	28	34
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								89			120	
pX, platoon unblocked												
vC, conflicting volume	439	407	45	431	418	74	62			80		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	439	407	45	431	418	74	62			80		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	99	96	94	99	96	93			98		
cM capacity (veh/h)	468	485	1025	473	478	988	1541			1518		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	60	74	105	80	36	62
Volume Left	11	28	105	0	36	0
Volume Right	45	42	0	12	0	34
cSH	793	672	1541	1700	1518	1700
Volume to Capacity	0.08	0.11	0.07	0.05	0.02	0.04
Queue Length 95th (m)	1.9	2.8	1.7	0.0	0.6	0.0
Control Delay (s)	9.9	11.0	7.5	0.0	7.4	0.0
Lane LOS	A	B	A		A	
Approach Delay (s)	9.9	11.0	4.3		2.7	
Approach LOS	A	B				

Intersection Summary				
Average Delay	5.9			
Intersection Capacity Utilization	26.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	38	30	315	3	18	444
Future Volume (Veh/h)	38	30	315	3	18	444
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)	41	33	342	3	20	483
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			59			82
pX, platoon unblocked	0.96					
vC, conflicting volume	866	172			345	
vC1, stage 1 conf vol	344					
vC2, stage 2 conf vol	523					
vCu, unblocked vol	837	172			345	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	96			98	
cM capacity (veh/h)	487	841			1211	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	74	228	117	20	483
Volume Left	41	0	0	20	0
Volume Right	33	0	3	0	0
cSH	599	1700	1700	1211	1700
Volume to Capacity	0.12	0.13	0.07	0.02	0.28
Queue Length 95th (m)	3.2	0.0	0.0	0.4	0.0
Control Delay (s)	11.9	0.0	0.0	8.0	0.0
Lane LOS	B			A	
Approach Delay (s)	11.9	0.0		0.3	
Approach LOS	B				

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	34.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	203	0	0	830	0	16
Future Volume (Veh/h)	203	0	0	830	0	16
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)	221	0	0	902	0	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)	160			58		
pX, platoon unblocked			0.98		0.93	0.98
vC, conflicting volume			221		672	110
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			160		390	47
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	98
cM capacity (veh/h)			1386		545	990

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	110	110	0	451	451	17
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	17
cSH	1700	1700	1700	1700	1700	990
Volume to Capacity	0.07	0.07	0.00	0.27	0.27	0.02
Queue Length 95th (m)	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	8.7
Lane LOS						A
Approach Delay (s)	0.0			0.0		8.7
Approach LOS						A

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	26.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	14	0	16	45	0	0	0	299	36	1	415	23
Future Volume (veh/h)	14	0	16	45	0	0	0	299	36	1	415	23
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	0	17	49	0	0	0	325	39	1	451	25
Approach Volume (veh/h)		32			49			364			477	
Crossing Volume (veh/h)		501			340			16			49	
High Capacity (veh/h)		933			1060			1367			1333	
High v/c (veh/h)		0.03			0.05			0.27			0.36	
Low Capacity (veh/h)		754			868			1146			1114	
Low v/c (veh/h)		0.04			0.06			0.32			0.43	

Intersection Summary			
Maximum v/c High	0.36		
Maximum v/c Low	0.43		
Intersection Capacity Utilization	35.4%	ICU Level of Service	A

Lane Group	EBL	EBR	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	717	134	5	315	2440	2690
v/c Ratio	0.71	0.49	0.01	0.74	0.63	0.87
Control Delay	48.6	38.2	35.4	52.3	17.8	26.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.6	38.2	35.4	52.3	17.8	26.3
Queue Length 50th (m)	91.3	23.5	1.0	71.8	116.6	214.1
Queue Length 95th (m)	113.2	45.4	4.4	108.4	126.9	235.9
Internal Link Dist (m)					73.6	241.1
Turn Bay Length (m)		150.0				
Base Capacity (vph)	1016	272	427	423	3901	3097
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	0.71	0.49	0.01	0.74	0.63	0.87

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	703	0	131	5	0	309	0	2371	21	0	2636	0
Future Volume (vph)	703	0	131	5	0	309	0	2371	21	0	2636	0
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		7.0			7.0	
Lane Util. Factor	0.97		1.00	1.00		1.00		0.86			0.91	
Frt	1.00		0.85	1.00		0.85		1.00			1.00	
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (prot)	3471		855	1460		1372		6348			5043	
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (perm)	3471		855	1460		1372		6348			5043	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	717	0	134	5	0	315	0	2419	21	0	2690	0
RTOR Reduction (vph)	0	0	22	0	0	22	0	1	0	0	0	0
Lane Group Flow (vph)	717	0	112	5	0	293	0	2439	0	0	2690	0
Heavy Vehicles (%)	2%	0%	91%	25%	0%	19%	0%	4%	0%	0%	4%	0%
Turn Type	Perm		Perm	Perm		Perm		NA			NA	
Protected Phases								2			6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	41.0		41.0	41.0		41.0		86.0			86.0	
Effective Green, g (s)	41.0		41.0	41.0		41.0		86.0			86.0	
Actuated g/C Ratio	0.29		0.29	0.29		0.29		0.61			0.61	
Clearance Time (s)	6.0		6.0	6.0		6.0		7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0		3.0		3.0			3.0	
Lane Grp Cap (vph)	1016		250	427		401		3899			3097	
v/s Ratio Prot								0.38			c0.53	
v/s Ratio Perm	0.21		0.13	0.00		c0.21						
v/c Ratio	0.71		0.45	0.01		0.73		0.63			0.87	
Uniform Delay, d1	44.1		40.3	35.1		44.5		16.9			22.3	
Progression Factor	1.00		1.00	1.00		1.00		1.00			1.00	
Incremental Delay, d2	4.1		5.7	0.0		11.2		0.8			3.6	
Delay (s)	48.2		46.0	35.2		55.7		17.7			25.9	
Level of Service	D		D	D		E		B			C	
Approach Delay (s)		47.9			55.4			17.7			25.9	
Approach LOS		D			E			B			C	

Intersection Summary			
HCM 2000 Control Delay	27.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	88.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL
Lane Group Flow (vph)	532	464	167	157	279
v/c Ratio	0.27	0.30	0.41	0.09	0.28
Control Delay	13.7	0.5	18.6	12.1	22.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	13.7	0.5	18.6	12.1	22.2
Queue Length 50th (m)	31.3	0.0	20.6	8.2	16.7
Queue Length 95th (m)	36.2	0.0	32.4	11.8	21.9
Internal Link Dist (m)	858.1			135.6	92.8
Turn Bay Length (m)			60.0		
Base Capacity (vph)	1991	1541	406	1679	1014
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	0.27	0.30	0.41	0.09	0.28

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	431	376	135	127	187	39
Future Volume (vph)	431	376	135	127	187	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	
Frt	1.00	0.85	1.00	1.00	0.97	
Flt Protected	1.00	1.00	0.95	1.00	0.96	
Satd. Flow (prot)	3579	1541	1587	3017	3106	
Flt Permitted	1.00	1.00	0.44	1.00	0.96	
Satd. Flow (perm)	3579	1541	730	3017	3106	
Peak-hour factor, PHF	0.81	0.81	0.81	0.81	0.81	0.81
Adj. Flow (vph)	532	464	167	157	231	48
RTOR Reduction (vph)	0	0	0	0	16	0
Lane Group Flow (vph)	532	464	167	157	263	0
Heavy Vehicles (%)	2%	6%	15%	21%	10%	23%
Turn Type	NA	pm+ov	Perm	NA	Prot	
Protected Phases	2	8		6	8	
Permitted Phases		2	6			
Actuated Green, G (s)	64.0	101.0	64.0	64.0	37.0	
Effective Green, g (s)	64.0	101.0	64.0	64.0	37.0	
Actuated g/C Ratio	0.56	0.88	0.56	0.56	0.32	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1991	1541	406	1679	999	
v/s Ratio Prot	0.15	c0.10		0.05	0.08	
v/s Ratio Perm		0.20	c0.23			
v/c Ratio	0.27	0.30	0.41	0.09	0.26	
Uniform Delay, d1	13.3	1.2	14.7	11.9	28.9	
Progression Factor	1.00	1.00	1.00	1.00	0.81	
Incremental Delay, d2	0.3	0.5	3.1	0.1	0.6	
Delay (s)	13.6	1.7	17.7	12.0	23.9	
Level of Service	B	A	B	B	C	
Approach Delay (s)	8.0			15.0	23.9	
Approach LOS	A			B	C	

Intersection Summary			
HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	43.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	432	49	109	205	84	58
v/c Ratio	0.17	0.05	0.17	0.09	0.44	0.23
Control Delay	4.3	0.8	5.4	4.2	38.6	11.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.3	0.8	5.4	4.2	38.6	11.2
Queue Length 50th (m)	9.6	0.1	4.6	4.3	11.5	0.0
Queue Length 95th (m)	17.2	0.3	11.9	8.7	24.2	9.5
Internal Link Dist (m)	33.9			146.8	95.7	
Turn Bay Length (m)			60.0		35.0	
Base Capacity (vph)	2583	1060	659	2244	646	709
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	0.05	0.17	0.09	0.13	0.08

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	393	45	99	187	76	53
Future Volume (vph)	393	45	99	187	76	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.91	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3444	1134	1689	2992	1484	1555
Flt Permitted	1.00	1.00	0.50	1.00	0.95	1.00
Satd. Flow (perm)	3444	1134	890	2992	1484	1555
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	432	49	109	205	84	58
RTOR Reduction (vph)	0	0	0	0	0	52
Lane Group Flow (vph)	432	49	109	205	84	6
Confl. Peds. (#/hr)		45	45			
Heavy Vehicles (%)	6%	31%	3%	22%	23%	5%
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	2	8		6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	57.1	65.5	57.1	57.1	8.4	8.4
Effective Green, g (s)	57.1	65.5	57.1	57.1	8.4	8.4
Actuated g/C Ratio	0.72	0.82	0.72	0.72	0.11	0.11
Clearance Time (s)	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
Lane Grp Cap (vph)	2473	1134	639	2148	156	164
v/s Ratio Prot	c0.13	0.00		0.07	c0.06	
v/s Ratio Perm		0.04	0.12			0.00
v/c Ratio	0.17	0.04	0.17	0.10	0.54	0.04
Uniform Delay, d1	3.6	1.3	3.6	3.4	33.7	31.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.0	0.6	0.1	3.5	0.1
Delay (s)	3.8	1.3	4.2	3.5	37.3	32.0
Level of Service	A	A	A	A	D	C
Approach Delay (s)	3.5			3.7	35.1	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	8.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	79.5	Sum of lost time (s)	14.0
Intersection Capacity Utilization	48.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	85	1219	486	44	41	133	52
v/c Ratio	0.28	0.84	0.37	0.11	0.14	0.44	0.12
Control Delay	4.8	7.2	21.9	17.4	5.9	37.0	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.8	7.2	21.9	17.4	5.9	37.0	3.5
Queue Length 50th (m)	2.0	14.6	35.8	5.3	0.0	23.8	0.0
Queue Length 95th (m)	m2.1	m15.1	49.1	12.0	5.8	42.6	4.8
Internal Link Dist (m)		202.3	126.7		25.6		
Turn Bay Length (m)	70.0					20.0	
Base Capacity (vph)	305	1453	1305	399	295	304	434
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	0.28	0.84	0.37	0.11	0.14	0.44	0.12

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)	83	1195	0	0	383	93	43	0	40	130	0	51
Future Volume (vph)	83	1195	0	0	383	93	43	0	40	130	0	51
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	8.0		8.0		8.0
Lane Util. Factor	1.00	0.95			0.95		1.00	1.00		1.00		1.00
Frpb, ped/bikes	1.00	1.00			0.96		1.00	0.76		1.00		0.82
Flpb, ped/bikes	0.91	1.00			1.00		0.84	1.00		0.78		1.00
Frt	1.00	1.00			0.97		1.00	0.85		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1525	3411			3020		810	618		1267		1220
Flt Permitted	0.45	1.00			1.00		0.95	1.00		0.73		1.00
Satd. Flow (perm)	717	3411			3020		810	618		974		1220
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	85	1219	0	0	391	95	44	0	41	133	0	52
RTOR Reduction (vph)	0	0	0	0	18	0	0	23	0	0	0	36
Lane Group Flow (vph)	85	1219	0	0	468	0	44	18	0	133	0	16
Confl. Peds. (#/hr)	99		330	330		99	177		246	246		177
Heavy Vehicles (%)	9%	7%	0%	0%	10%	24%	89%	0%	100%	12%	0%	10%
Turn Type	Perm	NA			NA		pm+pt	NA		Perm		Perm
Protected Phases		2			6		3	8				
Permitted Phases	2						8			4		4
Actuated Green, G (s)	49.0	49.0			49.0		50.0	50.0		36.0		36.0
Effective Green, g (s)	49.0	49.0			49.0		50.0	50.0		36.0		36.0
Actuated g/C Ratio	0.43	0.43			0.43		0.43	0.43		0.31		0.31
Clearance Time (s)	8.0	8.0			8.0		3.0	8.0		8.0		8.0
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0		3.0
Lane Grp Cap (vph)	305	1453			1286		352	268		304		381
v/s Ratio Prot		c0.36			0.15		c0.01	0.03				
v/s Ratio Perm	0.12						0.04			c0.14		0.01
v/c Ratio	0.28	0.84			0.36		0.12	0.07		0.44		0.04
Uniform Delay, d1	21.5	29.5			22.4		19.4	18.9		31.4		27.5
Progression Factor	0.18	0.16			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	0.8	2.3			0.8		0.7	0.5		4.5		0.2
Delay (s)	4.6	7.0			23.2		20.2	19.4		36.0		27.7
Level of Service	A	A			C		C	B		D		C
Approach Delay (s)		6.9			23.2			19.8			33.6	
Approach LOS		A			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	82.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	185	1397	62	463	60	216	43	503
v/c Ratio	0.49	0.98	0.44	0.30	0.32	0.43	0.13	0.98
Control Delay	31.6	53.5	41.3	13.8	25.5	33.8	20.5	70.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.6	53.5	41.3	13.8	25.5	33.8	20.5	70.8
Queue Length 50th (m)	31.1	~175.7	8.2	21.3	8.2	35.8	5.2	~116.8
Queue Length 95th (m)	54.7	#221.8	21.5	28.3	16.6	59.7	11.5	#182.9
Internal Link Dist (m)		171.5		202.3		102.8		69.7
Turn Bay Length (m)	65.0		70.0		45.0		30.0	
Base Capacity (vph)	374	1425	154	1569	208	498	355	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	0.49	0.98	0.40	0.30	0.29	0.43	0.12	0.98

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)	168	1167	105	56	407	15	55	125	72	39	264	194
Future Volume (vph)	168	1167	105	56	407	15	55	125	72	39	264	194
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.95		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1755	3402		1323	3163		1705	1667		1337	1715	
Flt Permitted	0.49	1.00		0.08	1.00		0.13	1.00		0.57	1.00	
Satd. Flow (perm)	898	3402		112	3163		238	1667		798	1715	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	185	1282	115	62	447	16	60	137	79	43	290	213
RTOR Reduction (vph)	0	6	0	0	2	0	0	17	0	0	22	0
Lane Group Flow (vph)	185	1391	0	62	461	0	60	199	0	43	481	0
Confl. Peds. (#/hr)	14		9	9		14	4		8	8		4
Heavy Vehicles (%)	3%	6%	3%	38%	14%	34%	7%	4%	15%	36%	2%	7%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	46.8	46.8		56.4	56.4		39.8	33.2		39.4	33.0	
Effective Green, g (s)	46.8	46.8		56.4	56.4		39.8	33.2		39.4	33.0	
Actuated g/C Ratio	0.41	0.41		0.49	0.49		0.35	0.29		0.34	0.29	
Clearance Time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	365	1384		124	1551		166	481		303	492	
v/s Ratio Prot		c0.41		c0.03	0.15		c0.02	0.12		0.01	c0.28	
v/s Ratio Perm	0.21			0.22			0.10			0.04		
v/c Ratio	0.51	1.01		0.50	0.30		0.36	0.41		0.14	0.98	
Uniform Delay, d1	25.5	34.1		24.1	17.5		28.2	33.0		25.7	40.6	
Progression Factor	1.00	1.00		2.30	0.78		1.00	1.00		0.94	0.91	
Incremental Delay, d2	5.0	25.4		3.1	0.5		1.3	2.6		0.2	34.7	
Delay (s)	30.4	59.5		58.4	14.1		29.5	35.7		24.3	71.7	
Level of Service	C	E		E	B		C	D		C	E	
Approach Delay (s)		56.1			19.3			34.3			68.0	
Approach LOS		E			B			C			E	

Intersection Summary			
HCM 2000 Control Delay	49.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	89.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	22	1319	235	463	55	6	290	12	2
v/c Ratio	0.05	0.76	0.59	0.20	0.21	0.02	0.56	0.05	0.00
Control Delay	9.7	16.7	26.6	7.2	50.2	46.2	9.8	46.8	0.0
Queue Delay	0.0	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.7	22.3	26.6	7.2	50.2	46.2	9.8	46.8	0.0
Queue Length 50th (m)	1.6	126.9	29.8	20.8	13.0	1.4	0.0	2.7	0.0
Queue Length 95th (m)	m1.5	m49.8	58.1	27.2	25.7	5.3	25.6	8.6	0.0
Internal Link Dist (m)		161.5		171.5		57.8			66.0
Turn Bay Length (m)	80.0		55.0		45.0				
Base Capacity (vph)	442	1741	395	2343	259	296	514	264	676
Starvation Cap Reductn	0	364	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	0.05	0.96	0.59	0.20	0.21	0.02	0.56	0.05	0.00

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)	21	1156	84	221	433	2	52	6	273	11	0	2
Future Volume (vph)	21	1156	84	221	433	2	52	6	273	11	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		3.0	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	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.93	1.00	0.98	
Flpb, ped/bikes	0.98	1.00		1.00	1.00		0.99	1.00	1.00	0.95	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	1.00	0.85	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1704	3427		1674	3314		1691	1537	1453	1726	1600	
Flt Permitted	0.49	1.00		0.10	1.00		0.76	1.00	1.00	0.75	1.00	
Satd. Flow (perm)	872	3427		172	3314		1347	1537	1453	1370	1600	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	22	1230	89	235	461	2	55	6	290	12	0	2
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	234	0	2	0
Lane Group Flow (vph)	22	1315	0	235	463	0	55	6	56	12	0	0
Confl. Peds. (#/hr)	9		8	8		9	4		26	26		4
Heavy Vehicles (%)	5%	5%	6%	9%	10%	20%	7%	25%	5%	0%	25%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	71.0	71.0		99.0	99.0		27.0	27.0	27.0	27.0	27.0	
Effective Green, g (s)	71.0	71.0		99.0	99.0		27.0	27.0	27.0	27.0	27.0	
Actuated g/C Ratio	0.51	0.51		0.71	0.71		0.19	0.19	0.19	0.19	0.19	
Clearance Time (s)	7.0	7.0		3.0	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)	442	1737		389	2343		259	296	280	264	308	
v/s Ratio Prot		c0.38		c0.11	0.14			0.00			0.00	
v/s Ratio Perm	0.03			0.32			c0.04		0.04	0.01		
v/c Ratio	0.05	0.76		0.60	0.20		0.21	0.02	0.20	0.05	0.00	
Uniform Delay, d1	17.4	27.6		26.8	7.0		47.6	45.8	47.4	46.0	45.6	
Progression Factor	0.54	0.59		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	0.3		6.8	0.2		1.9	0.1	1.6	0.3	0.0	
Delay (s)	9.5	16.6		33.6	7.2		49.4	45.9	49.0	46.3	45.6	
Level of Service	A	B		C	A		D	D	D	D	D	
Approach Delay (s)		16.4			16.1			49.0			46.2	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	21.3	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)	17.0
Intersection Capacity Utilization	78.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	63	664	137	443	164	1651	633	788
v/c Ratio	0.31	0.71	1.32	0.47	0.41	1.29	1.41	0.43
Control Delay	45.9	50.6	232.2	23.9	15.4	172.1	229.6	21.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.9	50.6	232.2	23.9	15.4	172.1	229.6	21.5
Queue Length 50th (m)	14.0	87.0	~49.1	23.5	16.4	~305.2	~218.5	68.4
Queue Length 95th (m)	25.6	99.5	#85.1	29.5	23.7	#311.6	#262.2	76.4
Internal Link Dist (m)		170.1		161.5		203.8		248.3
Turn Bay Length (m)	50.0		50.0		65.0		100.0	
Base Capacity (vph)	201	932	104	948	404	1282	450	1832
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	0.31	0.71	1.32	0.47	0.41	1.29	1.41	0.43

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)	53	517	41	115	209	163	138	1175	212	532	621	41
Future Volume (vph)	53	517	41	115	209	163	138	1175	212	532	621	41
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	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		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		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.93		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1756	3420		1621	3120		1805	3424		1772	3517	
Flt Permitted	0.40	1.00		0.23	1.00		0.35	1.00		0.07	1.00	
Satd. Flow (perm)	742	3420		384	3120		672	3424		136	3517	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	63	615	49	137	249	194	164	1399	252	633	739	49
RTOR Reduction (vph)	0	4	0	0	102	0	0	11	0	0	3	0
Lane Group Flow (vph)	63	660	0	137	341	0	164	1640	0	633	785	0
Confl. Peds. (#/hr)	13		33	33		13	6		2	2		6
Heavy Vehicles (%)	3%	5%	6%	11%	10%	5%	1%	3%	9%	3%	2%	13%
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)	38.0	38.0		38.0	38.0		62.2	52.0		86.0	72.8	
Effective Green, g (s)	38.0	38.0		38.0	38.0		62.2	52.0		86.0	72.8	
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.44	0.37		0.61	0.52	
Clearance Time (s)	8.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	201	928		104	846		381	1271		445	1828	
v/s Ratio Prot		0.19			0.11		0.03	0.48		c0.31	0.22	
v/s Ratio Perm	0.08			c0.36			0.16			c0.56		
v/c Ratio	0.31	0.71		1.32	0.40		0.43	1.29		1.42	0.43	
Uniform Delay, d1	40.6	46.0		51.0	41.7		23.8	44.0		45.9	20.8	
Progression Factor	1.00	1.00		0.88	0.78		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.0	4.6		195.0	1.4		3.5	136.8		202.9	0.7	
Delay (s)	44.6	50.6		240.0	33.9		27.3	180.8		248.8	21.5	
Level of Service	D	D		F	C		C	F		F	C	
Approach Delay (s)		50.1			82.6			166.9			122.7	
Approach LOS		D			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	123.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.42		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	122.1%	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)	87	118	20	111	22	498	148	358
v/c Ratio	0.24	0.26	0.06	0.21	0.04	0.54	0.36	0.40
Control Delay	24.8	9.1	22.2	7.4	9.1	14.5	13.8	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.8	9.1	22.2	7.4	9.1	14.5	13.8	12.0
Queue Length 50th (m)	10.2	2.7	2.2	1.2	1.5	45.0	12.0	28.3
Queue Length 95th (m)	12.3	4.0	4.2	2.6	2.7	33.5	12.4	23.0
Internal Link Dist (m)		141.1		97.5		112.5		34.9
Turn Bay Length (m)	20.0		20.0		25.0		25.0	
Base Capacity (vph)	359	455	326	522	527	928	412	892
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	0.24	0.26	0.06	0.21	0.04	0.54	0.36	0.40

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	13	51	11	6	54	12	245	24	80	165	28
Future Volume (vph)	47	13	51	11	6	54	12	245	24	80	165	28
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	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.96		1.00	0.98		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		0.97	1.00		0.98	1.00		1.00	1.00	
Frt	1.00	0.88		1.00	0.86		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1816	1409		1659	1635		1796	1719		1819	1647	
Flt Permitted	0.69	1.00		0.68	1.00		0.52	1.00		0.40	1.00	
Satd. Flow (perm)	1310	1409		1190	1635		982	1719		768	1647	
Peak-hour factor, PHF	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Adj. Flow (vph)	87	24	94	20	11	100	22	454	44	148	306	52
RTOR Reduction (vph)	0	68	0	0	73	0	0	4	0	0	8	0
Lane Group Flow (vph)	87	50	0	20	39	0	22	494	0	148	350	0
Confl. Peds. (#/hr)	5		16	16		5	13		4	4		13
Heavy Vehicles (%)	0%	0%	19%	7%	0%	0%	0%	11%	0%	0%	10%	33%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	22.0	22.0		22.0	22.0		43.0	43.0		43.0	43.0	
Effective Green, g (s)	22.0	22.0		22.0	22.0		43.0	43.0		43.0	43.0	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.54	0.54		0.54	0.54	
Clearance Time (s)	8.0	8.0		8.0	8.0		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)	360	387		327	449		527	923		412	885	
v/s Ratio Prot		0.04			0.02			c0.29			0.21	
v/s Ratio Perm	c0.07			0.02			0.02			0.19		
v/c Ratio	0.24	0.13		0.06	0.09		0.04	0.54		0.36	0.40	
Uniform Delay, d1	22.5	21.8		21.4	21.5		8.8	12.0		10.6	10.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.6	0.7		0.4	0.4		0.1	2.2		2.4	1.3	
Delay (s)	24.1	22.5		21.7	21.9		8.9	14.2		13.0	12.2	
Level of Service	C	C		C	C		A	B		B	B	
Approach Delay (s)		23.2			21.9			14.0			12.4	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	37	17	35	2	191	115	23	460	30
Future Volume (Veh/h)	0	0	0	37	17	35	2	191	115	23	460	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	40	18	38	2	208	125	25	500	33
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								94			117	
pX, platoon unblocked												
vC, conflicting volume	722	904	266	574	858	166	533			333		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	722	904	266	574	858	166	533			333		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	90	94	96	100			98		
cM capacity (veh/h)	281	269	732	394	287	849	1031			1223		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	0	0	40	56	2	139	194	25	333	200
Volume Left	0	0	40	0	2	0	0	25	0	0
Volume Right	0	0	0	38	0	0	125	0	0	33
cSH	1700	1700	394	520	1031	1700	1700	1223	1700	1700
Volume to Capacity	0.00	0.00	0.10	0.11	0.00	0.08	0.11	0.02	0.20	0.12
Queue Length 95th (m)	0.0	0.0	2.6	2.7	0.0	0.0	0.0	0.5	0.0	0.0
Control Delay (s)	0.0	0.0	15.2	12.7	8.5	0.0	0.0	8.0	0.0	0.0
Lane LOS	A	A	C	B	A			A		
Approach Delay (s)	0.0		13.8		0.1			0.4		
Approach LOS	A		B							

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	29.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	0	63	19	2	17	60	105	51	10	100	35
Future Volume (Veh/h)	8	0	63	19	2	17	60	105	51	10	100	35
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	0	68	21	2	18	65	114	55	11	109	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)								89			120	
pX, platoon unblocked												
vC, conflicting volume	413	449	128	470	440	142	147			169		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	413	449	128	470	440	142	147			169		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	93	95	100	98	95			99		
cM capacity (veh/h)	515	478	922	447	484	906	1435			1409		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	77	41	65	169	11	147
Volume Left	9	21	65	0	11	0
Volume Right	68	18	0	55	0	38
cSH	844	578	1435	1700	1409	1700
Volume to Capacity	0.09	0.07	0.05	0.10	0.01	0.09
Queue Length 95th (m)	2.3	1.7	1.1	0.0	0.2	0.0
Control Delay (s)	9.7	11.7	7.6	0.0	7.6	0.0
Lane LOS	A	B	A		A	
Approach Delay (s)	9.7	11.7	2.1		0.5	
Approach LOS	A	B				

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	28.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	330	15	33	272
Future Volume (Veh/h)	0	0	330	15	33	272
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	359	16	36	296
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			59			82
pX, platoon unblocked	0.96					
vC, conflicting volume	735	188			375	
vC1, stage 1 conf vol	367					
vC2, stage 2 conf vol	368					
vCu, unblocked vol	704	188			375	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			97	
cM capacity (veh/h)	545	823			1180	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	239	136	36	296
Volume Left	0	0	0	36	0
Volume Right	0	0	16	0	0
cSH	1700	1700	1700	1180	1700
Volume to Capacity	0.00	0.14	0.08	0.03	0.17
Queue Length 95th (m)	0.0	0.0	0.0	0.7	0.0
Control Delay (s)	0.0	0.0	0.0	8.1	0.0
Lane LOS	A			A	
Approach Delay (s)	0.0	0.0		0.9	
Approach LOS	A				

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	19.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	431	38	0	263	0	8
Future Volume (Veh/h)	431	38	0	263	0	8
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)	468	41	0	286	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)	160			58		
pX, platoon unblocked			0.94		0.94	0.94
vC, conflicting volume			509		611	234
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			350		440	57
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)			1133		514	937

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	234	234	41	143	143	9
Volume Left	0	0	0	0	0	0
Volume Right	0	0	41	0	0	9
cSH	1700	1700	1700	1700	1700	937
Volume to Capacity	0.14	0.14	0.02	0.08	0.08	0.01
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.2
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	8.9
Lane LOS						A
Approach Delay (s)	0.0			0.0		8.9
Approach LOS						A

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	21.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	238	368	27	1372	2557	1971
v/c Ratio	0.16	0.54	0.03	1.89	0.89	0.89
Control Delay	22.6	28.4	15.6	426.0	40.5	41.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.6	28.4	15.6	426.0	40.5	41.2
Queue Length 50th (m)	19.5	66.1	4.0	~587.7	186.4	179.7
Queue Length 95th (m)	27.9	96.8	m8.6	#651.5	202.0	201.6
Internal Link Dist (m)					73.6	241.1
Turn Bay Length (m)		150.0				
Base Capacity (vph)	1526	683	779	727	2860	2226
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	0.16	0.54	0.03	1.89	0.89	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.

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)	214	0	331	24	0	1235	0	2294	7	0	1774	0
Future Volume (vph)	214	0	331	24	0	1235	0	2294	7	0	1774	0
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		7.0			7.0	
Lane Util. Factor	0.97		1.00	1.00		1.00		0.86			0.91	
Frt	1.00		0.85	1.00		0.85		1.00			1.00	
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (prot)	3340		1458	1706		1555		6352			4948	
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (perm)	3340		1458	1706		1555		6352			4948	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	238	0	368	27	0	1372	0	2549	8	0	1971	0
RTOR Reduction (vph)	0	0	17	0	0	17	0	1	0	0	0	0
Lane Group Flow (vph)	238	0	351	27	0	1355	0	2556	0	0	1971	0
Heavy Vehicles (%)	6%	0%	12%	7%	0%	5%	0%	4%	0%	0%	6%	0%
Turn Type	Perm		Perm	Perm		Perm		NA			NA	
Protected Phases								2			6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	64.0		64.0	64.0		64.0		63.0			63.0	
Effective Green, g (s)	64.0		64.0	64.0		64.0		63.0			63.0	
Actuated g/C Ratio	0.46		0.46	0.46		0.46		0.45			0.45	
Clearance Time (s)	6.0		6.0	6.0		6.0		7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0		3.0		3.0			3.0	
Lane Grp Cap (vph)	1526		666	779		710		2858			2226	
v/s Ratio Prot								c0.40			0.40	
v/s Ratio Perm	0.07		0.24	0.02		c0.87						
v/c Ratio	0.16		0.53	0.03		1.91		0.89			0.89	
Uniform Delay, d1	22.2		27.2	21.0		38.0		35.4			35.2	
Progression Factor	1.00		1.00	0.73		0.69		1.00			1.00	
Incremental Delay, d2	0.2		3.0	0.1		413.7		4.8			5.6	
Delay (s)	22.4		30.2	15.4		440.0		40.3			40.8	
Level of Service	C		C	B		F		D			D	
Approach Delay (s)		27.1			431.8			40.3			40.8	
Approach LOS		C			F			D			D	

Intersection Summary			
HCM 2000 Control Delay	123.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.40		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	130.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL
Lane Group Flow (vph)	357	1051	273	739	697
v/c Ratio	0.24	0.66	0.61	0.45	0.48
Control Delay	22.6	2.2	34.9	25.9	27.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	22.6	2.2	34.9	25.9	27.8
Queue Length 50th (m)	30.4	0.0	55.2	70.8	74.8
Queue Length 95th (m)	41.1	0.0	87.5	87.5	m74.1
Internal Link Dist (m)	858.1			135.6	92.8
Turn Bay Length (m)			60.0		
Base Capacity (vph)	1483	1585	444	1638	1465
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	0.24	0.66	0.61	0.45	0.48

Intersection Summary

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	321	946	246	665	594	33
Future Volume (vph)	321	946	246	665	594	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	1.00	1.00	0.95	1.00	0.95	
Satd. Flow (prot)	3147	1585	1706	3476	3411	
Flt Permitted	1.00	1.00	0.53	1.00	0.95	
Satd. Flow (perm)	3147	1585	943	3476	3411	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	357	1051	273	739	660	37
RTOR Reduction (vph)	0	0	0	0	3	0
Lane Group Flow (vph)	357	1051	273	739	694	0
Heavy Vehicles (%)	16%	3%	7%	5%	3%	12%
Turn Type	NA	pm+ov	Perm	NA	Prot	
Protected Phases	2	8		6	8	
Permitted Phases		2	6			
Actuated Green, G (s)	66.0	126.0	66.0	66.0	60.0	
Effective Green, g (s)	66.0	126.0	66.0	66.0	60.0	
Actuated g/C Ratio	0.47	0.90	0.47	0.47	0.43	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1483	1585	444	1638	1461	
v/s Ratio Prot	0.11	c0.28		0.21	0.20	
v/s Ratio Perm		0.38	0.29			
v/c Ratio	0.24	0.66	0.61	0.45	0.48	
Uniform Delay, d1	22.1	1.7	27.5	24.8	28.7	
Progression Factor	1.00	1.00	1.00	1.00	0.97	
Incremental Delay, d2	0.4	2.2	6.2	0.9	0.1	
Delay (s)	22.4	3.9	33.8	25.7	27.8	
Level of Service	C	A	C	C	C	
Approach Delay (s)	8.6			27.9	27.8	
Approach LOS	A			C	C	

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)	14.0
Intersection Capacity Utilization	83.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	271	131	153	777	225	24
v/c Ratio	0.13	0.14	0.25	0.36	0.69	0.07
Control Delay	7.2	1.0	9.3	8.6	40.7	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.2	1.0	9.3	8.6	40.7	10.6
Queue Length 50th (m)	8.0	0.3	9.3	27.0	31.6	0.0
Queue Length 95th (m)	15.9	0.6	22.9	46.4	53.3	5.5
Internal Link Dist (m)	33.9			146.8	95.7	
Turn Bay Length (m)			60.0		35.0	
Base Capacity (vph)	2014	1103	606	2169	760	737
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	0.13	0.12	0.25	0.36	0.30	0.03

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	247	119	139	707	205	22
Future Volume (vph)	247	119	139	707	205	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.89	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	0.91	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3259	1176	1640	3510	1587	1512
Flt Permitted	1.00	1.00	0.58	1.00	0.95	1.00
Satd. Flow (perm)	3259	1176	1010	3510	1587	1512
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	271	131	153	777	225	24
RTOR Reduction (vph)	0	0	0	0	0	19
Lane Group Flow (vph)	271	131	153	777	225	5
Confl. Peds. (#/hr)		71	71			
Heavy Vehicles (%)	12%	23%	1%	4%	15%	8%
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	2	8		6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	49.2	65.5	49.2	49.2	16.3	16.3
Effective Green, g (s)	49.2	65.5	49.2	49.2	16.3	16.3
Actuated g/C Ratio	0.62	0.82	0.62	0.62	0.21	0.21
Clearance Time (s)	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
Lane Grp Cap (vph)	2016	1176	625	2172	325	310
v/s Ratio Prot	0.08	0.02		c0.22	c0.14	
v/s Ratio Perm		0.09	0.15			0.00
v/c Ratio	0.13	0.11	0.24	0.36	0.69	0.02
Uniform Delay, d1	6.3	1.4	6.8	7.4	29.3	25.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.9	0.5	6.2	0.0
Delay (s)	6.4	1.4	7.7	7.9	35.5	25.2
Level of Service	A	A	A	A	D	C
Approach Delay (s)	4.8			7.9	34.5	
Approach LOS	A			A	C	

Intersection Summary			
HCM 2000 Control Delay	11.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	79.5	Sum of lost time (s)	14.0
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	29	940	1655	18	48	177	121
v/c Ratio	0.56	0.52	1.00	0.06	0.24	0.84	0.37
Control Delay	63.8	21.3	55.0	27.1	14.9	81.9	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.8	21.3	55.0	27.1	14.9	81.9	10.2
Queue Length 50th (m)	4.3	71.4	233.9	3.1	1.6	46.7	0.0
Queue Length 95th (m)	m9.5	m87.3	#292.7	8.4	11.8	#88.2	16.6
Internal Link Dist (m)		202.3	126.7		25.6		
Turn Bay Length (m)	70.0					20.0	
Base Capacity (vph)	52	1802	1655	285	198	210	326
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	0.56	0.52	1.00	0.06	0.24	0.84	0.37

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)	27	865	0	0	1261	261	17	0	44	163	0	111
Future Volume (vph)	27	865	0	0	1261	261	17	0	44	163	0	111
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	8.0		8.0		8.0
Lane Util. Factor	1.00	0.95			0.95		1.00	1.00		1.00		1.00
Frpb, ped/bikes	1.00	1.00			0.91		1.00	0.58		1.00		0.60
Flpb, ped/bikes	1.00	1.00			1.00		0.63	1.00		0.61		1.00
Frt	1.00	1.00			0.97		1.00	0.85		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1738	3411			3131		665	486		1073		919
Flt Permitted	0.05	1.00			1.00		0.95	1.00		0.73		1.00
Satd. Flow (perm)	99	3411			3131		665	486		820		919
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	29	940	0	0	1371	284	18	0	48	177	0	121
RTOR Reduction (vph)	0	0	0	0	1	0	0	25	0	0	0	90
Lane Group Flow (vph)	29	940	0	0	1654	0	18	23	0	177	0	31
Confl. Peds. (#/hr)	290		1278	1278		290	658		752	752		658
Heavy Vehicles (%)	5%	7%	0%	0%	1%	13%	72%	0%	95%	4%	0%	7%
Turn Type	Perm	NA			NA		pm+pt	NA		Perm		Perm
Protected Phases		2			6		3	8				
Permitted Phases	2						8			4		4
Actuated Green, G (s)	74.0	74.0			74.0		50.0	50.0		36.0		36.0
Effective Green, g (s)	74.0	74.0			74.0		50.0	50.0		36.0		36.0
Actuated g/C Ratio	0.53	0.53			0.53		0.36	0.36		0.26		0.26
Clearance Time (s)	8.0	8.0			8.0		3.0	8.0		8.0		8.0
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0		3.0
Lane Grp Cap (vph)	52	1802			1654		237	173		210		236
v/s Ratio Prot		0.28			c0.53		0.01	c0.05				
v/s Ratio Perm	0.29						0.02			c0.22		0.03
v/c Ratio	0.56	0.52			1.00		0.08	0.13		0.84		0.13
Uniform Delay, d1	22.1	21.5			33.0		29.7	30.4		49.3		40.0
Progression Factor	1.14	0.94			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	30.4	0.9			22.1		0.6	1.6		31.7		1.2
Delay (s)	55.5	21.1			55.1		30.4	31.9		81.1		41.1
Level of Service	E	C			E		C	C		F		D
Approach Delay (s)		22.2			55.1			31.5			64.8	
Approach LOS		C			E			C			E	

Intersection Summary			
HCM 2000 Control Delay	44.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	98.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	183	749	142	1275	202	519	146	1151
v/c Ratio	2.08	0.57	0.50	0.80	1.17	0.90	0.79	1.96
Control Delay	530.4	10.8	5.1	6.8	150.3	64.9	48.6	461.5
Queue Delay	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Total Delay	530.4	10.8	5.1	7.3	150.3	64.9	48.6	461.5
Queue Length 50th (m)	~69.3	20.6	3.5	44.4	~49.0	135.4	20.1	~493.9
Queue Length 95th (m)	#115.6	38.2	m4.6	m53.8	#99.7	#200.0	m#50.4	#572.4
Internal Link Dist (m)		171.5		202.3		102.8		69.7
Turn Bay Length (m)	65.0		70.0		45.0		30.0	
Base Capacity (vph)	88	1319	287	1602	173	575	184	588
Starvation Cap Reductn	0	0	0	85	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	2.08	0.57	0.49	0.84	1.17	0.90	0.79	1.96

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)	179	651	83	139	1135	115	198	411	98	143	778	350
Future Volume (vph)	179	651	83	139	1135	115	198	411	98	143	778	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.99		1.00	0.97		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1802	3393		1614	3390		1772	1770		1437	1757	
Flt Permitted	0.12	1.00		0.24	1.00		0.09	1.00		0.15	1.00	
Satd. Flow (perm)	229	3393		415	3390		166	1770		225	1757	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	183	664	85	142	1158	117	202	419	100	146	794	357
RTOR Reduction (vph)	0	7	0	0	5	0	0	6	0	0	11	0
Lane Group Flow (vph)	183	742	0	142	1270	0	202	513	0	146	1140	0
Confl. Peds. (#/hr)	17		10	10		17	13		10	10		13
Heavy Vehicles (%)	1%	6%	1%	13%	4%	24%	3%	1%	21%	27%	2%	6%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	54.1	54.1		66.0	66.0		54.0	45.0		56.0	46.0	
Effective Green, g (s)	54.1	54.1		66.0	66.0		54.0	45.0		56.0	46.0	
Actuated g/C Ratio	0.39	0.39		0.47	0.47		0.39	0.32		0.40	0.33	
Clearance Time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	88	1311		271	1598		167	568		176	577	
v/s Ratio Prot		0.22		0.03	c0.37		c0.08	0.29		c0.06	c0.65	
v/s Ratio Perm	c0.80			0.21			0.39			0.27		
v/c Ratio	2.08	0.57		0.52	0.79		1.21	0.90		0.83	1.98	
Uniform Delay, d1	42.9	33.7		23.1	31.3		36.0	45.4		32.5	47.0	
Progression Factor	0.36	0.28		0.15	0.17		1.00	1.00		0.91	0.89	
Incremental Delay, d2	514.0	1.3		0.6	1.5		137.1	20.2		22.3	443.8	
Delay (s)	529.4	10.8		4.2	6.7		173.1	65.6		51.9	485.7	
Level of Service	F	B		A	A		F	E		D	F	
Approach Delay (s)		112.7			6.5			95.7			436.9	
Approach LOS		F			A			F			F	

Intersection Summary			
HCM 2000 Control Delay	171.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.88		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	142.1%	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)	32	935	422	1448	26	7	241	6	81
v/c Ratio	0.23	0.69	0.66	0.57	0.11	0.02	0.53	0.02	0.23
Control Delay	21.9	23.5	27.1	9.7	48.9	47.0	10.3	47.2	15.3
Queue Delay	0.0	0.5	0.2	0.7	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	24.0	27.3	10.4	48.9	47.0	10.3	47.2	15.3
Queue Length 50th (m)	4.8	77.2	69.9	80.9	6.1	1.6	0.0	1.4	2.5
Queue Length 95th (m)	m6.3	m69.3	m78.8	m81.5	14.9	6.0	23.6	5.4	16.7
Internal Link Dist (m)		161.5		171.5		57.8			66.0
Turn Bay Length (m)	80.0		55.0		45.0				
Base Capacity (vph)	139	1359	637	2523	242	356	453	251	348
Starvation Cap Reductn	0	136	18	658	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	0.23	0.76	0.68	0.78	0.11	0.02	0.53	0.02	0.23

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)	29	691	150	380	1288	15	23	6	217	5	4	69
Future Volume (vph)	29	691	150	380	1288	15	23	6	217	5	4	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		3.0	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	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	0.92	1.00	0.95	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		0.97	1.00	1.00	0.94	1.00	
Frt	1.00	0.97		1.00	1.00		1.00	1.00	0.85	1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1806	3366		1722	3533		1763	1921	1385	1707	1570	
Flt Permitted	0.18	1.00		0.16	1.00		0.70	1.00	1.00	0.75	1.00	
Satd. Flow (perm)	347	3366		295	3533		1307	1921	1385	1354	1570	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	32	768	167	422	1431	17	26	7	241	6	4	77
RTOR Reduction (vph)	0	13	0	0	1	0	0	0	196	0	57	0
Lane Group Flow (vph)	32	922	0	422	1447	0	26	7	45	6	24	0
Confl. Peds. (#/hr)	19		14	14		19	18		31	31		18
Heavy Vehicles (%)	0%	5%	0%	6%	3%	5%	0%	0%	9%	0%	0%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	56.0	56.0		100.0	100.0		26.0	26.0	26.0	26.0	26.0	
Effective Green, g (s)	56.0	56.0		100.0	100.0		26.0	26.0	26.0	26.0	26.0	
Actuated g/C Ratio	0.40	0.40		0.71	0.71		0.19	0.19	0.19	0.19	0.19	
Clearance Time (s)	7.0	7.0		3.0	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)	138	1346		628	2523		242	356	257	251	291	
v/s Ratio Prot		0.27		c0.20	0.41			0.00			0.02	
v/s Ratio Perm	0.09			c0.28			0.02		c0.03	0.00		
v/c Ratio	0.23	0.68		0.67	0.57		0.11	0.02	0.17	0.02	0.08	
Uniform Delay, d1	27.8	34.7		22.5	9.7		47.4	46.6	48.0	46.6	47.1	
Progression Factor	0.69	0.65		1.42	0.97		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.5	1.1		1.4	0.2		0.9	0.1	1.5	0.2	0.6	
Delay (s)	20.7	23.8		33.4	9.6		48.3	46.7	49.4	46.8	47.7	
Level of Service	C	C		C	A		D	D	D	D	D	
Approach Delay (s)		23.7			15.0			49.3			47.6	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	21.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	76.9%	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)	92	401	180	1303	24	1482	483	1203
v/c Ratio	0.66	0.33	0.67	1.30	0.12	1.24	1.33	0.72
Control Delay	50.9	32.6	52.1	178.4	16.4	153.8	202.9	33.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.9	32.6	52.1	178.4	16.4	153.8	202.9	33.2
Queue Length 50th (m)	16.3	40.8	41.3	~240.4	2.8	~267.7	~157.3	138.3
Queue Length 95th (m)	#31.3	54.5	74.0	#217.8	7.0	#310.9	#224.9	164.0
Internal Link Dist (m)		170.1		161.5		203.8		248.3
Turn Bay Length (m)	50.0		50.0		65.0		100.0	
Base Capacity (vph)	140	1219	269	1002	195	1197	362	1670
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.33	0.67	1.30	0.12	1.24	1.33	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)	86	317	56	167	848	364	22	1275	103	449	1088	31
Future Volume (vph)	86	317	56	167	848	364	22	1275	103	449	1088	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		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		0.98	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.95		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)	1755	3417		1737	3388		1789	3516		1772	3594	
Flt Permitted	0.09	1.00		0.52	1.00		0.16	1.00		0.08	1.00	
Satd. Flow (perm)	172	3417		943	3388		300	3516		148	3594	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	92	341	60	180	912	391	24	1371	111	483	1170	33
RTOR Reduction (vph)	0	10	0	0	34	0	0	4	0	0	2	0
Lane Group Flow (vph)	92	391	0	180	1269	0	24	1478	0	483	1201	0
Confl. Peds. (#/hr)	5		23	23		5	8		13	13		8
Heavy Vehicles (%)	4%	4%	2%	3%	2%	3%	2%	2%	7%	3%	1%	4%
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	49.5	49.5		40.0	40.0		54.0	47.5		74.5	65.0	
Effective Green, g (s)	49.5	49.5		40.0	40.0		54.0	47.5		74.5	65.0	
Actuated g/C Ratio	0.35	0.35		0.29	0.29		0.39	0.34		0.53	0.46	
Clearance Time (s)	3.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	134	1208		269	968		184	1192		357	1668	
v/s Ratio Prot	c0.03	0.11			c0.37		0.01	0.42		c0.23	0.33	
v/s Ratio Perm	0.21			0.19			0.04			c0.49		
v/c Ratio	0.69	0.32		0.67	1.31		0.13	1.24		1.35	0.72	
Uniform Delay, d1	36.6	33.0		44.2	50.0		27.6	46.2		46.1	30.2	
Progression Factor	1.00	1.00		0.91	0.93		1.00	1.00		1.00	1.00	
Incremental Delay, d2	25.0	0.7		10.7	146.1		1.5	115.3		176.2	2.7	
Delay (s)	61.6	33.7		50.8	192.8		29.1	161.5		222.4	32.9	
Level of Service	E	C		D	F		C	F		F	C	
Approach Delay (s)		38.9			175.6			159.4			87.2	
Approach LOS		D			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	129.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.33		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	123.5%	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)	13	82	39	191	65	150	147	589
v/c Ratio	0.04	0.18	0.12	0.34	0.19	0.16	0.23	0.60
Control Delay	21.8	9.6	23.0	9.5	11.4	9.1	11.0	15.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2
Total Delay	21.8	9.6	23.0	9.5	11.4	9.1	11.0	16.8
Queue Length 50th (m)	1.5	1.9	4.4	5.9	4.7	9.8	11.0	55.9
Queue Length 95th (m)	4.6	8.3	9.6	14.1	9.3	14.9	16.8	64.0
Internal Link Dist (m)		141.1		97.5		112.5		34.9
Turn Bay Length (m)	20.0		20.0		25.0		25.0	
Base Capacity (vph)	333	456	328	559	335	957	631	984
Starvation Cap Reductn	0	0	0	0	0	0	0	195
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	0.18	0.12	0.34	0.19	0.16	0.23	0.75

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	13	49	29	39	104	49	100	13	110	406	36
Future Volume (vph)	10	13	49	29	39	104	49	100	13	110	406	36
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	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.91		1.00	0.98		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.91	1.00		0.99	1.00		0.98	1.00	
Frt	1.00	0.88		1.00	0.89		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1807	1487		1614	1667		1806	1771		1686	1822	
Flt Permitted	0.64	1.00		0.70	1.00		0.33	1.00		0.66	1.00	
Satd. Flow (perm)	1212	1487		1195	1667		626	1771		1174	1822	
Peak-hour factor, PHF	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Adj. Flow (vph)	13	17	65	39	52	139	65	133	17	147	541	48
RTOR Reduction (vph)	0	47	0	0	101	0	0	6	0	0	4	0
Lane Group Flow (vph)	13	35	0	39	90	0	65	144	0	147	585	0
Confl. Peds. (#/hr)	11		50	50		11	16		12	12		16
Heavy Vehicles (%)	0%	0%	4%	3%	3%	0%	0%	6%	7%	6%	4%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	22.0	22.0		22.0	22.0		43.0	43.0		43.0	43.0	
Effective Green, g (s)	22.0	22.0		22.0	22.0		43.0	43.0		43.0	43.0	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.54	0.54		0.54	0.54	
Clearance Time (s)	8.0	8.0		8.0	8.0		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)	333	408		328	458		336	951		631	979	
v/s Ratio Prot		0.02			c0.05			0.08			c0.32	
v/s Ratio Perm	0.01			0.03			0.10			0.13		
v/c Ratio	0.04	0.09		0.12	0.20		0.19	0.15		0.23	0.60	
Uniform Delay, d1	21.3	21.5		21.7	22.2		9.5	9.3		9.8	12.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.4		0.7	1.0		1.3	0.3		0.9	2.7	
Delay (s)	21.5	21.9		22.5	23.2		10.8	9.7		10.6	15.3	
Level of Service	C	C		C	C		B	A		B	B	
Approach Delay (s)		21.9			23.1			10.0			14.4	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	0	12	113	8	22	15	588	103	8	1146	38
Future Volume (Veh/h)	17	0	12	113	8	22	15	588	103	8	1146	38
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	0	13	123	9	24	16	639	112	9	1246	41
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								94			117	
pX, platoon unblocked												
vC, conflicting volume	1664	2068	644	1381	2032	376	1287			751		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1664	2068	644	1381	2032	376	1287			751		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	65	100	97	0	83	96	97			99		
cM capacity (veh/h)	52	52	416	97	54	622	535			854		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	18	13	123	33	16	426	325	9	831	456
Volume Left	18	0	123	0	16	0	0	9	0	0
Volume Right	0	13	0	24	0	0	112	0	0	41
cSH	52	416	97	161	535	1700	1700	854	1700	1700
Volume to Capacity	0.35	0.03	1.27	0.20	0.03	0.25	0.19	0.01	0.49	0.27
Queue Length 95th (m)	9.4	0.7	65.4	5.6	0.7	0.0	0.0	0.2	0.0	0.0
Control Delay (s)	108.3	13.9	259.7	33.0	11.9	0.0	0.0	9.3	0.0	0.0
Lane LOS	F	B	F	D	B			A		
Approach Delay (s)	68.7		211.7		0.2			0.1		
Approach LOS	F		F							

Intersection Summary			
Average Delay	15.7		
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	4	49	30	4	37	100	182	14	35	194	28
Future Volume (Veh/h)	8	4	49	30	4	37	100	182	14	35	194	28
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	4	53	33	4	40	109	198	15	38	211	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)								89			120	
pX, platoon unblocked												
vC, conflicting volume	760	733	226	766	740	206	241			213		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	760	733	226	766	740	206	241			213		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	99	93	88	99	95	92			97		
cM capacity (veh/h)	279	310	813	272	307	835	1326			1357		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	66	77	109	213	38	241
Volume Left	9	33	109	0	38	0
Volume Right	53	40	0	15	0	30
cSH	598	422	1326	1700	1357	1700
Volume to Capacity	0.11	0.18	0.08	0.13	0.03	0.14
Queue Length 95th (m)	2.8	5.0	2.0	0.0	0.7	0.0
Control Delay (s)	11.8	15.4	8.0	0.0	7.7	0.0
Lane LOS	B	C	A		A	
Approach Delay (s)	11.8	15.4	2.7		1.1	
Approach LOS	B	C				

Intersection Summary				
Average Delay	4.2			
Intersection Capacity Utilization	37.5%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	37	32	213	1	18	515
Future Volume (Veh/h)	37	32	213	1	18	515
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)	40	35	232	1	20	560
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			59			82
pX, platoon unblocked	0.91					
vC, conflicting volume	832	116			233	
vC1, stage 1 conf vol	232					
vC2, stage 2 conf vol	600					
vCu, unblocked vol	767	116			233	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	96			98	
cM capacity (veh/h)	474	914			1332	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	75	155	78	20	560
Volume Left	40	0	0	20	0
Volume Right	35	0	1	0	0
cSH	611	1700	1700	1332	1700
Volume to Capacity	0.12	0.09	0.05	0.02	0.33
Queue Length 95th (m)	3.2	0.0	0.0	0.3	0.0
Control Delay (s)	11.7	0.0	0.0	7.7	0.0
Lane LOS	B			A	
Approach Delay (s)	11.7	0.0		0.3	
Approach LOS	B				

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	37.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	354	0	0	911	0	12
Future Volume (Veh/h)	354	0	0	911	0	12
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)	385	0	0	990	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)	160			58		
pX, platoon unblocked			0.94		0.92	0.94
vC, conflicting volume			385		880	192
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			227		421	23
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)			1262		517	989

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	192	192	0	495	495	13
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	13
cSH	1700	1700	1700	1700	1700	989
Volume to Capacity	0.11	0.11	0.00	0.29	0.29	0.01
Queue Length 95th (m)	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	8.7
Lane LOS						A
Approach Delay (s)	0.0			0.0		8.7
Approach LOS						A

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	28.5%	ICU Level of Service	A
Analysis Period (min)	15		

Queues
100: Mavis Road & Highway 403 EB Off-Ramp/Centre View Drive

11/06/2017

Lane Group	EBL	EBR	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	730	80	4	426	2446	2763
v/c Ratio	0.65	0.27	0.01	0.92	0.66	0.94
Control Delay	44.2	24.9	32.5	69.1	20.6	34.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.2	24.9	32.5	69.1	20.6	34.0
Queue Length 50th (m)	89.5	9.8	0.8	107.1	127.0	245.8
Queue Length 95th (m)	110.6	24.0	3.6	#170.8	137.8	270.3
Internal Link Dist (m)					73.6	241.1
Turn Bay Length (m)		150.0				
Base Capacity (vph)	1115	295	469	462	3720	2953
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	0.65	0.27	0.01	0.92	0.66	0.94

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)	715	0	78	4	0	417	0	2374	24	0	2708	0
Future Volume (vph)	715	0	78	4	0	417	0	2374	24	0	2708	0
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		7.0			7.0	
Lane Util. Factor	0.97		1.00	1.00		1.00		0.86			0.91	
Frt	1.00		0.85	1.00		0.85		1.00			1.00	
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (prot)	3471		855	1460		1372		6347			5043	
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (perm)	3471		855	1460		1372		6347			5043	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	730	0	80	4	0	426	0	2422	24	0	2763	0
RTOR Reduction (vph)	0	0	21	0	0	21	0	1	0	0	0	0
Lane Group Flow (vph)	730	0	59	4	0	405	0	2445	0	0	2763	0
Heavy Vehicles (%)	2%	0%	91%	25%	0%	19%	0%	4%	0%	0%	4%	0%
Turn Type	Perm		Perm	Perm		Perm		NA			NA	
Protected Phases								2			6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	45.0		45.0	45.0		45.0		82.0			82.0	
Effective Green, g (s)	45.0		45.0	45.0		45.0		82.0			82.0	
Actuated g/C Ratio	0.32		0.32	0.32		0.32		0.59			0.59	
Clearance Time (s)	6.0		6.0	6.0		6.0		7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0		3.0		3.0			3.0	
Lane Grp Cap (vph)	1115		274	469		441		3717			2953	
v/s Ratio Prot								0.39			c0.55	
v/s Ratio Perm	0.21		0.07	0.00		c0.30						
v/c Ratio	0.65		0.22	0.01		0.92		0.66			0.94	
Uniform Delay, d1	40.8		34.6	32.3		45.7		19.5			26.6	
Progression Factor	1.00		1.00	1.00		1.00		1.00			1.00	
Incremental Delay, d2	3.0		1.8	0.0		26.6		0.9			7.1	
Delay (s)	43.8		36.4	32.4		72.3		20.5			33.7	
Level of Service	D		D	C		E		C			C	
Approach Delay (s)		43.1			72.0			20.5			33.7	
Approach LOS		D			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	32.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	95.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL
Lane Group Flow (vph)	483	285	80	302	117
v/c Ratio	0.28	0.18	0.22	0.21	0.10
Control Delay	14.9	0.3	18.9	17.3	13.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	14.9	0.3	18.9	17.3	13.6
Queue Length 50th (m)	22.5	0.0	10.0	19.7	5.5
Queue Length 95th (m)	26.2	0.0	17.8	25.1	10.0
Internal Link Dist (m)	214.5			135.6	92.8
Turn Bay Length (m)			60.0		
Base Capacity (vph)	1742	1541	368	1469	1209
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	0.28	0.18	0.22	0.21	0.10

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	391	231	65	245	70	25
Future Volume (vph)	391	231	65	245	70	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	
Frt	1.00	0.85	1.00	1.00	0.96	
Flt Protected	1.00	1.00	0.95	1.00	0.96	
Satd. Flow (prot)	3579	1541	1587	3017	3043	
Flt Permitted	1.00	1.00	0.45	1.00	0.96	
Satd. Flow (perm)	3579	1541	758	3017	3043	
Peak-hour factor, PHF	0.81	0.81	0.81	0.81	0.81	0.81
Adj. Flow (vph)	483	285	80	302	86	31
RTOR Reduction (vph)	0	0	0	0	19	0
Lane Group Flow (vph)	483	285	80	302	98	0
Heavy Vehicles (%)	2%	6%	15%	21%	10%	23%
Turn Type	NA	pm+ov	Perm	NA	Prot	
Protected Phases	2	8		6	8	
Permitted Phases		2	6			
Actuated Green, G (s)	56.0	101.0	56.0	56.0	45.0	
Effective Green, g (s)	56.0	101.0	56.0	56.0	45.0	
Actuated g/C Ratio	0.49	0.88	0.49	0.49	0.39	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1742	1541	369	1469	1190	
v/s Ratio Prot	c0.13	c0.07		0.10	0.03	
v/s Ratio Perm		0.11	0.11			
v/c Ratio	0.28	0.18	0.22	0.21	0.08	
Uniform Delay, d1	17.5	1.0	16.9	16.8	22.0	
Progression Factor	0.82	1.00	1.00	1.00	0.83	
Incremental Delay, d2	0.4	0.3	1.3	0.3	0.1	
Delay (s)	14.8	1.3	18.3	17.1	18.3	
Level of Service	B	A	B	B	B	
Approach Delay (s)	9.8			17.4	18.3	
Approach LOS	A			B	B	

Intersection Summary			
HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	41.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	390	29	77	259	81	58
v/c Ratio	0.15	0.03	0.11	0.12	0.41	0.23
Control Delay	4.3	0.8	5.2	4.3	35.5	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.3	0.8	5.2	4.3	35.5	10.6
Queue Length 50th (m)	8.4	0.1	3.1	5.4	10.1	0.0
Queue Length 95th (m)	15.2	0.2	8.4	10.6	22.1	9.1
Internal Link Dist (m)	33.9			146.8	95.7	
Turn Bay Length (m)			60.0		35.0	
Base Capacity (vph)	2546	1069	673	2212	788	853
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	0.15	0.03	0.11	0.12	0.10	0.07

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	355	26	70	236	74	53
Future Volume (vph)	355	26	70	236	74	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.91	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3444	1140	1689	2992	1484	1555
Flt Permitted	1.00	1.00	0.52	1.00	0.95	1.00
Satd. Flow (perm)	3444	1140	927	2992	1484	1555
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	390	29	77	259	81	58
RTOR Reduction (vph)	0	0	0	0	0	52
Lane Group Flow (vph)	390	29	77	259	81	6
Confl. Peds. (#/hr)		45	45			
Heavy Vehicles (%)	6%	31%	3%	22%	23%	5%
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	2	8		6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	52.9	61.0	52.9	52.9	8.1	8.1
Effective Green, g (s)	52.9	61.0	52.9	52.9	8.1	8.1
Actuated g/C Ratio	0.71	0.81	0.71	0.71	0.11	0.11
Clearance Time (s)	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
Lane Grp Cap (vph)	2429	1140	653	2110	160	167
v/s Ratio Prot	c0.11	0.00		0.09	c0.05	
v/s Ratio Perm		0.02	0.08			0.00
v/c Ratio	0.16	0.03	0.12	0.12	0.51	0.04
Uniform Delay, d1	3.7	1.3	3.6	3.6	31.6	30.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.4	0.1	2.5	0.1
Delay (s)	3.8	1.3	3.9	3.7	34.1	30.1
Level of Service	A	A	A	A	C	C
Approach Delay (s)	3.6			3.7	32.4	
Approach LOS	A			A	C	

Intersection Summary			
HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.21		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	48.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	84	1231	496	44	41	108	16
v/c Ratio	0.25	0.85	0.46	0.11	0.13	0.36	0.03
Control Delay	3.8	8.5	29.4	17.4	0.8	34.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.8	8.5	29.4	17.4	0.8	34.7	0.1
Queue Length 50th (m)	1.5	12.8	43.7	5.3	0.0	18.7	0.0
Queue Length 95th (m)	m1.8	m15.7	59.5	12.0	0.0	35.0	0.0
Internal Link Dist (m)		202.3	126.7		25.6		
Turn Bay Length (m)	70.0					20.0	
Base Capacity (vph)	332	1453	1080	399	319	304	463
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	0.25	0.85	0.46	0.11	0.13	0.36	0.03

