Technical Memorandum

To:	Tyler Peers – Halton Region Martin Chan – Town of Oakville	Date:	2026-05-27
Cc:	Bart Lopat – ARGO Oakville Woods Corporation		
From:	Jade Huangfu – CGH Transportation Mark Crockford – CGH Transportation	Project Number:	2025-067

Re: ARGO Oakville Woods – Draft Plan Application – Transportation Memo

1 Introduction

The second submission of the EM4 JC7 JC9 Transportation Impact Study was prepared and finalized in May 2026, to support the Environmental Implementation Report (EIR) / Functional Servicing Study (FSS) as part of future draft plan submissions for multiple lands within the EM4, JC7, and JC9 development areas in North Oakville. This study used the initial concept plan for each site to develop a TIS that examined the overall impact of the subject developments on the transportation network. Comments from the first submission was received from Halton Region dated March 25, 2025, and from the Town of Oakville dated November 24, 2025, and have been addressed within the updated TIS. This TIS is provided in Attachment 1.

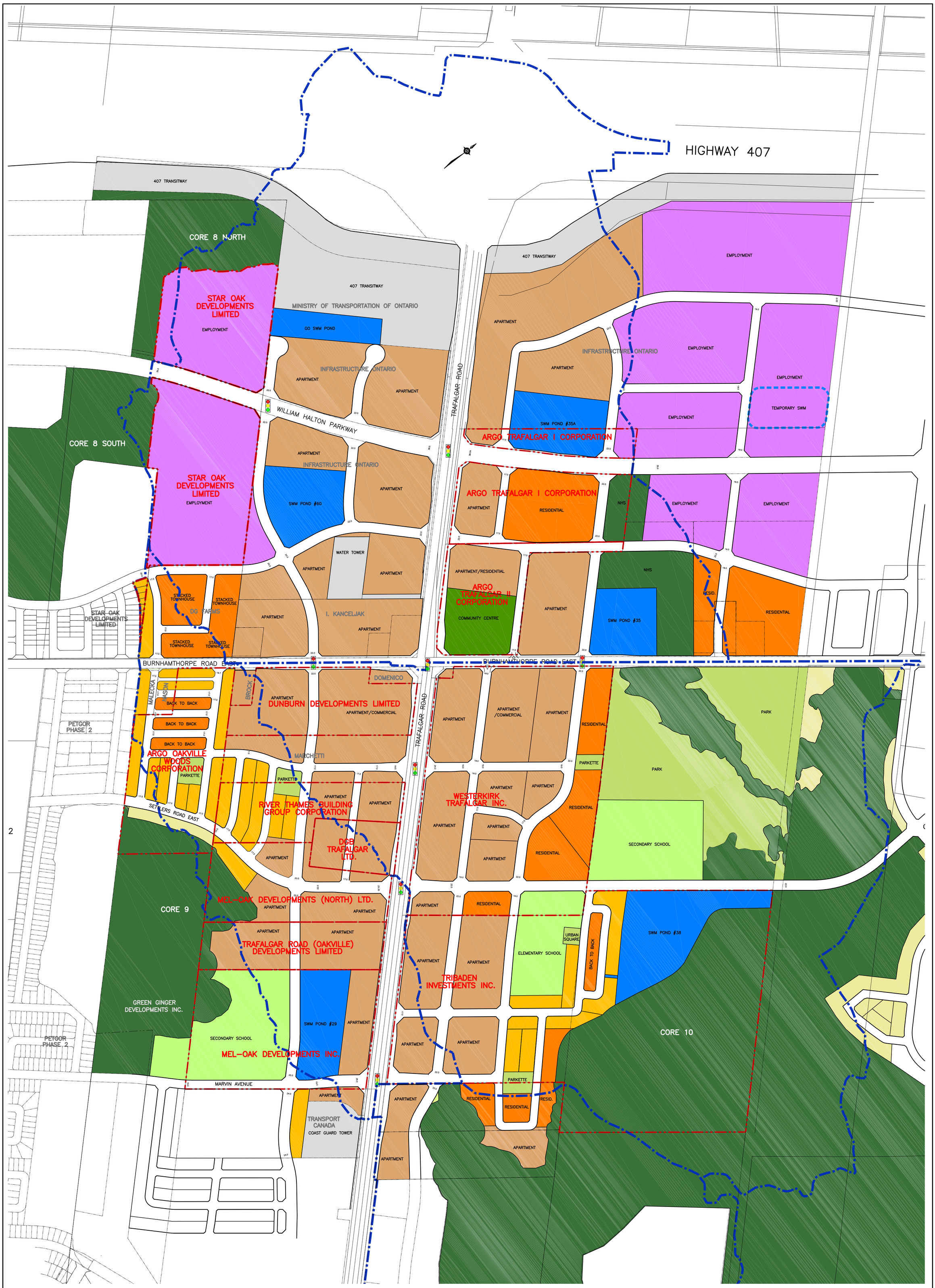
This memo has been prepared in support of the draft plan application for the proposed ARGO Oakville Woods development which is located south of the intersection of Trafalgar Road and Burnhamthorpe Road. The site will be bordered by Burnhamthorpe Road along the northwest boundary and a future extension of Settlers Road along the southwest boundary. Access to the development is proposed via both Burnhamthorpe Road and Settlers Road. This memo will examine the changes between the original plan considered in the TIS and the updated plan prepared in support of the current draft plan application. For the purposes of this analysis, it is assumed that the subject development will be built out by 2031.

Pre-consultation comments dated April 16, 2025, for the initial draft plan submission, along with responses to the applicable transportation-related comments are included in Attachment 2. Following the first draft plan submission, comments from the Town dated November 24, 2025, have been received and have been incorporated into this memo. Responses to both pre-consultation comments and the first draft plan submission comments are included in Attachment 2 and form the basis for this memo.

2 Draft Plan Review

The EM4 JC7 JC9 concept plan is illustrated in Figure 1 and the updated concept plan of the subject development is shown in Figure 2. It is noted that the EM4 JC7 JC9 overall concept plan reflects the most recent road network updates to the draft plan for the subject development since the first submission of this memo. Proposed changes to the road network have been incorporated into the traffic analysis presented in the updated TIS.

Figure 1: EM4 JC7 JC9 Concept Plan



DEVELOPMENT CONCEPT PLAN

UPPER EM4, JC7, AND JC9A SUBCATCHMENTS

LEGEND:

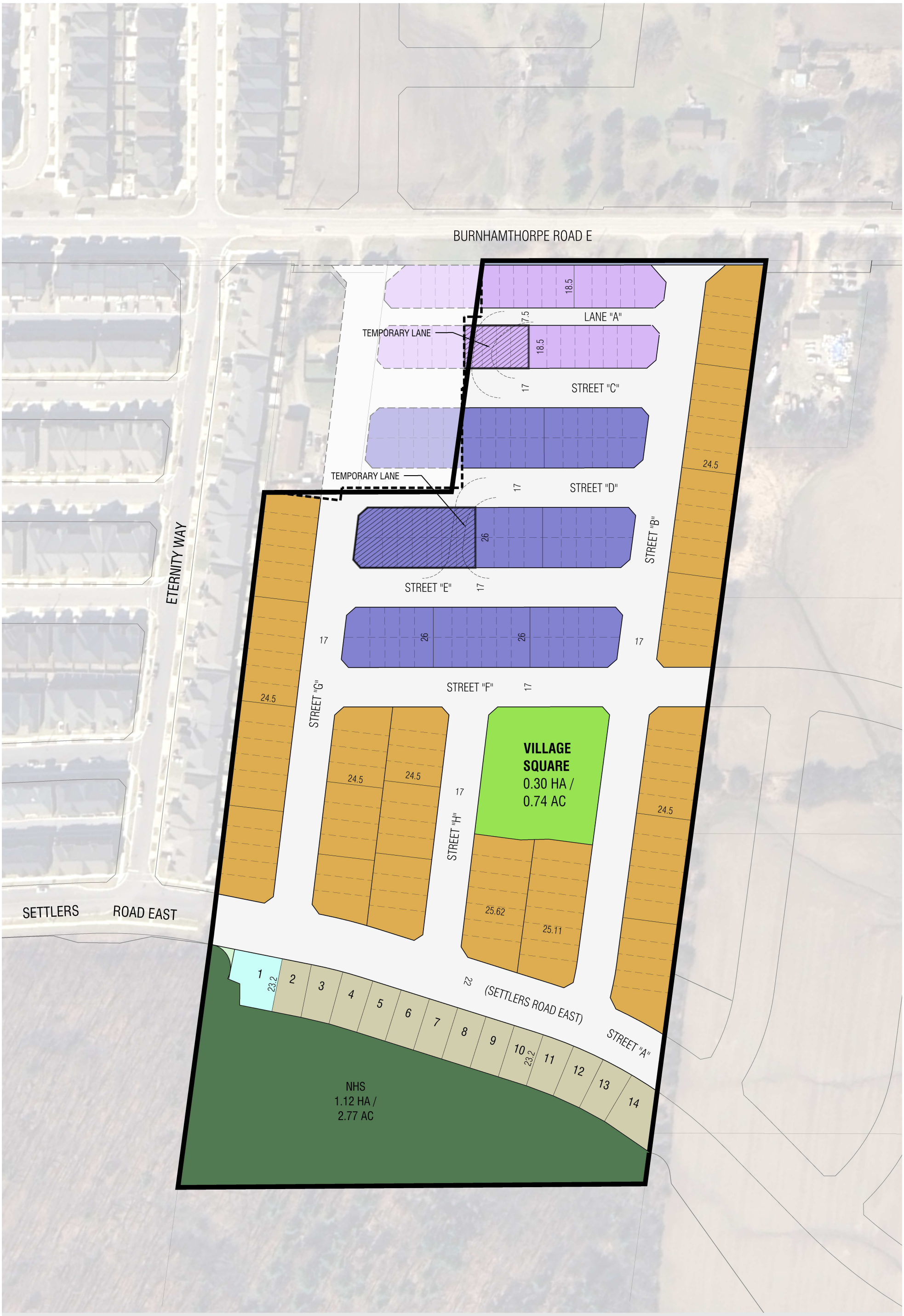
- PARTICIPATING PARCEL BOUNDARIES
- COMMERCIAL AND/OR APARTMENTS
- BACK TO BACK TOWNHOUSES, STACKED TOWNHOUSES, AND/OR OTHER RESIDENTIAL
- STREET/LANE ACCESSED TOWNHOUSES
- SINGLE DETACHED/SEMI-DETACHED
- EMPLOYMENT
- SCHOOL
- PARK/URBAN SQUARE
- NATURAL HERITAGE SYSTEM AREA
- STORM WATER MANAGEMENT
- OTHER OPEN SPACE
- UTILITY
- FOUR WAY SIGNALIZED INTERSECTION
- EM4/JC7/JC9 SUBWATERSHED AREA BOUNDARY
- COMMUNITY CENTRE

PROJECT No. P-3407

SCALE 1:4000 MAR. 23, 2026

(3407-SUBWATERSHEDBASE33)

Figure 2: Oakville Woods Concept Plan



DRAFT

- All Units In Metric Unless Otherwise Noted.
- Base Information Obtained From Various Sources And Is Approximate.
- Schedule / Plan Information Is Conceptual And Requires Verification by Appropriate Agency.
- Aerial Photo: Google Earth

GERRARD DESIGN

ARGO OAKVILLE WOODS | OAKVILLE, ON

PRELIMINARY CONCEPT

MAY 27, 2026

PROJECT 1931

SCALE 1:1500

CP-39

Additionally, corresponding names for roadways analyzed within the EM4 JC7 JC9 TIS from the subject site has been summarized in Table 1 below. The naming of Settlers Road and Burnhamthorpe Road remain consistent between both studies.

Table 1: Corresponding Road Naming

EM4 JC7 JC9 TIS	Oakville Woods Draft Plan Memo
Local 1	Street B
Local 6	Street F

2.1 Forecasting

2.1.1 Trip Generation Comparison

The initial concept plan evaluated in the TIS proposes 209 townhouse units and 12 single detached units, while the updated concept plan proposes 209 townhouse units and 14 single detached units. The unit count changes between the previous and updated concept plan are summarized in Table 2 below.

Table 2: Land Use Statistic Comparison

Scenario	Single Family Attached LUC 215	Single Family Detached LUC 210	Total Unit Count
Original	209	12	221
Updated	209	14	223
Change	0	+2	+2

As shown above, the updated plan shows the same number of townhouse units and increases the single detached units by 2. The overall unit count has been increased by 2 units. Due to the change in unit counts, the trip generation for the development has been examined to determine if the proposed changes would significantly differ relative to the trip generation originally considered.

The trip generation equations for the townhouse and single detached units were used in the TIS as greater than 20 data points were provided for each land use code. The trip generation factors used for each of the land uses are summarized in Table 3 below.

Table 3: ITE Trip Generation Equations

Peak Period	Single Family Attached LUC 215	Single Family Detached LUC 210
AM Peak	T = 0.52(X) – 5.70	Ln(T) = 0.91Ln(X) + 0.12
PM Peak	T = 0.60(X) – 3.93	Ln(T) = 0.94Ln(X) + 0.27
SAT Peak	Ln(T) = 0.82Ln(X) + 0.43	T = 0.86(X) + 9.72

Using the above trip generation rates, the total vehicle trip generation for the site has been recalculated. Table 4 summarizes and compares the trip generation of the Oakville Woods site as considered in the TIS compared to the updated plan considered in this memo.

Table 4: Vehicle Trip Generation Comparison – Oakville Woods Site Only

Scenario	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
Previous	21	62	83	58	40	98	51	53	104
Updated	20	61	81	58	40	98	51	53	104
Difference	-1	-1	-2	0	0	0	0	0	0
% Difference	-5%	-2%	-1%	0%	0%	0%	0%	0%	0%

As shown above, the changes to the trip generation of the ARGO Oakville Woods development will result in a net decrease of approximately 1% of vehicle traffic in the AM peak period and no change in the PM and Saturday peak periods.

The subject development is anticipated to generate 81 AM peak hour two-way vehicle trips, 98 PM peak hour two-way vehicle trips, and 104 Saturday peak hour two-way vehicle trips.

Table 5 summarizes and compares the overall trip generation of all the developments considered in the TIS before and after the Oakville Woods updated concept plan addressed in this memo.

Table 5: Vehicle Trip Generation Comparison – All Developments Considered in the TIS

Scenario	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
Previous	1757	2911	4660	2983	2417	5393	3074	2424	5497
Updated	1756	2910	4658	2983	2417	5393	3074	2424	5497
Difference	-1	-1	-2	0	0	0	0	0	0
% Difference	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%

As shown above, when the entire trip generation of all developments included in the TIS are considered, the resulting changes to the trip generation of the Oakville Woods development is anticipated to be negligible.

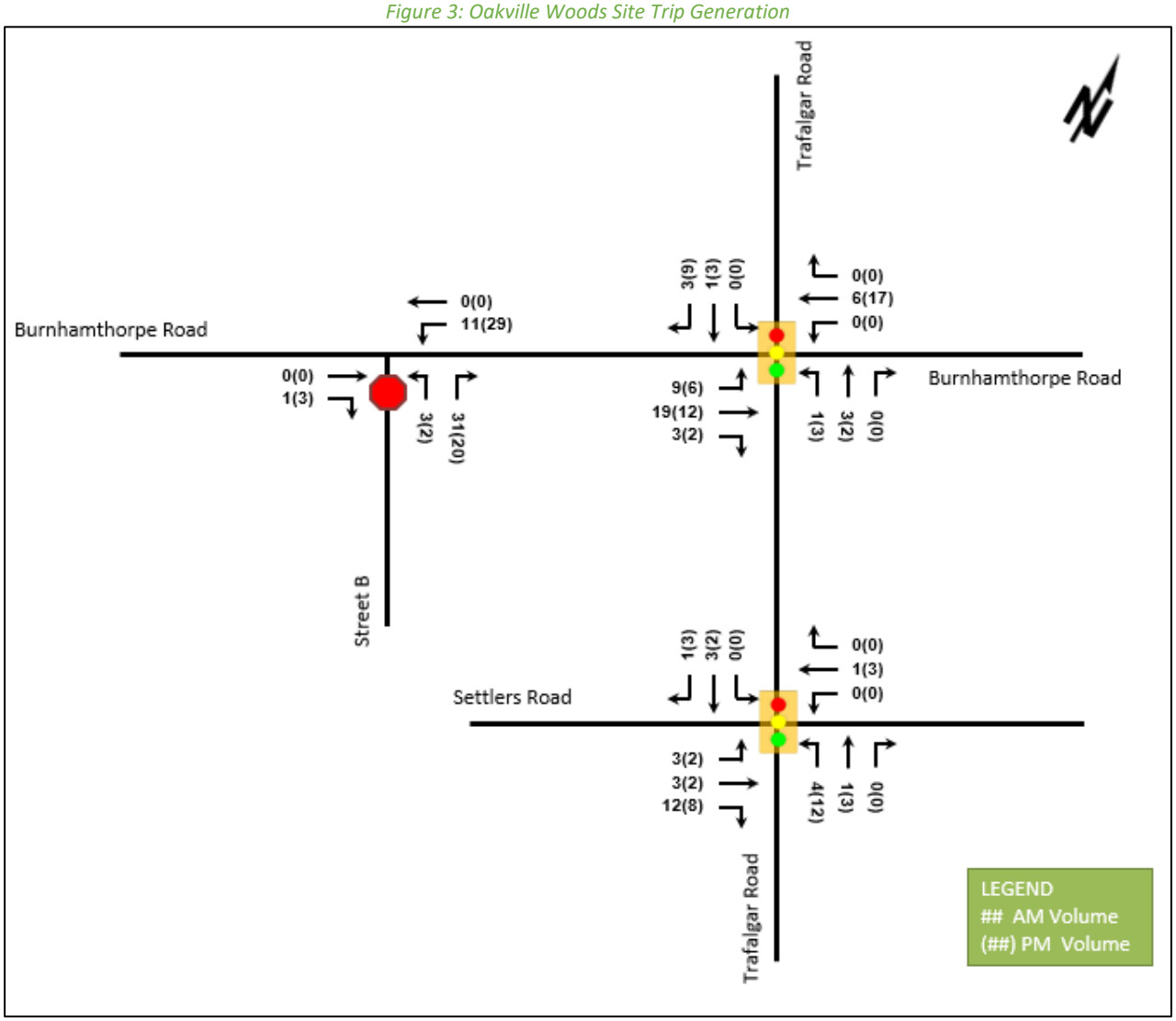
2.1.2 Trip Assignment

A summary of the site-generated trip assignment based on the EM4 JC7 JC9 TIS is summarized within this memo for the following intersections:

- Trafalgar Road and Burnhamthorpe Road
- Trafalgar Road and Settlers Road
- Street B and Burnhamthorpe Road

The trips generated by the subject site as considered within the updated EM4 JC7 JC9 TIS is presented in Figure 3 below. The trip assignment below reflects the interim site condition which assumes that access to Burnhamthorpe Road is limited to Street B only. This represents a conservative scenario as it is anticipated that site access operations will improve once the additional connection at Street G and Burnhamthorpe Road becomes available.

Figure 3: Oakville Woods Site Trip Generation



2.2 Future Total Conditions

The information presented in the following section has been taken from the updated EM4 JC7 JC9 TIS. The 2031 future total volumes and corresponding intersection operational analysis are consistent with those presented in the TIS. All Synchro modelling assumptions and parameters have been documented within the TIS. However, this section has been scoped to include only intersections relevant to the subject site.

The operational analysis of the internal intersections of Street B and Street G at Settlers Road have not been included within this memo. Based on the EM4 JC7 JC9 TIS, two-way traffic volumes from the subject development using Settlers Road are anticipated to be 24 in the AM and 30 in the PM. At full build-out of the EM4 JC7 JC9 development, the two-way peak hour volumes on Settlers Road are anticipated to be approximately 336 vehicles in the AM and 331 vehicles in the PM. These volumes do not meet the volume thresholds for an AWSC warrant based on OTM Book 5. As such, stop control has been assumed on the minor legs, and full intersection operational analysis at these intersections is not required at these intersections.

2.2.1 Operational Analysis

The 2031 future total conditions for the above intersections as presented in the updated EM4 JC7 JC9 TIS are summarized in Table 6. The 95th percentile queue lengths are summarized in Table 7.

Table 6: 2031 Future Total Conditions Operational Analysis

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Burnhamthorpe Road at Trafalgar Road *(Signalized)*	EBL	E	0.90	73	D	0.54	35
	EBT/R	D	0.51	35	C	0.44	32
	WBL	F	1.31	215	F	1.43	255
	WBT/R	C	0.38	34	C	0.34	31
	NBL	F	3.69	1279	F	2.20	620
	NBT/R	E	1.04	63	D	0.99	50
	SBL	D	0.69	40	F	1.01	107
	SBT/R	B	0.67	18	C	0.77	23
	Overall	**F**	**2.52**	**102**	**E**	**1.81**	**65**
Mitigation: AM & PM permitted + protected WBL, NBL, SBL, EBR storage of 30 m, signal timing optimization							
Burnhamthorpe Road at Trafalgar Road (Signalized)	*EBL*	*E*	*0.89*	*72*	*E*	*0.78*	*64*
	EBT	*D*	*0.42*	*37*	*D*	*0.44*	*42*
	EBR	*C*	*0.09*	*34*	*D*	*0.20*	*40*
	WBL	*D*	*0.79*	*47*	*F*	*1.18*	*151*
	WBT/R	*C*	*0.32*	*29*	*C*	*0.38*	*34*
	NBL	*E*	*0.87*	*59*	*C*	*0.67*	*32*
	NBT/R	*F*	*1.12*	*97*	*E*	*1.02*	*57*
	SBL	*D*	*0.80*	*48*	*D*	*0.68*	*39*
	SBT/R	*E*	*1.04*	*71*	*C*	*0.89*	*35*
	Overall	***E***	***1.02***	***72***	***D***	***1.06***	***51***
Street B (Local 1) at Burnhamthorpe Road *(Unsignalized)*	EBT	A	0.23	0	A	0.17	0
	EBT/R	A	0.11	0	A	0.09	0
	WBT/L	A	0.01	1	A	0.03	2
	WBT	A	0.15	0	A	0.20	0
	NBL	C	0.01	17	C	0.01	16
	NBR	B	0.05	11	A	0.03	10
	Overall	**A**	**-**	**1**	**A**	**-**	**1**
Settlers Road at Trafalgar Road *(Signalized)*	EBL	D	0.73	53	D	0.51	43
	EBT	D	0.36	39	D	0.44	41
	EBR	D	0.36	39	D	0.10	38
	WBL	D	0.82	50	D	0.61	36
	WBT	C	0.26	30	C	0.23	31
	WBR	C	0.04	28	C	0.02	29
	NBL	C	0.55	21	D	0.86	52
	NBT/R	C	0.90	31	C	0.90	29
	SBL	C	0.61	26	D	0.85	51
	SBT/R	C	0.80	26	C	0.86	29
	Overall	**C**	**0.88**	**31**	**C**	**0.87**	**32**

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Mitigation: AM & PM signal timing optimization, EBR storage of 40 m, NBR storage of 40 m, SBL storage of 80 m, SBR storage of 30 m							
Settlers Road at Trafalgar Road (Signalized)	*EBL*	*E*	*0.75*	*60*	*D*	*0.54*	*51*
	EBT	*D*	*0.36*	*43*	*D*	*0.47*	*49*
	EBR	*D*	*0.37*	*44*	*D*	*0.10*	*45*
	WBL	*E*	*0.88*	*65*	*D*	*0.70*	*49*
	WBT	*C*	*0.28*	*34*	*D*	*0.26*	*38*
	WBR	*C*	*0.04*	*32*	*D*	*0.02*	*35*
	NBL	*C*	*0.57*	*25*	*E*	*0.68*	*57*
	NBT	*C*	*0.87*	*31*	*C*	*0.92*	*25*
	NBR	*B*	*0.19*	*16*	*C*	*0.15*	*24*
	SBL	*C*	*0.60*	*27*	*C*	*0.67*	*35*
	SBT	*C*	*0.80*	*27*	*D*	*0.90*	*36*
	SBR	*B*	*0.10*	*15*	*B*	*0.10*	*18*
	Overall	***C***	***0.88***	***32***	***C***	***0.87***	***33***

Table 7: 2031 Future Total Conditions Queue Lengths

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
Burnhamthorpe Road at Trafalgar Road *(Signalized)*	EBL	100	#94	50
	EBT/R	-	68	61
	WBL	120	#126	#163
	WBT/R	-	48	48
	NBL	130	#140	#76
	NBT/R	-	#277	#241
	SBL	170	42	#67
	SBT/R	-	127	157
Mitigation: AM & PM permitted + protected WBL, NBL, SBL, EBR storage of 30 m, signal timing optimization				
Burnhamthorpe Road at Trafalgar Road (Signalized)	*EBL*	*100*	*#85*	*50*
	EBT	*-*	*51*	*43*
	EBR	*30*	*14*	*23*
	WBL	*120*	*60*	*#108*
	WBT/R	*-*	*40*	*43*
	NBL	*130*	*#97*	*#52*
	NBT/R	*-*	*#278*	*#268*
	SBL	*170*	*#66*	*#71*
	SBT/R	*-*	*#222*	*#234*
Street B (Local 1) at Burnhamthorpe Road *(Unsignalized)*	EBT	-	0	0
	EBT/R	-	0	0
	WBT/L	-	0	1
	WBT	-	0	0
	NBL	30	0	0
	NBR	-	1	1

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
Settlers Road at Trafalgar Road *(Signalized)*	EBL	60	57	33
	EBT	-	39	39
	EBR	30	36	16
	WBL	85	73	48
	WBT	-	38	31
	WBR	30	9	2
	NBL	90	#25	#86
	NBT/R	-	#221	#244
	SBL	60	#33	#65
	SBT/R	-	173	#209
Mitigation: AM & PM signal timing optimization, EBR storage of 40 m, NBR storage of 40 m, SBL storage of 80 m, SBR storage of 30 m				
Settlers Road at Trafalgar Road (Signalized)	*EBL*	*60*	*57*	*33*
	EBT	*-*	*39*	*39*
	EBR	*40*	*36*	*16*
	WBL	*85*	*74*	*48*
	WBT	*-*	*38*	*31*
	WBR	*30*	*9*	*2*
	NBL	*60*	*#29*	*m#49*
	NBT	*-*	*#238*	*m#223*
	NBR	*40*	*29*	*m16*
	SBL	*80*	*#37*	*#67*
	SBT	*-*	*#208*	*#230*
	SBR	*30*	*15*	*15*
Notes:	# - 95% percentile exceeds capacity m - volume for the 95th percentile queue is metered by an upstream signal			

As shown above, critical and overcapacity movements have been identified at the intersections of Burnhamthorpe Road and Trafalgar Road and at Settlers Road and Trafalgar Road.

At the intersection of Burnhamthorpe Road and Trafalgar Road, critical and overcapacity movements have been identified for the overall intersection as well as for the westbound left-turn, northbound left-turn, northbound through/right-turn, and southbound left-turn movements in one or both peak periods. As a mitigation measure, permissive and protected phases have been added for the westbound left-turn, northbound left-turn, and southbound left-turn movements in the AM and PM peak periods. An auxiliary eastbound right-turn has also been added and signal timing splits have been optimized at the intersection for both AM and PM peak periods. Following mitigation measures, the westbound left-turn, shared northbound through/right-turn, and shared southbound through/right-turn movements are identified to still operate at critical or overcapacity v/c ratios. This is due to the high through volumes projected on Trafalgar Road and are not able to be mitigated using reasonable mitigation measures. It is noted that overall intersections at this intersection may be improved with the addition of northbound and southbound auxiliary right-turn lanes. However, discussion with Region staff have confirmed that these turning lanes will not be included within the ongoing detailed design of Trafalgar Road. As such, the configurations proposed through the mitigation measures will not include the inclusion of a northbound or southbound right-turn lane.

At the intersection of Settlers Road and Trafalgar Road, critical movements have been identified for the overall intersection as well as for the shared northbound through/right-turn and the shared southbound through/right-

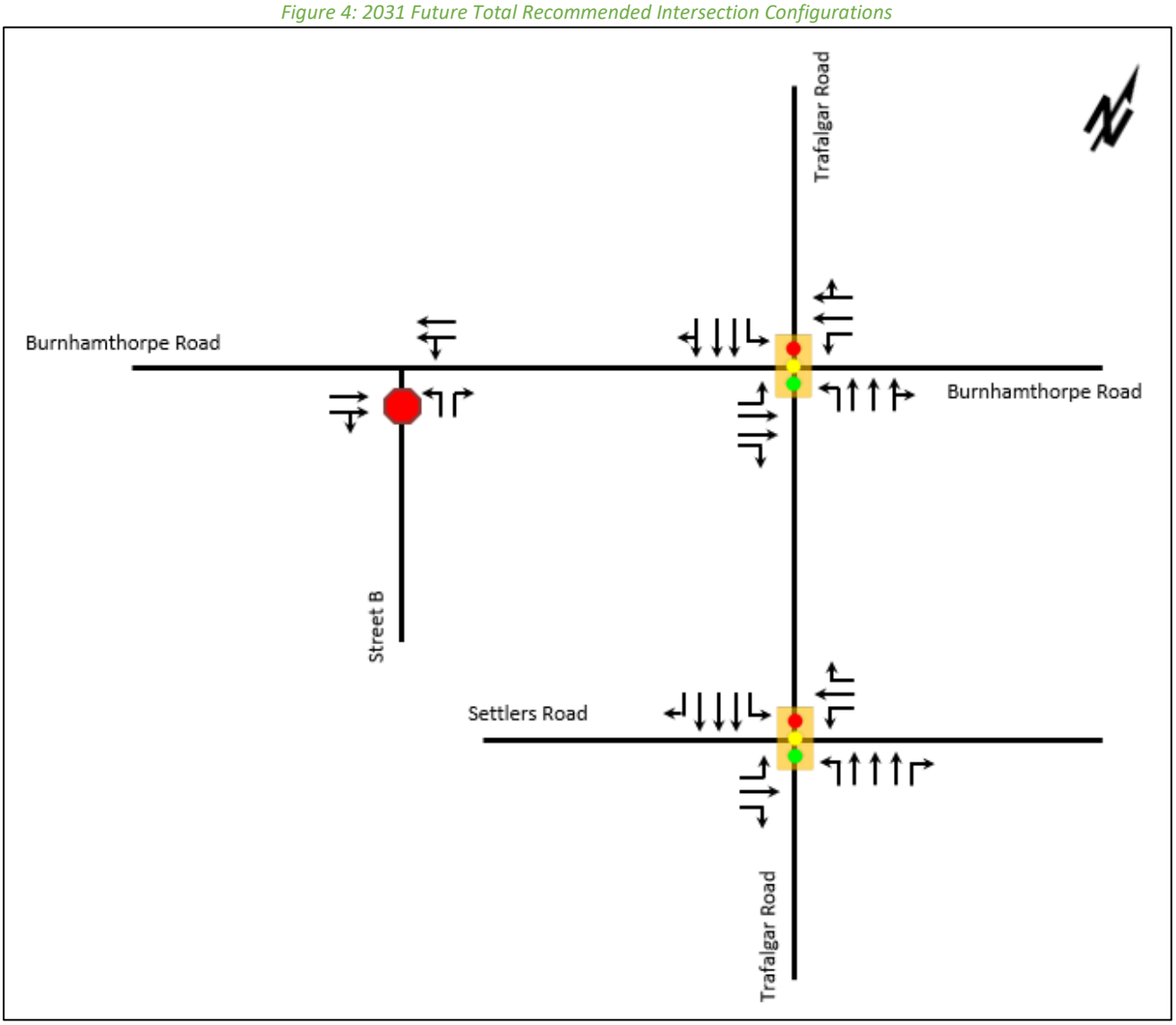
turn movements in either one or both peak periods. As a mitigation measure, auxiliary northbound and southbound auxiliary right-turn lanes have been proposed. Following mitigation measures, the northbound through and the southbound through movements are identified to still operate at critical v/c ratios. This is due to high through volumes projected on Trafalgar Road and are not able to be mitigated using reasonable mitigation measures. It is noted that movements entering and exiting the subject site via Settlers Road operate acceptably with no noted critical or overcapacity movements.

Given that the access intersection of Street B at Burnhamthorpe Road operates acceptably with no critical or overcapacity movements in the interim conditions, it is expected that the access will continue to operate sufficiently once the Street G and Burnhamthorpe Road access becomes available.

2.2.2 Recommended Intersection Configurations

Based on the analysis presented in the updated EM4 JC7 JC9 TIS as summarized above, the recommended 2031 future total intersection configurations for the subject site are illustrated in Figure 4 below.

Figure 4: 2031 Future Total Recommended Intersection Configurations



2.3 Development Roadway Cross-sections

Roadway cross-sections from the *North Oakville Urban Design and Open Space Guidelines (2009)* have been considered for the proposed development's internal road network. Within the proposed development, two north-south 17-metre local roadways (Street B and Street G) connect the subject development to both Burnhamthorpe Road East and Settlers Road. The rest of the road network within the subject development lands consists of 17-metre local roadways and one 7.5 metre laneway. The classifications of internal roadways are summarized in Table 8 below.

Table 8: Internal Roadway Classification

Road	Classification	North Oakville Urban Design and Open Space Guidelines Right-of-Way (m)
Lane A	Laneway	7.5
Street B	Local Road	17
Street C		
Street D		
Street E		
Street F		
Street G		
Street H		
Settlers Road	Avenue/Transit Corridor	24

The cross-sections for the 24-metre Avenue/Transit corridor, the 17-metre local roadway, and the 7.5 metre laneway from the *North Oakville Urban Design and Open Space Guidelines (2009)* are shown below in Figure 5, Figure 6 and Figure 7, respectively.

Figure 5: Urban Core 24-metre Avenue/Transit Corridor Cross-Section

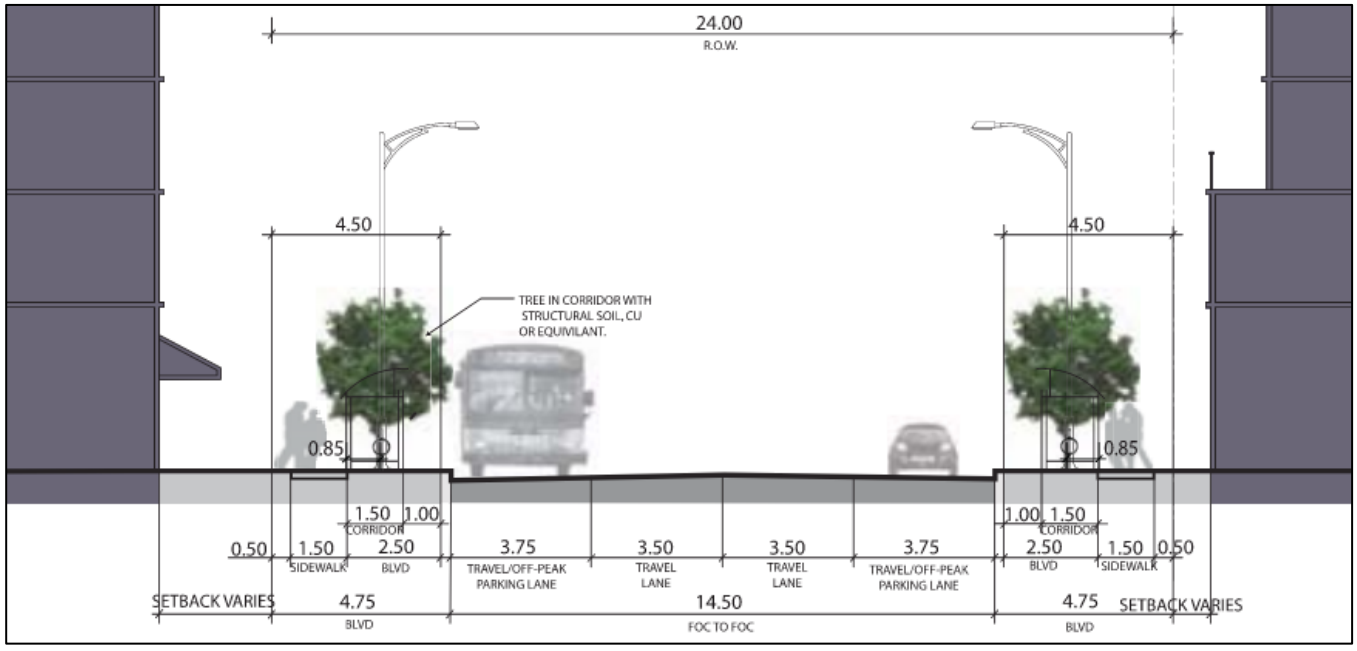


Figure 6: 17-metre Local Roadway Cross-section

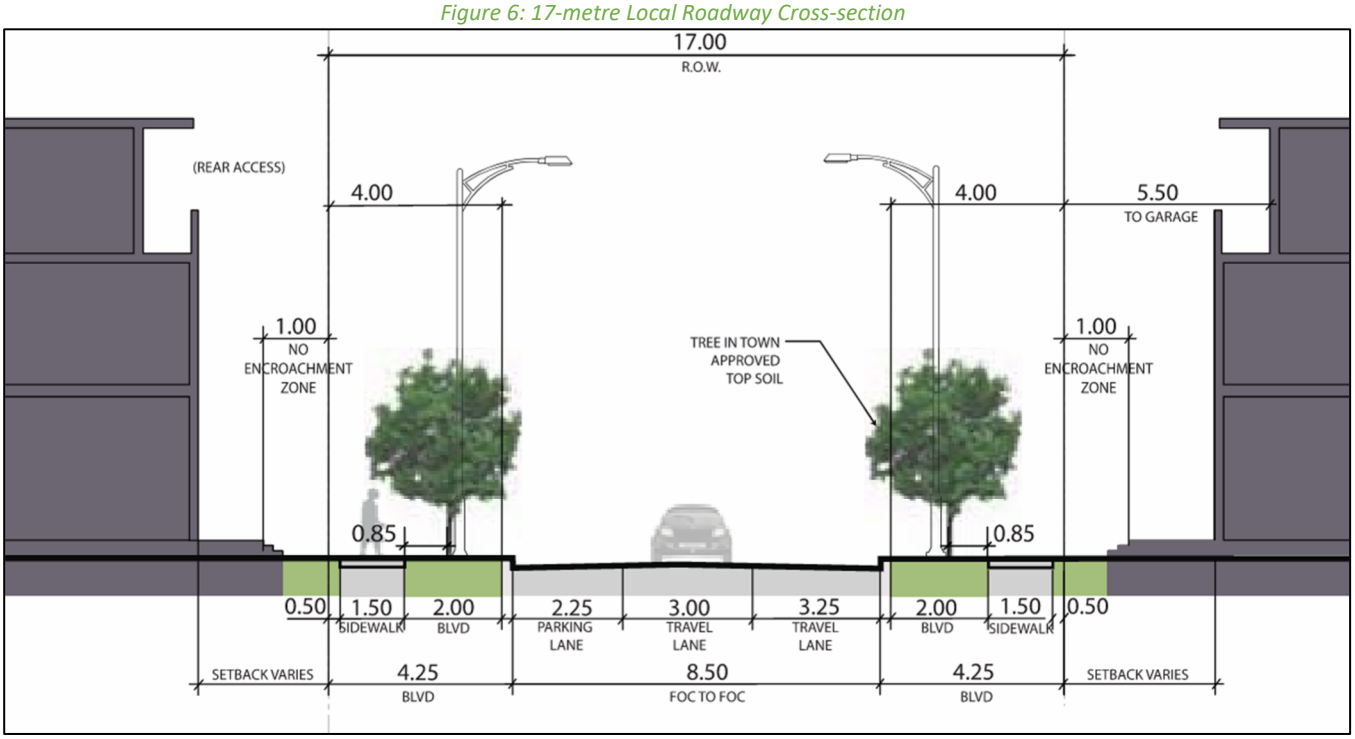
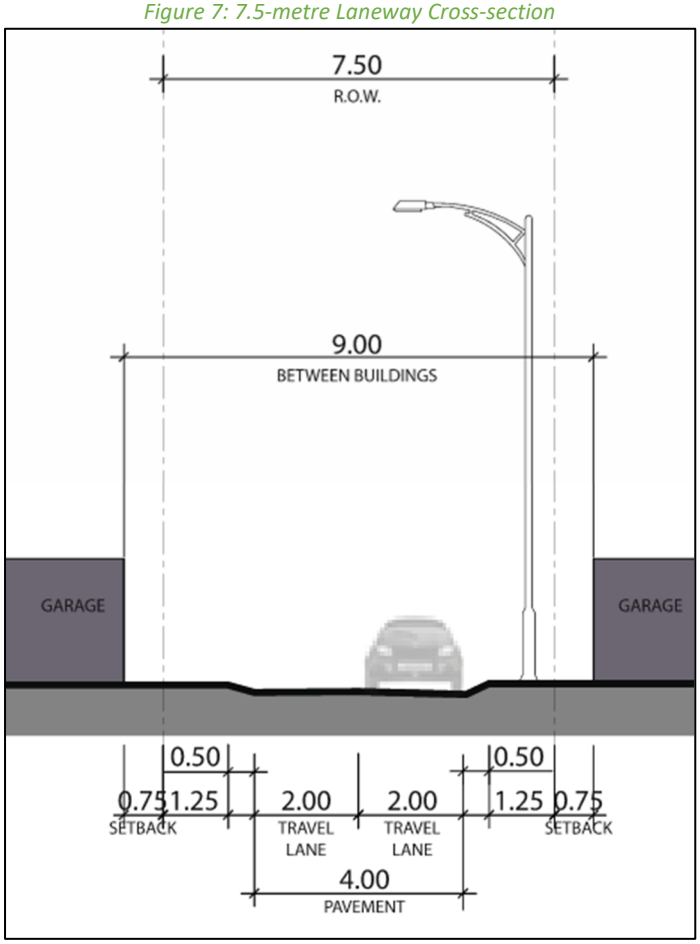
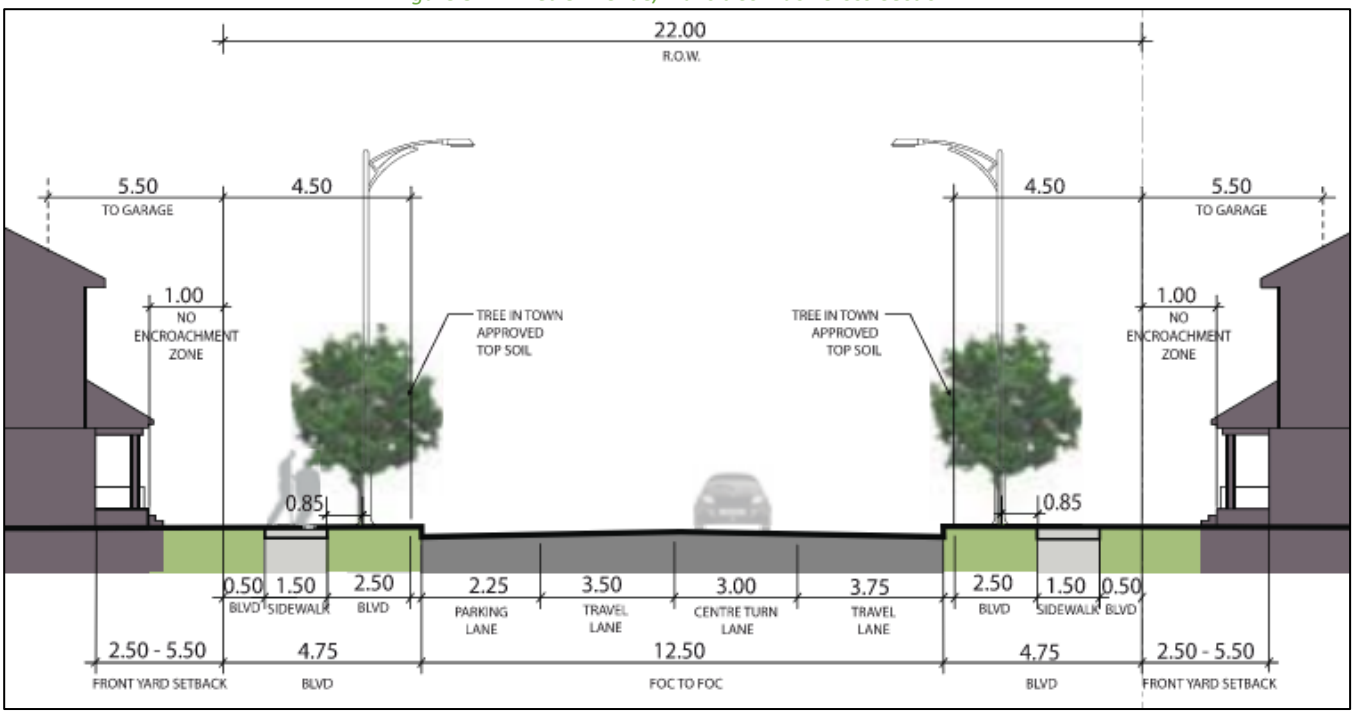


Figure 7: 7.5-metre Laneway Cross-section



As discussed in the EM4 JC7 JC9 TIS, a 22-metre cross-section, as shown in Figure 8 below, is considered for Avenue/Transit Corridors in other areas within North Oakville.

Figure 8: 22-metre Avenue/Transit Corridor Cross-Section



Both the 24 and 22-metre Avenue/Transit Corridor cross-sections identify boulevards and sidewalks on both sides of the street. The 22-metre cross-section proposes one parking lane, one travel lane in each direction, and a centre turn lane. The 24-metre cross-section proposes one travel lane in each direction and one travel/off-peak parking lane in each direction. Projected 2041 future total volumes presented within the EM4 JC7 JC9 TIS indicates that the maximum one-way peak hour volume along Settlers Road is 462 vehicles eastbound and 442 vehicles westbound. Using an industry standard of 800 vehicles/lane/hour as the assumed capacity, this corresponds to a maximum v/c ratio of 0.58 in the AM and 0.55 in the PM on Settlers Road. As such, a single travel lane in each direction is considered sufficient to accommodate the projected volumes along Settlers Road. The 22-metre cross-section as shown in Figure 8 above has therefore been proposed for Settlers Road instead of the 24-metre cross-section shown in Figure 5.

One vehicle travel lane in each direction, sidewalks on both sides, and a parking lane are on one side of the cross-section is proposed for the 17-metre local roadway. The exact location of the parking lanes will be determined by driveway and fire hydrant locations.

Within the received pre-consultation comments, Town staff have suggested that the proposed rights-of-way for Street B and Street G be increased to 19 metres and be classified as a connector/transit corridor. It is noted that in the North Oakville East Secondary Plan, no connector/transit corridors are proposed within the subject development as shown in the North Oakville East Secondary Plan Transportation Plan in Figure 9 below.

Figure 9: North Oakville East Secondary Plan - Transportation Plan



Additionally, it is noted that both the 17-metre right-of-way and 19-metre right-of-way contain one vehicle travel lane in each direction, one parking lane, and sidewalks on both side of the road. In general, the functionality of these cross-sections is similar. The primary difference between the two cross-sections are the wider vehicle travel lanes in the 19-metre right-of-way which allow for transit vehicles to travel along these roads. It is however noted that transit routes are anticipated along Burnhamthorpe Road which borders the site to the north, and Settlers Road which borders the site to the south. The entirety of the subject development is within 400 metre walking distance radii from transit stops along Burnhamthorpe Road and Settlers Road. As such, there is no identified need from a transportation perspective to increase the right-of-way of Street B or Street G beyond 17 metres.

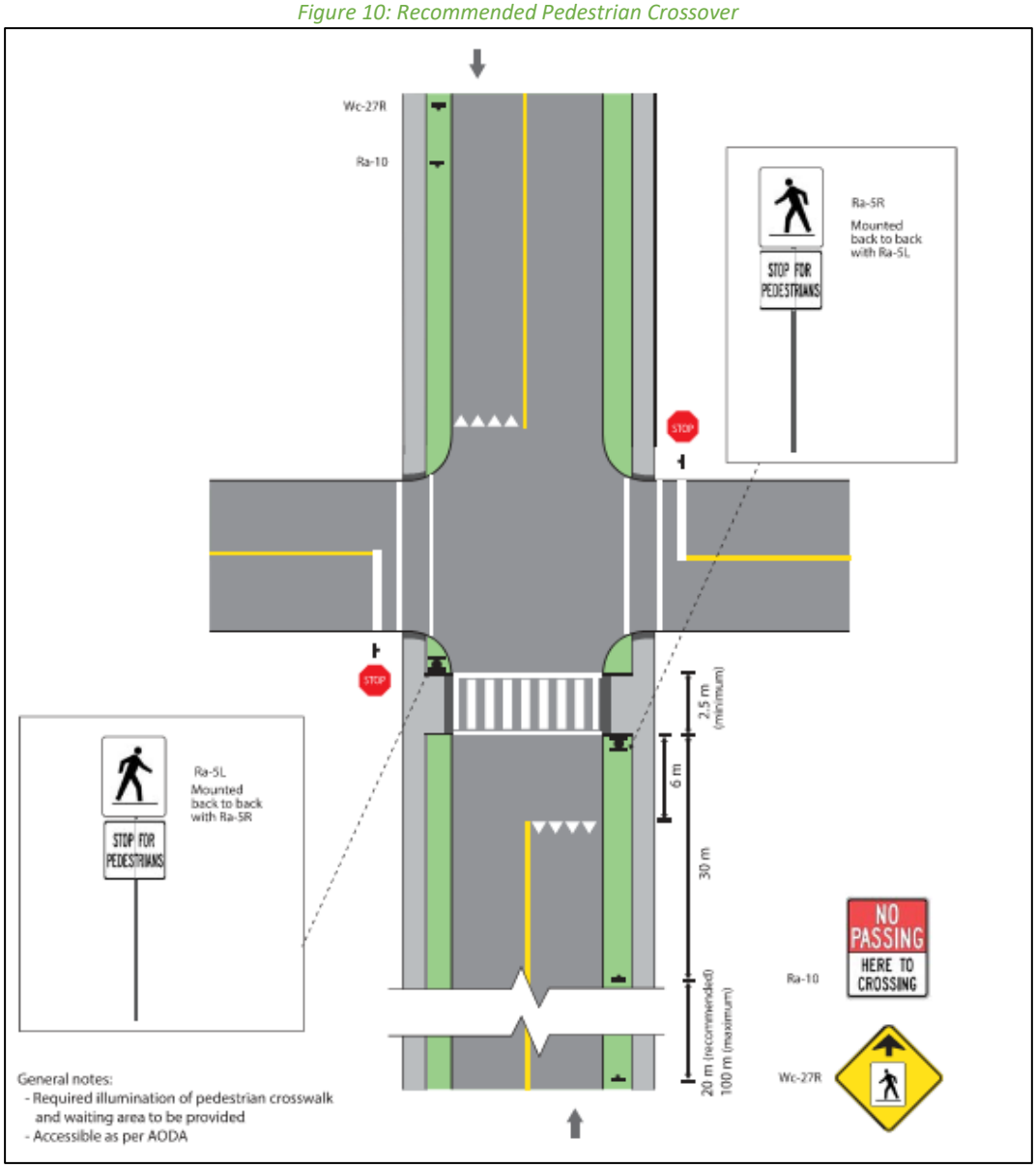
2.4 Site Layout

The location of the intersections of Street G at both Burnhamthorpe Road and Settlers Road have been proposed with consideration to spacing to Eternity Way west of the subject development. Similarly, the location of the intersections of Street B at both Burnhamthorpe Road and Settlers Road have been proposed with consideration of future roadway connections to the east of the subject development. Following the first submission of this memo, the north-south local road located to the east of Street B in the adjacent lands has been removed. Additionally, Street F has been proposed to extend east to the adjacent lands which will provide access to Trafalgar Road. The resulting trip assignment and operational analysis reflecting these changes have been considered in the updated EM4 JC7 JC9 TIS.

As requested by Town staff, a pedestrian crossover (PXO) has been evaluated to provide connection between the north and south sides of Settlers Road. This crossing would provide access to the trail network south of Settlers Road at Street G as well as the proposed transit stop located at Street B and Settlers Road. Given that the trail connection at Street G and the transit stop at Street B are located within 200 meters of each other, a single PXO is recommended at one location which can serve both pedestrian demand generators. As such, the PXO has been assessed at Street B and Settlers Road at the proposed location of the transit stops.

Based on the Ontario Traffic Manual (OTM) *Book 15 – Pedestrian Crossing Treatments (2016)*, this location meets the criteria for consideration of a PXO, as the intersection Is not located within 200 meters of an existing controlled crossing and the need for pedestrian connectivity. Based on the anticipated traffic volumes and the cross-section of Settlers Road, a Level 2 Type D crossover is recommended. The proposed PXO components are illustrated in Figure 10 below.

Figure 10: Recommended Pedestrian Crossover



Source: Ontario Traffic Manual Book 15 – Pedestrian Crossing Treatments (2016)

It is noted that Town staff have also requested pedestrian crossing treatments at the intersections adjacent to the village square. Based on the site generated traffic volumes, the threshold of 8-hr vehicle volume of 750 or a 4-hr vehicle volume of 395 is not expected to be achieved. Additionally, the two crossing locations are located within 200 meters from one another and to the stop-controlled intersections at Settlers Road. As such, the site is not warranted for pedestrian crossing control based on the OTM Book 15 Manual.

Additionally, a desktop sightline analysis has been undertaken for the single detached driveways on the south side of Settlers Road.

The Transportation Association of Canada (TAC) *Geometric Design Guide for Canadian Roads Chapter 9* was reviewed to determine the appropriate Stopping Sight Distance (SSD) and Intersection Sight Distance (ISD). Along the frontage of Settlers Road, the posted speed limit has been assumed to be 50 km/h. Therefore, a 60 km/h design speed has been applied.

For the purposes of this review, the driveways have been considered to operate as a minor road with stop control. Therefore, the design case for examining the sight distances is Case B – Intersection with Stop Control on the Minor Road. As the driveways form a three-legged intersection with Settlers Road, no through movements are considered, and only Case B1 – Left Turns from Stop and Case B2 – Right Turns from Stop apply to this review. Table 9.9.4 and Table 9.9.6 from the TAC design guide have been used to determine the SSD and ISD for a 60 km/h design speed, shown in Figure 11 and Figure 12 for Case B1 and B2, respectively.

Figure 11: TAC Design Guide Table 9.9.4 Design Intersection Sight Distance – Case B1, Left Turn from Stop

Design Speed (km/h)	Stopping Sight Distance (m)	Intersection Sight Distance for Passenger Cars	
		Calculated (m)	Design (m)
20	20	41.7	45
30	35	62.6	65
40	50	83.4	85
50	65	104.3	105
60	85	125.1	130
70	105	146.0	150
80	130	166.8	170
90	160	187.7	190
100	185	208.5	210
110	220	229.4	230
120	250	250.2	255
130	285	271.1	275

Figure 12: TAC Design Guide Table 9.9.6 Design Intersection Sight Distance – Case B2, Right Turn from Stop

Design Speed (km/h)	Stopping Sight Distance (m)	Intersection Sight Distance for Passenger Cars	
		Calculated (m)	Design (m)
20	20	36.1	40
30	35	54.2	55
40	50	72.3	75
50	65	90.4	95
60	85	108.4	110
70	105	126.5	130
80	130	144.6	145
90	160	162.6	165
100	185	180.7	185
110	220	198.8	200
120	250	216.8	220
130	285	234.9	235

Using the above charts, the following sight distance parameters have been determined for a 60 km/h design speed:

Case B1 – Left turns from the Minor Road

- SSD: 85 metres
- ISD: 130 metres

Case B2 – Right turns from the Minor Road

- SSD: 85 metres
- ISD: 110 metres

As shown in Attachment 3, the sightline figures consider the two "worst case" driveway locations along the southern side of Settlers Road. It is noted that sightlines have been tested for both cases where a vehicle will pull-out of their driveway, and where a vehicle will reverse out of their driveway. In the scenario where a vehicle pulls out of their driveway, the decision point has been identified as 4.4 metres from the outer edge of the driving lane and is based on TAC guidance. This measurement of 4.4 metres is conservative, and in reality vehicles may pull up closer to the outer edge of the driving lanes as needed.

In the scenario where a vehicle reverses out of their driveway, the decision point has been identified as 3.3 metres from the outer edge of the driveway. This distance assumes a 0.5 metre buffer between the outer edge of the driving lane and the back bumper of the vehicle, as well as the position of the driver in the vehicle based on a first principles evaluation of the dimensions of a sedan vehicle. As shown in Attachment 3, both the stopping sight distance and the departure sight distance can be achieved with no noted conflicts. As the 4.4 metre decision point has been shown to work and is greater than 3.3 metres, minor variation in the driver's position in a reversing vehicle is protected for.

It is acknowledged that reverse maneuvers differ from the scenario outlined in TAC Guidelines. The intent of the sightline analysis was not to directly apply TAC GDGCR Section 9.9.2 as an intersection movement but to use the ISD criteria as a conservative standard to evaluate driver visibility at the private driveways along Settlers Road.

The ISD defines the distance that allows a vehicle to complete maneuvers without requiring vehicles travelling on the main roadway to slow or yield. This results in sight line requirements that are more conservative than those required for SSD, which is a safety measure to ensure drivers can perceive an obstruction on the roadway and stop if required. Vehicles reversing from a private driveway are expected to operate from stop and are able to fully stop before entering the travelled way before completing the maneuver. As such, the assessment is meant to be used as a conservative tool to confirm acceptable sightline conditions, rather than as a simulation of the reversing maneuver.

As requested by Town staff, sightline figures have also been provided in Attachment 3 for the following intersections:

- Street B at Burnhamthorpe Road
- Street B at Settlers Road
- Street G at Settlers Road

Sightline analysis for intersections along Settlers Road have been conducted using the same parameters as described above for Case B1 and Case B2, with a 60 km/h design speed. At Burnhamthorpe Road, the following sight distance parameters have been determined for an 80 km/h design speed:

Case B1 – Left turns from the Minor Road

- SSD: 130 metres
- ISD: 170 metres

Case B2 – Right turns from the Minor Road

- SSD: 130 metres
- ISD: 145 metres

As shown in Attachment 3, the stopping sight distance and departure sight distance can be achieved at all intersections with no noted conflicts.

2.5 Site Circulation

As all public roads within the site have been designed to Town of Oakville standards, turning templates have not been prepared for the ultimate site configuration to support this submission.

It has however been noted by Town and Region staff, that the interim site configuration resulting from a holdout property noted at the northwest corner of the site will need to include turnaround capabilities for Lane A, Street C and Street D. As such, a conceptual interim roadway configuration has been prepared that will allow for these turnarounds to occur and will therefore allow HSU, emergency vehicles, waste vehicles, and snow plows to service Lane A, Street C and Street D in the interim condition.

The proposed interim roadway configuration is included in Attachment 4. As shown, a connection between Lane A and Street C is proposed. It is noted that the majority of Lane A and Street C, as shown in the interim roadway configuration, will be built to their ultimate configurations. The eastern portion of Street D will also be built to its ultimate configuration but will transition to a temporary laneway connecting to Street E. It is noted that the entirety of Street D will be a one-way street in the interim. This will be enforced and communicated with temporary signage to indicate turning restrictions at the intersection of Street D and Street B. Vehicle turning maneuver figures have been developed for the Halton Region waste vehicle, a fire truck, an HSU vehicle, and a snowplow vehicle along the proposed interim roadway segments and have been included in Attachment 4.

Through discussions with Town staff, the snowplow vehicle is intended to access Lane A only for salting and sanding purposes. As such, the snowplow vehicle would operate with its blades raised and is therefore represented by an HSU vehicle for the purposes of turning movement analysis for Lane A.

As shown, no conflicts are noted for the design vehicles within the proposed interim roadway configuration.

2.6 Intersection Spacing

Intersection spacing for accesses along Burnhamthorpe Road and Settlers Road are summarized in Table 9 below. Spacing has been measured from intersection centerline to intersection centreline. The North Oakville TOR for TIS and TFDS requires a minimum intersection spacing of 60 metres for connector and avenue roadways.

Table 9: Site Intersection Spacing

Roadway	Segment	Spacing (m)
Burnhamthorpe Road	Eternity Way – Street G	68
	Steet G – Street B	140
Settlers Road	Eternity Way – Street G	68
	Street G – Street H	68
	Street H – Street B	68

As shown above, intersection and access spacing along Burnhamthorpe Road and along Settlers Road adhere to Town spacing requirements within the subject site.

2.7 Parking Supply

It is anticipated that the subject development will provide parking in accordance with the Town of North Oakville Zoning By-law requirements. The parking requirements for the single detached and townhouse units proposed through this application are summarized in Table 10 below.

Table 10: North Oakville Zoning By-Law Parking Requirements

Residential Land Use Category	Units/GFA	Parking Rate	Required Parking	Provided Parking
Single Dwellings	14	2.00 / unit	28	56
Townhouse Dwellings	209	1.00 / unit	209	418
		Total	**237**	**474**

As shown above, a minimum of 237 residential parking spaces are required, and 474 residential parking spaces are proposed. It is anticipated that parking will be provided in accordance with the Town of North Oakville Zoning By-law requirements for the portion of the subject development that is currently impacted by the holdout property.

Additionally, approximately 59 on-street parking spaces are proposed along the local roadways throughout the subject development. The locations of these spaces are illustrated in the Parking Plan prepared by Korsiak Urban Planning as shown in Attachment 5. It is noted that the parking plan does not consider the area impacted by the holdout property at the northwest corner of the subject development. When the holdout property is no longer a holdout, and the entirety of the site can be built, additional on-street parking spaces will be provided to support the additional units that will be constructed.

3 Transportation Demand Management Plan

The proposed development includes 209 townhouse units and 14 single detached units. To support a development with residential land uses, the most effective Transportation Demand Management (TDM) measures are the access and usability of transit, cycling, and pedestrian facilities.

The placement of sidewalks within the proposed development have been implemented based on the *North Oakville Urban Design and Open Space Guidelines (2009)* and are reflective of the roadway cross-sections discussed in Section 2.3 above. As such, sidewalks will be provided on both sides of the local roads within the development. Further details regarding these planned facilities can be seen in their proposed cross-section drawings in Section 2.3. Additionally, an active transportation connection is proposed to the lands east of the subject development lands.

Outside of the subdivision, the sidewalks will connect to a broader and improved active transportation network provided by the Town along Burnhamthorpe Road and Settlers Road, with future sidewalks planned on both sides of these roadways. Bike lanes will be provided along Burnhamthorpe Road, and a major trail system will run adjacent to Settlers Road, south of the subject development.

Within the Study Area, Burnhamthorpe Road is shown as a community service route corridor and Settlers Road is planned as a secondary route corridor. It has been assumed that bus stops will be present at the future intersection of Street B and Settlers Road, and Street G and Burnhamthorpe Road. As a result, the entire development is within a 400-metre walking distance of transit facilities.

The pedestrian circulation and sidewalk plan prepared by Korsiak Urban Planning is shown in Attachment 6 and a transit plan illustrating the 400-metre walking distance from transit stops is shown in the updated EM4 JC7 JC9 TIS.

As requested by Town staff, a Neighbourhood Information Map will be provided to new owners to provide information on existing and future developments, road networks, and new and existing community spaces in the area. The Neighbourhood Information Map will be provided after draft plan approval, prior to sales launch. As such, the Neighbourhood Information Map is not available at this time.

4 Conclusions

The concept plan submitted in support of the Draft Plan Application for the ARGO Oakville Woods development has not changed significantly from the concept plan considered in the updated EM4 JC7 JC9 TIS. As the resulting trip generation is not anticipated to result in significant changes to the overall site traffic analyzed in the TIS, the updated EM4 JC7 JC9 TIS serves to support the draft plan application for the ARGO Oakville Woods development.

This memo has also addressed site-specific issues, including roadway cross-sections, roadway connectivity, intersection spacing, parking, and TDM measures. It has been shown that the proposed development will have adequate active transportation facilities and transit facility connections to the surrounding Study Area. The proposed 17-metre rights-of-way for Street B and Street G are shown to be adequate for these roadways and consistent with the Secondary Plan. The sightline analysis along Settlers Road indicates that driveways along the south side of Settlers Road have appropriate sightlines to the east and west. Additionally, an interim site configuration has been prepared and the holdout property on the northwest corner of the site and has been shown to support Region waste collection, fire, and snow removal.

Please call or email if you have any questions.

Yours truly,



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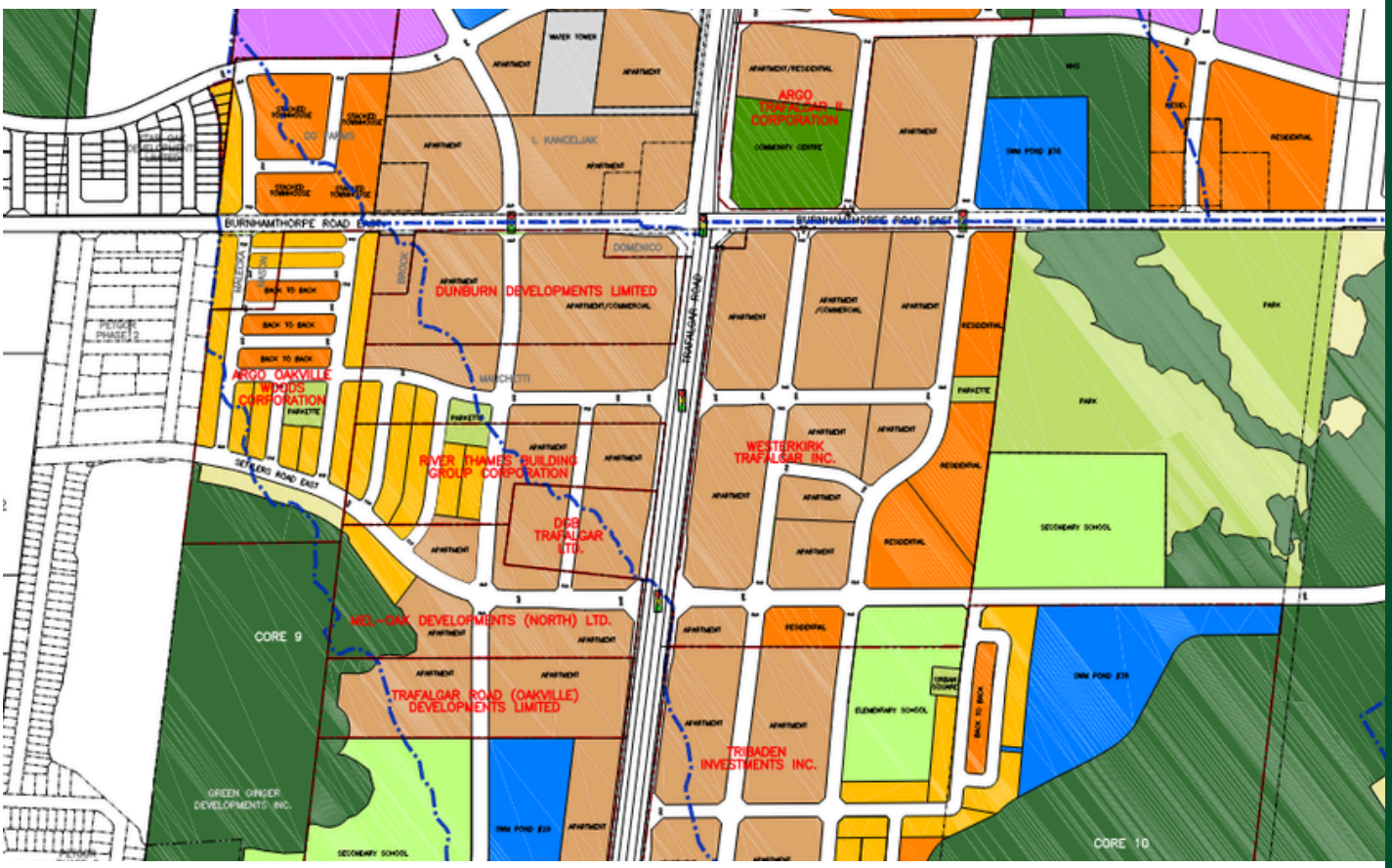
Attachment 1

May 2026 EM4 JC7 JC9 TIS

CGH TRANSPORTATION

MAY 8, 2026

EM4 JC7 JC9
Transportation Impact Study



EM4 JC7 JC9
Transportation Impact Study

Prepared for:

EM4 JC7 JC9 Landowner's Group

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May 2026

PN: 2023-084

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Executive Summary

CGH Transportation has been retained by the EM4 JC7 JC9 Landowners' Group to prepare a Transportation Impact Study to support the proposed mixed-use development within the EM4, JC7, JC9 lands in North Oakville. This Transportation Impact Study has been prepared to support the Environmental Implementation Report (EIR) / Functional Servicing Study (FSS) and will provide a high-level review on the impact of the proposed development on the transportation network within the Study Area. The study will include a review of existing and planned conditions, a travel demand forecast, an operational analysis, intersection spacing evaluation, and a transportation demand management plan. Through the Terms of Reference, the scope has been confirmed with the Ministry of Transportation Ontario (MTO), Halton Region, and Town of Oakville staff.

Proposed Development:

The EM4, JC7, JC9 lands are located in North Oakville along Trafalgar Road south of Highway 407. The Study Area is bounded by Sixth Line to the west, Ninth Line to the east, Highway 407 to the north, and Dundas Street to the south. The proposed development will include approximately 12 single detached units, 775 townhouse units, 460 mid-rise and 18,270 high-rise residential units, along with 35,501 square metres of retail, 58,530 square metres of employment, and three schools distributed throughout the lands. The development statistics have the potential to be further refined and are subject to change at future Draft Plan, Site Plan, and Zoning By-Law submissions. The proposed development is anticipated to be fully built out by 2031.

Analysis Process & Key Findings:

The study includes traffic operational analysis at the Study Area intersections for the existing horizon of 2024, the buildout horizon of 2031, the buildout plus 5 years horizon of 2036, and the buildout plus 10 years horizon of 2041.

The proposed development is anticipated to generate 5757 AM and 5692 PM peak hour external two-way vehicle trips, consisting of 4656 in the AM and 5387 in the PM for non-school trips, and 1101 in the AM and 305 in the PM for school trips. In addition to the weekday AM and PM peak periods, a Saturday peak analysis is conducted at the two Highway 407 ramp terminal intersections on Trafalgar Road. The subject development is anticipated to generate 5492 net new Saturday external two-way peak hour auto trips.

The planned network improvements have been incorporated into the traffic analysis for the 2031, 2036 and 2041 analysis horizons. Reviewing the future scenarios, additional mitigation measures, including additional turn lanes, increased storage distances, and signal timing optimization, have been proposed as a result of the auto mode operational analysis results. However, due to the high volumes along Trafalgar Road, Burnhamthorpe Road, William Halton Parkway, and Dundas Street, critical movements are still present following the implementation of the mitigation measures. It is noted that the access intersections to the subject lands operate well with minimal over-capacity turning movements into or out of the subject development lands. In order for the Study Area intersections to function adequately, a shift in mode share from single occupancy vehicles to transit is required to reduce traffic volumes along Trafalgar Road and Dundas Street. This is expected of high-density downtown environments and is anticipated to occur with the implementation of future planned BRT facilities along Trafalgar Road and Dundas Street. As the Halton Region Integrated Master Plan is an ongoing study, the results and macroscopic modelling of this scenario are not yet available, however it is recommended and anticipated that the modelling of these BRT scenarios will address the high traffic volumes in this area and the impact of reducing one through lane in each travel direction along Dundas Street as well as Trafalgar Road.

A preliminary transportation demand management plan including pedestrian, cycling, and transit facilities, have been recommended in order to reduce reliance on single occupant vehicle trips. TDM measures will be further explored at future submission stages.

Given that the impact of the proposed development is consistent with future growth expected in the surrounding Study Area, the proposed development application is recommended to proceed from a transportation perspective.

1 Introduction

This Transportation Impact Study (TIS) has been prepared to support the Environmental Implementation Report (EIR) / Functional Servicing Study (FSS) for multiple lands within the EM4, JC7, and JC9 development areas in North Oakville in support of the combined Landowners' Group. The subject development areas, EM4, JC7, and JC9, are linked via catchment areas for their respective Environmental Implementation Report (EIR) / Functional Servicing Study (FSS). This TIS will support lands within the three catchment areas and will serve as an overall guiding transportation document that will, through addenda, support the future Draft Plan, Zoning By-law, and Site Plan Applications for each development.

The subject lands described within this report are being developed by a group of companies including:

- Star Oak
- Argo Oakville Woods
- Fieldgate
- River Thames
- DGB Trafalgar
- Mel-Oak (North)
- Trafalgar Road
- Mel-Oak
- Argo Trafalgar
- Westerkirk
- Tribaden

The combined development includes a mix of residential, employment, and retail land uses. It is estimated to contain approximately 12 single detached units, 775 townhouse units, 460 mid-rise and 18,270 high-rise residential units, along with 35,501 square metres of retail, 58,530 square metres of employment, and three schools distributed throughout the lands. The development statistics are still being refined and are subject to change at future Draft Plan, Site Plan, and Zoning By-Law submissions. Accesses to the development will be guided by the *Halton Region Access Management Guidelines* and the *North Oakville Urban Design and Open Space Guidelines* where applicable.

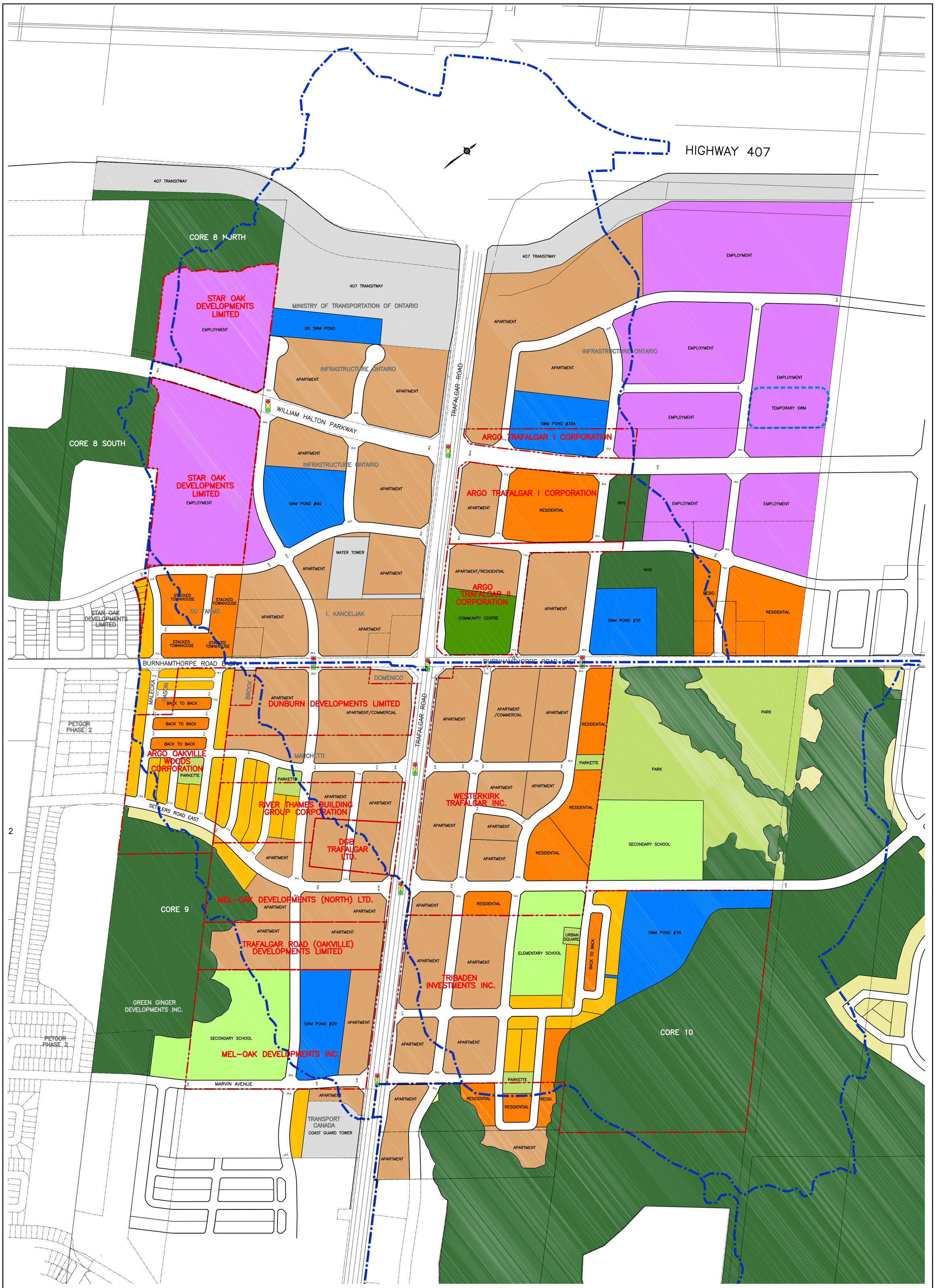
For the purposes of this report, it has been assumed that the proposed developments will be built and operational by 2031. Therefore, the analysis horizons will include 2024 existing conditions, a build-out year of 2031, a build-out plus five years of 2036, and a build-out plus ten years of 2041. Figure 1 illustrates the site context. Figure 2 illustrates the concept plan showing the subject lands. Please note that this demonstration plan has been prepared to support the EIR / FSS. It will be subject to subsequent draft plan of subdivision and site plan approval processes that will further refine the plans for each site.