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)	82	1206	0	0	390	96	43	0	40	106	0	16
Future Volume (vph)	82	1206	0	0	390	96	43	0	40	106	0	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	8.0			8.0		3.0	8.0		8.0		8.0
Lane Util. Factor	1.00	0.95			0.95		1.00	1.00		1.00		1.00
Frpb, ped/bikes	1.00	1.00			0.96		1.00	0.76		1.00		0.82
Flpb, ped/bikes	0.97	1.00			1.00		0.84	1.00		0.78		1.00
Frt	1.00	1.00			0.97		1.00	0.85		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1630	3411			3017		810	618		1267		1220
Flt Permitted	0.37	1.00			1.00		0.95	1.00		0.73		1.00
Satd. Flow (perm)	637	3411			3017		810	618		974		1220
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	84	1231	0	0	398	98	44	0	41	108	0	16
RTOR Reduction (vph)	0	0	0	0	18	0	0	23	0	0	0	11
Lane Group Flow (vph)	84	1231	0	0	478	0	44	18	0	108	0	5
Confl. Peds. (#/hr)	99		330	330		99	177		246	246		177
Heavy Vehicles (%)	9%	7%	0%	0%	10%	24%	89%	0%	100%	12%	0%	10%
Turn Type	pm+pt	NA			NA		pm+pt	NA		Perm		Perm
Protected Phases	5	2			6		3	8				
Permitted Phases	2						8			4		4
Actuated Green, G (s)	49.0	49.0			39.6		50.0	50.0		36.0		36.0
Effective Green, g (s)	49.0	49.0			39.6		50.0	50.0		36.0		36.0
Actuated g/C Ratio	0.43	0.43			0.34		0.43	0.43		0.31		0.31
Clearance Time (s)	4.5	8.0			8.0		3.0	8.0		8.0		8.0
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0		3.0
Lane Grp Cap (vph)	313	1453			1038		352	268		304		381
v/s Ratio Prot	0.01	c0.36			0.16		c0.01	0.03				
v/s Ratio Perm	0.10						0.04			c0.11		0.00
v/c Ratio	0.27	0.85			0.46		0.12	0.07		0.36		0.01
Uniform Delay, d1	20.4	29.6			29.4		19.4	18.9		30.5		27.2
Progression Factor	0.17	0.18			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	0.2	2.8			1.5		0.7	0.5		3.2		0.1
Delay (s)	3.6	8.2			30.8		20.2	19.4		33.8		27.3
Level of Service	A	A			C		C	B		C		C
Approach Delay (s)		7.9			30.8			19.8			32.9	
Approach LOS		A			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	79.2%	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)	103	1429	62	432	69	162	23	295
v/c Ratio	0.25	0.94	0.44	0.26	0.21	0.33	0.07	0.62
Control Delay	23.4	44.7	44.2	27.1	24.7	26.6	18.0	37.6
Queue Delay	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.4	46.8	44.2	27.1	24.7	26.6	18.0	37.6
Queue Length 50th (m)	14.7	162.8	10.9	33.7	9.9	20.9	2.1	59.2
Queue Length 95th (m)	28.0	#218.6	24.2	49.8	19.5	41.1	5.6	89.6
Internal Link Dist (m)		171.5		202.3		102.8		69.7
Turn Bay Length (m)	65.0		70.0		45.0		30.0	
Base Capacity (vph)	410	1515	155	1656	339	484	367	479
Starvation Cap Reductn	0	35	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	0.25	0.97	0.40	0.26	0.20	0.33	0.06	0.62

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)	94	1188	113	56	382	11	63	68	79	21	235	34
Future Volume (vph)	94	1188	113	56	382	11	63	68	79	21	235	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.92		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1755	3400		1323	3170		1704	1588		1335	1833	
Flt Permitted	0.50	1.00		0.08	1.00		0.39	1.00		0.65	1.00	
Satd. Flow (perm)	925	3400		107	3170		696	1588		920	1833	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	103	1305	124	62	420	12	69	75	87	23	258	37
RTOR Reduction (vph)	0	6	0	0	2	0	0	34	0	0	4	0
Lane Group Flow (vph)	103	1423	0	62	430	0	69	128	0	23	291	0
Confl. Peds. (#/hr)	14		9	9		14	4		8	8		4
Heavy Vehicles (%)	3%	6%	3%	38%	14%	34%	7%	4%	15%	36%	2%	7%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	49.2	49.2		58.8	58.8		39.4	32.6		35.0	30.4	
Effective Green, g (s)	49.2	49.2		58.8	58.8		39.4	32.6		35.0	30.4	
Actuated g/C Ratio	0.43	0.43		0.51	0.51		0.34	0.28		0.30	0.26	
Clearance Time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	395	1454		124	1620		298	450		296	484	
v/s Ratio Prot		c0.42		c0.03	0.14		c0.01	0.08		0.00	c0.16	
v/s Ratio Perm	0.11			0.23			0.07			0.02		
v/c Ratio	0.26	0.98		0.50	0.27		0.23	0.29		0.08	0.60	
Uniform Delay, d1	21.2	32.4		23.1	15.9		26.4	32.1		28.3	37.0	
Progression Factor	1.00	1.00		2.69	1.76		1.00	1.00		0.77	0.83	
Incremental Delay, d2	1.6	19.0		3.0	0.4		0.4	1.6		0.1	5.4	
Delay (s)	22.8	51.4		65.3	28.3		26.8	33.7		22.0	36.0	
Level of Service	C	D		E	C		C	C		C	D	
Approach Delay (s)		49.5			33.0			31.7			34.9	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	42.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	87.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	40	1294	74	436	29	238	229	24	285
v/c Ratio	0.09	0.76	0.38	0.23	0.11	0.56	0.41	0.08	0.57
Control Delay	10.7	18.2	16.9	14.5	41.5	50.4	10.1	31.9	43.4
Queue Delay	0.0	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.7	23.7	16.9	14.5	41.5	50.4	10.1	31.9	43.4
Queue Length 50th (m)	3.3	127.8	8.0	29.2	6.3	58.9	5.1	4.5	63.4
Queue Length 95th (m)	m3.2	m104.4	14.7	38.3	15.1	87.9	27.5	11.2	93.2
Internal Link Dist (m)		161.5		171.5		57.8			66.0
Turn Bay Length (m)	80.0		55.0		45.0			30.0	
Base Capacity (vph)	442	1703	195	1913	269	427	552	309	502
Starvation Cap Reductn	0	349	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	0.96	0.38	0.23	0.11	0.56	0.41	0.08	0.57

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)	38	1158	58	70	400	9	27	224	215	23	211	57
Future Volume (vph)	38	1158	58	70	400	9	27	224	215	23	211	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		3.0	7.0		7.0	7.0	7.0	4.5	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.93	1.00	1.00	
Flpb, ped/bikes	0.98	1.00		1.00	1.00		0.99	1.00	1.00	0.99	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1703	3441		1674	3296		1697	1537	1453	1806	1547	
Flt Permitted	0.50	1.00		0.09	1.00		0.54	1.00	1.00	0.43	1.00	
Satd. Flow (perm)	894	3441		162	3296		968	1537	1453	816	1547	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	40	1232	62	74	426	10	29	238	229	24	224	61
RTOR Reduction (vph)	0	3	0	0	1	0	0	0	148	0	7	0
Lane Group Flow (vph)	40	1291	0	74	435	0	29	238	81	24	278	0
Confl. Peds. (#/hr)	9		8	8		9	4		26	26		4
Heavy Vehicles (%)	5%	5%	6%	9%	10%	20%	7%	25%	5%	0%	25%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		2		1	6			8		7	4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	67.4	67.4		79.4	79.4		38.9	38.9	38.9	46.6	46.6	
Effective Green, g (s)	67.4	67.4		79.4	79.4		38.9	38.9	38.9	46.6	46.6	
Actuated g/C Ratio	0.48	0.48		0.57	0.57		0.28	0.28	0.28	0.33	0.33	
Clearance Time (s)	7.0	7.0		3.0	7.0		7.0	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)	430	1656		189	1869		268	427	403	294	514	
v/s Ratio Prot		c0.38		c0.03	0.13			0.15		0.00	c0.18	
v/s Ratio Perm	0.04			0.20			0.03		0.06	0.03		
v/c Ratio	0.09	0.78		0.39	0.23		0.11	0.56	0.20	0.08	0.54	
Uniform Delay, d1	19.7	30.1		20.9	15.1		37.6	43.2	38.7	32.2	38.0	
Progression Factor	0.56	0.62		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	0.3		6.0	0.3		0.8	5.2	1.1	0.1	4.1	
Delay (s)	11.0	19.0		26.9	15.4		38.4	48.4	39.8	32.3	42.1	
Level of Service	B	B		C	B		D	D	D	C	D	
Approach Delay (s)		18.7			17.1			43.8			41.3	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	25.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	75.5%	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)	68	678	145	432	162	1654	601	807
v/c Ratio	0.31	0.69	1.31	0.44	0.41	1.29	1.41	0.46
Control Delay	43.9	48.4	221.4	22.5	15.8	173.5	233.5	23.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.9	48.4	221.4	22.5	15.8	173.5	233.5	23.0
Queue Length 50th (m)	14.8	87.4	~52.1	24.3	16.9	~306.2	~207.3	72.7
Queue Length 95th (m)	26.8	99.7	#88.1	31.0	24.5	#312.3	#251.0	81.3
Internal Link Dist (m)		170.1		161.5		203.8		248.3
Turn Bay Length (m)	50.0		50.0		65.0		100.0	
Base Capacity (vph)	221	981	111	980	399	1281	425	1773
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	0.31	0.69	1.31	0.44	0.41	1.29	1.41	0.46

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)	57	528	41	122	217	146	136	1169	220	505	624	54
Future Volume (vph)	57	528	41	122	217	146	136	1169	220	505	624	54
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	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		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		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.94		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1755	3421		1622	3136		1805	3420		1772	3500	
Flt Permitted	0.42	1.00		0.23	1.00		0.35	1.00		0.07	1.00	
Satd. Flow (perm)	776	3421		391	3136		659	3420		136	3500	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	68	629	49	145	258	174	162	1392	262	601	743	64
RTOR Reduction (vph)	0	4	0	0	84	0	0	11	0	0	4	0
Lane Group Flow (vph)	68	674	0	145	348	0	162	1643	0	601	803	0
Confl. Peds. (#/hr)	13		33	33		13	6		2	2		6
Heavy Vehicles (%)	3%	5%	6%	11%	10%	5%	1%	3%	9%	3%	2%	13%
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)	40.0	40.0		40.0	40.0		62.2	52.0		84.0	70.8	
Effective Green, g (s)	40.0	40.0		40.0	40.0		62.2	52.0		84.0	70.8	
Actuated g/C Ratio	0.29	0.29		0.29	0.29		0.44	0.37		0.60	0.51	
Clearance Time (s)	8.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	221	977		111	896		376	1270		420	1770	
v/s Ratio Prot		0.20			0.11		0.03	0.48		c0.30	0.23	
v/s Ratio Perm	0.09			c0.37			0.16			c0.56		
v/c Ratio	0.31	0.69		1.31	0.39		0.43	1.29		1.43	0.45	
Uniform Delay, d1	39.2	44.5		50.0	40.2		23.7	44.0		46.3	22.2	
Progression Factor	1.00	1.00		0.76	0.72		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.6	4.0		187.8	1.2		3.6	138.0		207.2	0.8	
Delay (s)	42.7	48.5		225.6	30.2		27.3	182.0		253.5	23.0	
Level of Service	D	D		F	C		C	F		F	C	
Approach Delay (s)		47.9			79.3			168.2			121.4	
Approach LOS		D			E			F			F	

Intersection Summary			
HCM 2000 Control Delay	122.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.42		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	120.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	87	76	19	70	39	799	107	461
v/c Ratio	0.26	0.19	0.06	0.15	0.08	0.82	0.51	0.49
Control Delay	26.6	12.5	23.6	9.6	8.7	23.3	21.4	12.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Total Delay	26.6	12.5	23.6	9.6	8.7	23.3	21.4	13.0
Queue Length 50th (m)	10.6	3.0	2.2	1.3	2.5	90.6	9.2	37.6
Queue Length 95th (m)	12.7	5.1	4.2	3.3	3.8	55.7	10.7	28.6
Internal Link Dist (m)		141.1		97.5		112.5		34.9
Turn Bay Length (m)	20.0		20.0		25.0		25.0	
Base Capacity (vph)	339	409	308	457	471	971	210	943
Starvation Cap Reductn	0	0	0	0	0	0	0	180
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	0.26	0.19	0.06	0.15	0.08	0.82	0.51	0.60

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	14	27	10	6	32	21	408	23	58	221	28
Future Volume (vph)	47	14	27	10	6	32	21	408	23	58	221	28
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	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.97		1.00	0.98		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		0.97	1.00		0.99	1.00		1.00	1.00	
Frt	1.00	0.90		1.00	0.87		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1815	1487		1657	1653		1802	1723		1825	1668	
Flt Permitted	0.71	1.00		0.71	1.00		0.44	1.00		0.19	1.00	
Satd. Flow (perm)	1359	1487		1234	1653		838	1723		374	1668	
Peak-hour factor, PHF	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Adj. Flow (vph)	87	26	50	19	11	59	39	756	43	107	409	52
RTOR Reduction (vph)	0	38	0	0	44	0	0	3	0	0	6	0
Lane Group Flow (vph)	87	39	0	19	26	0	39	796	0	107	455	0
Confl. Peds. (#/hr)	5		16	16		5	13		4	4		13
Heavy Vehicles (%)	0%	0%	19%	7%	0%	0%	0%	11%	0%	0%	10%	33%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	20.0	20.0		20.0	20.0		45.0	45.0		45.0	45.0	
Effective Green, g (s)	20.0	20.0		20.0	20.0		45.0	45.0		45.0	45.0	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.56	0.56		0.56	0.56	
Clearance Time (s)	8.0	8.0		8.0	8.0		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)	339	371		308	413		471	969		210	938	
v/s Ratio Prot		0.03			0.02			c0.46			0.27	
v/s Ratio Perm	c0.06			0.02			0.05			0.29		
v/c Ratio	0.26	0.10		0.06	0.06		0.08	0.82		0.51	0.49	
Uniform Delay, d1	24.0	23.1		22.9	22.9		8.0	14.2		10.7	10.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.8	0.6		0.4	0.3		0.3	7.8		8.6	1.8	
Delay (s)	25.9	23.7		23.2	23.1		8.4	22.0		19.3	12.3	
Level of Service	C	C		C	C		A	C		B	B	
Approach Delay (s)		24.8			23.2			21.4			13.6	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	19.2	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)	15.0
Intersection Capacity Utilization	64.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	839	129	212	246	34
v/c Ratio	0.24	0.31	0.09	0.75	0.11
Control Delay	6.1	4.9	1.2	57.9	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	6.1	4.9	1.2	57.9	12.0
Queue Length 50th (m)	19.1	1.7	1.3	52.9	0.0
Queue Length 95th (m)	30.4	13.1	2.7	74.3	7.9
Internal Link Dist (m)	619.6		214.5	104.0	
Turn Bay Length (m)		50.0		45.0	
Base Capacity (vph)	3477	421	2483	544	510
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	0.24	0.31	0.09	0.45	0.07

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	591	181	119	195	226	31
Future Volume (vph)	591	181	119	195	226	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0		7.0	7.0	7.0	7.0
Lane Util. Factor	0.91		1.00	0.95	1.00	1.00
Frt	0.96		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	4961		1789	3579	1789	1601
Flt Permitted	1.00		0.32	1.00	0.95	1.00
Satd. Flow (perm)	4961		609	3579	1789	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	642	197	129	212	246	34
RTOR Reduction (vph)	35	0	0	0	0	28
Lane Group Flow (vph)	804	0	129	212	246	6
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Actuated Green, G (s)	79.8		79.8	79.8	21.2	21.2
Effective Green, g (s)	79.8		79.8	79.8	21.2	21.2
Actuated g/C Ratio	0.69		0.69	0.69	0.18	0.18
Clearance Time (s)	7.0		7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3442		422	2483	329	295
v/s Ratio Prot	0.16			0.06	c0.14	
v/s Ratio Perm			c0.21			0.00
v/c Ratio	0.23		0.31	0.09	0.75	0.02
Uniform Delay, d1	6.4		6.8	5.7	44.4	38.4
Progression Factor	1.00		0.36	0.17	1.00	1.00
Incremental Delay, d2	0.2		1.9	0.1	9.0	0.0
Delay (s)	6.6		4.3	1.0	53.3	38.4
Level of Service	A		A	A	D	D
Approach Delay (s)	6.6			2.3	51.5	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	52.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	37	17	35	3	60	110	26	252	18
Future Volume (Veh/h)	0	0	0	37	17	35	3	60	110	26	252	18
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	40	18	38	3	65	120	28	274	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)								94			117	
pX, platoon unblocked												
vC, conflicting volume	426	531	147	324	481	92	294			185		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	426	531	147	324	481	92	294			185		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	93	96	96	100			98		
cM capacity (veh/h)	470	442	873	595	472	946	1264			1387		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	0	0	40	56	3	43	142	28	183	111
Volume Left	0	0	40	0	3	0	0	28	0	0
Volume Right	0	0	0	38	0	0	120	0	0	20
cSH	1700	1700	595	715	1264	1700	1700	1387	1700	1700
Volume to Capacity	0.00	0.00	0.07	0.08	0.00	0.03	0.08	0.02	0.11	0.07
Queue Length 95th (m)	0.0	0.0	1.6	1.9	0.1	0.0	0.0	0.5	0.0	0.0
Control Delay (s)	0.0	0.0	11.5	10.5	7.9	0.0	0.0	7.6	0.0	0.0
Lane LOS	A	A	B	B	A			A		
Approach Delay (s)	0.0		10.9		0.1			0.7		
Approach LOS	A		B							

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	24.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	0	63	16	2	19	66	100	51	14	43	39
Future Volume (Veh/h)	8	0	63	16	2	19	66	100	51	14	43	39
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	0	68	17	2	21	72	109	55	15	47	42
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								89			120	
pX, platoon unblocked												
vC, conflicting volume	373	406	68	426	400	136	89			164		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	373	406	68	426	400	136	89			164		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	93	96	100	98	95			99		
cM capacity (veh/h)	544	503	995	480	507	912	1506			1414		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	77	40	72	164	15	89
Volume Left	9	17	72	0	15	0
Volume Right	68	21	0	55	0	42
cSH	907	641	1506	1700	1414	1700
Volume to Capacity	0.08	0.06	0.05	0.10	0.01	0.05
Queue Length 95th (m)	2.1	1.5	1.1	0.0	0.2	0.0
Control Delay (s)	9.3	11.0	7.5	0.0	7.6	0.0
Lane LOS	A	B	A		A	
Approach Delay (s)	9.3	11.0	2.3		1.1	
Approach LOS	A	B				

Intersection Summary				
Average Delay	4.0			
Intersection Capacity Utilization	24.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	466	21	32	307
Future Volume (Veh/h)	0	0	466	21	32	307
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	507	23	35	334
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			59			82
pX, platoon unblocked	0.87					
vC, conflicting volume	922	265			530	
vC1, stage 1 conf vol	518					
vC2, stage 2 conf vol	404					
vCu, unblocked vol	840	265			530	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			97	
cM capacity (veh/h)	474	733			1033	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	338	192	35	334
Volume Left	0	0	0	35	0
Volume Right	0	0	23	0	0
cSH	1700	1700	1700	1033	1700
Volume to Capacity	0.00	0.20	0.11	0.03	0.20
Queue Length 95th (m)	0.0	0.0	0.0	0.8	0.0
Control Delay (s)	0.0	0.0	0.0	8.6	0.0
Lane LOS	A			A	
Approach Delay (s)	0.0	0.0		0.8	
Approach LOS	A				

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	23.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	373	43	0	310	0	8
Future Volume (Veh/h)	373	43	0	310	0	8
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)	405	47	0	337	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)	160			58		
pX, platoon unblocked			0.94		0.95	0.94
vC, conflicting volume			452		574	202
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			287		371	22
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)			1194		570	986

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	202	202	47	168	168	9
Volume Left	0	0	0	0	0	0
Volume Right	0	0	47	0	0	9
cSH	1700	1700	1700	1700	1700	986
Volume to Capacity	0.12	0.12	0.03	0.10	0.10	0.01
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.2
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	8.7
Lane LOS						A
Approach Delay (s)	0.0			0.0		8.7
Approach LOS						A

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	20.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	3	0	2	1	0	7	2	247	22	0	289	11
Future Volume (veh/h)	3	0	2	1	0	7	2	247	22	0	289	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	0	2	1	0	8	2	268	24	0	314	12
Approach Volume (veh/h)		5			9			294			326	
Crossing Volume (veh/h)		315			273			3			3	
High Capacity (veh/h)		1081			1118			1381			1381	
High v/c (veh/h)		0.00			0.01			0.21			0.24	
Low Capacity (veh/h)		887			919			1158			1158	
Low v/c (veh/h)		0.01			0.01			0.25			0.28	

Intersection Summary			
Maximum v/c High	0.24		
Maximum v/c Low	0.28		
Intersection Capacity Utilization	25.9%	ICU Level of Service	A

Lane Group	EBL	EBR	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	189	288	30	1402	2600	2054
v/c Ratio	0.12	0.42	0.04	1.93	0.91	0.92
Control Delay	22.2	24.9	13.4	443.4	41.6	44.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.2	24.9	13.4	443.4	41.6	44.3
Queue Length 50th (m)	15.2	46.9	3.2	~604.2	191.8	192.9
Queue Length 95th (m)	22.7	71.1	m6.2	#665.9	207.7	215.5
Internal Link Dist (m)					73.6	241.1
Turn Bay Length (m)		150.0				
Base Capacity (vph)	1526	683	779	727	2859	2226
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	0.42	0.04	1.93	0.91	0.92

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)	170	0	259	27	0	1262	0	2335	5	0	1849	0
Future Volume (vph)	170	0	259	27	0	1262	0	2335	5	0	1849	0
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		7.0			7.0	
Lane Util. Factor	0.97		1.00	1.00		1.00		0.86			0.91	
Frt	1.00		0.85	1.00		0.85		1.00			1.00	
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (prot)	3340		1458	1706		1555		6353			4948	
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (perm)	3340		1458	1706		1555		6353			4948	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	189	0	288	30	0	1402	0	2594	6	0	2054	0
RTOR Reduction (vph)	0	0	17	0	0	17	0	0	0	0	0	0
Lane Group Flow (vph)	189	0	271	30	0	1385	0	2600	0	0	2054	0
Heavy Vehicles (%)	6%	0%	12%	7%	0%	5%	0%	4%	0%	0%	6%	0%
Turn Type	Perm		Perm	Perm		Perm		NA			NA	
Protected Phases								2			6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	64.0		64.0	64.0		64.0		63.0			63.0	
Effective Green, g (s)	64.0		64.0	64.0		64.0		63.0			63.0	
Actuated g/C Ratio	0.46		0.46	0.46		0.46		0.45			0.45	
Clearance Time (s)	6.0		6.0	6.0		6.0		7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0		3.0		3.0			3.0	
Lane Grp Cap (vph)	1526		666	779		710		2858			2226	
v/s Ratio Prot								0.41			c0.42	
v/s Ratio Perm	0.06		0.19	0.02		c0.89						
v/c Ratio	0.12		0.41	0.04		1.95		0.91			0.92	
Uniform Delay, d1	21.9		25.3	21.0		38.0		35.9			36.2	
Progression Factor	1.00		1.00	0.63		0.63		1.00			1.00	
Incremental Delay, d2	0.2		1.8	0.1		432.5		5.6			7.9	
Delay (s)	22.0		27.2	13.3		456.3		41.4			44.1	
Level of Service	C		C	B		F		D			D	
Approach Delay (s)		25.1			447.0			41.4			44.1	
Approach LOS		C			F			D			D	

Intersection Summary			
HCM 2000 Control Delay	129.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.44		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	131.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL
Lane Group Flow (vph)	306	812	111	944	432
v/c Ratio	0.21	0.51	0.23	0.58	0.30
Control Delay	37.7	11.8	23.6	28.6	32.8
Queue Delay	0.0	0.2	0.0	0.0	0.0
Total Delay	37.7	12.0	23.6	28.6	32.8
Queue Length 50th (m)	26.6	133.3	17.9	97.8	40.8
Queue Length 95th (m)	58.6	239.4	31.2	118.3	m54.1
Internal Link Dist (m)	220.9			135.6	92.8
Turn Bay Length (m)			60.0		
Base Capacity (vph)	1483	1585	476	1638	1457
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	195	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.21	0.58	0.23	0.58	0.30

Intersection Summary

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	275	731	100	850	353	36
Future Volume (vph)	275	731	100	850	353	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	1.00	1.00	0.95	1.00	0.96	
Satd. Flow (prot)	3147	1585	1706	3476	3386	
Flt Permitted	1.00	1.00	0.56	1.00	0.96	
Satd. Flow (perm)	3147	1585	1011	3476	3386	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	306	812	111	944	392	40
RTOR Reduction (vph)	0	0	0	0	6	0
Lane Group Flow (vph)	306	812	111	944	426	0
Heavy Vehicles (%)	16%	3%	7%	5%	3%	12%
Turn Type	NA	pm+ov	Perm	NA	Prot	
Protected Phases	2	8		6	8	
Permitted Phases		2	6			
Actuated Green, G (s)	66.0	126.0	66.0	66.0	60.0	
Effective Green, g (s)	66.0	126.0	66.0	66.0	60.0	
Actuated g/C Ratio	0.47	0.90	0.47	0.47	0.43	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1483	1585	476	1638	1451	
v/s Ratio Prot	0.10	c0.22		c0.27	0.13	
v/s Ratio Perm		0.29	0.11			
v/c Ratio	0.21	0.51	0.23	0.58	0.29	
Uniform Delay, d1	21.7	1.3	22.0	26.9	26.1	
Progression Factor	1.72	1.00	1.00	1.00	1.26	
Incremental Delay, d2	0.3	1.0	1.1	1.5	0.4	
Delay (s)	37.5	2.3	23.1	28.3	33.4	
Level of Service	D	A	C	C	C	
Approach Delay (s)	11.9			27.8	33.4	
Approach LOS	B			C	C	

Intersection Summary			
HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	298	64	54	888	157	32
v/c Ratio	0.14	0.07	0.08	0.37	0.62	0.12
Control Delay	5.6	0.8	6.1	7.0	43.7	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.6	0.8	6.1	7.0	43.7	11.4
Queue Length 50th (m)	7.7	0.2	2.6	28.1	23.2	0.0
Queue Length 95th (m)	14.9	0.3	7.7	47.0	41.4	7.0
Internal Link Dist (m)	33.9			146.8	95.7	
Turn Bay Length (m)			60.0		35.0	
Base Capacity (vph)	2205	1083	650	2375	595	586
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	0.14	0.06	0.08	0.37	0.26	0.05

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	271	58	49	808	143	29
Future Volume (vph)	271	58	49	808	143	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.87	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	0.90	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3259	1154	1634	3510	1587	1512
Flt Permitted	1.00	1.00	0.57	1.00	0.95	1.00
Satd. Flow (perm)	3259	1154	980	3510	1587	1512
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	298	64	54	888	157	32
RTOR Reduction (vph)	0	0	0	0	0	27
Lane Group Flow (vph)	298	64	54	888	157	5
Confl. Peds. (#/hr)		71	71			
Heavy Vehicles (%)	12%	23%	1%	4%	15%	8%
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	2	8		6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	57.9	71.5	57.9	57.9	13.6	13.6
Effective Green, g (s)	57.9	71.5	57.9	57.9	13.6	13.6
Actuated g/C Ratio	0.68	0.84	0.68	0.68	0.16	0.16
Clearance Time (s)	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
Lane Grp Cap (vph)	2206	1154	663	2376	252	240
v/s Ratio Prot	0.09	0.01		c0.25	c0.10	
v/s Ratio Perm		0.05	0.06			0.00
v/c Ratio	0.14	0.06	0.08	0.37	0.62	0.02
Uniform Delay, d1	4.9	1.2	4.7	6.0	33.6	30.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.2	0.5	4.7	0.0
Delay (s)	5.0	1.2	5.0	6.4	38.3	30.4
Level of Service	A	A	A	A	D	C
Approach Delay (s)	4.4			6.3	36.9	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	85.5	Sum of lost time (s)	14.0
Intersection Capacity Utilization	49.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	26	1038	1595	18	48	95	21
v/c Ratio	0.20	0.58	1.01	0.06	0.23	0.45	0.07
Control Delay	29.5	40.8	59.5	27.1	7.0	51.9	0.5
Queue Delay	0.0	0.0	4.9	0.0	0.0	0.0	0.0
Total Delay	29.5	40.8	64.4	27.1	7.0	51.9	0.5
Queue Length 50th (m)	4.1	117.2	~254.3	3.1	0.0	22.2	0.0
Queue Length 95th (m)	m5.9	139.3	#298.0	8.4	6.3	40.5	0.0
Internal Link Dist (m)		202.3	126.7		25.6		
Turn Bay Length (m)	70.0					20.0	
Base Capacity (vph)	135	1802	1585	285	213	210	300
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	26	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.58	1.02	0.06	0.23	0.45	0.07

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)	24	955	0	0	1271	196	17	0	44	87	0	19
Future Volume (vph)	24	955	0	0	1271	196	17	0	44	87	0	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	8.0			8.0		3.0	8.0		8.0		8.0
Lane Util. Factor	1.00	0.95			0.95		1.00	1.00		1.00		1.00
Frpb, ped/bikes	1.00	1.00			0.93		1.00	0.58		1.00		0.60
Flpb, ped/bikes	1.00	1.00			1.00		0.63	1.00		0.61		1.00
Frt	1.00	1.00			0.98		1.00	0.85		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1738	3411			3235		665	486		1073		919
Flt Permitted	0.06	1.00			1.00		0.95	1.00		0.73		1.00
Satd. Flow (perm)	104	3411			3235		665	486		820		919
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	1038	0	0	1382	213	18	0	48	95	0	21
RTOR Reduction (vph)	0	0	0	0	8	0	0	31	0	0	0	16
Lane Group Flow (vph)	26	1038	0	0	1587	0	18	17	0	95	0	5
Confl. Peds. (#/hr)	290		1278	1278		290	658		752	752		658
Heavy Vehicles (%)	5%	7%	0%	0%	1%	13%	72%	0%	95%	4%	0%	7%
Turn Type	pm+pt	NA			NA		pm+pt	NA		Perm		Perm
Protected Phases	5	2			6		3	8				
Permitted Phases	2						8			4		4
Actuated Green, G (s)	74.0	74.0			67.1		50.0	50.0		36.0		36.0
Effective Green, g (s)	74.0	74.0			67.1		50.0	50.0		36.0		36.0
Actuated g/C Ratio	0.53	0.53			0.48		0.36	0.36		0.26		0.26
Clearance Time (s)	3.0	8.0			8.0		3.0	8.0		8.0		8.0
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0		3.0
Lane Grp Cap (vph)	100	1802			1550		237	173		210		236
v/s Ratio Prot	0.01	c0.30			c0.49		0.01	c0.04				
v/s Ratio Perm	0.13						0.02			c0.12		0.01
v/c Ratio	0.26	0.58			1.02		0.08	0.10		0.45		0.02
Uniform Delay, d1	28.6	22.4			36.5		29.7	30.0		43.7		38.9
Progression Factor	1.99	1.76			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	0.9	0.9			29.1		0.6	1.1		6.9		0.2
Delay (s)	58.0	40.4			65.5		30.4	31.1		50.6		39.0
Level of Service	E	D			E		C	C		D		D
Approach Delay (s)		40.8			65.5			30.9			48.5	
Approach LOS		D			E			C			D	

Intersection Summary			
HCM 2000 Control Delay	54.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	95.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	60	884	141	1193	210	456	93	868
v/c Ratio	1.09	0.84	0.79	0.89	1.22	0.63	0.30	1.15
Control Delay	158.9	25.4	36.2	11.2	171.2	36.7	12.2	117.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay	158.9	25.4	36.2	11.2	171.2	36.7	12.2	117.8
Queue Length 50th (m)	~17.8	29.5	12.6	54.6	~54.4	97.3	11.5	~282.1
Queue Length 95th (m)	m#31.0	90.2	m12.8	m53.4	#105.7	134.7	11.3	#354.0
Internal Link Dist (m)		171.5		202.3		102.8		69.7
Turn Bay Length (m)	65.0		70.0		45.0		30.0	
Base Capacity (vph)	55	1050	178	1344	172	723	311	752
Starvation Cap Reductn	0	0	0	1	0	0	0	11
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	1.09	0.84	0.79	0.89	1.22	0.63	0.30	1.17

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)	59	783	83	138	1081	88	206	342	105	91	761	89
Future Volume (vph)	59	783	83	138	1081	88	206	342	105	91	761	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.96		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1802	3400		1615	3411		1772	1742		1435	1840	
Flt Permitted	0.10	1.00		0.12	1.00		0.07	1.00		0.33	1.00	
Satd. Flow (perm)	182	3400		204	3411		130	1742		497	1840	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	60	799	85	141	1103	90	210	349	107	93	777	91
RTOR Reduction (vph)	0	6	0	0	4	0	0	8	0	0	3	0
Lane Group Flow (vph)	60	878	0	141	1189	0	210	448	0	93	865	0
Confl. Peds. (#/hr)	17		10	10		17	13		10	10		13
Heavy Vehicles (%)	1%	6%	1%	13%	4%	24%	3%	1%	21%	27%	2%	6%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	43.0	43.0		55.0	55.0		66.5	57.5		65.5	57.0	
Effective Green, g (s)	43.0	43.0		55.0	55.0		66.5	57.5		65.5	57.0	
Actuated g/C Ratio	0.31	0.31		0.39	0.39		0.48	0.41		0.47	0.41	
Clearance Time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	55	1044		170	1340		167	715		289	749	
v/s Ratio Prot		0.26		0.05	c0.35		c0.08	0.26		0.02	0.47	
v/s Ratio Perm	c0.33			0.27			c0.52			0.13		
v/c Ratio	1.09	0.84		0.83	0.89		1.26	0.63		0.32	1.15	
Uniform Delay, d1	48.5	45.3		32.3	39.6		40.0	32.7		22.7	41.5	
Progression Factor	0.45	0.42		0.98	0.20		1.00	1.00		0.58	0.89	
Incremental Delay, d2	129.6	6.0		8.7	2.7		155.2	4.1		0.6	83.6	
Delay (s)	151.2	25.2		40.2	10.6		195.1	36.9		13.8	120.4	
Level of Service	F	C		D	B		F	D		B	F	
Approach Delay (s)		33.2			13.7			86.8			110.1	
Approach LOS		C			B			F			F	

Intersection Summary			
HCM 2000 Control Delay	54.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	119.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	34	929	198	1331	30	328	106	128	607
v/c Ratio	0.44	0.81	0.68	0.79	0.20	0.50	0.20	0.33	0.82
Control Delay	40.2	36.6	50.4	27.8	37.7	40.3	6.5	25.4	44.5
Queue Delay	0.0	0.3	0.0	25.3	0.0	2.7	0.0	0.0	0.9
Total Delay	40.2	36.8	50.4	53.1	37.7	43.0	6.5	25.4	45.4
Queue Length 50th (m)	6.4	100.0	38.2	98.7	5.9	72.5	0.0	20.7	141.2
Queue Length 95th (m)	m8.9	m89.2	m43.6	m116.8	14.8	101.9	12.9	33.7	193.1
Internal Link Dist (m)		161.5		171.5		57.8			70.0
Turn Bay Length (m)	80.0		55.0		45.0			30.0	
Base Capacity (vph)	77	1147	292	1680	147	650	539	388	744
Starvation Cap Reductn	0	25	0	102	0	212	0	0	0
Spillback Cap Reductn	0	0	0	403	0	0	0	0	28
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.83	0.68	1.04	0.20	0.75	0.20	0.33	0.85

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)	31	716	120	178	1151	47	27	295	95	115	270	276
Future Volume (vph)	31	716	120	178	1151	47	27	295	95	115	270	276
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		3.0	7.0		7.0	7.0	7.0	3.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	0.92	1.00	0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	0.99	1.00	
Frt	1.00	0.98		1.00	0.99		1.00	1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1825	3387		1722	3507		1825	1921	1385	1810	1731	
Flt Permitted	0.12	1.00		0.12	1.00		0.23	1.00	1.00	0.38	1.00	
Satd. Flow (perm)	231	3387		215	3507		437	1921	1385	718	1731	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	34	796	133	198	1279	52	30	328	106	128	300	307
RTOR Reduction (vph)	0	9	0	0	2	0	0	0	70	0	15	0
Lane Group Flow (vph)	34	920	0	198	1329	0	30	328	36	128	592	0
Confl. Peds. (#/hr)	19		14	14		19	18		31	31		18
Heavy Vehicles (%)	0%	5%	0%	6%	3%	5%	0%	0%	9%	0%	0%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		2		1	6			8		7	4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	47.0	47.0		67.0	67.0		47.4	47.4	47.4	59.0	59.0	
Effective Green, g (s)	47.0	47.0		67.0	67.0		47.4	47.4	47.4	59.0	59.0	
Actuated g/C Ratio	0.34	0.34		0.48	0.48		0.34	0.34	0.34	0.42	0.42	
Clearance Time (s)	7.0	7.0		3.0	7.0		7.0	7.0	7.0	3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	77	1137		285	1678		147	650	468	369	729	
v/s Ratio Prot		0.27		0.08	c0.38			0.17		0.02	c0.34	
v/s Ratio Perm	0.15			0.25			0.07		0.03	0.12		
v/c Ratio	0.44	0.81		0.69	0.79		0.20	0.50	0.08	0.35	0.81	
Uniform Delay, d1	36.3	42.4		26.7	30.6		32.9	36.9	31.4	26.3	35.6	
Progression Factor	0.82	0.81		1.91	0.84		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	7.0	2.5		6.3	1.8		3.1	2.8	0.3	0.6	9.6	
Delay (s)	36.8	36.7		57.2	27.5		36.0	39.7	31.8	26.9	45.2	
Level of Service	D	D		E	C		D	D	C	C	D	
Approach Delay (s)		36.7			31.4			37.7			42.0	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	35.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	102.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	75	421	257	1306	20	1549	456	1201
v/c Ratio	0.54	0.34	0.95	1.27	0.11	1.27	1.36	0.73
Control Delay	40.9	32.5	66.3	154.3	16.3	165.3	213.1	34.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.9	32.5	66.3	154.3	16.3	165.3	213.1	34.1
Queue Length 50th (m)	13.0	43.0	72.3	~160.8	2.4	~284.3	~148.9	140.0
Queue Length 95th (m)	23.7	57.0 m	#111.6	#261.4	6.2	#327.2	#215.9	165.8
Internal Link Dist (m)		170.1		161.5		203.8		248.3
Turn Bay Length (m)	50.0		50.0		65.0		100.0	
Base Capacity (vph)	140	1244	271	1031	190	1222	336	1646
Starvation Cap Reductn	0	0	0	2	0	0	0	0
Spillback Cap Reductn	0	5	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.34	0.95	1.27	0.11	1.27	1.36	0.73

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	340	51	239	802	413	19	1337	103	424	1096	21
Future Volume (vph)	70	340	51	239	802	413	19	1337	103	424	1096	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		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		0.98	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.95		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)	1755	3429		1738	3363		1789	3519		1772	3600	
Flt Permitted	0.09	1.00		0.51	1.00		0.15	1.00		0.08	1.00	
Satd. Flow (perm)	168	3429		926	3363		281	3519		145	3600	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	75	366	55	257	862	444	20	1438	111	456	1178	23
RTOR Reduction (vph)	0	8	0	0	47	0	0	4	0	0	1	0
Lane Group Flow (vph)	75	413	0	257	1259	0	20	1545	0	456	1200	0
Confl. Peds. (#/hr)	5		23	23		5	8		13	13		8
Heavy Vehicles (%)	4%	4%	2%	3%	2%	3%	2%	2%	7%	3%	1%	4%
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	50.5	50.5		41.0	41.0		55.0	48.5		73.5	64.0	
Effective Green, g (s)	50.5	50.5		41.0	41.0		55.0	48.5		73.5	64.0	
Actuated g/C Ratio	0.36	0.36		0.29	0.29		0.39	0.35		0.52	0.46	
Clearance Time (s)	3.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	134	1236		271	984		180	1219		331	1645	
v/s Ratio Prot	c0.03	0.12			c0.37		0.01	0.44		c0.22	0.33	
v/s Ratio Perm	0.18			0.28			0.04			c0.51		
v/c Ratio	0.56	0.33		0.95	1.28		0.11	1.27		1.38	0.73	
Uniform Delay, d1	35.8	32.5		48.5	49.5		27.3	45.8		46.2	30.9	
Progression Factor	1.00	1.00		0.69	0.68		1.00	1.00		1.00	1.00	
Incremental Delay, d2	15.8	0.7		31.0	130.7		1.2	127.0		187.9	2.9	
Delay (s)	51.7	33.3		64.4	164.3		28.5	172.8		234.1	33.8	
Level of Service	D	C		E	F		C	F		F	C	
Approach Delay (s)		36.0			147.9			170.9			88.9	
Approach LOS		D			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	125.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.33		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	123.7%	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)	13	92	39	125	48	443	123	653
v/c Ratio	0.04	0.22	0.13	0.26	0.15	0.44	0.27	0.63
Control Delay	23.3	9.8	24.8	13.7	9.9	11.7	11.0	15.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6
Total Delay	23.3	9.8	24.8	13.7	9.9	11.7	11.0	16.9
Queue Length 50th (m)	1.5	2.0	4.6	6.6	3.2	35.7	8.9	61.4
Queue Length 95th (m)	4.7	8.9	9.9	14.3	6.8	42.7	14.6	68.8
Internal Link Dist (m)		141.1		97.5		112.5		34.9
Turn Bay Length (m)	20.0		20.0		25.0		25.0	
Base Capacity (vph)	321	425	296	480	317	1014	459	1030
Starvation Cap Reductn	0	0	0	0	0	0	0	211
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	0.22	0.13	0.26	0.15	0.44	0.27	0.80

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	13	56	29	42	52	36	320	12	92	454	36
Future Volume (vph)	10	13	56	29	42	52	36	320	12	92	454	36
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	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.90		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.91	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.88		1.00	0.92		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1476		1616	1715		1809	1799		1701	1825	
Flt Permitted	0.68	1.00		0.70	1.00		0.30	1.00		0.46	1.00	
Satd. Flow (perm)	1286	1476		1186	1715		566	1799		817	1825	
Peak-hour factor, PHF	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Adj. Flow (vph)	13	17	75	39	56	69	48	427	16	123	605	48
RTOR Reduction (vph)	0	56	0	0	52	0	0	2	0	0	4	0
Lane Group Flow (vph)	13	36	0	39	73	0	48	441	0	123	650	0
Confl. Peds. (#/hr)	11		50	50		11	16		12	12		16
Heavy Vehicles (%)	0%	0%	4%	3%	3%	0%	0%	6%	7%	6%	4%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	20.0	20.0		20.0	20.0		45.0	45.0		45.0	45.0	
Effective Green, g (s)	20.0	20.0		20.0	20.0		45.0	45.0		45.0	45.0	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.56	0.56		0.56	0.56	
Clearance Time (s)	8.0	8.0		8.0	8.0		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)	321	369		296	428		318	1011		459	1026	
v/s Ratio Prot		0.02			c0.04			0.25			c0.36	
v/s Ratio Perm	0.01			0.03			0.08			0.15		
v/c Ratio	0.04	0.10		0.13	0.17		0.15	0.44		0.27	0.63	
Uniform Delay, d1	22.7	23.1		23.3	23.5		8.4	10.1		9.0	11.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.5		0.9	0.9		1.0	1.4		1.4	3.0	
Delay (s)	23.0	23.6		24.2	24.4		9.4	11.5		10.4	14.9	
Level of Service	C	C		C	C		A	B		B	B	
Approach Delay (s)		23.5			24.3			11.3			14.2	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1493	280	1027	374	1
v/c Ratio	0.61	0.76	0.44	0.86	0.00
Control Delay	28.3	33.0	3.4	69.1	27.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	28.3	33.0	3.4	69.1	27.0
Queue Length 50th (m)	104.4	22.6	13.9	99.1	0.0
Queue Length 95th (m)	147.6	51.3	47.4	128.2	1.4
Internal Link Dist (m)	613.2		220.9	100.9	
Turn Bay Length (m)		50.0		45.0	
Base Capacity (vph)	2434	464	2347	536	481
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	35	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.62	0.60	0.44	0.70	0.00

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1005	369	258	945	344	1
Future Volume (vph)	1005	369	258	945	344	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0		3.0	7.0	7.0	7.0
Lane Util. Factor	0.91		1.00	0.95	1.00	1.00
Frt	0.96		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	4935		1789	3579	1789	1601
Flt Permitted	1.00		0.10	1.00	0.95	1.00
Satd. Flow (perm)	4935		188	3579	1789	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1092	401	280	1027	374	1
RTOR Reduction (vph)	39	0	0	0	0	1
Lane Group Flow (vph)	1454	0	280	1027	374	0
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Actuated Green, G (s)	67.9		91.8	91.8	34.2	34.2
Effective Green, g (s)	67.9		91.8	91.8	34.2	34.2
Actuated g/C Ratio	0.49		0.66	0.66	0.24	0.24
Clearance Time (s)	7.0		3.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2393		362	2346	437	391
v/s Ratio Prot	0.29		c0.12	0.29	c0.21	
v/s Ratio Perm			c0.39			0.00
v/c Ratio	0.61		0.77	0.44	0.86	0.00
Uniform Delay, d1	26.3		30.2	11.6	50.5	40.0
Progression Factor	1.00		0.83	0.23	1.00	1.00
Incremental Delay, d2	1.2		8.8	0.5	15.1	0.0
Delay (s)	27.5		34.0	3.2	65.6	40.0
Level of Service	C		C	A	E	D
Approach Delay (s)	27.5			9.8	65.6	
Approach LOS	C			A	E	

Intersection Summary			
HCM 2000 Control Delay	24.7	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)	17.0
Intersection Capacity Utilization	76.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	0	18	114	8	22	33	353	104	11	809	11
Future Volume (Veh/h)	15	0	18	114	8	22	33	353	104	11	809	11
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	0	20	124	9	24	36	384	113	12	879	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)								94			117	
pX, platoon unblocked												
vC, conflicting volume	1202	1478	446	996	1428	248	891			497		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1202	1478	446	996	1428	248	891			497		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	87	100	96	32	93	97	95			99		
cM capacity (veh/h)	123	118	560	183	126	751	757			1063		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	16	20	124	33	36	256	241	12	586	305
Volume Left	16	0	124	0	36	0	0	12	0	0
Volume Right	0	20	0	24	0	0	113	0	0	12
cSH	123	560	183	319	757	1700	1700	1063	1700	1700
Volume to Capacity	0.13	0.04	0.68	0.10	0.05	0.15	0.14	0.01	0.34	0.18
Queue Length 95th (m)	3.3	0.8	30.9	2.6	1.1	0.0	0.0	0.3	0.0	0.0
Control Delay (s)	38.7	11.7	58.2	17.6	10.0	0.0	0.0	8.4	0.0	0.0
Lane LOS	E	B	F	C	A			A		
Approach Delay (s)	23.7		49.7		0.7			0.1		
Approach LOS	C		E							

Intersection Summary			
Average Delay	5.6		
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	4	39	24	4	42	100	118	11	35	43	28
Future Volume (Veh/h)	12	4	39	24	4	42	100	118	11	35	43	28
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	4	42	26	4	46	109	128	12	38	47	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)								89			120	
pX, platoon unblocked												
vC, conflicting volume	532	496	62	519	505	134	77			140		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	532	496	62	519	505	134	77			140		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	99	96	94	99	95	93			97		
cM capacity (veh/h)	400	430	1003	412	424	915	1522			1443		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	59	76	109	140	38	77
Volume Left	13	26	109	0	38	0
Volume Right	42	46	0	12	0	30
cSH	705	619	1522	1700	1443	1700
Volume to Capacity	0.08	0.12	0.07	0.08	0.03	0.05
Queue Length 95th (m)	2.1	3.2	1.8	0.0	0.6	0.0
Control Delay (s)	10.6	11.6	7.5	0.0	7.6	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	10.6	11.6	3.3		2.5	
Approach LOS	B	B				

Intersection Summary				
Average Delay	5.2			
Intersection Capacity Utilization	26.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	33	36	381	1	19	549
Future Volume (Veh/h)	33	36	381	1	19	549
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)	36	39	414	1	21	597
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			59			82
pX, platoon unblocked	0.94					
vC, conflicting volume	1054	208			415	
vC1, stage 1 conf vol	414					
vC2, stage 2 conf vol	639					
vCu, unblocked vol	1024	208			415	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	95			98	
cM capacity (veh/h)	417	799			1140	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	75	276	139	21	597
Volume Left	36	0	0	21	0
Volume Right	39	0	1	0	0
cSH	555	1700	1700	1140	1700
Volume to Capacity	0.14	0.16	0.08	0.02	0.35
Queue Length 95th (m)	3.5	0.0	0.0	0.4	0.0
Control Delay (s)	12.5	0.0	0.0	8.2	0.0
Lane LOS	B			A	
Approach Delay (s)	12.5	0.0		0.3	
Approach LOS	B				

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	39.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	311	0	0	951	0	18
Future Volume (Veh/h)	311	0	0	951	0	18
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)	338	0	0	1034	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)	160			58		
pX, platoon unblocked			0.95		0.91	0.95
vC, conflicting volume			338		855	169
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			211		428	34
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	98
cM capacity (veh/h)			1295		507	985

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	169	169	0	517	517	20
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	20
cSH	1700	1700	1700	1700	1700	985
Volume to Capacity	0.10	0.10	0.00	0.30	0.30	0.02
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.5
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	8.7
Lane LOS						A
Approach Delay (s)	0.0			0.0		8.7
Approach LOS						A

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	29.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	11	0	19	45	0	0	0	335	38	5	597	26
Future Volume (veh/h)	11	0	19	45	0	0	0	335	38	5	597	26
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	0	21	49	0	0	0	364	41	5	649	28
Approach Volume (veh/h)		33			49			405			682	
Crossing Volume (veh/h)		703			376			17			49	
High Capacity (veh/h)		793			1030			1366			1333	
High v/c (veh/h)		0.04			0.05			0.30			0.51	
Low Capacity (veh/h)		630			841			1145			1114	
Low v/c (veh/h)		0.05			0.06			0.35			0.61	

Intersection Summary			
Maximum v/c High	0.51		
Maximum v/c Low	0.61		
Intersection Capacity Utilization	49.4%	ICU Level of Service	A

Queues
100: Mavis Road & Highway 403 EB Off-Ramp/Centre View Drive

11/06/2017

Lane Group	EBL	EBR	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	852	259	2	137	2453	2744
v/c Ratio	0.75	0.86	0.00	0.29	0.67	0.94
Control Delay	46.7	65.6	32.0	28.6	21.4	35.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.7	65.6	32.0	28.6	21.4	35.2
Queue Length 50th (m)	108.1	60.2	0.4	21.4	130.1	246.8
Queue Length 95th (m)	131.8	#111.0	2.5	39.3	141.2	271.5
Internal Link Dist (m)					73.6	241.1
Turn Bay Length (m)		150.0				
Base Capacity (vph)	1140	301	479	471	3674	2917
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	0.75	0.86	0.00	0.29	0.67	0.94

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)	835	0	254	2	0	134	0	2387	17	0	2689	0
Future Volume (vph)	835	0	254	2	0	134	0	2387	17	0	2689	0
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		7.0			7.0	
Lane Util. Factor	0.97		1.00	1.00		1.00		0.86			0.91	
Frt	1.00		0.85	1.00		0.85		1.00			1.00	
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (prot)	3471		855	1460		1372		6350			5043	
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (perm)	3471		855	1460		1372		6350			5043	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	852	0	259	2	0	137	0	2436	17	0	2744	0
RTOR Reduction (vph)	0	0	21	0	0	21	0	0	0	0	0	0
Lane Group Flow (vph)	852	0	238	2	0	116	0	2453	0	0	2744	0
Heavy Vehicles (%)	2%	0%	91%	25%	0%	19%	0%	4%	0%	0%	4%	0%
Turn Type	Perm		Perm	Perm		Perm		NA			NA	
Protected Phases								2			6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	46.0		46.0	46.0		46.0		81.0			81.0	
Effective Green, g (s)	46.0		46.0	46.0		46.0		81.0			81.0	
Actuated g/C Ratio	0.33		0.33	0.33		0.33		0.58			0.58	
Clearance Time (s)	6.0		6.0	6.0		6.0		7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0		3.0		3.0			3.0	
Lane Grp Cap (vph)	1140		280	479		450		3673			2917	
v/s Ratio Prot								0.39			c0.54	
v/s Ratio Perm	0.25		c0.28	0.00		0.08						
v/c Ratio	0.75		0.85	0.00		0.26		0.67			0.94	
Uniform Delay, d1	41.8		43.8	31.6		34.5		20.3			27.3	
Progression Factor	1.00		1.00	1.00		1.00		1.00			1.00	
Incremental Delay, d2	4.5		26.3	0.0		1.4		1.0			7.6	
Delay (s)	46.3		70.1	31.6		35.9		21.2			34.9	
Level of Service	D		E	C		D		C			C	
Approach Delay (s)		51.9			35.8			21.2			34.9	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	32.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	86.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	570	532	169	2	147	578
v/c Ratio	0.35	0.55	0.49	0.00	0.27	0.88
Control Delay	17.4	3.2	25.2	16.5	20.2	34.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.4	3.2	25.2	16.5	20.2	34.9
Queue Length 50th (m)	32.6	2.1	19.9	0.1	17.2	71.7
Queue Length 95th (m)	54.0	3.4	46.9	0.8	30.1	116.3
Internal Link Dist (m)	33.9			146.8	95.7	
Turn Bay Length (m)			60.0		35.0	
Base Capacity (vph)	1627	1059	348	1413	751	854
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	0.35	0.50	0.49	0.00	0.20	0.68

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	519	484	154	2	134	526
Future Volume (vph)	519	484	154	2	134	526
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.94	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3444	1167	1699	2992	1484	1555
Flt Permitted	1.00	1.00	0.41	1.00	0.95	1.00
Satd. Flow (perm)	3444	1167	738	2992	1484	1555
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	570	532	169	2	147	578
RTOR Reduction (vph)	0	0	0	0	0	85
Lane Group Flow (vph)	570	532	169	2	147	493
Confl. Peds. (#/hr)		45	45			
Heavy Vehicles (%)	6%	31%	3%	22%	23%	5%
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	2	8		6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	42.5	75.7	42.5	42.5	33.2	33.2
Effective Green, g (s)	42.5	75.7	42.5	42.5	33.2	33.2
Actuated g/C Ratio	0.47	0.84	0.47	0.47	0.37	0.37
Clearance Time (s)	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
Lane Grp Cap (vph)	1631	1167	349	1417	549	575
v/s Ratio Prot	0.17	c0.17		0.00	0.10	
v/s Ratio Perm		0.29	0.23			c0.32
v/c Ratio	0.35	0.46	0.48	0.00	0.27	0.86
Uniform Delay, d1	14.9	1.8	16.1	12.4	19.8	26.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.3	4.7	0.0	0.3	12.0
Delay (s)	15.5	2.1	20.9	12.4	20.0	38.1
Level of Service	B	A	C	B	C	D
Approach Delay (s)	9.0			20.8	34.4	
Approach LOS	A			C	C	

Intersection Summary			
HCM 2000 Control Delay	19.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	89.7	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	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	608	1067	546	44	41	485	149
v/c Ratio	2.36	0.78	0.46	0.10	0.13	1.47	0.29
Control Delay	628.2	9.4	23.8	15.7	5.3	259.8	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	628.2	9.4	23.8	15.7	5.3	259.8	5.9
Queue Length 50th (m)	~221.9	23.5	41.4	5.0	0.0	~150.1	0.0
Queue Length 95th (m)	m#193.6	m21.3	56.7	11.3	5.5	#212.9	13.7
Internal Link Dist (m)		202.3	126.7		25.6		
Turn Bay Length (m)	70.0					20.0	
Base Capacity (vph)	258	1364	1194	420	310	329	512
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	2.36	0.78	0.46	0.10	0.13	1.47	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.