The scope of the first submission of this TIS has been confirmed with transportation staff from the Town of Oakville, Halton Region, and the Ministry of Transportation Ontario (MTO). The Terms of Reference as well as resulting email correspondence has been included in Appendix A. Following the first TIS submission, comments from the Region dated March 25, 2025, and the Town dated November 24, 2025, were received and have also been included in Appendix A along with responses to these comments. As such, the following TIS has been developed based on the previously submitted Terms of Reference and comments received on the first study submission.

Figure 1: Site Context



Figure 2: Concept Plan



DEVELOPMENT CONCEPT PLAN

UPPER EM4, JC7, AND JC9A SUBCATCHMENTS

LEGEND:

- PARTICIPATING PARCEL BOUNDARIES
- COMMERCIAL AND/OR APARTMENTS
- BACK TO BACK TOWNHOUSES, STACKED TOWNHOUSES, AND/OR OTHER RESIDENTIAL
- STREET/LANE ACCESSED TOWNHOUSES
- SINGLE DETACHED/SEMI-DETACHED
- EMPLOYMENT
- SCHOOL
- PARK/URBAN SQUARE
- NATURAL HERITAGE SYSTEM AREA
- STORM WATER MANAGEMENT
- OTHER OPEN SPACE
- UTILITY
- FOUR WAY SIGNALIZED INTERSECTION
- EM4/JC7/JC9 SUBWATERSHED AREA BOUNDARY
- COMMUNITY CENTRE

PROJECT No. P-3407

SCALE 1:4000 MAR. 23, 2026

(3407-SUBWATERSHEDBASE33)

2 Study Area

The Study Area will consist of the following intersections:

- Burnhamthorpe Road at Trafalgar Road (Existing)
- Trafalgar Road at William Halton Parkway (Existing)
- William Halton Parkway at Sixth Line (Existing)
- Sixth Line at Burnhamthorpe Road (Existing)
- Trafalgar Road at Dundas Street (Existing)
- William Halton Parkway at Burnhamthorpe Road (Existing)
- Burnhamthorpe Road / William Halton Parkway at Ninth Line (Existing)
- Highway 407 ramp terminals at Trafalgar Road (Existing)
- 4180 Trafalgar Road Parking Lot at Trafalgar Road (Existing)
- Settlers Road at Trafalgar Road (Future)
- Marvin Avenue at Trafalgar Road (Future)
- Four Accesses on William Halton Parkway (Future)
- Five Accesses on Burnhamthorpe Road (Future)
- Three Accesses on Trafalgar Road (Future)
- Six internal collector road intersections (Future)

3 Existing Conditions

3.1 Area Road Network

Trafalgar Road

Trafalgar Road is a north-south Halton Region arterial road with a four-lane cross-section. The Halton Region Transportation Master Plan (TMP) protects for a 50-metre right-of-way for class N1 Urban roads which includes Trafalgar Road between Dundas Street and Highway 407. A 60 km/h posted speed limit applies to the section of Trafalgar Road between Dundas Street and Wheat Boom Drive and an 80 km/h posted speed limit applies north thereof. A paved multi-use pathway is provided on both sides of Trafalgar Road north of William Halton Parkway and a sidewalk is provided on the east side of Trafalgar Road south of Dundas Street. Auxiliary turning lanes are provided at major intersections.

William Halton Parkway

William Halton Parkway is a Halton Region arterial road within the Study Area. With the completion of Phase 1 of the William Halton Parkway extension in November 2020, it is assumed that the portion of the road will be considered a regional road. William Halton Parkway has a four-lane cross-section from Sixth Line to 400 metres east of Trafalgar Road and a two-lane cross section east of that. A raised concrete median is provided for the four-lane section. The Halton Region Transportation Master Plan (TMP) protects a 35-metre right-of-way for class C2 Urban roads. A 60 km/h posted speed limit applies. Bike lanes are present on both sides of the road and a sidewalk is provided on the north side of the road. A paved multi-use pathway is provided on the south side of William Halton Parkway west of Trafalgar Road.

Burnhamthorpe Road

Burnhamthorpe Road is a Halton Region arterial road with a two-lane rural cross-section with gravel shoulders and exists in the Study Area east of Ninth Line and west of William Halton Parkway. With the completion of Phase 1 and Phase 2 – Stage 2 of the William Halton Parkway extension east of Burnhamthorpe Road, responsibility for

the remaining portions of this roadway will transfer from Halton Region to the Town of Oakville. As the new William Halton Parkway will replace the Regional Road function of Burnhamthorpe Road to serve as the north Oakville transportation corridor, the Town completed a Character Study for Burnhamthorpe Road to illustrate the ultimate cross-section and alignment once the Town assumes this road. The Burnhamthorpe Character Study protects for a 24-metre right-of-way for Burnhamthorpe Road. A 60 km/h posted speed limit applies. No bike lane or pedestrian facilities are currently provided. The Character Study and future road elements will be discussed further in subsequent sections of this TIS.

Dundas Street

Dundas Street is a Halton Region arterial road with a six-lane divided urban cross-section. The Halton Region Transportation Master Plan (TMP) classifies Dundas Street as an N2 urban road and protects for a 50-metre right-of-way. A 60 km/h posted speed limit applies. Auxiliary turning lanes are provided at major intersections. A paved multi-use pathway is provided on the south side on Dundas Street and intermittently along the north side.

Ninth Line

Ninth Line is a Halton Region arterial road with a two-lane urban cross-section. The Halton Region Transportation Master Plan (TMP) classifies Ninth Line as a C2 urban road and protects for a 35-metre right-of-way. A 60 km/h posted speed limit applies. No cycling or pedestrian facilities are provided on Ninth Line within the Study Area.

Sixth Line

Sixth Line is a Town of Oakville minor arterial road with a two-lane rural cross-section with gravel shoulders. The segment of Sixth Line within approximately 200 metres north and south of William Halton Parkway has been urbanized with a four-lane urban cross-section. The Town of Oakville Official Plan protects for a 26-metre right-of-way for minor arterial roads. A 60 km/h posted speed limit applies. The urbanized segment of Sixth Line includes bike lanes and sidewalks on both sides. No pedestrian or cycling facilities are noted along Sixth Line within the Study Area south thereof.

Settlers Road

Settlers Road is a Town of Oakville minor collector with a 2-lane cross section. The Town of Oakville Official Plan protects for a 20-metre right-of-way. This road will provide east-west connections to the proposed development once the neighboring communities to the east and to the west are built out. The unposted speed limit is assumed to be 50 km/hr. Sidewalks are provided on both sides of Settlers Road. No cycling facilities are noted.

Marvin Avenue

Marvin Avenue is a Town of Oakville minor collector with a 2-lane cross section. The Town of Oakville Official Plan protects for a 20-metre right-of-way. This road will provide east-west connections to the proposed development once the neighboring communities to the east and to the west are built out. The unposted speed limit is assumed to be 50 km/hr. Sidewalks are provided on both sides of Marvin Avenue. No cycling facilities are noted.

Highway 407

Highway 407 (King's Highway 407) is a tolled Ontario 400-series highway comprising of both privately leased and publicly owned segments. Highway 407 travels in an east-west direction and has three travel lanes in each direction in the Study Area. The posted speed limit for the eastbound and westbound off-ramps in the Study Area is 60 km/h and the posted speed limit along the highway is 100 km/h.

3.2 Existing Intersections

Trafalgar Road at Burnhamthorpe Road

The intersection of Trafalgar Road at Burnhamthorpe Road is a four-legged signalized intersection. Auxiliary left turn lanes are provided on all approaches. The northbound and southbound approaches each contain an auxiliary left-turn lane, a through lane and a shared through / right-turn lane. The eastbound and westbound approaches each contain an auxiliary left-turn lane and a shared through / right-turn lane. No turn restrictions are noted. No pedestrian crossings or bike lanes are provided at the intersection. Figure 3 illustrates the intersection of Trafalgar Road at Burnhamthorpe Road.

Figure 3: Trafalgar Road at Burnhamthorpe Road



Trafalgar Road at William Halton Parkway

The intersection of Trafalgar Road at William Halton Parkway is a four-legged signalized intersection. The northbound and southbound approaches each contains an auxiliary left-turn lane, three through lanes, and an auxiliary right-turn lane. The eastbound and westbound approaches both consist of an auxiliary left-turn lane, two through lanes and an auxiliary right-turn lane. Pedestrian crossings are present on all intersection legs. At the intersection, bike lanes are provided on both sides of William Halton Parkway. A multi- use pathway is provided on the south side of William Halton Parkway and on both sides of Trafalgar Road. A sidewalk is present on the north side of William Halton Parkway. No turn restrictions are noted. Figure 4 illustrates the intersection of Trafalgar Road at William Halton Parkway.

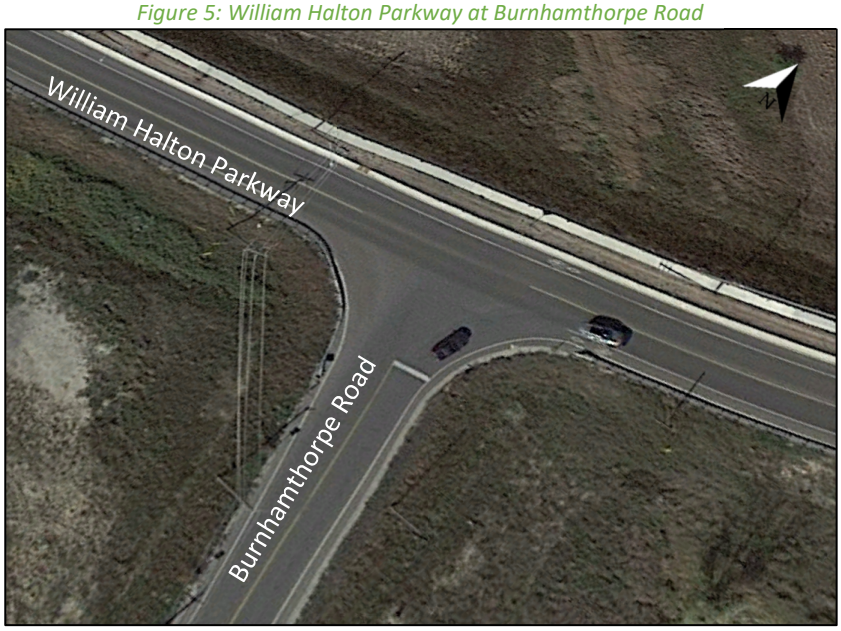
Figure 4: Trafalgar Road at William Halton Parkway



William Halton Parkway at Burnhamthorpe Road

The intersection of William Halton Parkway at Burnhamthorpe Road is an unsignalized three-legged intersection with stop control on the south leg on Burnhamthorpe Road and free movement for eastbound and westbound movements along William Halton Parkway. The northbound approach consists of a shared left-turn / right-turn lane. The eastbound approach consists of a shared right-turn / through lane. The westbound approach consists of a shared left-turn / through lane. At the intersection, bike lanes are provided along William Halton Parkway although there are no marked bike or pedestrian crossings on the south leg. No turn restrictions are noted. Figure 5 illustrates the intersection of William Halton Parkway at Burnhamthorpe Road.

Figure 5: William Halton Parkway at Burnhamthorpe Road



Sixth Line at Burnhamthorpe Road

The intersection of Sixth Line at Burnhamthorpe Road is an all-way-stop-controlled intersection with a shared left-turn / through / right-turn lane on each approach. No auxiliary lanes or sidewalks are provided on any of the intersection legs. An overhead flashing red beacon has been installed over the centre of the intersection. No turn restrictions are noted. Figure 6 illustrates the intersection of Sixth Line at Burnhamthorpe Road.

Figure 6: Sixth Line at Burnhamthorpe Road



Sixth Line at William Halton Parkway

The intersection of Sixth Line at William Halton Parkway functions as a four-legged two-lane roundabout. The west leg of the intersection was recently opened in November 2023 as part of the completion of Phase 2 – Stage 2 of the William Halton Extension Project. Pedestrian crosswalks and sidewalks are present on all intersection legs and bike lanes are provided along both sides of William Halton Parkway at the intersection. All approaches consist of a shared left-turn / through lane and a shared through / right-turn lane and are noted to have yield signs. No turn restrictions are noted. Figure 7 illustrates the roundabout intersection at Sixth Line at William Halton Parkway.

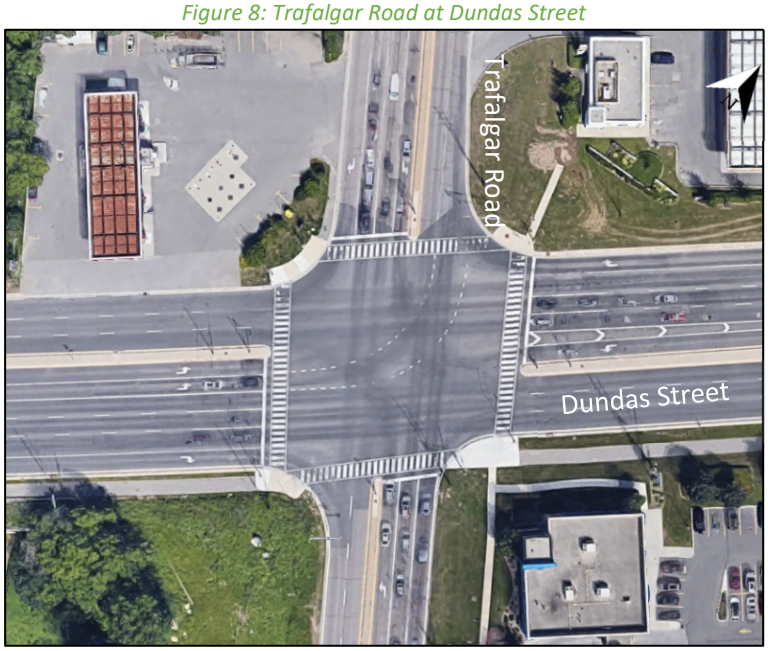
Figure 7: Sixth Line at William Halton Parkway



Trafalgar Road at Dundas Street

The intersection of Trafalgar Road at Dundas Street is a four-legged signalized intersection. The northbound approach contains an auxiliary left-turn lane, one through lane, and a shared through / right-turn lane. The southbound approach has an auxiliary left-turn lane, two through lanes, and a right-turn lane. The eastbound approach consists of two auxiliary left-turn lanes, three through lanes, and an auxiliary right-turn lane. The westbound approach has an auxiliary left-turn lane, three through lanes, and an auxiliary right-turn lane. Pedestrian crossings are present on all intersection legs. At the intersection, a paved multi-use pathway is provided on the south side of Dundas Street and a sidewalk is provided on the east side of Trafalgar Road south of Dundas Street. No turn restrictions are noted. Figure 8 illustrates the intersection of Trafalgar Road at Dundas Street.

Figure 8: Trafalgar Road at Dundas Street



Burnhamthorpe Road / William Halton Parkway at Ninth Line

The intersection of Burnhamthorpe Road / William Halton Parkway at Ninth Line is a four-legged two-lane roundabout. All approaches consist of a shared left-turn / through lane and a shared through / right-turn lane, and all approaches are noted to have yield signs. No turn restrictions are noted. Pedestrian crosswalks and multi-use pathways are present on all intersection legs. Figure 9 illustrates the roundabout intersection at Burnhamthorpe Road / William Halton Parkway at Ninth Line.

Figure 9: Burnhamthorpe Road / William Halton Parkway at Ninth Line



Trafalgar Road at the South Highway 407 EB On-Ramp

The intersection of the Highway 407 EB on-ramp on the east side of Trafalgar Road consists of a one-lane on-ramp that allows for vehicles travelling northbound on Trafalgar Road to access the EB Highway 407 lanes. The northbound approach consists of two through lanes and one auxiliary right-turn lane. A raised median separates the northbound and southbound traffic at this intersection. Figure 10 illustrates the intersection of Trafalgar Road at the South Highway 407 EB on-ramp.

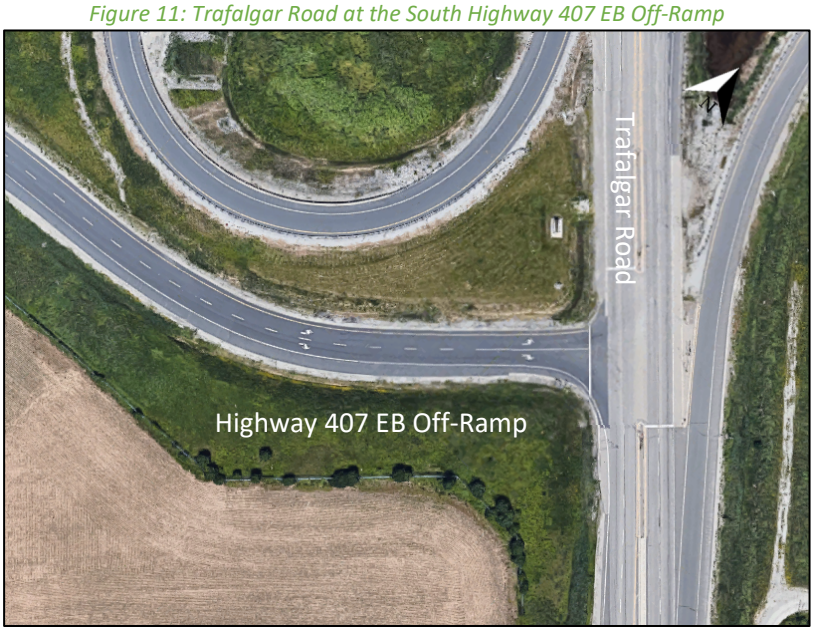
Figure 10: Trafalgar Road at the South Highway 407 EB On-Ramp



Trafalgar Road at the Highway 407 EB Off-Ramp

The intersection of the Highway 407 EB off-ramp at Trafalgar Road is a signalized three-legged intersection. The Highway 407 EB off-ramp consists of an auxiliary left-turn lane and an auxiliary right-turn lane. The northbound and southbound approaches each consist of two through lanes that are curb-separated near the intersection. Figure 11 illustrates the intersection of Trafalgar Road at the south Highway 407 EB off-ramp.

Figure 11: Trafalgar Road at the South Highway 407 EB Off-Ramp



Trafalgar Road at the North Highway 407 EB On-Ramp

The intersection of the Highway 407 WB on-ramp on the west side of Trafalgar Road consists of a one-lane on-ramp that allows for vehicles travelling southbound on Trafalgar Road to access the EB Highway 407 lanes. The southbound approach consists of two through lanes and one auxiliary right-turn lane. Figure 12 illustrates the intersection of Trafalgar Road at the north Highway 407 EB on-ramp.

Figure 12: Trafalgar Road at the North Highway 407 EB On-Ramp



Trafalgar Road at the South Highway 407 WB On-Ramp

The intersection of the Highway 407 WB on-ramp on the east side of Trafalgar Road is a one-lane on-ramp that allows for vehicles travelling northbound on Trafalgar Road to access the WB Highway 407 lanes. The northbound approach consists of two through lanes and one auxiliary right-turn lane. Figure 13 illustrates the intersection of Trafalgar Road at the south Highway 407 WB on-ramp.

Figure 13: Trafalgar Road at the South Highway 407 WB On-Ramp



Trafalgar Road at the North Highway 407 WB On-Ramp

The intersection of the Highway 407 WB on-ramp on the west side of Trafalgar Road is a one-lane on-ramp that allows for vehicles travelling southbound on Trafalgar Road to access the WB Highway 407 lanes. The southbound approach consists of two through lanes and one auxiliary right-turn lane. Figure 14 illustrates the intersection of Trafalgar Road at the north Highway 407 WB on-ramp.

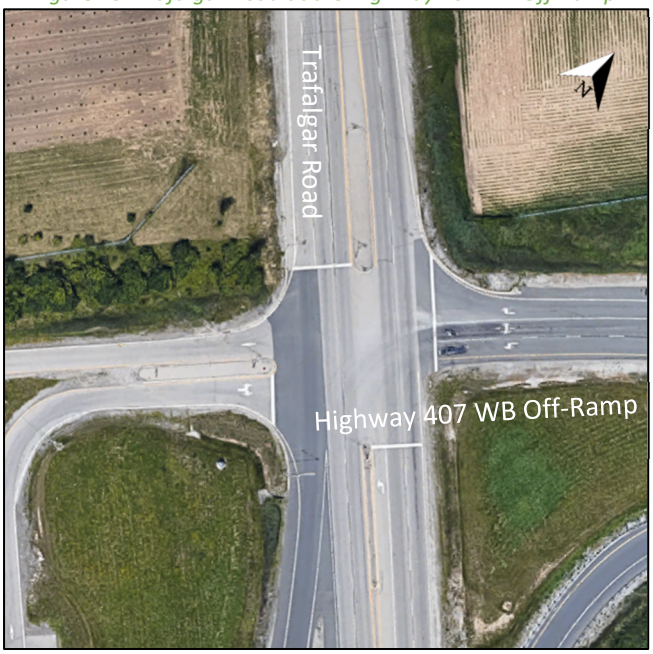
Figure 14: Trafalgar Road at the North Highway 407 WB On-Ramp



Trafalgar Road at the Highway 407 WB Off-Ramp

The intersection of the Highway 407 WB off-ramp at Trafalgar Road is a signalized four-legged intersection. The Highway 407 WB off-ramp consists of an auxiliary left-turn lane, a shared left-turn / through / right-turn lane, and an auxiliary right-turn lane. The eastbound approach is a driveway access to the Trafalgar Carpool parking lot and consists of a shared left-turn / right-turn lane. No through movements are permitted on the eastbound approach. The northbound approach consists of an auxiliary left-turn lane and two through lanes. The southbound approach consists of two through lanes and a shared through / right-turn lane. Figure 15 illustrates the intersection of Trafalgar Road at the Highway 407 WB off-ramp.

Figure 15: Trafalgar Road at the Highway 407 WB Off-Ramp



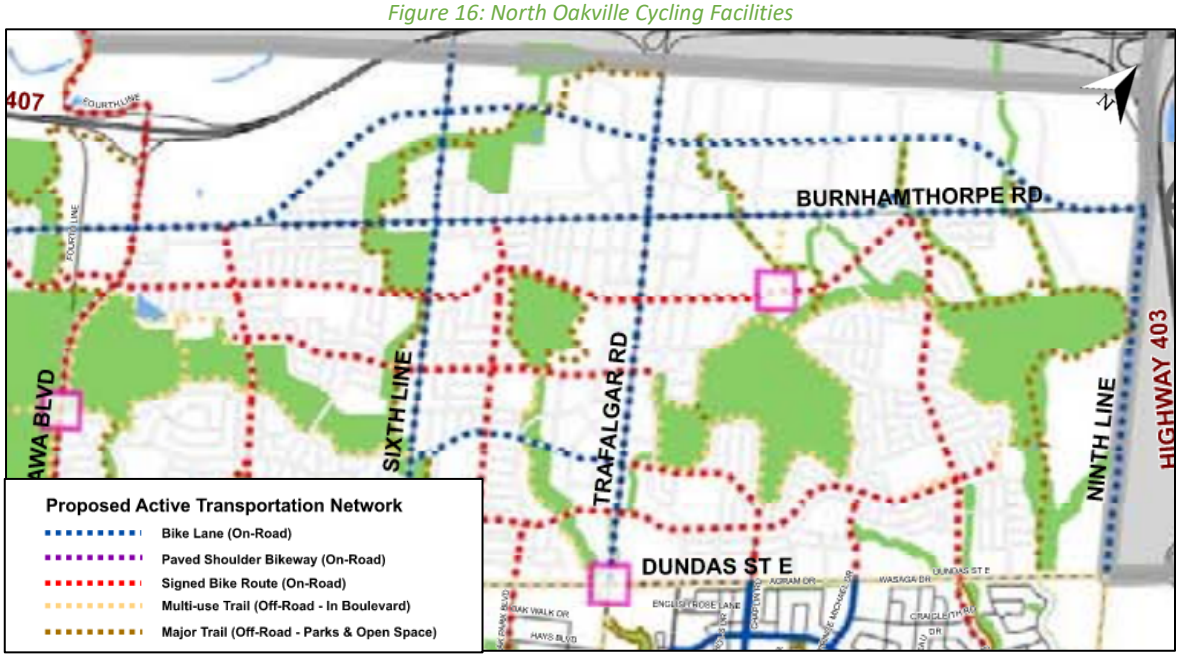
3.3 Cycling and Pedestrian Facilities

As discussed in Section 3.1, pedestrian facilities are present within parts of the Study Area road network. Sidewalks are provided on the north side of the road along William Halton Parkway. Sidewalks are also provided on both sides of Sixth Line within approximately 200 metres north and south of William Halton Parkway. Pedestrian crosswalks are noted at all approaches at the William Halton Parkway at Trafalgar Road, Dundas Street at Trafalgar Road, Sixth Line at William Halton Parkway, and Ninth Line at William Halton Parkway / Burnhamthorpe Road intersections.

Bike lanes are present on both sides along William Halton Parkway west of Ninth Line within the Study Area. No bike lanes are present on any other roads within the Study Area. A paved multi-use pathway is also provided on the south side of William Halton Parkway west of Trafalgar Road, on the south side of Dundas Street, and intermittently along the north side of Dundas Street within the Study Area.

The Town of Oakville Active Transportation Master Plan (ATMP) designates Sixth Line, Burnhamthorpe Road, Trafalgar Road, William Halton Parkway, Ninth Line, and Dundas Street as primary (spine) routes. The existing portions of Settlers Road and Marvin Avenue are designated as secondary (neighbourhood) routes. Existing bike lanes along William Halton Parkway, and multi-use pathways along Dundas Street are shown in the North Oakville Cycling Facilities plan below. Planned bike lanes proposed to be provided along Burnhamthorpe Road, Sixth Line, and Trafalgar Road as well as signed bike routes along Settlers Road and Marvin Avenue within the Study Area are shown as well. Figure 16 illustrates the North Oakville cycling facilities.

Figure 16: North Oakville Cycling Facilities



Source: North Oakville Active Transportation Plan (2017)

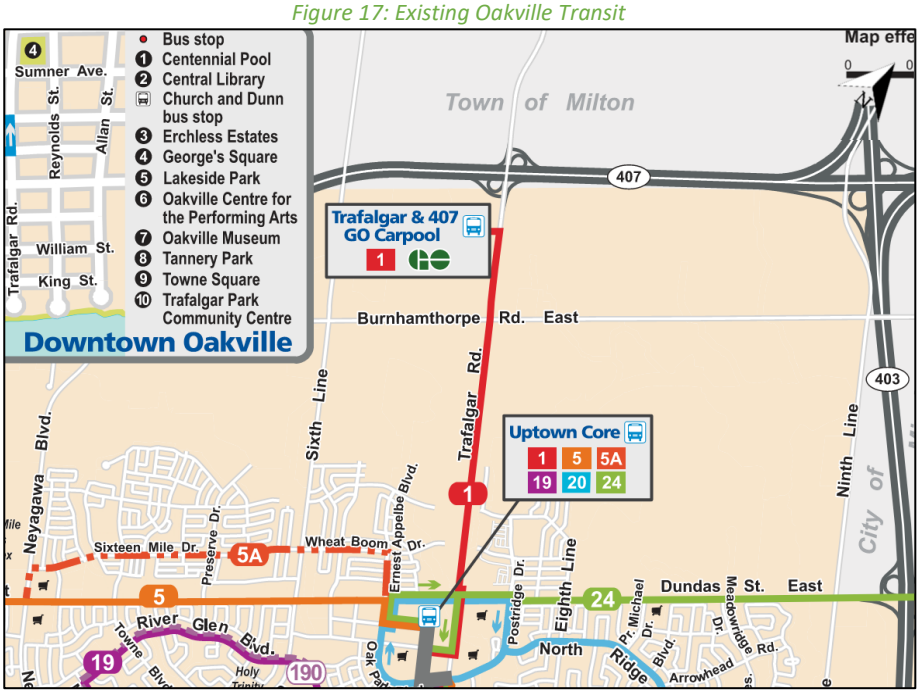
3.4 Existing Transit

The local transit routes operating in the study area are Route #1, Routes #5 and #5A, and Route #24, operated by Oakville Transit. The stops noted for Route #1 are located along Trafalgar Road, while stops for Routes #5, #5A, and #24 are located on Dundas Street. The Uptown Core transit station is located on the southwest corner of the Trafalgar Road and Dundas Street intersection, providing connections to Routes #19 and #20 operated by Oakville Transit.

There is a "park and ride" facility to the south of the Highway 407 interchange at Trafalgar Road, approximately 300 metres north of William Halton Parkway. GO Bus Routes #21, #41, #47, and #56 have stops at this location, which will provide intercity transit services to the proposed developments. Route #21 runs along Trafalgar Road, Derry Road, and Thompson Road, providing service between Milton GO and Oakville GO and has stops at Trafalgar Road at Burnhamthorpe Road and at Dundas Street. Route #41 runs between Hamilton GO and Pickering GO via Highway 403, Highway 407 and Highway 401. Route #47 runs between Hamilton GO and Highway 407 Bus Terminal in Vaughan via Highway 403 and Highway 407. Route #56 runs between Oakville GO and Oshawa GO via Trafalgar Road, Highway 407 and Simcoe Street in Oshawa, and provides stops at Trafalgar Road at Burnhamthorpe Road and at Dundas Street.

The existing Oakville Transit and GO Transit services the Study Area are presented in Figure 17 and Figure 18, respectively. The Trafalgar Road at Highway 407 Carpool / Park and Ride is noted on both system maps.

Figure 17: Existing Oakville Transit



Source: www.oakvilletransit.ca/

Figure 18: Existing GO Transit



Source: https://www.gotransit.com/en/trip-planning/system-and-route-map/

3.5 Existing Peak Hour Travel Demand

The analysis will cover the AM and PM peak hours as the majority of the proposed development consists of residential and employment land uses. To understand the existing AM and PM peak hour traffic volumes, turning movement counts (TMCs) for the Study Area intersections have been acquired from Ontario Traffic Inc.

Table 1 summarizes the date of the most recent turning movement counts at each existing Study Area intersection.

Table 1: TMC Data Dates

Data Type	Location	Count Date
Turning Movement Counts (TMC)	Burnhamthorpe Road at Trafalgar Road	January 17, 2024
	William Halton Parkway at Trafalgar Road	
	William Halton Parkway at Burnhamthorpe Road	
	Burnhamthorpe Road at Sixth Line	
	William Halton Parkway at Sixth Line	
	Trafalgar Road at Dundas Street	
	Highway 407 at Trafalgar Road Interchanges	March 7, 2024
	William Halton Parkway / Burnhamthorpe Road at Ninth Line	

As shown above, the turning movement counts have been collected in 2024 and therefore no growth rate has been applied to the counts, as they are representative of existing conditions. As the counts were collected on different dates, volume balancing to within 10% has been applied to Highway 407 interchanges along Trafalgar Road. The volumes at the Highway 407 ramps were lower than those observed along the remainder of Trafalgar Road and were therefore balanced to reflect corridor volumes. Volume imbalances between intersections that were counted on the same day are within an acceptable range and are reflective of accesses between intersections. These imbalances are considered to be justified and do not require balancing. Turning movement count data is included in Appendix B. The intersections of the Highway 407 EB and WB off-ramps at Trafalgar Road as well as Trafalgar Road at Burnhamthorpe Road, William Halton Parkway, and Dundas Street are signalized. Signal timing plans of these intersections are included in Appendix C. Figure 19 and Figure 20 illustrates the 2024 existing vehicle traffic volumes.

Figure 19: 2024 Existing Traffic Volumes – Section A

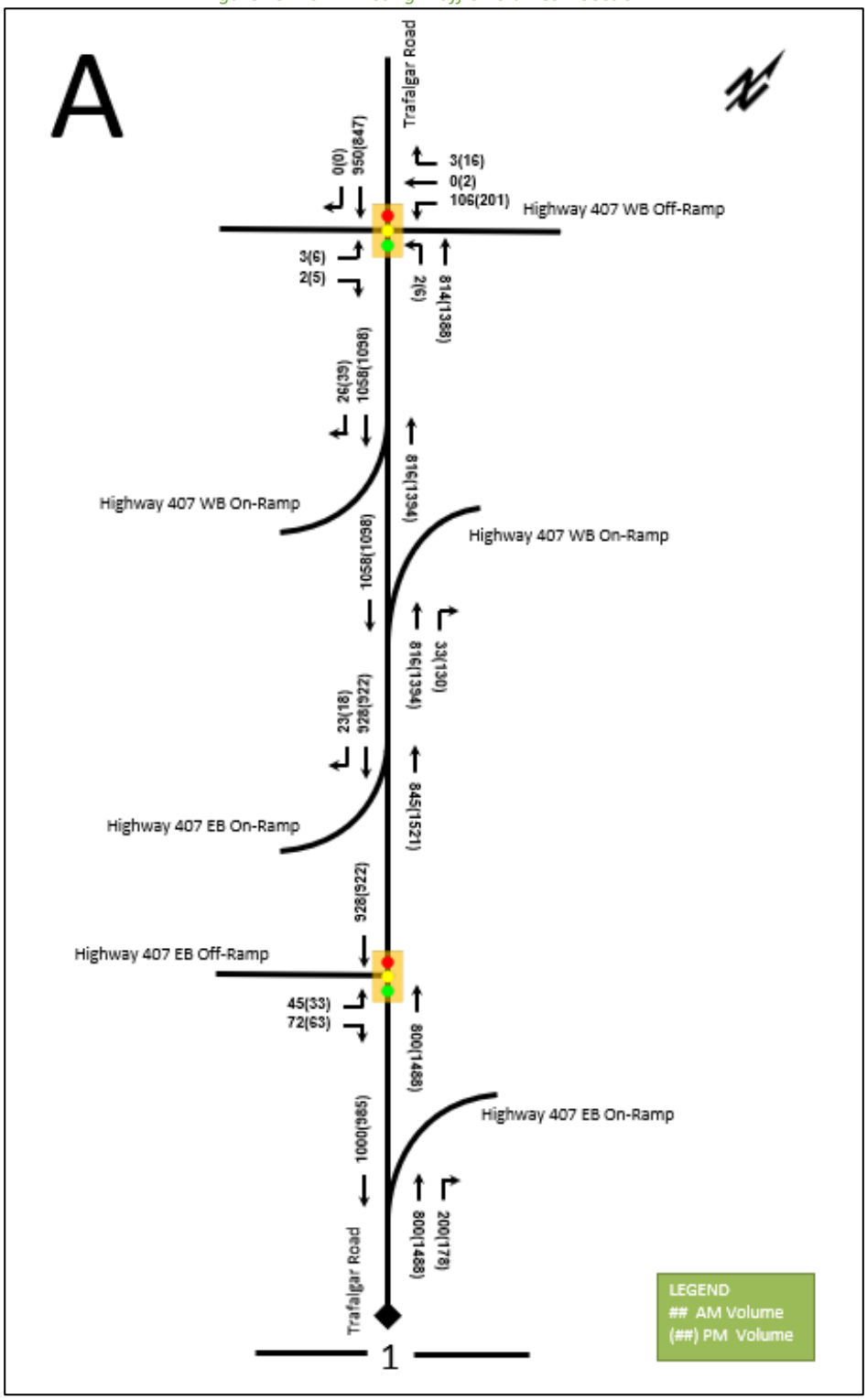
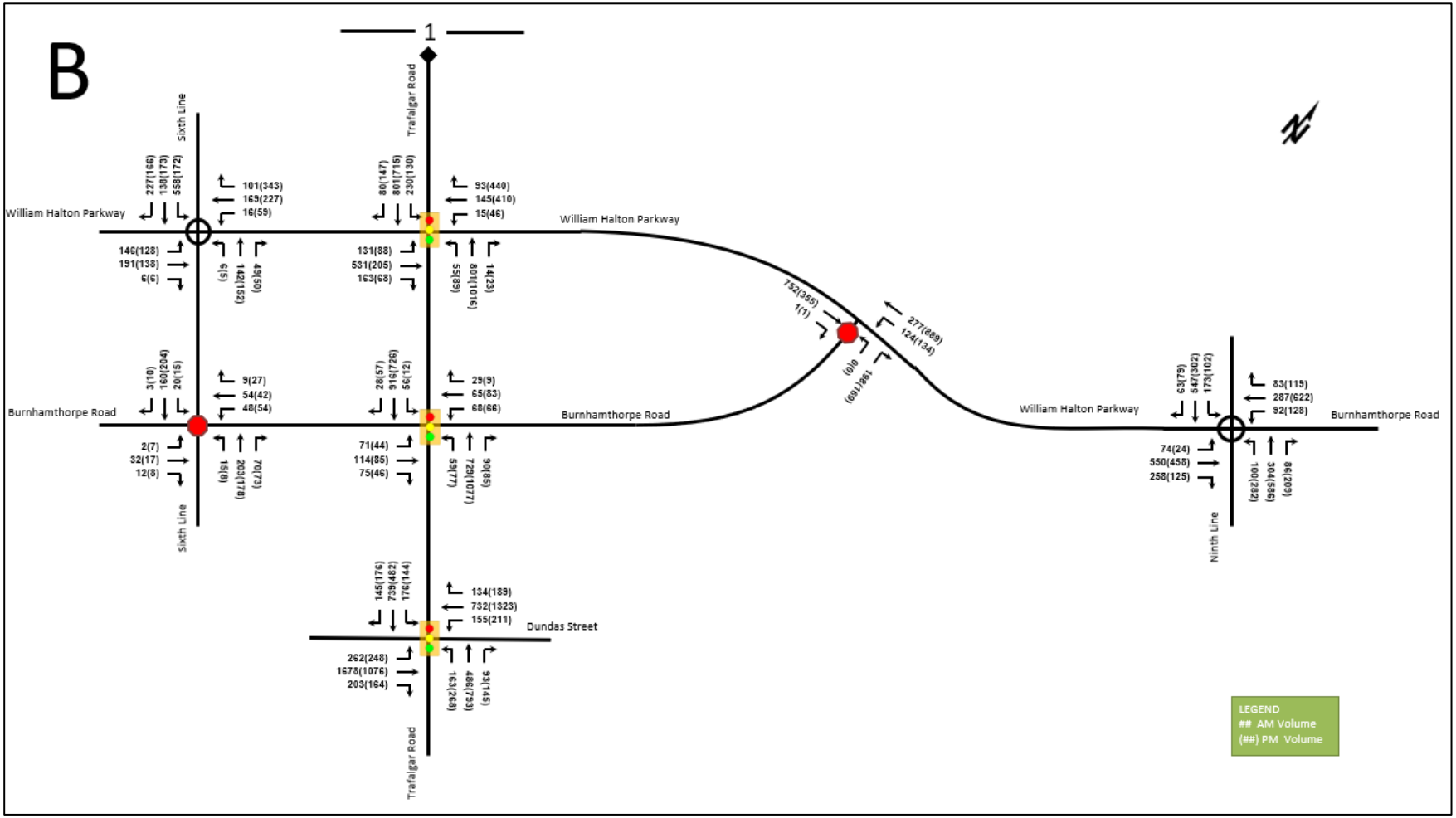


Figure 20: 2024 Existing Traffic Volumes – Section B



3.5.1 Existing Saturday Peak Hour Travel Demand

In addition to the weekday AM and PM peak periods, a Saturday peak analysis will be conducted at the two Highway 407 ramp terminal intersections on Trafalgar Road, in response to the Ministry of Transportation Ontario (MTO) comments as shown in Appendix A. Existing intersection configurations and descriptions for the ramp terminal intersections are discussed in Sections 3.1 and 0.

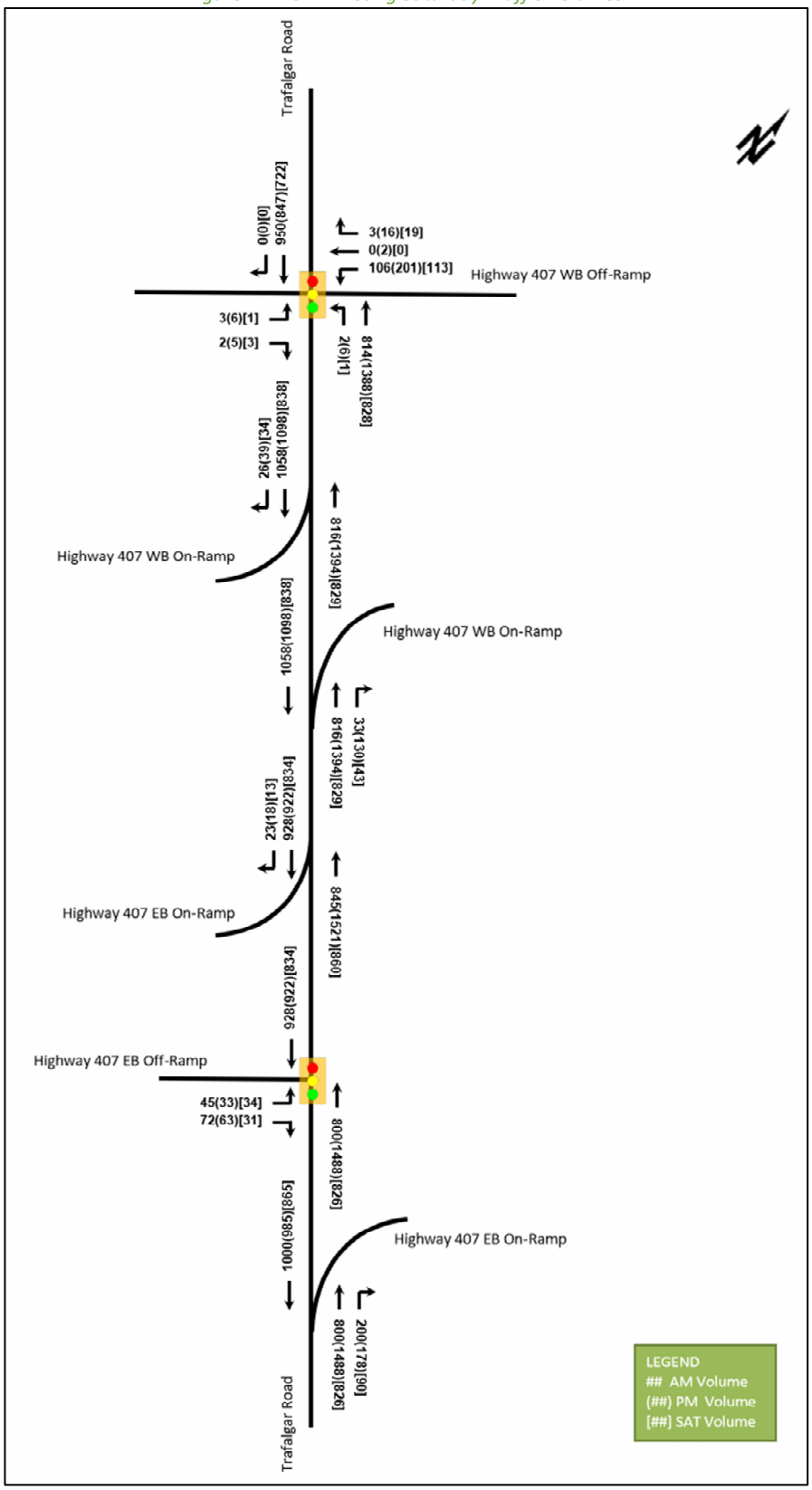
To understand the existing Saturday peak hour traffic volumes, turning movement counts (TMCs) for the two intersections have been acquired from Ontario Traffic Inc. Table 2 summarizes the date of the most recent Saturday turning movement counts.

Table 2: TMC Saturday Data Dates

Data Type	Location	Count Date
Turning Movement Counts (TMC)	Highway 407 EB Off-Ramp at Trafalgar Road	April 13, 2024
	Highway 407 WB Off-Ramp at Trafalgar Road	

Similar to the weekday AM and PM counts, the turning movement counts have been collected in 2024 and therefore no growth has been applied to the counts. As the Saturday counts were collected on the same day, no volume balancing has been performed as the intersection counts are representative of existing conditions. Turning movement count data is included in Appendix B. Signal timing plans of the Highway 407 EB and WB off-ramps at Trafalgar Road intersections are included in Appendix C. Figure 21 illustrates the 2024 existing Saturday vehicle traffic volumes at the study intersections.

Figure 21: 2024 Existing Saturday Traffic Volumes



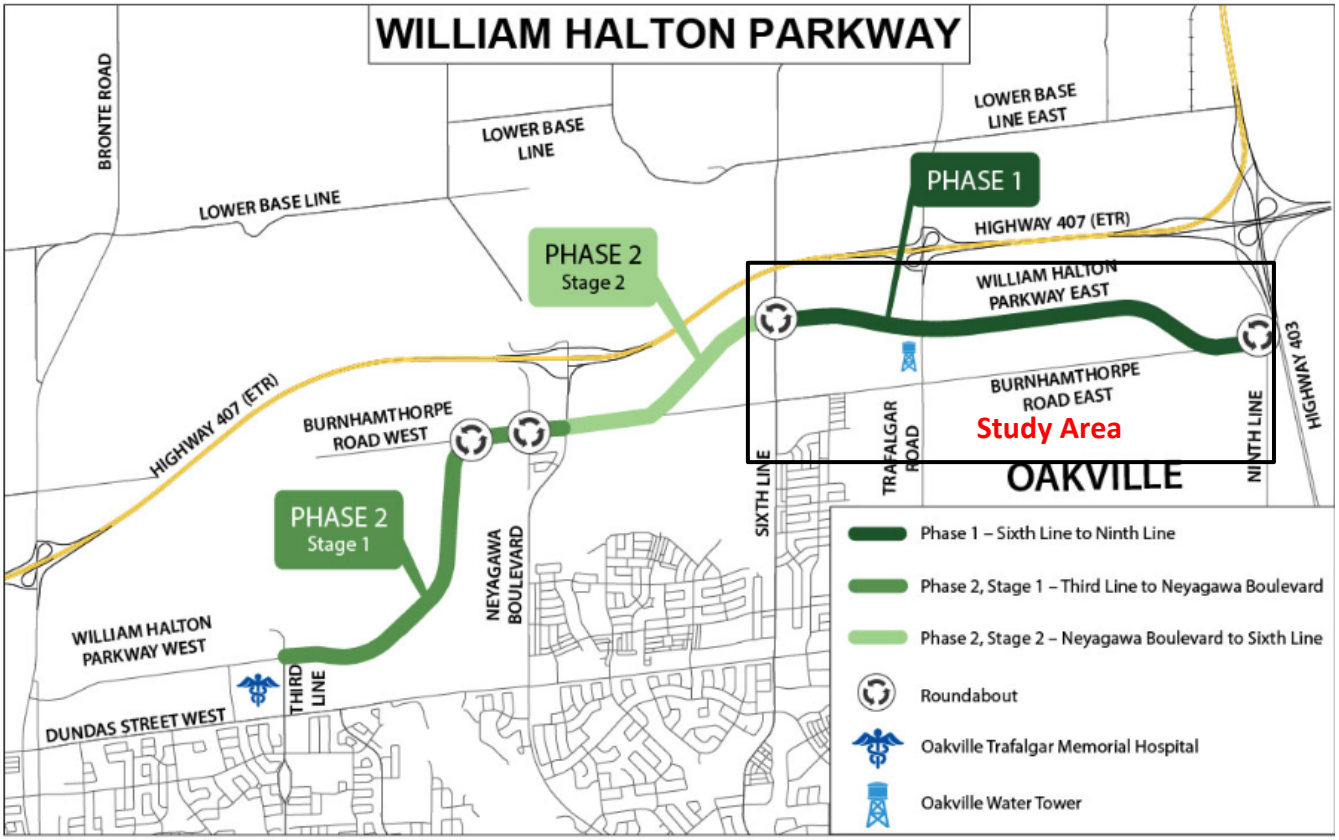
4 Future Background Conditions

4.1 Planned Conditions

4.1.1 William Halton Parkway Extension

As discussed in Section 3.1, William Halton Parkway is a Region of Halton arterial road. The William Halton Parkway Extension Project, which creates a new east-west corridor from Bronte Road (Regional Road 25) to Ninth Line (Regional Road 13), is planned to include sidewalks, multi-use pathways, and bike lanes between Third Line and Ninth Line, as seen in Figure 22. Phase 1 of the William Halton Parkway Extension Project between Sixth Line and Ninth Line was completed in November 2020. Phase 2 of the project takes place west of the development between Third Line and Sixth Line. Phase 2 – Stage 2 of the project was completed in November 2023, while Stage 1 was anticipated to be completed by December 2024. It does not appear as though Phase 2 – Stage 1 has been completed in its entirety at the time of the resubmission of this report. With the completion of this project, William Halton Parkway will replace the regional function of Burnhamthorpe Road. As improvements to William Halton Parkway within the Study Area are complete, the existing intersection configurations within the Study Area will remain the same in future analysis horizons however, the completion of Phase 2 – Stage 1 will influence the travel patterns of the east-west traffic within the Study Area. These volumes are anticipated to change as a portion of vehicles will take William Halton Parkway instead of Burnhamthorpe Road. These volume adjustments will be considered in all future analysis horizons.

Figure 22: Planned Extension of William Halton Parkway



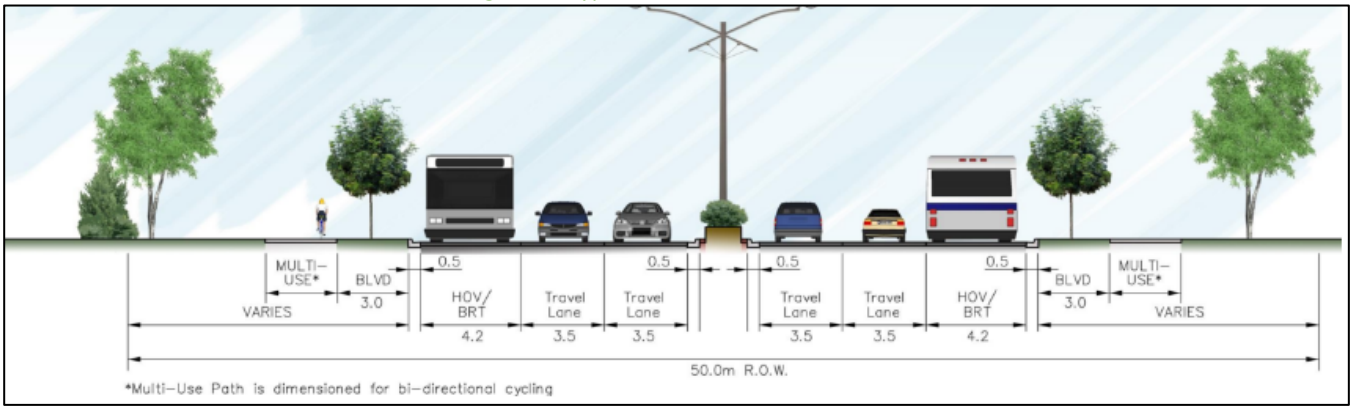
Source: https://www.halton.ca/For-Residents/Roads-Construction/Construction-Projects/William-Halton-Parkway-Extension-Project

4.1.2 Trafalgar Road

Halton Region is making improvements to Trafalgar Road in the Town of Oakville to address future traffic demands and provide safe travel options for motorists, pedestrians and cyclists. Improvements on Trafalgar Road are being implemented in two phases. Phase 1 of construction between Leighland Avenue and north of Hays Boulevard was completed in Fall 2022. Phase 2 of construction between Hays Boulevard and William Halton Parkway is currently under design, with construction projected to be completed by 2026.

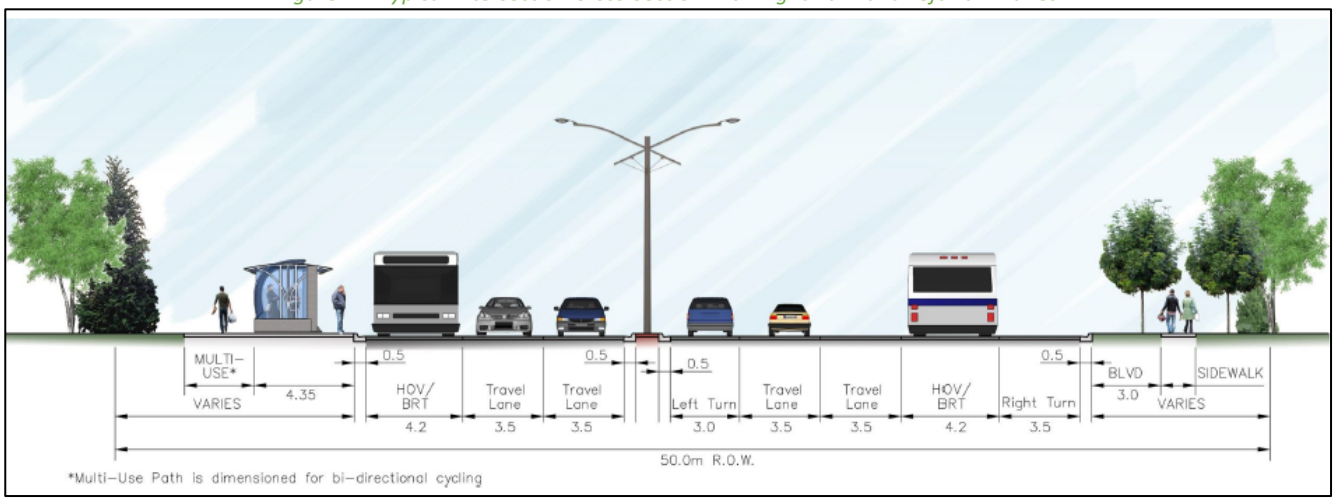
Trafalgar Road will be widened from four to six lanes north of Dundas Street within the Study Area and will have a 50-metre right-of-way. An urban cross-section is planned throughout with sidewalks, multi-use paths, and transit stops added. The posted speed limit on Trafalgar Road will be 60 km/h throughout the corridor. The typical mid-block cross-section is illustrated in Figure 23 and the typical intersection cross-section is shown in Figure 24. As construction is projected to be completed in 2026, all future scenarios will model Trafalgar Road in the Study Area as a six-lane road. The Trafalgar Road Improvements Class Environmental Assessment Study (2015) indicates future potential for the introduction of High Occupancy Vehicle (HOV) curb lanes or dedicated bus lanes upon completion of the widening project. The Halton Region Defining Major Transit Requirements (DMTR) Study (2019) indicates that HOV lanes are recommended along the outer lanes of Trafalgar Road between Steeles Avenue to the Midtown Oakville GO by 2031. By 2041, the HOV lanes will be converted to BRT lanes in the segment of Trafalgar Road between Highway 407 and the Midtown Oakville GO. Therefore, in the 2031 and 2036 future horizons, Trafalgar Road will be modelled with three travel lanes in each direction with a reduced lane utilization factor to account for the HOV lanes. In the 2041 horizon, the capacity on Trafalgar Road will be reduced to two travel lanes in each direction to account for the addition of the BRT lanes.

Figure 23: Typical Mid-Block Cross-Section



Source: Trafalgar Road (Regional Road 3) Improvements Class Environmental Assessment Study (2015)

Figure 24: Typical Intersection Cross-Section with Right-Turn and Left-Turn Lanes



Source: Trafalgar Road (Regional Road 3) Improvements Class Environmental Assessment Study (2015)

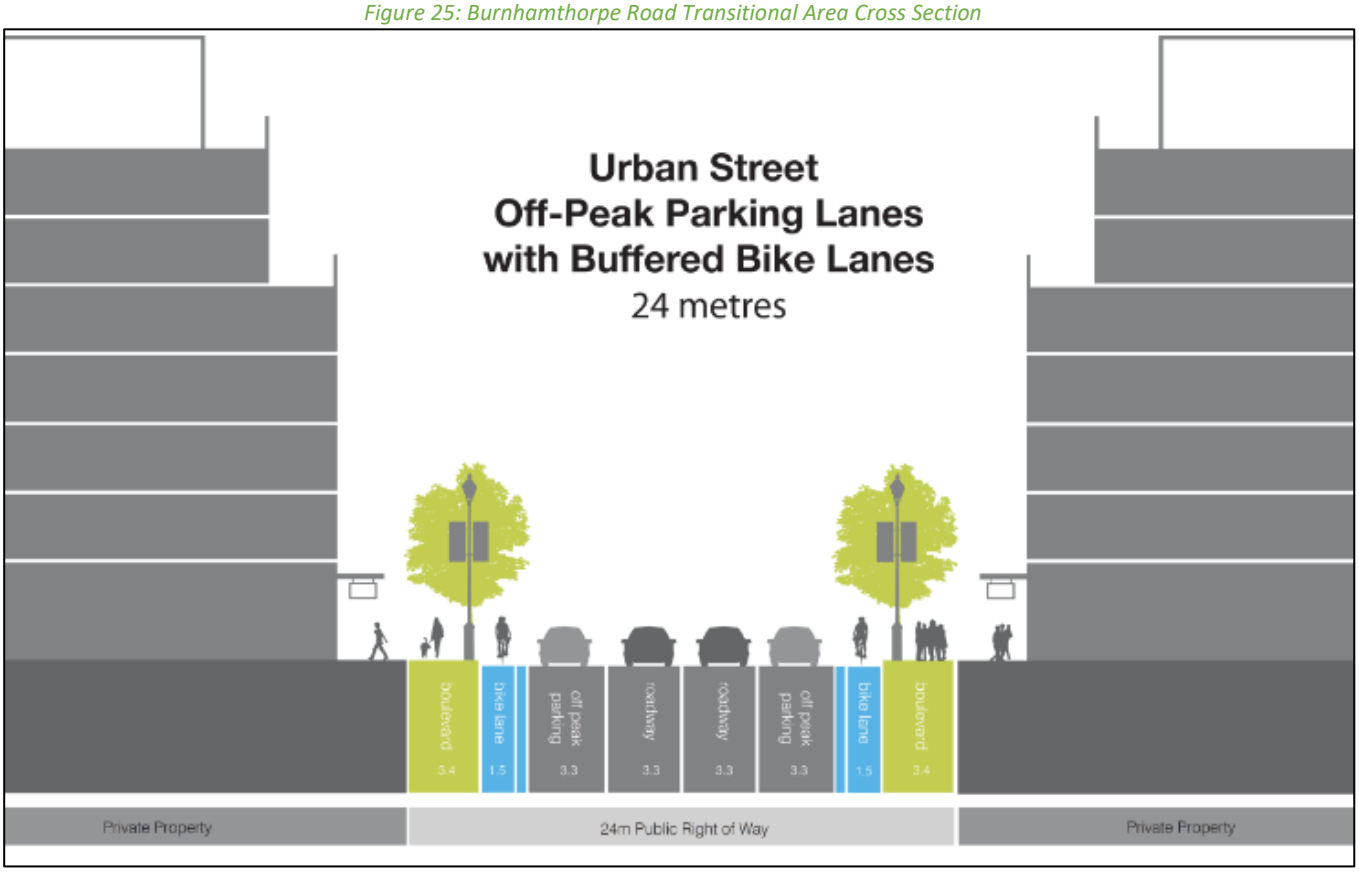
The detailed design of Trafalgar Road has been referenced for the configurations of intersections along Trafalgar Road in future analysis horizons. Where intersection information is not available in the detailed design, or conflicting information is available, other material such as the preliminary designs of the Study Area intersections shown in the Trafalgar Road EA and other intersection design information discussed in Section 4.1 will be used. The available detailed and preliminary designs of the Study Area intersections along Trafalgar Road are provided in Appendix D.

4.1.3 Burnhamthorpe Road

With the completion of Phase 2 – Stage 2 of the William Halton Parkway extension in November 2023, the regional function of Burnhamthorpe Road as the North Oakville transportation corridor is assumed to be transferred to William Halton Parkway. Therefore, within the Study Area, Burnhamthorpe Road is assumed to be under the jurisdiction of the Town of Oakville and designated as a character road. The Burnhamthorpe Road Character Study & Municipal Class Environmental Assessment (2014) was conducted to develop a new road design for Burnhamthorpe Road between Ninth Line and Sixteen Mile Creek to better serve the needs of the north Oakville community. As construction for Burnhamthorpe Road is expected to begin in three years, in 2027, the improvements along Burnhamthorpe Road will be considered in all future analysis horizons.

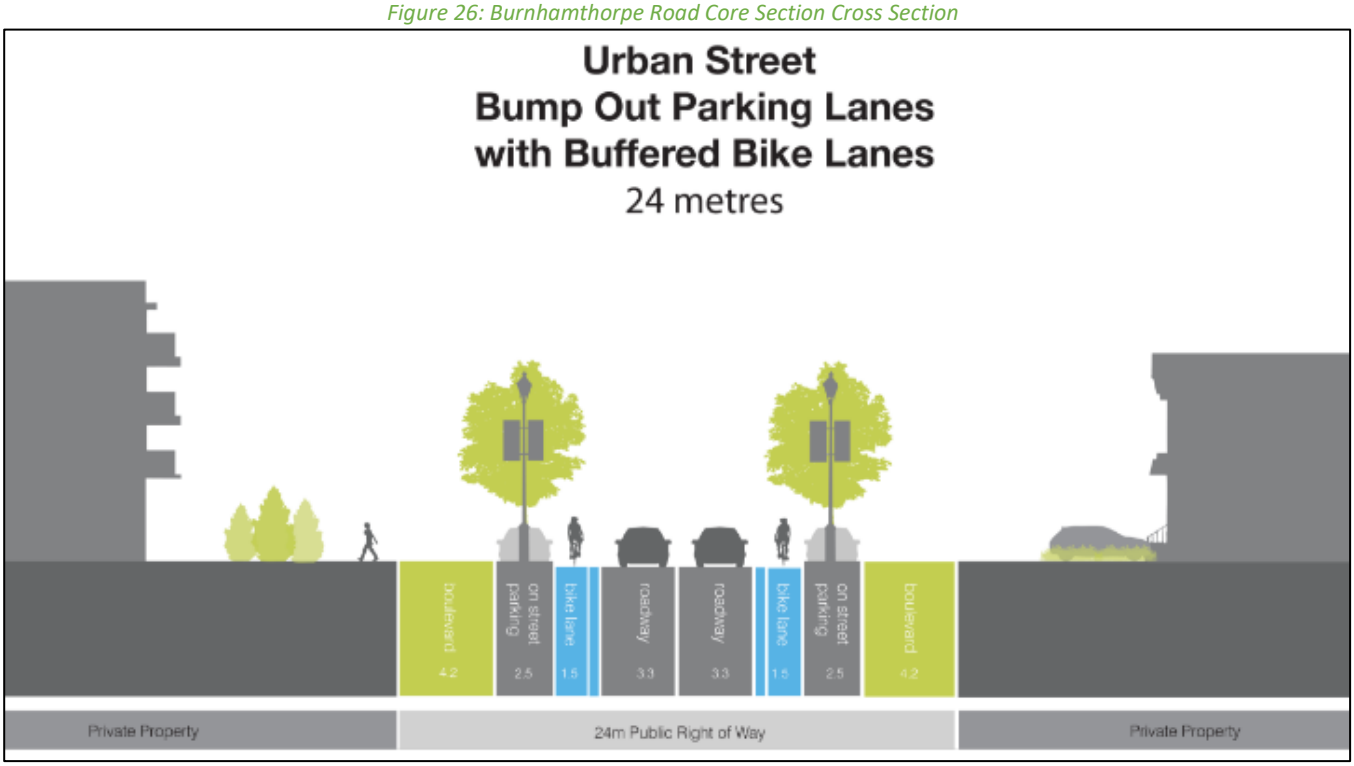
The section of Burnhamthorpe Road approximately 500 metres east and west of Trafalgar Road is designated as the Trafalgar Urban Core section. It will be Northeast Oakville's focal point with mixed-use urban development up to 20 stories that result in highest densities. The recommended design for the core section is Core Section 1 and is illustrated in Figure 25. The sections of Burnhamthorpe Road east and west of the core section is designated as Transitional Areas which provides interface/buffer from the Employment District. The recommended design for the transitional sections is Transitional Section 2 and is illustrated in Figure 26. A posted speed limit of 50 km/h will apply to all sections of Burnhamthorpe Road.

Figure 25: Burnhamthorpe Road Transitional Area Cross Section



Source: Burnhamthorpe Road Character Study & Municipal Class Environmental Assessment (2014)

Figure 26: Burnhamthorpe Road Core Section Cross Section



Source: Burnhamthorpe Road Character Study & Municipal Class Environmental Assessment (2014)

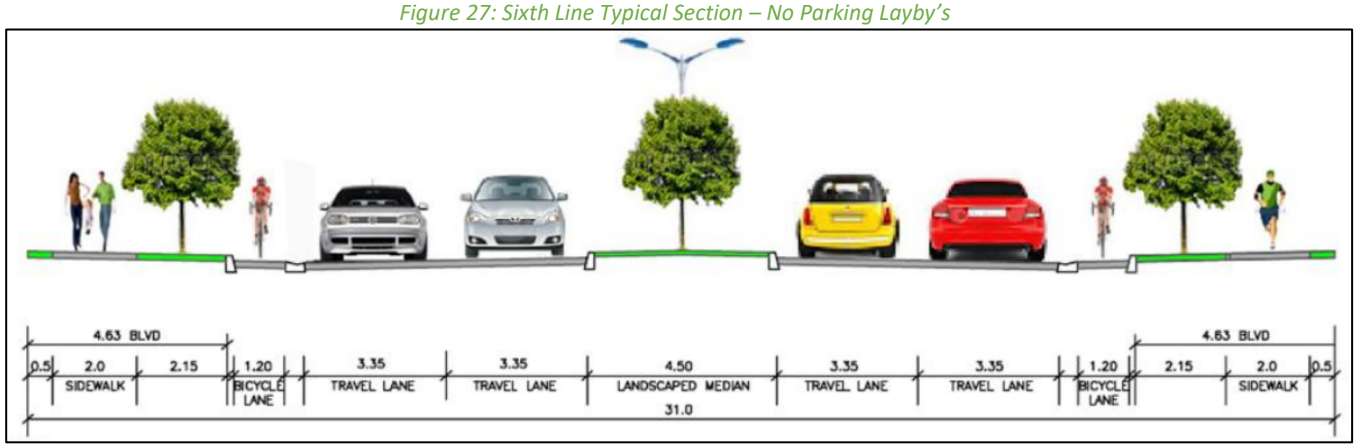
As the detailed design of Burnhamthorpe Road is still under development and not yet available, the Burnhamthorpe Road Character Study ESR will be referenced for the configuration of Burnhamthorpe Road in future analysis horizons. The preliminary designs of the intersections of Burnhamthorpe Road between Sixth Line and William Halton Parkway as shown in the Burnhamthorpe ESR are provided in Appendix D.

4.1.4 Sixth Line

Sixth Line is a north-south corridor in the Study Area and has been the subject of the Sixth Line Class Environmental Assessment Study to examine widening Sixth Line from two-lanes to four-lanes between Dundas Street and just south of Highway 407. The widening will be completed in two phases. Phase 1 covers the section between Dundas Street and Threshing Mill Boulevard and was completed in the summer of 2023. Phase 2 covers the section from Threshing Mill Boulevard to William Halton Parkway and is anticipated to be completed by Fall 2025. For the purposes of this study, it has been assumed that Sixth Line operates as a four-lane road for all future horizons. The posted speed limit of 60 km/h on Sixth Line will be maintained.

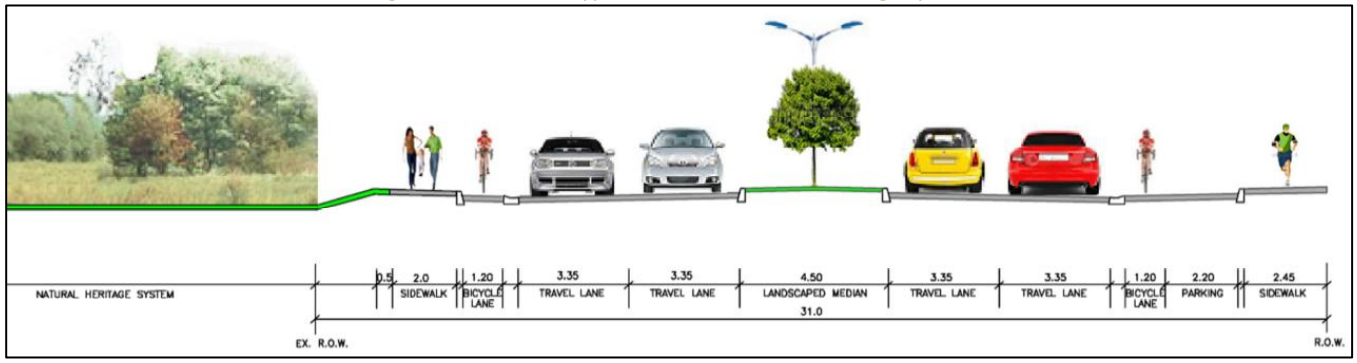
Two typical cross-sections are proposed for Sixth Line within the Study Area. An urban cross-section with no on-street parking and an urban cross-section for the shifted alignment at the Natural Heritage System are proposed for the segments of Sixth Line north of Burnhamthorpe Road within the Study Area. Figure 27 and Figure 28 illustrates the two sections. The Sixth Line Class Environmental Assessment Study indicates that the intersection of Sixth Line at Burnhamthorpe Road will be signalized with exclusive northbound and southbound left-turn lanes. The preliminary design along Sixth Line is included in Appendix D.

Figure 27: Sixth Line Typical Section – No Parking Layby's



Source: Sixth Line from Dundas Street to Highway 407 ETR Class Environmental Assessment Study Environmental Study Report (2014)

Figure 28: Sixth Line Typical Section – Natural Heritage System



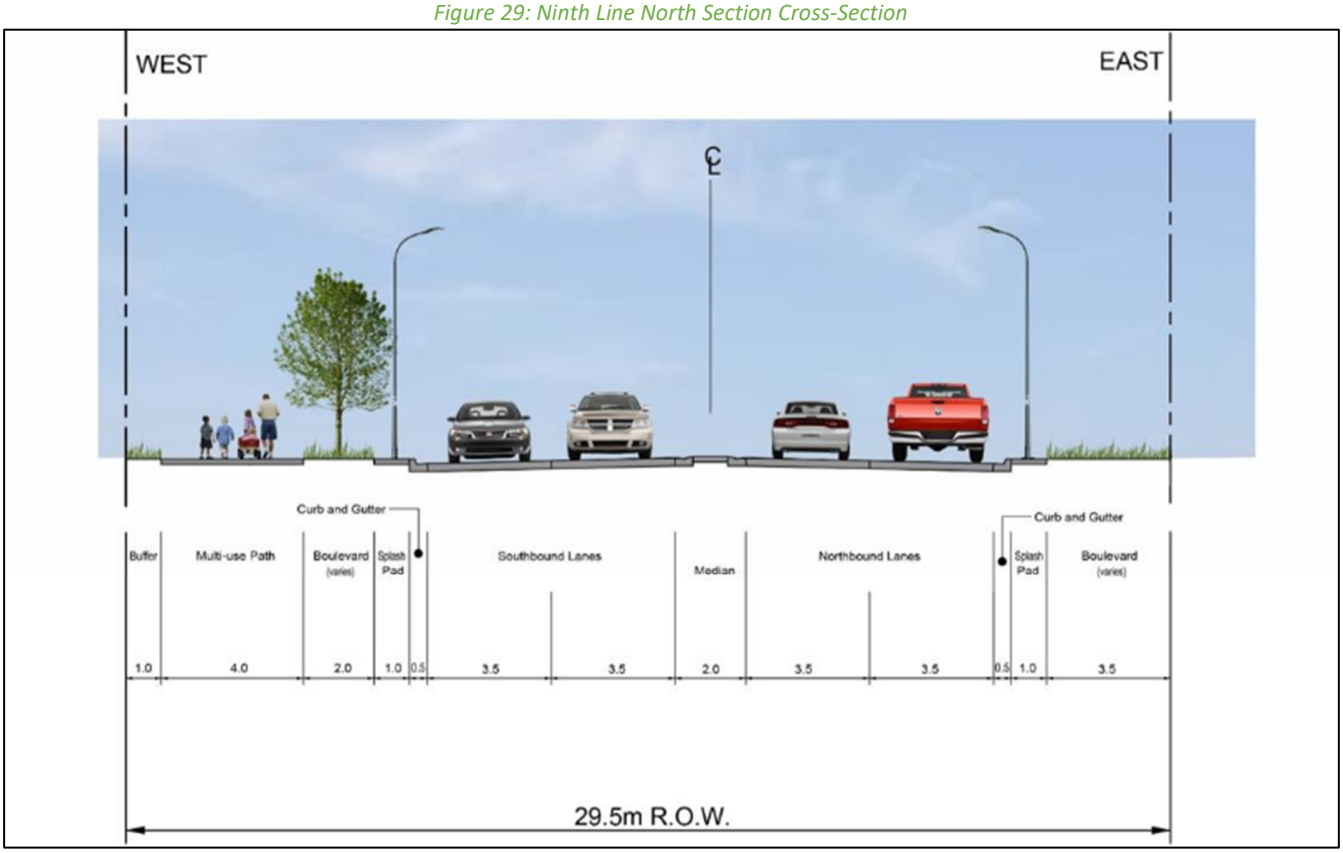
Source: Sixth Line from Dundas Street to Highway 407 ETR Class Environmental Assessment Study Environmental Study Report (2014)

4.1.5 Ninth Line

The Ninth Line Corridor Study was completed to identify roadway improvement options along Ninth Line between Dundas Street and Highway 407. Construction for the Ninth Line corridor is scheduled to begin in 2025, and improvements will therefore be considered in all future analysis horizons. The posted speed limit of 60 km/h on Ninth Line will be maintained.