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)	596	1046	0	0	385	150	43	0	40	475	0	146
Future Volume (vph)	596	1046	0	0	385	150	43	0	40	475	0	146
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	8.0		8.0		8.0
Lane Util. Factor	1.00	0.95			0.95		1.00	1.00		1.00		1.00
Frpb, ped/bikes	1.00	1.00			0.94		1.00	0.76		1.00		0.82
Flpb, ped/bikes	0.92	1.00			1.00		0.84	1.00		0.78		1.00
Frt	1.00	1.00			0.96		1.00	0.85		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1542	3411			2897		810	618		1267		1220
Flt Permitted	0.40	1.00			1.00		0.95	1.00		0.73		1.00
Satd. Flow (perm)	647	3411			2897		810	618		974		1220
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	608	1067	0	0	393	153	44	0	41	485	0	149
RTOR Reduction (vph)	0	0	0	0	36	0	0	22	0	0	0	98
Lane Group Flow (vph)	608	1067	0	0	510	0	44	19	0	485	0	51
Confl. Peds. (#/hr)	99		330	330		99	177		246	246		177
Heavy Vehicles (%)	9%	7%	0%	0%	10%	24%	89%	0%	100%	12%	0%	10%
Turn Type	Perm	NA			NA		pm+pt	NA		Perm		Perm
Protected Phases		2			6		3	8				
Permitted Phases	2						8			4		4
Actuated Green, G (s)	46.0	46.0			46.0		53.0	53.0		39.0		39.0
Effective Green, g (s)	46.0	46.0			46.0		53.0	53.0		39.0		39.0
Actuated g/C Ratio	0.40	0.40			0.40		0.46	0.46		0.34		0.34
Clearance Time (s)	8.0	8.0			8.0		3.0	8.0		8.0		8.0
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0		3.0
Lane Grp Cap (vph)	258	1364			1158		373	284		330		413
v/s Ratio Prot		0.31			0.18		c0.01	0.03				
v/s Ratio Perm	c0.94						0.04			c0.50		0.04
v/c Ratio	2.36	0.78			0.44		0.12	0.07		1.47		0.12
Uniform Delay, d1	34.5	30.1			25.1		17.7	17.2		38.0		26.2
Progression Factor	0.32	0.29			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	611.6	0.4			1.2		0.6	0.5		227.2		0.6
Delay (s)	622.5	9.3			26.3		18.3	17.7		265.2		26.8
Level of Service	F	A			C		B	B		F		C
Approach Delay (s)		231.9			26.3			18.0			209.2	
Approach LOS		F			C			B			F	

Intersection Summary			
HCM 2000 Control Delay	182.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.74		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	108.9%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	311	1616	137	493	74	222	170	570
v/c Ratio	0.92	1.21	0.87	0.31	0.39	0.50	0.51	1.11
Control Delay	66.7	133.5	80.4	17.3	27.5	26.3	29.4	107.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.7	133.5	80.4	17.3	27.5	26.3	29.4	107.5
Queue Length 50th (m)	65.6	~234.2	23.5	25.4	10.1	25.1	25.5	~143.3
Queue Length 95th (m)	#120.2	#277.2	#54.8	43.2	19.7	49.2	42.5	#212.2
Internal Link Dist (m)		171.5		202.3		102.8		69.7
Turn Bay Length (m)	65.0		70.0		45.0		30.0	
Base Capacity (vph)	339	1337	157	1572	205	442	336	515
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	0.92	1.21	0.87	0.31	0.36	0.50	0.51	1.11

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	283	1350	120	125	436	13	67	64	138	155	209	309
Future Volume (vph)	283	1350	120	125	436	13	67	64	138	155	209	309
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.98		1.00	0.99	
Flpb, ped/bikes	0.98	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.90		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1745	3403		1323	3168		1705	1522		1338	1649	
Flt Permitted	0.47	1.00		0.08	1.00		0.14	1.00		0.48	1.00	
Satd. Flow (perm)	867	3403		117	3168		248	1522		678	1649	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	311	1484	132	137	479	14	74	70	152	170	230	340
RTOR Reduction (vph)	0	6	0	0	2	0	0	67	0	0	45	0
Lane Group Flow (vph)	311	1610	0	137	491	0	74	155	0	170	525	0
Confl. Peds. (#/hr)	14		9	9		14	4		8	8		4
Heavy Vehicles (%)	3%	6%	3%	38%	14%	34%	7%	4%	15%	36%	2%	7%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	44.4	44.4		56.4	56.4		35.7	28.9		42.6	32.8	
Effective Green, g (s)	44.4	44.4		56.4	56.4		35.7	28.9		42.6	32.8	
Actuated g/C Ratio	0.39	0.39		0.49	0.49		0.31	0.25		0.37	0.29	
Clearance Time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	334	1313		151	1553		163	382		312	470	
v/s Ratio Prot		c0.47		c0.07	0.15		0.03	0.10		c0.05	c0.32	
v/s Ratio Perm	0.36			0.37			0.11			0.15		
v/c Ratio	0.93	1.23		0.91	0.32		0.45	0.40		0.54	1.12	
Uniform Delay, d1	33.8	35.3		29.6	17.7		31.4	35.9		26.4	41.1	
Progression Factor	1.00	1.00		1.72	0.97		1.00	1.00		1.00	1.00	
Incremental Delay, d2	34.5	108.9		44.8	0.5		2.0	3.2		1.9	77.5	
Delay (s)	68.3	144.2		95.8	17.6		33.4	39.0		28.3	118.6	
Level of Service	E	F		F	B		C	D		C	F	
Approach Delay (s)		132.0			34.6			37.6			97.8	
Approach LOS		F			C			D			F	

Intersection Summary			
HCM 2000 Control Delay	100.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	102.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	27	1441	356	506	107	19	527	6	2
v/c Ratio	0.07	0.93	0.95	0.23	0.34	0.05	0.88	0.02	0.00
Control Delay	20.5	30.5	76.5	9.6	48.0	42.1	34.5	41.5	0.0
Queue Delay	0.0	9.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.5	39.7	76.5	9.6	48.0	42.1	34.5	41.5	0.0
Queue Length 50th (m)	3.6	137.3	81.9	27.2	24.8	4.1	55.9	1.3	0.0
Queue Length 95th (m)	m3.9	m127.6	#141.9	35.1	42.6	11.0	#121.6	5.0	0.0
Internal Link Dist (m)		161.5		171.5		57.8			66.0
Turn Bay Length (m)	80.0		55.0		45.0				
Base Capacity (vph)	376	1544	376	2204	317	362	602	319	677
Starvation Cap Reductn	0	106	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	0.07	1.00	0.95	0.23	0.34	0.05	0.88	0.02	0.00

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)	25	1251	103	335	476	0	101	18	495	6	0	2
Future Volume (vph)	25	1251	103	335	476	0	101	18	495	6	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		3.0	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	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.93	1.00	0.98	
Flpb, ped/bikes	0.98	1.00		1.00	1.00		0.99	1.00	1.00	0.95	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	1.00	0.85	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1706	3420		1674	3318		1691	1537	1453	1728	1600	
Flt Permitted	0.47	1.00		0.06	1.00		0.76	1.00	1.00	0.75	1.00	
Satd. Flow (perm)	837	3420		107	3318		1347	1537	1453	1355	1600	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	27	1331	110	356	506	0	107	19	527	6	0	2
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	260	0	2	0
Lane Group Flow (vph)	27	1437	0	356	506	0	107	19	267	6	0	0
Confl. Peds. (#/hr)	9		8	8		9	4		26	26		4
Heavy Vehicles (%)	5%	5%	6%	9%	10%	20%	7%	25%	5%	0%	25%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	63.0	63.0		93.0	93.0		33.0	33.0	33.0	33.0	33.0	
Effective Green, g (s)	63.0	63.0		93.0	93.0		33.0	33.0	33.0	33.0	33.0	
Actuated g/C Ratio	0.45	0.45		0.66	0.66		0.24	0.24	0.24	0.24	0.24	
Clearance Time (s)	7.0	7.0		3.0	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)	376	1539		373	2204		317	362	342	319	377	
v/s Ratio Prot		0.42		c0.18	0.15			0.01			0.00	
v/s Ratio Perm	0.03			c0.45			0.08		c0.18	0.00		
v/c Ratio	0.07	0.93		0.95	0.23		0.34	0.05	0.78	0.02	0.00	
Uniform Delay, d1	21.9	36.5		46.3	9.3		44.4	41.4	50.1	41.1	40.9	
Progression Factor	0.92	0.79		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	1.4		36.4	0.2		2.9	0.3	16.1	0.1	0.0	
Delay (s)	20.1	30.2		82.8	9.6		47.3	41.7	66.3	41.2	40.9	
Level of Service	C	C		F	A		D	D	E	D	D	
Approach Delay (s)		30.0			39.8			62.4			41.1	
Approach LOS		C			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	39.9	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)	17.0
Intersection Capacity Utilization	95.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	40	820	160	530	137	1905	510	705
v/c Ratio	0.17	0.70	1.42	0.45	0.33	1.47	1.65	0.44
Control Delay	34.7	43.1	266.2	24.3	16.6	248.5	334.1	26.6
Queue Delay	0.0	0.5	0.0	0.0	0.0	0.1	0.1	0.0
Total Delay	34.7	43.7	266.2	24.3	16.6	248.5	334.2	26.6
Queue Length 50th (m)	7.7	102.0	~60.3	44.1	16.6	~380.0	~188.4	67.8
Queue Length 95th (m)	16.0	113.9	#97.5	54.7	24.8	#380.3	#232.7	77.0
Internal Link Dist (m)		170.1		161.5		203.8		248.3
Turn Bay Length (m)	50.0		50.0		65.0		100.0	
Base Capacity (vph)	235	1170	113	1179	413	1296	310	1599
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	95	0	0	0	25	3	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.76	1.42	0.45	0.33	1.50	1.66	0.44

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)	34	615	74	134	235	210	115	1264	336	428	541	51
Future Volume (vph)	34	615	74	134	235	210	115	1264	336	428	541	51
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	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		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	0.99	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.93		1.00	0.97		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)	1758	3395		1628	3105		1805	3380		1772	3493	
Flt Permitted	0.37	1.00		0.19	1.00		0.38	1.00		0.07	1.00	
Satd. Flow (perm)	687	3395		330	3105		717	3380		133	3493	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	40	732	88	160	280	250	137	1505	400	510	644	61
RTOR Reduction (vph)	0	7	0	0	115	0	0	17	0	0	5	0
Lane Group Flow (vph)	40	813	0	160	415	0	137	1888	0	510	700	0
Confl. Peds. (#/hr)	13		33	33		13	6		2	2		6
Heavy Vehicles (%)	3%	5%	6%	11%	10%	5%	1%	3%	9%	3%	2%	13%
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)	48.0	48.0		48.0	48.0		62.1	53.0		76.0	63.9	
Effective Green, g (s)	48.0	48.0		48.0	48.0		62.1	53.0		76.0	63.9	
Actuated g/C Ratio	0.34	0.34		0.34	0.34		0.44	0.38		0.54	0.46	
Clearance Time (s)	8.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	235	1164		113	1064		388	1279		306	1594	
v/s Ratio Prot		0.24			0.13		0.02	0.56		c0.24	0.20	
v/s Ratio Perm	0.06			c0.48			0.13			c0.66		
v/c Ratio	0.17	0.70		1.42	0.39		0.35	1.48		1.67	0.44	
Uniform Delay, d1	32.1	39.8		46.0	34.9		23.5	43.5		46.8	25.9	
Progression Factor	1.00	1.00		1.01	0.99		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.6	3.5		230.6	1.1		2.5	218.6		314.0	0.9	
Delay (s)	33.7	43.3		277.2	35.6		26.0	262.1		360.8	26.8	
Level of Service	C	D		F	D		C	F		F	C	
Approach Delay (s)		42.8			91.7			246.3			167.0	
Approach LOS		D			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	167.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.60		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	123.5%	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)	87	156	19	226	37	892	430	324
v/c Ratio	0.30	0.35	0.07	0.44	0.06	0.92	3.05	0.35
Control Delay	27.9	10.4	23.8	13.5	8.3	32.4	956.0	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.9	10.4	23.8	13.5	8.3	32.4	956.0	10.2
Queue Length 50th (m)	10.7	4.3	2.2	10.5	2.4	112.5	~95.9	22.9
Queue Length 95th (m)	12.9	4.7	4.2	8.7	3.6	65.1	#71.5	19.1
Internal Link Dist (m)		141.1		97.5		112.5		34.9
Turn Bay Length (m)	20.0		20.0		25.0		25.0	
Base Capacity (vph)	286	446	287	508	590	972	141	929
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	0.30	0.35	0.07	0.44	0.06	0.92	3.05	0.35

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)	47	20	64	10	6	116	20	470	12	232	147	28
Future Volume (vph)	47	20	64	10	6	116	20	470	12	232	147	28
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	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.96		1.00	0.98		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		0.97	1.00		0.98	1.00		1.00	1.00	
Frt	1.00	0.89		1.00	0.86		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1817	1428		1662	1619		1794	1727		1825	1637	
Flt Permitted	0.60	1.00		0.66	1.00		0.56	1.00		0.13	1.00	
Satd. Flow (perm)	1145	1428		1151	1619		1050	1727		251	1637	
Peak-hour factor, PHF	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Adj. Flow (vph)	87	37	119	19	11	215	37	870	22	430	272	52
RTOR Reduction (vph)	0	89	0	0	104	0	0	1	0	0	9	0
Lane Group Flow (vph)	87	67	0	19	122	0	37	891	0	430	315	0
Confl. Peds. (#/hr)	5		16	16		5	13		4	4		13
Heavy Vehicles (%)	0%	0%	19%	7%	0%	0%	0%	11%	0%	0%	10%	33%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	20.0	20.0		20.0	20.0		45.0	45.0		45.0	45.0	
Effective Green, g (s)	20.0	20.0		20.0	20.0		45.0	45.0		45.0	45.0	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.56	0.56		0.56	0.56	
Clearance Time (s)	8.0	8.0		8.0	8.0		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)	286	357		287	404		590	971		141	920	
v/s Ratio Prot		0.05			0.08			0.52			0.19	
v/s Ratio Perm	c0.08			0.02			0.04			c1.71		
v/c Ratio	0.30	0.19		0.07	0.30		0.06	0.92		3.05	0.34	
Uniform Delay, d1	24.4	23.6		22.9	24.3		7.9	15.8		17.5	9.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.7	1.2		0.4	1.9		0.2	14.7		941.0	1.0	
Delay (s)	27.1	24.8		23.3	26.2		8.1	30.5		958.5	10.5	
Level of Service	C	C		C	C		A	C		F	B	
Approach Delay (s)		25.6			26.0			29.7			551.1	
Approach LOS		C			C			C			F	

Intersection Summary			
HCM 2000 Control Delay	209.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.20		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	5	0	37	17	0	13	219	128	32	635	12
Future Volume (Veh/h)	0	5	0	37	17	0	13	219	128	32	635	12
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	5	0	40	18	0	14	238	139	35	690	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)								94				
pX, platoon unblocked	0.87	0.87		0.87	0.87	0.87				0.87		
vC, conflicting volume	1042	1172	696	1098	1108	308	703			377		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	975	1124	696	1040	1052	135	703			215		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	97	100	77	90	100	98			97		
cM capacity (veh/h)	181	171	441	172	189	798	895			1184		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	0	5	40	18	14	377	35	703
Volume Left	0	0	40	0	14	0	35	0
Volume Right	0	0	0	0	0	139	0	13
cSH	1700	171	172	189	895	1700	1184	1700
Volume to Capacity	0.00	0.03	0.23	0.10	0.02	0.22	0.03	0.41
Queue Length 95th (m)	0.0	0.7	6.6	2.4	0.4	0.0	0.7	0.0
Control Delay (s)	0.0	26.6	32.2	26.0	9.1	0.0	8.1	0.0
Lane LOS	A	D	D	D	A		A	
Approach Delay (s)	26.6		30.3		0.3		0.4	
Approach LOS	D		D					

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	49.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	0	63	19	2	17	80	608	98	46	539	53
Future Volume (Veh/h)	35	0	63	19	2	17	80	608	98	46	539	53
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	38	0	68	21	2	18	87	661	107	50	586	58
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								89			120	
pX, platoon unblocked	0.66	0.66		0.66	0.66	0.66				0.66		
vC, conflicting volume	1569	1657	615	1642	1632	714	644			768		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1604	1736	615	1714	1699	318	644			399		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	19	100	86	42	96	96	91			94		
cM capacity (veh/h)	47	49	491	36	52	480	941			771		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	106	41	87	768	50	644
Volume Left	38	21	87	0	50	0
Volume Right	68	18	0	107	0	58
cSH	111	62	941	1700	771	1700
Volume to Capacity	0.95	0.66	0.09	0.45	0.06	0.38
Queue Length 95th (m)	45.5	21.4	2.3	0.0	1.6	0.0
Control Delay (s)	145.0	138.3	9.2	0.0	10.0	0.0
Lane LOS	F	F	A		A	
Approach Delay (s)	145.0	138.3	0.9		0.7	
Approach LOS	F	F				

Intersection Summary				
Average Delay	13.2			
Intersection Capacity Utilization	57.9%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	615	19	31	407
Future Volume (Veh/h)	0	0	615	19	31	407
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	668	21	34	442
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			59			82
pX, platoon unblocked	0.92					
vC, conflicting volume	1188	344			689	
vC1, stage 1 conf vol	678					
vC2, stage 2 conf vol	510					
vCu, unblocked vol	1160	344			689	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			96	
cM capacity (veh/h)	382	651			901	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	445	244	34	442
Volume Left	0	0	0	34	0
Volume Right	0	0	21	0	0
cSH	1700	1700	1700	901	1700
Volume to Capacity	0.00	0.26	0.14	0.04	0.26
Queue Length 95th (m)	0.0	0.0	0.0	0.9	0.0
Control Delay (s)	0.0	0.0	0.0	9.2	0.0
Lane LOS	A			A	
Approach Delay (s)	0.0	0.0		0.7	
Approach LOS	A				

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	27.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	988	79	0	136	0	15
Future Volume (Veh/h)	988	79	0	136	0	15
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)	1074	86	0	148	0	16
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)				58		
pX, platoon unblocked						
vC, conflicting volume			1160		1148	537
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1160		1148	537
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	97
cM capacity (veh/h)			598		192	488

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	537	537	86	74	74	16
Volume Left	0	0	0	0	0	0
Volume Right	0	0	86	0	0	16
cSH	1700	1700	1700	1700	1700	488
Volume to Capacity	0.32	0.32	0.05	0.04	0.04	0.03
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.8
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	12.6
Lane LOS						B
Approach Delay (s)	0.0			0.0		12.6
Approach LOS						B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	37.3%	ICU Level of Service	A
Analysis Period (min)	15		

Queues
100: Mavis Road & Highway 403 EB Off-Ramp/Centre View Drive

11/07/2017

Lane Group	EBL	EBR	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	454	650	71	763	2657	1900
v/c Ratio	0.30	0.95	0.09	1.05	0.93	0.85
Control Delay	24.6	59.6	22.0	82.7	43.6	39.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.6	59.6	22.0	82.7	43.6	39.1
Queue Length 50th (m)	40.0	164.4	11.0	~224.6	198.9	169.3
Queue Length 95th (m)	52.3	#245.9	20.3	#301.0	215.3	190.2
Internal Link Dist (m)					73.6	241.1
Turn Bay Length (m)		150.0				
Base Capacity (vph)	1526	683	779	727	2851	2226
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	0.30	0.95	0.09	1.05	0.93	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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	409	0	585	64	0	687	0	2295	96	0	1710	0
Future Volume (vph)	409	0	585	64	0	687	0	2295	96	0	1710	0
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		7.0			7.0	
Lane Util. Factor	0.97		1.00	1.00		1.00		0.86			0.91	
Frt	1.00		0.85	1.00		0.85		0.99			1.00	
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (prot)	3340		1458	1706		1555		6326			4948	
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (perm)	3340		1458	1706		1555		6326			4948	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	454	0	650	71	0	763	0	2550	107	0	1900	0
RTOR Reduction (vph)	0	0	17	0	0	17	0	4	0	0	0	0
Lane Group Flow (vph)	454	0	633	71	0	746	0	2653	0	0	1900	0
Heavy Vehicles (%)	6%	0%	12%	7%	0%	5%	0%	4%	0%	0%	6%	0%
Turn Type	Perm		Perm	Perm		Perm		NA			NA	
Protected Phases								2			6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	64.0		64.0	64.0		64.0		63.0			63.0	
Effective Green, g (s)	64.0		64.0	64.0		64.0		63.0			63.0	
Actuated g/C Ratio	0.46		0.46	0.46		0.46		0.45			0.45	
Clearance Time (s)	6.0		6.0	6.0		6.0		7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0		3.0		3.0			3.0	
Lane Grp Cap (vph)	1526		666	779		710		2846			2226	
v/s Ratio Prot								c0.42			0.38	
v/s Ratio Perm	0.14		0.43	0.04		c0.48						
v/c Ratio	0.30		0.95	0.09		1.05		0.93			0.85	
Uniform Delay, d1	23.9		36.5	21.5		38.0		36.5			34.4	
Progression Factor	1.00		1.00	1.00		1.00		1.00			1.00	
Incremental Delay, d2	0.5		24.7	0.2		47.9		7.0			4.4	
Delay (s)	24.4		61.2	21.8		85.9		43.5			38.8	
Level of Service	C		E	C		F		D			D	
Approach Delay (s)		46.0			80.5			43.5			38.8	
Approach LOS		D			F			D			D	

Intersection Summary			
HCM 2000 Control Delay	47.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	103.2%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1112	981	422	58	767	371
v/c Ratio	0.62	0.98	2.18	0.03	1.57	0.74
Control Delay	17.1	30.1	565.2	10.3	296.5	37.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.1	30.1	565.2	10.3	296.5	37.2
Queue Length 50th (m)	73.2	9.9	~96.4	2.5	~214.5	56.1
Queue Length 95th (m)	93.1	#269.2	#154.9	5.3	#283.3	#91.4
Internal Link Dist (m)	33.9			146.8	95.7	
Turn Bay Length (m)			60.0		35.0	
Base Capacity (vph)	1806	1005	194	1946	487	500
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	0.62	0.98	2.18	0.03	1.57	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.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1012	893	384	53	698	338
Future Volume (vph)	1012	893	384	53	698	338
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.88	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3259	1168	1764	3510	1587	1512
Flt Permitted	1.00	1.00	0.19	1.00	0.95	1.00
Satd. Flow (perm)	3259	1168	351	3510	1587	1512
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	1112	981	422	58	767	371
RTOR Reduction (vph)	0	0	0	0	0	37
Lane Group Flow (vph)	1112	981	422	58	767	334
Confl. Peds. (#/hr)		71	71			
Heavy Vehicles (%)	12%	23%	1%	4%	15%	8%
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	2	8		6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	56.0	87.0	56.0	56.0	31.0	31.0
Effective Green, g (s)	56.0	87.0	56.0	56.0	31.0	31.0
Actuated g/C Ratio	0.55	0.86	0.55	0.55	0.31	0.31
Clearance Time (s)	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
Lane Grp Cap (vph)	1806	1168	194	1946	487	464
v/s Ratio Prot	0.34	0.26		0.02	c0.48	
v/s Ratio Perm		0.58	c1.20			0.22
v/c Ratio	0.62	0.84	2.18	0.03	1.57	0.72
Uniform Delay, d1	15.2	3.5	22.5	10.2	35.0	31.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.6	5.5	545.5	0.0	268.5	5.4
Delay (s)	16.8	9.0	568.0	10.2	303.5	36.6
Level of Service	B	A	F	B	F	D
Approach Delay (s)	13.1			500.6	216.5	
Approach LOS	B			F	F	

Intersection Summary			
HCM 2000 Control Delay	138.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.96		
Actuated Cycle Length (s)	101.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	105.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	599	857	1833	18	48	452	976
v/c Ratio	11.52	0.62	1.60	0.05	0.19	1.46	2.16
Control Delay	4759.6	23.6	304.6	17.3	9.5	256.6	551.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4759.6	23.6	304.6	17.3	9.5	256.6	551.9
Queue Length 50th (m)	~330.8	60.3	~382.6	2.4	1.3	~170.5	~405.0
Queue Length 95th (m)	m#356.2	m67.7	#424.9	6.6	9.3	#236.0	#484.8
Internal Link Dist (m)		202.3	126.7		25.6		
Turn Bay Length (m)	70.0					20.0	
Base Capacity (vph)	52	1388	1145	363	252	310	451
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	11.52	0.62	1.60	0.05	0.19	1.46	2.16

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)	551	788	0	0	1180	506	17	0	44	416	0	898
Future Volume (vph)	551	788	0	0	1180	506	17	0	44	416	0	898
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	8.0		8.0		8.0
Lane Util. Factor	1.00	0.95			0.95		1.00	1.00		1.00		1.00
Frpb, ped/bikes	1.00	1.00			0.84		1.00	0.58		1.00		0.60
Flpb, ped/bikes	1.00	1.00			1.00		0.63	1.00		0.61		1.00
Frt	1.00	1.00			0.95		1.00	0.85		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1738	3411			2792		665	486		1073		919
Flt Permitted	0.07	1.00			1.00		0.95	1.00		0.73		1.00
Satd. Flow (perm)	128	3411			2792		665	486		820		919
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)	599	857	0	0	1283	550	18	0	48	452	0	976
RTOR Reduction (vph)	0	0	0	0	9	0	0	20	0	0	0	103
Lane Group Flow (vph)	599	857	0	0	1824	0	18	28	0	452	0	873
Confl. Peds. (#/hr)	290		1278	1278		290	658		752	752		658
Heavy Vehicles (%)	5%	7%	0%	0%	1%	13%	72%	0%	95%	4%	0%	7%
Turn Type	Perm	NA			NA		pm+pt	NA		Perm		Perm
Protected Phases		2			6		3	8				
Permitted Phases	2						8			4		4
Actuated Green, G (s)	57.0	57.0			57.0		67.0	67.0		53.0		53.0
Effective Green, g (s)	57.0	57.0			57.0		67.0	67.0		53.0		53.0
Actuated g/C Ratio	0.41	0.41			0.41		0.48	0.48		0.38		0.38
Clearance Time (s)	8.0	8.0			8.0		3.0	8.0		8.0		8.0
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0		3.0
Lane Grp Cap (vph)	52	1388			1136		318	232		310		347
v/s Ratio Prot		0.25			0.65		0.00	c0.06				
v/s Ratio Perm	c4.67						0.02			0.55		c0.95
v/c Ratio	11.52	0.62			1.61		0.06	0.12		1.46		2.52
Uniform Delay, d1	41.5	32.9			41.5		19.6	20.2		43.5		43.5
Progression Factor	0.64	0.68			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	4754.6	1.2			276.7		0.3	1.0		223.2		690.4
Delay (s)	4781.2	23.4			318.2		19.9	21.2		266.7		733.9
Level of Service	F	C			F		B	C		F		F
Approach Delay (s)		1980.7			318.2			20.9			586.0	
Approach LOS		F			F			C			F	

Intersection Summary			
HCM 2000 Control Delay	900.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	6.52		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	141.1%	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)	334	976	791	1347	185	575	85	669
v/c Ratio	2.49	0.65	2.41	0.72	1.06	1.47	0.62	1.59
Control Delay	700.8	12.4	656.0	13.1	120.7	260.0	51.6	309.2
Queue Delay	0.0	0.9	0.0	1.4	8.5	0.0	0.0	0.7
Total Delay	700.8	13.3	656.0	14.5	129.2	260.0	51.6	309.9
Queue Length 50th (m)	~156.6	34.6	~322.4	86.1	~38.4	~208.1	16.2	~248.0
Queue Length 95th (m)	m#193.1	m58.9	m#119.0	m37.3	#86.8	#279.8	#30.3	#322.6
Internal Link Dist (m)		171.5		202.3		102.8		69.7
Turn Bay Length (m)	65.0		70.0		45.0		30.0	
Base Capacity (vph)	134	1492	328	1881	175	391	142	420
Starvation Cap Reductn	0	250	0	325	0	0	0	0
Spillback Cap Reductn	0	0	0	0	4	0	0	29
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.49	0.79	2.41	0.87	1.08	1.47	0.60	1.71

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.

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)	327	904	53	775	1089	231	181	212	352	83	156	500
Future Volume (vph)	327	904	53	775	1089	231	181	212	352	83	156	500
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.98		1.00	0.98	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.97		1.00	0.91		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)	1797	3419		1615	3269		1772	1508		1437	1580	
Flt Permitted	0.16	1.00		0.17	1.00		0.12	1.00		0.12	1.00	
Satd. Flow (perm)	308	3419		292	3269		230	1508		189	1580	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	334	922	54	791	1111	236	185	216	359	85	159	510
RTOR Reduction (vph)	0	3	0	0	13	0	0	42	0	0	59	0
Lane Group Flow (vph)	334	973	0	791	1334	0	185	533	0	85	610	0
Confl. Peds. (#/hr)	17		10	10		17	13		10	10		13
Heavy Vehicles (%)	1%	6%	1%	13%	4%	24%	3%	1%	21%	27%	2%	6%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	61.0	61.0		80.0	80.0		41.4	32.4		40.6	32.0	
Effective Green, g (s)	61.0	61.0		80.0	80.0		41.4	32.4		40.6	32.0	
Actuated g/C Ratio	0.44	0.44		0.57	0.57		0.30	0.23		0.29	0.23	
Clearance Time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	134	1489		318	1868		167	348		131	361	
v/s Ratio Prot		0.28		c0.28	0.41		c0.07	0.35		0.04	c0.39	
v/s Ratio Perm	1.09			c1.14			0.26			0.15		
v/c Ratio	2.49	0.65		2.49	0.71		1.11	1.53		0.65	1.69	
Uniform Delay, d1	39.5	31.2		25.6	21.7		44.2	53.8		40.5	54.0	
Progression Factor	0.50	0.36		1.62	0.60		1.00	1.00		1.00	1.00	
Incremental Delay, d2	683.2	1.2		670.2	0.2		101.5	253.0		10.6	321.7	
Delay (s)	702.9	12.3		711.6	13.2		145.7	306.8		51.0	375.7	
Level of Service	F	B		F	B		F	F		D	F	
Approach Delay (s)		188.4			271.5			267.5			339.1	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	259.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.22		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	139.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	40	1045	568	1400	31	4	503	10	83
v/c Ratio	0.32	0.89	0.90	0.57	0.12	0.01	0.74	0.04	0.22
Control Delay	42.9	53.7	44.5	9.7	47.4	45.2	11.4	45.8	14.3
Queue Delay	0.0	2.4	1.0	0.8	0.0	0.0	0.0	0.0	0.0
Total Delay	42.9	56.1	45.5	10.5	47.4	45.2	11.4	45.8	14.3
Queue Length 50th (m)	8.2	142.4	125.3	77.3	7.1	0.9	0.0	2.3	2.5
Queue Length 95th (m)	19.8	#174.4	m134.6	m72.1	16.3	4.3	36.4	7.3	16.7
Internal Link Dist (m)		161.5		171.5		57.8			66.0
Turn Bay Length (m)	80.0		55.0		45.0				
Base Capacity (vph)	125	1172	633	2473	261	384	679	271	374
Starvation Cap Reductn	0	56	10	684	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	0.32	0.94	0.91	0.78	0.12	0.01	0.74	0.04	0.22

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)	36	822	119	511	1247	13	28	4	453	9	6	68
Future Volume (vph)	36	822	119	511	1247	13	28	4	453	9	6	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		3.0	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	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	0.92	1.00	0.96	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		0.97	1.00	1.00	0.94	1.00	
Frt	1.00	0.98		1.00	1.00		1.00	1.00	0.85	1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3398		1722	3534		1764	1921	1385	1707	1583	
Flt Permitted	0.19	1.00		0.08	1.00		0.70	1.00	1.00	0.76	1.00	
Satd. Flow (perm)	364	3398		142	3534		1305	1921	1385	1357	1583	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	40	913	132	568	1386	14	31	4	503	10	7	76
RTOR Reduction (vph)	0	8	0	0	1	0	0	0	402	0	58	0
Lane Group Flow (vph)	40	1037	0	568	1399	0	31	4	101	10	25	0
Confl. Peds. (#/hr)	19		14	14		19	18		31	31		18
Heavy Vehicles (%)	0%	5%	0%	6%	3%	5%	0%	0%	9%	0%	0%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	48.0	48.0		98.0	98.0		28.0	28.0	28.0	28.0	28.0	
Effective Green, g (s)	48.0	48.0		98.0	98.0		28.0	28.0	28.0	28.0	28.0	
Actuated g/C Ratio	0.34	0.34		0.70	0.70		0.20	0.20	0.20	0.20	0.20	
Clearance Time (s)	7.0	7.0		3.0	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)	124	1165		629	2473		261	384	277	271	316	
v/s Ratio Prot		0.31		c0.30	0.40			0.00			0.02	
v/s Ratio Perm	0.11			c0.33			0.02		c0.07	0.01		
v/c Ratio	0.32	0.89		0.90	0.57		0.12	0.01	0.36	0.04	0.08	
Uniform Delay, d1	34.0	43.5		37.7	10.4		45.9	44.9	48.3	45.1	45.5	
Progression Factor	1.00	1.00		1.01	0.88		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	6.8	10.4		8.6	0.4		0.9	0.0	3.7	0.3	0.5	
Delay (s)	40.7	53.9		46.6	9.6		46.8	44.9	52.0	45.4	46.0	
Level of Service	D	D		D	A		D	D	D	D	D	
Approach Delay (s)		53.4			20.3			51.6			46.0	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	35.3	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)	17.0
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	66	503	248	1197	26	1602	413	1223
v/c Ratio	0.51	0.42	1.01	1.20	0.14	1.24	1.27	0.71
Control Delay	43.4	37.4	112.9	142.4	16.7	154.5	182.1	33.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.4	37.4	112.9	142.4	16.7	154.5	182.1	33.5
Queue Length 50th (m)	12.5	58.3	~75.8	~223.1	3.2	~310.2	~138.0	148.0
Queue Length 95th (m)	23.1	74.6	#132.9	#266.1	7.6	#353.3	#204.3	173.7
Internal Link Dist (m)		170.1		161.5		203.8		248.3
Turn Bay Length (m)	50.0		50.0		65.0		100.0	
Base Capacity (vph)	130	1206	245	1001	192	1292	325	1726
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.42	1.01	1.20	0.14	1.24	1.27	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)	61	404	64	231	827	286	24	1301	189	384	1108	30
Future Volume (vph)	61	404	64	231	827	286	24	1301	189	384	1108	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		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		0.98	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.96		1.00	0.98		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)	1755	3424		1739	3414		1789	3473		1772	3594	
Flt Permitted	0.09	1.00		0.47	1.00		0.15	1.00		0.07	1.00	
Satd. Flow (perm)	161	3424		856	3414		285	3473		128	3594	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	66	434	69	248	889	308	26	1399	203	413	1191	32
RTOR Reduction (vph)	0	8	0	0	23	0	0	8	0	0	1	0
Lane Group Flow (vph)	66	495	0	248	1174	0	26	1594	0	413	1222	0
Confl. Peds. (#/hr)	5		23	23		5	8		13	13		8
Heavy Vehicles (%)	4%	4%	2%	3%	2%	3%	2%	2%	7%	3%	1%	4%
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	52.5	52.5		43.0	43.0		62.0	55.5		81.5	72.0	
Effective Green, g (s)	52.5	52.5		43.0	43.0		62.0	55.5		81.5	72.0	
Actuated g/C Ratio	0.35	0.35		0.29	0.29		0.41	0.37		0.54	0.48	
Clearance Time (s)	3.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	125	1198		245	978		182	1285		321	1725	
v/s Ratio Prot	c0.02	0.14			c0.34		0.01	0.46		c0.20	0.34	
v/s Ratio Perm	0.16			0.29			0.05			c0.50		
v/c Ratio	0.53	0.41		1.01	1.20		0.14	1.24		1.29	0.71	
Uniform Delay, d1	39.0	37.0		53.5	53.5		27.5	47.2		50.8	30.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	15.0	1.1		60.7	100.2		1.6	115.2		150.5	2.5	
Delay (s)	54.1	38.1		114.2	153.7		29.1	162.4		201.3	33.2	
Level of Service	D	D		F	F		C	F		F	C	
Approach Delay (s)		39.9			146.9			160.3			75.7	
Approach LOS		D			F			F			E	

Intersection Summary			
HCM 2000 Control Delay	117.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.24		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	122.9%	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)	13	172	40	386	67	273	217	644
v/c Ratio	0.07	0.34	0.13	0.56	0.23	0.28	0.38	0.65
Control Delay	22.9	7.4	23.3	8.6	12.3	10.9	13.3	17.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7
Total Delay	22.9	7.4	23.3	8.6	12.3	10.9	13.3	18.7
Queue Length 50th (m)	1.5	1.9	4.6	7.0	5.0	20.8	17.9	64.3
Queue Length 95th (m)	4.7	9.7	9.8	15.2	9.9	27.2	25.6	72.2
Internal Link Dist (m)		141.1		97.5		112.5		34.9
Turn Bay Length (m)	20.0		20.0		25.0		25.0	
Base Capacity (vph)	180	506	306	685	293	968	565	984
Starvation Cap Reductn	0	0	0	0	0	0	0	185
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	0.07	0.34	0.13	0.56	0.23	0.28	0.38	0.81

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	13	116	30	46	244	50	198	7	163	447	36
Future Volume (vph)	10	13	116	30	46	244	50	198	7	163	447	36
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	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.89		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.92	1.00		0.99	1.00		0.98	1.00	
Frt	1.00	0.86		1.00	0.87		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)	1814	1433		1632	1635		1809	1800		1692	1825	
Flt Permitted	0.34	1.00		0.65	1.00		0.29	1.00		0.59	1.00	
Satd. Flow (perm)	656	1433		1114	1635		547	1800		1053	1825	
Peak-hour factor, PHF	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Adj. Flow (vph)	13	17	155	40	61	325	67	264	9	217	596	48
RTOR Reduction (vph)	0	112	0	0	236	0	0	1	0	0	4	0
Lane Group Flow (vph)	13	60	0	40	150	0	67	272	0	217	640	0
Confl. Peds. (#/hr)	11		50	50		11	16		12	12		16
Heavy Vehicles (%)	0%	0%	4%	3%	3%	0%	0%	6%	7%	6%	4%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	22.0	22.0		22.0	22.0		43.0	43.0		43.0	43.0	
Effective Green, g (s)	22.0	22.0		22.0	22.0		43.0	43.0		43.0	43.0	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.54	0.54		0.54	0.54	
Clearance Time (s)	8.0	8.0		8.0	8.0		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)	180	394		306	449		294	967		565	980	
v/s Ratio Prot		0.04			c0.09			0.15			c0.35	
v/s Ratio Perm	0.02			0.04			0.12			0.21		
v/c Ratio	0.07	0.15		0.13	0.33		0.23	0.28		0.38	0.65	
Uniform Delay, d1	21.5	21.9		21.8	23.2		9.8	10.1		10.8	13.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.8		0.9	2.0		1.8	0.7		2.0	3.4	
Delay (s)	22.2	22.8		22.7	25.2		11.5	10.8		12.8	16.6	
Level of Service	C	C		C	C		B	B		B	B	
Approach Delay (s)		22.7			24.9			11.0			15.6	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	20	129	8	31	52	612	105	6	589	3
Future Volume (Veh/h)	7	0	20	129	8	31	52	612	105	6	589	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	0	22	140	9	34	57	665	114	7	640	3
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								94				
pX, platoon unblocked	0.88	0.88		0.88	0.88	0.88				0.88		
vC, conflicting volume	1473	1548	642	1512	1493	722	643			779		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1469	1555	642	1514	1492	612	643			677		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	89	100	95	0	91	92	94			99		
cM capacity (veh/h)	75	92	474	78	101	432	942			801		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	8	22	140	43	57	779	7	643
Volume Left	8	0	140	0	57	0	7	0
Volume Right	0	22	0	34	0	114	0	3
cSH	75	474	78	256	942	1700	801	1700
Volume to Capacity	0.11	0.05	1.80	0.17	0.06	0.46	0.01	0.38
Queue Length 95th (m)	2.6	1.1	92.1	4.5	1.5	0.0	0.2	0.0
Control Delay (s)	58.5	13.0	496.5	21.9	9.1	0.0	9.5	0.0
Lane LOS	F	B	F	C	A		A	
Approach Delay (s)	25.1		385.0		0.6		0.1	
Approach LOS	D		F					

Intersection Summary			
Average Delay	42.3		
Intersection Capacity Utilization	63.7%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	4	62	57	4	84	104	931	30	43	1195	38
Future Volume (Veh/h)	21	4	62	57	4	84	104	931	30	43	1195	38
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	23	4	67	62	4	91	113	1012	33	47	1299	41
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								89			120	
pX, platoon unblocked	0.69	0.69		0.69	0.69	0.69				0.69		
vC, conflicting volume	2744	2684	1320	2716	2688	1028	1340			1045		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	3299	3213	1320	3259	3218	818	1340			842		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	17	65	0	17	65	78			91		
cM capacity (veh/h)	1	5	192	1	5	260	514			549		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	94	157	113	1045	47	1340
Volume Left	23	62	113	0	47	0
Volume Right	67	91	0	33	0	41
cSH	2	2	514	1700	549	1700
Volume to Capacity	42.35	102.02	0.22	0.61	0.09	0.79
Queue Length 95th (m)	Err	Err	6.3	0.0	2.1	0.0
Control Delay (s)	Err	Err	14.0	0.0	12.2	0.0
Lane LOS	F	F	B		B	
Approach Delay (s)	Err	Err	1.4		0.4	
Approach LOS	F	F				

Intersection Summary			
Average Delay	898.4		
Intersection Capacity Utilization	95.1%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	31	38	447	4	22	614
Future Volume (Veh/h)	31	38	447	4	22	614
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)	34	41	486	4	24	667
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			59			82
pX, platoon unblocked	0.85					
vC, conflicting volume	1203	245			490	
vC1, stage 1 conf vol	488					
vC2, stage 2 conf vol	715					
vCu, unblocked vol	1152	245			490	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	95			98	
cM capacity (veh/h)	370	755			1070	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	75	324	166	24	667
Volume Left	34	0	0	24	0
Volume Right	41	0	4	0	0
cSH	513	1700	1700	1070	1700
Volume to Capacity	0.15	0.19	0.10	0.02	0.39
Queue Length 95th (m)	3.9	0.0	0.0	0.5	0.0
Control Delay (s)	13.2	0.0	0.0	8.4	0.0
Lane LOS	B			A	
Approach Delay (s)	13.2	0.0		0.3	
Approach LOS	B				

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	43.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1865	12	0	751	0	40
Future Volume (Veh/h)	1865	12	0	751	0	40
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)	2027	13	0	816	0	43
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)				58		
pX, platoon unblocked						
vC, conflicting volume			2040		2435	1014
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2040		2435	1014
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	82
cM capacity (veh/h)			273		26	237

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	1014	1014	13	408	408	43
Volume Left	0	0	0	0	0	0
Volume Right	0	0	13	0	0	43
cSH	1700	1700	1700	1700	1700	237
Volume to Capacity	0.60	0.60	0.01	0.24	0.24	0.18
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	4.9
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	23.6
Lane LOS						C
Approach Delay (s)	0.0			0.0		23.6
Approach LOS						C

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		

Queues
100: Mavis Road & Highway 403 EB Off-Ramp/Centre View Drive

11/06/2017

Lane Group	EBL	EBR	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	867	62	2	277	2355	2819
v/c Ratio	0.85	0.23	0.00	0.65	0.60	0.91
Control Delay	56.1	23.3	35.0	46.7	17.4	29.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.1	23.3	35.0	46.7	17.4	29.3
Queue Length 50th (m)	116.9	6.3	0.4	60.0	110.2	237.5
Queue Length 95th (m)	142.5	18.6	2.6	92.1	120.1	261.2
Internal Link Dist (m)					73.6	241.1
Turn Bay Length (m)		150.0				
Base Capacity (vph)	1016	272	427	423	3901	3097
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	0.85	0.23	0.00	0.65	0.60	0.91

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	850	0	61	2	0	271	0	2292	16	0	2763	0
Future Volume (vph)	850	0	61	2	0	271	0	2292	16	0	2763	0
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		7.0			7.0	
Lane Util. Factor	0.97		1.00	1.00		1.00		0.86			0.91	
Frt	1.00		0.85	1.00		0.85		1.00			1.00	
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (prot)	3471		855	1460		1372		6350			5043	
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (perm)	3471		855	1460		1372		6350			5043	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	867	0	62	2	0	277	0	2339	16	0	2819	0
RTOR Reduction (vph)	0	0	22	0	0	22	0	1	0	0	0	0
Lane Group Flow (vph)	867	0	40	2	0	255	0	2354	0	0	2819	0
Heavy Vehicles (%)	2%	0%	91%	25%	0%	19%	0%	4%	0%	0%	4%	0%
Turn Type	Perm		Perm	Perm		Perm		NA			NA	
Protected Phases								2			6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	41.0		41.0	41.0		41.0		86.0			86.0	
Effective Green, g (s)	41.0		41.0	41.0		41.0		86.0			86.0	
Actuated g/C Ratio	0.29		0.29	0.29		0.29		0.61			0.61	
Clearance Time (s)	6.0		6.0	6.0		6.0		7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0		3.0		3.0			3.0	
Lane Grp Cap (vph)	1016		250	427		401		3900			3097	
v/s Ratio Prot								0.37			c0.56	
v/s Ratio Perm	c0.25		0.05	0.00		0.19						
v/c Ratio	0.85		0.16	0.00		0.64		0.60			0.91	
Uniform Delay, d1	46.7		36.7	35.1		43.0		16.6			23.6	
Progression Factor	1.00		1.00	1.00		1.00		1.00			1.00	
Incremental Delay, d2	9.1		1.4	0.0		7.5		0.7			5.2	
Delay (s)	55.7		38.1	35.1		50.5		17.3			28.8	
Level of Service	E		D	D		D		B			C	
Approach Delay (s)		54.6			50.4			17.3			28.8	
Approach LOS		D			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	29.3	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)	13.0
Intersection Capacity Utilization	88.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1001	197	129	133	133	170
v/c Ratio	0.41	0.21	0.38	0.06	0.61	0.52
Control Delay	6.9	1.1	10.6	5.1	49.0	18.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.9	1.1	10.6	5.1	49.0	18.9
Queue Length 50th (m)	33.7	0.5	8.0	3.3	22.5	8.6
Queue Length 95th (m)	57.5	0.9	23.7	7.6	40.2	26.7
Internal Link Dist (m)	33.9			146.8	95.7	
Turn Bay Length (m)			60.0		35.0	
Base Capacity (vph)	2416	1029	341	2099	352	457
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	0.41	0.19	0.38	0.06	0.38	0.37

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	911	179	117	121	121	155
Future Volume (vph)	911	179	117	121	121	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.90	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3444	1126	1733	2992	1484	1555
Flt Permitted	1.00	1.00	0.27	1.00	0.95	1.00
Satd. Flow (perm)	3444	1126	486	2992	1484	1555
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	1001	197	129	133	133	170
RTOR Reduction (vph)	0	0	0	0	0	99
Lane Group Flow (vph)	1001	197	129	133	133	71
Confl. Peds. (#/hr)		45	45			
Heavy Vehicles (%)	6%	31%	3%	22%	23%	5%
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	2	8		6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	65.1	78.8	65.1	65.1	13.7	13.7
Effective Green, g (s)	65.1	78.8	65.1	65.1	13.7	13.7
Actuated g/C Ratio	0.70	0.85	0.70	0.70	0.15	0.15
Clearance Time (s)	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
Lane Grp Cap (vph)	2415	1126	340	2098	219	229
v/s Ratio Prot	c0.29	0.03		0.04	c0.09	
v/s Ratio Perm		0.15	0.27			0.05
v/c Ratio	0.41	0.17	0.38	0.06	0.61	0.31
Uniform Delay, d1	5.8	1.2	5.6	4.3	37.0	35.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.1	3.2	0.1	4.7	0.8
Delay (s)	6.4	1.3	8.8	4.4	41.7	36.1
Level of Service	A	A	A	A	D	D
Approach Delay (s)	5.5			6.6	38.6	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	92.8	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	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	220	1299	547	44	41	255	26
v/c Ratio	0.61	0.89	0.60	0.11	0.13	0.84	0.06
Control Delay	13.2	18.3	34.7	17.4	1.9	61.6	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.2	18.3	34.7	17.4	1.9	61.6	0.2
Queue Length 50th (m)	12.2	65.2	51.0	5.3	0.0	53.3	0.0
Queue Length 95th (m)	m13.7	m71.8	69.3	12.0	1.8	#98.3	0.0
Internal Link Dist (m)		202.3	126.7		25.6		
Turn Bay Length (m)	70.0					20.0	
Base Capacity (vph)	365	1453	914	399	311	304	453
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	0.60	0.89	0.60	0.11	0.13	0.84	0.06

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)	216	1273	0	0	397	139	43	0	40	250	0	25
Future Volume (vph)	216	1273	0	0	397	139	43	0	40	250	0	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	8.0			8.0		3.0	8.0		8.0		8.0
Lane Util. Factor	1.00	0.95			0.95		1.00	1.00		1.00		1.00
Frpb, ped/bikes	1.00	1.00			0.95		1.00	0.76		1.00		0.82
Flpb, ped/bikes	0.98	1.00			1.00		0.84	1.00		0.78		1.00
Frt	1.00	1.00			0.96		1.00	0.85		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1640	3411			2927		810	618		1267		1220
Flt Permitted	0.33	1.00			1.00		0.95	1.00		0.73		1.00
Satd. Flow (perm)	562	3411			2927		810	618		974		1220
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	220	1299	0	0	405	142	44	0	41	255	0	26
RTOR Reduction (vph)	0	0	0	0	30	0	0	23	0	0	0	18
Lane Group Flow (vph)	220	1299	0	0	517	0	44	18	0	255	0	8
Confl. Peds. (#/hr)	99		330	330		99	177		246	246		177
Heavy Vehicles (%)	9%	7%	0%	0%	10%	24%	89%	0%	100%	12%	0%	10%
Turn Type	pm+pt	NA			NA		pm+pt	NA		Perm		Perm
Protected Phases	5	2			6		3	8				
Permitted Phases	2						8			4		4
Actuated Green, G (s)	49.0	49.0			34.7		50.0	50.0		36.0		36.0
Effective Green, g (s)	49.0	49.0			34.7		50.0	50.0		36.0		36.0
Actuated g/C Ratio	0.43	0.43			0.30		0.43	0.43		0.31		0.31
Clearance Time (s)	3.0	8.0			8.0		3.0	8.0		8.0		8.0
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0		3.0
Lane Grp Cap (vph)	345	1453			883		352	268		304		381
v/s Ratio Prot	0.06	c0.38			0.18		c0.01	0.03				
v/s Ratio Perm	0.21						0.04			c0.26		0.01
v/c Ratio	0.64	0.89			0.59		0.12	0.07		0.84		0.02
Uniform Delay, d1	22.5	30.6			34.1		19.4	18.9		36.8		27.3
Progression Factor	0.53	0.45			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	1.5	3.7			2.8		0.7	0.5		23.3		0.1
Delay (s)	13.5	17.6			36.9		20.2	19.4		60.1		27.4
Level of Service	B	B			D		C	B		E		C
Approach Delay (s)		17.0			36.9			19.8			57.1	
Approach LOS		B			D			B			E	

Intersection Summary			
HCM 2000 Control Delay	26.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	84.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	282	1471	73	440	62	262	209	454
v/c Ratio	0.71	1.00	0.51	0.27	0.29	0.60	0.74	0.93
Control Delay	40.1	56.7	46.4	38.8	26.0	29.5	44.3	64.4
Queue Delay	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.1	57.7	46.4	38.8	26.0	29.5	44.3	64.4
Queue Length 50th (m)	53.0	~188.1	14.0	46.6	8.7	31.1	33.5	91.4
Queue Length 95th (m)	#96.9	#233.2	m25.5	62.6	17.6	58.9	#62.3	#160.2
Internal Link Dist (m)		171.5		202.3		102.8		69.7
Turn Bay Length (m)	65.0		70.0		45.0		30.0	
Base Capacity (vph)	395	1470	155	1634	230	434	284	487
Starvation Cap Reductn	0	6	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	0.71	1.00	0.47	0.27	0.27	0.60	0.74	0.93

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)	257	1127	212	66	394	6	56	66	172	190	172	241
Future Volume (vph)	257	1127	212	66	394	6	56	66	172	190	172	241
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.98		1.00	0.99	
Flpb, ped/bikes	0.98	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00		1.00	0.89		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1743	3364		1323	3183		1705	1506		1339	1654	
Flt Permitted	0.50	1.00		0.08	1.00		0.19	1.00		0.40	1.00	
Satd. Flow (perm)	912	3364		108	3183		348	1506		570	1654	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	282	1238	233	73	433	7	62	73	189	209	189	265
RTOR Reduction (vph)	0	13	0	0	1	0	0	81	0	0	42	0
Lane Group Flow (vph)	282	1458	0	73	439	0	62	181	0	209	412	0
Confl. Peds. (#/hr)	14		9	9		14	4		8	8		4
Heavy Vehicles (%)	3%	6%	3%	38%	14%	34%	7%	4%	15%	36%	2%	7%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	48.6	48.6		58.4	58.4		34.2	27.6		40.6	31.0	
Effective Green, g (s)	48.6	48.6		58.4	58.4		34.2	27.6		40.6	31.0	
Actuated g/C Ratio	0.42	0.42		0.51	0.51		0.30	0.24		0.35	0.27	
Clearance Time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	385	1421		126	1616		181	361		268	445	
v/s Ratio Prot		c0.43		c0.03	0.14		0.02	0.12		c0.07	c0.25	
v/s Ratio Perm	0.31			0.26			0.08			0.21		
v/c Ratio	0.73	1.03		0.58	0.27		0.34	0.50		0.78	0.93	
Uniform Delay, d1	27.8	33.2		24.4	16.2		30.8	37.8		31.7	40.9	
Progression Factor	1.00	1.00		2.37	2.42		1.00	1.00		1.00	1.00	
Incremental Delay, d2	11.7	30.7		5.6	0.4		1.1	4.9		13.4	27.5	
Delay (s)	39.4	63.9		63.5	39.5		31.9	42.7		45.0	68.4	
Level of Service	D	E		E	D		C	D		D	E	
Approach Delay (s)		60.0			42.9			40.6			61.0	
Approach LOS		E			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	55.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	95.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	343	1232	257	477	52	383	245	274	446
v/c Ratio	0.97	0.87	1.10	0.27	0.29	1.00	0.46	1.00	0.79
Control Delay	42.4	30.3	126.0	17.8	47.7	97.3	10.4	89.0	50.8
Queue Delay	0.0	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.4	34.0	126.0	17.8	47.7	97.3	10.4	89.0	50.8
Queue Length 50th (m)	67.6	120.0	~64.7	36.0	11.7	106.6	5.1	54.1	108.0
Queue Length 95th (m)	m66.7	m109.2	#120.0	46.8	24.5	#171.7	28.3	#102.2	151.9
Internal Link Dist (m)		161.5		171.5		57.8			66.0
Turn Bay Length (m)	80.0		55.0		45.0			30.0	
Base Capacity (vph)	352	1415	233	1773	181	384	529	274	564
Starvation Cap Reductn	0	117	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	0.97	0.95	1.10	0.27	0.29	1.00	0.46	1.00	0.79

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)	322	1108	50	242	435	13	49	360	230	258	341	78
Future Volume (vph)	322	1108	50	242	435	13	49	360	230	258	341	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		3.0	7.0		7.0	7.0	7.0	3.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.93	1.00	1.00	
Flpb, ped/bikes	0.98	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		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1705	3445		1674	3289		1699	1537	1453	1825	1546	
Flt Permitted	0.48	1.00		0.07	1.00		0.41	1.00	1.00	0.19	1.00	
Satd. Flow (perm)	860	3445		119	3289		726	1537	1453	368	1546	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	343	1179	53	257	463	14	52	383	245	274	363	83
RTOR Reduction (vph)	0	2	0	0	1	0	0	0	166	0	6	0
Lane Group Flow (vph)	343	1230	0	257	476	0	52	383	79	274	440	0
Confl. Peds. (#/hr)	9		8	8		9	4		26	26		4
Heavy Vehicles (%)	5%	5%	6%	9%	10%	20%	7%	25%	5%	0%	25%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		2		1	6			8		7	4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	57.4	57.4		75.4	75.4		35.0	35.0	35.0	50.6	50.6	
Effective Green, g (s)	57.4	57.4		75.4	75.4		35.0	35.0	35.0	50.6	50.6	
Actuated g/C Ratio	0.41	0.41		0.54	0.54		0.25	0.25	0.25	0.36	0.36	
Clearance Time (s)	7.0	7.0		3.0	7.0		7.0	7.0	7.0	3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	352	1412		230	1771		181	384	363	264	558	
v/s Ratio Prot		0.36		c0.12	0.14			0.25		c0.09	0.28	
v/s Ratio Perm	0.40			c0.48			0.07		0.05	c0.28		
v/c Ratio	0.97	0.87		1.12	0.27		0.29	1.00	0.22	1.04	0.79	
Uniform Delay, d1	40.6	37.9		44.4	17.4		42.4	52.5	41.6	39.9	39.9	
Progression Factor	0.77	0.77		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	9.6	0.8		94.5	0.4		4.0	45.3	1.4	65.6	10.8	
Delay (s)	41.0	30.0		138.9	17.8		46.4	97.7	43.0	105.5	50.8	
Level of Service	D	C		F	B		D	F	D	F	D	
Approach Delay (s)		32.4			60.2			74.1			71.6	
Approach LOS		C			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	53.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	97.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	79	828	194	475	136	1971	493	820
v/c Ratio	0.28	0.66	1.53	0.39	0.39	1.56	1.72	0.55
Control Delay	35.0	40.1	302.7	17.8	18.9	285.4	368.3	31.6
Queue Delay	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.0	40.4	302.7	17.8	18.9	285.4	368.3	31.6
Queue Length 50th (m)	15.4	100.0	~76.1	41.0	17.4	~403.6	~185.5	87.7
Queue Length 95th (m)	27.1	111.3	m#113.2	51.4	26.0	#402.1	#230.4	97.9
Internal Link Dist (m)		170.1		161.5		203.8		248.3
Turn Bay Length (m)	50.0		50.0		65.0		100.0	
Base Capacity (vph)	282	1252	127	1230	349	1267	286	1496
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	87	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.71	1.53	0.39	0.39	1.56	1.72	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.

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	653	43	163	236	163	114	1242	413	414	643	46
Future Volume (vph)	66	653	43	163	236	163	114	1242	413	414	643	46
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	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		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		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.94		1.00	0.96		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)	1756	3429		1628	3134		1806	3349		1772	3512	
Flt Permitted	0.42	1.00		0.20	1.00		0.28	1.00		0.07	1.00	
Satd. Flow (perm)	777	3429		349	3134		527	3349		136	3512	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	79	777	51	194	281	194	136	1479	492	493	765	55
RTOR Reduction (vph)	0	3	0	0	89	0	0	23	0	0	4	0
Lane Group Flow (vph)	79	825	0	194	386	0	136	1948	0	493	816	0
Confl. Peds. (#/hr)	13		33	33		13	6		2	2		6
Heavy Vehicles (%)	3%	5%	6%	11%	10%	5%	1%	3%	9%	3%	2%	13%
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)	51.0	51.0		51.0	51.0		62.5	52.0		73.0	59.5	
Effective Green, g (s)	51.0	51.0		51.0	51.0		62.5	52.0		73.0	59.5	
Actuated g/C Ratio	0.36	0.36		0.36	0.36		0.45	0.37		0.52	0.42	
Clearance Time (s)	8.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	283	1249		127	1141		331	1243		281	1492	
v/s Ratio Prot		0.24			0.12		0.03	0.58		c0.23	0.23	
v/s Ratio Perm	0.10			c0.56			0.15			c0.69		
v/c Ratio	0.28	0.66		1.53	0.34		0.41	1.57		1.75	0.55	
Uniform Delay, d1	31.5	37.3		44.5	32.3		23.6	44.0		46.2	30.2	
Progression Factor	1.00	1.00		0.90	0.75		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.4	2.8		272.0	0.8		3.7	259.1		353.8	1.4	
Delay (s)	33.9	40.0		312.0	24.9		27.4	303.1		400.0	31.6	
Level of Service	C	D		F	C		C	F		F	C	
Approach Delay (s)		39.5			108.1			285.3			169.9	
Approach LOS		D			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	186.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.69		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	126.2%	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)	87	122	22	268	70	895	335	774
v/c Ratio	0.35	0.28	0.07	0.53	0.31	0.92	2.43	0.81
Control Delay	29.6	13.3	23.9	16.8	13.9	32.8	681.3	22.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0
Total Delay	29.6	13.3	23.9	16.8	13.9	32.8	681.3	28.4
Queue Length 50th (m)	10.9	5.9	2.6	16.1	5.2	113.5	~65.7	86.2
Queue Length 95th (m)	13.1	7.1	4.7	12.7	6.8	65.5	#50.9	53.7
Internal Link Dist (m)		141.1		97.5		112.5		34.9
Turn Bay Length (m)	20.0		20.0		25.0		25.0	
Base Capacity (vph)	248	435	296	507	228	972	138	959
Starvation Cap Reductn	0	0	0	0	0	0	0	139
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	0.35	0.28	0.07	0.53	0.31	0.92	2.43	0.94

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)	47	27	39	12	6	139	38	473	10	181	390	28
Future Volume (vph)	47	27	39	12	6	139	38	473	10	181	390	28
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	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.97		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		0.97	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.91		1.00	0.86		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)	1818	1527		1660	1617		1825	1728		1825	1700	
Flt Permitted	0.52	1.00		0.68	1.00		0.21	1.00		0.13	1.00	
Satd. Flow (perm)	995	1527		1186	1617		407	1728		247	1700	
Peak-hour factor, PHF	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Adj. Flow (vph)	87	50	72	22	11	257	70	876	19	335	722	52
RTOR Reduction (vph)	0	54	0	0	104	0	0	1	0	0	3	0
Lane Group Flow (vph)	87	68	0	22	165	0	70	894	0	335	771	0
Confl. Peds. (#/hr)	5		16	16		5	13		4	4		13
Heavy Vehicles (%)	0%	0%	19%	7%	0%	0%	0%	11%	0%	0%	10%	33%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	20.0	20.0		20.0	20.0		45.0	45.0		45.0	45.0	
Effective Green, g (s)	20.0	20.0		20.0	20.0		45.0	45.0		45.0	45.0	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.56	0.56		0.56	0.56	
Clearance Time (s)	8.0	8.0		8.0	8.0		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)	248	381		296	404		228	972		138	956	
v/s Ratio Prot		0.04			c0.10			0.52			0.45	
v/s Ratio Perm	0.09			0.02			0.17			c1.36		
v/c Ratio	0.35	0.18		0.07	0.41		0.31	0.92		2.43	0.81	
Uniform Delay, d1	24.7	23.6		22.9	25.0		9.3	15.9		17.5	14.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.9	1.0		0.5	3.0		3.5	15.0		663.9	7.2	
Delay (s)	28.5	24.6		23.4	28.1		12.7	30.9		681.4	21.3	
Level of Service	C	C		C	C		B	C		F	C	
Approach Delay (s)		26.2			27.7			29.6			220.7	
Approach LOS		C			C			C			F	

Intersection Summary			
HCM 2000 Control Delay	111.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.79		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	83.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1307	132	130	166	573
v/c Ratio	0.44	0.69	0.06	0.33	0.94
Control Delay	10.0	39.6	10.7	33.7	48.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	10.0	39.6	10.7	33.7	48.8
Queue Length 50th (m)	43.9	20.8	6.5	28.2	79.4
Queue Length 95th (m)	54.5	#57.7	11.0	46.3	#144.3
Internal Link Dist (m)	613.9		379.8	104.5	
Turn Bay Length (m)		50.0		45.0	
Base Capacity (vph)	2989	192	2140	560	655
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	0.44	0.69	0.06	0.30	0.87

Intersection Summary

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	630	572	121	120	153	527
Future Volume (vph)	630	572	121	120	153	527
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0		7.0	7.0	7.0	7.0
Lane Util. Factor	0.91		1.00	0.95	1.00	1.00
Frt	0.93		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	4775		1789	3579	1789	1601
Flt Permitted	1.00		0.17	1.00	0.95	1.00
Satd. Flow (perm)	4775		322	3579	1789	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	685	622	132	130	166	573
RTOR Reduction (vph)	131	0	0	0	0	161
Lane Group Flow (vph)	1176	0	132	130	166	412
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Actuated Green, G (s)	68.8		68.8	68.8	32.2	32.2
Effective Green, g (s)	68.8		68.8	68.8	32.2	32.2
Actuated g/C Ratio	0.60		0.60	0.60	0.28	0.28
Clearance Time (s)	7.0		7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2856		192	2141	500	448
v/s Ratio Prot	0.25			0.04	0.09	
v/s Ratio Perm			c0.41			c0.26
v/c Ratio	0.41		0.69	0.06	0.33	0.92
Uniform Delay, d1	12.3		15.8	9.6	32.9	40.1
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4		18.3	0.1	0.4	23.7
Delay (s)	12.8		34.0	9.7	33.3	63.8
Level of Service	B		C	A	C	E
Approach Delay (s)	12.8			21.9	56.9	
Approach LOS	B			C	E	

Intersection Summary			
HCM 2000 Control Delay	27.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	5	0	37	17	0	10	199	120	44	566	19
Future Volume (Veh/h)	0	5	0	37	17	0	10	199	120	44	566	19
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	5	0	40	18	0	11	216	130	48	615	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)								94				
pX, platoon unblocked	0.90	0.90		0.90	0.90	0.90				0.90		
vC, conflicting volume	968	1090	626	1016	1035	281	636			346		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	906	1042	626	960	981	139	636			211		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	97	100	80	92	100	99			96		
cM capacity (veh/h)	207	195	484	199	212	814	947			1217		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	0	5	40	18	11	346	48	636
Volume Left	0	0	40	0	11	0	48	0
Volume Right	0	0	0	0	0	130	0	21
cSH	1700	195	199	212	947	1700	1217	1700
Volume to Capacity	0.00	0.03	0.20	0.08	0.01	0.20	0.04	0.37
Queue Length 95th (m)	0.0	0.6	5.5	2.1	0.3	0.0	0.9	0.0
Control Delay (s)	0.0	23.9	27.5	23.5	8.8	0.0	8.1	0.0
Lane LOS	A	C	D	C	A		A	
Approach Delay (s)	23.9		26.3		0.3		0.6	
Approach LOS	C		D					

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	0	63	16	2	19	76	221	98	45	197	56
Future Volume (Veh/h)	35	0	63	16	2	19	76	221	98	45	197	56
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	38	0	68	17	2	21	83	240	107	49	214	61
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								89			120	
pX, platoon unblocked	0.93	0.93		0.93	0.93	0.93				0.93		
vC, conflicting volume	770	856	244	840	832	294	275			347		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	718	809	244	792	785	207	275			265		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	87	100	91	93	99	97	94			96		
cM capacity (veh/h)	286	263	794	241	272	778	1288			1213		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	106	40	83	347	49	275
Volume Left	38	17	83	0	49	0
Volume Right	68	21	0	107	0	61
cSH	486	382	1288	1700	1213	1700
Volume to Capacity	0.22	0.10	0.06	0.20	0.04	0.16
Queue Length 95th (m)	6.3	2.6	1.6	0.0	1.0	0.0
Control Delay (s)	14.5	15.5	8.0	0.0	8.1	0.0
Lane LOS	B	C	A		A	
Approach Delay (s)	14.5	15.5	1.5		1.2	
Approach LOS	B	C				

Intersection Summary				
Average Delay	3.6			
Intersection Capacity Utilization	37.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	639	21	34	599
Future Volume (Veh/h)	0	0	639	21	34	599
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	695	23	37	651
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			59			82
pX, platoon unblocked	0.69					
vC, conflicting volume	1432	359			718	
vC1, stage 1 conf vol	706					
vC2, stage 2 conf vol	725					
vCu, unblocked vol	1400	359			718	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			96	
cM capacity (veh/h)	317	638			879	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	463	255	37	651
Volume Left	0	0	0	37	0
Volume Right	0	0	23	0	0
cSH	1700	1700	1700	879	1700
Volume to Capacity	0.00	0.27	0.15	0.04	0.38
Queue Length 95th (m)	0.0	0.0	0.0	1.0	0.0
Control Delay (s)	0.0	0.0	0.0	9.3	0.0
Lane LOS	A			A	
Approach Delay (s)	0.0	0.0		0.5	
Approach LOS	A				

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	34.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1076	81	0	242	0	15
Future Volume (Veh/h)	1076	81	0	242	0	15
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)	1170	88	0	263	0	16
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)				58		
pX, platoon unblocked						
vC, conflicting volume			1258		1302	585
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1258		1302	585
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	96
cM capacity (veh/h)			549		152	454

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	585	585	88	132	132	16
Volume Left	0	0	0	0	0	0
Volume Right	0	0	88	0	0	16
cSH	1700	1700	1700	1700	1700	454
Volume to Capacity	0.34	0.34	0.05	0.08	0.08	0.04
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.8
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	13.2
Lane LOS						B
Approach Delay (s)	0.0			0.0		13.2
Approach LOS						B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	39.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	3	0	0	2	0	3	4	675	16	8	675	10
Future Volume (veh/h)	3	0	0	2	0	3	4	675	16	8	675	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	0	0	2	0	3	4	734	17	9	734	11
Approach Volume (veh/h)		3			5			755			754	
Crossing Volume (veh/h)		745			741			12			6	
High Capacity (veh/h)		766			769			1372			1378	
High v/c (veh/h)		0.00			0.01			0.55			0.55	
Low Capacity (veh/h)		607			609			1150			1155	
Low v/c (veh/h)		0.00			0.01			0.66			0.65	

Intersection Summary			
Maximum v/c High	0.55		
Maximum v/c Low	0.66		
Intersection Capacity Utilization	51.6%	ICU Level of Service	A

Lane Group	EBL	EBR	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	400	450	34	1078	2404	1953
v/c Ratio	0.26	0.66	0.04	1.48	0.84	0.88
Control Delay	24.0	32.9	8.1	242.3	37.5	40.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.0	32.9	8.1	242.3	37.5	40.6
Queue Length 50th (m)	34.6	89.0	1.8	~415.4	168.5	177.2
Queue Length 95th (m)	45.8	128.0	m2.5	m#400.5	183.5	198.7
Internal Link Dist (m)					73.6	241.1
Turn Bay Length (m)		150.0				
Base Capacity (vph)	1526	683	779	727	2855	2226
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	0.26	0.66	0.04	1.48	0.84	0.88

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)	360	0	405	31	0	970	0	2115	49	0	1758	0
Future Volume (vph)	360	0	405	31	0	970	0	2115	49	0	1758	0
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		7.0			7.0	
Lane Util. Factor	0.97		1.00	1.00		1.00		0.86			0.91	
Frt	1.00		0.85	1.00		0.85		1.00			1.00	
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (prot)	3340		1458	1706		1555		6339			4948	
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (perm)	3340		1458	1706		1555		6339			4948	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	400	0	450	34	0	1078	0	2350	54	0	1953	0
RTOR Reduction (vph)	0	0	17	0	0	17	0	2	0	0	0	0
Lane Group Flow (vph)	400	0	433	34	0	1061	0	2402	0	0	1953	0
Heavy Vehicles (%)	6%	0%	12%	7%	0%	5%	0%	4%	0%	0%	6%	0%
Turn Type	Perm		Perm	Perm		Perm		NA			NA	
Protected Phases								2			6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	64.0		64.0	64.0		64.0		63.0			63.0	
Effective Green, g (s)	64.0		64.0	64.0		64.0		63.0			63.0	
Actuated g/C Ratio	0.46		0.46	0.46		0.46		0.45			0.45	
Clearance Time (s)	6.0		6.0	6.0		6.0		7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0		3.0		3.0			3.0	
Lane Grp Cap (vph)	1526		666	779		710		2852			2226	
v/s Ratio Prot								0.38			c0.39	
v/s Ratio Perm	0.12		0.30	0.02		c0.68						
v/c Ratio	0.26		0.65	0.04		1.49		0.84			0.88	
Uniform Delay, d1	23.4		29.4	21.0		38.0		34.1			35.0	
Progression Factor	1.00		1.00	0.38		0.45		1.00			1.00	
Incremental Delay, d2	0.4		4.9	0.1		227.1		3.2			5.3	
Delay (s)	23.9		34.2	8.0		244.1		37.3			40.3	
Level of Service	C		C	A		F		D			D	
Approach Delay (s)		29.4			236.9			37.3			40.3	
Approach LOS		C			F			D			D	

Intersection Summary			
HCM 2000 Control Delay	72.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	116.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1349	133	200	347	380	156
v/c Ratio	0.63	0.14	1.06	0.15	1.16	0.44
Control Delay	12.0	0.8	106.1	6.9	136.2	27.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.0	0.8	106.1	6.9	136.2	27.7
Queue Length 50th (m)	74.2	0.3	~43.4	12.4	~88.1	17.6
Queue Length 95th (m)	94.1	0.6	#49.7	17.8	#143.0	36.7
Internal Link Dist (m)	33.9			146.8	95.7	
Turn Bay Length (m)			60.0		35.0	
Base Capacity (vph)	2129	981	188	2293	329	354
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	0.63	0.14	1.06	0.15	1.16	0.44

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	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1228	121	182	316	346	142
Future Volume (vph)	1228	121	182	316	346	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.86	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3259	1139	1777	3510	1587	1512
Flt Permitted	1.00	1.00	0.15	1.00	0.95	1.00
Satd. Flow (perm)	3259	1139	288	3510	1587	1512
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	1349	133	200	347	380	156
RTOR Reduction (vph)	0	0	0	0	0	40
Lane Group Flow (vph)	1349	133	200	347	380	116
Confl. Peds. (#/hr)		71	71			
Heavy Vehicles (%)	12%	23%	1%	4%	15%	8%
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	2	8		6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	66.0	87.0	66.0	66.0	21.0	21.0
Effective Green, g (s)	66.0	87.0	66.0	66.0	21.0	21.0
Actuated g/C Ratio	0.65	0.86	0.65	0.65	0.21	0.21
Clearance Time (s)	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
Lane Grp Cap (vph)	2129	1139	188	2293	329	314
v/s Ratio Prot	0.41	0.02		0.10	c0.24	
v/s Ratio Perm		0.09	c0.70			0.08
v/c Ratio	0.63	0.12	1.06	0.15	1.16	0.37
Uniform Delay, d1	10.3	1.1	17.5	6.7	40.0	34.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.4	0.0	83.6	0.1	98.6	0.7
Delay (s)	11.8	1.1	101.1	6.9	138.6	35.0
Level of Service	B	A	F	A	F	D
Approach Delay (s)	10.8			41.3	108.5	
Approach LOS	B			D	F	

Intersection Summary			
HCM 2000 Control Delay	37.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	101.0	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	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	137	1148	1883	18	48	218	161
v/c Ratio	1.01	0.64	1.37	0.06	0.23	1.04	0.45
Control Delay	92.5	26.1	202.2	27.1	7.0	122.5	10.3
Queue Delay	0.0	0.4	0.0	0.0	0.0	0.0	0.0
Total Delay	92.5	26.5	202.2	27.1	7.0	122.5	10.3
Queue Length 50th (m)	~26.7	103.9	~362.1	3.1	0.0	~64.7	0.0
Queue Length 95th (m)	m#32.9	m117.2	#404.4	8.4	6.3	#115.8	19.4
Internal Link Dist (m)		202.3	126.7		25.6		
Turn Bay Length (m)	70.0					20.0	
Base Capacity (vph)	136	1802	1376	285	213	210	355
Starvation Cap Reductn	0	214	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	1.01	0.72	1.37	0.06	0.23	1.04	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.