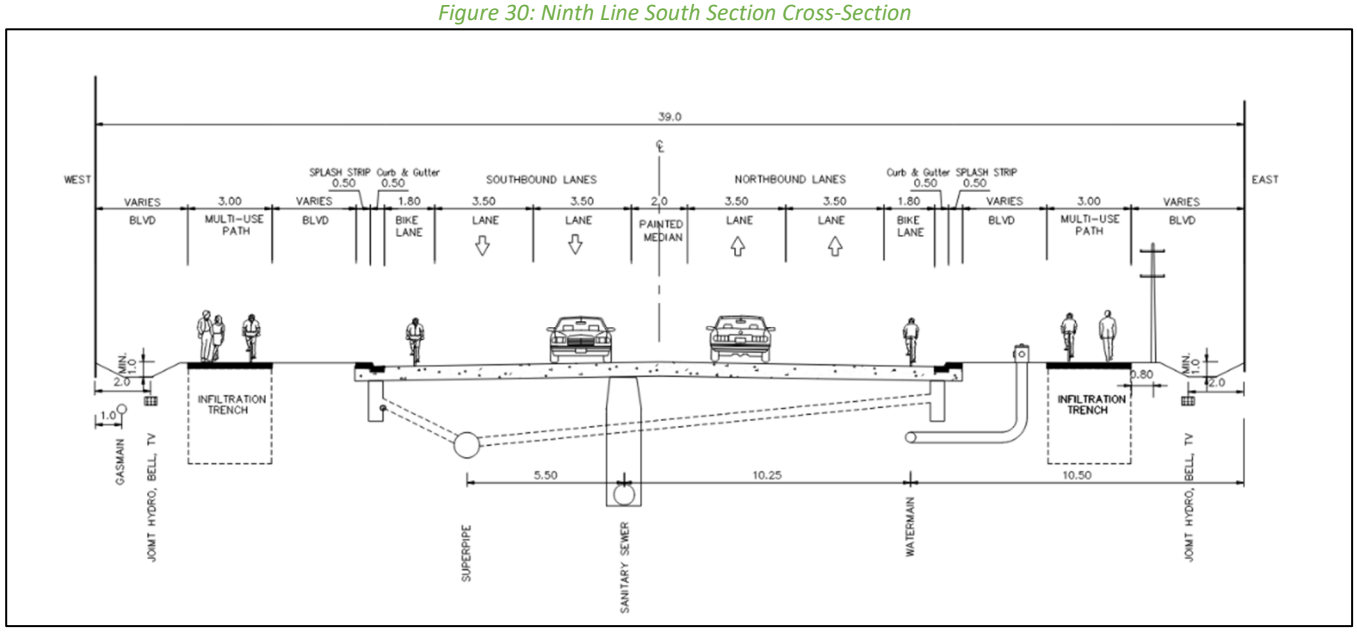
The section of Ninth Line is proposed to be widened from two to four lanes, with the addition of bike lanes and multi-use pathways on both sides of the road. For the development of design alternatives, Ninth Line was divided into two sections, with the North Section consisting of Ninth Line between William Halton Parkway and Highway 407, and the South Section consisting of Ninth Line between Dundas Street and William Halton Parkway. Figure 29 and Figure 30 illustrates the proposed cross-section for the North and South Sections of the Ninth Line widening, respectively.

Figure 29: Ninth Line North Section Cross-Section



Source: Ninth Line Transportation Corridor Improvements from Dundas Street to 407 ETR Environmental Study Report (2020)

Figure 30: Ninth Line South Section Cross-Section

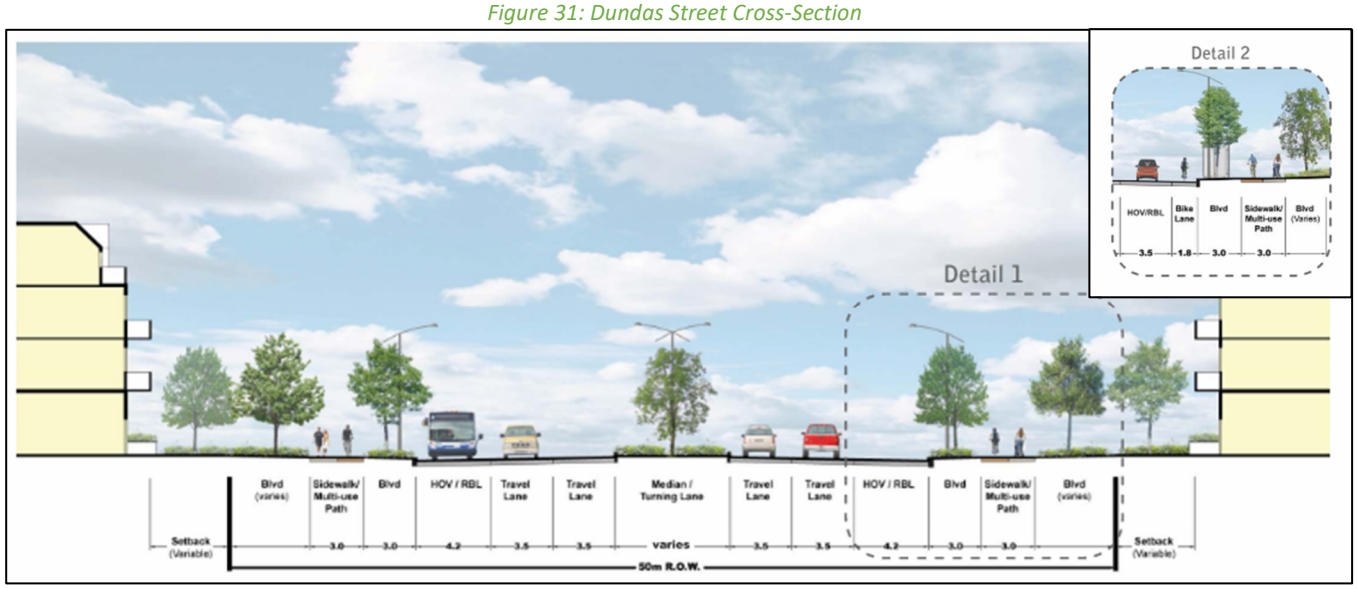


Source: Ninth Line Transportation Corridor Improvements from Dundas Street to 407 ETR Environmental Study Report (2020)

4.1.6 Dundas Street

Dundas Street is defined as a Priority Bus Corridor from Brant Street to Trafalgar Road and as a Bus Rapid Transit (BRT) Corridor east of Trafalgar Road. The Halton Region Defining Major Transit Requirements (DMTR) Study (2019) indicates that HOV lanes are recommended to be implemented along the outer lanes of Dundas Street between Bronte Road and the Halton/Peel Boundary by the 2031 horizon. The HOV lanes will be converted to bus-only BRT lanes in this segment by 2041. In order to reflect the BRT lanes, one through lane in each direction of travel will be removed in the Synchro analysis along Dundas Street in the 2041 analysis horizon. The existing speed limit is assumed to be maintained in all future analysis horizons. The future cross-section of Dundas Street is illustrated in Figure 31.

Figure 31: Dundas Street Cross-Section

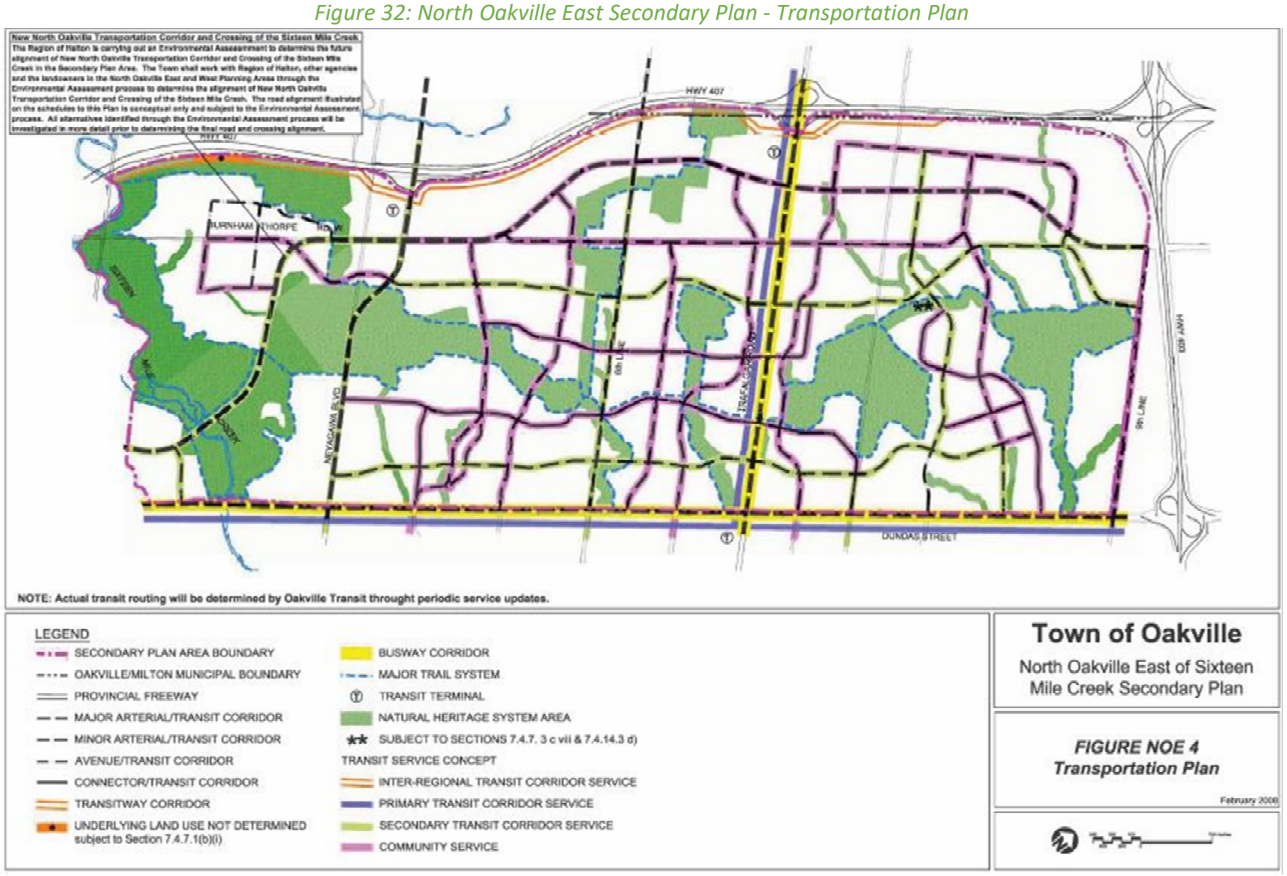


Source: Halton Region Transportation Master Plan Regional Right-of-Way Guidelines (2011)

4.1.7 North Oakville East Secondary Plan – Transportation Plan

The North Oakville East Secondary Plan includes transit routes along key corridors within the proposed developments. Figure 32 illustrates the North Oakville East Secondary Plan Transportation Plan. Within the Study Area, Trafalgar Road and Dundas Street are planned as a Primary Transit Corridor and Busway Corridor, Sixth Line is planned as a Secondary Transit Corridor, and William Halton Parkway, Burnhamthorpe Road, and Ninth Line are recognized as Community Service Transit Corridors.

Figure 32: North Oakville East Secondary Plan - Transportation Plan



Source: North Oakville East Secondary Plan (2008)

4.1.8 Other Study Area Developments

The proposed development lands are surrounded by several ongoing developments. The TISs for those developments from Ward 6 and Ward 7 of the Town of Oakville Development and Site Plan Applications portal have been reviewed to determine the amount of background traffic that would be added to the Study Area road network as a result of those developments. The following nearby developments have been considered in accordance with feedback from Town staff, as shown in Appendix A, and will be considered as part of the background traffic growth:

- Sherborne Lodge Development
- Remington Eno Development
- Neighbourhood 9,10,11 Development
- Sixth Oak Inc. School and Employment Lands
- Star Oak Development
- Infrastructure Ontario (IO) Trafalgar Lands

- Green Ginger – Trafalgar Road
- Bressa and Dunoak
- Coscorp Joshua Creek
- Argo Joshua Creek
- Mattamy Joshua Creek
- Joshua Creek Phase 4
- Capoak and Redoak
- SmartCentres Oakville North

Additionally, the following developments were identified to generate background traffic within the proposed study area, but do not include a TIS within Oakville Active Development Applications Portal:

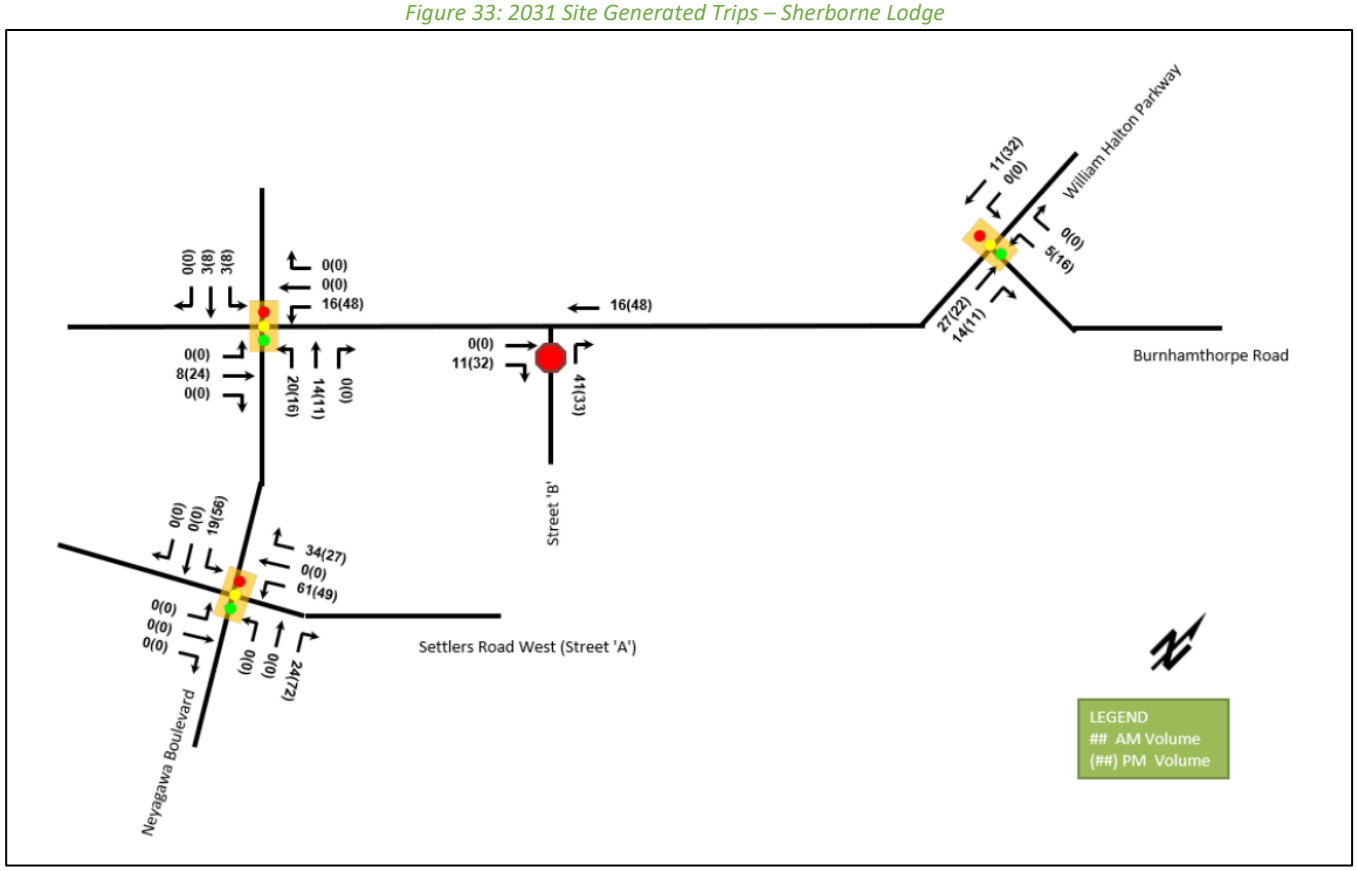
- Palermo Village
- Enirox Dundas
- Kaneff Group – 2350 & 2360 Bristol Circle
- CEFA Early Learning Oakville – 1030 Eighth Line
- Premier Poly Products – Northeast corner Winston Park and Portland Drive
- Mississauga Oakville Veterinary Emergency Hospital – 2285 Bristol Circle
- 1943 Ironoak Way
- HDSB North Oakville #3 PS – Wheat Boom Dr
- Kamato Holdings Ltd. – 1226 to 1230 White Oaks Boulevard and 350 Lynnwood Drive
- Lions Foundation Dog Guides – 1949 Ironoak Way
- Private Residences 2358 Eighth Line Lot A & Lot C
- Restone Foods – 2727 Portland Drive
- Reinders + Law Ltd. – 2500 to 2510 Hampshire Gate
- Arbor Memorial Inc. – 3164 Ninth Line
- Ontario Zoroastrian Community Foundation – 1187 Burnhamthorpe Road East
- 1019 Dundas Street East
- 393 Dundas GP Inc. – 295 Dundas Street West and 3025 Trailside Drive
- BC Trafalgar Inc. – 3220 William Coltson Avenue
- 407 Dundas GP Inc. – 405 Dundas Street West
- Silk Westerns Corp. – 412 Silver Maple Road
- HDSB Northeast Oakville No. 1 High School
- Martillac Estates Inc. – 1359 Dundas Street West
- Rione Development Corp. – 455 & 465 Dundas Street West
- 3064 Trafalgar Road
- Minto Communities Oakvillage
- North Park Development – 2070 Neyagawa Boulevard
- 98 Kaitting Trail
- Rowhedge Construction Ltd. – Block 6, Part of Lot 15, Con 2, NDS
- Perano Residences Ltd. – 509 Dundas Street West
- Preserve North (Phase 4)
- QuadReal Property Group/bcIMC Realty Corporation/Bentall – 3269 & 3271 Dundas Street West
- HCDSB North Oakville #4 Elementary School – 420 Threshing Mill Boulevard

The impact of the trip generation of these developments within the Study Area is assumed to be captured within the application of the conservative compound annual rates provided by Town and Region Staff. Each background development considered within this study and the traffic associated with it has been summarized in the subsections below.

4.1.8.1 Sherborne Lodge Development

The future North Oakville Sherborne Lodge Development is located west of the subject site. The following information has been taken from the *Sherborne Lodge Developments Transportation Impact Study (2023),* prepared by CGH Transportation. This development includes an apartment block with an anticipated 296 units, a low-rise subdivision with 84 single detached homes and 125 townhouses, a commercial block, and an elementary school. This development will connect to the road network via one access on William Halton Parkway and one access on Settlers Road West. A 2026 build-out year is anticipated, and therefore site generated traffic will be considered in all future analysis horizons. The proposed development is anticipated to generate 189 AM and 296 PM peak hour two-way vehicle trips in the future 2031 future analysis horizon considered in the TIS. The 2031 Sherborne Lodge trip generation is illustrated in Figure 33.

Figure 33: 2031 Site Generated Trips – Sherborne Lodge



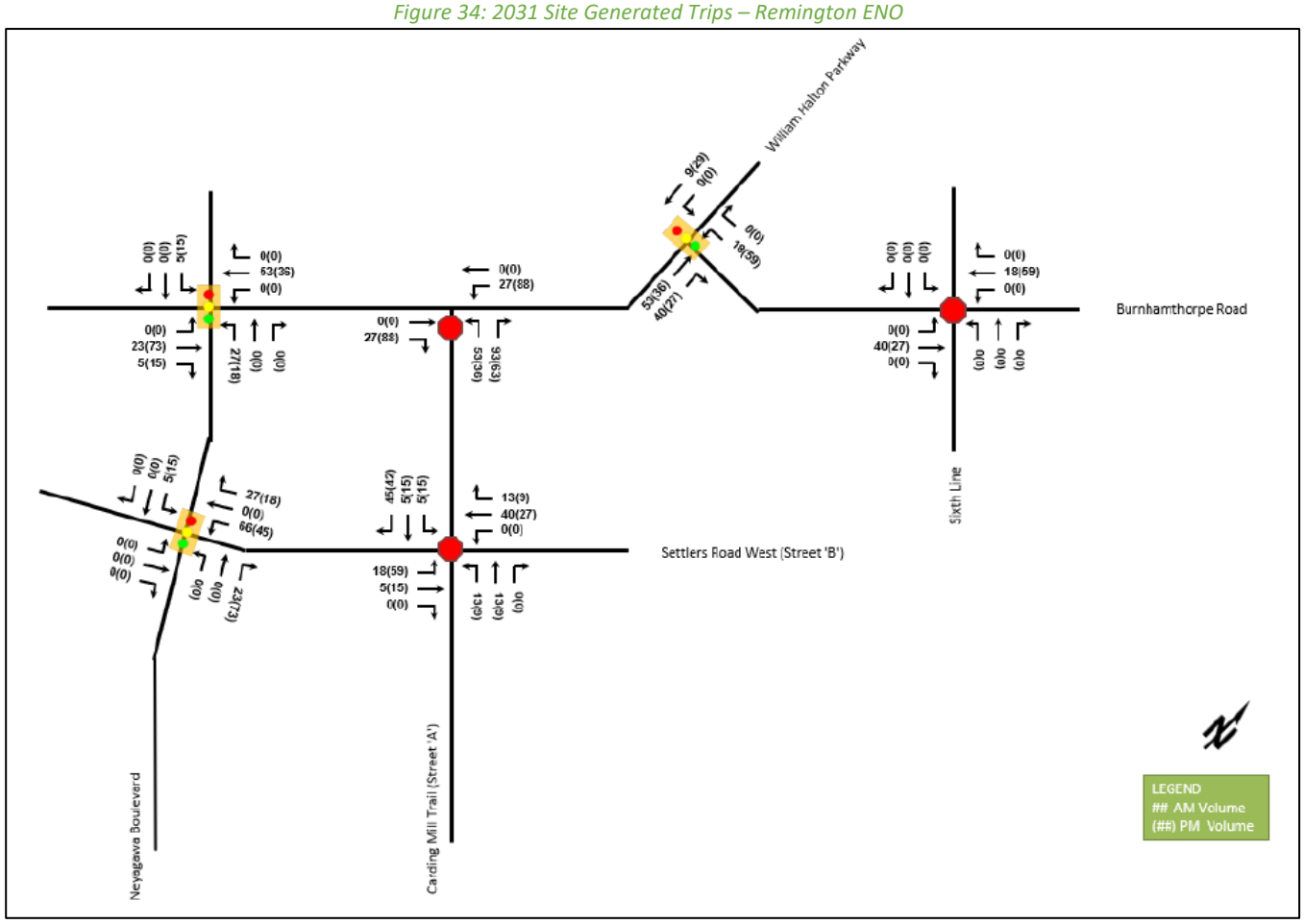
Source: Sherborne Lodge Developments Transportation Impact Study; CGH; September 2021

4.1.8.2 Remington ENO Residential Development

The future Remington Eno development is a proposed subdivision in North Oakville, bordered by Burnhamthorpe Road (future William Halton Parkway) to the north, and the proposed Sherborne Lodge development to the west. The following information has been taken from the *Remington Eno Transportation Impact Study (2023),* prepared by CGH Transportation. Remington Eno includes a mix of 290 single detached houses, 307 townhouses, and

several multi-storey mid-rise buildings with a total of approximately 1,700 apartment units and a total of approximately 15,000 square feet of retail space. Access to this development will be provided via the intersection of Carding Mill Trail and William Halton Parkway, as well as the intersection of Neyagawa Boulevard at Settlers Road West. A 2026 build-out year is anticipated, and therefore site generated traffic will be considered in all future analysis horizons. The proposed development is anticipated to generate 352 AM and 472 PM peak hour two-way vehicle trips in the 2031 future analysis horizon considered in the TIS. The 2031 Remington Eno trip generation horizons can be seen in Figure 34.

Figure 34: 2031 Site Generated Trips – Remington ENO



Source: Remington Eno Transportation Impact Study; CGH; March 2021

4.1.8.3 Neighbourhood 9,10,11 Developments

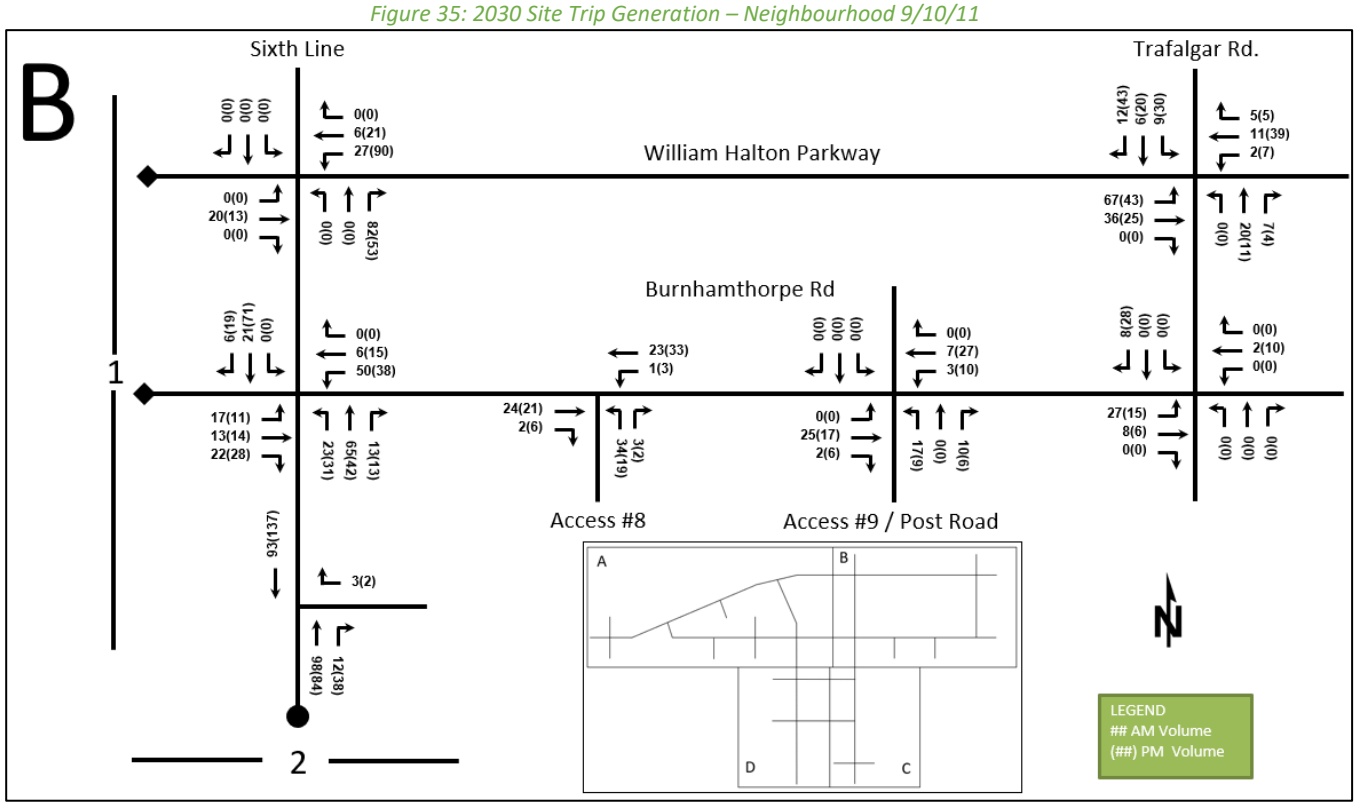
The proposed Neighbourhood 9/10/11 developments in North Oakville are located to the west of the subject development, covering a vast area on both sides of Burnhamthorpe Road. The site encloses everything south of the extension of William Halton Parkway, north of North Park Boulevard, and west of Sixth Line. The following information has been taken from the *Neighbourhood 9/10/11 Transportation Impact Study (2020),* prepared by CGH Transportation. The developments consist of:

- Timsin Holding Corp. – 29 single family detached units and 18 townhouse units
- Docasa Group Ltd. – 200 single detached residential units and 110 townhouse units
- Star Oak Developments Ltd. – 105 single family detached units and 63 townhouse units

- Digram Developments Inc. – 172 townhouse units and 110 apartment units
- Argo (West Morrison Creek) Ltd. – 85 single family detached units and 162 townhouse units
- Crosstrail Estates Inc. and TWKD Developments Inc. – 244 townhouse units
- Mattamy Homes Preserve North – 369 single family detached units and 22 townhouses
- Mattamy Homes / SGGC – 202 townhouse units and 75 apartment units
- G.C. Family Investments – 10 townhouse units

The combined development includes a total of 788 single detached homes, 1003 townhouses, and 175 mid-rise units. The projected completion date is 2024, however the majority of the development does not appear to have been constructed, and therefore site generated traffic will be considered in all future analysis horizons. The development is anticipated to generate a total of 851 and 1114 two-way vehicle trips during the AM and PM peak hour in the 2030 future analysis horizon considered in the TIS. Figure 35 illustrates the projected 2030 site traffic generation of the Neighbourhood 9/10/11 Development.

Figure 35: 2030 Site Trip Generation – Neighbourhood 9/10/11



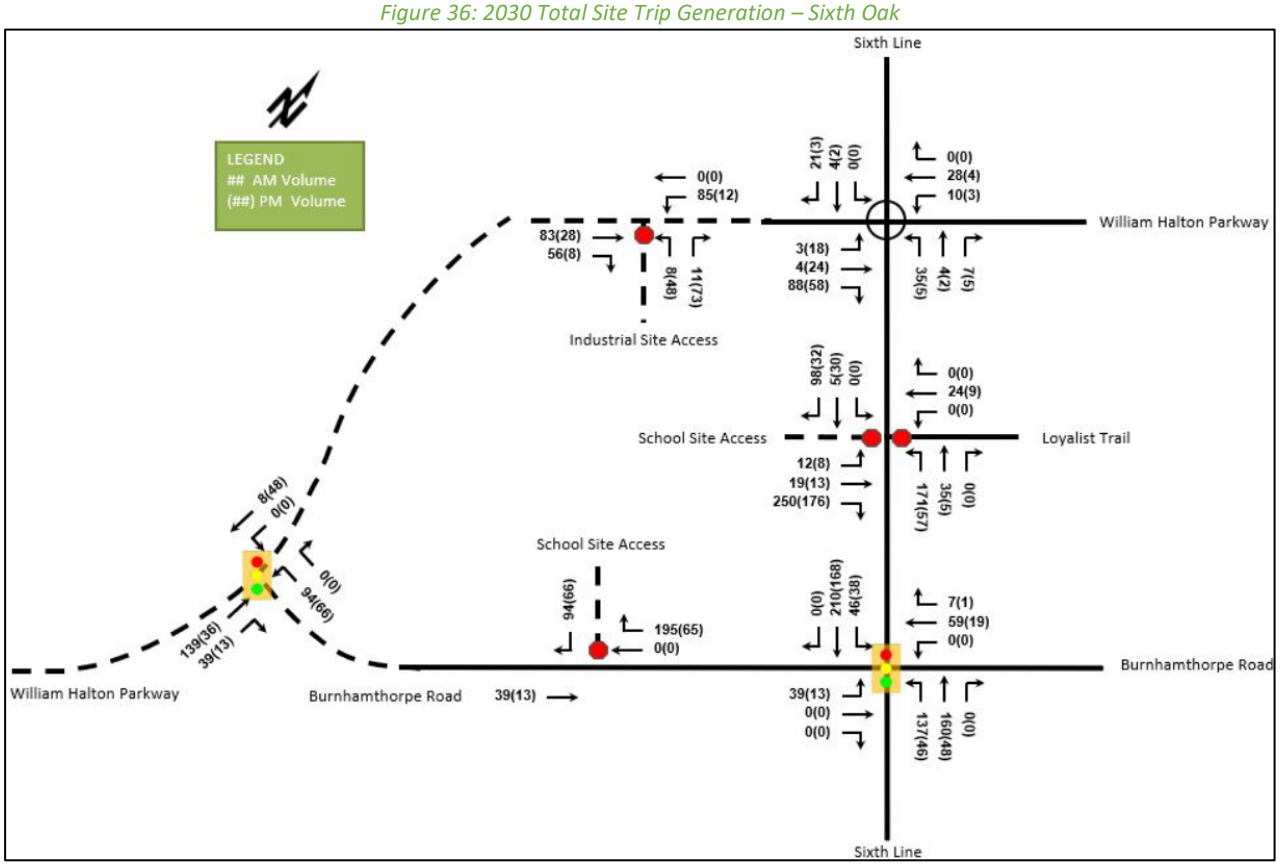
Source: Neighbourhood 9/10/11 Transportation Impact Study; CGH Transportation; 2020

4.1.8.4 Sixth Oak Inc. School and Employment Lands

The future Sixth Oak development occupies the northwest corner at the intersection of Burnhamthorpe Road at Sixth Line, including the natural heritage area. The following information has been taken from the *Sixth Oak Inc. School and Employment Lands Transportation Impact Study (2022),* prepared by CGH Transportation. The proposed development will include a secondary school with a capacity of 1,200 pupils, an 8,000 square foot childcare facility, a 100,000 square foot office space, and 281,600 square feet of one-storey industrial buildings separated from the rest by natural heritage service areas. The secondary school, the daycare, and the office building have a right-in/right-out access on Burnhamthorpe Road and a full-movement access on Sixth Line, and the industrial buildings have a full-movement access on William Halton Parkway. A full build-out horizon of 2025

is anticipated, and therefore site trip generation will be considered in all future analysis horizons. The proposed development is anticipated to generate 377 AM and 346 PM peak hour two-way auto trips in the 2030 future analysis horizon considered in the TIS. The total 2030 site trip generation for Sixth Oak is illustrated in Figure 36.