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)	126	1056	0	0	1331	401	17	0	44	201	0	148
Future Volume (vph)	126	1056	0	0	1331	401	17	0	44	201	0	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	8.0			8.0		3.0	8.0		8.0		8.0
Lane Util. Factor	1.00	0.95			0.95		1.00	1.00		1.00		1.00
Frpb, ped/bikes	1.00	1.00			0.87		1.00	0.58		1.00		0.60
Flpb, ped/bikes	1.00	1.00			1.00		0.63	1.00		0.61		1.00
Frt	1.00	1.00			0.97		1.00	0.85		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1738	3411			2970		665	486		1073		919
Flt Permitted	0.06	1.00			1.00		0.95	1.00		0.73		1.00
Satd. Flow (perm)	108	3411			2970		665	486		820		919
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)	137	1148	0	0	1447	436	18	0	48	218	0	161
RTOR Reduction (vph)	0	0	0	0	9	0	0	31	0	0	0	120
Lane Group Flow (vph)	137	1148	0	0	1874	0	18	17	0	218	0	41
Confl. Peds. (#/hr)	290		1278	1278		290	658		752	752		658
Heavy Vehicles (%)	5%	7%	0%	0%	1%	13%	72%	0%	95%	4%	0%	7%
Turn Type	pm+pt	NA			NA		pm+pt	NA		Perm		Perm
Protected Phases	5	2			6		3	8				
Permitted Phases	2						8			4		4
Actuated Green, G (s)	74.0	74.0			64.5		50.0	50.0		36.0		36.0
Effective Green, g (s)	74.0	74.0			64.5		50.0	50.0		36.0		36.0
Actuated g/C Ratio	0.53	0.53			0.46		0.36	0.36		0.26		0.26
Clearance Time (s)	3.0	8.0			8.0		3.0	8.0		8.0		8.0
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0		3.0
Lane Grp Cap (vph)	132	1802			1368		237	173		210		236
v/s Ratio Prot	c0.05	0.34			c0.63		0.01	c0.04				
v/s Ratio Perm	0.50						0.02			c0.27		0.05
v/c Ratio	1.04	0.64			1.37		0.08	0.10		1.04		0.18
Uniform Delay, d1	38.5	23.5			37.8		29.7	30.0		52.0		40.5
Progression Factor	1.51	1.06			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	64.4	0.8			171.3		0.6	1.1		72.4		1.6
Delay (s)	122.5	25.8			209.1		30.4	31.1		124.4		42.1
Level of Service	F	C			F		C	C		F		D
Approach Delay (s)		36.1			209.1			30.9			89.4	
Approach LOS		D			F			C			F	

Intersection Summary			
HCM 2000 Control Delay	131.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	105.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	329	1490	260	1266	366	399	123	578
v/c Ratio	2.25	0.93	1.56	0.68	1.72	0.98	0.72	1.41
Control Delay	586.6	25.2	293.6	4.6	367.9	87.0	57.5	235.2
Queue Delay	0.0	7.0	0.0	0.7	0.0	0.0	0.0	0.1
Total Delay	586.6	32.2	293.6	5.3	367.9	87.0	57.5	235.3
Queue Length 50th (m)	~149.2	123.2	~89.0	17.5	~132.2	103.2	23.6	~200.4
Queue Length 95th (m)	m#125.5	m99.7	m#58.1	m16.0	#194.6	#168.6	#39.8	#272.1
Internal Link Dist (m)		171.5		202.3		102.8		69.7
Turn Bay Length (m)	65.0		70.0		45.0		30.0	
Base Capacity (vph)	146	1597	167	1861	213	409	170	409
Starvation Cap Reductn	0	96	0	221	0	0	0	0
Spillback Cap Reductn	0	0	0	280	0	0	0	5
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.25	0.99	1.56	0.80	1.72	0.98	0.72	1.43

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)	322	874	586	255	1075	166	359	204	187	121	183	383
Future Volume (vph)	322	874	586	255	1075	166	359	204	187	121	183	383
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99		1.00	0.98	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.98		1.00	0.93		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1797	3263		1615	3325		1772	1592		1436	1613	
Flt Permitted	0.17	1.00		0.06	1.00		0.12	1.00		0.20	1.00	
Satd. Flow (perm)	317	3263		100	3325		219	1592		303	1613	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	329	892	598	260	1097	169	366	208	191	123	187	391
RTOR Reduction (vph)	0	83	0	0	9	0	0	23	0	0	52	0
Lane Group Flow (vph)	329	1408	0	260	1257	0	366	376	0	123	526	0
Confl. Peds. (#/hr)	17		10	10		17	13		10	10		13
Heavy Vehicles (%)	1%	6%	1%	13%	4%	24%	3%	1%	21%	27%	2%	6%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	65.0	65.0		78.0	78.0		46.0	34.0		40.0	31.0	
Effective Green, g (s)	65.0	65.0		78.0	78.0		46.0	34.0		40.0	31.0	
Actuated g/C Ratio	0.46	0.46		0.56	0.56		0.33	0.24		0.29	0.22	
Clearance Time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	147	1514		163	1852		205	386		159	357	
v/s Ratio Prot		0.43		c0.11	0.38		c0.15	0.24		0.05	0.33	
v/s Ratio Perm	c1.04			0.77			c0.43			0.17		
v/c Ratio	2.24	0.93		1.60	0.68		1.79	0.97		0.77	1.47	
Uniform Delay, d1	37.5	35.3		42.8	22.1		39.8	52.5		41.3	54.5	
Progression Factor	0.78	0.74		1.91	0.20		1.00	1.00		1.00	1.00	
Incremental Delay, d2	559.1	1.4		270.4	0.2		372.4	39.5		20.5	227.5	
Delay (s)	588.3	27.4		352.0	4.6		412.2	92.0		61.8	282.0	
Level of Service	F	C		F	A		F	F		E	F	
Approach Delay (s)		128.9			63.8			245.2			243.4	
Approach LOS		F			E			F			F	

Intersection Summary			
HCM 2000 Control Delay	143.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.06		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	131.4%	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)	232	946	329	1690	23	526	249	861	698
v/c Ratio	4.22	0.56	1.10	0.87	0.43	1.48	0.64	3.03	1.17
Control Delay	1474.7	29.0	82.5	26.5	76.4	268.8	26.4	940.8	132.0
Queue Delay	0.0	0.3	0.0	10.8	0.0	0.0	0.1	0.0	0.0
Total Delay	1474.7	29.4	82.5	37.3	76.4	268.8	26.5	940.8	132.0
Queue Length 50th (m)	~118.5	110.5	~52.6	187.7	5.7	~199.7	21.1	~399.3	~224.9
Queue Length 95th (m)	m#119.8	m76.2	m#63.4	m155.8	#17.0	#268.1	51.5	#477.4	#299.5
Internal Link Dist (m)		161.5		171.5		57.8			70.0
Turn Bay Length (m)	80.0		55.0		45.0			30.0	
Base Capacity (vph)	55	1693	300	1934	54	356	390	284	599
Starvation Cap Reductn	0	264	0	249	0	0	0	0	0
Spillback Cap Reductn	0	138	0	69	0	0	6	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	4.22	0.66	1.10	1.00	0.43	1.48	0.65	3.03	1.17

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)	209	783	68	296	1214	307	21	473	224	775	383	245
Future Volume (vph)	209	783	68	296	1214	307	21	473	224	775	383	245
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		3.0	7.0		7.0	7.0	7.0	3.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.98		1.00	1.00	0.92	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	
Frt	1.00	0.99		1.00	0.97		1.00	1.00	0.85	1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1825	3426		1722	3356		1825	1921	1385	1825	1774	
Flt Permitted	0.06	1.00		0.21	1.00		0.15	1.00	1.00	0.14	1.00	
Satd. Flow (perm)	113	3426		372	3356		296	1921	1385	265	1774	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	232	870	76	329	1349	341	23	526	249	861	426	272
RTOR Reduction (vph)	0	5	0	0	16	0	0	0	134	0	16	0
Lane Group Flow (vph)	232	941	0	329	1674	0	23	526	115	861	682	0
Confl. Peds. (#/hr)	19		14	14		19	18		31	31		18
Heavy Vehicles (%)	0%	5%	0%	6%	3%	5%	0%	0%	9%	0%	0%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		2		1	6			8		7	4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	69.0	69.0		80.0	80.0		26.0	26.0	26.0	46.0	46.0	
Effective Green, g (s)	69.0	69.0		80.0	80.0		26.0	26.0	26.0	46.0	46.0	
Actuated g/C Ratio	0.49	0.49		0.57	0.57		0.19	0.19	0.19	0.33	0.33	
Clearance Time (s)	7.0	7.0		3.0	7.0		7.0	7.0	7.0	3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	55	1688		289	1917		54	356	257	276	582	
v/s Ratio Prot		0.27		c0.06	0.50			0.27		c0.38	0.38	
v/s Ratio Perm	c2.05			0.58			0.08		0.08	c0.65		
v/c Ratio	4.22	0.56		1.14	0.87		0.43	1.48	0.45	3.12	1.17	
Uniform Delay, d1	35.5	24.8		28.0	25.7		50.4	57.0	50.6	40.7	47.0	
Progression Factor	1.20	1.15		1.14	0.96		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1461.5	0.4		75.6	2.0		22.7	229.5	5.6	963.3	94.5	
Delay (s)	1504.1	29.0		107.5	26.5		73.1	286.5	56.2	1004.0	141.5	
Level of Service	F	C		F	C		E	F	E	F	F	
Approach Delay (s)		319.5			39.7			208.5			617.8	
Approach LOS		F			D			F			F	

Intersection Summary			
HCM 2000 Control Delay	285.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	3.65		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	144.0%	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)	89	538	357	1234	24	1767	360	1221
v/c Ratio	0.64	0.40	1.34	1.10	0.15	1.38	1.46	0.79
Control Delay	46.2	31.4	195.2	84.3	18.2	212.4	257.9	39.1
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	46.2	31.4	195.2	84.4	18.2	212.4	257.9	39.1
Queue Length 50th (m)	14.8	55.2	~127.2	~144.1	3.1	~341.3	~119.5	151.7
Queue Length 95th (m)	#29.5	70.6	m#148.5	m#214.5	7.7	#384.0	#181.3	179.5
Internal Link Dist (m)		170.1		161.5		203.8		248.3
Turn Bay Length (m)	50.0		50.0		65.0		100.0	
Base Capacity (vph)	139	1348	266	1122	162	1277	247	1548
Starvation Cap Reductn	0	0	0	7	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	0.64	0.40	1.34	1.11	0.15	1.38	1.46	0.79

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)	83	450	50	332	817	331	22	1368	275	335	1133	3
Future Volume (vph)	83	450	50	332	817	331	22	1368	275	335	1133	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		0.98	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.96		1.00	0.97		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)	1755	3448		1743	3395		1789	3440		1772	3612	
Flt Permitted	0.08	1.00		0.45	1.00		0.11	1.00		0.07	1.00	
Satd. Flow (perm)	154	3448		829	3395		198	3440		137	3612	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	89	484	54	357	878	356	24	1471	296	360	1218	3
RTOR Reduction (vph)	0	6	0	0	31	0	0	12	0	0	0	0
Lane Group Flow (vph)	89	532	0	357	1203	0	24	1755	0	360	1221	0
Confl. Peds. (#/hr)	5		23	23		5	8		13	13		8
Heavy Vehicles (%)	4%	4%	2%	3%	2%	3%	2%	2%	7%	3%	1%	4%
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	54.5	54.5		45.0	45.0		58.0	51.5		69.5	60.0	
Effective Green, g (s)	54.5	54.5		45.0	45.0		58.0	51.5		69.5	60.0	
Actuated g/C Ratio	0.39	0.39		0.32	0.32		0.41	0.37		0.50	0.43	
Clearance Time (s)	3.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	134	1342		266	1091		155	1265		243	1548	
v/s Ratio Prot	c0.03	0.15			0.35		0.01	0.51		c0.16	0.34	
v/s Ratio Perm	0.23			c0.43			0.06			c0.58		
v/c Ratio	0.66	0.40		1.34	1.10		0.15	1.39		1.48	0.79	
Uniform Delay, d1	34.8	30.9		47.5	47.5		27.3	44.2		45.0	34.5	
Progression Factor	1.00	1.00		0.76	0.75		1.00	1.00		1.00	1.00	
Incremental Delay, d2	23.1	0.9		163.6	52.2		2.1	179.3		237.5	4.2	
Delay (s)	57.8	31.7		199.9	87.8		29.4	223.5		282.4	38.7	
Level of Service	E	C		F	F		C	F		F	D	
Approach Delay (s)		35.4			113.0			220.9			94.2	
Approach LOS		D			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	133.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.41		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	130.4%	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)	13	82	45	388	49	589	264	743
v/c Ratio	0.09	0.20	0.15	0.63	0.20	0.58	0.76	0.72
Control Delay	25.0	10.3	25.1	13.6	11.1	14.2	31.0	17.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3
Total Delay	25.0	10.3	25.1	13.6	11.1	14.2	31.0	21.1
Queue Length 50th (m)	1.5	2.0	5.3	14.3	3.4	53.3	28.3	76.0
Queue Length 95th (m)	4.9	8.6	11.0	24.0	7.4	61.0	44.0	83.0
Internal Link Dist (m)		141.1		97.5		112.5		34.9
Turn Bay Length (m)	20.0		20.0		25.0		25.0	
Base Capacity (vph)	146	420	299	614	250	1016	347	1030
Starvation Cap Reductn	0	0	0	0	0	0	0	193
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	0.09	0.20	0.15	0.63	0.20	0.58	0.76	0.89

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	13	49	34	50	241	37	433	9	198	521	36
Future Volume (vph)	10	13	49	34	50	241	37	433	9	198	521	36
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	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.91		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.91	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.88		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)	1814	1487		1614	1639		1813	1805		1708	1828	
Flt Permitted	0.31	1.00		0.70	1.00		0.23	1.00		0.34	1.00	
Satd. Flow (perm)	585	1487		1195	1639		445	1805		618	1828	
Peak-hour factor, PHF	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Adj. Flow (vph)	13	17	65	45	67	321	49	577	12	264	695	48
RTOR Reduction (vph)	0	49	0	0	204	0	0	1	0	0	3	0
Lane Group Flow (vph)	13	33	0	45	184	0	49	588	0	264	740	0
Confl. Peds. (#/hr)	11		50	50		11	16		12	12		16
Heavy Vehicles (%)	0%	0%	4%	3%	3%	0%	0%	6%	7%	6%	4%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	20.0	20.0		20.0	20.0		45.0	45.0		45.0	45.0	
Effective Green, g (s)	20.0	20.0		20.0	20.0		45.0	45.0		45.0	45.0	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.56	0.56		0.56	0.56	
Clearance Time (s)	8.0	8.0		8.0	8.0		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)	146	371		298	409		250	1015		347	1028	
v/s Ratio Prot		0.02			c0.11			0.33			0.40	
v/s Ratio Perm	0.02			0.04			0.11			c0.43		
v/c Ratio	0.09	0.09		0.15	0.45		0.20	0.58		0.76	0.72	
Uniform Delay, d1	23.0	23.0		23.4	25.4		8.6	11.4		13.4	12.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	0.5		1.1	3.5		1.7	2.4		14.5	4.3	
Delay (s)	24.2	23.5		24.5	28.9		10.4	13.8		27.9	17.2	
Level of Service	C	C		C	C		B	B		C	B	
Approach Delay (s)		23.6			28.4			13.5			20.0	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	2238	326	395	693	361
v/c Ratio	1.48dr	1.09	0.20	1.13	0.52
Control Delay	88.5	116.2	15.7	119.9	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	88.5	116.2	15.7	119.9	16.1
Queue Length 50th (m)	~242.1	~84.2	27.6	~221.9	28.5
Queue Length 95th (m)	#270.3	#144.2	36.5	#296.0	58.4
Internal Link Dist (m)	613.2		380.5	100.9	
Turn Bay Length (m)		50.0		45.0	
Base Capacity (vph)	2036	300	1994	613	696
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	1.10	1.09	0.20	1.13	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.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	981	1078	300	363	638	332
Future Volume (vph)	981	1078	300	363	638	332
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0		3.0	7.0	7.0	7.0
Lane Util. Factor	0.91		1.00	0.95	1.00	1.00
Frt	0.92		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	4738		1789	3579	1789	1601
Flt Permitted	1.00		0.07	1.00	0.95	1.00
Satd. Flow (perm)	4738		128	3579	1789	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1066	1172	326	395	693	361
RTOR Reduction (vph)	142	0	0	0	0	147
Lane Group Flow (vph)	2096	0	326	395	693	214
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Actuated Green, G (s)	56.0		78.0	78.0	48.0	48.0
Effective Green, g (s)	56.0		78.0	78.0	48.0	48.0
Actuated g/C Ratio	0.40		0.56	0.56	0.34	0.34
Clearance Time (s)	7.0		3.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1895		296	1994	613	548
v/s Ratio Prot	0.44		c0.15	0.11	c0.39	
v/s Ratio Perm			c0.46			0.13
v/c Ratio	1.48dr		1.10	0.20	1.13	0.39
Uniform Delay, d1	42.0		47.1	15.4	46.0	34.9
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	56.2		82.3	0.2	77.9	0.5
Delay (s)	98.2		129.4	15.7	123.9	35.4
Level of Service	F		F	B	F	D
Approach Delay (s)	98.2			67.1	93.6	
Approach LOS	F			E	F	

Intersection Summary			
HCM 2000 Control Delay	91.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	110.1%	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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	27	121	8	34	33	554	105	12	538	4
Future Volume (Veh/h)	5	0	27	121	8	34	33	554	105	12	538	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	0	29	132	9	37	36	602	114	13	585	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)								94				
pX, platoon unblocked	0.88	0.88		0.88	0.88	0.88				0.88		
vC, conflicting volume	1328	1401	587	1371	1346	659	589			716		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1306	1388	587	1354	1326	548	589			612		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	100	94	0	93	92	96			98		
cM capacity (veh/h)	102	120	510	102	130	474	986			854		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	5	29	132	46	36	716	13	589
Volume Left	5	0	132	0	36	0	13	0
Volume Right	0	29	0	37	0	114	0	4
cSH	102	510	102	313	986	1700	854	1700
Volume to Capacity	0.05	0.06	1.30	0.15	0.04	0.42	0.02	0.35
Queue Length 95th (m)	1.2	1.4	69.9	3.9	0.9	0.0	0.4	0.0
Control Delay (s)	42.3	12.5	267.2	18.5	8.8	0.0	9.3	0.0
Lane LOS	E	B	F	C	A		A	
Approach Delay (s)	16.9		202.9		0.4		0.2	
Approach LOS	C		F					

Intersection Summary			
Average Delay	23.7		
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	4	70	63	4	78	105	398	31	51	217	35
Future Volume (Veh/h)	13	4	70	63	4	78	105	398	31	51	217	35
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	4	76	68	4	85	114	433	34	55	236	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)								89			120	
pX, platoon unblocked	0.98	0.98		0.98	0.98	0.98				0.98		
vC, conflicting volume	1113	1060	255	1102	1062	450	274			467		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1103	1049	255	1092	1051	424	274			441		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	90	98	90	54	98	86	91			95		
cM capacity (veh/h)	140	192	784	149	192	615	1289			1092		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	94	157	114	467	55	274
Volume Left	14	68	114	0	55	0
Volume Right	76	85	0	34	0	38
cSH	432	256	1289	1700	1092	1700
Volume to Capacity	0.22	0.61	0.09	0.27	0.05	0.16
Queue Length 95th (m)	6.2	28.0	2.2	0.0	1.2	0.0
Control Delay (s)	15.6	39.2	8.1	0.0	8.5	0.0
Lane LOS	C	E	A		A	
Approach Delay (s)	15.6	39.2	1.6		1.4	
Approach LOS	C	E				

Intersection Summary				
Average Delay	7.8			
Intersection Capacity Utilization	51.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	31	37	680	4	23	724
Future Volume (Veh/h)	31	37	680	4	23	724
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)	34	40	739	4	25	787
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			59			82
pX, platoon unblocked	0.60					
vC, conflicting volume	1578	372			743	
vC1, stage 1 conf vol	741					
vC2, stage 2 conf vol	837					
vCu, unblocked vol	1631	372			743	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	88	94			97	
cM capacity (veh/h)	280	626			860	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	74	493	250	25	787
Volume Left	34	0	0	25	0
Volume Right	40	0	4	0	0
cSH	399	1700	1700	860	1700
Volume to Capacity	0.19	0.29	0.15	0.03	0.46
Queue Length 95th (m)	5.1	0.0	0.0	0.7	0.0
Control Delay (s)	16.1	0.0	0.0	9.3	0.0
Lane LOS	C			A	
Approach Delay (s)	16.1	0.0		0.3	
Approach LOS	C				

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	48.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1306	7	0	663	0	43
Future Volume (Veh/h)	1306	7	0	663	0	43
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)	1420	8	0	721	0	47
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)				58		
pX, platoon unblocked					0.97	
vC, conflicting volume			1428		1780	710
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1428		1736	710
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	88
cM capacity (veh/h)			472		76	376

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	710	710	8	360	360	47
Volume Left	0	0	0	0	0	0
Volume Right	0	0	8	0	0	47
cSH	1700	1700	1700	1700	1700	376
Volume to Capacity	0.42	0.42	0.00	0.21	0.21	0.12
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	3.2
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	15.9
Lane LOS						C
Approach Delay (s)	0.0			0.0		15.9
Approach LOS						C

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	10	0	22	40	0	7	7	952	29	15	1340	23
Future Volume (veh/h)	10	0	22	40	0	7	7	952	29	15	1340	23
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	0	24	43	0	8	8	1035	32	16	1457	25
Approach Volume (veh/h)		35			51			1075			1498	
Crossing Volume (veh/h)		1516#			1054			27			51	
High Capacity (veh/h)		405			595			1356			1331	
High v/c (veh/h)		0.09			0.09			0.79			1.13	
Low Capacity (veh/h)		300			460			1135			1112	
Low v/c (veh/h)		0.12			0.11			0.95			1.35	

Intersection Summary			
Maximum v/c High	1.13		
Maximum v/c Low	1.35		
Intersection Capacity Utilization	94.7%	ICU Level of Service	F

Crossing flow exceeds 1200, method is not applicable

Lane Group	EBL	EBR	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	733	97	11	355	2219	2521
v/c Ratio	0.64	0.32	0.02	0.75	0.60	0.86
Control Delay	43.1	27.1	32.2	49.7	20.0	28.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.1	27.1	32.2	49.7	20.0	28.9
Queue Length 50th (m)	88.9	13.4	2.1	80.7	110.8	206.7
Queue Length 95th (m)	110.0	29.3	6.7	119.7	121.3	228.4
Internal Link Dist (m)					73.6	241.1
Turn Bay Length (m)		150.0				
Base Capacity (vph)	1140	301	479	471	3672	2917
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	0.64	0.32	0.02	0.75	0.60	0.86

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	718	0	95	11	0	348	0	2148	26	0	2471	0
Future Volume (vph)	718	0	95	11	0	348	0	2148	26	0	2471	0
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		7.0			7.0	
Lane Util. Factor	0.97		1.00	1.00		1.00		0.86			0.91	
Frt	1.00		0.85	1.00		0.85		1.00			1.00	
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (prot)	3471		855	1460		1372		6346			5043	
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (perm)	3471		855	1460		1372		6346			5043	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	733	0	97	11	0	355	0	2192	27	0	2521	0
RTOR Reduction (vph)	0	0	21	0	0	21	0	1	0	0	0	0
Lane Group Flow (vph)	733	0	76	11	0	334	0	2218	0	0	2521	0
Heavy Vehicles (%)	2%	0%	91%	25%	0%	19%	0%	4%	0%	0%	4%	0%
Turn Type	Perm		Perm	Perm		Perm		NA			NA	
Protected Phases								2			6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	46.0		46.0	46.0		46.0		81.0			81.0	
Effective Green, g (s)	46.0		46.0	46.0		46.0		81.0			81.0	
Actuated g/C Ratio	0.33		0.33	0.33		0.33		0.58			0.58	
Clearance Time (s)	6.0		6.0	6.0		6.0		7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0		3.0		3.0			3.0	
Lane Grp Cap (vph)	1140		280	479		450		3671			2917	
v/s Ratio Prot								0.35			c0.50	
v/s Ratio Perm	0.21		0.09	0.01		c0.24						
v/c Ratio	0.64		0.27	0.02		0.74		0.60			0.86	
Uniform Delay, d1	40.0		34.7	31.8		41.7		19.1			24.9	
Progression Factor	1.00		1.00	1.00		1.00		1.00			1.00	
Incremental Delay, d2	2.8		2.4	0.1		10.6		0.7			3.7	
Delay (s)	42.8		37.0	31.9		52.3		19.9			28.6	
Level of Service	D		D	C		D		B			C	
Approach Delay (s)		42.1			51.7			19.9			28.6	
Approach LOS		D			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	28.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	87.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL
Lane Group Flow (vph)	373	252	60	269	105
v/c Ratio	0.23	0.16	0.15	0.19	0.08
Control Delay	15.7	0.3	19.3	18.8	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.7	0.3	19.3	18.8	12.3
Queue Length 50th (m)	17.3	0.0	7.6	18.3	4.3
Queue Length 95th (m)	21.0	0.2	14.3	23.8	7.9
Internal Link Dist (m)	214.5			135.6	92.8
Turn Bay Length (m)			60.0		
Base Capacity (vph)	1649	1541	403	1390	1279
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	0.23	0.16	0.15	0.19	0.08

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	302	204	49	218	60	25
Future Volume (vph)	302	204	49	218	60	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	
Frt	1.00	0.85	1.00	1.00	0.96	
Flt Protected	1.00	1.00	0.95	1.00	0.97	
Satd. Flow (prot)	3579	1541	1587	3017	3022	
Flt Permitted	1.00	1.00	0.52	1.00	0.97	
Satd. Flow (perm)	3579	1541	876	3017	3022	
Peak-hour factor, PHF	0.81	0.81	0.81	0.81	0.81	0.81
Adj. Flow (vph)	373	252	60	269	74	31
RTOR Reduction (vph)	0	0	0	0	18	0
Lane Group Flow (vph)	373	252	60	269	87	0
Heavy Vehicles (%)	2%	6%	15%	21%	10%	23%
Turn Type	NA	pm+ov	Perm	NA	Prot	
Protected Phases	2	8		6	8	
Permitted Phases		2	6			
Actuated Green, G (s)	53.0	101.0	53.0	53.0	48.0	
Effective Green, g (s)	53.0	101.0	53.0	53.0	48.0	
Actuated g/C Ratio	0.46	0.88	0.46	0.46	0.42	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1649	1541	403	1390	1261	
v/s Ratio Prot	c0.10	c0.07		0.09	0.03	
v/s Ratio Perm		0.10	0.07			
v/c Ratio	0.23	0.16	0.15	0.19	0.07	
Uniform Delay, d1	18.7	1.0	17.9	18.3	20.1	
Progression Factor	0.82	1.00	1.00	1.00	0.85	
Incremental Delay, d2	0.3	0.2	0.8	0.3	0.1	
Delay (s)	15.6	1.2	18.7	18.7	17.2	
Level of Service	B	A	B	B	B	
Approach Delay (s)	9.8			18.7	17.2	
Approach LOS	A			B	B	

Intersection Summary			
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.21		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	39.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	295	26	81	218	76	58
v/c Ratio	0.12	0.03	0.11	0.10	0.40	0.23
Control Delay	4.1	0.8	5.0	4.2	35.3	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.1	0.8	5.0	4.2	35.3	10.8
Queue Length 50th (m)	6.1	0.1	3.2	4.4	9.5	0.0
Queue Length 95th (m)	11.4	0.2	8.5	8.8	20.9	9.1
Internal Link Dist (m)	33.9			146.8	95.7	
Turn Bay Length (m)			60.0		35.0	
Base Capacity (vph)	2557	1069	735	2221	788	853
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	0.02	0.11	0.10	0.10	0.07

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	268	24	74	198	69	53
Future Volume (vph)	268	24	74	198	69	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.91	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3444	1139	1677	2992	1484	1555
Flt Permitted	1.00	1.00	0.57	1.00	0.95	1.00
Satd. Flow (perm)	3444	1139	1009	2992	1484	1555
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	295	26	81	218	76	58
RTOR Reduction (vph)	0	0	0	0	0	52
Lane Group Flow (vph)	295	26	81	218	76	6
Confl. Peds. (#/hr)		45	45			
Heavy Vehicles (%)	6%	31%	3%	22%	23%	5%
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	2	8		6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	53.2	61.0	53.2	53.2	7.8	7.8
Effective Green, g (s)	53.2	61.0	53.2	53.2	7.8	7.8
Actuated g/C Ratio	0.71	0.81	0.71	0.71	0.10	0.10
Clearance Time (s)	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
Lane Grp Cap (vph)	2442	1139	715	2122	154	161
v/s Ratio Prot	c0.09	0.00		0.07	c0.05	
v/s Ratio Perm		0.02	0.08			0.00
v/c Ratio	0.12	0.02	0.11	0.10	0.49	0.04
Uniform Delay, d1	3.5	1.3	3.4	3.4	31.7	30.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.3	0.1	2.5	0.1
Delay (s)	3.6	1.3	3.8	3.5	34.2	30.3
Level of Service	A	A	A	A	C	C
Approach Delay (s)	3.4			3.6	32.5	
Approach LOS	A			A	C	

Intersection Summary			
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.17		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	48.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	80	1080	448	44	41	109	16
v/c Ratio	0.23	0.74	0.41	0.11	0.13	0.36	0.03
Control Delay	5.5	10.1	28.5	17.4	0.8	34.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.5	10.1	28.5	17.4	0.8	34.8	0.1
Queue Length 50th (m)	1.9	17.2	38.6	5.3	0.0	18.9	0.0
Queue Length 95th (m)	m3.1	30.5	53.3	12.0	0.0	35.2	0.0
Internal Link Dist (m)		202.3	126.7		25.6		
Turn Bay Length (m)	70.0					20.0	
Base Capacity (vph)	350	1453	1091	399	319	304	463
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	0.23	0.74	0.41	0.11	0.13	0.36	0.03

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)	78	1058	0	0	359	80	43	0	40	107	0	16
Future Volume (vph)	78	1058	0	0	359	80	43	0	40	107	0	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	8.0			8.0		3.0	8.0		8.0		8.0
Lane Util. Factor	1.00	0.95			0.95		1.00	1.00		1.00		1.00
Frpb, ped/bikes	1.00	1.00			0.96		1.00	0.76		1.00		0.82
Flpb, ped/bikes	0.97	1.00			1.00		0.84	1.00		0.78		1.00
Frt	1.00	1.00			0.97		1.00	0.85		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1620	3411			3038		810	618		1267		1220
Flt Permitted	0.41	1.00			1.00		0.95	1.00		0.73		1.00
Satd. Flow (perm)	692	3411			3038		810	618		974		1220
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	80	1080	0	0	366	82	44	0	41	109	0	16
RTOR Reduction (vph)	0	0	0	0	16	0	0	23	0	0	0	11
Lane Group Flow (vph)	80	1080	0	0	432	0	44	18	0	109	0	5
Confl. Peds. (#/hr)	99		330	330		99	177		246	246		177
Heavy Vehicles (%)	9%	7%	0%	0%	10%	24%	89%	0%	100%	12%	0%	10%
Turn Type	pm+pt	NA			NA		pm+pt	NA		Perm		Perm
Protected Phases	5	2			6		3	8				
Permitted Phases	2						8			4		4
Actuated Green, G (s)	49.0	49.0			39.8		50.0	50.0		36.0		36.0
Effective Green, g (s)	49.0	49.0			39.8		50.0	50.0		36.0		36.0
Actuated g/C Ratio	0.43	0.43			0.35		0.43	0.43		0.31		0.31
Clearance Time (s)	4.5	8.0			8.0		3.0	8.0		8.0		8.0
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0		3.0
Lane Grp Cap (vph)	332	1453			1051		352	268		304		381
v/s Ratio Prot	0.01	c0.32			0.14		c0.01	0.03				
v/s Ratio Perm	0.09						0.04			c0.11		0.00
v/c Ratio	0.24	0.74			0.41		0.12	0.07		0.36		0.01
Uniform Delay, d1	20.2	27.7			28.7		19.4	18.9		30.6		27.2
Progression Factor	0.25	0.28			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	0.2	2.1			1.2		0.7	0.5		3.3		0.1
Delay (s)	5.3	10.0			29.8		20.2	19.4		33.8		27.3
Level of Service	A	B			C		C	B		C		C
Approach Delay (s)		9.7			29.8			19.8			33.0	
Approach LOS		A			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	79.2%	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)	102	1252	62	397	57	150	22	251
v/c Ratio	0.24	0.83	0.43	0.24	0.16	0.29	0.06	0.52
Control Delay	23.1	34.4	44.5	16.0	23.9	23.0	19.9	35.3
Queue Delay	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.1	34.7	44.5	16.0	23.9	23.0	19.9	35.3
Queue Length 50th (m)	14.5	130.5	9.7	17.2	8.1	15.3	2.4	48.1
Queue Length 95th (m)	27.8	164.0	23.2	33.0	16.6	36.5	6.5	68.6
Internal Link Dist (m)		171.5		202.3		102.8		69.7
Turn Bay Length (m)	65.0		70.0		45.0		30.0	
Base Capacity (vph)	424	1515	157	1656	374	511	372	482
Starvation Cap Reductn	0	39	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	0.24	0.85	0.39	0.24	0.15	0.29	0.06	0.52

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	1039	100	56	352	9	52	59	77	20	196	33
Future Volume (vph)	93	1039	100	56	352	9	52	59	77	20	196	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.92		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1754	3400		1323	3173		1703	1575		1335	1826	
Flt Permitted	0.52	1.00		0.08	1.00		0.45	1.00		0.66	1.00	
Satd. Flow (perm)	956	3400		110	3173		812	1575		930	1826	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	102	1142	110	62	387	10	57	65	85	22	215	36
RTOR Reduction (vph)	0	6	0	0	1	0	0	37	0	0	5	0
Lane Group Flow (vph)	102	1246	0	62	396	0	57	113	0	22	246	0
Confl. Peds. (#/hr)	14		9	9		14	4		8	8		4
Heavy Vehicles (%)	3%	6%	3%	38%	14%	34%	7%	4%	15%	36%	2%	7%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	48.6	48.6		58.2	58.2		40.8	34.6		34.5	31.3	
Effective Green, g (s)	48.6	48.6		58.2	58.2		40.8	34.6		34.5	31.3	
Actuated g/C Ratio	0.42	0.42		0.51	0.51		0.35	0.30		0.30	0.27	
Clearance Time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	404	1436		125	1605		338	473		290	496	
v/s Ratio Prot		c0.37		c0.03	0.12		c0.01	0.07		0.00	c0.13	
v/s Ratio Perm	0.11			0.22			0.05			0.02		
v/c Ratio	0.25	0.87		0.50	0.25		0.17	0.24		0.08	0.50	
Uniform Delay, d1	21.5	30.3		20.8	16.0		25.1	30.3		28.6	35.2	
Progression Factor	1.00	1.00		2.81	1.04		1.00	1.00		0.87	0.85	
Incremental Delay, d2	1.5	7.3		2.9	0.4		0.2	1.2		0.1	3.5	
Delay (s)	23.0	37.6		61.3	17.1		25.3	31.5		24.9	33.3	
Level of Service	C	D		E	B		C	C		C	C	
Approach Delay (s)		36.5			23.0			29.8			32.6	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	32.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	82.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	44	1141	63	402	21	187	215	22	227
v/c Ratio	0.09	0.65	0.26	0.20	0.07	0.46	0.40	0.07	0.47
Control Delay	10.0	15.3	13.3	13.5	42.2	48.9	7.6	33.0	40.9
Queue Delay	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.0	16.5	13.3	13.5	42.2	48.9	7.6	33.0	40.9
Queue Length 50th (m)	3.4	105.0	6.5	25.8	4.6	45.4	0.0	4.2	48.2
Queue Length 95th (m)	m3.5	m80.6	12.4	34.2	11.9	70.2	20.3	10.6	73.9
Internal Link Dist (m)		161.5		171.5		57.8			66.0
Turn Bay Length (m)	80.0		55.0		45.0			30.0	
Base Capacity (vph)	474	1768	238	1962	291	406	542	334	484
Starvation Cap Reductn	0	383	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	0.82	0.26	0.20	0.07	0.46	0.40	0.07	0.47

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)	41	1009	64	59	374	4	20	176	202	21	160	54
Future Volume (vph)	41	1009	64	59	374	4	20	176	202	21	160	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		3.0	7.0		7.0	7.0	7.0	4.5	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.93	1.00	0.99	
Flpb, ped/bikes	0.98	1.00		1.00	1.00		0.99	1.00	1.00	0.98	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1701	3433		1674	3308		1695	1537	1453	1798	1549	
Flt Permitted	0.52	1.00		0.14	1.00		0.62	1.00	1.00	0.49	1.00	
Satd. Flow (perm)	923	3433		253	3308		1101	1537	1453	935	1549	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	44	1073	68	63	398	4	21	187	215	22	170	57
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	158	0	8	0
Lane Group Flow (vph)	44	1138	0	63	402	0	21	187	57	22	219	0
Confl. Peds. (#/hr)	9		8	8		9	4		26	26		4
Heavy Vehicles (%)	5%	5%	6%	9%	10%	20%	7%	25%	5%	0%	25%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		2		1	6			8		7	4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	70.2	70.2		81.2	81.2		37.0	37.0	37.0	44.8	44.8	
Effective Green, g (s)	70.2	70.2		81.2	81.2		37.0	37.0	37.0	44.8	44.8	
Actuated g/C Ratio	0.50	0.50		0.58	0.58		0.26	0.26	0.26	0.32	0.32	
Clearance Time (s)	7.0	7.0		3.0	7.0		7.0	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)	462	1721		227	1918		290	406	384	319	495	
v/s Ratio Prot		c0.33		c0.02	0.12			0.12		0.00	c0.14	
v/s Ratio Perm	0.05			0.14			0.02		0.04	0.02		
v/c Ratio	0.10	0.66		0.28	0.21		0.07	0.46	0.15	0.07	0.44	
Uniform Delay, d1	18.3	26.0		16.8	14.1		38.6	43.1	39.4	33.1	37.7	
Progression Factor	0.56	0.61		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	0.2		3.0	0.2		0.5	3.7	0.8	0.1	2.8	
Delay (s)	10.3	16.0		19.8	14.3		39.1	46.9	40.2	33.2	40.6	
Level of Service	B	B		B	B		D	D	D	C	D	
Approach Delay (s)		15.8			15.1			43.1			39.9	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	23.2	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)	21.5
Intersection Capacity Utilization	66.6%	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)	37	654	145	388	140	1444	564	705
v/c Ratio	0.15	0.67	1.21	0.39	0.35	1.17	1.25	0.39
Control Delay	39.6	47.1	184.0	20.3	15.4	125.8	167.6	21.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.6	47.1	184.0	20.3	15.4	125.8	167.6	21.2
Queue Length 50th (m)	7.7	82.5	~49.8	19.5	14.4	~249.4	~178.4	60.2
Queue Length 95th (m)	16.1	94.8	#84.7	26.2	21.5	#260.2	#222.7	68.2
Internal Link Dist (m)		170.1		161.5		203.8		248.3
Turn Bay Length (m)	50.0		50.0		65.0		100.0	
Base Capacity (vph)	242	969	120	986	402	1233	450	1821
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	0.15	0.67	1.21	0.39	0.35	1.17	1.25	0.39

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)	31	456	93	122	191	135	118	1030	183	474	567	25
Future Volume (vph)	31	456	93	122	191	135	118	1030	183	474	567	25
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	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		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	0.99	1.00		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.94		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1753	3348		1621	3131		1804	3425		1772	3536	
Flt Permitted	0.46	1.00		0.25	1.00		0.38	1.00		0.08	1.00	
Satd. Flow (perm)	849	3348		419	3131		729	3425		141	3536	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	37	543	111	145	227	161	140	1226	218	564	675	30
RTOR Reduction (vph)	0	12	0	0	92	0	0	10	0	0	2	0
Lane Group Flow (vph)	37	642	0	145	296	0	140	1434	0	564	703	0
Confl. Peds. (#/hr)	13		33	33		13	6		2	2		6
Heavy Vehicles (%)	3%	5%	6%	11%	10%	5%	1%	3%	9%	3%	2%	13%
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)	40.0	40.0		40.0	40.0		59.0	50.0		84.0	72.0	
Effective Green, g (s)	40.0	40.0		40.0	40.0		59.0	50.0		84.0	72.0	
Actuated g/C Ratio	0.29	0.29		0.29	0.29		0.42	0.36		0.60	0.51	
Clearance Time (s)	8.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	242	956		119	894		376	1223		445	1818	
v/s Ratio Prot		0.19			0.09		0.02	0.42		c0.28	0.20	
v/s Ratio Perm	0.04			c0.35			0.13			c0.48		
v/c Ratio	0.15	0.67		1.22	0.33		0.37	1.17		1.27	0.39	
Uniform Delay, d1	37.3	44.2		50.0	39.4		25.4	45.0		45.7	20.6	
Progression Factor	1.00	1.00		0.77	0.72		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.3	3.8		152.2	1.0		2.8	86.5		137.2	0.6	
Delay (s)	38.7	47.9		190.7	29.5		28.2	131.5		182.8	21.2	
Level of Service	D	D		F	C		C	F		F	C	
Approach Delay (s)		47.4			73.4			122.4			93.1	
Approach LOS		D			E			F			F	

Intersection Summary			
HCM 2000 Control Delay	94.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.27		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	114.0%	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)	87	54	20	46	15	694	15	458
v/c Ratio	0.25	0.13	0.06	0.10	0.03	0.71	0.05	0.49
Control Delay	26.4	14.2	23.6	11.5	8.1	17.9	8.6	12.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Total Delay	26.4	14.2	23.6	11.5	8.1	17.9	8.6	12.9
Queue Length 50th (m)	10.6	2.8	2.3	1.3	0.9	70.5	1.0	37.4
Queue Length 95th (m)	12.7	5.1	4.4	3.5	2.0	46.4	2.0	28.4
Internal Link Dist (m)		141.1		97.5		112.5		34.9
Turn Bay Length (m)	20.0		20.0		25.0		25.0	
Base Capacity (vph)	347	409	314	446	473	971	289	943
Starvation Cap Reductn	0	0	0	0	0	0	0	181
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	0.25	0.13	0.06	0.10	0.03	0.71	0.05	0.60

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	13	16	11	6	19	8	351	24	8	219	28
Future Volume (vph)	47	13	16	11	6	19	8	351	24	8	219	28
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	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.97		1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		0.97	1.00		0.99	1.00		1.00	1.00	
Frt	1.00	0.92		1.00	0.89		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1815	1547		1655	1679		1802	1722		1822	1668	
Flt Permitted	0.73	1.00		0.72	1.00		0.44	1.00		0.27	1.00	
Satd. Flow (perm)	1389	1547		1257	1679		843	1722		513	1668	
Peak-hour factor, PHF	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Adj. Flow (vph)	87	24	30	20	11	35	15	650	44	15	406	52
RTOR Reduction (vph)	0	23	0	0	26	0	0	3	0	0	6	0
Lane Group Flow (vph)	87	32	0	20	20	0	15	691	0	15	452	0
Confl. Peds. (#/hr)	5		16	16		5	13		4	4		13
Heavy Vehicles (%)	0%	0%	19%	7%	0%	0%	0%	11%	0%	0%	10%	33%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	20.0	20.0		20.0	20.0		45.0	45.0		45.0	45.0	
Effective Green, g (s)	20.0	20.0		20.0	20.0		45.0	45.0		45.0	45.0	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.56	0.56		0.56	0.56	
Clearance Time (s)	8.0	8.0		8.0	8.0		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)	347	386		314	419		474	968		288	938	
v/s Ratio Prot		0.02			0.01			c0.40			0.27	
v/s Ratio Perm	c0.06			0.02			0.02			0.03		
v/c Ratio	0.25	0.08		0.06	0.05		0.03	0.71		0.05	0.48	
Uniform Delay, d1	24.0	23.0		22.9	22.8		7.8	12.8		7.9	10.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.7	0.4		0.4	0.2		0.1	4.5		0.3	1.8	
Delay (s)	25.7	23.4		23.3	23.0		7.9	17.3		8.2	12.3	
Level of Service	C	C		C	C		A	B		A	B	
Approach Delay (s)		24.8			23.1			17.1			12.2	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	49.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	678	114	188	202	23
v/c Ratio	0.19	0.22	0.07	0.71	0.08
Control Delay	5.0	3.3	1.3	58.5	14.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	5.0	3.3	1.3	58.5	14.6
Queue Length 50th (m)	13.3	2.1	1.7	43.6	0.0
Queue Length 95th (m)	21.7	8.3	3.2	63.9	6.7
Internal Link Dist (m)	619.6		214.5	104.0	
Turn Bay Length (m)		50.0		45.0	
Base Capacity (vph)	3597	517	2569	591	544
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	0.19	0.22	0.07	0.34	0.04

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	485	139	105	173	186	21
Future Volume (vph)	485	139	105	173	186	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0		7.0	7.0	7.0	7.0
Lane Util. Factor	0.91		1.00	0.95	1.00	1.00
Frt	0.97		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	4970		1789	3579	1789	1601
Flt Permitted	1.00		0.38	1.00	0.95	1.00
Satd. Flow (perm)	4970		720	3579	1789	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	527	151	114	188	202	23
RTOR Reduction (vph)	28	0	0	0	0	19
Lane Group Flow (vph)	650	0	114	188	202	4
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Actuated Green, G (s)	82.6		82.6	82.6	18.4	18.4
Effective Green, g (s)	82.6		82.6	82.6	18.4	18.4
Actuated g/C Ratio	0.72		0.72	0.72	0.16	0.16
Clearance Time (s)	7.0		7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3569		517	2570	286	256
v/s Ratio Prot	0.13			0.05	c0.11	
v/s Ratio Perm			c0.16			0.00
v/c Ratio	0.18		0.22	0.07	0.71	0.01
Uniform Delay, d1	5.3		5.4	4.8	45.7	40.7
Progression Factor	1.00		0.34	0.23	1.00	1.00
Incremental Delay, d2	0.1		1.0	0.1	7.7	0.0
Delay (s)	5.4		2.8	1.2	53.5	40.7
Level of Service	A		A	A	D	D
Approach Delay (s)	5.4			1.8	52.2	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	46.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	37	17	35	3	50	107	24	211	18
Future Volume (Veh/h)	0	0	0	37	17	35	3	50	107	24	211	18
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	40	18	38	3	54	116	26	229	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)								94			117	
pX, platoon unblocked												
vC, conflicting volume	371	467	124	284	419	85	249			170		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	371	467	124	284	419	85	249			170		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	94	96	96	100			98		
cM capacity (veh/h)	516	482	903	635	513	957	1314			1405		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	0	0	40	56	3	36	134	26	153	96
Volume Left	0	0	40	0	3	0	0	26	0	0
Volume Right	0	0	0	38	0	0	116	0	0	20
cSH	1700	1700	635	749	1314	1700	1700	1405	1700	1700
Volume to Capacity	0.00	0.00	0.06	0.07	0.00	0.02	0.08	0.02	0.09	0.06
Queue Length 95th (m)	0.0	0.0	1.5	1.8	0.1	0.0	0.0	0.4	0.0	0.0
Control Delay (s)	0.0	0.0	11.0	10.2	7.7	0.0	0.0	7.6	0.0	0.0
Lane LOS	A	A	B	B	A			A		
Approach Delay (s)	0.0		10.6		0.1			0.7		
Approach LOS	A		B							

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	23.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	0	63	16	2	19	53	96	49	15	44	40
Future Volume (Veh/h)	8	0	63	16	2	19	53	96	49	15	44	40
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	0	68	17	2	21	58	104	53	16	48	43
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								89			120	
pX, platoon unblocked												
vC, conflicting volume	344	374	70	394	370	130	91			157		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	344	374	70	394	370	130	91			157		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	93	97	100	98	96			99		
cM capacity (veh/h)	573	529	993	507	532	919	1504			1423		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	77	40	58	157	16	91
Volume Left	9	17	58	0	16	0
Volume Right	68	21	0	53	0	43
cSH	915	665	1504	1700	1423	1700
Volume to Capacity	0.08	0.06	0.04	0.09	0.01	0.05
Queue Length 95th (m)	2.1	1.5	0.9	0.0	0.3	0.0
Control Delay (s)	9.3	10.8	7.5	0.0	7.6	0.0
Lane LOS	A	B	A		A	
Approach Delay (s)	9.3	10.8	2.0		1.1	
Approach LOS	A	B				

Intersection Summary				
Average Delay	3.9			
Intersection Capacity Utilization	24.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	398	20	28	254
Future Volume (Veh/h)	0	0	398	20	28	254
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	433	22	30	276
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			59			82
pX, platoon unblocked	0.93					
vC, conflicting volume	780	228			455	
vC1, stage 1 conf vol	444					
vC2, stage 2 conf vol	336					
vCu, unblocked vol	722	228			455	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			97	
cM capacity (veh/h)	528	775			1102	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	289	166	30	276
Volume Left	0	0	0	30	0
Volume Right	0	0	22	0	0
cSH	1700	1700	1700	1102	1700
Volume to Capacity	0.00	0.17	0.10	0.03	0.16
Queue Length 95th (m)	0.0	0.0	0.0	0.6	0.0
Control Delay (s)	0.0	0.0	0.0	8.4	0.0
Lane LOS	A			A	
Approach Delay (s)	0.0	0.0		0.8	
Approach LOS	A				

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	21.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	285	42	0	268	0	8
Future Volume (Veh/h)	285	42	0	268	0	8
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)	310	46	0	291	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)	160			58		
pX, platoon unblocked			0.96		0.96	0.96
vC, conflicting volume			356		456	155
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			246		328	37
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)			1264		618	986

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	155	155	46	146	146	9
Volume Left	0	0	0	0	0	0
Volume Right	0	0	46	0	0	9
cSH	1700	1700	1700	1700	1700	986
Volume to Capacity	0.09	0.09	0.03	0.09	0.09	0.01
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.2
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	8.7
Lane LOS						A
Approach Delay (s)	0.0			0.0		8.7
Approach LOS						A

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	17.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	3	0	2	1	0	7	2	197	22	0	232	11
Future Volume (vph)	3	0	2	1	0	7	2	197	22	0	232	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	0	2	1	0	8	2	214	24	0	252	12

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	5	9	2	238	0	264
Volume Left (vph)	3	1	2	0	0	0
Volume Right (vph)	2	8	0	24	0	12
Hadj (s)	-0.09	-0.48	0.53	-0.04	0.00	0.00
Departure Headway (s)	5.0	4.6	5.3	4.7	4.7	4.7
Degree Utilization, x	0.01	0.01	0.00	0.31	0.00	0.34
Capacity (veh/h)	643	693	670	756	770	755
Control Delay (s)	8.0	7.7	7.1	8.6	6.5	8.9
Approach Delay (s)	8.0	7.7	8.6		8.9	
Approach LOS	A	A	A		A	

Intersection Summary			
Delay	8.7		
Level of Service	A		
Intersection Capacity Utilization	22.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	351	199	73	1242	2201	1693
v/c Ratio	0.23	0.29	0.09	1.71	0.77	0.76
Control Delay	23.6	21.2	15.7	348.4	34.7	35.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.6	21.2	15.7	348.4	34.7	35.0
Queue Length 50th (m)	29.8	28.3	10.2	~511.1	146.8	141.3
Queue Length 95th (m)	40.2	46.2	m15.3	#592.9	160.6	159.7
Internal Link Dist (m)					73.6	241.1
Turn Bay Length (m)		150.0				
Base Capacity (vph)	1526	683	779	727	2856	2226
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	0.23	0.29	0.09	1.71	0.77	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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	316	0	179	66	0	1118	0	1953	28	0	1524	0
Future Volume (vph)	316	0	179	66	0	1118	0	1953	28	0	1524	0
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		7.0			7.0	
Lane Util. Factor	0.97		1.00	1.00		1.00		0.86			0.91	
Frt	1.00		0.85	1.00		0.85		1.00			1.00	
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (prot)	3340		1458	1706		1555		6344			4948	
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (perm)	3340		1458	1706		1555		6344			4948	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	351	0	199	73	0	1242	0	2170	31	0	1693	0
RTOR Reduction (vph)	0	0	17	0	0	17	0	1	0	0	0	0
Lane Group Flow (vph)	351	0	182	73	0	1225	0	2200	0	0	1693	0
Heavy Vehicles (%)	6%	0%	12%	7%	0%	5%	0%	4%	0%	0%	6%	0%
Turn Type	Perm		Perm	Perm		Perm		NA			NA	
Protected Phases								2			6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	64.0		64.0	64.0		64.0		63.0			63.0	
Effective Green, g (s)	64.0		64.0	64.0		64.0		63.0			63.0	
Actuated g/C Ratio	0.46		0.46	0.46		0.46		0.45			0.45	
Clearance Time (s)	6.0		6.0	6.0		6.0		7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0		3.0		3.0			3.0	
Lane Grp Cap (vph)	1526		666	779		710		2854			2226	
v/s Ratio Prot								c0.35			0.34	
v/s Ratio Perm	0.11		0.12	0.04		c0.79						
v/c Ratio	0.23		0.27	0.09		1.73		0.77			0.76	
Uniform Delay, d1	23.1		23.6	21.6		38.0		32.4			32.2	
Progression Factor	1.00		1.00	0.71		0.77		1.00			1.00	
Incremental Delay, d2	0.4		1.0	0.2		332.0		2.1			2.5	
Delay (s)	23.4		24.6	15.5		361.4		34.5			34.7	
Level of Service	C		C	B		F		C			C	
Approach Delay (s)		23.8			342.2			34.5			34.7	
Approach LOS		C			F			C			C	

Intersection Summary			
HCM 2000 Control Delay	103.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	121.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL
Lane Group Flow (vph)	190	753	110	813	384
v/c Ratio	0.13	0.48	0.22	0.52	0.25
Control Delay	23.5	9.3	24.9	29.1	18.0
Queue Delay	0.0	0.1	0.0	0.0	0.0
Total Delay	23.5	9.3	24.9	29.1	18.0
Queue Length 50th (m)	10.3	89.2	18.3	83.7	25.9
Queue Length 95th (m)	23.1	169.1	31.5	102.5	m31.5
Internal Link Dist (m)	220.9			135.6	92.8
Turn Bay Length (m)			60.0		
Base Capacity (vph)	1416	1585	510	1564	1529
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	98	7	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.13	0.51	0.22	0.52	0.25

Intersection Summary

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	171	678	99	732	313	32
Future Volume (vph)	171	678	99	732	313	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	1.00	1.00	0.95	1.00	0.96	
Satd. Flow (prot)	3147	1585	1706	3476	3385	
Flt Permitted	1.00	1.00	0.63	1.00	0.96	
Satd. Flow (perm)	3147	1585	1135	3476	3385	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	190	753	110	813	348	36
RTOR Reduction (vph)	0	0	0	0	6	0
Lane Group Flow (vph)	190	753	110	813	379	0
Heavy Vehicles (%)	16%	3%	7%	5%	3%	12%
Turn Type	NA	pm+ov	Perm	NA	Prot	
Protected Phases	2	8		6	8	
Permitted Phases		2	6			
Actuated Green, G (s)	63.0	126.0	63.0	63.0	63.0	
Effective Green, g (s)	63.0	126.0	63.0	63.0	63.0	
Actuated g/C Ratio	0.45	0.90	0.45	0.45	0.45	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1416	1585	510	1564	1523	
v/s Ratio Prot	0.06	c0.21		0.23	0.11	
v/s Ratio Perm		0.26	0.10			
v/c Ratio	0.13	0.48	0.22	0.52	0.25	
Uniform Delay, d1	22.5	1.2	23.5	27.6	23.8	
Progression Factor	1.03	1.00	1.00	1.00	0.76	
Incremental Delay, d2	0.2	0.9	1.0	1.2	0.3	
Delay (s)	23.3	2.2	24.4	28.9	18.4	
Level of Service	C	A	C	C	B	
Approach Delay (s)	6.4			28.3	18.4	
Approach LOS	A			C	B	

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)	140.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	197	44	54	818	95	30
v/c Ratio	0.08	0.05	0.07	0.31	0.47	0.14
Control Delay	4.1	0.7	4.7	4.9	40.7	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.1	0.7	4.7	4.9	40.7	13.0
Queue Length 50th (m)	4.2	0.1	2.2	21.5	13.7	0.0
Queue Length 95th (m)	8.5	0.3	6.3	34.9	27.4	7.0
Internal Link Dist (m)	33.9			146.8	95.7	
Turn Bay Length (m)			60.0		35.0	
Base Capacity (vph)	2469	1081	787	2659	599	589
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	0.04	0.07	0.31	0.16	0.05

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	179	40	49	744	86	27
Future Volume (vph)	179	40	49	744	86	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.86	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	0.89	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3259	1144	1613	3510	1587	1512
Flt Permitted	1.00	1.00	0.63	1.00	0.95	1.00
Satd. Flow (perm)	3259	1144	1066	3510	1587	1512
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	197	44	54	818	95	30
RTOR Reduction (vph)	0	0	0	0	0	27
Lane Group Flow (vph)	197	44	54	818	95	3
Confl. Peds. (#/hr)		71	71			
Heavy Vehicles (%)	12%	23%	1%	4%	15%	8%
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	2	8		6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	60.8	69.6	60.8	60.8	8.8	8.8
Effective Green, g (s)	60.8	69.6	60.8	60.8	8.8	8.8
Actuated g/C Ratio	0.73	0.83	0.73	0.73	0.11	0.11
Clearance Time (s)	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
Lane Grp Cap (vph)	2370	1144	775	2552	167	159
v/s Ratio Prot	0.06	0.00		c0.23	c0.06	
v/s Ratio Perm		0.03	0.05			0.00
v/c Ratio	0.08	0.04	0.07	0.32	0.57	0.02
Uniform Delay, d1	3.3	1.2	3.3	4.1	35.6	33.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.2	0.3	4.4	0.1
Delay (s)	3.4	1.2	3.4	4.4	40.0	33.6
Level of Service	A	A	A	A	D	C
Approach Delay (s)	3.0			4.3	38.5	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	7.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	83.6	Sum of lost time (s)	14.0
Intersection Capacity Utilization	48.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	26	918	1435	18	48	78	22
v/c Ratio	0.20	0.51	0.89	0.06	0.23	0.37	0.07
Control Delay	28.4	34.0	40.6	27.1	7.0	48.9	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.4	34.0	40.6	27.1	7.0	48.9	0.5
Queue Length 50th (m)	3.4	86.3	193.5	3.1	0.0	17.8	0.0
Queue Length 95th (m)	m5.4	110.8	#244.3	8.4	6.3	34.0	0.0
Internal Link Dist (m)		202.3	126.7		25.6		
Turn Bay Length (m)	70.0					20.0	
Base Capacity (vph)	137	1802	1621	285	213	210	300
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	0.19	0.51	0.89	0.06	0.23	0.37	0.07

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)	24	845	0	0	1181	139	17	0	44	72	0	20
Future Volume (vph)	24	845	0	0	1181	139	17	0	44	72	0	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	8.0			8.0		3.0	8.0		8.0		8.0
Lane Util. Factor	1.00	0.95			0.95		1.00	1.00		1.00		1.00
Frpb, ped/bikes	1.00	1.00			0.94		1.00	0.58		1.00		0.60
Flpb, ped/bikes	1.00	1.00			1.00		0.63	1.00		0.61		1.00
Frt	1.00	1.00			0.98		1.00	0.85		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1738	3411			3313		665	486		1073		919
Flt Permitted	0.06	1.00			1.00		0.95	1.00		0.73		1.00
Satd. Flow (perm)	108	3411			3313		665	486		820		919
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	918	0	0	1284	151	18	0	48	78	0	22
RTOR Reduction (vph)	0	0	0	0	6	0	0	31	0	0	0	16
Lane Group Flow (vph)	26	918	0	0	1429	0	18	17	0	78	0	6
Confl. Peds. (#/hr)	290		1278	1278		290	658		752	752		658
Heavy Vehicles (%)	5%	7%	0%	0%	1%	13%	72%	0%	95%	4%	0%	7%
Turn Type	pm+pt	NA			NA		pm+pt	NA		Perm		Perm
Protected Phases	5	2			6		3	8				
Permitted Phases	2						8			4		4
Actuated Green, G (s)	74.0	74.0			67.1		50.0	50.0		36.0		36.0
Effective Green, g (s)	74.0	74.0			67.1		50.0	50.0		36.0		36.0
Actuated g/C Ratio	0.53	0.53			0.48		0.36	0.36		0.26		0.26
Clearance Time (s)	3.0	8.0			8.0		3.0	8.0		8.0		8.0
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0		3.0
Lane Grp Cap (vph)	102	1802			1587		237	173		210		236
v/s Ratio Prot	0.01	c0.27			c0.43		0.01	c0.04				
v/s Ratio Perm	0.13						0.02			c0.10		0.01
v/c Ratio	0.25	0.51			0.90		0.08	0.10		0.37		0.02
Uniform Delay, d1	24.6	21.3			33.4		29.7	30.0		42.7		38.9
Progression Factor	1.91	1.55			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	1.0	0.7			8.6		0.6	1.1		5.0		0.2
Delay (s)	47.9	33.6			42.0		30.4	31.1		47.7		39.1
Level of Service	D	C			D		C	C		D		D
Approach Delay (s)		34.0			42.0			30.9			45.8	
Approach LOS		C			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	38.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	91.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	58	774	140	1102	182	426	81	818
v/c Ratio	1.00	0.81	0.74	0.88	0.99	0.55	0.23	1.03
Control Delay	145.0	33.8	35.9	19.8	97.9	31.3	11.5	69.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.4
Total Delay	145.0	33.8	35.9	19.8	97.9	31.3	11.5	92.7
Queue Length 50th (m)	5.6	38.4	7.8	49.8	34.3	83.8	5.0	~242.7
Queue Length 95th (m)	m#37.7	82.3	m14.5	113.1	#83.9	116.7	15.7	#316.1
Internal Link Dist (m)		171.5		202.3		102.8		69.7
Turn Bay Length (m)	65.0		70.0		45.0		30.0	
Base Capacity (vph)	58	953	188	1252	184	776	363	791
Starvation Cap Reductn	0	0	0	0	0	0	0	45
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	0.81	0.74	0.88	0.99	0.55	0.22	1.10

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.