Figure 36: 2030 Total Site Trip Generation – Sixth Oak

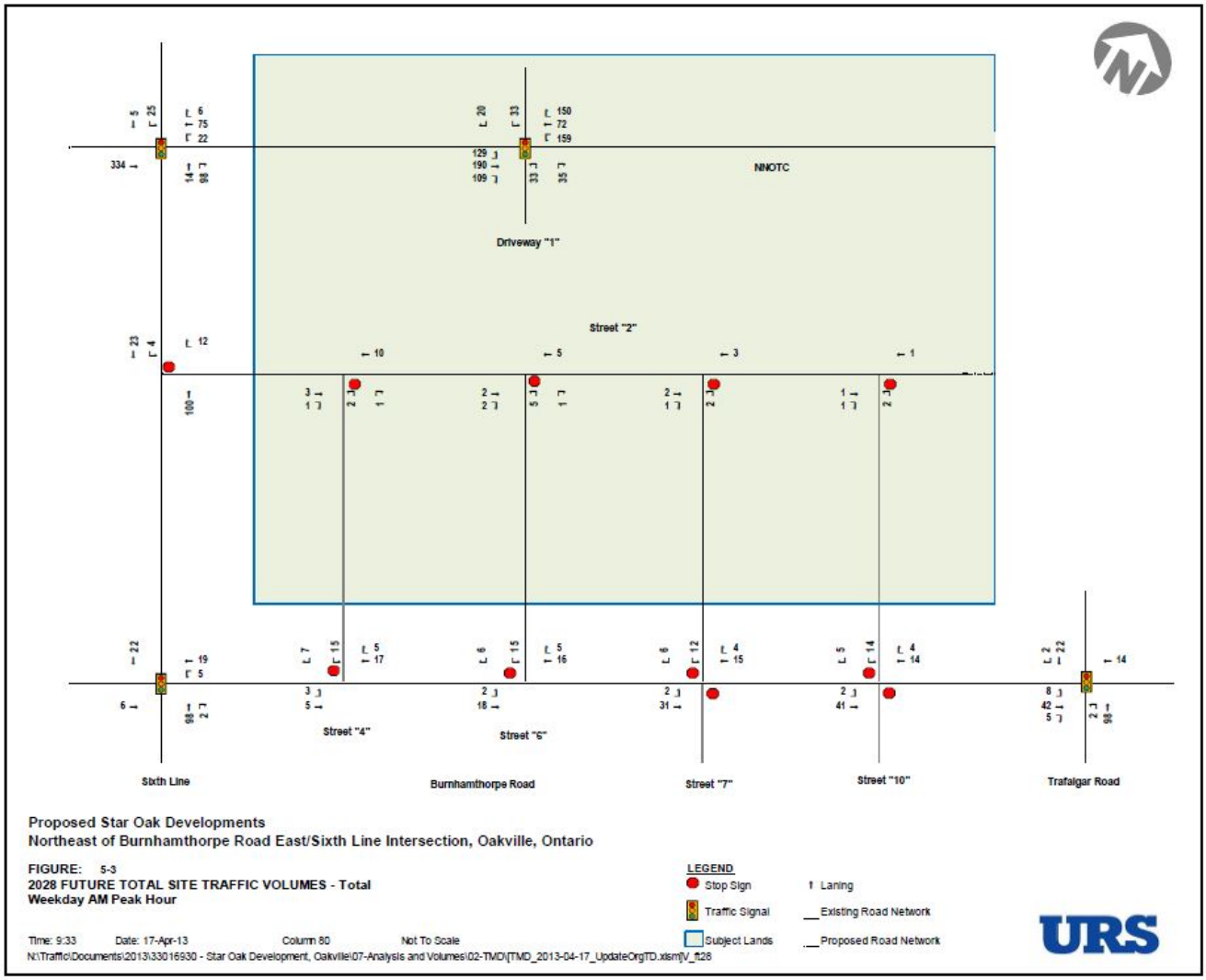


Source: Sixth Oak Inc. School and Employment Lands Transportation Impact Study; CGH; February 2022

4.1.8.5 Star Oak Development

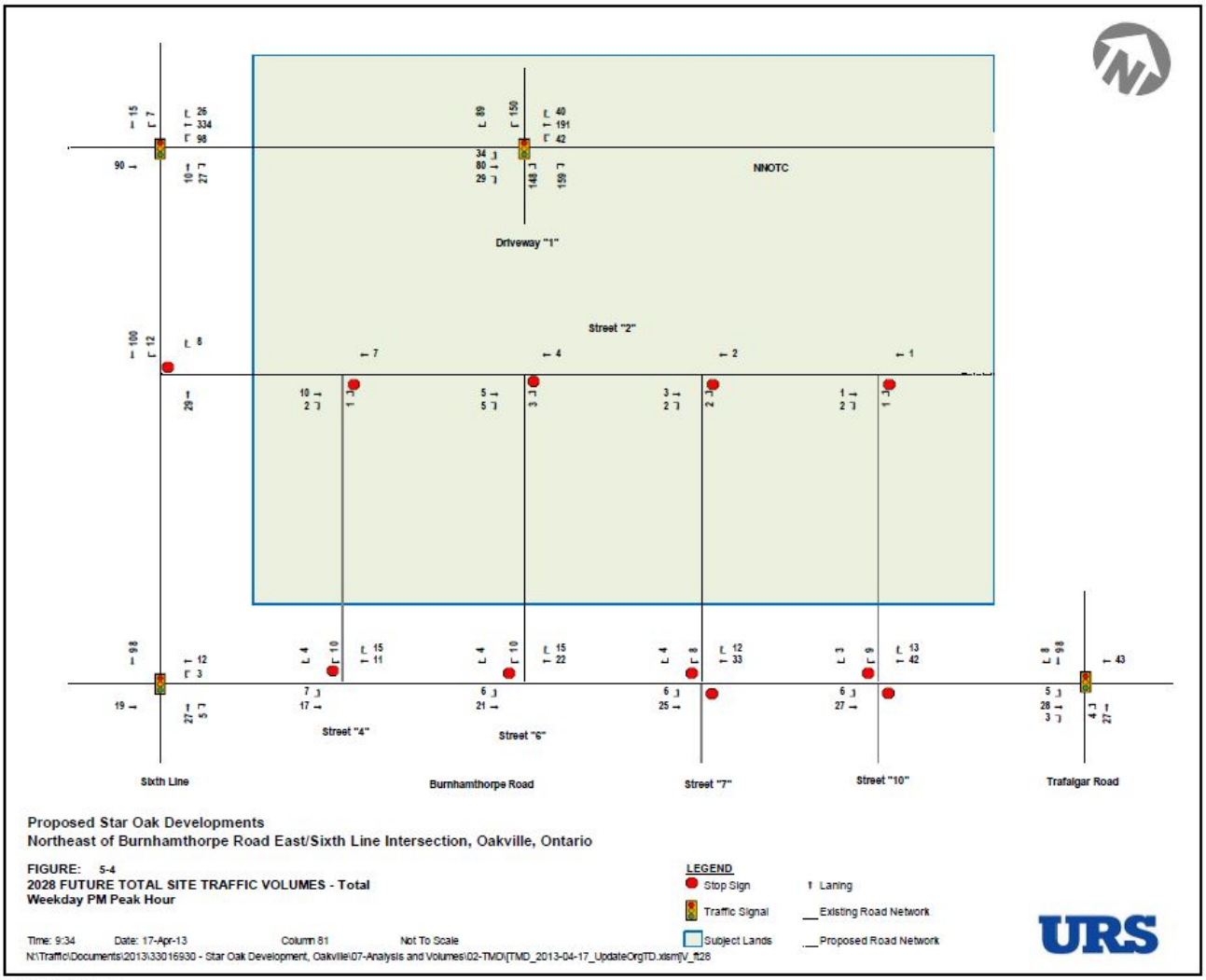
The Star Oak development is located at the northeast quadrant of Burnhamthorpe Road at Sixth Line. The following information has been taken from the *Traffic Impact Study Star Oak Developments Town of Oakville (2013),* prepared by URS Canada. This development includes 217 residential units with a mix of detached single-family units, and townhouse type units and 154,000 square metres of employment uses. The construction will be completed in two phases. Phase I includes all the residential units and 10% of the employment buildings while Phase II consists of 90% of the employment development. Phase I was completed in 2018 and Phase II will be completed in 2028 and will be considered in all future analysis horizons. As such, a reduction of the site traffic volumes based on the GFAs of the portion of the development that is being considered as a background development has been applied to the volume figures shown below. This development will connect to the road network via accesses on Sixth Line, Burnhamthorpe Road, and William Halton Parkway. The proposed development is anticipated to generate 951 AM and 985 PM peak hour two-way vehicle trips in the 2028 analysis horizon. The traffic generated by the Star Oak Development by 2028 is summarized in Figure 37 and Figure 38.

Figure 37: Star Oak 2028 AM Peak Hour Site Trip Generation



Source: Traffic Impact Study Star Oak Developments Town of Oakville; URS Canada; April 2013

Figure 38: Star Oak 2028 PM Peak Hour Site Trip Generation

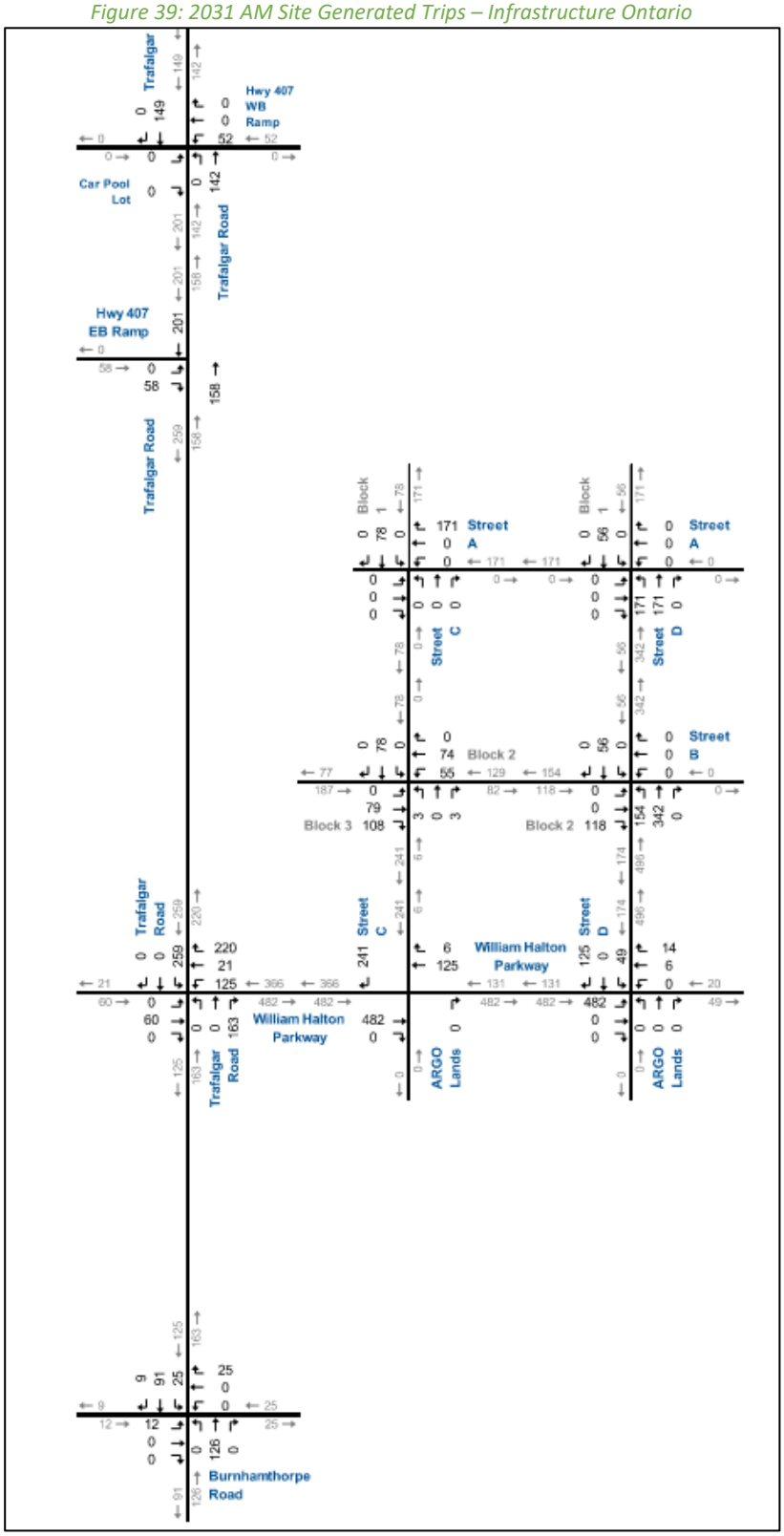


Source: Traffic Impact Study Star Oak Developments Town of Oakville; URS Canada; April 2013

4.1.8.6 Infrastructure Ontario (IO) Trafalgar Lands

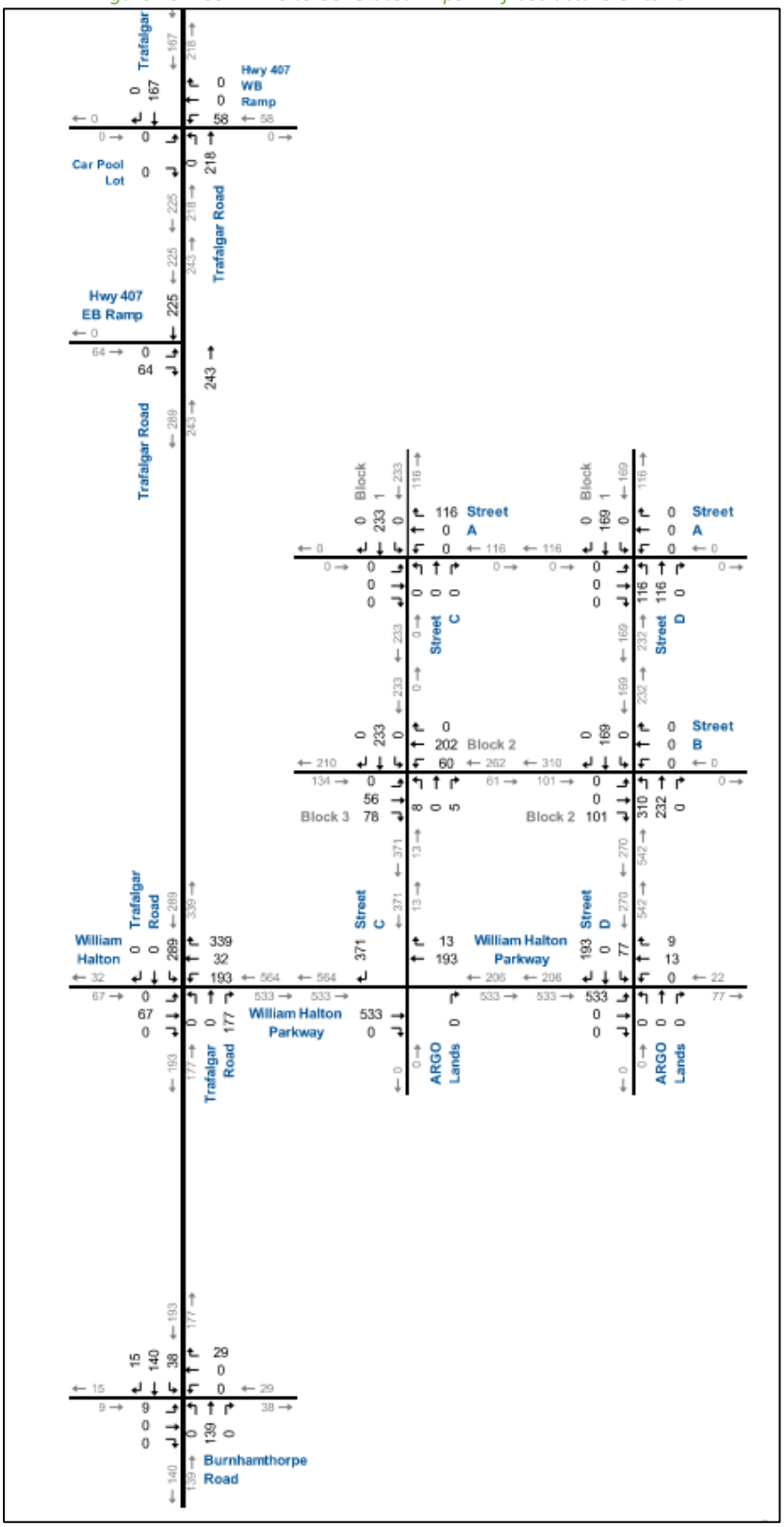
The site is located on both the east and west side of Trafalgar Road, between Highway 407 and Burnhamthorpe Road. Following the second submission of this study, an updated TIS has been available for this site. The following information has been taken from the *I/O Highway 407 & Trafalgar Road Transportation Impact Study (2026)* prepared by Paradigm Transportation Solutions Limited. The proposed development is to consist of approximately 9,460 residential units and 260,700 square metres of employment GFA. The ultimate development mix and intensity will be subject to future development applications. The subject site, following build-out, is estimated to generate approximately 2,658 vehicle trips during the AM peak hour and 3,411 vehicle trips during the PM peak hour. The project will be completed in three phases in 2031, 2036, and 2041. For the 2031 horizon year, Blocks 1 to 3 will be developed and will generate approximately 917 AM and 1,196 PM peak hour trips. For the 2036 horizon year, Blocks 4 to 14 will be developed and will generate approximately 1,548 AM and 1,980 PM peak hour trips. For the 2041 horizon year all remaining blocks will be developed and will generate 193 AM and 235 PM peak hour trips. The 2031 site generated volumes are illustrated in Figure 39 and Figure 40. The 2036 site generated volumes are illustrated in Figure 41 and Figure 42. The 2041 site generated volumes are illustrated in Figure 43 and Figure 44. The site generated trips in each phase will be included in the respective analysis horizon within this study.

Figure 39: 2031 AM Site Generated Trips – Infrastructure Ontario



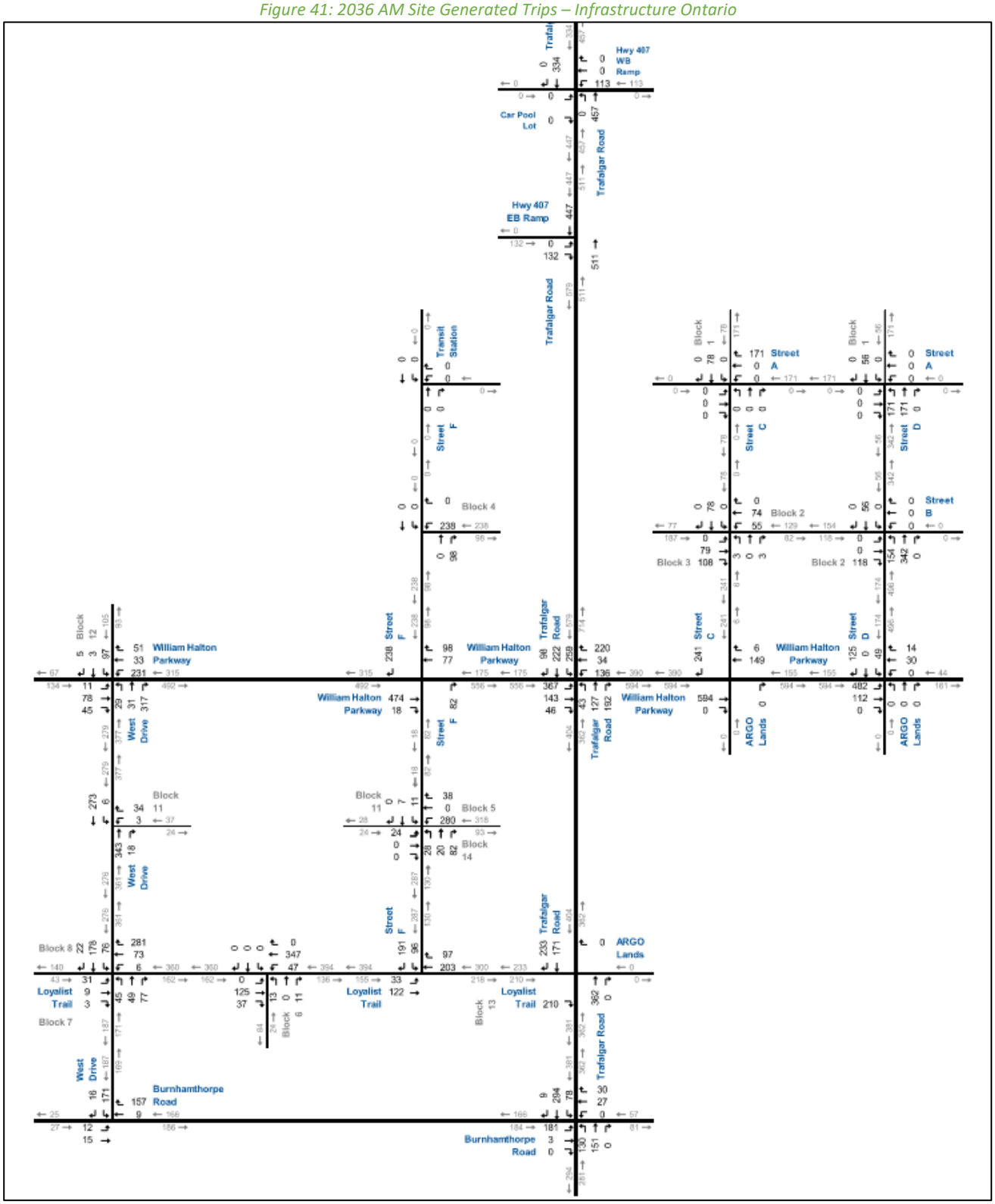
Source: I/O Highway 407 & Trafalgar Road, Oakville, ON Transportation Impact Study; Paradigm; January 2026

Figure 40: 2031 PM Site Generated Trips – Infrastructure Ontario



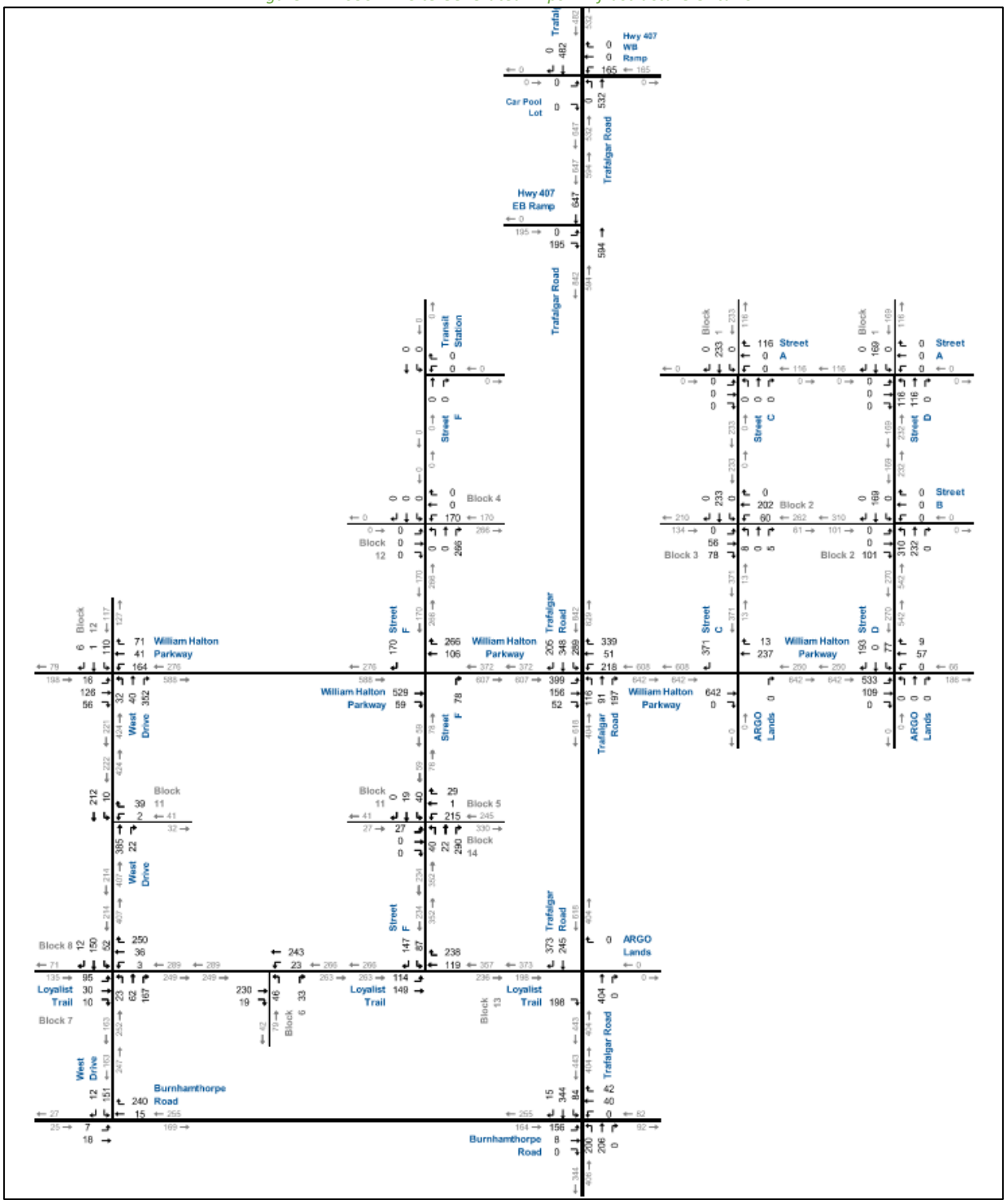
Source: I/O Highway 407 & Trafalgar Road, Oakville, ON Transportation Impact Study; Paradigm; January 2026

Figure 41: 2036 AM Site Generated Trips – Infrastructure Ontario



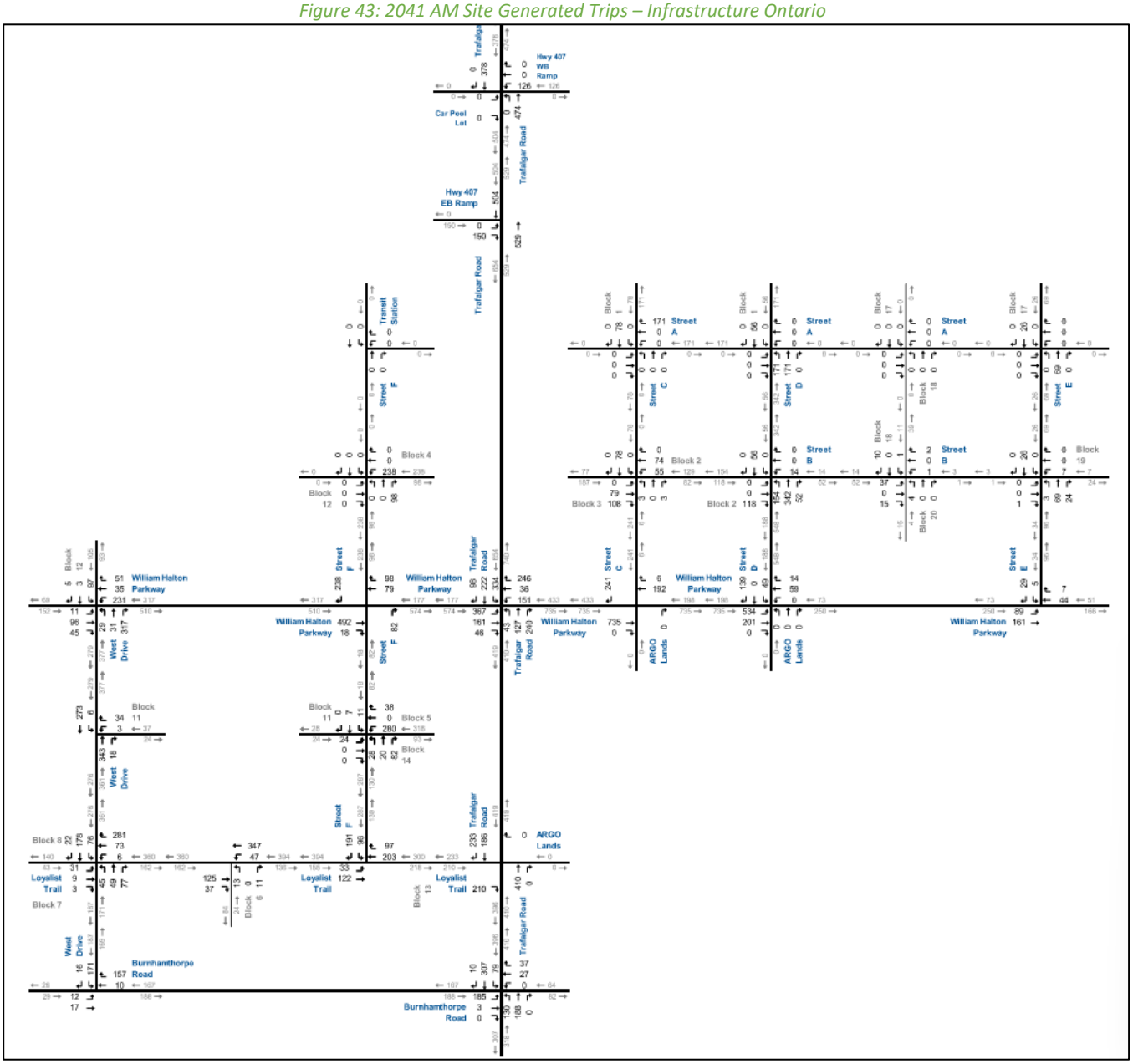
Source: I/O Highway 407 & Trafalgar Road, Oakville, ON Transportation Impact Study; Paradigm; January 2026

Figure 42: 2036 PM Site Generated Trips – Infrastructure Ontario



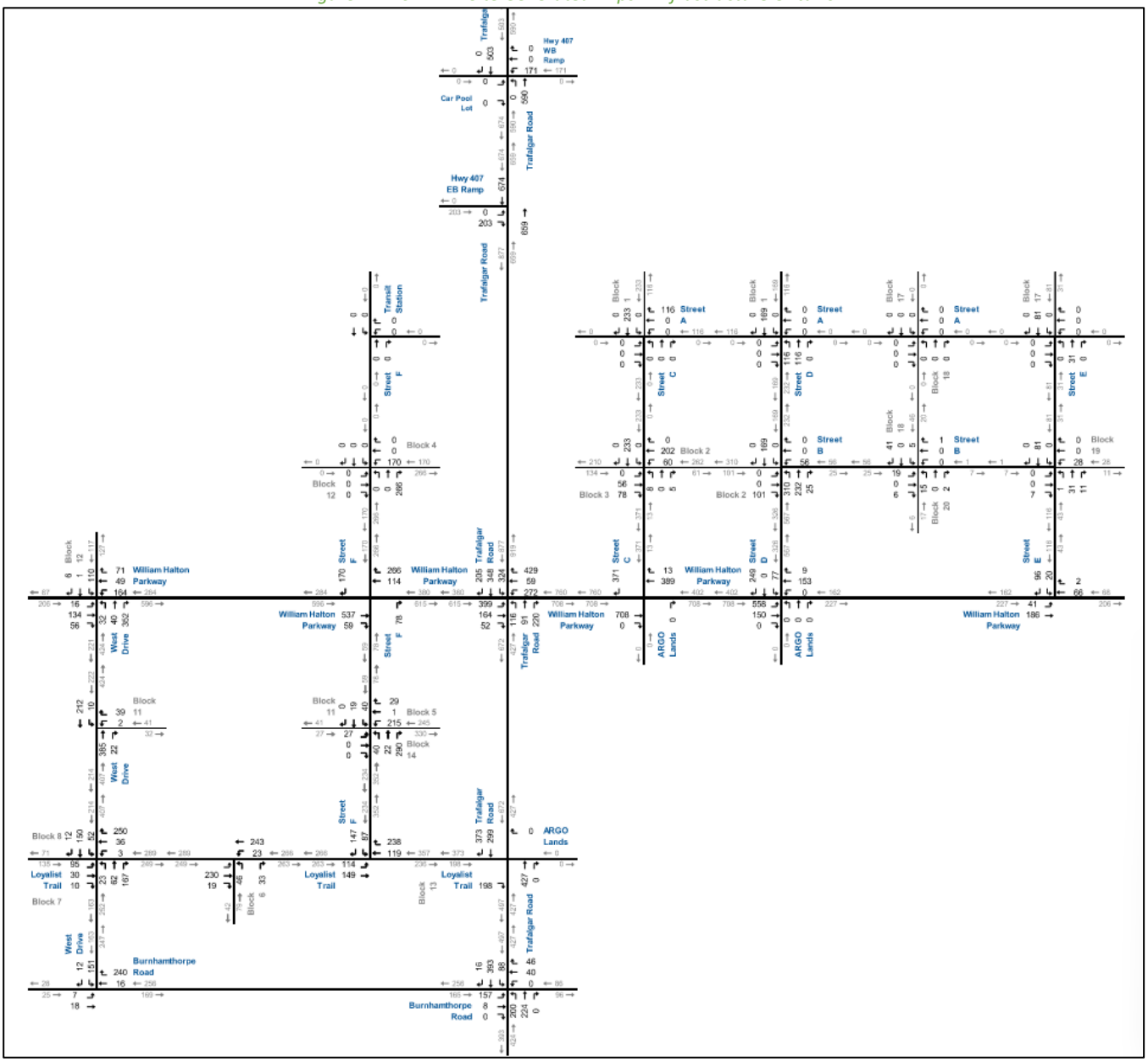
Source: I/O Highway 407 & Trafalgar Road, Oakville, ON Transportation Impact Study; Paradigm; January 2026

Figure 43: 2041 AM Site Generated Trips – Infrastructure Ontario



Source: I/O Highway 407 & Trafalgar Road, Oakville, ON Transportation Impact Study; Paradigm; January 2026

Figure 44: 2041 PM Site Generated Trips – Infrastructure Ontario



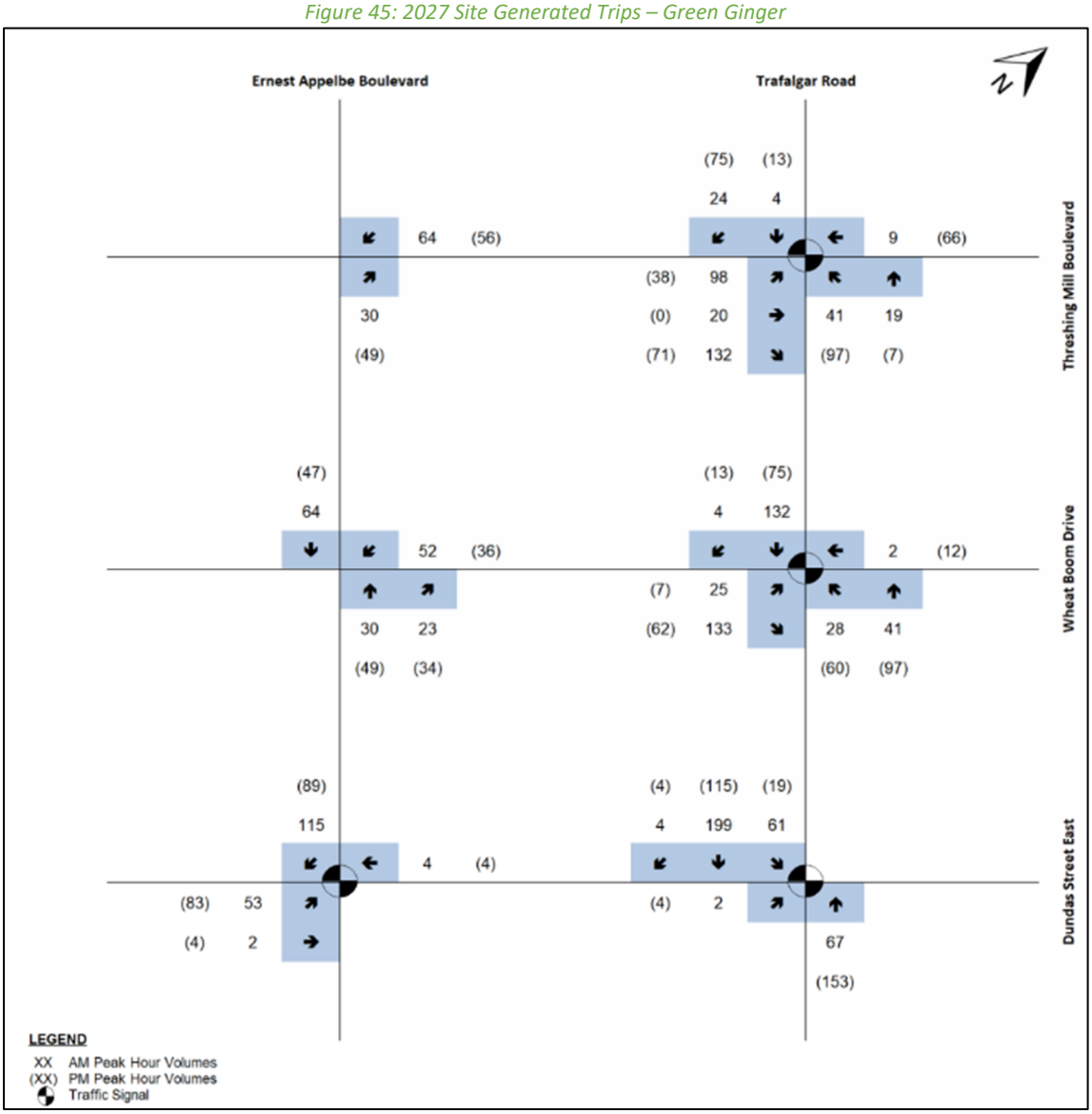
Source: I/O Highway 407 & Trafalgar Road, Oakville, ON Transportation Impact Study; Paradigm; January 2026

4.1.8.7 Green Ginger – Trafalgar Road

The development is part of the North Oakville East Secondary Plan and is located in the northwest quadrant of Dundas Street and Trafalgar Road in the Town of Oakville. The following information has been taken from the *Green Ginger Phase 2 Traffic Impact Study (2023)* prepared by GHD. The proposed subdivision consists of 506 townhouse units, 10 mid-rise buildings with a total of 1879 units, and 8 high-rise buildings with a total of 2521 units and 27,496 square feet of retail GFA. Access to the proposed subdivision from the surrounding regional arterial roads is proposed via Threshing Mill Boulevard, Wheat Boom Drive and Ernest Appelbe Boulevard. The draft plan of subdivision will be built-out in two phases in 2027 and 2032. As such, the 2027 site generated traffic will be considered in the 2031 future analysis horizon and the 2032 site generated traffic will be considered in the 2036 and 2041 future analysis horizons. The proposed development is anticipated to generate a total of 686 AM

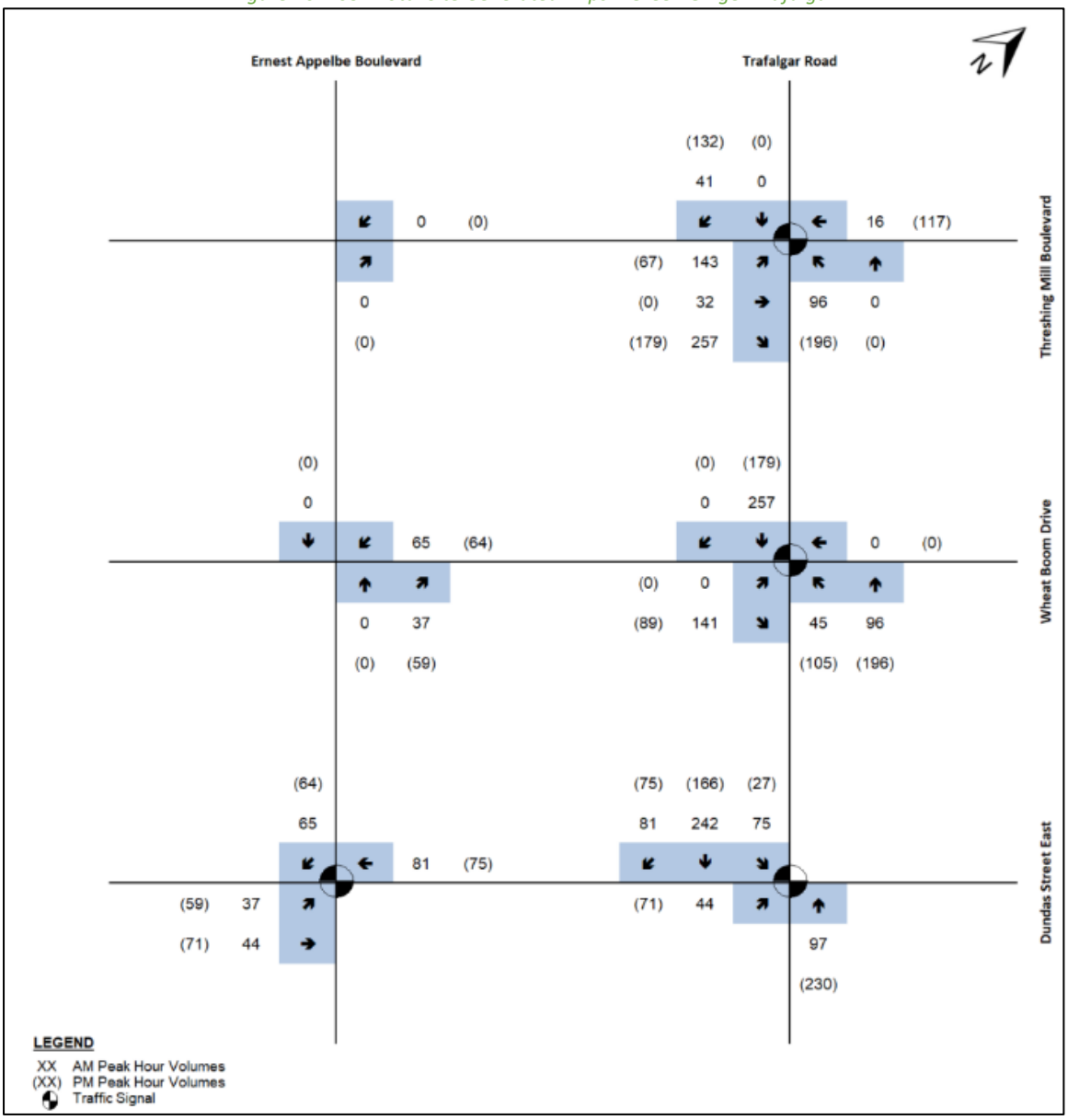
and 673 PM peak hour two-way vehicle trips in the 2027 horizon and 872 AM and 1009 PM peak hour two-way vehicle trips in the 2032 horizon. Figure 45 illustrates the projected 2027 site traffic generation and Figure 46 illustrates the projected 2032 total site traffic generation for this development.