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)	57	693	66	137	1014	66	178	320	97	79	718	83
Future Volume (vph)	57	693	66	137	1014	66	178	320	97	79	718	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.97		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1801	3405		1615	3430		1772	1744		1434	1840	
Flt Permitted	0.11	1.00		0.15	1.00		0.06	1.00		0.39	1.00	
Satd. Flow (perm)	210	3405		253	3430		121	1744		587	1840	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	58	707	67	140	1035	67	182	327	99	81	733	85
RTOR Reduction (vph)	0	5	0	0	3	0	0	8	0	0	3	0
Lane Group Flow (vph)	58	769	0	140	1099	0	182	418	0	81	815	0
Confl. Peds. (#/hr)	17		10	10		17	13		10	10		13
Heavy Vehicles (%)	1%	6%	1%	13%	4%	24%	3%	1%	21%	27%	2%	6%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	39.0	39.0		51.0	51.0		71.7	61.7		68.3	60.0	
Effective Green, g (s)	39.0	39.0		51.0	51.0		71.7	61.7		68.3	60.0	
Actuated g/C Ratio	0.28	0.28		0.36	0.36		0.51	0.44		0.49	0.43	
Clearance Time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	58	948		179	1249		179	768		336	788	
v/s Ratio Prot		0.23		0.05	c0.32		c0.07	0.24		0.01	0.44	
v/s Ratio Perm	c0.28			0.23			c0.45			0.10		
v/c Ratio	1.00	0.81		0.78	0.88		1.02	0.54		0.24	1.03	
Uniform Delay, d1	50.5	47.1		33.8	41.6		42.6	28.8		20.3	40.0	
Progression Factor	0.60	0.58		0.77	0.35		1.00	1.00		0.68	0.71	
Incremental Delay, d2	108.3	6.4		10.3	4.7		71.7	2.8		0.4	40.3	
Delay (s)	138.7	33.7		36.4	19.3		114.3	31.6		14.2	68.8	
Level of Service	F	C		D	B		F	C		B	E	
Approach Delay (s)		41.1			21.2			56.3			63.8	
Approach LOS		D			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	42.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	113.1%	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)	39	867	172	1244	18	290	76	136	394
v/c Ratio	0.28	0.63	0.48	0.65	0.08	0.58	0.18	0.40	0.61
Control Delay	25.4	26.2	19.7	10.3	40.9	50.6	8.9	32.4	36.8
Queue Delay	0.0	0.9	0.0	0.2	0.0	1.6	0.0	0.0	0.0
Total Delay	25.4	27.1	19.7	10.5	40.9	52.2	8.9	32.4	36.8
Queue Length 50th (m)	5.3	68.6	9.4	44.1	3.8	70.7	0.0	24.8	78.2
Queue Length 95th (m)	m6.8	m55.4	m15.2	m49.8	10.5	101.0	12.1	40.1	113.1
Internal Link Dist (m)		161.5		171.5		57.8			70.0
Turn Bay Length (m)	80.0		55.0		45.0			30.0	
Base Capacity (vph)	141	1381	358	1908	226	501	419	343	643
Starvation Cap Reductn	0	248	0	128	0	90	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	0.28	0.77	0.48	0.70	0.08	0.71	0.18	0.40	0.61

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)	35	627	153	155	1081	39	16	261	68	122	153	202
Future Volume (vph)	35	627	153	155	1081	39	16	261	68	122	153	202
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		3.0	7.0		7.0	7.0	7.0	3.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	0.92	1.00	0.97	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		0.98	1.00	1.00	0.99	1.00	
Frt	1.00	0.97		1.00	0.99		1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1808	3355		1722	3511		1790	1921	1385	1810	1708	
Flt Permitted	0.18	1.00		0.20	1.00		0.46	1.00	1.00	0.35	1.00	
Satd. Flow (perm)	348	3355		354	3511		866	1921	1385	665	1708	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	39	697	170	172	1201	43	18	290	76	136	170	224
RTOR Reduction (vph)	0	15	0	0	2	0	0	0	56	0	33	0
Lane Group Flow (vph)	39	852	0	172	1242	0	18	290	20	136	361	0
Confl. Peds. (#/hr)	19		14	14		19	18		31	31		18
Heavy Vehicles (%)	0%	5%	0%	6%	3%	5%	0%	0%	9%	0%	0%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		2		1	6			8		7	4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	57.0	57.0		76.0	76.0		36.6	36.6	36.6	50.0	50.0	
Effective Green, g (s)	57.0	57.0		76.0	76.0		36.6	36.6	36.6	50.0	50.0	
Actuated g/C Ratio	0.41	0.41		0.54	0.54		0.26	0.26	0.26	0.36	0.36	
Clearance Time (s)	7.0	7.0		3.0	7.0		7.0	7.0	7.0	3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	141	1365		348	1905		226	502	362	322	610	
v/s Ratio Prot		0.25		0.06	c0.35			0.15		0.03	c0.21	
v/s Ratio Perm	0.11			0.21			0.02		0.01	0.12		
v/c Ratio	0.28	0.62		0.49	0.65		0.08	0.58	0.05	0.42	0.59	
Uniform Delay, d1	27.7	33.0		19.2	22.6		39.0	45.0	38.7	32.3	36.7	
Progression Factor	0.79	0.79		1.19	0.41		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.8	0.8		2.6	0.9		0.7	4.8	0.3	0.9	4.2	
Delay (s)	23.8	26.8		25.5	10.2		39.7	49.8	39.0	33.2	40.9	
Level of Service	C	C		C	B		D	D	D	C	D	
Approach Delay (s)		26.6			12.1			47.2			38.9	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	24.7	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)	20.0
Intersection Capacity Utilization	89.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	47	371	189	1208	52	1521	460	1000
v/c Ratio	0.34	0.31	0.70	1.23	0.20	1.22	1.32	0.59
Control Delay	34.1	32.3	72.4	163.3	16.4	145.0	197.0	28.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.1	32.3	72.4	163.3	16.4	145.0	197.0	28.8
Queue Length 50th (m)	8.2	37.0	54.8	~217.8	6.1	~271.6	~147.6	104.4
Queue Length 95th (m)	16.9	50.3	#81.9	#261.1	12.1	#314.6	#214.6	125.5
Internal Link Dist (m)		170.1		161.5		203.8		248.3
Turn Bay Length (m)	50.0		50.0		65.0		100.0	
Base Capacity (vph)	140	1190	270	979	266	1248	349	1701
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	0.34	0.31	0.70	1.23	0.20	1.22	1.32	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)	44	281	64	176	765	358	48	1309	105	428	923	7
Future Volume (vph)	44	281	64	176	765	358	48	1309	105	428	923	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		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		0.98	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.95		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)	1755	3395		1735	3376		1788	3517		1772	3608	
Flt Permitted	0.10	1.00		0.53	1.00		0.25	1.00		0.08	1.00	
Satd. Flow (perm)	176	3395		970	3376		473	3517		142	3608	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	47	302	69	189	823	385	52	1408	113	460	992	8
RTOR Reduction (vph)	0	14	0	0	40	0	0	5	0	0	1	0
Lane Group Flow (vph)	47	357	0	189	1168	0	52	1516	0	460	999	0
Confl. Peds. (#/hr)	5		23	23		5	8		13	13		8
Heavy Vehicles (%)	4%	4%	2%	3%	2%	3%	2%	2%	7%	3%	1%	4%
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	48.5	48.5		39.0	39.0		56.0	49.5		75.5	66.0	
Effective Green, g (s)	48.5	48.5		39.0	39.0		56.0	49.5		75.5	66.0	
Actuated g/C Ratio	0.35	0.35		0.28	0.28		0.40	0.35		0.54	0.47	
Clearance Time (s)	3.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	134	1176		270	940		250	1243		344	1700	
v/s Ratio Prot	c0.02	0.11			c0.35		0.01	0.43		c0.22	0.28	
v/s Ratio Perm	0.11			0.19			0.07			c0.50		
v/c Ratio	0.35	0.30		0.70	1.24		0.21	1.22		1.34	0.59	
Uniform Delay, d1	36.0	33.4		45.3	50.5		26.1	45.2		46.4	27.1	
Progression Factor	1.00	1.00		1.32	1.34		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.1	0.7		11.0	116.4		1.9	106.5		170.2	1.5	
Delay (s)	43.1	34.1		70.8	183.9		28.0	151.7		216.6	28.6	
Level of Service	D	C		E	F		C	F		F	C	
Approach Delay (s)		35.1			168.6			147.6			87.8	
Approach LOS		D			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	126.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.28		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	120.3%	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)	13	58	23	77	20	399	40	603
v/c Ratio	0.04	0.14	0.08	0.17	0.06	0.39	0.08	0.59
Control Delay	23.3	12.0	23.9	17.5	8.5	11.2	8.6	14.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2
Total Delay	23.3	12.0	23.9	17.5	8.5	11.2	8.6	15.3
Queue Length 50th (m)	1.5	2.0	2.7	5.8	1.3	31.0	2.6	54.3
Queue Length 95th (m)	4.7	7.9	6.8	12.5	3.5	38.0	5.6	61.9
Internal Link Dist (m)		141.1		97.5		112.5		34.9
Turn Bay Length (m)	20.0		20.0		25.0		25.0	
Base Capacity (vph)	335	413	304	462	356	1013	495	1029
Starvation Cap Reductn	0	0	0	0	0	0	0	220
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	0.14	0.08	0.17	0.06	0.39	0.08	0.75

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	13	31	17	37	21	15	287	12	30	416	36
Future Volume (vph)	10	13	31	17	37	21	15	287	12	30	416	36
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	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.92		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.91	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.89		1.00	0.95		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1803	1531		1608	1766		1806	1798		1699	1823	
Flt Permitted	0.71	1.00		0.72	1.00		0.33	1.00		0.49	1.00	
Satd. Flow (perm)	1342	1531		1218	1766		634	1798		880	1823	
Peak-hour factor, PHF	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Adj. Flow (vph)	13	17	41	23	49	28	20	383	16	40	555	48
RTOR Reduction (vph)	0	31	0	0	21	0	0	2	0	0	4	0
Lane Group Flow (vph)	13	27	0	23	56	0	20	397	0	40	599	0
Confl. Peds. (#/hr)	11		50	50		11	16		12	12		16
Heavy Vehicles (%)	0%	0%	4%	3%	3%	0%	0%	6%	7%	6%	4%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	20.0	20.0		20.0	20.0		45.0	45.0		45.0	45.0	
Effective Green, g (s)	20.0	20.0		20.0	20.0		45.0	45.0		45.0	45.0	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.56	0.56		0.56	0.56	
Clearance Time (s)	8.0	8.0		8.0	8.0		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)	335	382		304	441		356	1011		495	1025	
v/s Ratio Prot		0.02			c0.03			0.22			c0.33	
v/s Ratio Perm	0.01			0.02			0.03			0.05		
v/c Ratio	0.04	0.07		0.08	0.13		0.06	0.39		0.08	0.58	
Uniform Delay, d1	22.7	22.9		22.9	23.2		7.9	9.8		8.0	11.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.4		0.5	0.6		0.3	1.1		0.3	2.4	
Delay (s)	22.9	23.3		23.4	23.8		8.2	11.0		8.3	13.8	
Level of Service	C	C		C	C		A	B		A	B	
Approach Delay (s)		23.2			23.7			10.8			13.5	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1212	188	948	339	1
v/c Ratio	0.43	0.54	0.40	0.82	0.00
Control Delay	17.5	12.6	3.6	67.4	28.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.5	12.6	3.6	67.4	28.0
Queue Length 50th (m)	60.8	9.2	12.6	89.8	0.0
Queue Length 95th (m)	93.9	10.9	19.3	115.5	1.4
Internal Link Dist (m)	613.2		220.9	100.9	
Turn Bay Length (m)		50.0		45.0	
Base Capacity (vph)	2847	472	2398	600	538
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	0.43	0.40	0.40	0.56	0.00

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	848	267	173	872	312	1
Future Volume (vph)	848	267	173	872	312	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0		3.0	7.0	7.0	7.0
Lane Util. Factor	0.91		1.00	0.95	1.00	1.00
Frt	0.96		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	4957		1789	3579	1789	1601
Flt Permitted	1.00		0.18	1.00	0.95	1.00
Satd. Flow (perm)	4957		335	3579	1789	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	922	290	188	948	339	1
RTOR Reduction (vph)	28	0	0	0	0	1
Lane Group Flow (vph)	1184	0	188	948	339	0
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Actuated Green, G (s)	79.6		93.8	93.8	32.2	32.2
Effective Green, g (s)	79.6		93.8	93.8	32.2	32.2
Actuated g/C Ratio	0.57		0.67	0.67	0.23	0.23
Clearance Time (s)	7.0		3.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2818		340	2397	411	368
v/s Ratio Prot	0.24		c0.04	0.26	c0.19	
v/s Ratio Perm			c0.33			0.00
v/c Ratio	0.42		0.55	0.40	0.82	0.00
Uniform Delay, d1	17.1		10.1	10.4	51.2	41.5
Progression Factor	0.97		0.89	0.28	1.00	1.00
Incremental Delay, d2	0.5		1.8	0.4	12.7	0.0
Delay (s)	17.1		10.8	3.4	63.9	41.5
Level of Service	B		B	A	E	D
Approach Delay (s)	17.1			4.6	63.8	
Approach LOS	B			A	E	

Intersection Summary			
HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	0	18	108	8	23	32	311	101	5	753	18
Future Volume (Veh/h)	11	0	18	108	8	23	32	311	101	5	753	18
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	0	20	117	9	25	35	338	110	5	818	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)								94			117	
pX, platoon unblocked												
vC, conflicting volume	1106	1356	419	902	1311	224	838			448		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1106	1356	419	902	1311	224	838			448		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	92	100	97	46	94	97	96			100		
cM capacity (veh/h)	147	141	583	216	150	779	792			1109		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	12	20	117	34	35	225	223	5	545	293
Volume Left	12	0	117	0	35	0	0	5	0	0
Volume Right	0	20	0	25	0	0	110	0	0	20
cSH	147	583	216	369	792	1700	1700	1109	1700	1700
Volume to Capacity	0.08	0.03	0.54	0.09	0.04	0.13	0.13	0.00	0.32	0.17
Queue Length 95th (m)	2.0	0.8	21.8	2.3	1.1	0.0	0.0	0.1	0.0	0.0
Control Delay (s)	31.7	11.4	39.6	15.7	9.8	0.0	0.0	8.3	0.0	0.0
Lane LOS	D	B	E	C	A			A		
Approach Delay (s)	19.0		34.3		0.7			0.0		
Approach LOS	C		D							

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	45.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	4	41	26	4	39	97	63	11	33	26	31
Future Volume (Veh/h)	10	4	41	26	4	39	97	63	11	33	26	31
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	4	45	28	4	42	105	68	12	36	28	34
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								89			120	
pX, platoon unblocked												
vC, conflicting volume	439	407	45	431	418	74	62			80		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	439	407	45	431	418	74	62			80		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	99	96	94	99	96	93			98		
cM capacity (veh/h)	468	485	1025	473	478	988	1541			1518		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	60	74	105	80	36	62
Volume Left	11	28	105	0	36	0
Volume Right	45	42	0	12	0	34
cSH	793	672	1541	1700	1518	1700
Volume to Capacity	0.08	0.11	0.07	0.05	0.02	0.04
Queue Length 95th (m)	1.9	2.8	1.7	0.0	0.6	0.0
Control Delay (s)	9.9	11.0	7.5	0.0	7.4	0.0
Lane LOS	A	B	A		A	
Approach Delay (s)	9.9	11.0	4.3		2.7	
Approach LOS	A	B				

Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	26.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	38	30	315	3	18	444
Future Volume (Veh/h)	38	30	315	3	18	444
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)	41	33	342	3	20	483
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			59			82
pX, platoon unblocked	0.96					
vC, conflicting volume	866	172			345	
vC1, stage 1 conf vol	344					
vC2, stage 2 conf vol	523					
vCu, unblocked vol	837	172			345	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	96			98	
cM capacity (veh/h)	487	841			1211	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	74	228	117	20	483
Volume Left	41	0	0	20	0
Volume Right	33	0	3	0	0
cSH	599	1700	1700	1211	1700
Volume to Capacity	0.12	0.13	0.07	0.02	0.28
Queue Length 95th (m)	3.2	0.0	0.0	0.4	0.0
Control Delay (s)	11.9	0.0	0.0	8.0	0.0
Lane LOS	B			A	
Approach Delay (s)	11.9	0.0		0.3	
Approach LOS	B				

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	34.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	203	0	0	830	0	16
Future Volume (Veh/h)	203	0	0	830	0	16
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)	221	0	0	902	0	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)	160			58		
pX, platoon unblocked			0.98		0.93	0.98
vC, conflicting volume			221		672	110
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			160		390	47
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	98
cM capacity (veh/h)			1386		545	990

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	110	110	0	451	451	17
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	17
cSH	1700	1700	1700	1700	1700	990
Volume to Capacity	0.07	0.07	0.00	0.27	0.27	0.02
Queue Length 95th (m)	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	8.7
Lane LOS						A
Approach Delay (s)	0.0			0.0		8.7
Approach LOS						A

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	26.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	14	0	16	45	0	0	0	299	36	1	415	23
Future Volume (vph)	14	0	16	45	0	0	0	299	36	1	415	23
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	0	17	49	0	0	0	325	39	1	451	25

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	32	49	0	364	1	476
Volume Left (vph)	15	49	0	0	1	0
Volume Right (vph)	17	0	0	39	0	25
Hadj (s)	-0.19	0.23	0.00	-0.04	0.53	0.00
Departure Headway (s)	5.9	6.2	5.2	5.1	5.6	5.1
Degree Utilization, x	0.05	0.08	0.00	0.52	0.00	0.67
Capacity (veh/h)	524	495	685	687	619	698
Control Delay (s)	9.2	9.8	7.0	12.3	7.4	16.6
Approach Delay (s)	9.2	9.8	12.3		16.6	
Approach LOS	A	A	B		C	

Intersection Summary			
Delay	14.3		
Level of Service	B		
Intersection Capacity Utilization	34.6%	ICU Level of Service	A
Analysis Period (min)	15		

Queues
100: Mavis Road & Highway 403 EB Off-Ramp/Centre View Drive

11/06/2017

Lane Group	EBL	EBR	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	730	80	4	426	2446	2763
v/c Ratio	0.65	0.27	0.01	0.92	0.66	0.94
Control Delay	44.2	24.9	32.5	69.1	20.6	34.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.2	24.9	32.5	69.1	20.6	34.0
Queue Length 50th (m)	89.5	9.8	0.8	107.1	127.0	245.8
Queue Length 95th (m)	110.6	24.0	3.6	#170.8	137.8	270.3
Internal Link Dist (m)					73.6	241.1
Turn Bay Length (m)		150.0				
Base Capacity (vph)	1115	295	469	462	3720	2953
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	0.65	0.27	0.01	0.92	0.66	0.94

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)	715	0	78	4	0	417	0	2374	24	0	2708	0
Future Volume (vph)	715	0	78	4	0	417	0	2374	24	0	2708	0
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		7.0			7.0	
Lane Util. Factor	0.97		1.00	1.00		1.00		0.86			0.91	
Frt	1.00		0.85	1.00		0.85		1.00			1.00	
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (prot)	3471		855	1460		1372		6347			5043	
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (perm)	3471		855	1460		1372		6347			5043	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	730	0	80	4	0	426	0	2422	24	0	2763	0
RTOR Reduction (vph)	0	0	21	0	0	21	0	1	0	0	0	0
Lane Group Flow (vph)	730	0	59	4	0	405	0	2445	0	0	2763	0
Heavy Vehicles (%)	2%	0%	91%	25%	0%	19%	0%	4%	0%	0%	4%	0%
Turn Type	Perm		Perm	Perm		Perm		NA			NA	
Protected Phases								2			6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	45.0		45.0	45.0		45.0		82.0			82.0	
Effective Green, g (s)	45.0		45.0	45.0		45.0		82.0			82.0	
Actuated g/C Ratio	0.32		0.32	0.32		0.32		0.59			0.59	
Clearance Time (s)	6.0		6.0	6.0		6.0		7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0		3.0		3.0			3.0	
Lane Grp Cap (vph)	1115		274	469		441		3717			2953	
v/s Ratio Prot								0.39			c0.55	
v/s Ratio Perm	0.21		0.07	0.00		c0.30						
v/c Ratio	0.65		0.22	0.01		0.92		0.66			0.94	
Uniform Delay, d1	40.8		34.6	32.3		45.7		19.5			26.6	
Progression Factor	1.00		1.00	1.00		1.00		1.00			1.00	
Incremental Delay, d2	3.0		1.8	0.0		26.6		0.9			7.1	
Delay (s)	43.8		36.4	32.4		72.3		20.5			33.7	
Level of Service	D		D	C		E		C			C	
Approach Delay (s)		43.1			72.0			20.5			33.7	
Approach LOS		D			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	32.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	95.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL
Lane Group Flow (vph)	483	285	80	302	117
v/c Ratio	0.28	0.18	0.22	0.21	0.10
Control Delay	14.9	0.3	18.9	17.3	13.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	14.9	0.3	18.9	17.3	13.6
Queue Length 50th (m)	22.5	0.0	10.0	19.7	5.5
Queue Length 95th (m)	26.2	0.0	17.8	25.1	10.0
Internal Link Dist (m)	214.5			135.6	92.8
Turn Bay Length (m)			60.0		
Base Capacity (vph)	1742	1541	368	1469	1209
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	0.28	0.18	0.22	0.21	0.10

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	391	231	65	245	70	25
Future Volume (vph)	391	231	65	245	70	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	
Frt	1.00	0.85	1.00	1.00	0.96	
Flt Protected	1.00	1.00	0.95	1.00	0.96	
Satd. Flow (prot)	3579	1541	1587	3017	3043	
Flt Permitted	1.00	1.00	0.45	1.00	0.96	
Satd. Flow (perm)	3579	1541	758	3017	3043	
Peak-hour factor, PHF	0.81	0.81	0.81	0.81	0.81	0.81
Adj. Flow (vph)	483	285	80	302	86	31
RTOR Reduction (vph)	0	0	0	0	19	0
Lane Group Flow (vph)	483	285	80	302	98	0
Heavy Vehicles (%)	2%	6%	15%	21%	10%	23%
Turn Type	NA	pm+ov	Perm	NA	Prot	
Protected Phases	2	8		6	8	
Permitted Phases		2	6			
Actuated Green, G (s)	56.0	101.0	56.0	56.0	45.0	
Effective Green, g (s)	56.0	101.0	56.0	56.0	45.0	
Actuated g/C Ratio	0.49	0.88	0.49	0.49	0.39	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1742	1541	369	1469	1190	
v/s Ratio Prot	c0.13	c0.07		0.10	0.03	
v/s Ratio Perm		0.11	0.11			
v/c Ratio	0.28	0.18	0.22	0.21	0.08	
Uniform Delay, d1	17.5	1.0	16.9	16.8	22.0	
Progression Factor	0.82	1.00	1.00	1.00	0.83	
Incremental Delay, d2	0.4	0.3	1.3	0.3	0.1	
Delay (s)	14.8	1.3	18.3	17.1	18.3	
Level of Service	B	A	B	B	B	
Approach Delay (s)	9.8			17.4	18.3	
Approach LOS	A			B	B	

Intersection Summary			
HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	41.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	390	29	77	259	81	58
v/c Ratio	0.15	0.03	0.11	0.12	0.41	0.23
Control Delay	4.3	0.8	5.2	4.3	35.5	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.3	0.8	5.2	4.3	35.5	10.6
Queue Length 50th (m)	8.4	0.1	3.1	5.4	10.1	0.0
Queue Length 95th (m)	15.2	0.2	8.4	10.6	22.1	9.1
Internal Link Dist (m)	33.9			146.8	95.7	
Turn Bay Length (m)			60.0		35.0	
Base Capacity (vph)	2546	1069	673	2212	788	853
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	0.15	0.03	0.11	0.12	0.10	0.07

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	355	26	70	236	74	53
Future Volume (vph)	355	26	70	236	74	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.91	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3444	1140	1689	2992	1484	1555
Flt Permitted	1.00	1.00	0.52	1.00	0.95	1.00
Satd. Flow (perm)	3444	1140	927	2992	1484	1555
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	390	29	77	259	81	58
RTOR Reduction (vph)	0	0	0	0	0	52
Lane Group Flow (vph)	390	29	77	259	81	6
Confl. Peds. (#/hr)		45	45			
Heavy Vehicles (%)	6%	31%	3%	22%	23%	5%
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	2	8		6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	52.9	61.0	52.9	52.9	8.1	8.1
Effective Green, g (s)	52.9	61.0	52.9	52.9	8.1	8.1
Actuated g/C Ratio	0.71	0.81	0.71	0.71	0.11	0.11
Clearance Time (s)	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
Lane Grp Cap (vph)	2429	1140	653	2110	160	167
v/s Ratio Prot	c0.11	0.00		0.09	c0.05	
v/s Ratio Perm		0.02	0.08			0.00
v/c Ratio	0.16	0.03	0.12	0.12	0.51	0.04
Uniform Delay, d1	3.7	1.3	3.6	3.6	31.6	30.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.4	0.1	2.5	0.1
Delay (s)	3.8	1.3	3.9	3.7	34.1	30.1
Level of Service	A	A	A	A	C	C
Approach Delay (s)	3.6			3.7	32.4	
Approach LOS	A			A	C	

Intersection Summary			
HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.21		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	48.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	84	1231	496	44	41	108	16
v/c Ratio	0.25	0.85	0.46	0.11	0.13	0.36	0.03
Control Delay	3.8	8.5	29.4	17.4	0.8	34.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.8	8.5	29.4	17.4	0.8	34.7	0.1
Queue Length 50th (m)	1.5	12.8	43.7	5.3	0.0	18.7	0.0
Queue Length 95th (m)	m1.8	m15.7	59.5	12.0	0.0	35.0	0.0
Internal Link Dist (m)		202.3	126.7		25.6		
Turn Bay Length (m)	70.0					20.0	
Base Capacity (vph)	332	1453	1080	399	319	304	463
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	0.25	0.85	0.46	0.11	0.13	0.36	0.03

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)	82	1206	0	0	390	96	43	0	40	106	0	16
Future Volume (vph)	82	1206	0	0	390	96	43	0	40	106	0	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	8.0			8.0		3.0	8.0		8.0		8.0
Lane Util. Factor	1.00	0.95			0.95		1.00	1.00		1.00		1.00
Frpb, ped/bikes	1.00	1.00			0.96		1.00	0.76		1.00		0.82
Flpb, ped/bikes	0.97	1.00			1.00		0.84	1.00		0.78		1.00
Frt	1.00	1.00			0.97		1.00	0.85		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1630	3411			3017		810	618		1267		1220
Flt Permitted	0.37	1.00			1.00		0.95	1.00		0.73		1.00
Satd. Flow (perm)	637	3411			3017		810	618		974		1220
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	84	1231	0	0	398	98	44	0	41	108	0	16
RTOR Reduction (vph)	0	0	0	0	18	0	0	23	0	0	0	11
Lane Group Flow (vph)	84	1231	0	0	478	0	44	18	0	108	0	5
Confl. Peds. (#/hr)	99		330	330		99	177		246	246		177
Heavy Vehicles (%)	9%	7%	0%	0%	10%	24%	89%	0%	100%	12%	0%	10%
Turn Type	pm+pt	NA			NA		pm+pt	NA		Perm		Perm
Protected Phases	5	2			6		3	8				
Permitted Phases	2						8			4		4
Actuated Green, G (s)	49.0	49.0			39.6		50.0	50.0		36.0		36.0
Effective Green, g (s)	49.0	49.0			39.6		50.0	50.0		36.0		36.0
Actuated g/C Ratio	0.43	0.43			0.34		0.43	0.43		0.31		0.31
Clearance Time (s)	4.5	8.0			8.0		3.0	8.0		8.0		8.0
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0		3.0
Lane Grp Cap (vph)	313	1453			1038		352	268		304		381
v/s Ratio Prot	0.01	c0.36			0.16		c0.01	0.03				
v/s Ratio Perm	0.10						0.04			c0.11		0.00
v/c Ratio	0.27	0.85			0.46		0.12	0.07		0.36		0.01
Uniform Delay, d1	20.4	29.6			29.4		19.4	18.9		30.5		27.2
Progression Factor	0.17	0.18			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	0.2	2.8			1.5		0.7	0.5		3.2		0.1
Delay (s)	3.6	8.2			30.8		20.2	19.4		33.8		27.3
Level of Service	A	A			C		C	B		C		C
Approach Delay (s)		7.9			30.8			19.8			32.9	
Approach LOS		A			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	79.2%	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)	103	1429	62	432	69	162	23	295
v/c Ratio	0.25	0.94	0.44	0.26	0.21	0.33	0.07	0.62
Control Delay	23.4	44.7	44.2	27.1	24.7	26.6	18.0	37.6
Queue Delay	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.4	46.8	44.2	27.1	24.7	26.6	18.0	37.6
Queue Length 50th (m)	14.7	162.8	10.9	33.7	9.9	20.9	2.1	59.2
Queue Length 95th (m)	28.0	#218.6	24.2	49.8	19.5	41.1	5.6	89.6
Internal Link Dist (m)		171.5		202.3		102.8		69.7
Turn Bay Length (m)	65.0		70.0		45.0		30.0	
Base Capacity (vph)	410	1515	155	1656	339	484	367	479
Starvation Cap Reductn	0	35	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	0.25	0.97	0.40	0.26	0.20	0.33	0.06	0.62

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)	94	1188	113	56	382	11	63	68	79	21	235	34
Future Volume (vph)	94	1188	113	56	382	11	63	68	79	21	235	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.92		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1755	3400		1323	3170		1704	1588		1335	1833	
Flt Permitted	0.50	1.00		0.08	1.00		0.39	1.00		0.65	1.00	
Satd. Flow (perm)	925	3400		107	3170		696	1588		920	1833	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	103	1305	124	62	420	12	69	75	87	23	258	37
RTOR Reduction (vph)	0	6	0	0	2	0	0	34	0	0	4	0
Lane Group Flow (vph)	103	1423	0	62	430	0	69	128	0	23	291	0
Confl. Peds. (#/hr)	14		9	9		14	4		8	8		4
Heavy Vehicles (%)	3%	6%	3%	38%	14%	34%	7%	4%	15%	36%	2%	7%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	49.2	49.2		58.8	58.8		39.4	32.6		35.0	30.4	
Effective Green, g (s)	49.2	49.2		58.8	58.8		39.4	32.6		35.0	30.4	
Actuated g/C Ratio	0.43	0.43		0.51	0.51		0.34	0.28		0.30	0.26	
Clearance Time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	395	1454		124	1620		298	450		296	484	
v/s Ratio Prot		c0.42		c0.03	0.14		c0.01	0.08		0.00	c0.16	
v/s Ratio Perm	0.11			0.23			0.07			0.02		
v/c Ratio	0.26	0.98		0.50	0.27		0.23	0.29		0.08	0.60	
Uniform Delay, d1	21.2	32.4		23.1	15.9		26.4	32.1		28.3	37.0	
Progression Factor	1.00	1.00		2.69	1.76		1.00	1.00		0.77	0.83	
Incremental Delay, d2	1.6	19.0		3.0	0.4		0.4	1.6		0.1	5.4	
Delay (s)	22.8	51.4		65.3	28.3		26.8	33.7		22.0	36.0	
Level of Service	C	D		E	C		C	C		C	D	
Approach Delay (s)		49.5			33.0			31.7			34.9	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	42.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	87.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	40	1294	74	436	29	238	229	24	285
v/c Ratio	0.09	0.76	0.38	0.23	0.11	0.56	0.41	0.08	0.57
Control Delay	10.7	18.2	16.9	14.5	41.5	50.4	10.1	31.9	43.4
Queue Delay	0.0	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.7	23.7	16.9	14.5	41.5	50.4	10.1	31.9	43.4
Queue Length 50th (m)	3.3	127.8	8.0	29.2	6.3	58.9	5.1	4.5	63.4
Queue Length 95th (m)	m3.2	m104.4	14.7	38.3	15.1	87.9	27.5	11.2	93.2
Internal Link Dist (m)		161.5		171.5		57.8			66.0
Turn Bay Length (m)	80.0		55.0		45.0			30.0	
Base Capacity (vph)	442	1703	195	1913	269	427	552	309	502
Starvation Cap Reductn	0	349	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	0.96	0.38	0.23	0.11	0.56	0.41	0.08	0.57

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)	38	1158	58	70	400	9	27	224	215	23	211	57
Future Volume (vph)	38	1158	58	70	400	9	27	224	215	23	211	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		3.0	7.0		7.0	7.0	7.0	4.5	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.93	1.00	1.00	
Flpb, ped/bikes	0.98	1.00		1.00	1.00		0.99	1.00	1.00	0.99	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1703	3441		1674	3296		1697	1537	1453	1806	1547	
Flt Permitted	0.50	1.00		0.09	1.00		0.54	1.00	1.00	0.43	1.00	
Satd. Flow (perm)	894	3441		162	3296		968	1537	1453	816	1547	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	40	1232	62	74	426	10	29	238	229	24	224	61
RTOR Reduction (vph)	0	3	0	0	1	0	0	0	148	0	7	0
Lane Group Flow (vph)	40	1291	0	74	435	0	29	238	81	24	278	0
Confl. Peds. (#/hr)	9		8	8		9	4		26	26		4
Heavy Vehicles (%)	5%	5%	6%	9%	10%	20%	7%	25%	5%	0%	25%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		2		1	6			8		7	4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	67.4	67.4		79.4	79.4		38.9	38.9	38.9	46.6	46.6	
Effective Green, g (s)	67.4	67.4		79.4	79.4		38.9	38.9	38.9	46.6	46.6	
Actuated g/C Ratio	0.48	0.48		0.57	0.57		0.28	0.28	0.28	0.33	0.33	
Clearance Time (s)	7.0	7.0		3.0	7.0		7.0	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)	430	1656		189	1869		268	427	403	294	514	
v/s Ratio Prot		c0.38		c0.03	0.13			0.15		0.00	c0.18	
v/s Ratio Perm	0.04			0.20			0.03		0.06	0.03		
v/c Ratio	0.09	0.78		0.39	0.23		0.11	0.56	0.20	0.08	0.54	
Uniform Delay, d1	19.7	30.1		20.9	15.1		37.6	43.2	38.7	32.2	38.0	
Progression Factor	0.56	0.62		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	0.3		6.0	0.3		0.8	5.2	1.1	0.1	4.1	
Delay (s)	11.0	19.0		26.9	15.4		38.4	48.4	39.8	32.3	42.1	
Level of Service	B	B		C	B		D	D	D	C	D	
Approach Delay (s)		18.7			17.1			43.8			41.3	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	25.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	75.5%	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)	68	678	145	432	162	1654	601	807
v/c Ratio	0.31	0.69	1.31	0.44	0.41	1.29	1.41	0.46
Control Delay	43.9	48.4	221.4	22.5	15.8	173.5	233.5	23.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.9	48.4	221.4	22.5	15.8	173.5	233.5	23.0
Queue Length 50th (m)	14.8	87.4	~52.1	24.3	16.9	~306.2	~207.3	72.7
Queue Length 95th (m)	26.8	99.7	#88.1	31.0	24.5	#312.3	#251.0	81.3
Internal Link Dist (m)		170.1		161.5		203.8		248.3
Turn Bay Length (m)	50.0		50.0		65.0		100.0	
Base Capacity (vph)	221	981	111	980	399	1281	425	1773
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	0.31	0.69	1.31	0.44	0.41	1.29	1.41	0.46

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)	57	528	41	122	217	146	136	1169	220	505	624	54
Future Volume (vph)	57	528	41	122	217	146	136	1169	220	505	624	54
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	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		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		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.94		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1755	3421		1622	3136		1805	3420		1772	3500	
Flt Permitted	0.42	1.00		0.23	1.00		0.35	1.00		0.07	1.00	
Satd. Flow (perm)	776	3421		391	3136		659	3420		136	3500	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	68	629	49	145	258	174	162	1392	262	601	743	64
RTOR Reduction (vph)	0	4	0	0	84	0	0	11	0	0	4	0
Lane Group Flow (vph)	68	674	0	145	348	0	162	1643	0	601	803	0
Confl. Peds. (#/hr)	13		33	33		13	6		2	2		6
Heavy Vehicles (%)	3%	5%	6%	11%	10%	5%	1%	3%	9%	3%	2%	13%
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)	40.0	40.0		40.0	40.0		62.2	52.0		84.0	70.8	
Effective Green, g (s)	40.0	40.0		40.0	40.0		62.2	52.0		84.0	70.8	
Actuated g/C Ratio	0.29	0.29		0.29	0.29		0.44	0.37		0.60	0.51	
Clearance Time (s)	8.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	221	977		111	896		376	1270		420	1770	
v/s Ratio Prot		0.20			0.11		0.03	0.48		c0.30	0.23	
v/s Ratio Perm	0.09			c0.37			0.16			c0.56		
v/c Ratio	0.31	0.69		1.31	0.39		0.43	1.29		1.43	0.45	
Uniform Delay, d1	39.2	44.5		50.0	40.2		23.7	44.0		46.3	22.2	
Progression Factor	1.00	1.00		0.76	0.72		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.6	4.0		187.8	1.2		3.6	138.0		207.2	0.8	
Delay (s)	42.7	48.5		225.6	30.2		27.3	182.0		253.5	23.0	
Level of Service	D	D		F	C		C	F		F	C	
Approach Delay (s)		47.9			79.3			168.2			121.4	
Approach LOS		D			E			F			F	

Intersection Summary			
HCM 2000 Control Delay	122.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.42		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	120.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	87	76	19	70	39	799	107	461
v/c Ratio	0.26	0.19	0.06	0.15	0.08	0.82	0.51	0.49
Control Delay	26.6	12.5	23.6	9.6	8.7	23.3	21.4	12.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Total Delay	26.6	12.5	23.6	9.6	8.7	23.3	21.4	13.0
Queue Length 50th (m)	10.6	3.0	2.2	1.3	2.5	90.6	9.2	37.6
Queue Length 95th (m)	12.7	5.1	4.2	3.3	3.8	55.7	10.7	28.6
Internal Link Dist (m)		141.1		97.5		112.5		34.9
Turn Bay Length (m)	20.0		20.0		25.0		25.0	
Base Capacity (vph)	339	409	308	457	471	971	210	943
Starvation Cap Reductn	0	0	0	0	0	0	0	180
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	0.26	0.19	0.06	0.15	0.08	0.82	0.51	0.60

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	14	27	10	6	32	21	408	23	58	221	28
Future Volume (vph)	47	14	27	10	6	32	21	408	23	58	221	28
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	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.97		1.00	0.98		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		0.97	1.00		0.99	1.00		1.00	1.00	
Frt	1.00	0.90		1.00	0.87		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1815	1487		1657	1653		1802	1723		1825	1668	
Flt Permitted	0.71	1.00		0.71	1.00		0.44	1.00		0.19	1.00	
Satd. Flow (perm)	1359	1487		1234	1653		838	1723		374	1668	
Peak-hour factor, PHF	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Adj. Flow (vph)	87	26	50	19	11	59	39	756	43	107	409	52
RTOR Reduction (vph)	0	38	0	0	44	0	0	3	0	0	6	0
Lane Group Flow (vph)	87	39	0	19	26	0	39	796	0	107	455	0
Confl. Peds. (#/hr)	5		16	16		5	13		4	4		13
Heavy Vehicles (%)	0%	0%	19%	7%	0%	0%	0%	11%	0%	0%	10%	33%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	20.0	20.0		20.0	20.0		45.0	45.0		45.0	45.0	
Effective Green, g (s)	20.0	20.0		20.0	20.0		45.0	45.0		45.0	45.0	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.56	0.56		0.56	0.56	
Clearance Time (s)	8.0	8.0		8.0	8.0		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)	339	371		308	413		471	969		210	938	
v/s Ratio Prot		0.03			0.02			c0.46			0.27	
v/s Ratio Perm	c0.06			0.02			0.05			0.29		
v/c Ratio	0.26	0.10		0.06	0.06		0.08	0.82		0.51	0.49	
Uniform Delay, d1	24.0	23.1		22.9	22.9		8.0	14.2		10.7	10.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.8	0.6		0.4	0.3		0.3	7.8		8.6	1.8	
Delay (s)	25.9	23.7		23.2	23.1		8.4	22.0		19.3	12.3	
Level of Service	C	C		C	C		A	C		B	B	
Approach Delay (s)		24.8			23.2			21.4			13.6	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	19.2	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)	15.0
Intersection Capacity Utilization	64.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	839	129	212	246	34
v/c Ratio	0.24	0.31	0.09	0.75	0.11
Control Delay	6.1	4.9	1.2	57.9	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	6.1	4.9	1.2	57.9	12.0
Queue Length 50th (m)	19.1	1.7	1.3	52.9	0.0
Queue Length 95th (m)	30.4	13.1	2.7	74.3	7.9
Internal Link Dist (m)	619.6		214.5	104.0	
Turn Bay Length (m)		50.0		45.0	
Base Capacity (vph)	3477	421	2483	544	510
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	0.24	0.31	0.09	0.45	0.07

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	591	181	119	195	226	31
Future Volume (vph)	591	181	119	195	226	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0		7.0	7.0	7.0	7.0
Lane Util. Factor	0.91		1.00	0.95	1.00	1.00
Frt	0.96		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	4961		1789	3579	1789	1601
Flt Permitted	1.00		0.32	1.00	0.95	1.00
Satd. Flow (perm)	4961		609	3579	1789	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	642	197	129	212	246	34
RTOR Reduction (vph)	35	0	0	0	0	28
Lane Group Flow (vph)	804	0	129	212	246	6
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Actuated Green, G (s)	79.8		79.8	79.8	21.2	21.2
Effective Green, g (s)	79.8		79.8	79.8	21.2	21.2
Actuated g/C Ratio	0.69		0.69	0.69	0.18	0.18
Clearance Time (s)	7.0		7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3442		422	2483	329	295
v/s Ratio Prot	0.16			0.06	c0.14	
v/s Ratio Perm			c0.21			0.00
v/c Ratio	0.23		0.31	0.09	0.75	0.02
Uniform Delay, d1	6.4		6.8	5.7	44.4	38.4
Progression Factor	1.00		0.36	0.17	1.00	1.00
Incremental Delay, d2	0.2		1.9	0.1	9.0	0.0
Delay (s)	6.6		4.3	1.0	53.3	38.4
Level of Service	A		A	A	D	D
Approach Delay (s)	6.6			2.3	51.5	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	52.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	37	17	35	3	60	110	26	252	18
Future Volume (Veh/h)	0	0	0	37	17	35	3	60	110	26	252	18
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	40	18	38	3	65	120	28	274	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)								94			117	
pX, platoon unblocked												
vC, conflicting volume	426	531	147	324	481	92	294			185		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	426	531	147	324	481	92	294			185		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	93	96	96	100			98		
cM capacity (veh/h)	470	442	873	595	472	946	1264			1387		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	0	0	40	56	3	43	142	28	183	111
Volume Left	0	0	40	0	3	0	0	28	0	0
Volume Right	0	0	0	38	0	0	120	0	0	20
cSH	1700	1700	595	715	1264	1700	1700	1387	1700	1700
Volume to Capacity	0.00	0.00	0.07	0.08	0.00	0.03	0.08	0.02	0.11	0.07
Queue Length 95th (m)	0.0	0.0	1.6	1.9	0.1	0.0	0.0	0.5	0.0	0.0
Control Delay (s)	0.0	0.0	11.5	10.5	7.9	0.0	0.0	7.6	0.0	0.0
Lane LOS	A	A	B	B	A			A		
Approach Delay (s)	0.0		10.9		0.1			0.7		
Approach LOS	A		B							

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	24.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	0	63	16	2	19	66	100	51	14	43	39
Future Volume (Veh/h)	8	0	63	16	2	19	66	100	51	14	43	39
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	0	68	17	2	21	72	109	55	15	47	42
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								89			120	
pX, platoon unblocked												
vC, conflicting volume	373	406	68	426	400	136	89			164		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	373	406	68	426	400	136	89			164		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	93	96	100	98	95			99		
cM capacity (veh/h)	544	503	995	480	507	912	1506			1414		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	77	40	72	164	15	89
Volume Left	9	17	72	0	15	0
Volume Right	68	21	0	55	0	42
cSH	907	641	1506	1700	1414	1700
Volume to Capacity	0.08	0.06	0.05	0.10	0.01	0.05
Queue Length 95th (m)	2.1	1.5	1.1	0.0	0.2	0.0
Control Delay (s)	9.3	11.0	7.5	0.0	7.6	0.0
Lane LOS	A	B	A		A	
Approach Delay (s)	9.3	11.0	2.3		1.1	
Approach LOS	A	B				

Intersection Summary				
Average Delay	4.0			
Intersection Capacity Utilization	24.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	466	21	32	307
Future Volume (Veh/h)	0	0	466	21	32	307
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	507	23	35	334
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			59			82
pX, platoon unblocked	0.87					
vC, conflicting volume	922	265			530	
vC1, stage 1 conf vol	518					
vC2, stage 2 conf vol	404					
vCu, unblocked vol	840	265			530	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			97	
cM capacity (veh/h)	474	733			1033	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	338	192	35	334
Volume Left	0	0	0	35	0
Volume Right	0	0	23	0	0
cSH	1700	1700	1700	1033	1700
Volume to Capacity	0.00	0.20	0.11	0.03	0.20
Queue Length 95th (m)	0.0	0.0	0.0	0.8	0.0
Control Delay (s)	0.0	0.0	0.0	8.6	0.0
Lane LOS	A			A	
Approach Delay (s)	0.0	0.0		0.8	
Approach LOS	A				

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	23.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	373	43	0	310	0	8
Future Volume (Veh/h)	373	43	0	310	0	8
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)	405	47	0	337	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)	160			58		
pX, platoon unblocked			0.94		0.95	0.94
vC, conflicting volume			452		574	202
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			287		371	22
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)			1194		570	986

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	202	202	47	168	168	9
Volume Left	0	0	0	0	0	0
Volume Right	0	0	47	0	0	9
cSH	1700	1700	1700	1700	1700	986
Volume to Capacity	0.12	0.12	0.03	0.10	0.10	0.01
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.2
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	8.7
Lane LOS						A
Approach Delay (s)	0.0			0.0		8.7
Approach LOS						A

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	20.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	3	0	2	1	0	7	2	247	22	0	289	11
Future Volume (vph)	3	0	2	1	0	7	2	247	22	0	289	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	0	2	1	0	8	2	268	24	0	314	12

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	5	9	2	292	0	326
Volume Left (vph)	3	1	2	0	0	0
Volume Right (vph)	2	8	0	24	0	12
Hadj (s)	-0.09	-0.48	0.53	-0.02	0.00	0.01
Departure Headway (s)	5.3	4.9	5.3	4.7	4.7	4.7
Degree Utilization, x	0.01	0.01	0.00	0.39	0.00	0.43
Capacity (veh/h)	601	645	663	748	763	749
Control Delay (s)	8.3	7.9	7.1	9.5	6.5	10.1
Approach Delay (s)	8.3	7.9	9.5		10.1	
Approach LOS	A	A	A		B	

Intersection Summary			
Delay	9.7		
Level of Service	A		
Intersection Capacity Utilization	25.9%	ICU Level of Service	A
Analysis Period (min)	15		

Queues
100: Mavis Road & Highway 403 EB Off-Ramp/Centre View Drive

11/07/2017

Lane Group	EBL	EBR	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	189	288	30	1402	2600	2054
v/c Ratio	0.12	0.42	0.04	1.93	0.91	0.92
Control Delay	22.2	24.9	13.4	443.4	41.6	44.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.2	24.9	13.4	443.4	41.6	44.3
Queue Length 50th (m)	15.2	46.9	3.2	~604.2	191.8	192.9
Queue Length 95th (m)	22.7	71.1	m6.2	#665.9	207.7	215.5
Internal Link Dist (m)					73.6	241.1
Turn Bay Length (m)		150.0				
Base Capacity (vph)	1526	683	779	727	2859	2226
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	0.42	0.04	1.93	0.91	0.92

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)	170	0	259	27	0	1262	0	2335	5	0	1849	0
Future Volume (vph)	170	0	259	27	0	1262	0	2335	5	0	1849	0
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		7.0			7.0	
Lane Util. Factor	0.97		1.00	1.00		1.00		0.86			0.91	
Frt	1.00		0.85	1.00		0.85		1.00			1.00	
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (prot)	3340		1458	1706		1555		6353			4948	
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (perm)	3340		1458	1706		1555		6353			4948	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	189	0	288	30	0	1402	0	2594	6	0	2054	0
RTOR Reduction (vph)	0	0	17	0	0	17	0	0	0	0	0	0
Lane Group Flow (vph)	189	0	271	30	0	1385	0	2600	0	0	2054	0
Heavy Vehicles (%)	6%	0%	12%	7%	0%	5%	0%	4%	0%	0%	6%	0%
Turn Type	Perm		Perm	Perm		Perm		NA			NA	
Protected Phases								2			6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	64.0		64.0	64.0		64.0		63.0			63.0	
Effective Green, g (s)	64.0		64.0	64.0		64.0		63.0			63.0	
Actuated g/C Ratio	0.46		0.46	0.46		0.46		0.45			0.45	
Clearance Time (s)	6.0		6.0	6.0		6.0		7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0		3.0		3.0			3.0	
Lane Grp Cap (vph)	1526		666	779		710		2858			2226	
v/s Ratio Prot								0.41			c0.42	
v/s Ratio Perm	0.06		0.19	0.02		c0.89						
v/c Ratio	0.12		0.41	0.04		1.95		0.91			0.92	
Uniform Delay, d1	21.9		25.3	21.0		38.0		35.9			36.2	
Progression Factor	1.00		1.00	0.63		0.63		1.00			1.00	
Incremental Delay, d2	0.2		1.8	0.1		432.5		5.6			7.9	
Delay (s)	22.0		27.2	13.3		456.3		41.4			44.1	
Level of Service	C		C	B		F		D			D	
Approach Delay (s)		25.1			447.0			41.4			44.1	
Approach LOS		C			F			D			D	

Intersection Summary			
HCM 2000 Control Delay	129.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.44		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	131.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL
Lane Group Flow (vph)	306	812	111	944	432
v/c Ratio	0.21	0.51	0.23	0.58	0.30
Control Delay	37.7	11.8	23.6	28.6	32.8
Queue Delay	0.0	0.2	0.0	0.0	0.0
Total Delay	37.7	12.0	23.6	28.6	32.8
Queue Length 50th (m)	26.6	133.3	17.9	97.8	40.8
Queue Length 95th (m)	58.6	239.4	31.2	118.3	m54.1
Internal Link Dist (m)	220.9			135.6	92.8
Turn Bay Length (m)			60.0		
Base Capacity (vph)	1483	1585	476	1638	1457
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	195	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.21	0.58	0.23	0.58	0.30

Intersection Summary

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	275	731	100	850	353	36
Future Volume (vph)	275	731	100	850	353	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	1.00	1.00	0.95	1.00	0.96	
Satd. Flow (prot)	3147	1585	1706	3476	3386	
Flt Permitted	1.00	1.00	0.56	1.00	0.96	
Satd. Flow (perm)	3147	1585	1011	3476	3386	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	306	812	111	944	392	40
RTOR Reduction (vph)	0	0	0	0	6	0
Lane Group Flow (vph)	306	812	111	944	426	0
Heavy Vehicles (%)	16%	3%	7%	5%	3%	12%
Turn Type	NA	pm+ov	Perm	NA	Prot	
Protected Phases	2	8		6	8	
Permitted Phases		2	6			
Actuated Green, G (s)	66.0	126.0	66.0	66.0	60.0	
Effective Green, g (s)	66.0	126.0	66.0	66.0	60.0	
Actuated g/C Ratio	0.47	0.90	0.47	0.47	0.43	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1483	1585	476	1638	1451	
v/s Ratio Prot	0.10	c0.22		c0.27	0.13	
v/s Ratio Perm		0.29	0.11			
v/c Ratio	0.21	0.51	0.23	0.58	0.29	
Uniform Delay, d1	21.7	1.3	22.0	26.9	26.1	
Progression Factor	1.72	1.00	1.00	1.00	1.26	
Incremental Delay, d2	0.3	1.0	1.1	1.5	0.4	
Delay (s)	37.5	2.3	23.1	28.3	33.4	
Level of Service	D	A	C	C	C	
Approach Delay (s)	11.9			27.8	33.4	
Approach LOS	B			C	C	

Intersection Summary			
HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	298	64	54	888	157	32
v/c Ratio	0.14	0.07	0.08	0.37	0.62	0.12
Control Delay	5.6	0.8	6.1	7.0	43.7	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.6	0.8	6.1	7.0	43.7	11.4
Queue Length 50th (m)	7.7	0.2	2.6	28.1	23.2	0.0
Queue Length 95th (m)	14.9	0.3	7.7	47.0	41.4	7.0
Internal Link Dist (m)	33.9			146.8	95.7	
Turn Bay Length (m)			60.0		35.0	
Base Capacity (vph)	2205	1083	650	2375	595	586
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	0.14	0.06	0.08	0.37	0.26	0.05

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	271	58	49	808	143	29
Future Volume (vph)	271	58	49	808	143	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.87	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	0.90	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3259	1154	1634	3510	1587	1512
Flt Permitted	1.00	1.00	0.57	1.00	0.95	1.00
Satd. Flow (perm)	3259	1154	980	3510	1587	1512
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	298	64	54	888	157	32
RTOR Reduction (vph)	0	0	0	0	0	27
Lane Group Flow (vph)	298	64	54	888	157	5
Confl. Peds. (#/hr)		71	71			
Heavy Vehicles (%)	12%	23%	1%	4%	15%	8%
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	2	8		6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	57.9	71.5	57.9	57.9	13.6	13.6
Effective Green, g (s)	57.9	71.5	57.9	57.9	13.6	13.6
Actuated g/C Ratio	0.68	0.84	0.68	0.68	0.16	0.16
Clearance Time (s)	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
Lane Grp Cap (vph)	2206	1154	663	2376	252	240
v/s Ratio Prot	0.09	0.01		c0.25	c0.10	
v/s Ratio Perm		0.05	0.06			0.00
v/c Ratio	0.14	0.06	0.08	0.37	0.62	0.02
Uniform Delay, d1	4.9	1.2	4.7	6.0	33.6	30.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.2	0.5	4.7	0.0
Delay (s)	5.0	1.2	5.0	6.4	38.3	30.4
Level of Service	A	A	A	A	D	C
Approach Delay (s)	4.4			6.3	36.9	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	85.5	Sum of lost time (s)	14.0
Intersection Capacity Utilization	49.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	26	1038	1595	18	48	95	21
v/c Ratio	0.20	0.58	1.01	0.06	0.23	0.45	0.07
Control Delay	29.5	40.8	59.5	27.1	7.0	51.9	0.5
Queue Delay	0.0	0.0	4.9	0.0	0.0	0.0	0.0
Total Delay	29.5	40.8	64.4	27.1	7.0	51.9	0.5
Queue Length 50th (m)	4.1	117.2	~254.3	3.1	0.0	22.2	0.0
Queue Length 95th (m)	m5.9	139.3	#298.0	8.4	6.3	40.5	0.0
Internal Link Dist (m)		202.3	126.7		25.6		
Turn Bay Length (m)	70.0					20.0	
Base Capacity (vph)	135	1802	1585	285	213	210	300
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	26	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.58	1.02	0.06	0.23	0.45	0.07

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)	24	955	0	0	1271	196	17	0	44	87	0	19
Future Volume (vph)	24	955	0	0	1271	196	17	0	44	87	0	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	8.0			8.0		3.0	8.0		8.0		8.0
Lane Util. Factor	1.00	0.95			0.95		1.00	1.00		1.00		1.00
Frpb, ped/bikes	1.00	1.00			0.93		1.00	0.58		1.00		0.60
Flpb, ped/bikes	1.00	1.00			1.00		0.63	1.00		0.61		1.00
Frt	1.00	1.00			0.98		1.00	0.85		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1738	3411			3235		665	486		1073		919
Flt Permitted	0.06	1.00			1.00		0.95	1.00		0.73		1.00
Satd. Flow (perm)	104	3411			3235		665	486		820		919
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	1038	0	0	1382	213	18	0	48	95	0	21
RTOR Reduction (vph)	0	0	0	0	8	0	0	31	0	0	0	16
Lane Group Flow (vph)	26	1038	0	0	1587	0	18	17	0	95	0	5
Confl. Peds. (#/hr)	290		1278	1278		290	658		752	752		658
Heavy Vehicles (%)	5%	7%	0%	0%	1%	13%	72%	0%	95%	4%	0%	7%
Turn Type	pm+pt	NA			NA		pm+pt	NA		Perm		Perm
Protected Phases	5	2			6		3	8				
Permitted Phases	2						8			4		4
Actuated Green, G (s)	74.0	74.0			67.1		50.0	50.0		36.0		36.0
Effective Green, g (s)	74.0	74.0			67.1		50.0	50.0		36.0		36.0
Actuated g/C Ratio	0.53	0.53			0.48		0.36	0.36		0.26		0.26
Clearance Time (s)	3.0	8.0			8.0		3.0	8.0		8.0		8.0
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0		3.0
Lane Grp Cap (vph)	100	1802			1550		237	173		210		236
v/s Ratio Prot	0.01	c0.30			c0.49		0.01	c0.04				
v/s Ratio Perm	0.13						0.02			c0.12		0.01
v/c Ratio	0.26	0.58			1.02		0.08	0.10		0.45		0.02
Uniform Delay, d1	28.6	22.4			36.5		29.7	30.0		43.7		38.9
Progression Factor	1.99	1.76			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	0.9	0.9			29.1		0.6	1.1		6.9		0.2
Delay (s)	58.0	40.4			65.5		30.4	31.1		50.6		39.0
Level of Service	E	D			E		C	C		D		D
Approach Delay (s)		40.8			65.5			30.9			48.5	
Approach LOS		D			E			C			D	

Intersection Summary			
HCM 2000 Control Delay	54.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	95.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	60	884	141	1193	210	456	93	868
v/c Ratio	1.09	0.84	0.79	0.89	1.22	0.63	0.30	1.15
Control Delay	158.9	25.4	36.2	11.2	171.2	36.7	12.2	117.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay	158.9	25.4	36.2	11.2	171.2	36.7	12.2	117.8
Queue Length 50th (m)	~17.8	29.5	12.6	54.6	~54.4	97.3	11.5	~282.1
Queue Length 95th (m)	m#31.0	90.2	m12.8	m53.4	#105.7	134.7	11.3	#354.0
Internal Link Dist (m)		171.5		202.3		102.8		69.7
Turn Bay Length (m)	65.0		70.0		45.0		30.0	
Base Capacity (vph)	55	1050	178	1344	172	723	311	752
Starvation Cap Reductn	0	0	0	1	0	0	0	11
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	1.09	0.84	0.79	0.89	1.22	0.63	0.30	1.17

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)	59	783	83	138	1081	88	206	342	105	91	761	89
Future Volume (vph)	59	783	83	138	1081	88	206	342	105	91	761	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.96		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1802	3400		1615	3411		1772	1742		1435	1840	
Flt Permitted	0.10	1.00		0.12	1.00		0.07	1.00		0.33	1.00	
Satd. Flow (perm)	182	3400		204	3411		130	1742		497	1840	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	60	799	85	141	1103	90	210	349	107	93	777	91
RTOR Reduction (vph)	0	6	0	0	4	0	0	8	0	0	3	0
Lane Group Flow (vph)	60	878	0	141	1189	0	210	448	0	93	865	0
Confl. Peds. (#/hr)	17		10	10		17	13		10	10		13
Heavy Vehicles (%)	1%	6%	1%	13%	4%	24%	3%	1%	21%	27%	2%	6%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	43.0	43.0		55.0	55.0		66.5	57.5		65.5	57.0	
Effective Green, g (s)	43.0	43.0		55.0	55.0		66.5	57.5		65.5	57.0	
Actuated g/C Ratio	0.31	0.31		0.39	0.39		0.48	0.41		0.47	0.41	
Clearance Time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	55	1044		170	1340		167	715		289	749	
v/s Ratio Prot		0.26		0.05	c0.35		c0.08	0.26		0.02	0.47	
v/s Ratio Perm	c0.33			0.27			c0.52			0.13		
v/c Ratio	1.09	0.84		0.83	0.89		1.26	0.63		0.32	1.15	
Uniform Delay, d1	48.5	45.3		32.3	39.6		40.0	32.7		22.7	41.5	
Progression Factor	0.45	0.42		0.98	0.20		1.00	1.00		0.58	0.89	
Incremental Delay, d2	129.6	6.0		8.7	2.7		155.2	4.1		0.6	83.6	
Delay (s)	151.2	25.2		40.2	10.6		195.1	36.9		13.8	120.4	
Level of Service	F	C		D	B		F	D		B	F	
Approach Delay (s)		33.2			13.7			86.8			110.1	
Approach LOS		C			B			F			F	