Figure 45: 2027 Site Generated Trips – Green Ginger



Source: Green Ginger Phase 2 Transportation Impact Study; GHD; 2023

Figure 46: 2032 Total Site Generated Trips – Green Ginger Trafalgar

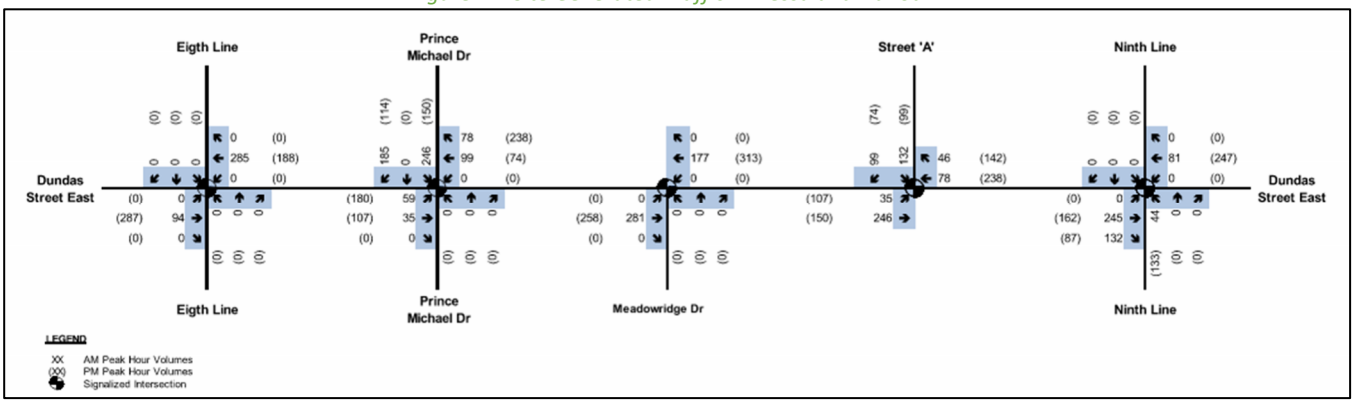


Source: Green Ginger Phase 2 Transportation Impact Study; GHD; 2023

4.1.8.8 Bressa and Dunoak

The Bressa and Dunoak developments are located north of Dundas Street between Ninth Line and Trafalgar Road. As the full TIS for this development is not available, the following information has been taken from the *Mattamy Joshua Creek Phase 3 Traffic Impact Study* (2022) prepared by GHD where the Bressa and Dunoak development has been considered in the background development volumes. As the build-out year is not known, site generated traffic will be considered in all future analysis horizons. A site visit performed on April 23, 2024, observed that the Bressa lands have been fully developed, while the Dunoak lands have been partially developed. Therefore, a 50% reduction has been applied to the volume figure shown below. Figure 47 shows the site generated traffic for the Bressa and Dunkoak development.

Figure 47: Site Generated Traffic – Bressa and Dunoak

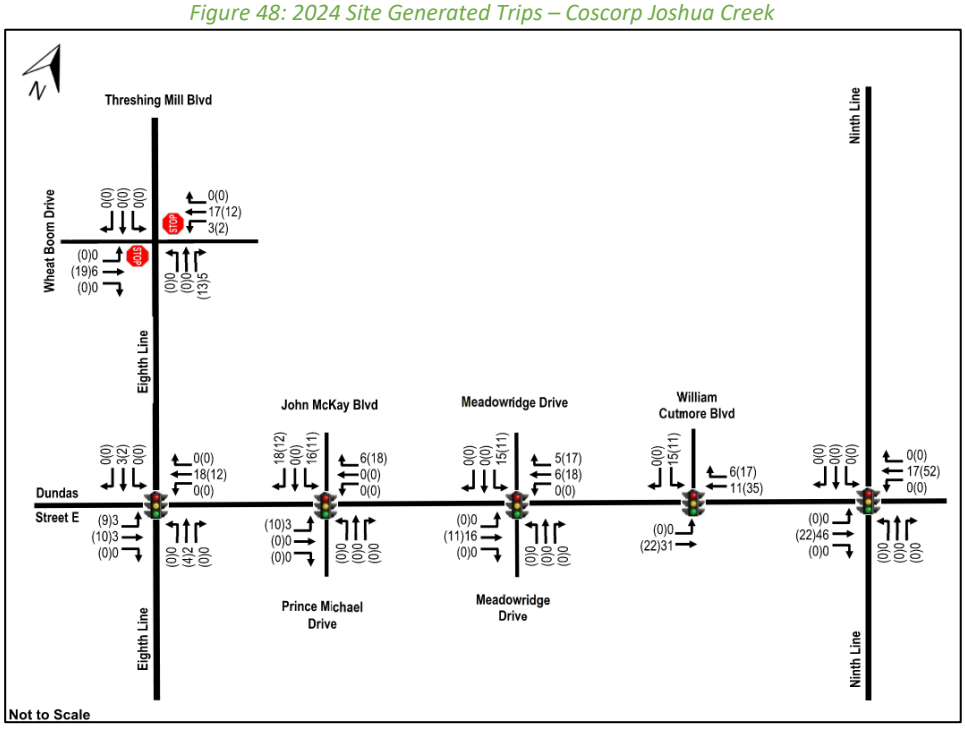


Source: Mattamy Joshua Creek Phase 3 Transportation Impact Study; GHD; 2022

4.1.8.9 Coscorp Joshua Creek

The Coscorp Joshua Creek development is a proposed residential development located south of Burnhamthorpe Road E, north of Dundas Street East, and between Eighth Line and Ninth Line in the North Oakville East Secondary Plan, within the Town of Oakville. The following information has been taken from the *Coscorp Joshua Creek Transportation Impact Study Addendum (2023)* prepared by NexTrans Consulting Engineers. The proposed residential development consists of a total 181 residential dwelling units, with 129 single-detached and 52 street townhouse units. The proposed development access is provided via internal public streets connecting to Mattamy Joshua Creek Phase 3 proposed draft plan of subdivision, and eventually to Burnhamthorpe Road East via future proposed draft plan of subdivisions to the north. A 2024 build-out year is anticipated, however, site conditions as of April 2024 shows that the development has not been completed. Therefore, site generated traffic will be considered in all future analysis horizons. The development is anticipated to generate 115 AM and 153 PM peak hour two-way vehicle trips. Figure 48 shows the 2024 site generated traffic for Coscorp Joshua Creek.

Figure 48: 2024 Site Generated Trips – Coscorp Joshua Creek

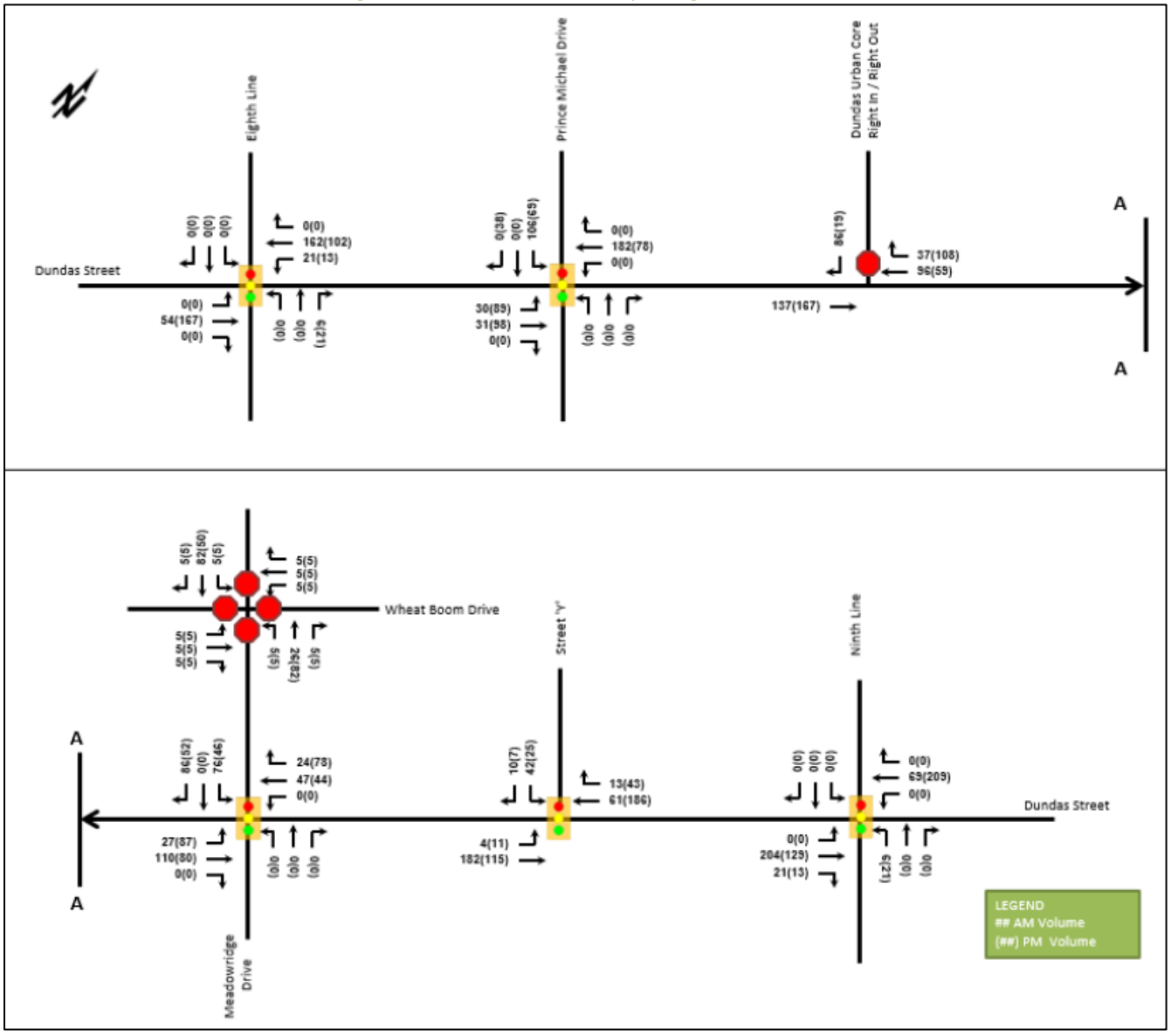


Source: Coscorp Joshua Creek Transportation Impact Study; NexTrans Consulting Engineers; 2023

4.1.8.10 Argo Joshua Creek Phase 1

The proposed Joshua Creek Phase 1 Subdivision is located north of Dundas Street between Trafalgar Road and Ninth Line in North Oakville. The following information is taken from the *Joshua Creek Phase 1 Transportation Impact Study (2021)* prepared by CGH Transportation. The proposed development consists of 396 townhouse units, 168 single detached units, and approximately 95 apartment units. The proposed development will have a primary access that forms the fourth leg of the intersection of Meadowridge Drive and Dundas Street. Additionally, a right-in / right-out access is proposed into the Dundas Urban Core portion of the development. This development will also have connections to both adjacent proposed developments (Dunoak to the west and Bressa to the east). A 2024 build out year is anticipated, however, site conditions as of April 2024 shows that the development has not been completed. Therefore, site generated traffic will be considered in all future analysis horizons. The development is anticipated to generate 290 AM and 363 PM peak hour two-way vehicle trips. Figure 49 illustrates the 2024 site generated trips.

Figure 49: 2024 Site Generated Trips – Argo Joshua Creek

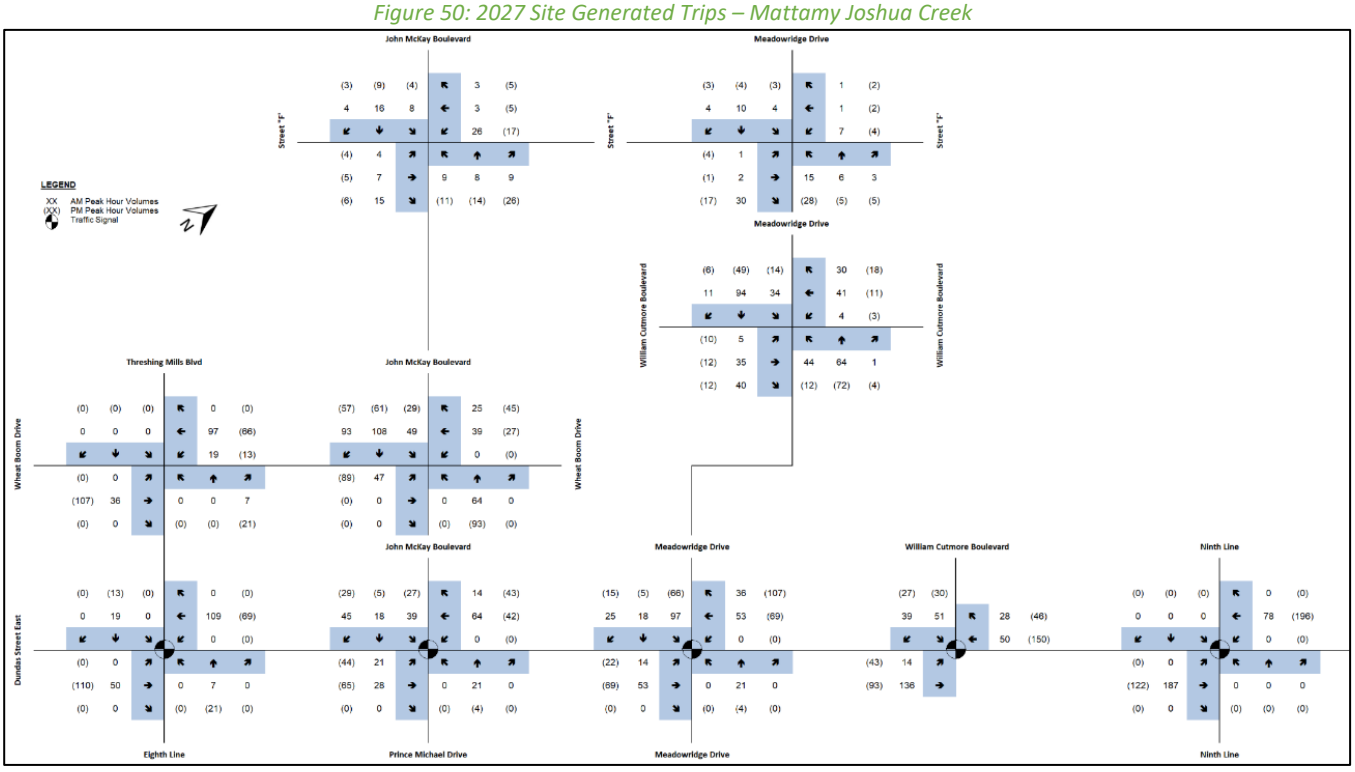


Source: Joshua Creek Transportation Impact Study; CGH; 2021

4.1.8.11 Mattamy Joshua Creek

Mattamy Joshua Creek is a proposed residential development located north of Dundas Street East between Eighth Line and Ninth Line in the North Oakville East Secondary Plan in the Town of Oakville. The following information has been taken from the *Joshua Creek Phase 3 Traffic Impact Study (2022)* prepared by GHD. The development consists of 306 townhouse units, 809 single detached units, and an approximate 700 student elementary school. The proposed subdivision is expected to generate a total of 1050 AM and 806 PM peak hour two-way vehicle trips in the 2027 future analysis horizon and will be considered in all future analysis horizons in this study. Figure 50 shows the 2027 site generated trips for Mattamy Joshua Creek.

Figure 50: 2027 Site Generated Trips – Mattamy Joshua Creek

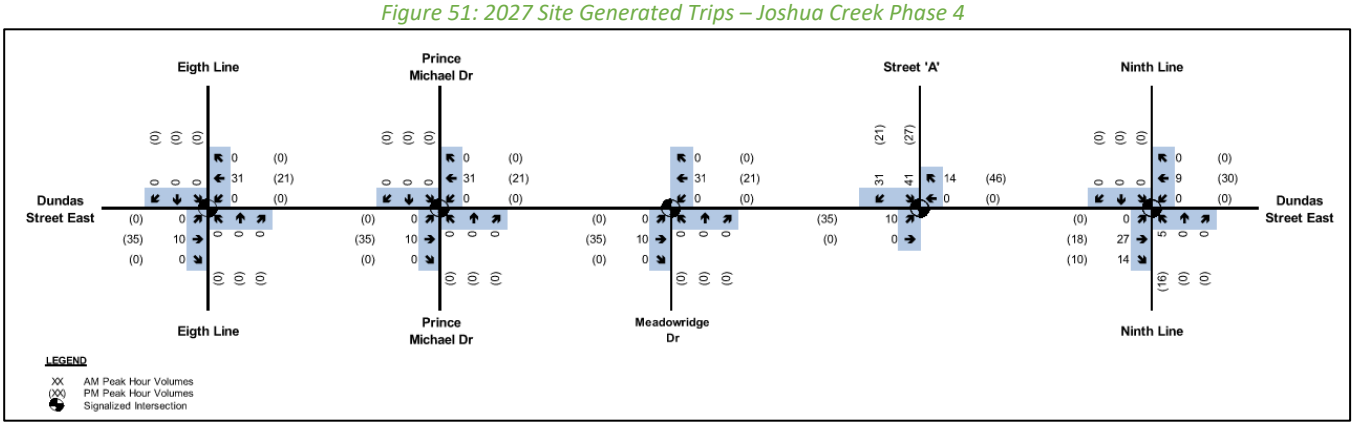


Source: Joshua Creek Phase 3 Transportation Impact Study; GHD; 2022

4.1.8.12 Joshua Creek Phase 4

The proposed residential development is located within the Bressa Draft plan, north of Dudas Street and east of Eighth Line. The following information has been taken from the *Joshua Creek Phase 4 Transportation Impact Study (2020)* prepared by GHD. The development consists of 36 townhouse units and 118 single detached units. The proposed subdivision is expected to generate a total of 96 AM and 129 PM peak hour two-way vehicle trips in 2022. A site visit on April 23, 2024, observed that approximately 80% of the development has been built and occupied. Therefore, an 80% reduction has been applied to the volumes shown in the volume figure below, and will be considered in all future analysis horizons in this study. Figure 51 shows the site generated trips for Joshua Creek Phase 4.

Figure 51: 2027 Site Generated Trips – Joshua Creek Phase 4

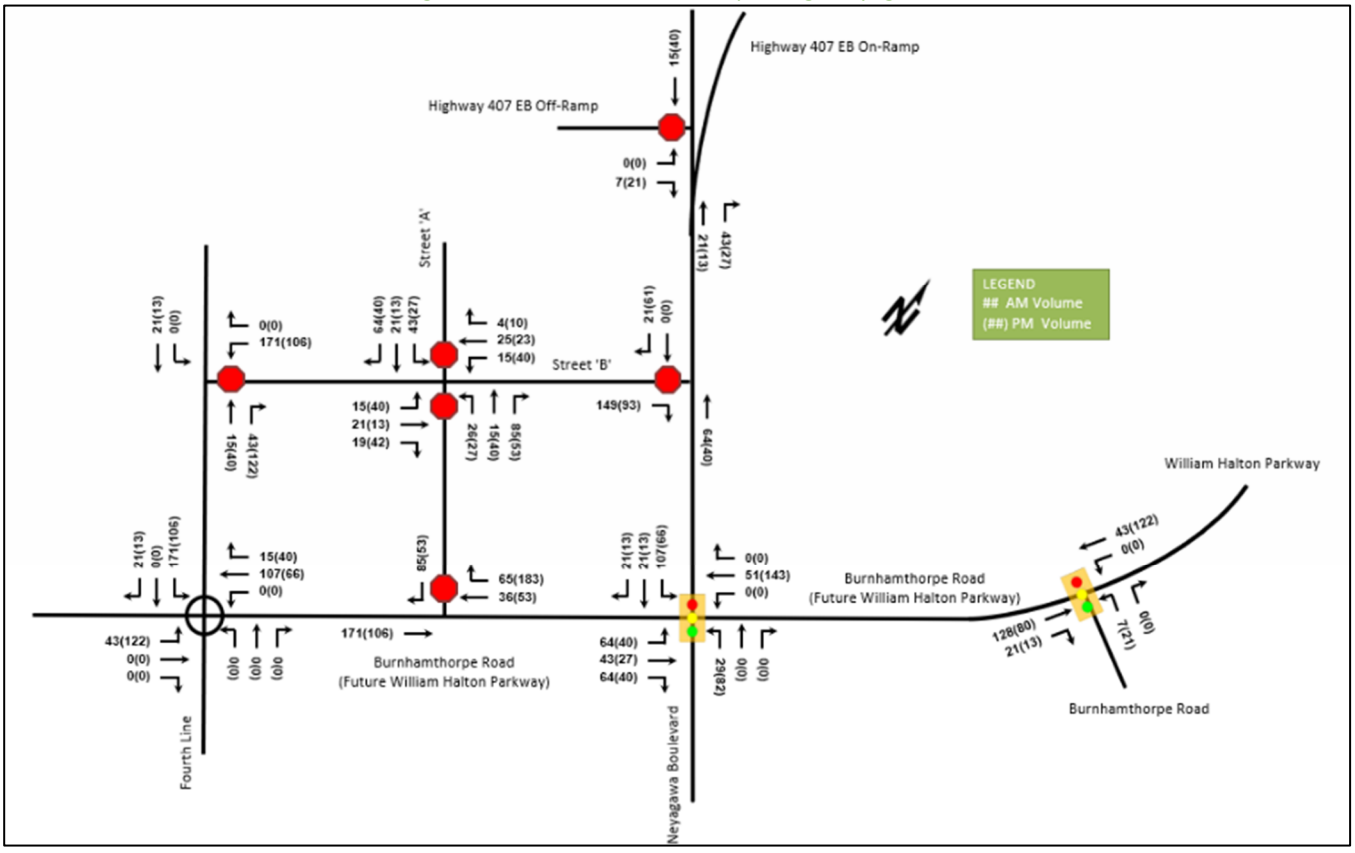


Source: Joshua Creek Phase 4 Transportation Impact Study; GHD; 2020

4.1.8.13 Argo Neyagawa

The proposed Argo Neyagawa Development is located west of the subject site. The following information has been taken from the *Argo Neyagawa Transportation Impact Study (2023),* prepared by CGH Transportation. This development includes 360 townhouse dwelling units, 643 high-rise apartment units across two buildings, and 1,020 square metres of retail space. A total of 1,143 parking spaces will be provided to support to the proposed land uses. A 2028 build-out year is anticipated, and therefore site generated traffic will be considered in all future analysis horizons. The proposed development is anticipated to generate 275 AM and 358 PM peak hour two-way vehicle trips in the future analysis horizon considered in the TIS. The 2028 Argo Neyagawa trip generation is illustrated in Figure 52.

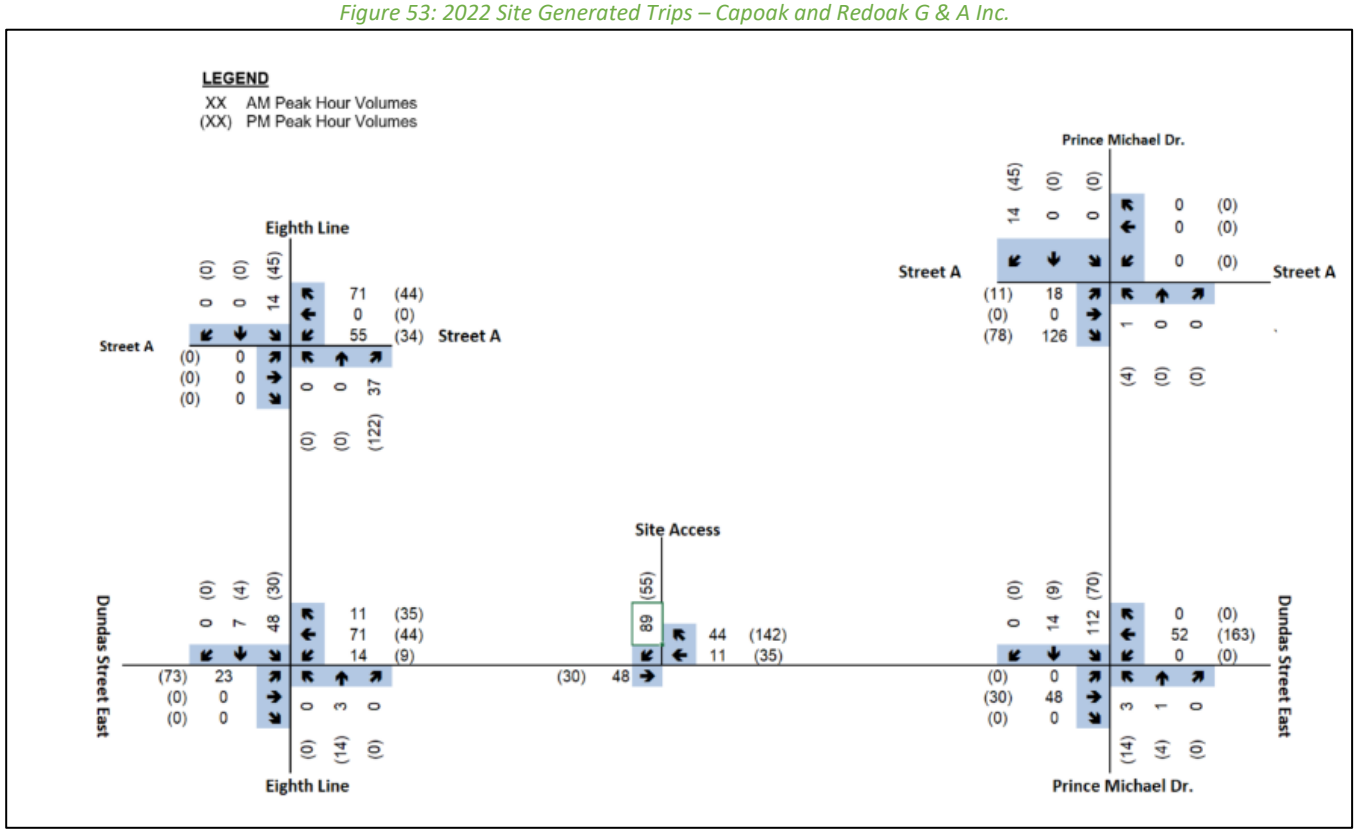
Figure 52: 2028 Site Generated Trips – Argo Neyagawa



4.1.8.14 Capoak and Redoak G & A Inc. Residential Development

The Capoak and Redoak G & A Inc. development is a proposed residential subdivision in North Oakville at the northeast quadrant of the intersection of Dundas Street and Eighth Line Road. The following information has been taken from the *Capoak Inc. and Redoak G & A Inc. Proposed Redoak/Capoak Residential Development Traffic Impact Study (2020),* prepared by GHD. The development consists of 116 single family detached units, 459 townhouse units, and an estimated 578 condominium apartment and back-to-back townhouse units within the Dundas Street Urban Core blocks. Access to the development proposed to Dundas Street via a right-in/out driveway, and through adjacent draft plans via the future extension of Prince Michael Drive north of Dundas Street to the east and a connection from Street A to Eighth Line to the west. A 2022 build-out year was anticipated, however, a site visit confirmed that the area is not yet developed as of April 2024. Therefore, site generated traffic will be considered in all future analysis horizons. The development is anticipated to generate 471 AM and 584 PM peak hour two-way vehicle trips in the 2022 future analysis horizon considered in the TIS. The 2022 traffic generation is illustrated in Figure 53.

Figure 53: 2022 Site Generated Trips – Capoak and Redoak G & A Inc.



Source: Proposed Redoak/Capoak Residential Development Transportation Impact Study; GHD; 2020

4.1.8.15 SmartCentres Oakville North

The SmartCentres Oakville North development is a proposed mixed-use development located at the northwest corner of Trafalgar Road and Oak Park Boulevard in the Town of Oakville. The following information has been taken from the *SmartCentres Oakville North Transportation Impact Study (2022)* prepared by BA Consulting Group. The proposed development consists of 605 squared metres of retail GFA and approximately 585 residential units. Access to the development will be provided by an existing private access connecting to Taunton Road and Hays Boulevard. The build-out year has not been specified, and therefore site generated traffic will be considered in all

future analysis horizons. The development is anticipated to generate 10 AM and 10 PM peak hour two-way vehicle retail trips. Figure 54 illustrates the site generated traffic for Smartcentres Oakville North.

Figure 54: Site Generated Trips – SmartCentres Oakville North



Source: SmartCentres Oakville North Transportation Impact Study; BA Consulting Group Ltd.; 2022

4.1.9 Background Growth

Background growth rates have been provided by Region of Halton and Town of Oakville, as shown in Appendix A, for existing roads within the Study Area. As indicated by Region of Halton staff, a compound annual growth rate (CAGR) of 2% from 2024 to 2031 and 1% from 2031 to 2041 will be applied to William Halton Parkway, Dundas Road, Ninth Line, Trafalgar Road, and the Highway 407 Interchanges. A 3% CAGR will be applied to Burnhamthorpe Road and Sixth Line from 2024 to 2041 as indicated by Town of Oakville staff.

4.1.10 Projected Volumes on William Halton Parkway

Using the Halton EMME Model, that includes all 2031 TMP recommendations, the Region's internal study determined the 2031 future year traffic forecast along William Halton Parkway and major intersecting roads based on screen-line growth rate and diversion factors derived from the study. Halton Region provided the following volume projections along William Halton Parkway:

- 2031 PM peak hour volume west of Trafalgar: 2100 (800 east and 1300 west)
- 2031 PM peak hour volume east of Trafalgar: 2400 (800 east and 1600 west)

The email correspondence on the future volume projection along William Halton Parkway with Halton Region staff can be found in Appendix E. Since only the 2031 PM peak hour volumes are provided, the following assumptions were made, which were confirmed with Region staff as part of TOR correspondence shown in Appendix A:

- The AM peak hour volumes are the reverse for the eastbound and westbound directions. 2031 AM peak hour volume west of Trafalgar will be 1300 eastbound and 800 westbound, and 2031 AM peak hour volume east of Trafalgar will be 1600 eastbound and 800 westbound.
- The 2036 and 2041 AM and PM peak hour volumes are projected by applying the same CAGRs as indicated in Section 4.1.9.

The projection used the following methodology:

- The 2031, 2036, and 2041 future background volumes were initially calculated by summing up the traffic resulting from compound annual growth and traffic from background developments.
- Comparisons were made between this sum and the Regional volumes for each road segment in each scenario, and the greater was used.
- Due to the high turning volumes at the intersections, the screen line volumes at mid-sections were sometimes smaller than the Regional projections of 2100 and 2400 or the calculated sum. These have been considered as the maximum volumes along William Halton Parkway.

The Region's modeler noted that the EMME Model's traffic zone is much larger than the subject site and they do not have information on the population and employment statistics considered in the EMME model. Thus, it is not certain how many trips generated from the subject site are included in the model. A conservative approach is taken that this study assumes 0 trips from the proposed development have been included in the EMME Model which provides the volume projections. It is likely that this method will result in trips being accounted for twice, or double counted, as a portion of these trips may have been considered in the Region's study. This will result in a volume projection higher than what is likely to be realized along William Halton Parkway.

The resulting changes to the traffic volumes along William Halton Parkway in the 2031, 2036, and 2041 future analysis horizons are illustrated in Figure 55, Figure 56, and Figure 57 respectively.

Figure 55: 2031 William Halton Parkway Reassignment Traffic Volumes

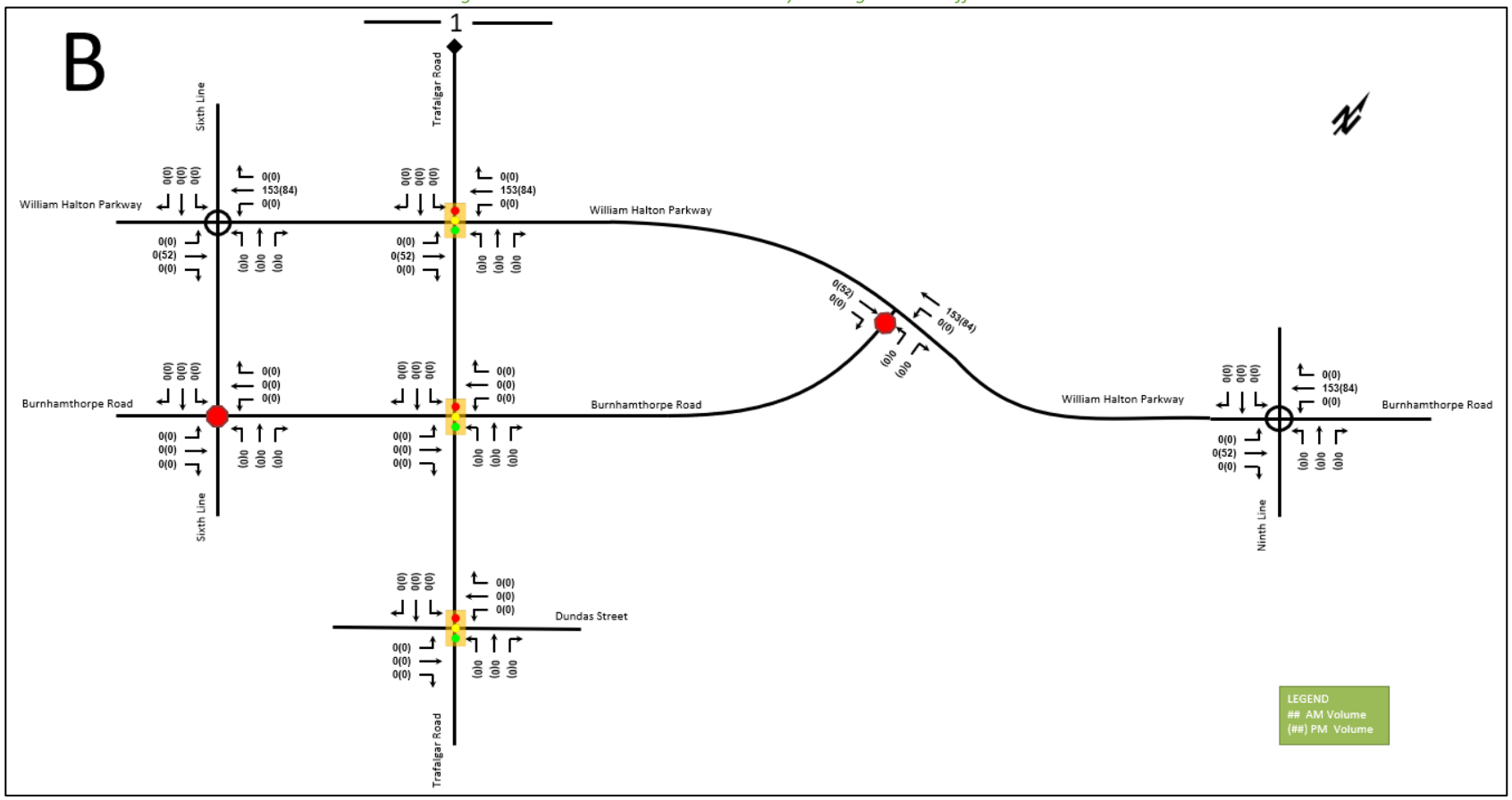


Figure 56: 2036 William Halton Parkway Reassignment Traffic Volumes

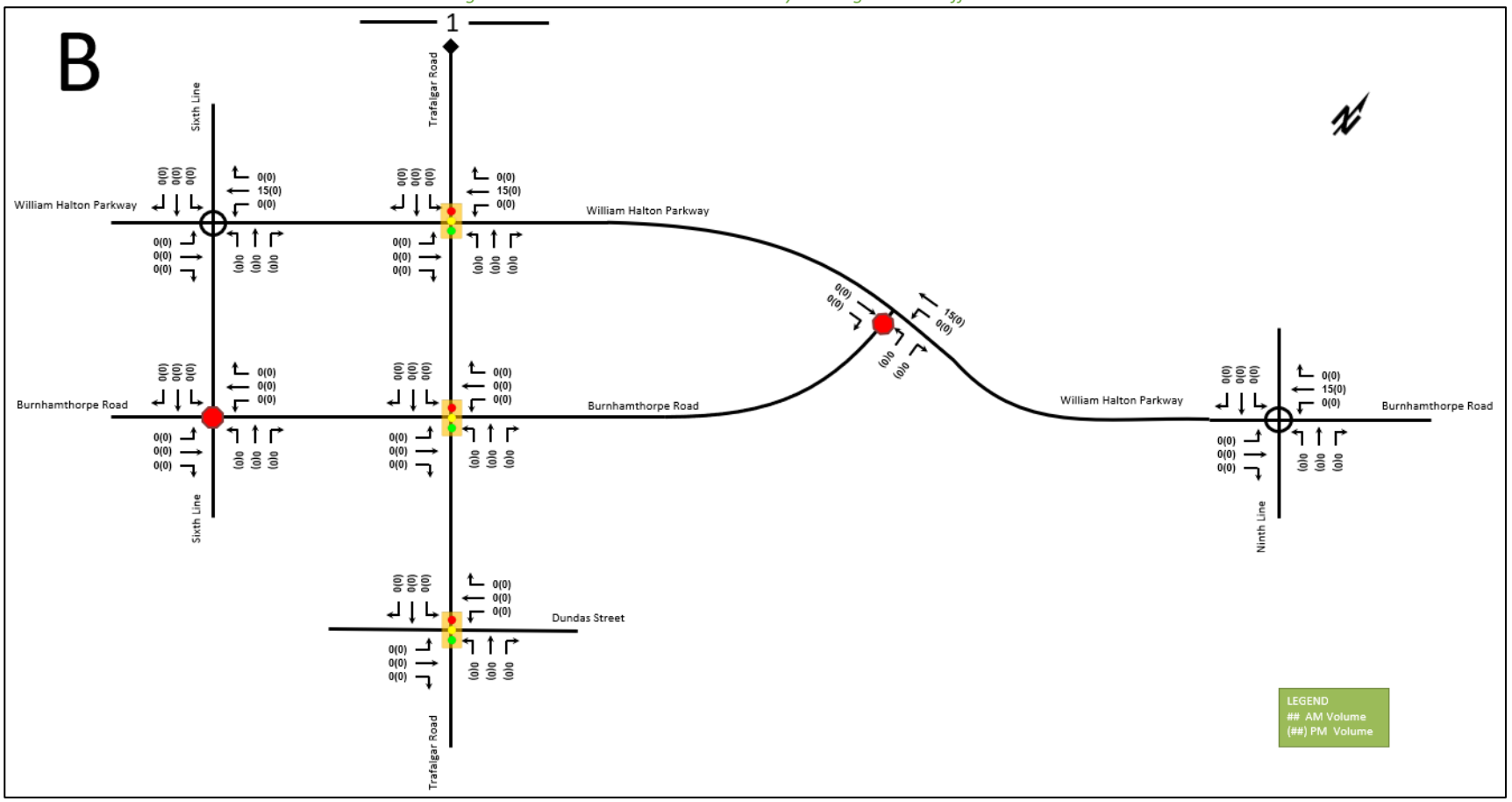
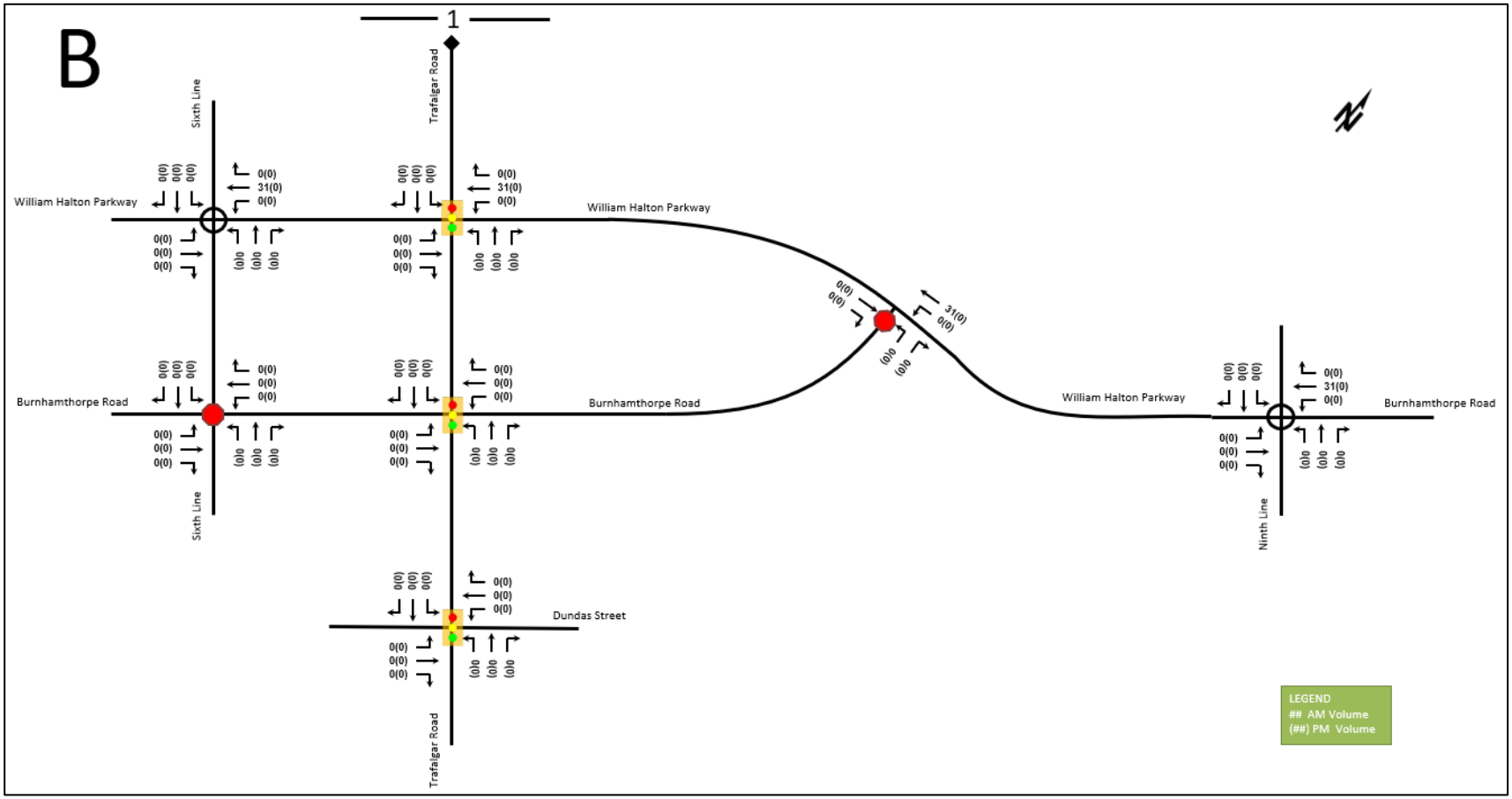