Intersection Summary			
HCM 2000 Control Delay	54.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	119.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	34	929	198	1331	30	328	106	128	607
v/c Ratio	0.44	0.81	0.68	0.79	0.20	0.50	0.20	0.33	0.82
Control Delay	40.2	36.6	50.4	27.8	37.7	40.3	6.5	25.4	44.5
Queue Delay	0.0	0.3	0.0	25.3	0.0	2.7	0.0	0.0	0.9
Total Delay	40.2	36.8	50.4	53.1	37.7	43.0	6.5	25.4	45.4
Queue Length 50th (m)	6.4	100.0	38.2	98.7	5.9	72.5	0.0	20.7	141.2
Queue Length 95th (m)	m8.9	m89.2	m43.6	m116.8	14.8	101.9	12.9	33.7	193.1
Internal Link Dist (m)		161.5		171.5		57.8			70.0
Turn Bay Length (m)	80.0		55.0		45.0			30.0	
Base Capacity (vph)	77	1147	292	1680	147	650	539	388	744
Starvation Cap Reductn	0	25	0	102	0	212	0	0	0
Spillback Cap Reductn	0	0	0	403	0	0	0	0	28
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.83	0.68	1.04	0.20	0.75	0.20	0.33	0.85

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)	31	716	120	178	1151	47	27	295	95	115	270	276
Future Volume (vph)	31	716	120	178	1151	47	27	295	95	115	270	276
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		3.0	7.0		7.0	7.0	7.0	3.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00	0.92	1.00	0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	0.99	1.00	
Frt	1.00	0.98		1.00	0.99		1.00	1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1825	3387		1722	3507		1825	1921	1385	1810	1731	
Flt Permitted	0.12	1.00		0.12	1.00		0.23	1.00	1.00	0.38	1.00	
Satd. Flow (perm)	231	3387		215	3507		437	1921	1385	718	1731	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	34	796	133	198	1279	52	30	328	106	128	300	307
RTOR Reduction (vph)	0	9	0	0	2	0	0	0	70	0	15	0
Lane Group Flow (vph)	34	920	0	198	1329	0	30	328	36	128	592	0
Confl. Peds. (#/hr)	19		14	14		19	18		31	31		18
Heavy Vehicles (%)	0%	5%	0%	6%	3%	5%	0%	0%	9%	0%	0%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		2		1	6			8		7	4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	47.0	47.0		67.0	67.0		47.4	47.4	47.4	59.0	59.0	
Effective Green, g (s)	47.0	47.0		67.0	67.0		47.4	47.4	47.4	59.0	59.0	
Actuated g/C Ratio	0.34	0.34		0.48	0.48		0.34	0.34	0.34	0.42	0.42	
Clearance Time (s)	7.0	7.0		3.0	7.0		7.0	7.0	7.0	3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	77	1137		285	1678		147	650	468	369	729	
v/s Ratio Prot		0.27		0.08	c0.38			0.17		0.02	c0.34	
v/s Ratio Perm	0.15			0.25			0.07		0.03	0.12		
v/c Ratio	0.44	0.81		0.69	0.79		0.20	0.50	0.08	0.35	0.81	
Uniform Delay, d1	36.3	42.4		26.7	30.6		32.9	36.9	31.4	26.3	35.6	
Progression Factor	0.82	0.81		1.91	0.84		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	7.0	2.5		6.3	1.8		3.1	2.8	0.3	0.6	9.6	
Delay (s)	36.8	36.7		57.2	27.5		36.0	39.7	31.8	26.9	45.2	
Level of Service	D	D		E	C		D	D	C	C	D	
Approach Delay (s)		36.7			31.4			37.7			42.0	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	35.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	102.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	75	421	257	1306	20	1549	456	1201
v/c Ratio	0.54	0.34	0.95	1.27	0.11	1.27	1.36	0.73
Control Delay	40.9	32.5	66.3	154.3	16.3	165.3	213.1	34.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.9	32.5	66.3	154.3	16.3	165.3	213.1	34.1
Queue Length 50th (m)	13.0	43.0	72.3	~160.8	2.4	~284.3	~148.9	140.0
Queue Length 95th (m)	23.7	57.0 m	#111.6	#261.4	6.2	#327.2	#215.9	165.8
Internal Link Dist (m)		170.1		161.5		203.8		248.3
Turn Bay Length (m)	50.0		50.0		65.0		100.0	
Base Capacity (vph)	140	1244	271	1031	190	1222	336	1646
Starvation Cap Reductn	0	0	0	2	0	0	0	0
Spillback Cap Reductn	0	5	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.34	0.95	1.27	0.11	1.27	1.36	0.73

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	340	51	239	802	413	19	1337	103	424	1096	21
Future Volume (vph)	70	340	51	239	802	413	19	1337	103	424	1096	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		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		0.98	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.95		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)	1755	3429		1738	3363		1789	3519		1772	3600	
Flt Permitted	0.09	1.00		0.51	1.00		0.15	1.00		0.08	1.00	
Satd. Flow (perm)	168	3429		926	3363		281	3519		145	3600	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	75	366	55	257	862	444	20	1438	111	456	1178	23
RTOR Reduction (vph)	0	8	0	0	47	0	0	4	0	0	1	0
Lane Group Flow (vph)	75	413	0	257	1259	0	20	1545	0	456	1200	0
Confl. Peds. (#/hr)	5		23	23		5	8		13	13		8
Heavy Vehicles (%)	4%	4%	2%	3%	2%	3%	2%	2%	7%	3%	1%	4%
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	50.5	50.5		41.0	41.0		55.0	48.5		73.5	64.0	
Effective Green, g (s)	50.5	50.5		41.0	41.0		55.0	48.5		73.5	64.0	
Actuated g/C Ratio	0.36	0.36		0.29	0.29		0.39	0.35		0.52	0.46	
Clearance Time (s)	3.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	134	1236		271	984		180	1219		331	1645	
v/s Ratio Prot	c0.03	0.12			c0.37		0.01	0.44		c0.22	0.33	
v/s Ratio Perm	0.18			0.28			0.04			c0.51		
v/c Ratio	0.56	0.33		0.95	1.28		0.11	1.27		1.38	0.73	
Uniform Delay, d1	35.8	32.5		48.5	49.5		27.3	45.8		46.2	30.9	
Progression Factor	1.00	1.00		0.69	0.68		1.00	1.00		1.00	1.00	
Incremental Delay, d2	15.8	0.7		31.0	130.7		1.2	127.0		187.9	2.9	
Delay (s)	51.7	33.3		64.4	164.3		28.5	172.8		234.1	33.8	
Level of Service	D	C		E	F		C	F		F	C	
Approach Delay (s)		36.0			147.9			170.9			88.9	
Approach LOS		D			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	125.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.33		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	123.7%	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)	13	92	39	125	48	443	123	653
v/c Ratio	0.04	0.22	0.13	0.26	0.15	0.44	0.27	0.63
Control Delay	23.3	9.8	24.8	13.7	9.9	11.7	11.0	15.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6
Total Delay	23.3	9.8	24.8	13.7	9.9	11.7	11.0	16.9
Queue Length 50th (m)	1.5	2.0	4.6	6.6	3.2	35.7	8.9	61.4
Queue Length 95th (m)	4.7	8.9	9.9	14.3	6.8	42.7	14.6	68.8
Internal Link Dist (m)		141.1		97.5		112.5		34.9
Turn Bay Length (m)	20.0		20.0		25.0		25.0	
Base Capacity (vph)	321	425	296	480	317	1014	459	1030
Starvation Cap Reductn	0	0	0	0	0	0	0	211
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	0.22	0.13	0.26	0.15	0.44	0.27	0.80

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	13	56	29	42	52	36	320	12	92	454	36
Future Volume (vph)	10	13	56	29	42	52	36	320	12	92	454	36
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	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.90		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.91	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.88		1.00	0.92		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1476		1616	1715		1809	1799		1701	1825	
Flt Permitted	0.68	1.00		0.70	1.00		0.30	1.00		0.46	1.00	
Satd. Flow (perm)	1286	1476		1186	1715		566	1799		817	1825	
Peak-hour factor, PHF	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Adj. Flow (vph)	13	17	75	39	56	69	48	427	16	123	605	48
RTOR Reduction (vph)	0	56	0	0	52	0	0	2	0	0	4	0
Lane Group Flow (vph)	13	36	0	39	73	0	48	441	0	123	650	0
Confl. Peds. (#/hr)	11		50	50		11	16		12	12		16
Heavy Vehicles (%)	0%	0%	4%	3%	3%	0%	0%	6%	7%	6%	4%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	20.0	20.0		20.0	20.0		45.0	45.0		45.0	45.0	
Effective Green, g (s)	20.0	20.0		20.0	20.0		45.0	45.0		45.0	45.0	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.56	0.56		0.56	0.56	
Clearance Time (s)	8.0	8.0		8.0	8.0		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)	321	369		296	428		318	1011		459	1026	
v/s Ratio Prot		0.02			c0.04			0.25			c0.36	
v/s Ratio Perm	0.01			0.03			0.08			0.15		
v/c Ratio	0.04	0.10		0.13	0.17		0.15	0.44		0.27	0.63	
Uniform Delay, d1	22.7	23.1		23.3	23.5		8.4	10.1		9.0	11.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.5		0.9	0.9		1.0	1.4		1.4	3.0	
Delay (s)	23.0	23.6		24.2	24.4		9.4	11.5		10.4	14.9	
Level of Service	C	C		C	C		A	B		B	B	
Approach Delay (s)		23.5			24.3			11.3			14.2	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1493	280	1027	374	1
v/c Ratio	0.61	0.76	0.44	0.86	0.00
Control Delay	28.3	33.0	3.4	69.1	27.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	28.3	33.0	3.4	69.1	27.0
Queue Length 50th (m)	104.4	22.6	13.9	99.1	0.0
Queue Length 95th (m)	147.6	51.3	47.4	128.2	1.4
Internal Link Dist (m)	613.2		220.9	100.9	
Turn Bay Length (m)		50.0		45.0	
Base Capacity (vph)	2434	464	2347	536	481
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	35	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.62	0.60	0.44	0.70	0.00

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1005	369	258	945	344	1
Future Volume (vph)	1005	369	258	945	344	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0		3.0	7.0	7.0	7.0
Lane Util. Factor	0.91		1.00	0.95	1.00	1.00
Frt	0.96		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	4935		1789	3579	1789	1601
Flt Permitted	1.00		0.10	1.00	0.95	1.00
Satd. Flow (perm)	4935		188	3579	1789	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1092	401	280	1027	374	1
RTOR Reduction (vph)	39	0	0	0	0	1
Lane Group Flow (vph)	1454	0	280	1027	374	0
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Actuated Green, G (s)	67.9		91.8	91.8	34.2	34.2
Effective Green, g (s)	67.9		91.8	91.8	34.2	34.2
Actuated g/C Ratio	0.49		0.66	0.66	0.24	0.24
Clearance Time (s)	7.0		3.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2393		362	2346	437	391
v/s Ratio Prot	0.29		c0.12	0.29	c0.21	
v/s Ratio Perm			c0.39			0.00
v/c Ratio	0.61		0.77	0.44	0.86	0.00
Uniform Delay, d1	26.3		30.2	11.6	50.5	40.0
Progression Factor	1.00		0.83	0.23	1.00	1.00
Incremental Delay, d2	1.2		8.8	0.5	15.1	0.0
Delay (s)	27.5		34.0	3.2	65.6	40.0
Level of Service	C		C	A	E	D
Approach Delay (s)	27.5			9.8	65.6	
Approach LOS	C			A	E	

Intersection Summary			
HCM 2000 Control Delay	24.7	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)	17.0
Intersection Capacity Utilization	76.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	0	18	114	8	22	33	353	104	11	809	11
Future Volume (Veh/h)	15	0	18	114	8	22	33	353	104	11	809	11
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	0	20	124	9	24	36	384	113	12	879	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)								94			117	
pX, platoon unblocked												
vC, conflicting volume	1202	1478	446	996	1428	248	891			497		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1202	1478	446	996	1428	248	891			497		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	87	100	96	32	93	97	95			99		
cM capacity (veh/h)	123	118	560	183	126	751	757			1063		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	16	20	124	33	36	256	241	12	586	305
Volume Left	16	0	124	0	36	0	0	12	0	0
Volume Right	0	20	0	24	0	0	113	0	0	12
cSH	123	560	183	319	757	1700	1700	1063	1700	1700
Volume to Capacity	0.13	0.04	0.68	0.10	0.05	0.15	0.14	0.01	0.34	0.18
Queue Length 95th (m)	3.3	0.8	30.9	2.6	1.1	0.0	0.0	0.3	0.0	0.0
Control Delay (s)	38.7	11.7	58.2	17.6	10.0	0.0	0.0	8.4	0.0	0.0
Lane LOS	E	B	F	C	A			A		
Approach Delay (s)	23.7		49.7		0.7			0.1		
Approach LOS	C		E							

Intersection Summary			
Average Delay	5.6		
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	4	39	24	4	42	100	118	11	35	43	28
Future Volume (Veh/h)	12	4	39	24	4	42	100	118	11	35	43	28
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	4	42	26	4	46	109	128	12	38	47	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)								89			120	
pX, platoon unblocked												
vC, conflicting volume	532	496	62	519	505	134	77			140		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	532	496	62	519	505	134	77			140		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	99	96	94	99	95	93			97		
cM capacity (veh/h)	400	430	1003	412	424	915	1522			1443		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	59	76	109	140	38	77
Volume Left	13	26	109	0	38	0
Volume Right	42	46	0	12	0	30
cSH	705	619	1522	1700	1443	1700
Volume to Capacity	0.08	0.12	0.07	0.08	0.03	0.05
Queue Length 95th (m)	2.1	3.2	1.8	0.0	0.6	0.0
Control Delay (s)	10.6	11.6	7.5	0.0	7.6	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	10.6	11.6	3.3		2.5	
Approach LOS	B	B				

Intersection Summary				
Average Delay	5.2			
Intersection Capacity Utilization	26.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	33	36	381	1	19	549
Future Volume (Veh/h)	33	36	381	1	19	549
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)	36	39	414	1	21	597
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			59			82
pX, platoon unblocked	0.94					
vC, conflicting volume	1054	208			415	
vC1, stage 1 conf vol	414					
vC2, stage 2 conf vol	639					
vCu, unblocked vol	1024	208			415	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	95			98	
cM capacity (veh/h)	417	799			1140	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	75	276	139	21	597
Volume Left	36	0	0	21	0
Volume Right	39	0	1	0	0
cSH	555	1700	1700	1140	1700
Volume to Capacity	0.14	0.16	0.08	0.02	0.35
Queue Length 95th (m)	3.5	0.0	0.0	0.4	0.0
Control Delay (s)	12.5	0.0	0.0	8.2	0.0
Lane LOS	B			A	
Approach Delay (s)	12.5	0.0		0.3	
Approach LOS	B				

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	39.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	311	0	0	951	0	18
Future Volume (Veh/h)	311	0	0	951	0	18
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)	338	0	0	1034	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)	160			58		
pX, platoon unblocked			0.95		0.91	0.95
vC, conflicting volume			338		855	169
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			211		428	34
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	98
cM capacity (veh/h)			1295		507	985

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	169	169	0	517	517	20
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	20
cSH	1700	1700	1700	1700	1700	985
Volume to Capacity	0.10	0.10	0.00	0.30	0.30	0.02
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.5
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	8.7
Lane LOS						A
Approach Delay (s)	0.0			0.0		8.7
Approach LOS						A

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	29.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	11	0	19	45	0	0	0	335	38	5	597	26
Future Volume (vph)	11	0	19	45	0	0	0	335	38	5	597	26
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	0	21	49	0	0	0	364	41	5	649	28

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	33	49	0	405	5	677
Volume Left (vph)	12	49	0	0	5	0
Volume Right (vph)	21	0	0	41	0	28
Hadj (s)	-0.28	0.23	0.00	-0.04	0.53	0.01
Departure Headway (s)	6.4	6.9	5.4	5.4	5.7	5.2
Degree Utilization, x	0.06	0.09	0.00	0.60	0.01	0.97
Capacity (veh/h)	522	490	670	667	611	677
Control Delay (s)	9.8	10.6	7.2	15.0	7.6	49.4
Approach Delay (s)	9.8	10.6	15.0		49.1	
Approach LOS	A	B	B		E	

Intersection Summary			
Delay	34.5		
Level of Service	D		
Intersection Capacity Utilization	45.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	867	62	2	277	2355	2819
v/c Ratio	0.85	0.23	0.00	0.65	0.60	0.91
Control Delay	56.1	23.3	35.0	46.7	17.4	29.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.1	23.3	35.0	46.7	17.4	29.3
Queue Length 50th (m)	116.9	6.3	0.4	60.0	110.2	237.5
Queue Length 95th (m)	142.5	18.6	2.6	92.1	120.1	261.2
Internal Link Dist (m)					73.6	241.1
Turn Bay Length (m)		150.0				
Base Capacity (vph)	1016	272	427	423	3901	3097
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	0.85	0.23	0.00	0.65	0.60	0.91

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	850	0	61	2	0	271	0	2292	16	0	2763	0
Future Volume (vph)	850	0	61	2	0	271	0	2292	16	0	2763	0
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		7.0			7.0	
Lane Util. Factor	0.97		1.00	1.00		1.00		0.86			0.91	
Frt	1.00		0.85	1.00		0.85		1.00			1.00	
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (prot)	3471		855	1460		1372		6350			5043	
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (perm)	3471		855	1460		1372		6350			5043	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	867	0	62	2	0	277	0	2339	16	0	2819	0
RTOR Reduction (vph)	0	0	22	0	0	22	0	1	0	0	0	0
Lane Group Flow (vph)	867	0	40	2	0	255	0	2354	0	0	2819	0
Heavy Vehicles (%)	2%	0%	91%	25%	0%	19%	0%	4%	0%	0%	4%	0%
Turn Type	Perm		Perm	Perm		Perm		NA			NA	
Protected Phases								2			6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	41.0		41.0	41.0		41.0		86.0			86.0	
Effective Green, g (s)	41.0		41.0	41.0		41.0		86.0			86.0	
Actuated g/C Ratio	0.29		0.29	0.29		0.29		0.61			0.61	
Clearance Time (s)	6.0		6.0	6.0		6.0		7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0		3.0		3.0			3.0	
Lane Grp Cap (vph)	1016		250	427		401		3900			3097	
v/s Ratio Prot								0.37			c0.56	
v/s Ratio Perm	c0.25		0.05	0.00		0.19						
v/c Ratio	0.85		0.16	0.00		0.64		0.60			0.91	
Uniform Delay, d1	46.7		36.7	35.1		43.0		16.6			23.6	
Progression Factor	1.00		1.00	1.00		1.00		1.00			1.00	
Incremental Delay, d2	9.1		1.4	0.0		7.5		0.7			5.2	
Delay (s)	55.7		38.1	35.1		50.5		17.3			28.8	
Level of Service	E		D	D		D		B			C	
Approach Delay (s)		54.6			50.4			17.3			28.8	
Approach LOS		D			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	29.3	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)	13.0
Intersection Capacity Utilization	88.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1001	197	129	133	133	170
v/c Ratio	0.41	0.21	0.38	0.06	0.61	0.52
Control Delay	6.9	1.1	10.6	5.1	49.0	18.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.9	1.1	10.6	5.1	49.0	18.9
Queue Length 50th (m)	33.7	0.5	8.0	3.3	22.5	8.6
Queue Length 95th (m)	57.5	0.9	23.7	7.6	40.2	26.7
Internal Link Dist (m)	33.9			146.8	95.7	
Turn Bay Length (m)			60.0		35.0	
Base Capacity (vph)	2416	1029	341	2099	352	457
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	0.41	0.19	0.38	0.06	0.38	0.37

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	911	179	117	121	121	155
Future Volume (vph)	911	179	117	121	121	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.90	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3444	1126	1733	2992	1484	1555
Flt Permitted	1.00	1.00	0.27	1.00	0.95	1.00
Satd. Flow (perm)	3444	1126	486	2992	1484	1555
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	1001	197	129	133	133	170
RTOR Reduction (vph)	0	0	0	0	0	99
Lane Group Flow (vph)	1001	197	129	133	133	71
Confl. Peds. (#/hr)		45	45			
Heavy Vehicles (%)	6%	31%	3%	22%	23%	5%
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	2	8		6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	65.1	78.8	65.1	65.1	13.7	13.7
Effective Green, g (s)	65.1	78.8	65.1	65.1	13.7	13.7
Actuated g/C Ratio	0.70	0.85	0.70	0.70	0.15	0.15
Clearance Time (s)	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
Lane Grp Cap (vph)	2415	1126	340	2098	219	229
v/s Ratio Prot	c0.29	0.03		0.04	c0.09	
v/s Ratio Perm		0.15	0.27			0.05
v/c Ratio	0.41	0.17	0.38	0.06	0.61	0.31
Uniform Delay, d1	5.8	1.2	5.6	4.3	37.0	35.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.1	3.2	0.1	4.7	0.8
Delay (s)	6.4	1.3	8.8	4.4	41.7	36.1
Level of Service	A	A	A	A	D	D
Approach Delay (s)	5.5			6.6	38.6	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	92.8	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	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	220	1299	547	44	41	255	26
v/c Ratio	0.61	0.89	0.60	0.11	0.13	0.84	0.06
Control Delay	13.2	18.3	34.7	17.4	1.9	61.6	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.2	18.3	34.7	17.4	1.9	61.6	0.2
Queue Length 50th (m)	12.2	65.2	51.0	5.3	0.0	53.3	0.0
Queue Length 95th (m)	m13.7	m71.8	69.3	12.0	1.8	#98.3	0.0
Internal Link Dist (m)		202.3	126.7		25.6		
Turn Bay Length (m)	70.0					20.0	
Base Capacity (vph)	365	1453	914	399	311	304	453
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	0.60	0.89	0.60	0.11	0.13	0.84	0.06

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)	216	1273	0	0	397	139	43	0	40	250	0	25
Future Volume (vph)	216	1273	0	0	397	139	43	0	40	250	0	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	8.0			8.0		3.0	8.0		8.0		8.0
Lane Util. Factor	1.00	0.95			0.95		1.00	1.00		1.00		1.00
Frpb, ped/bikes	1.00	1.00			0.95		1.00	0.76		1.00		0.82
Flpb, ped/bikes	0.98	1.00			1.00		0.84	1.00		0.78		1.00
Frt	1.00	1.00			0.96		1.00	0.85		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1640	3411			2927		810	618		1267		1220
Flt Permitted	0.33	1.00			1.00		0.95	1.00		0.73		1.00
Satd. Flow (perm)	562	3411			2927		810	618		974		1220
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	220	1299	0	0	405	142	44	0	41	255	0	26
RTOR Reduction (vph)	0	0	0	0	30	0	0	23	0	0	0	18
Lane Group Flow (vph)	220	1299	0	0	517	0	44	18	0	255	0	8
Confl. Peds. (#/hr)	99		330	330		99	177		246	246		177
Heavy Vehicles (%)	9%	7%	0%	0%	10%	24%	89%	0%	100%	12%	0%	10%
Turn Type	pm+pt	NA			NA		pm+pt	NA		Perm		Perm
Protected Phases	5	2			6		3	8				
Permitted Phases	2						8			4		4
Actuated Green, G (s)	49.0	49.0			34.7		50.0	50.0		36.0		36.0
Effective Green, g (s)	49.0	49.0			34.7		50.0	50.0		36.0		36.0
Actuated g/C Ratio	0.43	0.43			0.30		0.43	0.43		0.31		0.31
Clearance Time (s)	3.0	8.0			8.0		3.0	8.0		8.0		8.0
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0		3.0
Lane Grp Cap (vph)	345	1453			883		352	268		304		381
v/s Ratio Prot	0.06	c0.38			0.18		c0.01	0.03				
v/s Ratio Perm	0.21						0.04			c0.26		0.01
v/c Ratio	0.64	0.89			0.59		0.12	0.07		0.84		0.02
Uniform Delay, d1	22.5	30.6			34.1		19.4	18.9		36.8		27.3
Progression Factor	0.53	0.45			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	1.5	3.7			2.8		0.7	0.5		23.3		0.1
Delay (s)	13.5	17.6			36.9		20.2	19.4		60.1		27.4
Level of Service	B	B			D		C	B		E		C
Approach Delay (s)		17.0			36.9			19.8			57.1	
Approach LOS		B			D			B			E	

Intersection Summary			
HCM 2000 Control Delay	26.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	84.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	282	1471	73	440	62	262	209	454
v/c Ratio	0.71	1.00	0.51	0.27	0.29	0.60	0.74	0.93
Control Delay	40.1	56.7	46.4	38.8	26.0	29.5	44.3	64.4
Queue Delay	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.1	57.7	46.4	38.8	26.0	29.5	44.3	64.4
Queue Length 50th (m)	53.0	~188.1	14.0	46.6	8.7	31.1	33.5	91.4
Queue Length 95th (m)	#96.9	#233.2	m25.5	62.6	17.6	58.9	#62.3	#160.2
Internal Link Dist (m)		171.5		202.3		102.8		69.7
Turn Bay Length (m)	65.0		70.0		45.0		30.0	
Base Capacity (vph)	395	1470	155	1634	230	434	284	487
Starvation Cap Reductn	0	6	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	0.71	1.00	0.47	0.27	0.27	0.60	0.74	0.93

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)	257	1127	212	66	394	6	56	66	172	190	172	241
Future Volume (vph)	257	1127	212	66	394	6	56	66	172	190	172	241
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.98		1.00	0.99	
Flpb, ped/bikes	0.98	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00		1.00	0.89		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1743	3364		1323	3183		1705	1506		1339	1654	
Flt Permitted	0.50	1.00		0.08	1.00		0.19	1.00		0.40	1.00	
Satd. Flow (perm)	912	3364		108	3183		348	1506		570	1654	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	282	1238	233	73	433	7	62	73	189	209	189	265
RTOR Reduction (vph)	0	13	0	0	1	0	0	81	0	0	42	0
Lane Group Flow (vph)	282	1458	0	73	439	0	62	181	0	209	412	0
Confl. Peds. (#/hr)	14		9	9		14	4		8	8		4
Heavy Vehicles (%)	3%	6%	3%	38%	14%	34%	7%	4%	15%	36%	2%	7%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	48.6	48.6		58.4	58.4		34.2	27.6		40.6	31.0	
Effective Green, g (s)	48.6	48.6		58.4	58.4		34.2	27.6		40.6	31.0	
Actuated g/C Ratio	0.42	0.42		0.51	0.51		0.30	0.24		0.35	0.27	
Clearance Time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	385	1421		126	1616		181	361		268	445	
v/s Ratio Prot		c0.43		c0.03	0.14		0.02	0.12		c0.07	c0.25	
v/s Ratio Perm	0.31			0.26			0.08			0.21		
v/c Ratio	0.73	1.03		0.58	0.27		0.34	0.50		0.78	0.93	
Uniform Delay, d1	27.8	33.2		24.4	16.2		30.8	37.8		31.7	40.9	
Progression Factor	1.00	1.00		2.37	2.42		1.00	1.00		1.00	1.00	
Incremental Delay, d2	11.7	30.7		5.6	0.4		1.1	4.9		13.4	27.5	
Delay (s)	39.4	63.9		63.5	39.5		31.9	42.7		45.0	68.4	
Level of Service	D	E		E	D		C	D		D	E	
Approach Delay (s)		60.0			42.9			40.6			61.0	
Approach LOS		E			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	55.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	95.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	343	1232	257	477	52	383	245	274	446
v/c Ratio	0.97	0.87	1.10	0.27	0.29	1.00	0.46	1.00	0.79
Control Delay	42.4	30.3	126.0	17.8	47.7	97.3	10.4	89.0	50.8
Queue Delay	0.0	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.4	34.0	126.0	17.8	47.7	97.3	10.4	89.0	50.8
Queue Length 50th (m)	67.6	120.0	~64.7	36.0	11.7	106.6	5.1	54.1	108.0
Queue Length 95th (m)	m66.7	m109.2	#120.0	46.8	24.5	#171.7	28.3	#102.2	151.9
Internal Link Dist (m)		161.5		171.5		57.8			66.0
Turn Bay Length (m)	80.0		55.0		45.0			30.0	
Base Capacity (vph)	352	1415	233	1773	181	384	529	274	564
Starvation Cap Reductn	0	117	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	0.97	0.95	1.10	0.27	0.29	1.00	0.46	1.00	0.79

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)	322	1108	50	242	435	13	49	360	230	258	341	78
Future Volume (vph)	322	1108	50	242	435	13	49	360	230	258	341	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		3.0	7.0		7.0	7.0	7.0	3.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.93	1.00	1.00	
Flpb, ped/bikes	0.98	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		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1705	3445		1674	3289		1699	1537	1453	1825	1546	
Flt Permitted	0.48	1.00		0.07	1.00		0.41	1.00	1.00	0.19	1.00	
Satd. Flow (perm)	860	3445		119	3289		726	1537	1453	368	1546	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	343	1179	53	257	463	14	52	383	245	274	363	83
RTOR Reduction (vph)	0	2	0	0	1	0	0	0	166	0	6	0
Lane Group Flow (vph)	343	1230	0	257	476	0	52	383	79	274	440	0
Confl. Peds. (#/hr)	9		8	8		9	4		26	26		4
Heavy Vehicles (%)	5%	5%	6%	9%	10%	20%	7%	25%	5%	0%	25%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		2		1	6			8		7	4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	57.4	57.4		75.4	75.4		35.0	35.0	35.0	50.6	50.6	
Effective Green, g (s)	57.4	57.4		75.4	75.4		35.0	35.0	35.0	50.6	50.6	
Actuated g/C Ratio	0.41	0.41		0.54	0.54		0.25	0.25	0.25	0.36	0.36	
Clearance Time (s)	7.0	7.0		3.0	7.0		7.0	7.0	7.0	3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	352	1412		230	1771		181	384	363	264	558	
v/s Ratio Prot		0.36		c0.12	0.14			0.25		c0.09	0.28	
v/s Ratio Perm	0.40			c0.48			0.07		0.05	c0.28		
v/c Ratio	0.97	0.87		1.12	0.27		0.29	1.00	0.22	1.04	0.79	
Uniform Delay, d1	40.6	37.9		44.4	17.4		42.4	52.5	41.6	39.9	39.9	
Progression Factor	0.77	0.77		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	9.6	0.8		94.5	0.4		4.0	45.3	1.4	65.6	10.8	
Delay (s)	41.0	30.0		138.9	17.8		46.4	97.7	43.0	105.5	50.8	
Level of Service	D	C		F	B		D	F	D	F	D	
Approach Delay (s)		32.4			60.2			74.1			71.6	
Approach LOS		C			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	53.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	97.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	79	828	194	475	136	1971	493	820
v/c Ratio	0.28	0.66	1.53	0.39	0.39	1.56	1.72	0.55
Control Delay	35.0	40.1	302.7	17.8	18.9	285.4	368.3	31.6
Queue Delay	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.0	40.4	302.7	17.8	18.9	285.4	368.3	31.6
Queue Length 50th (m)	15.4	100.0	~76.1	41.0	17.4	~403.6	~185.5	87.7
Queue Length 95th (m)	27.1	111.3	m#113.2	51.4	26.0	#402.1	#230.4	97.9
Internal Link Dist (m)		170.1		161.5		203.8		248.3
Turn Bay Length (m)	50.0		50.0		65.0		100.0	
Base Capacity (vph)	282	1252	127	1230	349	1267	286	1496
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	87	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.71	1.53	0.39	0.39	1.56	1.72	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.

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	653	43	163	236	163	114	1242	413	414	643	46
Future Volume (vph)	66	653	43	163	236	163	114	1242	413	414	643	46
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	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		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		0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.94		1.00	0.96		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)	1756	3429		1628	3134		1806	3349		1772	3512	
Flt Permitted	0.42	1.00		0.20	1.00		0.28	1.00		0.07	1.00	
Satd. Flow (perm)	777	3429		349	3134		527	3349		136	3512	
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	79	777	51	194	281	194	136	1479	492	493	765	55
RTOR Reduction (vph)	0	3	0	0	89	0	0	23	0	0	4	0
Lane Group Flow (vph)	79	825	0	194	386	0	136	1948	0	493	816	0
Confl. Peds. (#/hr)	13		33	33		13	6		2	2		6
Heavy Vehicles (%)	3%	5%	6%	11%	10%	5%	1%	3%	9%	3%	2%	13%
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)	51.0	51.0		51.0	51.0		62.5	52.0		73.0	59.5	
Effective Green, g (s)	51.0	51.0		51.0	51.0		62.5	52.0		73.0	59.5	
Actuated g/C Ratio	0.36	0.36		0.36	0.36		0.45	0.37		0.52	0.42	
Clearance Time (s)	8.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	283	1249		127	1141		331	1243		281	1492	
v/s Ratio Prot		0.24			0.12		0.03	0.58		c0.23	0.23	
v/s Ratio Perm	0.10			c0.56			0.15			c0.69		
v/c Ratio	0.28	0.66		1.53	0.34		0.41	1.57		1.75	0.55	
Uniform Delay, d1	31.5	37.3		44.5	32.3		23.6	44.0		46.2	30.2	
Progression Factor	1.00	1.00		0.90	0.75		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.4	2.8		272.0	0.8		3.7	259.1		353.8	1.4	
Delay (s)	33.9	40.0		312.0	24.9		27.4	303.1		400.0	31.6	
Level of Service	C	D		F	C		C	F		F	C	
Approach Delay (s)		39.5			108.1			285.3			169.9	
Approach LOS		D			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	186.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.69		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	126.2%	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)	87	122	22	268	70	895	335	774
v/c Ratio	0.35	0.28	0.07	0.53	0.31	0.92	2.43	0.81
Control Delay	29.6	13.3	23.9	16.8	13.9	32.8	681.3	22.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0
Total Delay	29.6	13.3	23.9	16.8	13.9	32.8	681.3	28.4
Queue Length 50th (m)	10.9	5.9	2.6	16.1	5.2	113.5	~65.7	86.2
Queue Length 95th (m)	13.1	7.1	4.7	12.7	6.8	65.5	#50.9	53.7
Internal Link Dist (m)		141.1		97.5		112.5		34.9
Turn Bay Length (m)	20.0		20.0		25.0		25.0	
Base Capacity (vph)	248	435	296	507	228	972	138	959
Starvation Cap Reductn	0	0	0	0	0	0	0	139
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	0.35	0.28	0.07	0.53	0.31	0.92	2.43	0.94

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)	47	27	39	12	6	139	38	473	10	181	390	28
Future Volume (vph)	47	27	39	12	6	139	38	473	10	181	390	28
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	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.97		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		0.97	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.91		1.00	0.86		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)	1818	1527		1660	1617		1825	1728		1825	1700	
Flt Permitted	0.52	1.00		0.68	1.00		0.21	1.00		0.13	1.00	
Satd. Flow (perm)	995	1527		1186	1617		407	1728		247	1700	
Peak-hour factor, PHF	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Adj. Flow (vph)	87	50	72	22	11	257	70	876	19	335	722	52
RTOR Reduction (vph)	0	54	0	0	104	0	0	1	0	0	3	0
Lane Group Flow (vph)	87	68	0	22	165	0	70	894	0	335	771	0
Confl. Peds. (#/hr)	5		16	16		5	13		4	4		13
Heavy Vehicles (%)	0%	0%	19%	7%	0%	0%	0%	11%	0%	0%	10%	33%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	20.0	20.0		20.0	20.0		45.0	45.0		45.0	45.0	
Effective Green, g (s)	20.0	20.0		20.0	20.0		45.0	45.0		45.0	45.0	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.56	0.56		0.56	0.56	
Clearance Time (s)	8.0	8.0		8.0	8.0		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)	248	381		296	404		228	972		138	956	
v/s Ratio Prot		0.04			c0.10			0.52			0.45	
v/s Ratio Perm	0.09			0.02			0.17			c1.36		
v/c Ratio	0.35	0.18		0.07	0.41		0.31	0.92		2.43	0.81	
Uniform Delay, d1	24.7	23.6		22.9	25.0		9.3	15.9		17.5	14.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.9	1.0		0.5	3.0		3.5	15.0		663.9	7.2	
Delay (s)	28.5	24.6		23.4	28.1		12.7	30.9		681.4	21.3	
Level of Service	C	C		C	C		B	C		F	C	
Approach Delay (s)		26.2			27.7			29.6			220.7	
Approach LOS		C			C			C			F	

Intersection Summary			
HCM 2000 Control Delay	111.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.79		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	83.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1307	132	130	166	573
v/c Ratio	0.44	0.69	0.06	0.33	0.94
Control Delay	10.0	39.6	10.7	33.7	48.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	10.0	39.6	10.7	33.7	48.8
Queue Length 50th (m)	43.9	20.8	6.5	28.2	79.4
Queue Length 95th (m)	54.5	#57.7	11.0	46.3	#144.3
Internal Link Dist (m)	613.9		379.8	104.5	
Turn Bay Length (m)		50.0		45.0	
Base Capacity (vph)	2989	192	2140	560	655
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	0.44	0.69	0.06	0.30	0.87

Intersection Summary

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	630	572	121	120	153	527
Future Volume (vph)	630	572	121	120	153	527
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0		7.0	7.0	7.0	7.0
Lane Util. Factor	0.91		1.00	0.95	1.00	1.00
Frt	0.93		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	4775		1789	3579	1789	1601
Flt Permitted	1.00		0.17	1.00	0.95	1.00
Satd. Flow (perm)	4775		322	3579	1789	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	685	622	132	130	166	573
RTOR Reduction (vph)	131	0	0	0	0	161
Lane Group Flow (vph)	1176	0	132	130	166	412
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Actuated Green, G (s)	68.8		68.8	68.8	32.2	32.2
Effective Green, g (s)	68.8		68.8	68.8	32.2	32.2
Actuated g/C Ratio	0.60		0.60	0.60	0.28	0.28
Clearance Time (s)	7.0		7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2856		192	2141	500	448
v/s Ratio Prot	0.25			0.04	0.09	
v/s Ratio Perm			c0.41			c0.26
v/c Ratio	0.41		0.69	0.06	0.33	0.92
Uniform Delay, d1	12.3		15.8	9.6	32.9	40.1
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4		18.3	0.1	0.4	23.7
Delay (s)	12.8		34.0	9.7	33.3	63.8
Level of Service	B		C	A	C	E
Approach Delay (s)	12.8			21.9	56.9	
Approach LOS	B			C	E	

Intersection Summary			
HCM 2000 Control Delay	27.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	5	0	37	17	0	10	199	120	44	566	19
Future Volume (Veh/h)	0	5	0	37	17	0	10	199	120	44	566	19
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	5	0	40	18	0	11	216	130	48	615	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)								94				
pX, platoon unblocked	0.90	0.90		0.90	0.90	0.90				0.90		
vC, conflicting volume	968	1090	626	1016	1035	281	636			346		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	906	1042	626	960	981	139	636			211		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	97	100	80	92	100	99			96		
cM capacity (veh/h)	207	195	484	199	212	814	947			1217		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	0	5	40	18	11	346	48	636
Volume Left	0	0	40	0	11	0	48	0
Volume Right	0	0	0	0	0	130	0	21
cSH	1700	195	199	212	947	1700	1217	1700
Volume to Capacity	0.00	0.03	0.20	0.08	0.01	0.20	0.04	0.37
Queue Length 95th (m)	0.0	0.6	5.5	2.1	0.3	0.0	0.9	0.0
Control Delay (s)	0.0	23.9	27.5	23.5	8.8	0.0	8.1	0.0
Lane LOS	A	C	D	C	A		A	
Approach Delay (s)	23.9		26.3		0.3		0.6	
Approach LOS	C		D					

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	0	63	16	2	19	76	221	98	45	197	56
Future Volume (Veh/h)	35	0	63	16	2	19	76	221	98	45	197	56
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	38	0	68	17	2	21	83	240	107	49	214	61
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								89			120	
pX, platoon unblocked	0.93	0.93		0.93	0.93	0.93				0.93		
vC, conflicting volume	770	856	244	840	832	294	275			347		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	718	809	244	792	785	207	275			265		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	87	100	91	93	99	97	94			96		
cM capacity (veh/h)	286	263	794	241	272	778	1288			1213		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	106	40	83	347	49	275
Volume Left	38	17	83	0	49	0
Volume Right	68	21	0	107	0	61
cSH	486	382	1288	1700	1213	1700
Volume to Capacity	0.22	0.10	0.06	0.20	0.04	0.16
Queue Length 95th (m)	6.3	2.6	1.6	0.0	1.0	0.0
Control Delay (s)	14.5	15.5	8.0	0.0	8.1	0.0
Lane LOS	B	C	A		A	
Approach Delay (s)	14.5	15.5	1.5		1.2	
Approach LOS	B	C				

Intersection Summary				
Average Delay	3.6			
Intersection Capacity Utilization	37.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	639	21	34	599
Future Volume (Veh/h)	0	0	639	21	34	599
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	695	23	37	651
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			59			82
pX, platoon unblocked	0.69					
vC, conflicting volume	1432	359			718	
vC1, stage 1 conf vol	706					
vC2, stage 2 conf vol	725					
vCu, unblocked vol	1400	359			718	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			96	
cM capacity (veh/h)	317	638			879	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	0	463	255	37	651
Volume Left	0	0	0	37	0
Volume Right	0	0	23	0	0
cSH	1700	1700	1700	879	1700
Volume to Capacity	0.00	0.27	0.15	0.04	0.38
Queue Length 95th (m)	0.0	0.0	0.0	1.0	0.0
Control Delay (s)	0.0	0.0	0.0	9.3	0.0
Lane LOS	A			A	
Approach Delay (s)	0.0	0.0		0.5	
Approach LOS	A				

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	34.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1076	81	0	242	0	15
Future Volume (Veh/h)	1076	81	0	242	0	15
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)	1170	88	0	263	0	16
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)				58		
pX, platoon unblocked						
vC, conflicting volume			1258		1302	585
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1258		1302	585
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	96
cM capacity (veh/h)			549		152	454

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	585	585	88	132	132	16
Volume Left	0	0	0	0	0	0
Volume Right	0	0	88	0	0	16
cSH	1700	1700	1700	1700	1700	454
Volume to Capacity	0.34	0.34	0.05	0.08	0.08	0.04
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.8
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	13.2
Lane LOS						B
Approach Delay (s)	0.0			0.0		13.2
Approach LOS						B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	39.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	3	0	0	2	0	3	4	675	16	8	675	10
Future Volume (vph)	3	0	0	2	0	3	4	675	16	8	675	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	0	0	2	0	3	4	734	17	9	734	11

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	3	5	4	751	9	745
Volume Left (vph)	3	2	4	0	9	0
Volume Right (vph)	0	3	0	17	0	11
Hadj (s)	0.23	-0.25	0.53	0.02	0.53	0.02
Departure Headway (s)	7.2	6.7	5.6	5.0	5.5	5.0
Degree Utilization, x	0.01	0.01	0.01	1.05	0.01	1.04
Capacity (veh/h)	492	532	638	723	640	722
Control Delay (s)	10.2	9.8	7.4	68.4	7.4	65.7
Approach Delay (s)	10.2	9.8	68.1		65.0	
Approach LOS	B	A	F		F	

Intersection Summary			
Delay	66.3		
Level of Service	F		
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	400	450	34	1078	2404	1953
v/c Ratio	0.26	0.66	0.04	1.48	0.84	0.88
Control Delay	24.0	32.9	8.1	242.3	37.5	40.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.0	32.9	8.1	242.3	37.5	40.6
Queue Length 50th (m)	34.6	89.0	1.8	~415.4	168.5	177.2
Queue Length 95th (m)	45.8	128.0	m2.5	m#400.5	183.5	198.7
Internal Link Dist (m)					73.6	241.1
Turn Bay Length (m)		150.0				
Base Capacity (vph)	1526	683	779	727	2855	2226
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	0.26	0.66	0.04	1.48	0.84	0.88

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)	360	0	405	31	0	970	0	2115	49	0	1758	0
Future Volume (vph)	360	0	405	31	0	970	0	2115	49	0	1758	0
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		7.0			7.0	
Lane Util. Factor	0.97		1.00	1.00		1.00		0.86			0.91	
Frt	1.00		0.85	1.00		0.85		1.00			1.00	
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (prot)	3340		1458	1706		1555		6339			4948	
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (perm)	3340		1458	1706		1555		6339			4948	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	400	0	450	34	0	1078	0	2350	54	0	1953	0
RTOR Reduction (vph)	0	0	17	0	0	17	0	2	0	0	0	0
Lane Group Flow (vph)	400	0	433	34	0	1061	0	2402	0	0	1953	0
Heavy Vehicles (%)	6%	0%	12%	7%	0%	5%	0%	4%	0%	0%	6%	0%
Turn Type	Perm		Perm	Perm		Perm		NA			NA	
Protected Phases								2			6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	64.0		64.0	64.0		64.0		63.0			63.0	
Effective Green, g (s)	64.0		64.0	64.0		64.0		63.0			63.0	
Actuated g/C Ratio	0.46		0.46	0.46		0.46		0.45			0.45	
Clearance Time (s)	6.0		6.0	6.0		6.0		7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0		3.0		3.0			3.0	
Lane Grp Cap (vph)	1526		666	779		710		2852			2226	
v/s Ratio Prot								0.38			c0.39	
v/s Ratio Perm	0.12		0.30	0.02		c0.68						
v/c Ratio	0.26		0.65	0.04		1.49		0.84			0.88	
Uniform Delay, d1	23.4		29.4	21.0		38.0		34.1			35.0	
Progression Factor	1.00		1.00	0.38		0.45		1.00			1.00	
Incremental Delay, d2	0.4		4.9	0.1		227.1		3.2			5.3	
Delay (s)	23.9		34.2	8.0		244.1		37.3			40.3	
Level of Service	C		C	A		F		D			D	
Approach Delay (s)		29.4			236.9			37.3			40.3	
Approach LOS		C			F			D			D	

Intersection Summary			
HCM 2000 Control Delay	72.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	116.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1349	133	200	347	380	156
v/c Ratio	0.63	0.14	1.06	0.15	1.16	0.44
Control Delay	12.0	0.8	106.1	6.9	136.2	27.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.0	0.8	106.1	6.9	136.2	27.7
Queue Length 50th (m)	74.2	0.3	~43.4	12.4	~88.1	17.6
Queue Length 95th (m)	94.1	0.6	#49.7	17.8	#143.0	36.7
Internal Link Dist (m)	33.9			146.8	95.7	
Turn Bay Length (m)			60.0		35.0	
Base Capacity (vph)	2129	981	188	2293	329	354
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	0.63	0.14	1.06	0.15	1.16	0.44

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	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1228	121	182	316	346	142
Future Volume (vph)	1228	121	182	316	346	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.86	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3259	1139	1777	3510	1587	1512
Flt Permitted	1.00	1.00	0.15	1.00	0.95	1.00
Satd. Flow (perm)	3259	1139	288	3510	1587	1512
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	1349	133	200	347	380	156
RTOR Reduction (vph)	0	0	0	0	0	40
Lane Group Flow (vph)	1349	133	200	347	380	116
Confl. Peds. (#/hr)		71	71			
Heavy Vehicles (%)	12%	23%	1%	4%	15%	8%
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	2	8		6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	66.0	87.0	66.0	66.0	21.0	21.0
Effective Green, g (s)	66.0	87.0	66.0	66.0	21.0	21.0
Actuated g/C Ratio	0.65	0.86	0.65	0.65	0.21	0.21
Clearance Time (s)	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
Lane Grp Cap (vph)	2129	1139	188	2293	329	314
v/s Ratio Prot	0.41	0.02		0.10	c0.24	
v/s Ratio Perm		0.09	c0.70			0.08
v/c Ratio	0.63	0.12	1.06	0.15	1.16	0.37
Uniform Delay, d1	10.3	1.1	17.5	6.7	40.0	34.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.4	0.0	83.6	0.1	98.6	0.7
Delay (s)	11.8	1.1	101.1	6.9	138.6	35.0
Level of Service	B	A	F	A	F	D
Approach Delay (s)	10.8			41.3	108.5	
Approach LOS	B			D	F	

Intersection Summary			
HCM 2000 Control Delay	37.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	101.0	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	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	137	1148	1883	18	48	218	161
v/c Ratio	1.01	0.64	1.37	0.06	0.23	1.04	0.45
Control Delay	92.5	26.1	202.2	27.1	7.0	122.5	10.3
Queue Delay	0.0	0.4	0.0	0.0	0.0	0.0	0.0
Total Delay	92.5	26.5	202.2	27.1	7.0	122.5	10.3
Queue Length 50th (m)	~26.7	103.9	~362.1	3.1	0.0	~64.7	0.0
Queue Length 95th (m)	m#32.9	m117.2	#404.4	8.4	6.3	#115.8	19.4
Internal Link Dist (m)		202.3	126.7		25.6		
Turn Bay Length (m)	70.0					20.0	
Base Capacity (vph)	136	1802	1376	285	213	210	355
Starvation Cap Reductn	0	214	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	1.01	0.72	1.37	0.06	0.23	1.04	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.

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)	126	1056	0	0	1331	401	17	0	44	201	0	148
Future Volume (vph)	126	1056	0	0	1331	401	17	0	44	201	0	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	8.0			8.0		3.0	8.0		8.0		8.0
Lane Util. Factor	1.00	0.95			0.95		1.00	1.00		1.00		1.00
Frpb, ped/bikes	1.00	1.00			0.87		1.00	0.58		1.00		0.60
Flpb, ped/bikes	1.00	1.00			1.00		0.63	1.00		0.61		1.00
Frt	1.00	1.00			0.97		1.00	0.85		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1738	3411			2970		665	486		1073		919
Flt Permitted	0.06	1.00			1.00		0.95	1.00		0.73		1.00
Satd. Flow (perm)	108	3411			2970		665	486		820		919
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)	137	1148	0	0	1447	436	18	0	48	218	0	161
RTOR Reduction (vph)	0	0	0	0	9	0	0	31	0	0	0	120
Lane Group Flow (vph)	137	1148	0	0	1874	0	18	17	0	218	0	41
Confl. Peds. (#/hr)	290		1278	1278		290	658		752	752		658
Heavy Vehicles (%)	5%	7%	0%	0%	1%	13%	72%	0%	95%	4%	0%	7%
Turn Type	pm+pt	NA			NA		pm+pt	NA		Perm		Perm
Protected Phases	5	2			6		3	8				
Permitted Phases	2						8			4		4
Actuated Green, G (s)	74.0	74.0			64.5		50.0	50.0		36.0		36.0
Effective Green, g (s)	74.0	74.0			64.5		50.0	50.0		36.0		36.0
Actuated g/C Ratio	0.53	0.53			0.46		0.36	0.36		0.26		0.26
Clearance Time (s)	3.0	8.0			8.0		3.0	8.0		8.0		8.0
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0		3.0
Lane Grp Cap (vph)	132	1802			1368		237	173		210		236
v/s Ratio Prot	c0.05	0.34			c0.63		0.01	c0.04				
v/s Ratio Perm	0.50						0.02			c0.27		0.05
v/c Ratio	1.04	0.64			1.37		0.08	0.10		1.04		0.18
Uniform Delay, d1	38.5	23.5			37.8		29.7	30.0		52.0		40.5
Progression Factor	1.51	1.06			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	64.4	0.8			171.3		0.6	1.1		72.4		1.6
Delay (s)	122.5	25.8			209.1		30.4	31.1		124.4		42.1
Level of Service	F	C			F		C	C		F		D
Approach Delay (s)		36.1			209.1			30.9			89.4	
Approach LOS		D			F			C			F	

Intersection Summary			
HCM 2000 Control Delay	131.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	105.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	329	1490	260	1266	366	399	123	578
v/c Ratio	2.25	0.93	1.56	0.68	1.72	0.98	0.72	1.41
Control Delay	586.6	25.2	293.6	4.6	367.9	87.0	57.5	235.2
Queue Delay	0.0	7.0	0.0	0.7	0.0	0.0	0.0	0.1
Total Delay	586.6	32.2	293.6	5.3	367.9	87.0	57.5	235.3
Queue Length 50th (m)	~149.2	123.2	~89.0	17.5	~132.2	103.2	23.6	~200.4
Queue Length 95th (m)	m#125.5	m99.7	m#58.1	m16.0	#194.6	#168.6	#39.8	#272.1
Internal Link Dist (m)		171.5		202.3		102.8		69.7
Turn Bay Length (m)	65.0		70.0		45.0		30.0	
Base Capacity (vph)	146	1597	167	1861	213	409	170	409
Starvation Cap Reductn	0	96	0	221	0	0	0	0
Spillback Cap Reductn	0	0	0	280	0	0	0	5
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.25	0.99	1.56	0.80	1.72	0.98	0.72	1.43

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)	322	874	586	255	1075	166	359	204	187	121	183	383
Future Volume (vph)	322	874	586	255	1075	166	359	204	187	121	183	383
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99		1.00	0.98	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.98		1.00	0.93		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1797	3263		1615	3325		1772	1592		1436	1613	
Flt Permitted	0.17	1.00		0.06	1.00		0.12	1.00		0.20	1.00	
Satd. Flow (perm)	317	3263		100	3325		219	1592		303	1613	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	329	892	598	260	1097	169	366	208	191	123	187	391
RTOR Reduction (vph)	0	83	0	0	9	0	0	23	0	0	52	0
Lane Group Flow (vph)	329	1408	0	260	1257	0	366	376	0	123	526	0
Confl. Peds. (#/hr)	17		10	10		17	13		10	10		13
Heavy Vehicles (%)	1%	6%	1%	13%	4%	24%	3%	1%	21%	27%	2%	6%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	65.0	65.0		78.0	78.0		46.0	34.0		40.0	31.0	
Effective Green, g (s)	65.0	65.0		78.0	78.0		46.0	34.0		40.0	31.0	
Actuated g/C Ratio	0.46	0.46		0.56	0.56		0.33	0.24		0.29	0.22	
Clearance Time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	147	1514		163	1852		205	386		159	357	
v/s Ratio Prot		0.43		c0.11	0.38		c0.15	0.24		0.05	0.33	
v/s Ratio Perm	c1.04			0.77			c0.43			0.17		
v/c Ratio	2.24	0.93		1.60	0.68		1.79	0.97		0.77	1.47	
Uniform Delay, d1	37.5	35.3		42.8	22.1		39.8	52.5		41.3	54.5	
Progression Factor	0.78	0.74		1.91	0.20		1.00	1.00		1.00	1.00	
Incremental Delay, d2	559.1	1.4		270.4	0.2		372.4	39.5		20.5	227.5	
Delay (s)	588.3	27.4		352.0	4.6		412.2	92.0		61.8	282.0	
Level of Service	F	C		F	A		F	F		E	F	
Approach Delay (s)		128.9			63.8			245.2			243.4	
Approach LOS		F			E			F			F	

Intersection Summary			
HCM 2000 Control Delay	143.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.06		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	131.4%	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)	232	946	329	1690	23	526	249	861	698
v/c Ratio	4.22	0.56	1.10	0.87	0.43	1.48	0.64	3.03	1.17
Control Delay	1474.7	29.0	82.5	26.5	76.4	268.8	26.4	940.8	132.0
Queue Delay	0.0	0.3	0.0	10.8	0.0	0.0	0.1	0.0	0.0
Total Delay	1474.7	29.4	82.5	37.3	76.4	268.8	26.5	940.8	132.0
Queue Length 50th (m)	~118.5	110.5	~52.6	187.7	5.7	~199.7	21.1	~399.3	~224.9
Queue Length 95th (m)	m#119.8	m76.2	m#63.4	m155.8	#17.0	#268.1	51.5	#477.4	#299.5
Internal Link Dist (m)		161.5		171.5		57.8			70.0
Turn Bay Length (m)	80.0		55.0		45.0			30.0	
Base Capacity (vph)	55	1693	300	1934	54	356	390	284	599
Starvation Cap Reductn	0	264	0	249	0	0	0	0	0
Spillback Cap Reductn	0	138	0	69	0	0	6	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	4.22	0.66	1.10	1.00	0.43	1.48	0.65	3.03	1.17

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)	209	783	68	296	1214	307	21	473	224	775	383	245
Future Volume (vph)	209	783	68	296	1214	307	21	473	224	775	383	245
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		3.0	7.0		7.0	7.0	7.0	3.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.98		1.00	1.00	0.92	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	
Frt	1.00	0.99		1.00	0.97		1.00	1.00	0.85	1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1825	3426		1722	3356		1825	1921	1385	1825	1774	
Flt Permitted	0.06	1.00		0.21	1.00		0.15	1.00	1.00	0.14	1.00	
Satd. Flow (perm)	113	3426		372	3356		296	1921	1385	265	1774	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	232	870	76	329	1349	341	23	526	249	861	426	272
RTOR Reduction (vph)	0	5	0	0	16	0	0	0	134	0	16	0
Lane Group Flow (vph)	232	941	0	329	1674	0	23	526	115	861	682	0
Confl. Peds. (#/hr)	19		14	14		19	18		31	31		18
Heavy Vehicles (%)	0%	5%	0%	6%	3%	5%	0%	0%	9%	0%	0%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		2		1	6			8		7	4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	69.0	69.0		80.0	80.0		26.0	26.0	26.0	46.0	46.0	
Effective Green, g (s)	69.0	69.0		80.0	80.0		26.0	26.0	26.0	46.0	46.0	
Actuated g/C Ratio	0.49	0.49		0.57	0.57		0.19	0.19	0.19	0.33	0.33	
Clearance Time (s)	7.0	7.0		3.0	7.0		7.0	7.0	7.0	3.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	55	1688		289	1917		54	356	257	276	582	
v/s Ratio Prot		0.27		c0.06	0.50			0.27		c0.38	0.38	
v/s Ratio Perm	c2.05			0.58			0.08		0.08	c0.65		
v/c Ratio	4.22	0.56		1.14	0.87		0.43	1.48	0.45	3.12	1.17	
Uniform Delay, d1	35.5	24.8		28.0	25.7		50.4	57.0	50.6	40.7	47.0	
Progression Factor	1.20	1.15		1.14	0.96		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1461.5	0.4		75.6	2.0		22.7	229.5	5.6	963.3	94.5	
Delay (s)	1504.1	29.0		107.5	26.5		73.1	286.5	56.2	1004.0	141.5	
Level of Service	F	C		F	C		E	F	E	F	F	
Approach Delay (s)		319.5			39.7			208.5			617.8	
Approach LOS		F			D			F			F	

Intersection Summary			
HCM 2000 Control Delay	285.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	3.65		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	144.0%	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)	89	538	357	1234	24	1767	360	1221
v/c Ratio	0.64	0.40	1.34	1.10	0.15	1.38	1.46	0.79
Control Delay	46.2	31.4	195.2	84.3	18.2	212.4	257.9	39.1
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	46.2	31.4	195.2	84.4	18.2	212.4	257.9	39.1
Queue Length 50th (m)	14.8	55.2	~127.2	~144.1	3.1	~341.3	~119.5	151.7
Queue Length 95th (m)	#29.5	70.6 m	#148.5 m	#214.5	7.7	#384.0	#181.3	179.5
Internal Link Dist (m)		170.1		161.5		203.8		248.3
Turn Bay Length (m)	50.0		50.0		65.0		100.0	
Base Capacity (vph)	139	1348	266	1122	162	1277	247	1548
Starvation Cap Reductn	0	0	0	7	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	0.64	0.40	1.34	1.11	0.15	1.38	1.46	0.79

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)	83	450	50	332	817	331	22	1368	275	335	1133	3
Future Volume (vph)	83	450	50	332	817	331	22	1368	275	335	1133	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		0.98	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.96		1.00	0.97		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)	1755	3448		1743	3395		1789	3440		1772	3612	
Flt Permitted	0.08	1.00		0.45	1.00		0.11	1.00		0.07	1.00	
Satd. Flow (perm)	154	3448		829	3395		198	3440		137	3612	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	89	484	54	357	878	356	24	1471	296	360	1218	3
RTOR Reduction (vph)	0	6	0	0	31	0	0	12	0	0	0	0
Lane Group Flow (vph)	89	532	0	357	1203	0	24	1755	0	360	1221	0
Confl. Peds. (#/hr)	5		23	23		5	8		13	13		8
Heavy Vehicles (%)	4%	4%	2%	3%	2%	3%	2%	2%	7%	3%	1%	4%
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	54.5	54.5		45.0	45.0		58.0	51.5		69.5	60.0	
Effective Green, g (s)	54.5	54.5		45.0	45.0		58.0	51.5		69.5	60.0	
Actuated g/C Ratio	0.39	0.39		0.32	0.32		0.41	0.37		0.50	0.43	
Clearance Time (s)	3.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	134	1342		266	1091		155	1265		243	1548	
v/s Ratio Prot	c0.03	0.15			0.35		0.01	0.51		c0.16	0.34	
v/s Ratio Perm	0.23			c0.43			0.06			c0.58		
v/c Ratio	0.66	0.40		1.34	1.10		0.15	1.39		1.48	0.79	
Uniform Delay, d1	34.8	30.9		47.5	47.5		27.3	44.2		45.0	34.5	
Progression Factor	1.00	1.00		0.76	0.75		1.00	1.00		1.00	1.00	
Incremental Delay, d2	23.1	0.9		163.6	52.2		2.1	179.3		237.5	4.2	
Delay (s)	57.8	31.7		199.9	87.8		29.4	223.5		282.4	38.7	
Level of Service	E	C		F	F		C	F		F	D	
Approach Delay (s)		35.4			113.0			220.9			94.2	
Approach LOS		D			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	133.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.41		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	130.4%	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)	13	82	45	388	49	589	264	743
v/c Ratio	0.09	0.20	0.15	0.63	0.20	0.58	0.76	0.72
Control Delay	25.0	10.3	25.1	13.6	11.1	14.2	31.0	17.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3
Total Delay	25.0	10.3	25.1	13.6	11.1	14.2	31.0	21.1
Queue Length 50th (m)	1.5	2.0	5.3	14.3	3.4	53.3	28.3	76.0
Queue Length 95th (m)	4.9	8.6	11.0	24.0	7.4	61.0	44.0	83.0
Internal Link Dist (m)		141.1		97.5		112.5		34.9
Turn Bay Length (m)	20.0		20.0		25.0		25.0	
Base Capacity (vph)	146	420	299	614	250	1016	347	1030
Starvation Cap Reductn	0	0	0	0	0	0	0	193
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	0.09	0.20	0.15	0.63	0.20	0.58	0.76	0.89

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	13	49	34	50	241	37	433	9	198	521	36
Future Volume (vph)	10	13	49	34	50	241	37	433	9	198	521	36
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	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.91		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.91	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.88		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)	1814	1487		1614	1639		1813	1805		1708	1828	
Flt Permitted	0.31	1.00		0.70	1.00		0.23	1.00		0.34	1.00	
Satd. Flow (perm)	585	1487		1195	1639		445	1805		618	1828	
Peak-hour factor, PHF	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Adj. Flow (vph)	13	17	65	45	67	321	49	577	12	264	695	48
RTOR Reduction (vph)	0	49	0	0	204	0	0	1	0	0	3	0
Lane Group Flow (vph)	13	33	0	45	184	0	49	588	0	264	740	0
Confl. Peds. (#/hr)	11		50	50		11	16		12	12		16
Heavy Vehicles (%)	0%	0%	4%	3%	3%	0%	0%	6%	7%	6%	4%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	20.0	20.0		20.0	20.0		45.0	45.0		45.0	45.0	
Effective Green, g (s)	20.0	20.0		20.0	20.0		45.0	45.0		45.0	45.0	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.56	0.56		0.56	0.56	
Clearance Time (s)	8.0	8.0		8.0	8.0		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)	146	371		298	409		250	1015		347	1028	
v/s Ratio Prot		0.02			c0.11			0.33			0.40	
v/s Ratio Perm	0.02			0.04			0.11			c0.43		
v/c Ratio	0.09	0.09		0.15	0.45		0.20	0.58		0.76	0.72	
Uniform Delay, d1	23.0	23.0		23.4	25.4		8.6	11.4		13.4	12.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	0.5		1.1	3.5		1.7	2.4		14.5	4.3	
Delay (s)	24.2	23.5		24.5	28.9		10.4	13.8		27.9	17.2	
Level of Service	C	C		C	C		B	B		C	B	
Approach Delay (s)		23.6			28.4			13.5			20.0	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	2238	326	395	693	361
v/c Ratio	1.48dr	1.09	0.20	1.13	0.52
Control Delay	88.5	116.2	15.7	119.9	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	88.5	116.2	15.7	119.9	16.1
Queue Length 50th (m)	~242.1	~84.2	27.6	~221.9	28.5
Queue Length 95th (m)	#270.3	#144.2	36.5	#296.0	58.4
Internal Link Dist (m)	613.2		380.5	100.9	
Turn Bay Length (m)		50.0		45.0	
Base Capacity (vph)	2036	300	1994	613	696
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	1.10	1.09	0.20	1.13	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.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	981	1078	300	363	638	332
Future Volume (vph)	981	1078	300	363	638	332
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0		3.0	7.0	7.0	7.0
Lane Util. Factor	0.91		1.00	0.95	1.00	1.00
Frt	0.92		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	4738		1789	3579	1789	1601
Flt Permitted	1.00		0.07	1.00	0.95	1.00
Satd. Flow (perm)	4738		128	3579	1789	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1066	1172	326	395	693	361
RTOR Reduction (vph)	142	0	0	0	0	147
Lane Group Flow (vph)	2096	0	326	395	693	214
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Actuated Green, G (s)	56.0		78.0	78.0	48.0	48.0
Effective Green, g (s)	56.0		78.0	78.0	48.0	48.0
Actuated g/C Ratio	0.40		0.56	0.56	0.34	0.34
Clearance Time (s)	7.0		3.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1895		296	1994	613	548
v/s Ratio Prot	0.44		c0.15	0.11	c0.39	
v/s Ratio Perm			c0.46			0.13
v/c Ratio	1.48dr		1.10	0.20	1.13	0.39
Uniform Delay, d1	42.0		47.1	15.4	46.0	34.9
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	56.2		82.3	0.2	77.9	0.5
Delay (s)	98.2		129.4	15.7	123.9	35.4
Level of Service	F		F	B	F	D
Approach Delay (s)	98.2			67.1	93.6	
Approach LOS	F			E	F	

Intersection Summary			
HCM 2000 Control Delay	91.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	110.1%	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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	27	121	8	34	33	554	105	12	538	4
Future Volume (Veh/h)	5	0	27	121	8	34	33	554	105	12	538	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	0	29	132	9	37	36	602	114	13	585	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)								94				
pX, platoon unblocked	0.88	0.88		0.88	0.88	0.88				0.88		
vC, conflicting volume	1328	1401	587	1371	1346	659	589			716		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1306	1388	587	1354	1326	548	589			612		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	100	94	0	93	92	96			98		
cM capacity (veh/h)	102	120	510	102	130	474	986			854		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	5	29	132	46	36	716	13	589
Volume Left	5	0	132	0	36	0	13	0
Volume Right	0	29	0	37	0	114	0	4
cSH	102	510	102	313	986	1700	854	1700
Volume to Capacity	0.05	0.06	1.30	0.15	0.04	0.42	0.02	0.35
Queue Length 95th (m)	1.2	1.4	69.9	3.9	0.9	0.0	0.4	0.0
Control Delay (s)	42.3	12.5	267.2	18.5	8.8	0.0	9.3	0.0
Lane LOS	E	B	F	C	A		A	
Approach Delay (s)	16.9		202.9		0.4		0.2	
Approach LOS	C		F					

Intersection Summary			
Average Delay	23.7		
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	4	70	63	4	78	105	398	31	51	217	35
Future Volume (Veh/h)	13	4	70	63	4	78	105	398	31	51	217	35
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	4	76	68	4	85	114	433	34	55	236	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)								89			120	
pX, platoon unblocked	0.98	0.98		0.98	0.98	0.98				0.98		
vC, conflicting volume	1113	1060	255	1102	1062	450	274			467		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1103	1049	255	1092	1051	424	274			441		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	90	98	90	54	98	86	91			95		
cM capacity (veh/h)	140	192	784	149	192	615	1289			1092		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	94	157	114	467	55	274
Volume Left	14	68	114	0	55	0
Volume Right	76	85	0	34	0	38
cSH	432	256	1289	1700	1092	1700
Volume to Capacity	0.22	0.61	0.09	0.27	0.05	0.16
Queue Length 95th (m)	6.2	28.0	2.2	0.0	1.2	0.0
Control Delay (s)	15.6	39.2	8.1	0.0	8.5	0.0
Lane LOS	C	E	A		A	
Approach Delay (s)	15.6	39.2	1.6		1.4	
Approach LOS	C	E				

Intersection Summary				
Average Delay	7.8			
Intersection Capacity Utilization	51.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	31	37	680	4	23	724
Future Volume (Veh/h)	31	37	680	4	23	724
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)	34	40	739	4	25	787
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			59			82
pX, platoon unblocked	0.60					
vC, conflicting volume	1578	372			743	
vC1, stage 1 conf vol	741					
vC2, stage 2 conf vol	837					
vCu, unblocked vol	1631	372			743	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	88	94			97	
cM capacity (veh/h)	280	626			860	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	74	493	250	25	787
Volume Left	34	0	0	25	0
Volume Right	40	0	4	0	0
cSH	399	1700	1700	860	1700
Volume to Capacity	0.19	0.29	0.15	0.03	0.46
Queue Length 95th (m)	5.1	0.0	0.0	0.7	0.0
Control Delay (s)	16.1	0.0	0.0	9.3	0.0
Lane LOS	C			A	
Approach Delay (s)	16.1	0.0		0.3	
Approach LOS	C				

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	48.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1306	7	0	663	0	43
Future Volume (Veh/h)	1306	7	0	663	0	43
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)	1420	8	0	721	0	47
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)				58		
pX, platoon unblocked					0.97	
vC, conflicting volume			1428		1780	710
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1428		1736	710
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	88
cM capacity (veh/h)			472		76	376

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	710	710	8	360	360	47
Volume Left	0	0	0	0	0	0
Volume Right	0	0	8	0	0	47
cSH	1700	1700	1700	1700	1700	376
Volume to Capacity	0.42	0.42	0.00	0.21	0.21	0.12
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	3.2
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	15.9
Lane LOS						C
Approach Delay (s)	0.0			0.0		15.9
Approach LOS						C

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	10	0	22	40	0	7	7	952	29	15	1340	23
Future Volume (vph)	10	0	22	40	0	7	7	952	29	15	1340	23
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	0	24	43	0	8	8	1035	32	16	1457	25

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	35	51	8	1067	16	1482
Volume Left (vph)	11	43	8	0	16	0
Volume Right (vph)	24	8	0	32	0	25
Hadj (s)	-0.31	0.11	0.53	0.01	0.53	0.02
Departure Headway (s)	6.9	7.2	6.0	5.4	6.0	5.4
Degree Utilization, x	0.07	0.10	0.01	1.61	0.03	2.24
Capacity (veh/h)	510	483	594	668	596	674
Control Delay (s)	10.4	11.0	7.8	297.3	7.9	575.0
Approach Delay (s)	10.4	11.0	295.1		568.9	
Approach LOS	B	B	F		F	

Intersection Summary			
Delay	440.2		
Level of Service	F		
Intersection Capacity Utilization	84.8%	ICU Level of Service	E
Analysis Period (min)	15		

Queues
100: Mavis Road & Highway 403 EB Off-Ramp/Centre View Drive

11/07/2017

Lane Group	EBL	EBR	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	351	199	73	1242	2201	1693
v/c Ratio	0.23	0.29	0.09	1.71	0.77	0.76
Control Delay	23.6	21.2	15.7	348.4	34.7	35.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.6	21.2	15.7	348.4	34.7	35.0
Queue Length 50th (m)	29.8	28.3	10.1	~511.0	146.8	141.3
Queue Length 95th (m)	40.2	46.2	m15.3	#592.9	160.6	159.7
Internal Link Dist (m)					73.6	241.1
Turn Bay Length (m)		150.0				
Base Capacity (vph)	1526	683	779	727	2856	2226
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	0.23	0.29	0.09	1.71	0.77	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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	316	0	179	66	0	1118	0	1953	28	0	1524	0
Future Volume (vph)	316	0	179	66	0	1118	0	1953	28	0	1524	0
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		7.0			7.0	
Lane Util. Factor	0.97		1.00	1.00		1.00		0.86			0.91	
Frt	1.00		0.85	1.00		0.85		1.00			1.00	
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (prot)	3340		1458	1706		1555		6344			4948	
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (perm)	3340		1458	1706		1555		6344			4948	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	351	0	199	73	0	1242	0	2170	31	0	1693	0
RTOR Reduction (vph)	0	0	17	0	0	17	0	1	0	0	0	0
Lane Group Flow (vph)	351	0	182	73	0	1225	0	2200	0	0	1693	0
Heavy Vehicles (%)	6%	0%	12%	7%	0%	5%	0%	4%	0%	0%	6%	0%
Turn Type	Perm		Perm	Perm		Perm		NA			NA	
Protected Phases								2			6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	64.0		64.0	64.0		64.0		63.0			63.0	
Effective Green, g (s)	64.0		64.0	64.0		64.0		63.0			63.0	
Actuated g/C Ratio	0.46		0.46	0.46		0.46		0.45			0.45	
Clearance Time (s)	6.0		6.0	6.0		6.0		7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0		3.0		3.0			3.0	
Lane Grp Cap (vph)	1526		666	779		710		2854			2226	
v/s Ratio Prot								c0.35			0.34	
v/s Ratio Perm	0.11		0.12	0.04		c0.79						
v/c Ratio	0.23		0.27	0.09		1.73		0.77			0.76	
Uniform Delay, d1	23.1		23.6	21.6		38.0		32.4			32.2	
Progression Factor	1.00		1.00	0.71		0.77		1.00			1.00	
Incremental Delay, d2	0.4		1.0	0.2		332.0		2.1			2.5	
Delay (s)	23.4		24.6	15.5		361.4		34.5			34.7	
Level of Service	C		C	B		F		C			C	
Approach Delay (s)		23.8			342.2			34.5			34.7	
Approach LOS		C			F			C			C	

Intersection Summary			
HCM 2000 Control Delay	103.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	121.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL
Lane Group Flow (vph)	190	753	110	813	384
v/c Ratio	0.13	0.48	0.22	0.52	0.25
Control Delay	23.5	9.3	24.9	29.1	18.1
Queue Delay	0.0	0.1	0.0	0.0	0.0
Total Delay	23.5	9.3	24.9	29.1	18.1
Queue Length 50th (m)	10.3	89.2	18.3	83.7	26.1
Queue Length 95th (m)	23.1	169.1	31.5	102.5	m31.5
Internal Link Dist (m)	220.9			135.6	92.8
Turn Bay Length (m)			60.0		
Base Capacity (vph)	1416	1585	510	1564	1529
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	98	7	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.13	0.51	0.22	0.52	0.25

Intersection Summary

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	171	678	99	732	313	32
Future Volume (vph)	171	678	99	732	313	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	1.00	1.00	0.95	1.00	0.96	
Satd. Flow (prot)	3147	1585	1706	3476	3385	
Flt Permitted	1.00	1.00	0.63	1.00	0.96	
Satd. Flow (perm)	3147	1585	1135	3476	3385	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	190	753	110	813	348	36
RTOR Reduction (vph)	0	0	0	0	6	0
Lane Group Flow (vph)	190	753	110	813	379	0
Heavy Vehicles (%)	16%	3%	7%	5%	3%	12%
Turn Type	NA	pm+ov	Perm	NA	Prot	
Protected Phases	2	8		6	8	
Permitted Phases		2	6			
Actuated Green, G (s)	63.0	126.0	63.0	63.0	63.0	
Effective Green, g (s)	63.0	126.0	63.0	63.0	63.0	
Actuated g/C Ratio	0.45	0.90	0.45	0.45	0.45	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1416	1585	510	1564	1523	
v/s Ratio Prot	0.06	c0.21		0.23	0.11	
v/s Ratio Perm		0.26	0.10			
v/c Ratio	0.13	0.48	0.22	0.52	0.25	
Uniform Delay, d1	22.5	1.2	23.5	27.6	23.8	
Progression Factor	1.03	1.00	1.00	1.00	0.76	
Incremental Delay, d2	0.2	0.9	1.0	1.2	0.3	
Delay (s)	23.3	2.2	24.4	28.9	18.5	
Level of Service	C	A	C	C	B	
Approach Delay (s)	6.4			28.3	18.5	
Approach LOS	A			C	B	

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)	140.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	197	44	54	818	95	30
v/c Ratio	0.08	0.05	0.07	0.31	0.47	0.14
Control Delay	4.1	0.7	4.7	4.9	40.7	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.1	0.7	4.7	4.9	40.7	13.0
Queue Length 50th (m)	4.2	0.1	2.2	21.5	13.7	0.0
Queue Length 95th (m)	8.5	0.3	6.3	34.9	27.4	7.0
Internal Link Dist (m)	33.9			146.8	95.7	
Turn Bay Length (m)			60.0		35.0	
Base Capacity (vph)	2469	1081	787	2659	599	589
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	0.04	0.07	0.31	0.16	0.05

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	179	40	49	744	86	27
Future Volume (vph)	179	40	49	744	86	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.86	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	0.89	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3259	1144	1613	3510	1587	1512
Flt Permitted	1.00	1.00	0.63	1.00	0.95	1.00
Satd. Flow (perm)	3259	1144	1066	3510	1587	1512
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	197	44	54	818	95	30
RTOR Reduction (vph)	0	0	0	0	0	27
Lane Group Flow (vph)	197	44	54	818	95	3
Confl. Peds. (#/hr)		71	71			
Heavy Vehicles (%)	12%	23%	1%	4%	15%	8%
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	2	8		6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	60.8	69.6	60.8	60.8	8.8	8.8
Effective Green, g (s)	60.8	69.6	60.8	60.8	8.8	8.8
Actuated g/C Ratio	0.73	0.83	0.73	0.73	0.11	0.11
Clearance Time (s)	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
Lane Grp Cap (vph)	2370	1144	775	2552	167	159
v/s Ratio Prot	0.06	0.00		c0.23	c0.06	
v/s Ratio Perm		0.03	0.05			0.00
v/c Ratio	0.08	0.04	0.07	0.32	0.57	0.02
Uniform Delay, d1	3.3	1.2	3.3	4.1	35.6	33.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.2	0.3	4.4	0.1
Delay (s)	3.4	1.2	3.4	4.4	40.0	33.6
Level of Service	A	A	A	A	D	C
Approach Delay (s)	3.0			4.3	38.5	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	7.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	83.6	Sum of lost time (s)	14.0
Intersection Capacity Utilization	48.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	26	918	1435	18	48	78	22
v/c Ratio	0.20	0.51	0.89	0.06	0.23	0.37	0.07
Control Delay	28.3	33.7	40.6	27.1	7.0	48.9	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.3	33.7	40.6	27.1	7.0	48.9	0.5
Queue Length 50th (m)	3.4	86.3	193.5	3.1	0.0	17.8	0.0
Queue Length 95th (m)	m5.4	110.8	#244.3	8.4	6.3	34.0	0.0
Internal Link Dist (m)		202.3	126.7		25.6		
Turn Bay Length (m)	70.0					20.0	
Base Capacity (vph)	137	1802	1621	285	213	210	300
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	0.19	0.51	0.89	0.06	0.23	0.37	0.07

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)	24	845	0	0	1181	139	17	0	44	72	0	20
Future Volume (vph)	24	845	0	0	1181	139	17	0	44	72	0	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	8.0			8.0		3.0	8.0		8.0		8.0
Lane Util. Factor	1.00	0.95			0.95		1.00	1.00		1.00		1.00
Frpb, ped/bikes	1.00	1.00			0.94		1.00	0.58		1.00		0.60
Flpb, ped/bikes	1.00	1.00			1.00		0.63	1.00		0.61		1.00
Frt	1.00	1.00			0.98		1.00	0.85		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1738	3411			3313		665	486		1073		919
Flt Permitted	0.06	1.00			1.00		0.95	1.00		0.73		1.00
Satd. Flow (perm)	108	3411			3313		665	486		820		919
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	918	0	0	1284	151	18	0	48	78	0	22
RTOR Reduction (vph)	0	0	0	0	6	0	0	31	0	0	0	16
Lane Group Flow (vph)	26	918	0	0	1429	0	18	17	0	78	0	6
Confl. Peds. (#/hr)	290		1278	1278		290	658		752	752		658
Heavy Vehicles (%)	5%	7%	0%	0%	1%	13%	72%	0%	95%	4%	0%	7%
Turn Type	pm+pt	NA			NA		pm+pt	NA		Perm		Perm
Protected Phases	5	2			6		3	8				
Permitted Phases	2						8			4		4
Actuated Green, G (s)	74.0	74.0			67.1		50.0	50.0		36.0		36.0
Effective Green, g (s)	74.0	74.0			67.1		50.0	50.0		36.0		36.0
Actuated g/C Ratio	0.53	0.53			0.48		0.36	0.36		0.26		0.26
Clearance Time (s)	3.0	8.0			8.0		3.0	8.0		8.0		8.0
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0		3.0
Lane Grp Cap (vph)	102	1802			1587		237	173		210		236
v/s Ratio Prot	0.01	c0.27			c0.43		0.01	c0.04				
v/s Ratio Perm	0.13						0.02			c0.10		0.01
v/c Ratio	0.25	0.51			0.90		0.08	0.10		0.37		0.02
Uniform Delay, d1	24.6	21.3			33.4		29.7	30.0		42.7		38.9
Progression Factor	1.90	1.53			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	1.0	0.7			8.6		0.6	1.1		5.0		0.2
Delay (s)	47.7	33.4			42.0		30.4	31.1		47.7		39.1
Level of Service	D	C			D		C	C		D		D
Approach Delay (s)		33.8			42.0			30.9			45.8	
Approach LOS		C			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	38.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	91.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	58	774	140	1102	182	426	81	818
v/c Ratio	1.00	0.81	0.74	0.88	0.99	0.55	0.23	1.03
Control Delay	145.1	34.5	35.9	19.8	97.9	31.3	11.5	69.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.4
Total Delay	145.1	34.5	35.9	19.8	97.9	31.3	11.5	92.7
Queue Length 50th (m)	5.8	40.8	7.8	49.8	34.3	83.8	5.0	~242.7
Queue Length 95th (m)	m#37.5	84.8	m14.5	113.1	#83.9	116.7	15.7	#316.1
Internal Link Dist (m)		171.5		202.3		102.8		69.7
Turn Bay Length (m)	65.0		70.0		45.0		30.0	
Base Capacity (vph)	58	953	188	1252	184	776	363	791
Starvation Cap Reductn	0	0	0	0	0	0	0	45
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	0.81	0.74	0.88	0.99	0.55	0.22	1.10

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.

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)	57	693	66	137	1014	66	178	320	97	79	718	83
Future Volume (vph)	57	693	66	137	1014	66	178	320	97	79	718	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.97		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1801	3405		1615	3430		1772	1744		1434	1840	
Flt Permitted	0.11	1.00		0.15	1.00		0.06	1.00		0.39	1.00	
Satd. Flow (perm)	210	3405		253	3430		121	1744		587	1840	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	58	707	67	140	1035	67	182	327	99	81	733	85
RTOR Reduction (vph)	0	5	0	0	3	0	0	8	0	0	3	0
Lane Group Flow (vph)	58	769	0	140	1099	0	182	418	0	81	815	0
Confl. Peds. (#/hr)	17		10	10		17	13		10	10		13
Heavy Vehicles (%)	1%	6%	1%	13%	4%	24%	3%	1%	21%	27%	2%	6%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	39.0	39.0		51.0	51.0		71.7	61.7		68.3	60.0	
Effective Green, g (s)	39.0	39.0		51.0	51.0		71.7	61.7		68.3	60.0	
Actuated g/C Ratio	0.28	0.28		0.36	0.36		0.51	0.44		0.49	0.43	
Clearance Time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	58	948		179	1249		179	768		336	788	
v/s Ratio Prot		0.23		0.05	c0.32		c0.07	0.24		0.01	0.44	
v/s Ratio Perm	c0.28			0.23			c0.45			0.10		
v/c Ratio	1.00	0.81		0.78	0.88		1.02	0.54		0.24	1.03	
Uniform Delay, d1	50.5	47.1		33.8	41.6		42.6	28.8		20.3	40.0	
Progression Factor	0.62	0.60		0.77	0.35		1.00	1.00		0.68	0.71	
Incremental Delay, d2	107.6	6.3		10.3	4.7		71.7	2.8		0.4	40.3	
Delay (s)	139.0	34.4		36.4	19.3		114.3	31.6		14.2	68.8	
Level of Service	F	C		D	B		F	C		B	E	
Approach Delay (s)		41.7			21.2			56.3			63.8	
Approach LOS		D			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	42.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	113.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	39	867	172	1244	18	366	136	170	224
v/c Ratio	0.27	0.63	0.48	0.65	0.06	0.40	0.36	0.25	0.38
Control Delay	25.3	26.2	19.7	10.3	40.1	41.7	31.5	33.0	27.0
Queue Delay	0.0	0.9	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Total Delay	25.3	27.1	19.7	10.5	40.1	41.7	31.5	33.0	27.0
Queue Length 50th (m)	5.3	68.6	9.4	44.1	3.8	41.7	24.8	33.1	34.2
Queue Length 95th (m)	m6.8	m55.4	m15.2	m49.8	10.4	56.8	40.1	51.2	56.8
Internal Link Dist (m)		161.5		171.5		57.8		70.0	
Turn Bay Length (m)	80.0		55.0		45.0		30.0		
Base Capacity (vph)	142	1381	358	1911	316	909	384	686	590
Starvation Cap Reductn	0	248	0	130	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	0.27	0.77	0.48	0.70	0.06	0.40	0.35	0.25	0.38

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)	35	627	153	155	1081	39	16	261	68	122	153	202
Future Volume (vph)	35	627	153	155	1081	39	16	261	68	122	153	202
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		3.0	7.0		7.0	7.0		3.0	7.0	7.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.98		1.00	1.00	0.95
Flpb, ped/bikes	0.99	1.00		1.00	1.00		0.97	1.00		0.99	1.00	1.00
Frt	1.00	0.97		1.00	0.99		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1815	3355		1722	3516		1771	3417		1803	1921	1553
Flt Permitted	0.18	1.00		0.20	1.00		0.65	1.00		0.42	1.00	1.00
Satd. Flow (perm)	349	3355		354	3516		1211	3417		798	1921	1553
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	39	697	170	172	1201	43	18	290	76	136	170	224
RTOR Reduction (vph)	0	15	0	0	2	0	0	16	0	0	0	35
Lane Group Flow (vph)	39	852	0	172	1242	0	18	350	0	136	170	189
Confl. Peds. (#/hr)	19		14	14		19	18		31	31		18
Heavy Vehicles (%)	0%	5%	0%	6%	3%	5%	0%	0%	9%	0%	0%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		2		1	6			8		7	4	
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)	57.0	57.0		76.0	76.0		36.6	36.6		50.0	50.0	50.0
Effective Green, g (s)	57.0	57.0		76.0	76.0		36.6	36.6		50.0	50.0	50.0
Actuated g/C Ratio	0.41	0.41		0.54	0.54		0.26	0.26		0.36	0.36	0.36
Clearance Time (s)	7.0	7.0		3.0	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
Lane Grp Cap (vph)	142	1365		348	1908		316	893		359	686	554
v/s Ratio Prot		0.25		0.06	c0.35			0.10		c0.03	0.09	
v/s Ratio Perm	0.11			0.21			0.01			c0.11		0.12
v/c Ratio	0.27	0.62		0.49	0.65		0.06	0.39		0.38	0.25	0.34
Uniform Delay, d1	27.7	33.0		19.2	22.6		38.8	42.5		31.6	31.7	32.9
Progression Factor	0.79	0.79		1.19	0.41		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.8	0.8		2.6	0.9		0.3	1.3		0.7	0.9	1.7
Delay (s)	23.7	26.8		25.5	10.2		39.1	43.8		32.3	32.6	34.6
Level of Service	C	C		C	B		D	D		C	C	C
Approach Delay (s)		26.6			12.1			43.6			33.4	
Approach LOS		C			B			D			C	

Intersection Summary			
HCM 2000 Control Delay	23.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	84.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	47	371	189	1208	52	1521	460	1000
v/c Ratio	0.34	0.31	0.70	1.23	0.20	1.22	1.32	0.59
Control Delay	34.1	32.3	73.9	164.3	16.4	145.0	197.0	28.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.1	32.3	73.9	164.3	16.4	145.0	197.0	28.8
Queue Length 50th (m)	8.2	37.0	54.7	~217.9	6.1	~271.6	~147.6	104.4
Queue Length 95th (m)	16.9	50.3	#81.9	#261.3	12.1	#314.6	#214.6	125.5
Internal Link Dist (m)		170.1		161.5		203.8		248.3
Turn Bay Length (m)	50.0		50.0		65.0		100.0	
Base Capacity (vph)	140	1190	270	979	266	1248	349	1701
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	0.34	0.31	0.70	1.23	0.20	1.22	1.32	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)	44	281	64	176	765	358	48	1309	105	428	923	7
Future Volume (vph)	44	281	64	176	765	358	48	1309	105	428	923	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		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		0.98	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	0.95		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)	1755	3395		1735	3376		1788	3517		1772	3608	
Flt Permitted	0.10	1.00		0.53	1.00		0.25	1.00		0.08	1.00	
Satd. Flow (perm)	176	3395		970	3376		473	3517		142	3608	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	47	302	69	189	823	385	52	1408	113	460	992	8
RTOR Reduction (vph)	0	14	0	0	40	0	0	5	0	0	1	0
Lane Group Flow (vph)	47	357	0	189	1168	0	52	1516	0	460	999	0
Confl. Peds. (#/hr)	5		23	23		5	8		13	13		8
Heavy Vehicles (%)	4%	4%	2%	3%	2%	3%	2%	2%	7%	3%	1%	4%
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	48.5	48.5		39.0	39.0		56.0	49.5		75.5	66.0	
Effective Green, g (s)	48.5	48.5		39.0	39.0		56.0	49.5		75.5	66.0	
Actuated g/C Ratio	0.35	0.35		0.28	0.28		0.40	0.35		0.54	0.47	
Clearance Time (s)	3.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	134	1176		270	940		250	1243		344	1700	
v/s Ratio Prot	c0.02	0.11			c0.35		0.01	0.43		c0.22	0.28	
v/s Ratio Perm	0.11			0.19			0.07			c0.50		
v/c Ratio	0.35	0.30		0.70	1.24		0.21	1.22		1.34	0.59	
Uniform Delay, d1	36.0	33.4		45.3	50.5		26.1	45.2		46.4	27.1	
Progression Factor	1.00	1.00		1.35	1.36		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.1	0.7		11.5	116.7		1.9	106.5		170.2	1.5	
Delay (s)	43.1	34.1		72.4	185.4		28.0	151.7		216.6	28.6	
Level of Service	D	C		E	F		C	F		F	C	
Approach Delay (s)		35.1			170.1			147.6			87.8	
Approach LOS		D			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	126.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.28		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	120.3%	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)	13	58	23	77	20	399	40	603
v/c Ratio	0.04	0.14	0.08	0.17	0.06	0.39	0.08	0.59
Control Delay	23.3	12.0	23.9	17.5	8.5	11.2	8.6	14.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2
Total Delay	23.3	12.0	23.9	17.5	8.5	11.2	8.6	15.3
Queue Length 50th (m)	1.5	2.0	2.7	5.8	1.3	31.0	2.6	54.3
Queue Length 95th (m)	4.7	7.9	6.8	12.5	3.5	38.0	5.6	61.9
Internal Link Dist (m)		141.1		97.5		112.5		34.9
Turn Bay Length (m)	20.0		20.0		25.0		25.0	
Base Capacity (vph)	335	413	304	462	356	1013	495	1029
Starvation Cap Reductn	0	0	0	0	0	0	0	220
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	0.14	0.08	0.17	0.06	0.39	0.08	0.75

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	13	31	17	37	21	15	287	12	30	416	36
Future Volume (vph)	10	13	31	17	37	21	15	287	12	30	416	36
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	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.92		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.91	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.89		1.00	0.95		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1803	1531		1608	1766		1806	1798		1699	1823	
Flt Permitted	0.71	1.00		0.72	1.00		0.33	1.00		0.49	1.00	
Satd. Flow (perm)	1342	1531		1218	1766		634	1798		880	1823	
Peak-hour factor, PHF	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Adj. Flow (vph)	13	17	41	23	49	28	20	383	16	40	555	48
RTOR Reduction (vph)	0	31	0	0	21	0	0	2	0	0	4	0
Lane Group Flow (vph)	13	27	0	23	56	0	20	397	0	40	599	0
Confl. Peds. (#/hr)	11		50	50		11	16		12	12		16
Heavy Vehicles (%)	0%	0%	4%	3%	3%	0%	0%	6%	7%	6%	4%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	20.0	20.0		20.0	20.0		45.0	45.0		45.0	45.0	
Effective Green, g (s)	20.0	20.0		20.0	20.0		45.0	45.0		45.0	45.0	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.56	0.56		0.56	0.56	
Clearance Time (s)	8.0	8.0		8.0	8.0		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)	335	382		304	441		356	1011		495	1025	
v/s Ratio Prot		0.02			c0.03			0.22			c0.33	
v/s Ratio Perm	0.01			0.02			0.03			0.05		
v/c Ratio	0.04	0.07		0.08	0.13		0.06	0.39		0.08	0.58	
Uniform Delay, d1	22.7	22.9		22.9	23.2		7.9	9.8		8.0	11.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.4		0.5	0.6		0.3	1.1		0.3	2.4	
Delay (s)	22.9	23.3		23.4	23.8		8.2	11.0		8.3	13.8	
Level of Service	C	C		C	C		A	B		A	B	
Approach Delay (s)		23.2			23.7			10.8			13.5	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1212	188	948	339	1
v/c Ratio	0.43	0.54	0.40	0.82	0.00
Control Delay	17.5	12.6	3.6	67.4	28.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.5	12.6	3.6	67.4	28.0
Queue Length 50th (m)	60.8	9.2	12.6	89.8	0.0
Queue Length 95th (m)	93.9	10.9	19.3	115.5	1.4
Internal Link Dist (m)	613.2		220.9	100.9	
Turn Bay Length (m)		50.0		45.0	
Base Capacity (vph)	2847	472	2398	600	538
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	0.43	0.40	0.40	0.56	0.00

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	848	267	173	872	312	1
Future Volume (vph)	848	267	173	872	312	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0		3.0	7.0	7.0	7.0
Lane Util. Factor	0.91		1.00	0.95	1.00	1.00
Frt	0.96		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	4957		1789	3579	1789	1601
Flt Permitted	1.00		0.18	1.00	0.95	1.00
Satd. Flow (perm)	4957		335	3579	1789	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	922	290	188	948	339	1
RTOR Reduction (vph)	28	0	0	0	0	1
Lane Group Flow (vph)	1184	0	188	948	339	0
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Actuated Green, G (s)	79.6		93.8	93.8	32.2	32.2
Effective Green, g (s)	79.6		93.8	93.8	32.2	32.2
Actuated g/C Ratio	0.57		0.67	0.67	0.23	0.23
Clearance Time (s)	7.0		3.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2818		340	2397	411	368
v/s Ratio Prot	0.24		c0.04	0.26	c0.19	
v/s Ratio Perm			c0.33			0.00
v/c Ratio	0.42		0.55	0.40	0.82	0.00
Uniform Delay, d1	17.1		10.1	10.4	51.2	41.5
Progression Factor	0.97		0.89	0.28	1.00	1.00
Incremental Delay, d2	0.5		1.8	0.4	12.7	0.0
Delay (s)	17.1		10.8	3.4	63.9	41.5
Level of Service	B		B	A	E	D
Approach Delay (s)	17.1			4.6	63.8	
Approach LOS	B			A	E	

Intersection Summary			
HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	0	18	108	8	23	32	311	101	5	753	18
Future Volume (Veh/h)	11	0	18	108	8	23	32	311	101	5	753	18
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	0	20	117	9	25	35	338	110	5	818	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)								94			117	
pX, platoon unblocked												
vC, conflicting volume	1106	1356	419	902	1311	224	838			448		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1106	1356	419	902	1311	224	838			448		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	92	100	97	46	94	97	96			100		
cM capacity (veh/h)	147	141	583	216	150	779	792			1109		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	12	20	117	34	35	225	223	5	545	293
Volume Left	12	0	117	0	35	0	0	5	0	0
Volume Right	0	20	0	25	0	0	110	0	0	20
cSH	147	583	216	369	792	1700	1700	1109	1700	1700
Volume to Capacity	0.08	0.03	0.54	0.09	0.04	0.13	0.13	0.00	0.32	0.17
Queue Length 95th (m)	2.0	0.8	21.8	2.3	1.1	0.0	0.0	0.1	0.0	0.0
Control Delay (s)	31.7	11.4	39.6	15.7	9.8	0.0	0.0	8.3	0.0	0.0
Lane LOS	D	B	E	C	A			A		
Approach Delay (s)	19.0		34.3		0.7			0.0		
Approach LOS	C		D							

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	45.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	4	41	26	4	39	97	63	11	33	26	31
Future Volume (Veh/h)	10	4	41	26	4	39	97	63	11	33	26	31
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	4	45	28	4	42	105	68	12	36	28	34
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								89			120	
pX, platoon unblocked												
vC, conflicting volume	439	407	45	431	418	74	62			80		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	439	407	45	431	418	74	62			80		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	99	96	94	99	96	93			98		
cM capacity (veh/h)	468	485	1025	473	478	988	1541			1518		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	60	74	105	80	36	62
Volume Left	11	28	105	0	36	0
Volume Right	45	42	0	12	0	34
cSH	793	672	1541	1700	1518	1700
Volume to Capacity	0.08	0.11	0.07	0.05	0.02	0.04
Queue Length 95th (m)	1.9	2.8	1.7	0.0	0.6	0.0
Control Delay (s)	9.9	11.0	7.5	0.0	7.4	0.0
Lane LOS	A	B	A		A	
Approach Delay (s)	9.9	11.0	4.3		2.7	
Approach LOS	A	B				

Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	26.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	38	30	315	3	18	444
Future Volume (Veh/h)	38	30	315	3	18	444
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)	41	33	342	3	20	483
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			59			82
pX, platoon unblocked	0.89					
vC, conflicting volume	866	172			345	
vC1, stage 1 conf vol	344					
vC2, stage 2 conf vol	523					
vCu, unblocked vol	792	172			345	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	96			98	
cM capacity (veh/h)	491	841			1211	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	74	228	117	20	483
Volume Left	41	0	0	20	0
Volume Right	33	0	3	0	0
cSH	603	1700	1700	1211	1700
Volume to Capacity	0.12	0.13	0.07	0.02	0.28
Queue Length 95th (m)	3.2	0.0	0.0	0.4	0.0
Control Delay (s)	11.8	0.0	0.0	8.0	0.0
Lane LOS	B			A	
Approach Delay (s)	11.8	0.0		0.3	
Approach LOS	B				

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	34.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	203	0	0	830	0	16
Future Volume (Veh/h)	203	0	0	830	0	16
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)	221	0	0	902	0	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)	160			58		
pX, platoon unblocked			0.98		0.93	0.98
vC, conflicting volume			221		672	110
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			160		390	47
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	98
cM capacity (veh/h)			1386		545	990

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	110	110	0	451	451	17
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	17
cSH	1700	1700	1700	1700	1700	990
Volume to Capacity	0.07	0.07	0.00	0.27	0.27	0.02
Queue Length 95th (m)	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	8.7
Lane LOS						A
Approach Delay (s)	0.0			0.0		8.7
Approach LOS						A

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	26.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	14	0	16	45	0	0	0	299	36	1	415	23
Future Volume (veh/h)	14	0	16	45	0	0	0	299	36	1	415	23
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	0	17	49	0	0	0	325	39	1	451	25
Approach Volume (veh/h)		32			49			364			477	
Crossing Volume (veh/h)		501			340			16			49	
High Capacity (veh/h)		933			1060			1367			1333	
High v/c (veh/h)		0.03			0.05			0.27			0.36	
Low Capacity (veh/h)		754			868			1146			1114	
Low v/c (veh/h)		0.04			0.06			0.32			0.43	

Intersection Summary				
Maximum v/c High	0.36			
Maximum v/c Low	0.43			
Intersection Capacity Utilization	24.2%	ICU Level of Service	A	

Lane Group	EBL	EBR	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	189	288	30	1402	2600	2054
v/c Ratio	0.12	0.42	0.04	1.93	0.91	0.92
Control Delay	22.2	24.9	13.4	443.4	41.6	44.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.2	24.9	13.4	443.4	41.6	44.3
Queue Length 50th (m)	15.2	46.9	3.2	~604.2	191.8	192.9
Queue Length 95th (m)	22.7	71.1	m6.2	#665.9	207.7	215.5
Internal Link Dist (m)					73.6	241.1
Turn Bay Length (m)		150.0				
Base Capacity (vph)	1526	683	779	727	2859	2226
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	0.42	0.04	1.93	0.91	0.92

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)	170	0	259	27	0	1262	0	2335	5	0	1849	0
Future Volume (vph)	170	0	259	27	0	1262	0	2335	5	0	1849	0
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		7.0			7.0	
Lane Util. Factor	0.97		1.00	1.00		1.00		0.86			0.91	
Frt	1.00		0.85	1.00		0.85		1.00			1.00	
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (prot)	3340		1458	1706		1555		6353			4948	
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (perm)	3340		1458	1706		1555		6353			4948	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	189	0	288	30	0	1402	0	2594	6	0	2054	0
RTOR Reduction (vph)	0	0	17	0	0	17	0	0	0	0	0	0
Lane Group Flow (vph)	189	0	271	30	0	1385	0	2600	0	0	2054	0
Heavy Vehicles (%)	6%	0%	12%	7%	0%	5%	0%	4%	0%	0%	6%	0%
Turn Type	Perm		Perm	Perm		Perm		NA			NA	
Protected Phases								2			6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	64.0		64.0	64.0		64.0		63.0			63.0	
Effective Green, g (s)	64.0		64.0	64.0		64.0		63.0			63.0	
Actuated g/C Ratio	0.46		0.46	0.46		0.46		0.45			0.45	
Clearance Time (s)	6.0		6.0	6.0		6.0		7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0		3.0		3.0			3.0	
Lane Grp Cap (vph)	1526		666	779		710		2858			2226	
v/s Ratio Prot								0.41			c0.42	
v/s Ratio Perm	0.06		0.19	0.02		c0.89						
v/c Ratio	0.12		0.41	0.04		1.95		0.91			0.92	
Uniform Delay, d1	21.9		25.3	21.0		38.0		35.9			36.2	
Progression Factor	1.00		1.00	0.63		0.63		1.00			1.00	
Incremental Delay, d2	0.2		1.8	0.1		432.5		5.6			7.9	
Delay (s)	22.0		27.2	13.2		456.3		41.4			44.1	
Level of Service	C		C	B		F		D			D	
Approach Delay (s)		25.1			447.0			41.4			44.1	
Approach LOS		C			F			D			D	

Intersection Summary			
HCM 2000 Control Delay	129.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.44		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	131.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL
Lane Group Flow (vph)	306	812	111	944	432
v/c Ratio	0.21	0.51	0.23	0.58	0.30
Control Delay	37.7	11.8	23.6	28.6	32.8
Queue Delay	0.0	0.2	0.0	0.0	0.0
Total Delay	37.7	12.0	23.6	28.6	32.8
Queue Length 50th (m)	26.6	133.3	17.9	97.8	40.8
Queue Length 95th (m)	58.6	239.4	31.2	118.3	m54.1
Internal Link Dist (m)	220.9			135.6	92.8
Turn Bay Length (m)			60.0		
Base Capacity (vph)	1483	1585	476	1638	1457
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	195	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.21	0.58	0.23	0.58	0.30

Intersection Summary

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	275	731	100	850	353	36
Future Volume (vph)	275	731	100	850	353	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	1.00	1.00	0.95	1.00	0.96	
Satd. Flow (prot)	3147	1585	1706	3476	3386	
Flt Permitted	1.00	1.00	0.56	1.00	0.96	
Satd. Flow (perm)	3147	1585	1011	3476	3386	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	306	812	111	944	392	40
RTOR Reduction (vph)	0	0	0	0	6	0
Lane Group Flow (vph)	306	812	111	944	426	0
Heavy Vehicles (%)	16%	3%	7%	5%	3%	12%
Turn Type	NA	pm+ov	Perm	NA	Prot	
Protected Phases	2	8		6	8	
Permitted Phases		2	6			
Actuated Green, G (s)	66.0	126.0	66.0	66.0	60.0	
Effective Green, g (s)	66.0	126.0	66.0	66.0	60.0	
Actuated g/C Ratio	0.47	0.90	0.47	0.47	0.43	
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1483	1585	476	1638	1451	
v/s Ratio Prot	0.10	c0.22		c0.27	0.13	
v/s Ratio Perm		0.29	0.11			
v/c Ratio	0.21	0.51	0.23	0.58	0.29	
Uniform Delay, d1	21.7	1.3	22.0	26.9	26.1	
Progression Factor	1.72	1.00	1.00	1.00	1.26	
Incremental Delay, d2	0.3	1.0	1.1	1.5	0.4	
Delay (s)	37.5	2.3	23.1	28.3	33.4	
Level of Service	D	A	C	C	C	
Approach Delay (s)	11.9			27.8	33.4	
Approach LOS	B			C	C	

Intersection Summary			
HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	298	64	54	888	157	32
v/c Ratio	0.14	0.07	0.08	0.37	0.62	0.12
Control Delay	5.6	0.8	6.1	7.0	43.7	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.6	0.8	6.1	7.0	43.7	11.4
Queue Length 50th (m)	7.7	0.2	2.6	28.1	23.2	0.0
Queue Length 95th (m)	14.9	0.3	7.7	47.0	41.4	7.0
Internal Link Dist (m)	33.9			146.8	95.7	
Turn Bay Length (m)			60.0		35.0	
Base Capacity (vph)	2205	1083	650	2375	595	586
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	0.14	0.06	0.08	0.37	0.26	0.05

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	271	58	49	808	143	29
Future Volume (vph)	271	58	49	808	143	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.87	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	0.90	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3259	1154	1634	3510	1587	1512
Flt Permitted	1.00	1.00	0.57	1.00	0.95	1.00
Satd. Flow (perm)	3259	1154	980	3510	1587	1512
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	298	64	54	888	157	32
RTOR Reduction (vph)	0	0	0	0	0	27
Lane Group Flow (vph)	298	64	54	888	157	5
Confl. Peds. (#/hr)		71	71			
Heavy Vehicles (%)	12%	23%	1%	4%	15%	8%
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	2	8		6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	57.9	71.5	57.9	57.9	13.6	13.6
Effective Green, g (s)	57.9	71.5	57.9	57.9	13.6	13.6
Actuated g/C Ratio	0.68	0.84	0.68	0.68	0.16	0.16
Clearance Time (s)	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
Lane Grp Cap (vph)	2206	1154	663	2376	252	240
v/s Ratio Prot	0.09	0.01		c0.25	c0.10	
v/s Ratio Perm		0.05	0.06			0.00
v/c Ratio	0.14	0.06	0.08	0.37	0.62	0.02
Uniform Delay, d1	4.9	1.2	4.7	6.0	33.6	30.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0	0.2	0.5	4.7	0.0
Delay (s)	5.0	1.2	5.0	6.4	38.3	30.4
Level of Service	A	A	A	A	D	C
Approach Delay (s)	4.4			6.3	36.9	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	85.5	Sum of lost time (s)	14.0
Intersection Capacity Utilization	49.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	26	1038	1595	18	48	95	21
v/c Ratio	0.20	0.58	1.01	0.06	0.23	0.45	0.07
Control Delay	29.5	40.9	59.5	27.1	7.0	51.9	0.5
Queue Delay	0.0	0.0	4.9	0.0	0.0	0.0	0.0
Total Delay	29.5	40.9	64.4	27.1	7.0	51.9	0.5
Queue Length 50th (m)	4.1	117.2	~254.3	3.1	0.0	22.2	0.0
Queue Length 95th (m)	m5.9	139.3	#298.0	8.4	6.3	40.5	0.0
Internal Link Dist (m)		202.3	126.7		25.6		
Turn Bay Length (m)	70.0					20.0	
Base Capacity (vph)	135	1802	1585	285	213	210	300
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	26	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.58	1.02	0.06	0.23	0.45	0.07

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)	24	955	0	0	1271	196	17	0	44	87	0	19
Future Volume (vph)	24	955	0	0	1271	196	17	0	44	87	0	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	8.0			8.0		3.0	8.0		8.0		8.0
Lane Util. Factor	1.00	0.95			0.95		1.00	1.00		1.00		1.00
Frpb, ped/bikes	1.00	1.00			0.93		1.00	0.58		1.00		0.60
Flpb, ped/bikes	1.00	1.00			1.00		0.63	1.00		0.61		1.00
Frt	1.00	1.00			0.98		1.00	0.85		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1738	3411			3235		665	486		1073		919
Flt Permitted	0.06	1.00			1.00		0.95	1.00		0.73		1.00
Satd. Flow (perm)	104	3411			3235		665	486		820		919
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	1038	0	0	1382	213	18	0	48	95	0	21
RTOR Reduction (vph)	0	0	0	0	8	0	0	31	0	0	0	16
Lane Group Flow (vph)	26	1038	0	0	1587	0	18	17	0	95	0	5
Confl. Peds. (#/hr)	290		1278	1278		290	658		752	752		658
Heavy Vehicles (%)	5%	7%	0%	0%	1%	13%	72%	0%	95%	4%	0%	7%
Turn Type	pm+pt	NA			NA		pm+pt	NA		Perm		Perm
Protected Phases	5	2			6		3	8				
Permitted Phases	2						8			4		4
Actuated Green, G (s)	74.0	74.0			67.1		50.0	50.0		36.0		36.0
Effective Green, g (s)	74.0	74.0			67.1		50.0	50.0		36.0		36.0
Actuated g/C Ratio	0.53	0.53			0.48		0.36	0.36		0.26		0.26
Clearance Time (s)	3.0	8.0			8.0		3.0	8.0		8.0		8.0
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0		3.0
Lane Grp Cap (vph)	100	1802			1550		237	173		210		236
v/s Ratio Prot	0.01	c0.30			c0.49		0.01	c0.04				
v/s Ratio Perm	0.13						0.02			c0.12		0.01
v/c Ratio	0.26	0.58			1.02		0.08	0.10		0.45		0.02
Uniform Delay, d1	28.6	22.4			36.5		29.7	30.0		43.7		38.9
Progression Factor	2.00	1.77			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	0.9	0.9			29.1		0.6	1.1		6.9		0.2
Delay (s)	58.1	40.4			65.5		30.4	31.1		50.6		39.0
Level of Service	E	D			E		C	C		D		D
Approach Delay (s)		40.9			65.5			30.9			48.5	
Approach LOS		D			E			C			D	

Intersection Summary			
HCM 2000 Control Delay	54.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	95.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	60	884	141	1193	210	456	93	868
v/c Ratio	1.09	0.84	0.79	0.89	1.22	0.63	0.30	1.15
Control Delay	159.2	27.7	36.2	11.2	171.2	36.7	12.2	117.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay	159.2	27.7	36.2	11.2	171.2	36.7	12.2	117.8
Queue Length 50th (m)	~17.7	41.2	12.6	54.6	~54.4	97.3	11.5	~282.1
Queue Length 95th (m)	m#31.3	94.8	m12.8	m53.4	#105.7	134.7	11.3	#354.0
Internal Link Dist (m)		171.5		202.3		102.8		69.7
Turn Bay Length (m)	65.0		70.0		45.0		30.0	
Base Capacity (vph)	55	1050	178	1344	172	723	311	752
Starvation Cap Reductn	0	0	0	1	0	0	0	11
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	1.09	0.84	0.79	0.89	1.22	0.63	0.30	1.17

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)	59	783	83	138	1081	88	206	342	105	91	761	89
Future Volume (vph)	59	783	83	138	1081	88	206	342	105	91	761	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.96		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1802	3400		1615	3411		1772	1742		1435	1840	
Flt Permitted	0.10	1.00		0.12	1.00		0.07	1.00		0.33	1.00	
Satd. Flow (perm)	182	3400		204	3411		130	1742		497	1840	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	60	799	85	141	1103	90	210	349	107	93	777	91
RTOR Reduction (vph)	0	6	0	0	4	0	0	8	0	0	3	0
Lane Group Flow (vph)	60	878	0	141	1189	0	210	448	0	93	865	0
Confl. Peds. (#/hr)	17		10	10		17	13		10	10		13
Heavy Vehicles (%)	1%	6%	1%	13%	4%	24%	3%	1%	21%	27%	2%	6%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	43.0	43.0		55.0	55.0		66.5	57.5		65.5	57.0	
Effective Green, g (s)	43.0	43.0		55.0	55.0		66.5	57.5		65.5	57.0	
Actuated g/C Ratio	0.31	0.31		0.39	0.39		0.48	0.41		0.47	0.41	
Clearance Time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	55	1044		170	1340		167	715		289	749	
v/s Ratio Prot		0.26		0.05	c0.35		c0.08	0.26		0.02	0.47	
v/s Ratio Perm	c0.33			0.27			c0.52			0.13		
v/c Ratio	1.09	0.84		0.83	0.89		1.26	0.63		0.32	1.15	
Uniform Delay, d1	48.5	45.3		32.3	39.6		40.0	32.7		22.7	41.5	
Progression Factor	0.50	0.48		0.98	0.20		1.00	1.00		0.58	0.89	
Incremental Delay, d2	128.3	5.9		8.7	2.7		155.2	4.1		0.6	83.6	
Delay (s)	152.4	27.6		40.2	10.6		195.1	36.9		13.8	120.4	
Level of Service	F	C		D	B		F	D		B	F	
Approach Delay (s)		35.5			13.7			86.8			110.1	
Approach LOS		D			B			F			F	

Intersection Summary			
HCM 2000 Control Delay	55.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	119.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	34	929	198	1331	30	434	128	300	307
v/c Ratio	0.44	0.81	0.68	0.79	0.08	0.37	0.32	0.37	0.45
Control Delay	40.2	36.6	50.4	27.8	32.6	33.3	25.1	29.5	25.8
Queue Delay	0.0	0.3	0.0	22.7	0.0	0.0	0.0	0.0	0.1
Total Delay	40.2	36.8	50.4	50.5	32.6	33.3	25.1	29.5	25.8
Queue Length 50th (m)	6.4	100.0	38.2	98.7	5.7	44.0	20.7	56.3	48.9
Queue Length 95th (m)	m8.9	m89.2	m43.6	m116.7	13.3	58.7	33.7	80.0	74.9
Internal Link Dist (m)		161.5		171.5		57.8		70.0	
Turn Bay Length (m)	80.0		55.0		45.0		30.0		
Base Capacity (vph)	77	1147	292	1682	366	1165	408	809	686
Starvation Cap Reductn	0	25	0	103	0	0	0	0	0
Spillback Cap Reductn	0	0	0	396	0	0	0	0	30
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.83	0.68	1.03	0.08	0.37	0.31	0.37	0.47

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)	31	716	120	178	1151	47	27	295	95	115	270	276
Future Volume (vph)	31	716	120	178	1151	47	27	295	95	115	270	276
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		3.0	7.0		7.0	7.0		3.0	7.0	7.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.98		1.00	1.00	0.95
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.98	1.00		0.99	1.00	1.00
Frt	1.00	0.98		1.00	0.99		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1825	3387		1722	3512		1780	3377		1806	1921	1553
Flt Permitted	0.12	1.00		0.12	1.00		0.58	1.00		0.41	1.00	1.00
Satd. Flow (perm)	231	3387		215	3512		1081	3377		772	1921	1553
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	34	796	133	198	1279	52	30	328	106	128	300	307
RTOR Reduction (vph)	0	9	0	0	2	0	0	22	0	0	0	32
Lane Group Flow (vph)	34	920	0	198	1329	0	30	412	0	128	300	275
Confl. Peds. (#/hr)	19		14	14		19	18		31	31		18
Heavy Vehicles (%)	0%	5%	0%	6%	3%	5%	0%	0%	9%	0%	0%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		2		1	6			8		7	4	
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)	47.0	47.0		67.0	67.0		47.4	47.4		59.0	59.0	59.0
Effective Green, g (s)	47.0	47.0		67.0	67.0		47.4	47.4		59.0	59.0	59.0
Actuated g/C Ratio	0.34	0.34		0.48	0.48		0.34	0.34		0.42	0.42	0.42
Clearance Time (s)	7.0	7.0		3.0	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
Lane Grp Cap (vph)	77	1137		285	1680		365	1143		388	809	654
v/s Ratio Prot		0.27		0.08	c0.38			0.12		0.02	0.16	
v/s Ratio Perm	0.15			0.25			0.03			0.12		c0.18
v/c Ratio	0.44	0.81		0.69	0.79		0.08	0.36		0.33	0.37	0.42
Uniform Delay, d1	36.3	42.4		26.7	30.6		31.5	34.9		25.6	27.8	28.5
Progression Factor	0.82	0.81		1.91	0.84		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.0	2.5		6.3	1.8		0.4	0.9		0.5	1.3	2.0
Delay (s)	36.8	36.7		57.2	27.5		31.9	35.8		26.1	29.1	30.5
Level of Service	D	D		E	C		C	D		C	C	C
Approach Delay (s)		36.7			31.3			35.5			29.1	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	32.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	75	421	257	1306	20	1549	456	1201
v/c Ratio	0.54	0.34	0.95	1.27	0.11	1.27	1.36	0.73
Control Delay	40.9	32.5	69.4	155.0	16.3	165.3	213.1	34.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.9	32.5	69.4	155.0	16.3	165.3	213.1	34.1
Queue Length 50th (m)	13.0	43.0	72.4	~159.1	2.4	~284.3	~148.9	140.0
Queue Length 95th (m)	23.7	57.0 m	#115.5	#259.3	6.2	#327.2	#215.9	165.8
Internal Link Dist (m)		170.1		161.5		203.8		248.3
Turn Bay Length (m)	50.0		50.0		65.0		100.0	
Base Capacity (vph)	140	1244	271	1031	190	1222	336	1646
Starvation Cap Reductn	0	0	0	1	0	0	0	0
Spillback Cap Reductn	0	5	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.34	0.95	1.27	0.11	1.27	1.36	0.73

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	340	51	239	802	413	19	1337	103	424	1096	21
Future Volume (vph)	70	340	51	239	802	413	19	1337	103	424	1096	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		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		0.98	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.95		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)	1755	3429		1738	3363		1789	3519		1772	3600	
Flt Permitted	0.09	1.00		0.51	1.00		0.15	1.00		0.08	1.00	
Satd. Flow (perm)	168	3429		926	3363		281	3519		145	3600	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	75	366	55	257	862	444	20	1438	111	456	1178	23
RTOR Reduction (vph)	0	8	0	0	47	0	0	4	0	0	1	0
Lane Group Flow (vph)	75	413	0	257	1259	0	20	1545	0	456	1200	0
Confl. Peds. (#/hr)	5		23	23		5	8		13	13		8
Heavy Vehicles (%)	4%	4%	2%	3%	2%	3%	2%	2%	7%	3%	1%	4%
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	50.5	50.5		41.0	41.0		55.0	48.5		73.5	64.0	
Effective Green, g (s)	50.5	50.5		41.0	41.0		55.0	48.5		73.5	64.0	
Actuated g/C Ratio	0.36	0.36		0.29	0.29		0.39	0.35		0.52	0.46	
Clearance Time (s)	3.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	134	1236		271	984		180	1219		331	1645	
v/s Ratio Prot	c0.03	0.12			c0.37		0.01	0.44		c0.22	0.33	
v/s Ratio Perm	0.18			0.28			0.04			c0.51		
v/c Ratio	0.56	0.33		0.95	1.28		0.11	1.27		1.38	0.73	
Uniform Delay, d1	35.8	32.5		48.5	49.5		27.3	45.8		46.2	30.9	
Progression Factor	1.00	1.00		0.69	0.68		1.00	1.00		1.00	1.00	
Incremental Delay, d2	15.8	0.7		34.0	131.4		1.2	127.0		187.9	2.9	
Delay (s)	51.7	33.3		67.6	164.9		28.5	172.8		234.1	33.8	
Level of Service	D	C		E	F		C	F		F	C	
Approach Delay (s)		36.0			148.9			170.9			88.9	
Approach LOS		D			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	126.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.33		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	123.7%	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)	13	92	39	125	48	443	123	653
v/c Ratio	0.04	0.22	0.13	0.26	0.15	0.44	0.27	0.63
Control Delay	23.3	9.8	24.8	13.7	9.9	11.7	11.0	15.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6
Total Delay	23.3	9.8	24.8	13.7	9.9	11.7	11.0	16.9
Queue Length 50th (m)	1.5	2.0	4.6	6.6	3.2	35.7	8.9	61.4
Queue Length 95th (m)	4.7	8.9	9.9	14.3	6.8	42.7	14.6	68.8
Internal Link Dist (m)		141.1		97.5		112.5		34.9
Turn Bay Length (m)	20.0		20.0		25.0		25.0	
Base Capacity (vph)	321	425	296	480	317	1014	459	1030
Starvation Cap Reductn	0	0	0	0	0	0	0	211
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	0.22	0.13	0.26	0.15	0.44	0.27	0.80

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	13	56	29	42	52	36	320	12	92	454	36
Future Volume (vph)	10	13	56	29	42	52	36	320	12	92	454	36
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	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.90		1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.91	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.88		1.00	0.92		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1476		1616	1715		1809	1799		1701	1825	
Flt Permitted	0.68	1.00		0.70	1.00		0.30	1.00		0.46	1.00	
Satd. Flow (perm)	1286	1476		1186	1715		566	1799		817	1825	
Peak-hour factor, PHF	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Adj. Flow (vph)	13	17	75	39	56	69	48	427	16	123	605	48
RTOR Reduction (vph)	0	56	0	0	52	0	0	2	0	0	4	0
Lane Group Flow (vph)	13	36	0	39	73	0	48	441	0	123	650	0
Confl. Peds. (#/hr)	11		50	50		11	16		12	12		16
Heavy Vehicles (%)	0%	0%	4%	3%	3%	0%	0%	6%	7%	6%	4%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	20.0	20.0		20.0	20.0		45.0	45.0		45.0	45.0	
Effective Green, g (s)	20.0	20.0		20.0	20.0		45.0	45.0		45.0	45.0	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.56	0.56		0.56	0.56	
Clearance Time (s)	8.0	8.0		8.0	8.0		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)	321	369		296	428		318	1011		459	1026	
v/s Ratio Prot		0.02			c0.04			0.25			c0.36	
v/s Ratio Perm	0.01			0.03			0.08			0.15		
v/c Ratio	0.04	0.10		0.13	0.17		0.15	0.44		0.27	0.63	
Uniform Delay, d1	22.7	23.1		23.3	23.5		8.4	10.1		9.0	11.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.5		0.9	0.9		1.0	1.4		1.4	3.0	
Delay (s)	23.0	23.6		24.2	24.4		9.4	11.5		10.4	14.9	
Level of Service	C	C		C	C		A	B		B	B	
Approach Delay (s)		23.5			24.3			11.3			14.2	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1493	280	1027	374	1
v/c Ratio	0.61	0.76	0.44	0.86	0.00
Control Delay	28.3	33.0	3.4	69.1	27.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	28.3	33.0	3.4	69.1	27.0
Queue Length 50th (m)	104.4	22.6	13.8	99.1	0.0
Queue Length 95th (m)	147.6	51.3	47.4	128.2	1.4
Internal Link Dist (m)	613.2		220.9	100.9	
Turn Bay Length (m)		50.0		45.0	
Base Capacity (vph)	2434	464	2347	536	481
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	35	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.62	0.60	0.44	0.70	0.00

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1005	369	258	945	344	1
Future Volume (vph)	1005	369	258	945	344	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0		3.0	7.0	7.0	7.0
Lane Util. Factor	0.91		1.00	0.95	1.00	1.00
Frt	0.96		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	4935		1789	3579	1789	1601
Flt Permitted	1.00		0.10	1.00	0.95	1.00
Satd. Flow (perm)	4935		188	3579	1789	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1092	401	280	1027	374	1
RTOR Reduction (vph)	39	0	0	0	0	1
Lane Group Flow (vph)	1454	0	280	1027	374	0
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Actuated Green, G (s)	67.9		91.8	91.8	34.2	34.2
Effective Green, g (s)	67.9		91.8	91.8	34.2	34.2
Actuated g/C Ratio	0.49		0.66	0.66	0.24	0.24
Clearance Time (s)	7.0		3.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2393		362	2346	437	391
v/s Ratio Prot	0.29		c0.12	0.29	c0.21	
v/s Ratio Perm			c0.39			0.00
v/c Ratio	0.61		0.77	0.44	0.86	0.00
Uniform Delay, d1	26.3		30.2	11.6	50.5	40.0
Progression Factor	1.00		0.83	0.23	1.00	1.00
Incremental Delay, d2	1.2		8.8	0.5	15.1	0.0
Delay (s)	27.5		34.0	3.2	65.6	40.0
Level of Service	C		C	A	E	D
Approach Delay (s)	27.5			9.8	65.6	
Approach LOS	C			A	E	

Intersection Summary			
HCM 2000 Control Delay	24.7	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)	17.0
Intersection Capacity Utilization	76.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	0	18	114	8	22	33	353	104	11	809	11
Future Volume (Veh/h)	15	0	18	114	8	22	33	353	104	11	809	11
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	0	20	124	9	24	36	384	113	12	879	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)								94			117	
pX, platoon unblocked												
vC, conflicting volume	1202	1478	446	996	1428	248	891			497		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1202	1478	446	996	1428	248	891			497		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	87	100	96	32	93	97	95			99		
cM capacity (veh/h)	123	118	560	183	126	751	757			1063		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	16	20	124	33	36	256	241	12	586	305
Volume Left	16	0	124	0	36	0	0	12	0	0
Volume Right	0	20	0	24	0	0	113	0	0	12
cSH	123	560	183	319	757	1700	1700	1063	1700	1700
Volume to Capacity	0.13	0.04	0.68	0.10	0.05	0.15	0.14	0.01	0.34	0.18
Queue Length 95th (m)	3.3	0.8	30.9	2.6	1.1	0.0	0.0	0.3	0.0	0.0
Control Delay (s)	38.7	11.7	58.2	17.6	10.0	0.0	0.0	8.4	0.0	0.0
Lane LOS	E	B	F	C	A			A		
Approach Delay (s)	23.7		49.7		0.7			0.1		
Approach LOS	C		E							

Intersection Summary			
Average Delay	5.6		
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	4	39	24	4	42	100	118	11	35	43	28
Future Volume (Veh/h)	12	4	39	24	4	42	100	118	11	35	43	28
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	4	42	26	4	46	109	128	12	38	47	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)								89			120	
pX, platoon unblocked												
vC, conflicting volume	532	496	62	519	505	134	77			140		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	532	496	62	519	505	134	77			140		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	99	96	94	99	95	93			97		
cM capacity (veh/h)	400	430	1003	412	424	915	1522			1443		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	59	76	109	140	38	77
Volume Left	13	26	109	0	38	0
Volume Right	42	46	0	12	0	30
cSH	705	619	1522	1700	1443	1700
Volume to Capacity	0.08	0.12	0.07	0.08	0.03	0.05
Queue Length 95th (m)	2.1	3.2	1.8	0.0	0.6	0.0
Control Delay (s)	10.6	11.6	7.5	0.0	7.6	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	10.6	11.6	3.3		2.5	
Approach LOS	B	B				

Intersection Summary				
Average Delay	5.2			
Intersection Capacity Utilization	26.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	33	36	381	1	19	549
Future Volume (Veh/h)	33	36	381	1	19	549
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)	36	39	414	1	21	597
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			59			82
pX, platoon unblocked	0.83					
vC, conflicting volume	1054	208			415	
vC1, stage 1 conf vol	414					
vC2, stage 2 conf vol	639					
vCu, unblocked vol	963	208			415	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	95			98	
cM capacity (veh/h)	420	799			1140	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	75	276	139	21	597
Volume Left	36	0	0	21	0
Volume Right	39	0	1	0	0
cSH	558	1700	1700	1140	1700
Volume to Capacity	0.13	0.16	0.08	0.02	0.35
Queue Length 95th (m)	3.5	0.0	0.0	0.4	0.0
Control Delay (s)	12.5	0.0	0.0	8.2	0.0
Lane LOS	B			A	
Approach Delay (s)	12.5	0.0		0.3	
Approach LOS	B				

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	39.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	311	0	0	951	0	18
Future Volume (Veh/h)	311	0	0	951	0	18
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)	338	0	0	1034	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)	160			58		
pX, platoon unblocked			0.95		0.91	0.95
vC, conflicting volume			338		855	169
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			211		428	34
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	98
cM capacity (veh/h)			1295		507	985

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	169	169	0	517	517	20
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	20
cSH	1700	1700	1700	1700	1700	985
Volume to Capacity	0.10	0.10	0.00	0.30	0.30	0.02
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.5
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	8.7
Lane LOS						A
Approach Delay (s)	0.0			0.0		8.7
Approach LOS						A

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	29.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	11	0	19	45	0	0	0	335	38	5	597	26
Future Volume (veh/h)	11	0	19	45	0	0	0	335	38	5	597	26
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	0	21	49	0	0	0	364	41	5	649	28
Approach Volume (veh/h)		33			49			405			682	
Crossing Volume (veh/h)		703			376			17			49	
High Capacity (veh/h)		793			1030			1366			1333	
High v/c (veh/h)		0.04			0.05			0.30			0.51	
Low Capacity (veh/h)		630			841			1145			1114	
Low v/c (veh/h)		0.05			0.06			0.35			0.61	

Intersection Summary			
Maximum v/c High	0.51		
Maximum v/c Low	0.61		
Intersection Capacity Utilization	33.3%	ICU Level of Service	A

Lane Group	EBL	EBR	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	400	450	34	1078	2404	1953
v/c Ratio	0.26	0.66	0.04	1.48	0.84	0.88
Control Delay	24.0	32.9	8.1	242.3	37.5	40.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.0	32.9	8.1	242.3	37.5	40.6
Queue Length 50th (m)	34.6	89.0	1.8	~415.4	168.5	177.2
Queue Length 95th (m)	45.8	128.0	m2.5	m#400.5	183.5	198.7
Internal Link Dist (m)					73.6	241.1
Turn Bay Length (m)		150.0				
Base Capacity (vph)	1526	683	779	727	2855	2226
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	0.26	0.66	0.04	1.48	0.84	0.88

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)	360	0	405	31	0	970	0	2115	49	0	1758	0
Future Volume (vph)	360	0	405	31	0	970	0	2115	49	0	1758	0
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		7.0			7.0	
Lane Util. Factor	0.97		1.00	1.00		1.00		0.86			0.91	
Frt	1.00		0.85	1.00		0.85		1.00			1.00	
Flt Protected	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (prot)	3340		1458	1706		1555		6339			4948	
Flt Permitted	0.95		1.00	0.95		1.00		1.00			1.00	
Satd. Flow (perm)	3340		1458	1706		1555		6339			4948	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	400	0	450	34	0	1078	0	2350	54	0	1953	0
RTOR Reduction (vph)	0	0	17	0	0	17	0	2	0	0	0	0
Lane Group Flow (vph)	400	0	433	34	0	1061	0	2402	0	0	1953	0
Heavy Vehicles (%)	6%	0%	12%	7%	0%	5%	0%	4%	0%	0%	6%	0%
Turn Type	Perm		Perm	Perm		Perm		NA			NA	
Protected Phases								2			6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	64.0		64.0	64.0		64.0		63.0			63.0	
Effective Green, g (s)	64.0		64.0	64.0		64.0		63.0			63.0	
Actuated g/C Ratio	0.46		0.46	0.46		0.46		0.45			0.45	
Clearance Time (s)	6.0		6.0	6.0		6.0		7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0		3.0		3.0			3.0	
Lane Grp Cap (vph)	1526		666	779		710		2852			2226	
v/s Ratio Prot								0.38			c0.39	
v/s Ratio Perm	0.12		0.30	0.02		c0.68						
v/c Ratio	0.26		0.65	0.04		1.49		0.84			0.88	
Uniform Delay, d1	23.4		29.4	21.0		38.0		34.1			35.0	
Progression Factor	1.00		1.00	0.38		0.45		1.00			1.00	
Incremental Delay, d2	0.4		4.9	0.1		227.1		3.2			5.3	
Delay (s)	23.9		34.2	8.0		244.1		37.3			40.3	
Level of Service	C		C	A		F		D			D	
Approach Delay (s)		29.4			236.9			37.3			40.3	
Approach LOS		C			F			D			D	

Intersection Summary			
HCM 2000 Control Delay	72.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	116.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1349	133	200	347	380	156
v/c Ratio	0.63	0.14	1.06	0.15	1.16	0.44
Control Delay	12.0	0.8	106.1	6.9	136.2	27.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.0	0.8	106.1	6.9	136.2	27.7
Queue Length 50th (m)	74.2	0.3	~43.4	12.4	~88.1	17.6
Queue Length 95th (m)	94.1	0.6	#49.7	17.8	#143.0	36.7
Internal Link Dist (m)	33.9			146.8	95.7	
Turn Bay Length (m)			60.0		35.0	
Base Capacity (vph)	2129	981	188	2293	329	354
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	0.63	0.14	1.06	0.15	1.16	0.44

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	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1228	121	182	316	346	142
Future Volume (vph)	1228	121	182	316	346	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.86	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3259	1139	1777	3510	1587	1512
Flt Permitted	1.00	1.00	0.15	1.00	0.95	1.00
Satd. Flow (perm)	3259	1139	288	3510	1587	1512
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	1349	133	200	347	380	156
RTOR Reduction (vph)	0	0	0	0	0	40
Lane Group Flow (vph)	1349	133	200	347	380	116
Confl. Peds. (#/hr)		71	71			
Heavy Vehicles (%)	12%	23%	1%	4%	15%	8%
Turn Type	NA	pm+ov	Perm	NA	Prot	Perm
Protected Phases	2	8		6	8	
Permitted Phases		2	6			8
Actuated Green, G (s)	66.0	87.0	66.0	66.0	21.0	21.0
Effective Green, g (s)	66.0	87.0	66.0	66.0	21.0	21.0
Actuated g/C Ratio	0.65	0.86	0.65	0.65	0.21	0.21
Clearance Time (s)	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
Lane Grp Cap (vph)	2129	1139	188	2293	329	314
v/s Ratio Prot	0.41	0.02		0.10	c0.24	
v/s Ratio Perm		0.09	c0.70			0.08
v/c Ratio	0.63	0.12	1.06	0.15	1.16	0.37
Uniform Delay, d1	10.3	1.1	17.5	6.7	40.0	34.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.4	0.0	83.6	0.1	98.6	0.7
Delay (s)	11.8	1.1	101.1	6.9	138.6	35.0
Level of Service	B	A	F	A	F	D
Approach Delay (s)	10.8			41.3	108.5	
Approach LOS	B			D	F	

Intersection Summary			
HCM 2000 Control Delay	37.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	101.0	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	WBT	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	137	1148	1883	18	48	218	161
v/c Ratio	1.01	0.64	1.37	0.06	0.23	1.04	0.45
Control Delay	92.6	25.9	202.2	27.1	7.0	122.5	10.3
Queue Delay	0.0	0.4	0.0	0.0	0.0	0.0	0.0
Total Delay	92.6	26.3	202.2	27.1	7.0	122.5	10.3
Queue Length 50th (m)	~26.6	103.8	~362.1	3.1	0.0	~64.7	0.0
Queue Length 95th (m)	m#32.7	m117.3	#404.4	8.4	6.3	#115.8	19.4
Internal Link Dist (m)		202.3	126.7		25.6		
Turn Bay Length (m)	70.0					20.0	
Base Capacity (vph)	136	1802	1376	285	213	210	355
Starvation Cap Reductn	0	214	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	1.01	0.72	1.37	0.06	0.23	1.04	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.

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)	126	1056	0	0	1331	401	17	0	44	201	0	148
Future Volume (vph)	126	1056	0	0	1331	401	17	0	44	201	0	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	8.0			8.0		3.0	8.0		8.0		8.0
Lane Util. Factor	1.00	0.95			0.95		1.00	1.00		1.00		1.00
Frpb, ped/bikes	1.00	1.00			0.87		1.00	0.58		1.00		0.60
Flpb, ped/bikes	1.00	1.00			1.00		0.63	1.00		0.61		1.00
Frt	1.00	1.00			0.97		1.00	0.85		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1738	3411			2970		665	486		1073		919
Flt Permitted	0.06	1.00			1.00		0.95	1.00		0.73		1.00
Satd. Flow (perm)	108	3411			2970		665	486		820		919
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)	137	1148	0	0	1447	436	18	0	48	218	0	161
RTOR Reduction (vph)	0	0	0	0	9	0	0	31	0	0	0	120
Lane Group Flow (vph)	137	1148	0	0	1874	0	18	17	0	218	0	41
Confl. Peds. (#/hr)	290		1278	1278		290	658		752	752		658
Heavy Vehicles (%)	5%	7%	0%	0%	1%	13%	72%	0%	95%	4%	0%	7%
Turn Type	pm+pt	NA			NA		pm+pt	NA		Perm		Perm
Protected Phases	5	2			6		3	8				
Permitted Phases	2						8			4		4
Actuated Green, G (s)	74.0	74.0			64.5		50.0	50.0		36.0		36.0
Effective Green, g (s)	74.0	74.0			64.5		50.0	50.0		36.0		36.0
Actuated g/C Ratio	0.53	0.53			0.46		0.36	0.36		0.26		0.26
Clearance Time (s)	3.0	8.0			8.0		3.0	8.0		8.0		8.0
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0		3.0
Lane Grp Cap (vph)	132	1802			1368		237	173		210		236
v/s Ratio Prot	c0.05	0.34			c0.63		0.01	c0.04				
v/s Ratio Perm	0.50						0.02			c0.27		0.05
v/c Ratio	1.04	0.64			1.37		0.08	0.10		1.04		0.18
Uniform Delay, d1	38.5	23.5			37.8		29.7	30.0		52.0		40.5
Progression Factor	1.51	1.06			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	64.4	0.8			171.3		0.6	1.1		72.4		1.6
Delay (s)	122.6	25.6			209.1		30.4	31.1		124.4		42.1
Level of Service	F	C			F		C	C		F		D
Approach Delay (s)		36.0			209.1			30.9			89.4	
Approach LOS		D			F			C			F	

Intersection Summary			
HCM 2000 Control Delay	131.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	105.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	329	1490	260	1266	366	399	123	578
v/c Ratio	2.25	0.93	1.56	0.68	1.72	0.98	0.72	1.41
Control Delay	586.5	24.8	293.6	4.6	367.9	87.0	57.5	235.2
Queue Delay	0.0	9.8	0.0	0.7	0.0	0.0	0.0	0.1
Total Delay	586.5	34.6	293.6	5.3	367.9	87.0	57.5	235.3
Queue Length 50th (m)	~142.6	138.9	~89.0	17.5	~132.2	103.2	23.6	~200.4
Queue Length 95th (m)	m#114.7	m97.6	m#58.1	m16.0	#194.6	#168.6	#39.8	#272.1
Internal Link Dist (m)		171.5		202.3		102.8		69.7
Turn Bay Length (m)	65.0		70.0		45.0		30.0	
Base Capacity (vph)	146	1597	167	1861	213	409	170	409
Starvation Cap Reductn	0	114	0	221	0	0	0	0
Spillback Cap Reductn	0	0	0	270	0	0	0	5
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.25	1.00	1.56	0.80	1.72	0.98	0.72	1.43

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)	322	874	586	255	1075	166	359	204	187	121	183	383
Future Volume (vph)	322	874	586	255	1075	166	359	204	187	121	183	383
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99		1.00	0.98	
Flpb, ped/bikes	0.99	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.98		1.00	0.93		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1797	3263		1615	3325		1772	1592		1436	1613	
Flt Permitted	0.17	1.00		0.06	1.00		0.12	1.00		0.20	1.00	
Satd. Flow (perm)	317	3263		100	3325		219	1592		303	1613	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	329	892	598	260	1097	169	366	208	191	123	187	391
RTOR Reduction (vph)	0	83	0	0	9	0	0	23	0	0	52	0
Lane Group Flow (vph)	329	1408	0	260	1257	0	366	376	0	123	526	0
Confl. Peds. (#/hr)	17		10	10		17	13		10	10		13
Heavy Vehicles (%)	1%	6%	1%	13%	4%	24%	3%	1%	21%	27%	2%	6%
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	65.0	65.0		78.0	78.0		46.0	34.0		40.0	31.0	
Effective Green, g (s)	65.0	65.0		78.0	78.0		46.0	34.0		40.0	31.0	
Actuated g/C Ratio	0.46	0.46		0.56	0.56		0.33	0.24		0.29	0.22	
Clearance Time (s)	8.0	8.0		3.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	147	1514		163	1852		205	386		159	357	
v/s Ratio Prot		0.43		c0.11	0.38		c0.15	0.24		0.05	0.33	
v/s Ratio Perm	c1.04			0.77			c0.43			0.17		
v/c Ratio	2.24	0.93		1.60	0.68		1.79	0.97		0.77	1.47	
Uniform Delay, d1	37.5	35.3		42.8	22.1		39.8	52.5		41.3	54.5	
Progression Factor	0.77	0.72		1.91	0.20		1.00	1.00		1.00	1.00	
Incremental Delay, d2	559.1	1.4		270.4	0.2		372.4	39.5		20.5	227.5	
Delay (s)	588.0	26.9		352.0	4.6		412.2	92.0		61.8	282.0	
Level of Service	F	C		F	A		F	F		E	F	
Approach Delay (s)		128.4			63.8			245.2			243.4	
Approach LOS		F			E			F			F	

Intersection Summary			
HCM 2000 Control Delay	143.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.06		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	131.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	232	946	329	1690	23	775	861	426	272
v/c Ratio	4.22	0.56	1.10	0.87	0.14	1.19	3.03	0.68	0.50
Control Delay	1474.7	29.0	82.5	26.2	50.3	145.6	940.8	46.9	33.3
Queue Delay	0.0	0.3	0.0	19.2	0.0	0.0	0.0	0.0	0.0
Total Delay	1474.7	29.4	82.5	45.4	50.3	145.6	940.8	46.9	33.3
Queue Length 50th (m)	~118.5	110.5	~52.6	185.2	5.4	~130.1	~399.3	101.7	48.0
Queue Length 95th (m)	m#119.8	m76.2	m#63.4	m154.4	13.9	#170.3	#477.4	138.9	75.7
Internal Link Dist (m)		161.5		171.5		57.8		70.0	
Turn Bay Length (m)	80.0		55.0		45.0		30.0		
Base Capacity (vph)	55	1693	300	1949	165	651	284	631	547
Starvation Cap Reductn	0	264	0	258	0	0	0	0	0
Spillback Cap Reductn	0	162	0	309	0	0	0	0	4
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	4.22	0.66	1.10	1.03	0.14	1.19	3.03	0.68	0.50

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)	209	783	68	296	1214	307	21	473	224	775	383	245
Future Volume (vph)	209	783	68	296	1214	307	21	473	224	775	383	245
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		3.0	7.0		7.0	7.0		3.0	7.0	7.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.98		1.00	1.00	0.95
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.98	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.97		1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1825	3426		1722	3383		1789	3294		1825	1921	1553
Flt Permitted	0.06	1.00		0.21	1.00		0.47	1.00		0.14	1.00	1.00
Satd. Flow (perm)	113	3426		372	3383		888	3294		265	1921	1553
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	232	870	76	329	1349	341	23	526	249	861	426	272
RTOR Reduction (vph)	0	5	0	0	16	0	0	40	0	0	0	37
Lane Group Flow (vph)	232	941	0	329	1674	0	23	735	0	861	426	235
Confl. Peds. (#/hr)	19		14	14		19	18		31	31		18
Heavy Vehicles (%)	0%	5%	0%	6%	3%	5%	0%	0%	9%	0%	0%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		2		1	6			8		7	4	
Permitted Phases	2			6			8			4		4
Actuated Green, G (s)	69.0	69.0		80.0	80.0		26.0	26.0		46.0	46.0	46.0
Effective Green, g (s)	69.0	69.0		80.0	80.0		26.0	26.0		46.0	46.0	46.0
Actuated g/C Ratio	0.49	0.49		0.57	0.57		0.19	0.19		0.33	0.33	0.33
Clearance Time (s)	7.0	7.0		3.0	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
Lane Grp Cap (vph)	55	1688		289	1933		164	611		276	631	510
v/s Ratio Prot		0.27		c0.06	0.49			0.22		c0.38	0.22	
v/s Ratio Perm	c2.05			0.58			0.03			c0.65		0.15
v/c Ratio	4.22	0.56		1.14	0.87		0.14	1.20		3.12	0.68	0.46
Uniform Delay, d1	35.5	24.8		28.0	25.5		47.7	57.0		40.7	40.6	37.2
Progression Factor	1.20	1.15		1.14	0.96		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1461.5	0.4		75.6	1.8		1.8	106.4		963.3	5.7	3.0
Delay (s)	1504.1	29.0		107.5	26.2		49.4	163.4		1004.0	46.3	40.2
Level of Service	F	C		F	C		D	F		F	D	D
Approach Delay (s)		319.5			39.4			160.1			574.1	
Approach LOS		F			D			F			F	

Intersection Summary			
HCM 2000 Control Delay	266.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	3.65		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	140.2%	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)	89	538	357	1234	24	1767	360	1221
v/c Ratio	0.64	0.40	1.34	1.10	0.15	1.38	1.46	0.79
Control Delay	46.2	31.4	200.0	87.5	18.2	212.4	257.9	39.1
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	46.2	31.4	200.0	87.6	18.2	212.4	257.9	39.1
Queue Length 50th (m)	14.8	55.2	~127.5	~195.6	3.1	~341.3	~119.5	151.7
Queue Length 95th (m)	#29.5	70.6 m	#165.1	#239.4	7.7	#384.0	#181.3	179.5
Internal Link Dist (m)		170.1		161.5		203.8		248.3
Turn Bay Length (m)	50.0		50.0		65.0		100.0	
Base Capacity (vph)	139	1348	266	1122	162	1277	247	1548
Starvation Cap Reductn	0	0	0	5	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	0.64	0.40	1.34	1.10	0.15	1.38	1.46	0.79

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)	83	450	50	332	817	331	22	1368	275	335	1133	3
Future Volume (vph)	83	450	50	332	817	331	22	1368	275	335	1133	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		0.98	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.96		1.00	0.97		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)	1755	3448		1743	3395		1789	3440		1772	3612	
Flt Permitted	0.08	1.00		0.45	1.00		0.11	1.00		0.07	1.00	
Satd. Flow (perm)	154	3448		829	3395		198	3440		137	3612	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	89	484	54	357	878	356	24	1471	296	360	1218	3
RTOR Reduction (vph)	0	6	0	0	31	0	0	12	0	0	0	0
Lane Group Flow (vph)	89	532	0	357	1203	0	24	1755	0	360	1221	0
Confl. Peds. (#/hr)	5		23	23		5	8		13	13		8
Heavy Vehicles (%)	4%	4%	2%	3%	2%	3%	2%	2%	7%	3%	1%	4%
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	54.5	54.5		45.0	45.0		58.0	51.5		69.5	60.0	
Effective Green, g (s)	54.5	54.5		45.0	45.0		58.0	51.5		69.5	60.0	
Actuated g/C Ratio	0.39	0.39		0.32	0.32		0.41	0.37		0.50	0.43	
Clearance Time (s)	3.0	8.0		8.0	8.0		3.0	8.0		3.0	8.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	134	1342		266	1091		155	1265		243	1548	
v/s Ratio Prot	c0.03	0.15			0.35		0.01	0.51		c0.16	0.34	
v/s Ratio Perm	0.23			c0.43			0.06			c0.58		
v/c Ratio	0.66	0.40		1.34	1.10		0.15	1.39		1.48	0.79	
Uniform Delay, d1	34.8	30.9		47.5	47.5		27.3	44.2		45.0	34.5	
Progression Factor	1.00	1.00		0.78	0.77		1.00	1.00		1.00	1.00	
Incremental Delay, d2	23.1	0.9		168.0	54.8		2.1	179.3		237.5	4.2	
Delay (s)	57.8	31.7		205.0	91.2		29.4	223.5		282.4	38.7	
Level of Service	E	C		F	F		C	F		F	D	
Approach Delay (s)		35.4			116.7			220.9			94.2	
Approach LOS		D			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	134.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.41		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	130.4%	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)	13	82	45	388	49	589	264	743
v/c Ratio	0.09	0.20	0.15	0.63	0.20	0.58	0.76	0.72
Control Delay	25.0	10.3	25.1	13.6	11.1	14.2	31.0	17.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3
Total Delay	25.0	10.3	25.1	13.6	11.1	14.2	31.0	21.1
Queue Length 50th (m)	1.5	2.0	5.3	14.3	3.4	53.3	28.3	76.0
Queue Length 95th (m)	4.9	8.6	11.0	24.0	7.4	61.0	44.0	83.0
Internal Link Dist (m)		141.1		97.5		112.5		34.9
Turn Bay Length (m)	20.0		20.0		25.0		25.0	
Base Capacity (vph)	146	420	299	614	250	1016	347	1030
Starvation Cap Reductn	0	0	0	0	0	0	0	193
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	0.09	0.20	0.15	0.63	0.20	0.58	0.76	0.89

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	13	49	34	50	241	37	433	9	198	521	36
Future Volume (vph)	10	13	49	34	50	241	37	433	9	198	521	36
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	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.91		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00		0.91	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.88		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)	1814	1487		1614	1639		1813	1805		1708	1828	
Flt Permitted	0.31	1.00		0.70	1.00		0.23	1.00		0.34	1.00	
Satd. Flow (perm)	585	1487		1195	1639		445	1805		618	1828	
Peak-hour factor, PHF	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Adj. Flow (vph)	13	17	65	45	67	321	49	577	12	264	695	48
RTOR Reduction (vph)	0	49	0	0	204	0	0	1	0	0	3	0
Lane Group Flow (vph)	13	33	0	45	184	0	49	588	0	264	740	0
Confl. Peds. (#/hr)	11		50	50		11	16		12	12		16
Heavy Vehicles (%)	0%	0%	4%	3%	3%	0%	0%	6%	7%	6%	4%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	20.0	20.0		20.0	20.0		45.0	45.0		45.0	45.0	
Effective Green, g (s)	20.0	20.0		20.0	20.0		45.0	45.0		45.0	45.0	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.56	0.56		0.56	0.56	
Clearance Time (s)	8.0	8.0		8.0	8.0		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)	146	371		298	409		250	1015		347	1028	
v/s Ratio Prot		0.02			c0.11			0.33			0.40	
v/s Ratio Perm	0.02			0.04			0.11			c0.43		
v/c Ratio	0.09	0.09		0.15	0.45		0.20	0.58		0.76	0.72	
Uniform Delay, d1	23.0	23.0		23.4	25.4		8.6	11.4		13.4	12.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	0.5		1.1	3.5		1.7	2.4		14.5	4.3	
Delay (s)	24.2	23.5		24.5	28.9		10.4	13.8		27.9	17.2	
Level of Service	C	C		C	C		B	B		C	B	
Approach Delay (s)		23.6			28.4			13.5			20.0	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	2238	326	395	693	361
v/c Ratio	1.48dr	1.09	0.20	1.13	0.52
Control Delay	88.5	116.2	15.7	119.9	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	88.5	116.2	15.7	119.9	16.1
Queue Length 50th (m)	~242.1	~84.2	27.6	~221.9	28.5
Queue Length 95th (m)	#270.3	#144.2	36.5	#296.0	58.4
Internal Link Dist (m)	613.2		380.5	100.9	
Turn Bay Length (m)		50.0		45.0	
Base Capacity (vph)	2036	300	1994	613	696
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	1.10	1.09	0.20	1.13	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.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	981	1078	300	363	638	332
Future Volume (vph)	981	1078	300	363	638	332
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0		3.0	7.0	7.0	7.0
Lane Util. Factor	0.91		1.00	0.95	1.00	1.00
Frt	0.92		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	4738		1789	3579	1789	1601
Flt Permitted	1.00		0.07	1.00	0.95	1.00
Satd. Flow (perm)	4738		128	3579	1789	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1066	1172	326	395	693	361
RTOR Reduction (vph)	142	0	0	0	0	147
Lane Group Flow (vph)	2096	0	326	395	693	214
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases			6			8
Actuated Green, G (s)	56.0		78.0	78.0	48.0	48.0
Effective Green, g (s)	56.0		78.0	78.0	48.0	48.0
Actuated g/C Ratio	0.40		0.56	0.56	0.34	0.34
Clearance Time (s)	7.0		3.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1895		296	1994	613	548
v/s Ratio Prot	0.44		c0.15	0.11	c0.39	
v/s Ratio Perm			c0.46			0.13
v/c Ratio	1.48dr		1.10	0.20	1.13	0.39
Uniform Delay, d1	42.0		47.1	15.4	46.0	34.9
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	56.2		82.3	0.2	77.9	0.5
Delay (s)	98.2		129.4	15.7	123.9	35.4
Level of Service	F		F	B	F	D
Approach Delay (s)	98.2			67.1	93.6	
Approach LOS	F			E	F	

Intersection Summary			
HCM 2000 Control Delay	91.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	110.1%	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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	27	121	8	34	33	554	105	12	538	4
Future Volume (Veh/h)	5	0	27	121	8	34	33	554	105	12	538	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	0	29	132	9	37	36	602	114	13	585	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)								94				
pX, platoon unblocked	0.88	0.88		0.88	0.88	0.88				0.88		
vC, conflicting volume	1328	1401	587	1371	1346	659	589			716		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1306	1388	587	1354	1326	548	589			612		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	100	94	0	93	92	96			98		
cM capacity (veh/h)	102	120	510	102	130	474	986			854		

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	5	29	132	46	36	716	13	589
Volume Left	5	0	132	0	36	0	13	0
Volume Right	0	29	0	37	0	114	0	4
cSH	102	510	102	313	986	1700	854	1700
Volume to Capacity	0.05	0.06	1.30	0.15	0.04	0.42	0.02	0.35
Queue Length 95th (m)	1.2	1.4	69.9	3.9	0.9	0.0	0.4	0.0
Control Delay (s)	42.3	12.5	267.2	18.5	8.8	0.0	9.3	0.0
Lane LOS	E	B	F	C	A		A	
Approach Delay (s)	16.9		202.9		0.4		0.2	
Approach LOS	C		F					

Intersection Summary			
Average Delay	23.7		
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	4	70	63	4	78	105	398	31	51	217	35
Future Volume (Veh/h)	13	4	70	63	4	78	105	398	31	51	217	35
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	4	76	68	4	85	114	433	34	55	236	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)								89			120	
pX, platoon unblocked	0.98	0.98		0.98	0.98	0.98				0.98		
vC, conflicting volume	1113	1060	255	1102	1062	450	274			467		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1103	1049	255	1092	1051	424	274			441		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	90	98	90	54	98	86	91			95		
cM capacity (veh/h)	140	192	784	149	192	615	1289			1092		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	94	157	114	467	55	274
Volume Left	14	68	114	0	55	0
Volume Right	76	85	0	34	0	38
cSH	432	256	1289	1700	1092	1700
Volume to Capacity	0.22	0.61	0.09	0.27	0.05	0.16
Queue Length 95th (m)	6.2	28.0	2.2	0.0	1.2	0.0
Control Delay (s)	15.6	39.2	8.1	0.0	8.5	0.0
Lane LOS	C	E	A		A	
Approach Delay (s)	15.6	39.2	1.6		1.4	
Approach LOS	C	E				

Intersection Summary				
Average Delay	7.8			
Intersection Capacity Utilization	51.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	31	37	680	4	23	724
Future Volume (Veh/h)	31	37	680	4	23	724
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)	34	40	739	4	25	787
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (m)			59			82
pX, platoon unblocked	0.71					
vC, conflicting volume	1578	372			743	
vC1, stage 1 conf vol	741					
vC2, stage 2 conf vol	837					
vCu, unblocked vol	1610	372			743	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	88	94			97	
cM capacity (veh/h)	278	626			860	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	74	493	250	25	787
Volume Left	34	0	0	25	0
Volume Right	40	0	4	0	0
cSH	398	1700	1700	860	1700
Volume to Capacity	0.19	0.29	0.15	0.03	0.46
Queue Length 95th (m)	5.1	0.0	0.0	0.7	0.0
Control Delay (s)	16.1	0.0	0.0	9.3	0.0
Lane LOS	C			A	
Approach Delay (s)	16.1	0.0		0.3	
Approach LOS	C				

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	48.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1306	7	0	663	0	43
Future Volume (Veh/h)	1306	7	0	663	0	43
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)	1420	8	0	721	0	47
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)				58		
pX, platoon unblocked					0.97	
vC, conflicting volume			1428		1780	710
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1428		1736	710
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	88
cM capacity (veh/h)			472		76	376

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	710	710	8	360	360	47
Volume Left	0	0	0	0	0	0
Volume Right	0	0	8	0	0	47
cSH	1700	1700	1700	1700	1700	376
Volume to Capacity	0.42	0.42	0.00	0.21	0.21	0.12
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	3.2
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	15.9
Lane LOS						C
Approach Delay (s)	0.0			0.0		15.9
Approach LOS						C

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	10	0	22	40	0	7	7	952	29	15	1340	23
Future Volume (veh/h)	10	0	22	40	0	7	7	952	29	15	1340	23
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	0	24	43	0	8	8	1035	32	16	1457	25
Approach Volume (veh/h)		35			51			1075			1498	
Crossing Volume (veh/h)		1516#			1054			27			51	
High Capacity (veh/h)		405			595			1356			1331	
High v/c (veh/h)		0.09			0.09			0.79			1.13	
Low Capacity (veh/h)		300			460			1135			1112	
Low v/c (veh/h)		0.12			0.11			0.95			1.35	

Intersection Summary			
Maximum v/c High	1.13		
Maximum v/c Low	1.35		
Intersection Capacity Utilization	61.2%	ICU Level of Service	B

Crossing flow exceeds 1200, method is not applicable

Intersection	
Intersection Delay, s/veh	68.9
Intersection LOS	F

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Vol, veh/h	0	3	0	0	0	2	0	3	0	4	675	16
Future Vol, veh/h	0	3	0	0	0	2	0	3	0	4	675	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	3	0	0	0	2	0	3	0	4	734	17
Number of Lanes	0	0	1	0	0	0	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	2	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	2	1
HCM Control Delay	10.6	10.1	70.7
HCM LOS	B	B	F

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	40%	100%	0%
Vol Thru, %	0%	98%	0%	0%	0%	99%
Vol Right, %	0%	2%	0%	60%	0%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	4	691	3	5	8	685
LT Vol	4	0	3	2	8	0
Through Vol	0	675	0	0	0	675
RT Vol	0	16	0	3	0	10
Lane Flow Rate	4	751	3	5	9	745
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.007	1.055	0.007	0.01	0.013	1.046
Departure Headway (Hd)	5.571	5.057	7.511	7.007	5.564	5.056
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	638	714	479	514	638	715
Service Time	3.346	2.827	5.511	5.007	3.344	2.83
HCM Lane V/C Ratio	0.006	1.052	0.006	0.01	0.014	1.042
HCM Control Delay	8.4	71.1	10.6	10.1	8.4	68.4
HCM Lane LOS	A	F	B	B	A	F
HCM 95th-tile Q	0	19.3	0	0	0	18.7

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Vol, veh/h	0	8	675	10
Future Vol, veh/h	0	8	675	10
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	9	734	11
Number of Lanes	0	1	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	67.7
HCM LOS	F

Intersection	
Intersection Delay, s/veh	444.6
Intersection LOS	F

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations												
Traffic Vol, veh/h	0	10	0	22	0	40	0	7	0	7	952	29
Future Vol, veh/h	0	10	0	22	0	40	0	7	0	7	952	29
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	11	0	24	0	43	0	8	0	8	1035	32
Number of Lanes	0	0	1	0	0	0	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	2	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	2	1
HCM Control Delay	13	13.6	300.4
HCM LOS	B	B	F

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	31%	85%	100%	0%
Vol Thru, %	0%	97%	0%	0%	0%	98%
Vol Right, %	0%	3%	69%	15%	0%	2%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	7	981	32	47	15	1363
LT Vol	7	0	10	40	15	0
Through Vol	0	952	0	0	0	1340
RT Vol	0	29	22	7	0	23
Lane Flow Rate	8	1066	35	51	16	1482
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.013	1.617	0.067	0.103	0.027	2.244
Departure Headway (Hd)	6.882	6.351	9.3	9.554	6.446	5.926
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	523	586	387	378	559	637
Service Time	4.582	4.051	7.3	7.554	4.146	3.626
HCM Lane V/C Ratio	0.015	1.819	0.09	0.135	0.029	2.327
HCM Control Delay	9.7	302.5	13	13.6	9.3	578.9
HCM Lane LOS	A	F	B	B	A	F
HCM 95th-tile Q	0	50.5	0.2	0.3	0.1	99.6

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Vol, veh/h	0	15	1340	23
Future Vol, veh/h	0	15	1340	23
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	16	1457	25
Number of Lanes	0	1	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	572.7
HCM LOS	F

Intersection	
Intersection Delay, s/veh	13.5
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	3	5	755	754
Demand Flow Rate, veh/h	3	5	770	769
Vehicles Circulating, veh/h	760	756	12	6
Vehicles Exiting, veh/h	15	26	751	755
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	6.9	6.9	13.7	13.5
Approach LOS	A	A	B	B

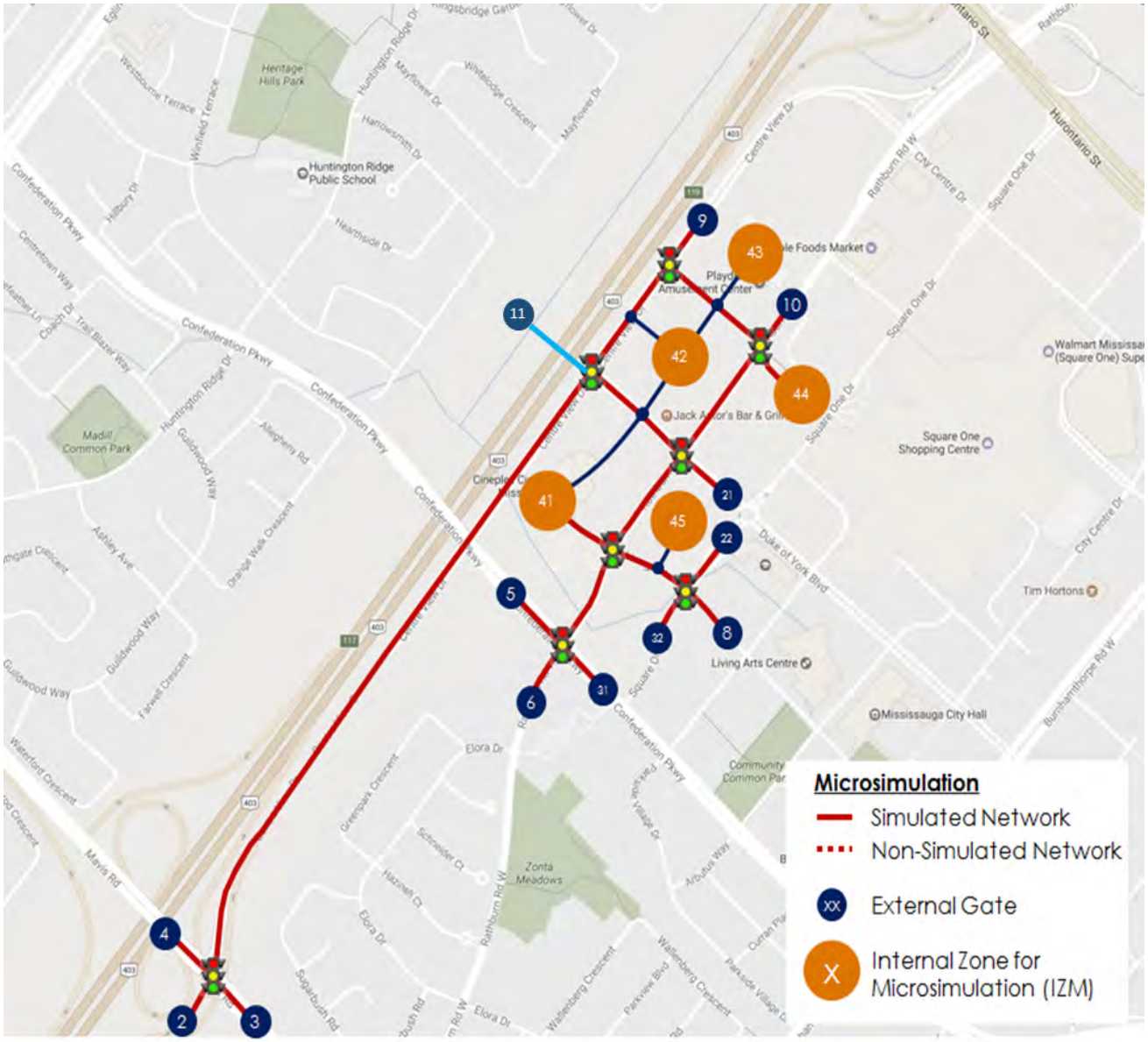
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	3	5	770	769
Cap Entry Lane, veh/h	528	531	1116	1123
Entry HV Adj Factor	1.000	1.000	0.981	0.981
Flow Entry, veh/h	3	5	755	754
Cap Entry, veh/h	528	531	1095	1102
V/C Ratio	0.006	0.009	0.690	0.685
Control Delay, s/veh	6.9	6.9	13.7	13.5
LOS	A	A	B	B
95th %tile Queue, veh	0	0	6	6

Intersection	
Intersection Delay, s/veh	137.7
Intersection LOS	F

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	35	51	1075	1498
Demand Flow Rate, veh/h	35	52	1097	1528
Vehicles Circulating, veh/h	1546	1075	27	52
Vehicles Exiting, veh/h	33	49	1554	1075
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	18.2	11.7	46.5	210.3
Approach LOS	C	B	E	F

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	35	52	1097	1528
Cap Entry Lane, veh/h	241	386	1100	1073
Entry HV Adj Factor	1.000	0.981	0.980	0.980
Flow Entry, veh/h	35	51	1075	1498
Cap Entry, veh/h	241	378	1078	1052
V/C Ratio	0.145	0.135	0.997	1.424
Control Delay, s/veh	18.2	11.7	46.5	210.3
LOS	C	B	E	F
95th %tile Queue, veh	1	0	20	64

Appendix E – FORECAST TRAVERSAL MATRICES


Microsimulation
Simulated Network
Non-Simulated Network
External Gate
Internal Zone for Microsimulation (IZM)
Heritage Hills Park
Huntington Ridge Public School
Madill Common Park
Square One Shopping Centre
Living Arts Centre
Mississauga City Hall
Tim Hortons
Zonta Meadows
Confederation Pkwy
Hurontario St
Mavis Rd
Elora Dr
Rathburn Rd W
Square One Dr
Duke of York Blvd
2
3
4
5
6
8
9
10
11
21
22
31
41
42
43
44
45

2021 Do Nothing AM

	2	3	4	5	6	8	9	10	21	22	31	32	41	42	43	44	45	**Total**
2	0	131	784	0	0	17	225	50	196	38	0	0	8	52	0	0	11	**1,512**
3	0	0	2267	0	0	0	31	0	0	0	0	0	0	13	0	0	0	**2,311**
4	0	2489	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**2,489**
5	0	2	0	0	36	89	2	363	26	1	471	14	0	48	7	0	1	**1,061**
6	0	0	0	55	0	14	2	434	0	0	100	4	4	6	1	0	0	**620**
8	0	0	15	34	8	0	4	91	60	23	0	3	5	0	0	0	20	**263**
9	0	10	46	0	25	8	0	22	38	10	12	0	8	39	6	0	12	**238**
10	0	0	37	76	113	28	30	0	51	0	76	0	0	25	1	0	5	**442**
21	0	0	44	31	20	0	25	73	0	0	0	0	0	15	0	0	1	**209**
22	0	0	2	4	3	10	0	2	2	0	0	6	0	0	0	0	1	**31**
31	0	0	0	1042	134	8	4	52	11	0	0	1	6	62	32	0	4	**1,355**
32	0	0	0	0	0	16	1	30	0	12	0	0	0	8	9	0	0	**75**
41	0	0	2	0	0	0	1	0	0	0	2	0	0	5	2	0	0	**13**
42	0	0	35	4	9	4	15	63	4	0	16	0	17	0	0	0	0	**167**
43	0	0	1	1	2	2	16	0	4	0	5	1	3	2	0	0	0	**37**
44	0	0	40	6	11	12	0	40	2	1	2	7	1	0	0	0	1	**124**
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total	**0**	**2,632**	**3,274**	**1,254**	**362**	**208**	**355**	**1,221**	**394**	**87**	**684**	**37**	**52**	**275**	**57**	**0**	**55**	**10,946**

2021 Do Nothing PM

	2	3	4	5	6	8	9	10	21	22	31	32	41	42	43	44	45	**Total**
2	0	195	322	2	0	29	109	218	620	23	1	0	19	8	18	0	4	**1,566**
3	0	0	1955	0	0	0	18	0	0	0	0	0	2	1	0	0	1	**1,977**
4	0	1516	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1,516**
5	0	0	0	0	27	135	0	228	26	0	930	10	11	30	0	0	0	**1,397**
6	0	0	0	50	0	8	0	208	27	1	68	7	7	22	0	0	1	**398**
8	0	0	60	2	6	0	0	25	1	14	0	15	2	8	0	0	5	**139**
9	0	51	446	7	11	40	0	0	83	9	40	0	14	30	20	0	2	**756**
10	0	11	204	166	537	121	0	0	127	1	35	10	29	79	7	0	9	**1,335**
21	0	0	282	97	72	0	22	93	0	9	0	0	1	43	4	0	0	**623**
22	0	0	2	3	3	28	0	1	9	0	0	37	4	0	0	0	0	**86**
31	0	0	0	1199	63	0	0	77	0	0	0	0	15	13	0	0	0	**1,366**
32	0	0	0	1	1	26	0	2	0	13	0	0	0	6	0	0	0	**49**
41	0	0	4	23	37	9	8	10	7	0	6	0	0	0	0	0	0	**103**
42	0	0	22	9	24	1	16	52	25	0	50	0	8	0	4	0	0	**210**
43	0	0	25	4	8	2	11	9	3	0	3	0	0	4	0	0	0	**69**
44	0	0	8	0	4	0	0	44	8	0	5	0	0	0	0	0	0	**69**
45	0	0	4	6	3	21	1	13	4	7	0	9	0	0	0	0	0	**68**
Total	**0**	**1,773**	**3,334**	**1,569**	**796**	**419**	**184**	**979**	**939**	**76**	**1,138**	**88**	**112**	**243**	**54**	**0**	**23**	**11,728**

2021 With Extension AM

	2	3	4	5	6	8	9	10	21	22	31	32	41	42	43	44	45	**Total**
2	0	95	718	6	0	84	208	63	160	2	6	0	11	49	0	0	8	**1,410**
3	0	0	2148	0	0	0	14	0	0	0	0	0	0	12	0	0	0	**2,174**
4	0	2471	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**2,471**
5	0	2	1	0	25	26	2	345	25	0	567	14	10	46	3	0	0	**1,066**
6	0	0	0	31	0	6	2	431	0	0	93	4	5	8	0	0	0	**580**
8	0	0	168	7	6	0	4	86	61	24	0	8	0	0	0	0	20	**383**
9	0	9	37	0	26	51	0	22	32	4	15	0	15	40	13	0	9	**272**
10	0	0	37	75	114	25	30	0	51	0	77	0	0	22	2	0	5	**438**
21	0	0	18	31	20	0	25	76	0	0	0	0	2	14	1	0	0	**188**
22	0	0	1	4	3	11	0	5	3	0	0	6	2	0	1	0	0	**36**
31	0	0	9	1030	118	8	4	44	12	0	0	1	6	62	33	0	4	**1,331**
32	0	0	0	0	0	16	1	30	0	13	0	0	0	8	9	0	0	**76**
41	0	0	2	0	0	0	1	0	0	0	2	0	0	5	2	0	0	**13**
42	0	0	35	4	9	4	15	63	4	0	16	0	17	0	0	0	0	**167**
43	0	0	1	1	2	2	16	0	4	0	5	1	3	2	0	0	0	**37**
44	0	0	40	6	11	12	0	40	2	1	2	7	1	0	0	0	1	**124**
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total	**0**	**2,577**	**3,214**	**1,196**	**334**	**246**	**321**	**1,206**	**352**	**44**	**783**	**42**	**74**	**267**	**63**	**0**	**48**	**10,767**

2021 With Extension PM

	2	3	4	5	6	8	9	10	21	22	31	32	41	42	43	44	45	**Total**
2	0	179	316	11	0	86	106	217	603	6	12	0	22	5	15	0	4	**1,581**
3	0	0	1953	0	0	0	24	0	0	0	0	0	2	1	0	0	1	**1,982**
4	0	1524	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1,524**
5	0	0	0	0	7	127	0	227	26	0	923	10	10	26	0	0	2	**1,359**
6	0	0	0	44	0	7	0	211	26	0	64	7	8	22	0	0	0	**389**
8	0	0	249	1	1	0	0	24	1	12	0	15	0	8	0	0	3	**314**
9	0	54	418	7	49	46	0	0	81	6	63	0	18	31	19	0	2	**794**
10	0	11	120	206	562	125	0	0	127	0	37	10	30	78	6	0	9	**1,320**
21	0	0	253	97	72	0	22	92	0	9	0	0	2	44	4	0	0	**595**
22	0	0	0	3	3	27	0	0	9	0	0	37	5	1	0	0	0	**85**
31	0	0	3	1309	48	0	0	75	0	0	0	0	14	13	0	0	0	**1,462**
32	0	0	0	1	1	31	0	2	0	13	0	0	0	6	0	0	0	**54**
41	0	0	14	15	39	0	11	10	8	1	6	0	0	0	0	0	0	**104**
42	0	0	23	8	26	0	26	41	25	0	49	0	8	0	4	0	0	**210**
43	0	0	23	4	7	2	16	6	3	0	4	0	0	4	0	0	0	**69**
44	0	0	8	0	4	0	0	44	8	0	5	0	0	0	0	0	0	**69**
45	0	0	6	5	1	22	1	12	4	7	0	9	0	0	0	0	0	**68**
Total	**0**	**1,768**	**3,387**	**1,712**	**820**	**473**	**206**	**961**	**921**	**55**	**1,163**	**89**	**118**	**238**	**48**	**0**	**20**	**11,979**

2031 Do Nothing AM

	2	3	4	5	6	8	9	10	21	22	31	32	41	42	43	44	45	**Total**
2	0	131	703	0	0	24	338	84	213	55	0	0	15	49	0	0	8	**1,620**
3	0	0	2371	0	0	0	9	0	0	0	0	0	0	12	0	0	0	**2,392**
4	0	2636	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**2,636**
5	0	2	0	0	41	44	2	382	25	0	621	14	8	49	5	0	1	**1,193**
6	0	0	0	53	0	3	2	494	0	0	41	4	6	6	3	0	0	**612**
8	0	0	13	41	3	0	4	100	60	24	0	12	6	1	0	0	15	**280**
9	0	3	49	0	25	41	0	22	47	20	13	0	15	35	10	0	7	**285**
10	0	0	47	74	135	28	30	0	51	0	77	0	0	28	0	0	6	**476**
21	0	0	85	31	20	0	25	72	0	4	0	0	0	15	0	0	0	**252**
22	0	0	38	4	3	11	0	1	8	0	0	6	0	1	0	0	0	**70**
31	0	0	0	1175	138	8	4	77	12	0	0	1	7	62	33	0	10	**1,526**
32	0	0	0	0	0	51	1	30	0	13	0	0	0	8	9	0	0	**110**
41	0	0	2	0	0	0	1	0	0	0	2	0	0	5	2	0	0	**13**
42	0	0	35	4	9	4	15	63	4	0	16	0	17	0	0	0	0	**167**
43	0	0	1	1	2	2	16	0	4	0	5	1	3	2	0	0	0	**37**
44	0	0	40	6	11	12	0	40	2	1	2	7	1	0	0	0	1	**124**
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total	**0**	**2,772**	**3,383**	**1,391**	**388**	**226**	**447**	**1,365**	**425**	**116**	**777**	**46**	**78**	**271**	**61**	**0**	**48**	**11,794**

2031 Do Nothing PM

	2	3	4	5	6	8	9	10	21	22	31	32	41	42	43	44	45	**Total**
2	0	331	214	2	0	44	198	243	661	64	0	0	21	8	15	0	4	**1,804**
3	0	0	2294	0	0	0	4	0	0	0	0	0	2	0	0	0	1	**2,300**
4	0	1774	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1,774**
5	0	0	0	0	31	126	0	245	26	0	1088	10	9	29	0	0	4	**1,568**
6	0	0	0	86	0	2	0	253	26	0	56	7	6	23	0	0	0	**458**
8	0	0	52	2	0	0	0	34	0	13	0	49	2	9	1	0	1	**162**
9	0	13	447	7	78	83	0	0	85	11	56	0	15	28	21	0	0	**845**
10	0	11	264	211	610	124	0	0	128	1	39	10	28	80	7	0	8	**1,522**
21	0	0	345	97	72	0	22	93	0	26	2	0	1	43	5	0	0	**707**
22	0	0	65	3	3	29	0	1	26	0	0	39	4	0	1	0	0	**172**
31	0	0	0	1275	22	0	0	75	0	0	0	0	14	13	0	0	0	**1,400**
32	0	0	0	1	1	49	0	2	0	13	0	0	0	6	0	0	0	**72**
41	0	0	7	21	42	4	10	10	7	0	6	0	0	0	0	0	0	**106**
42	0	0	22	10	28	1	20	49	25	0	49	0	8	0	4	0	0	**217**
43	0	0	23	5	8	2	14	9	3	0	4	0	0	4	0	0	0	**71**
44	0	0	8	0	4	0	0	44	8	0	5	0	0	0	0	0	0	**69**
45	0	0	1	5	1	21	1	13	4	7	7	9	0	0	0	0	0	**69**
Total	**0**	**2,129**	**3,742**	**1,725**	**901**	**484**	**269**	**1,073**	**999**	**136**	**1,311**	**124**	**110**	**243**	**53**	**0**	**19**	**13,318**

2031 With Extension AM

	2	3	4	5	6	8	9	10	21	22	31	32	41	42	43	44	45	**Total**
2	0	78	715	7	0	103	287	65	184	26	3	0	11	53	2	0	9	**1,541**
3	0	0	2374	0	0	0	11	0	0	0	0	0	1	12	0	0	0	**2,398**
4	0	2708	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**2,708**
5	0	2	2	0	54	13	6	383	27	2	624	14	5	48	3	0	2	**1,184**
6	0	0	0	57	0	2	5	502	0	0	41	4	5	5	4	0	0	**626**
8	0	0	214	17	3	0	5	87	60	23	0	21	0	0	0	0	21	**453**
9	0	2	49	0	28	49	0	22	47	20	18	0	18	39	9	0	5	**306**
10	0	0	45	74	141	29	30	0	51	0	77	0	0	35	1	0	4	**485**
21	0	0	27	31	20	0	25	78	0	9	0	0	2	15	1	0	0	**209**
22	0	0	1	4	3	10	0	7	13	0	0	6	2	1	1	0	0	**49**
31	0	0	0	1169	136	8	6	75	13	0	0	1	7	65	34	0	12	**1,525**
32	0	0	0	0	0	27	1	30	0	14	0	0	0	8	9	0	0	**88**
41	0	0	2	0	0	0	1	0	0	0	2	0	0	5	2	0	0	**13**
42	0	0	35	4	9	4	15	63	4	0	16	0	17	0	0	0	0	**167**
43	0	0	1	1	2	2	16	0	4	0	5	1	3	2	0	0	0	**37**
44	0	0	40	6	11	12	0	40	2	1	2	7	1	0	0	0	1	**124**
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total	**0**	**2,790**	**3,506**	**1,371**	**407**	**258**	**408**	**1,353**	**404**	**95**	**788**	**55**	**73**	**286**	**65**	**0**	**54**	**11,912**

2031 With Extension PM

	2	3	4	5	6	8	9	10	21	22	31	32	41	42	43	44	45	**Total**
2	0	259	170	14	0	143	214	239	639	42	27	0	22	11	15	0	4	**1,797**
3	0	0	2335	0	0	0	2	0	0	0	0	0	2	0	0	0	1	**2,340**
4	0	1849	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1,849**
5	0	0	0	0	21	96	0	250	27	0	1096	10	9	29	0	0	3	**1,541**
6	0	0	0	70	0	2	0	276	26	0	51	7	7	22	0	0	0	**461**
8	0	0	280	1	0	0	0	26	1	12	0	36	2	8	0	0	1	**368**
9	0	16	433	7	69	63	0	0	89	15	96	0	18	28	20	0	2	**857**
10	0	11	204	244	576	127	0	0	128	1	40	10	30	80	6	0	9	**1,467**
21	0	0	274	102	73	0	22	100	0	26	5	0	3	44	4	0	0	**652**
22	0	0	0	8	3	29	0	8	26	0	0	42	5	2	0	0	0	**123**
31	0	0	0	1337	19	0	0	75	0	0	0	0	15	13	0	0	1	**1,458**
32	0	0	0	1	1	56	0	2	0	13	0	0	0	6	0	0	0	**79**
41	0	0	11	16	40	0	15	10	8	1	7	0	0	0	0	0	0	**107**
42	0	0	22	11	26	2	30	39	25	0	50	0	8	0	4	0	0	**216**
43	0	0	25	3	8	2	17	5	3	0	3	0	0	4	0	0	0	**70**
44	0	0	8	0	4	0	0	44	8	0	5	0	0	0	0	0	0	**69**
45	0	0	6	6	1	18	1	12	3	6	6	9	0	0	0	0	0	**69**
Total	**0**	**2,135**	**3,766**	**1,820**	**842**	**538**	**300**	**1,086**	**982**	**117**	**1,387**	**114**	**121**	**246**	**50**	**0**	**20**	**13,524**

2041 Do Nothing AM

	2	3	4	5	6	8	9	10	11	21	22	31	32	41	42	43	44	45	**Total**
2	0	254	835	0	0	7	499	390	0	66	1	0	0	3	68	15	0	1	**2,140**
3	0	0	2387	0	0	0	6	0	0	0	0	0	0	0	11	0	0	0	**2,404**
4	0	2689	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**2,689**
5	0	2	0	0	51	49	2	272	0	32	7	541	14	7	37	5	0	1	**1,021**
6	0	0	0	34	0	1	74	424	73	1	1	74	4	11	16	10	0	0	**723**
8	0	0	0	88	6	0	180	72	32	48	12	0	20	18	6	2	0	19	**502**
9	0	0	2	0	27	8	0	22	0	2	0	10	0	1	53	30	0	1	**157**
10	0	0	53	75	145	29	31	0	0	51	0	75	0	5	45	20	0	5	**534**
11	0	0	0	0	12	29	0	140	0	205	205	24	0	12	32	14	0	6	**679**
21	0	0	0	31	20	0	64	71	39	0	16	0	0	0	25	2	0	0	**269**
22	0	0	0	4	3	10	39	0	39	20	0	0	6	0	8	2	0	0	**133**
31	0	0	0	1264	115	8	119	36	35	19	0	0	1	7	63	33	0	16	**1,715**
32	0	0	0	0	0	64	1	30	0	0	20	0	0	0	8	9	0	0	**131**
41	0	0	2	0	0	0	1	0	0	0	0	2	0	0	5	2	0	0	**13**
42	0	0	35	4	9	4	15	63	0	4	0	16	0	17	0	0	0	0	**167**
43	0	0	1	1	2	2	16	0	0	4	0	5	1	3	2	0	0	0	**37**
44	0	0	40	6	11	12	0	40	0	2	1	2	7	1	0	0	0	1	**124**
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total	**0**	**2,945**	**3,356**	**1,508**	**401**	**222**	**1,045**	**1,561**	**219**	**453**	**263**	**749**	**54**	**86**	**380**	**144**	**0**	**50**	**13,435**

2041 Do Nothing PM

	2	3	4	5	6	8	9	10	11	21	22	31	32	41	42	43	44	45	**Total**
2	0	585	409	0	0	0	879	327	0	527	1	0	0	18	12	15	0	2	**2,774**
3	0	0	2295	0	0	0	93	0	0	0	0	0	0	2	0	0	0	1	**2,391**
4	0	1710	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1,710**
5	0	0	0	0	30	90	0	213	0	26	0	1108	10	12	26	0	0	6	**1,521**
6	0	0	0	61	0	4	21	287	23	26	0	64	7	10	24	2	0	0	**529**
8	0	0	51	1	0	0	69	27	35	0	7	0	50	0	10	1	0	4	**255**
9	0	53	0	7	20	88	0	0	0	110	36	44	0	12	38	28	0	1	**437**
10	0	11	388	132	553	111	7	0	178	127	0	29	10	31	84	16	0	9	**1,686**
11	0	0	0	0	85	122	0	63	0	118	118	76	0	3	6	6	0	1	**598**
21	0	0	172	99	72	0	84	92	167	0	0	9	0	1	44	5	0	1	**746**
22	0	0	0	5	3	30	62	0	167	0	0	0	46	4	1	0	0	1	**320**
31	0	0	0	1301	24	0	42	76	40	0	0	0	0	14	14	1	0	2	**1,514**
32	0	0	0	1	1	116	0	2	0	0	13	0	0	0	6	0	0	0	**139**
41	0	0	0	21	40	6	7	16	7	7	0	7	0	0	0	0	0	0	**110**
42	0	0	21	6	34	2	40	62	31	31	5	51	0	8	0	4	0	0	**295**
43	0	0	47	3	12	5	36	27	2	4	1	5	0	0	4	0	0	0	**145**
44	0	0	8	0	4	0	0	44	0	8	0	5	0	0	0	0	0	0	**69**
45	0	0	0	9	1	19	9	12	1	0	3	6	9	0	0	0	0	0	**69**
Total	**0**	**2,359**	**3,390**	**1,648**	**880**	**593**	**1,350**	**1,248**	**651**	**983**	**183**	**1,402**	**132**	**116**	**269**	**77**	**0**	**26**	**15,307**

2041 With Extension AM

	2	3	4	5	6	8	9	10	11	21	22	31	32	41	42	43	44	45	**Total**
2	0	61	850	0	0	285	368	317	0	105	5	1	0	14	70	12	0	9	**2,096**
3	0	0	2292	0	0	0	3	1	0	0	0	0	0	0	11	0	0	0	**2,307**
4	0	2763	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**2,763**
5	0	2	0	0	46	7	2	318	0	28	3	643	14	1	35	3	0	1	**1,104**
6	0	0	0	66	0	2	105	430	89	0	0	43	4	2	12	10	0	0	**762**
8	0	0	139	40	2	0	145	68	10	46	10	0	38	1	1	1	0	20	**521**
9	0	0	2	0	35	35	0	22	0	10	1	40	0	1	56	30	0	6	**238**
10	0	0	51	76	147	25	31	0	0	51	0	76	0	8	44	22	0	4	**535**
11	0	0	0	0	6	9	12	167	0	168	168	22	0	19	44	11	0	4	**629**
21	0	0	0	31	20	1	96	71	38	0	2	0	0	4	24	5	0	1	**293**
22	0	0	0	4	3	12	71	0	38	6	0	0	6	4	8	5	0	1	**158**
31	0	0	0	1242	114	8	201	36	25	26	0	0	1	10	64	34	0	9	**1,769**
32	0	0	0	0	0	39	1	30	0	0	27	0	0	0	8	9	0	0	**114**
41	0	0	2	0	0	0	1	0	0	0	0	2	0	0	5	2	0	0	**13**
42	0	0	35	4	9	4	15	63	0	4	0	16	0	17	0	0	0	0	**167**
43	0	0	1	1	2	2	16	0	0	4	0	5	1	3	2	0	0	0	**37**
44	0	0	40	6	11	12	0	40	0	2	1	2	7	1	0	0	0	1	**124**
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total	**0**	**2,827**	**3,413**	**1,471**	**396**	**442**	**1,066**	**1,563**	**199**	**450**	**218**	**850**	**72**	**84**	**384**	**143**	**0**	**55**	**13,631**

2041 With Extension PM

	2	3	4	5	6	8	9	10	11	21	22	31	32	41	42	43	44	45	**Total**
2	0	405	360	0	0	271	808	341	0	532	2	0	0	21	7	22	0	7	**2,775**
3	0	0	2115	0	0	0	46	0	0	0	0	0	0	2	0	0	0	1	**2,165**
4	0	1758	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1,758**
5	0	0	0	0	3	45	0	215	0	26	0	1133	10	9	26	0	0	3	**1,471**
6	0	0	0	83	0	0	38	278	64	26	0	50	7	8	25	3	0	0	**583**
8	0	0	315	0	0	0	71	25	9	0	9	0	37	0	8	0	0	4	**478**
9	0	16	0	7	8	58	0	2	0	116	42	168	0	15	35	28	0	1	**498**
10	0	13	403	190	564	107	17	0	132	127	0	28	10	32	85	16	0	8	**1,732**
11	0	0	0	0	77	18	0	95	0	146	146	48	0	4	12	7	0	0	**554**
21	0	0	174	99	73	0	89	92	159	0	0	13	0	1	43	5	0	1	**749**
22	0	0	0	5	3	34	68	0	159	0	0	0	50	4	1	1	0	1	**325**
31	0	0	0	1368	22	0	139	76	28	0	0	0	0	16	14	0	0	2	**1,665**
32	0	0	0	1	1	49	0	2	0	0	13	0	0	0	6	0	0	0	**73**
41	0	0	9	14	38	0	7	19	5	8	1	9	0	0	0	0	0	0	**111**
42	0	0	13	7	32	0	43	70	34	28	2	51	0	8	0	4	0	0	**292**
43	0	1	41	3	15	2	35	31	2	4	1	5	0	0	4	0	0	0	**145**
44	0	0	8	0	4	0	0	44	0	8	0	5	0	0	0	0	0	0	**69**
45	0	0	6	4	1	18	8	12	1	0	3	5	9	0	0	0	0	0	**68**
Total	**0**	**2,194**	**3,444**	**1,782**	**842**	**603**	**1,370**	**1,301**	**593**	**1,023**	**219**	**1,516**	**123**	**120**	**267**	**87**	**0**	**27**	**15,512**