Figure 57: 2041 William Halton Parkway Reassignment Traffic Volumes



4.1.11 Future Background Traffic Volumes

Combining the background development traffic, the background growth rate, William Halton Parkway EMME projections, and the existing traffic volumes, the future background traffic volumes in the AM and PM peak periods were projected. Figure 58, Figure 59, Figure 60, and Figure 61 illustrates the 2031 future background traffic volumes. Figure 62, Figure 63, Figure 64, and Figure 65 illustrates the 2036 future background traffic volumes. Figure 66, Figure 67, Figure 68, and Figure 69 illustrates the 2041 future background traffic volumes.

Comments received from the Region on the first submission of this study identified volume imbalances noted on Trafalgar Road between Marvin Avenue and Dundas Street. The increase in vehicle traffic between Marvin Avenue and Dundas Street in future horizons can be attributed to both existing and background development traffic using Threshing Mill Boulevard and Wheat Boom Drive along Trafalgar Road. Several background developments, including Coscorp Joshua Creek, Green Ginger, and Joshua Creek Phase 3, have assigned site-generated traffic to these accesses, as shown in their respective volume figures in Section 4.1.8. Additionally, an existing residential subdivision is located northeast of the Dundas Street and Trafalgar Road intersection which is expected to primarily use Threshing Mill Boulevard and Wheat Boom Drive to access Trafalgar Road. Given the influence of both background developments and existing traffic patterns, the observed increase in volumes along this segment of Trafalgar Road is considered to be reasonable, and therefore no volume adjustments have been undertaken.

Additionally, it is noted that volumes have been balanced in existing conditions only. This balancing has been carried through to future horizons. Background developments are anticipated to be properly assigned and balanced as they are taken from provided background TISs. Therefore, additional balancing in future horizons is not required and has not been undertaken.

Figure 58: 2031 Future Background Traffic Volumes – Section A

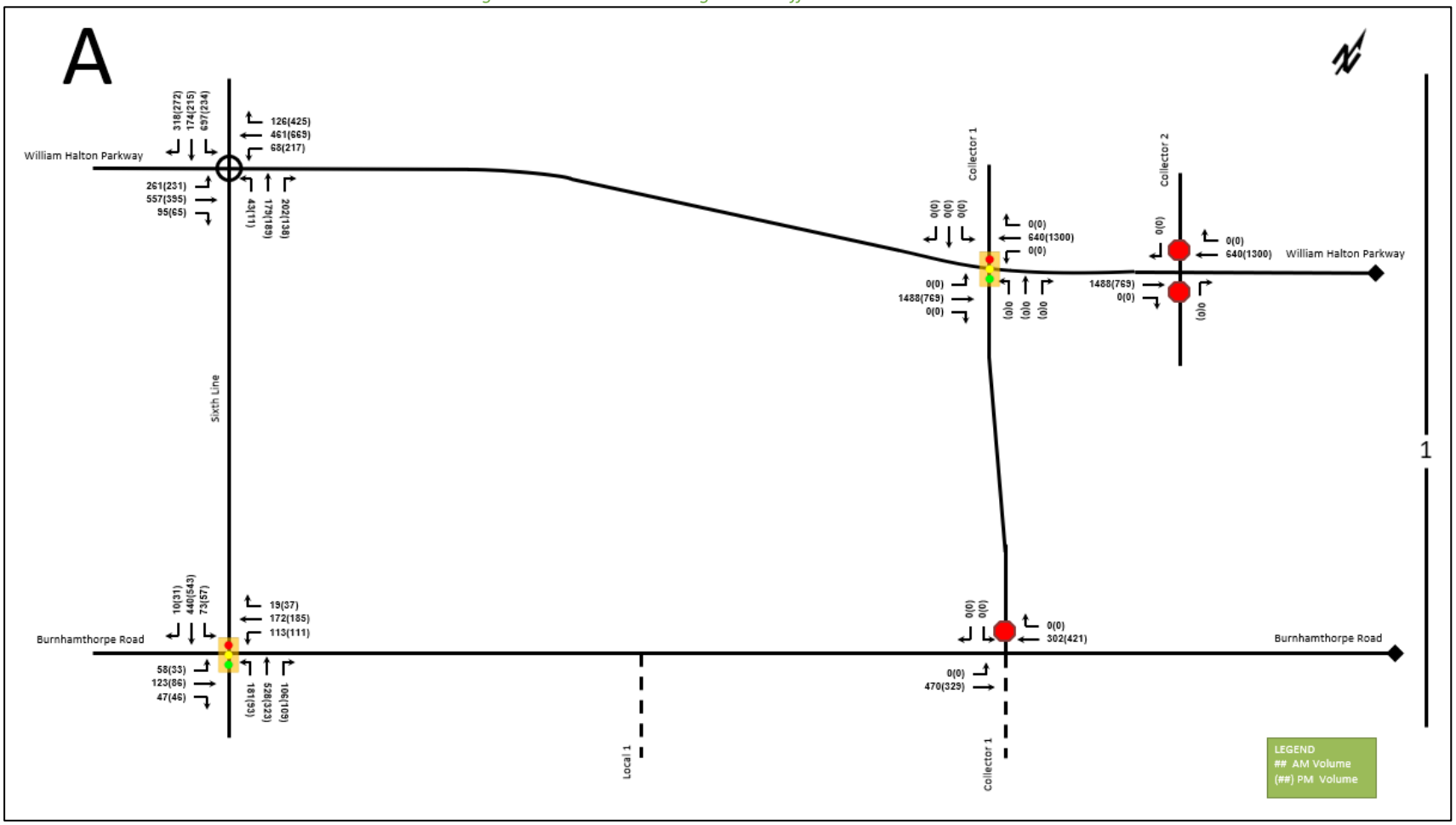


Figure 59: 2031 Future Background Traffic Volumes – Section B

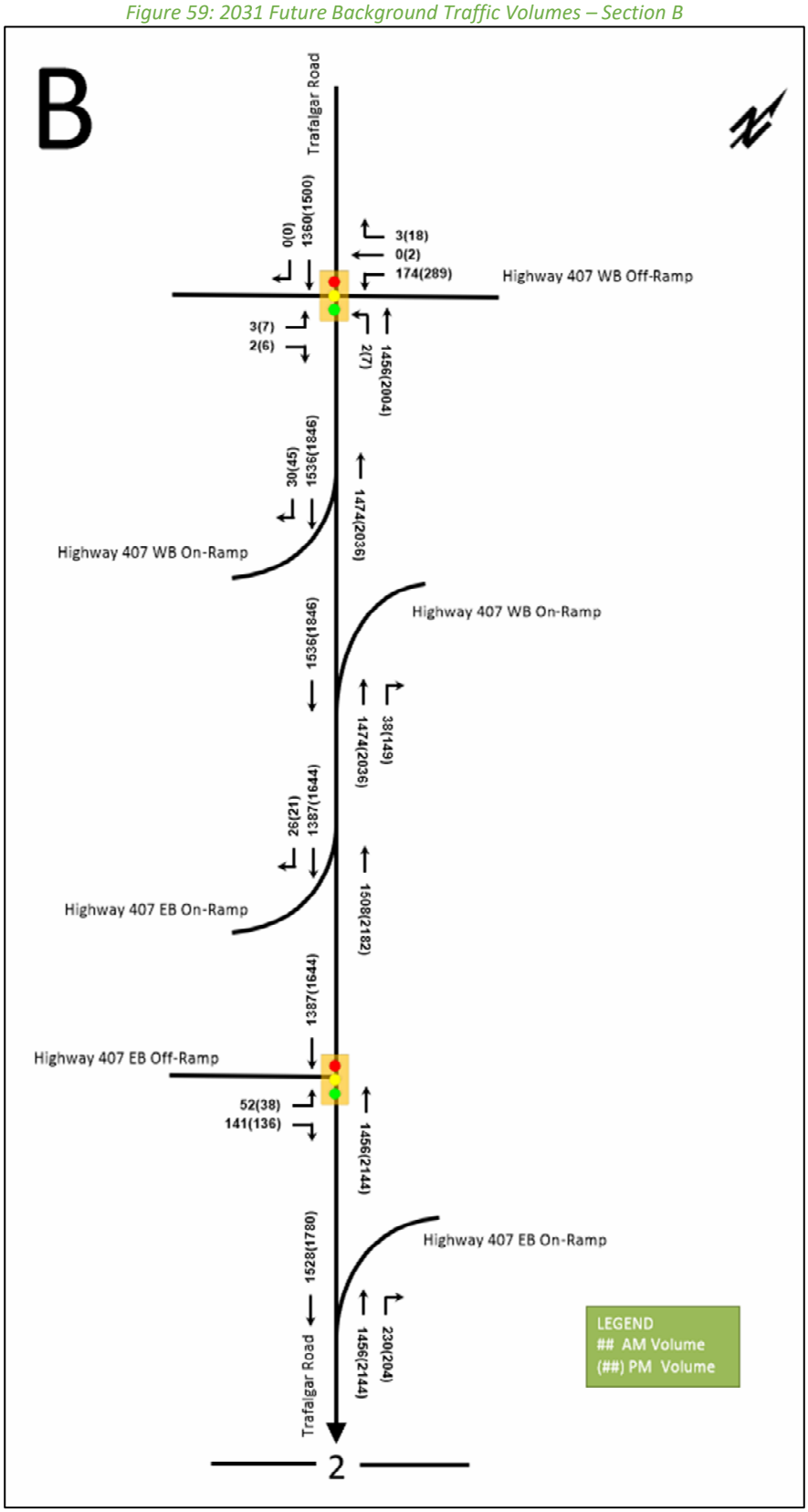


Figure 60: 2031 Future Background Traffic Volumes – Section C

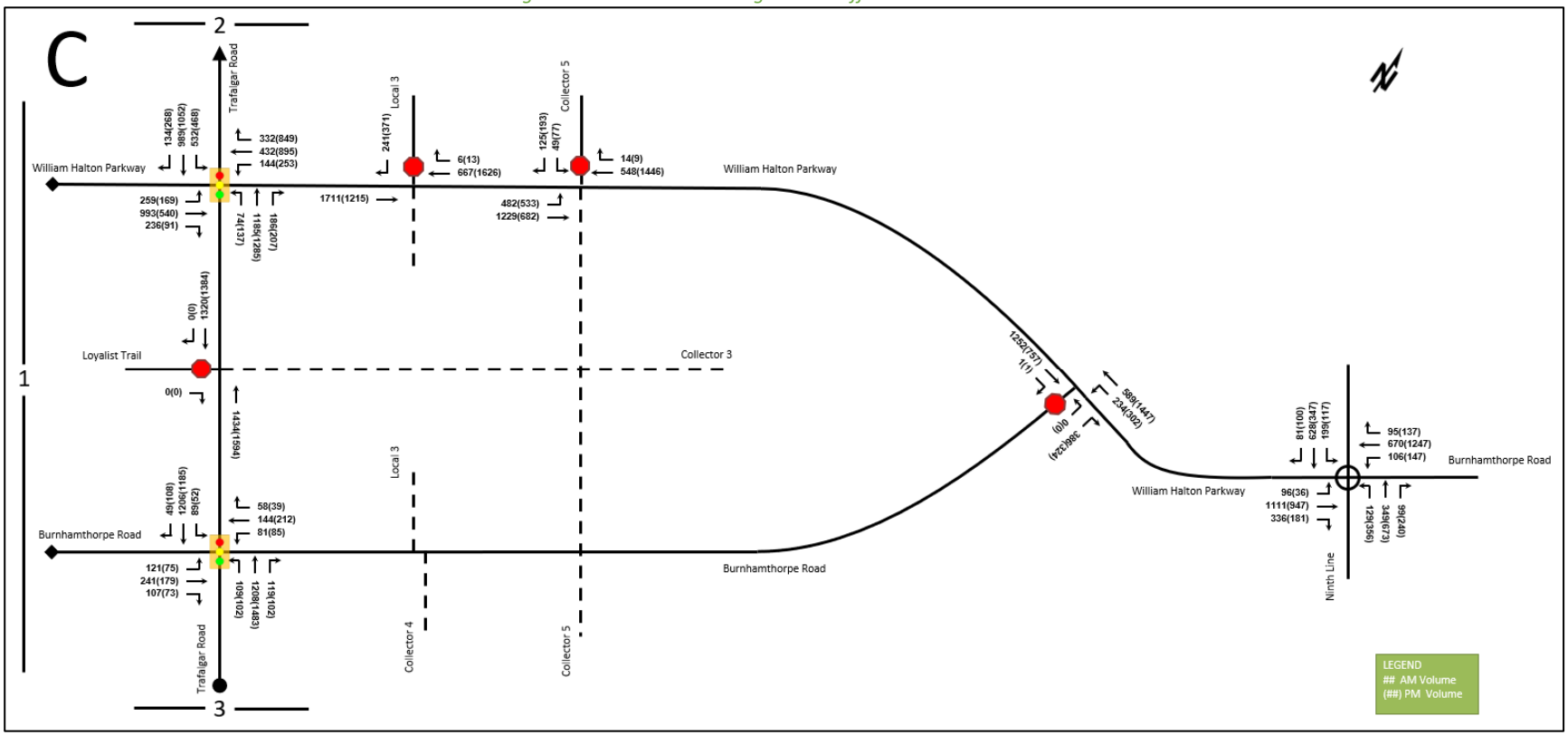


Figure 61: 2031 Future Background Traffic Volumes – Section D

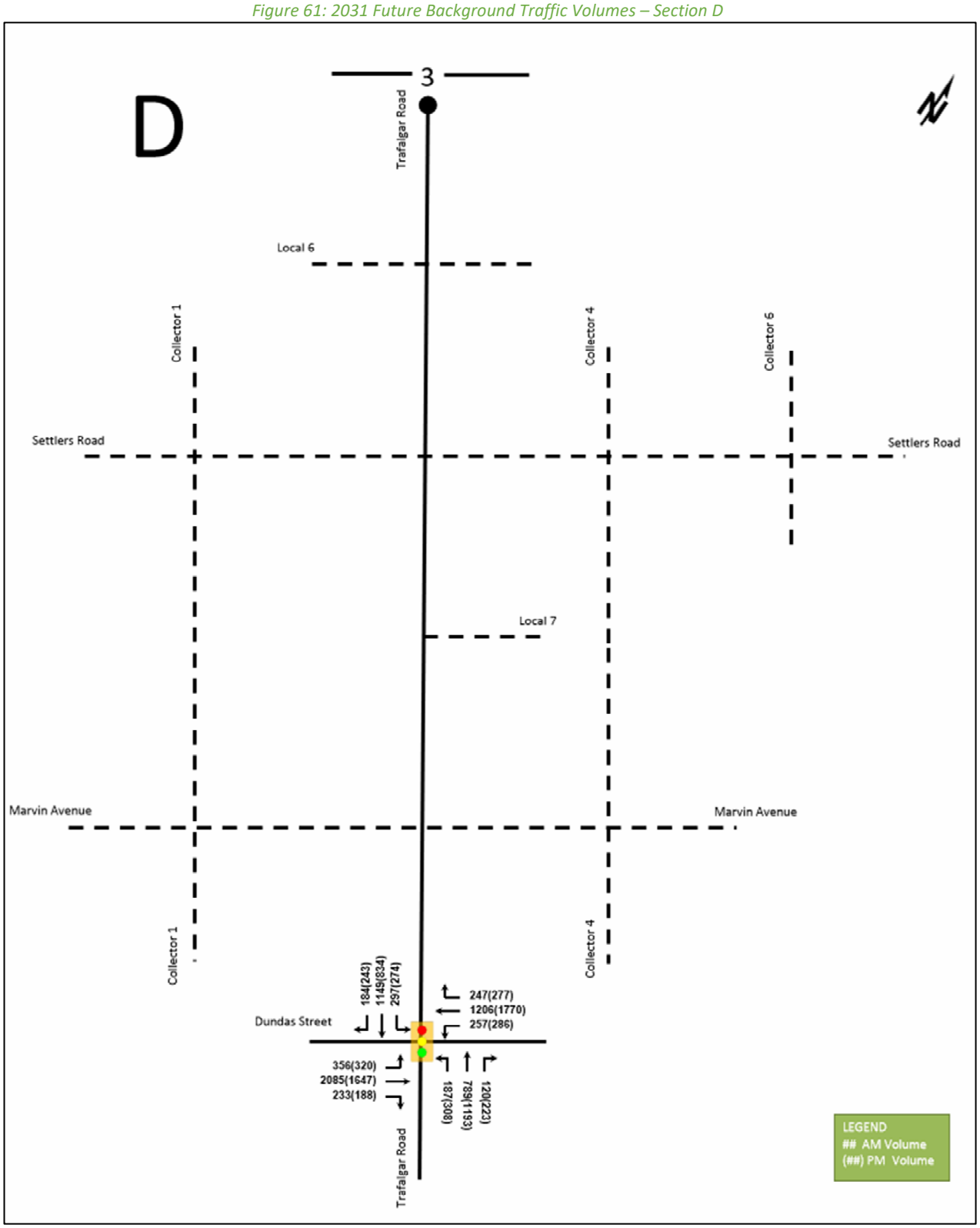


Figure 62: 2036 Future Background Traffic Volumes – Section A

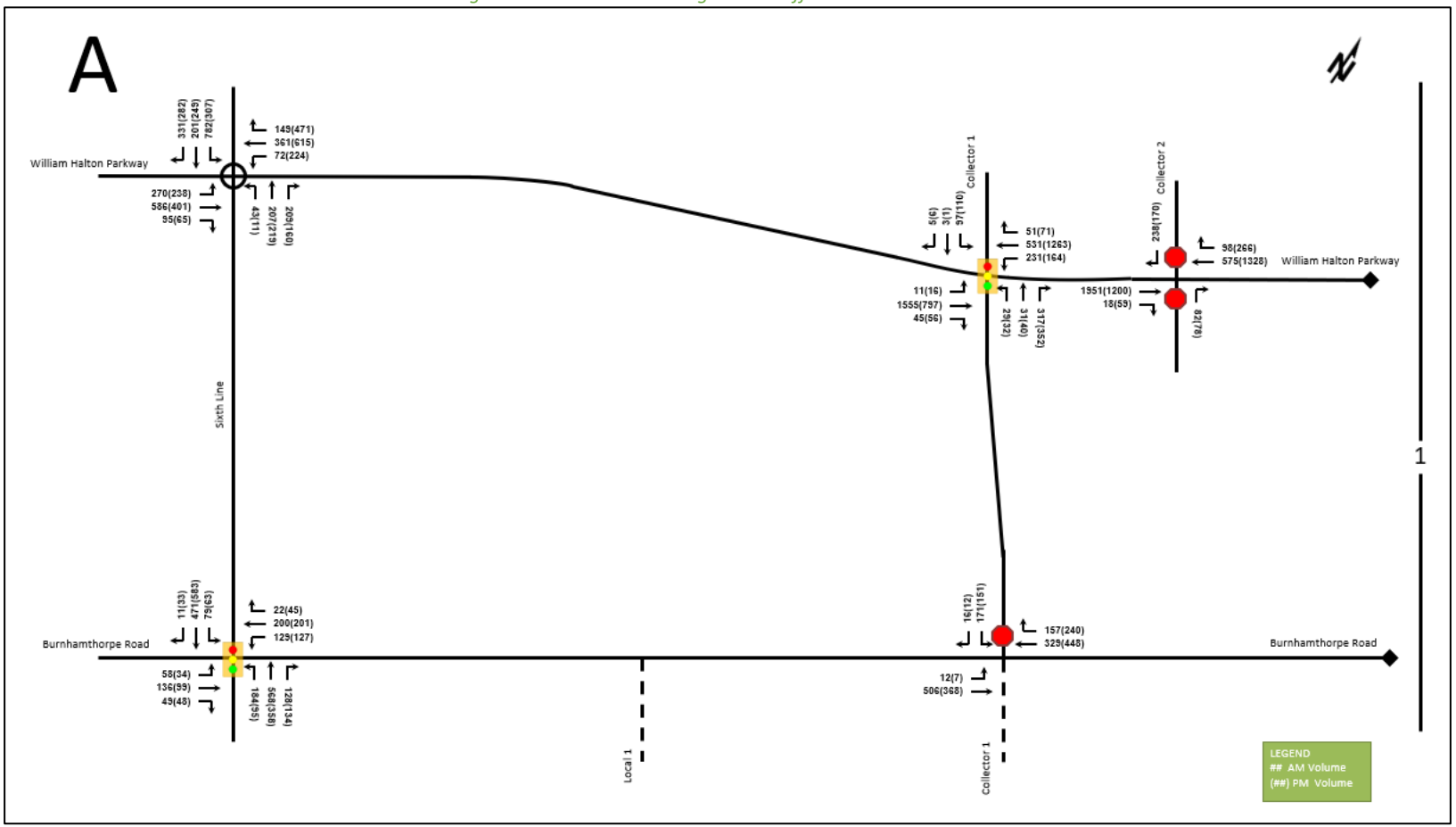


Figure 63: 2036 Future Background Traffic Volumes – Section B

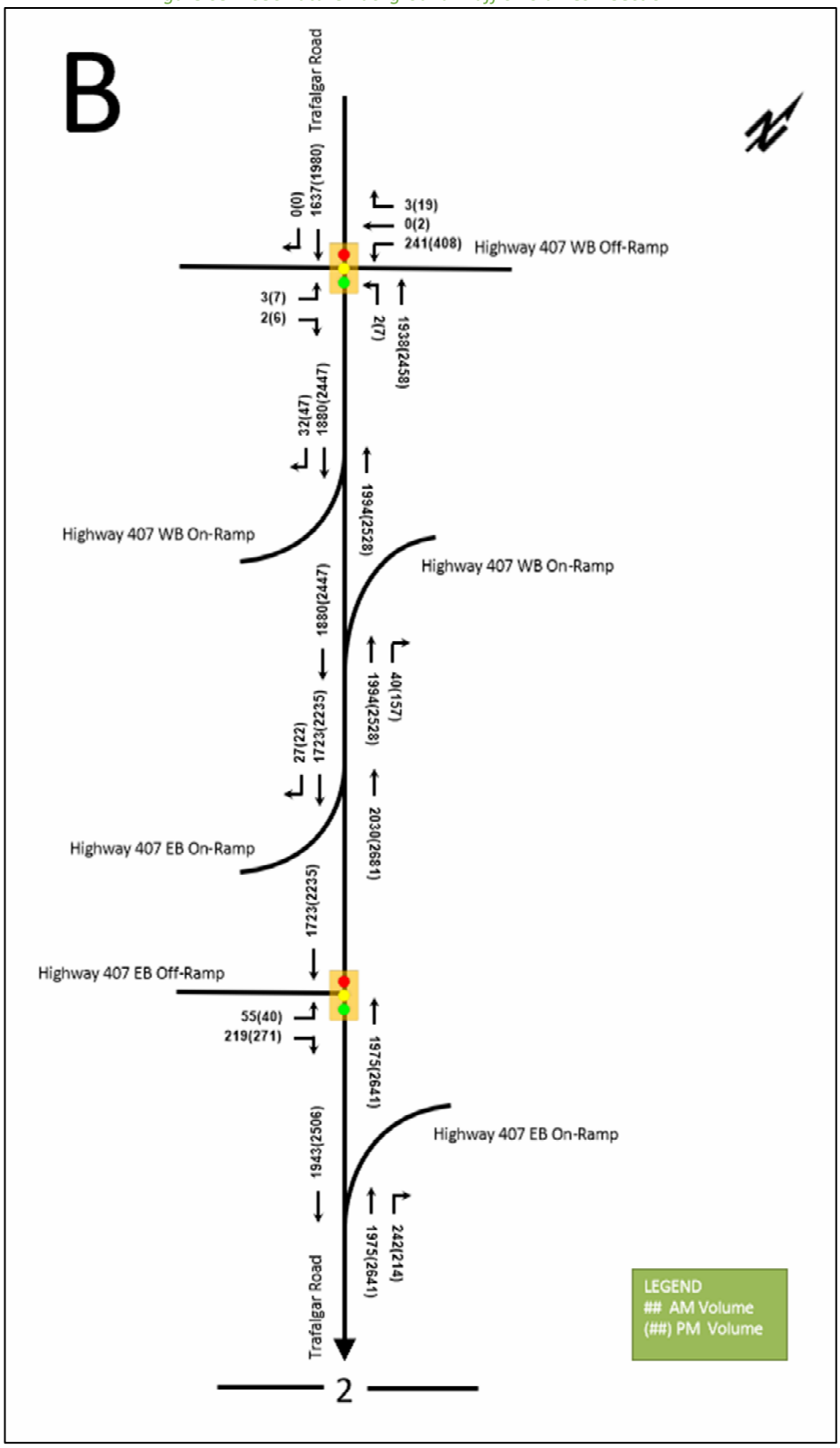


Figure 64: 2036 Future Background Traffic Volumes – Section C

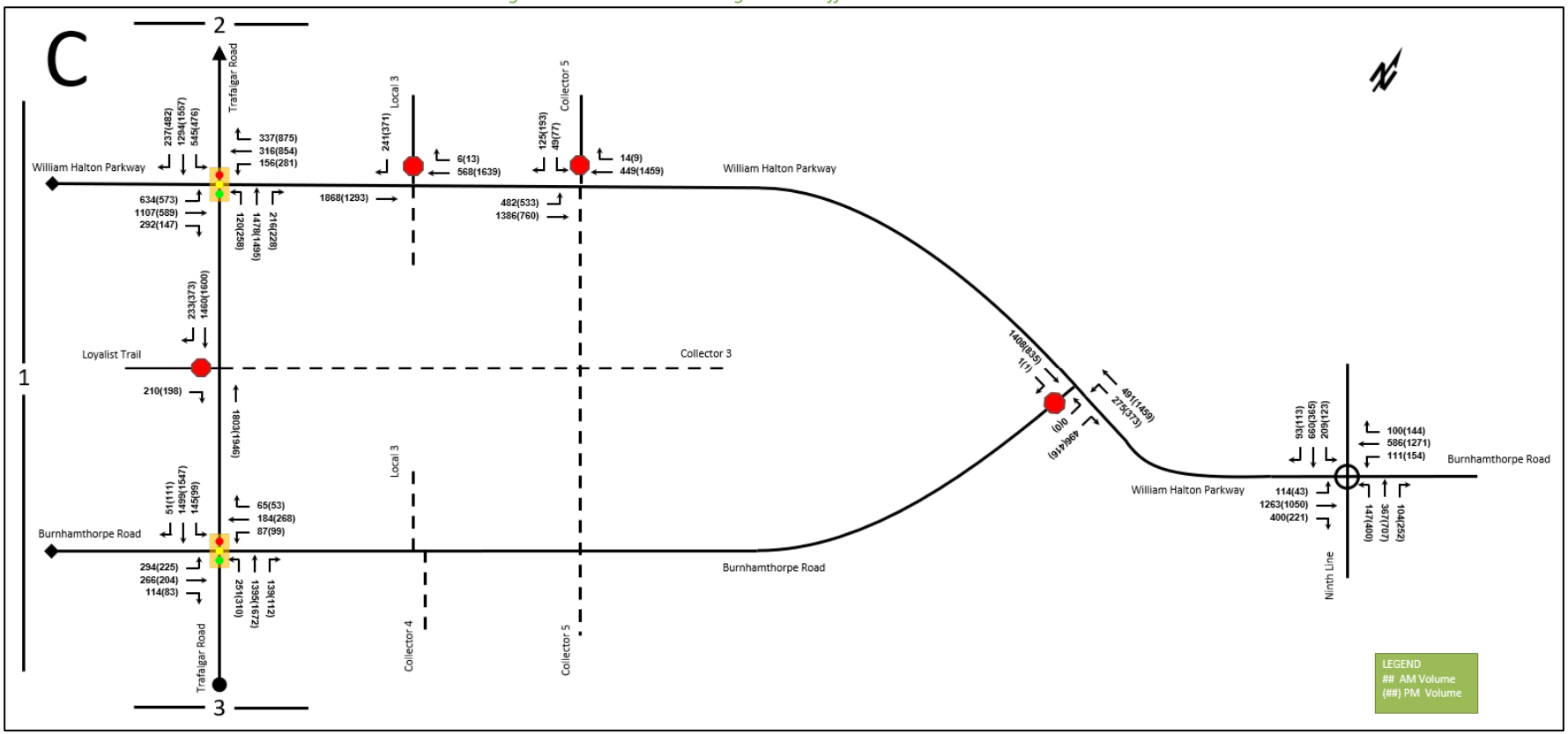


Figure 65: 2036 Future Background Traffic Volumes – Section D

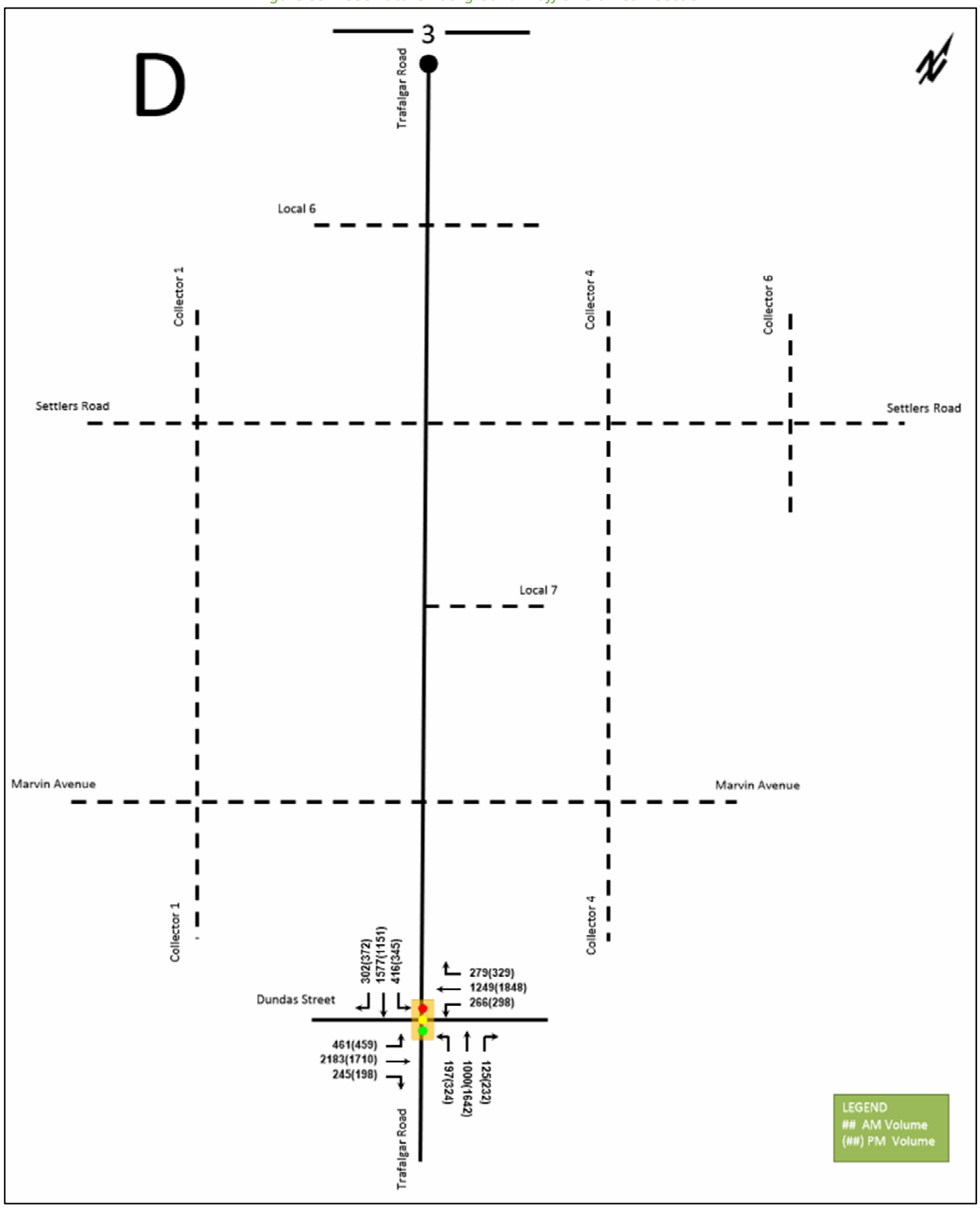


Figure 66: 2041 Future Background Traffic Volumes – Section A

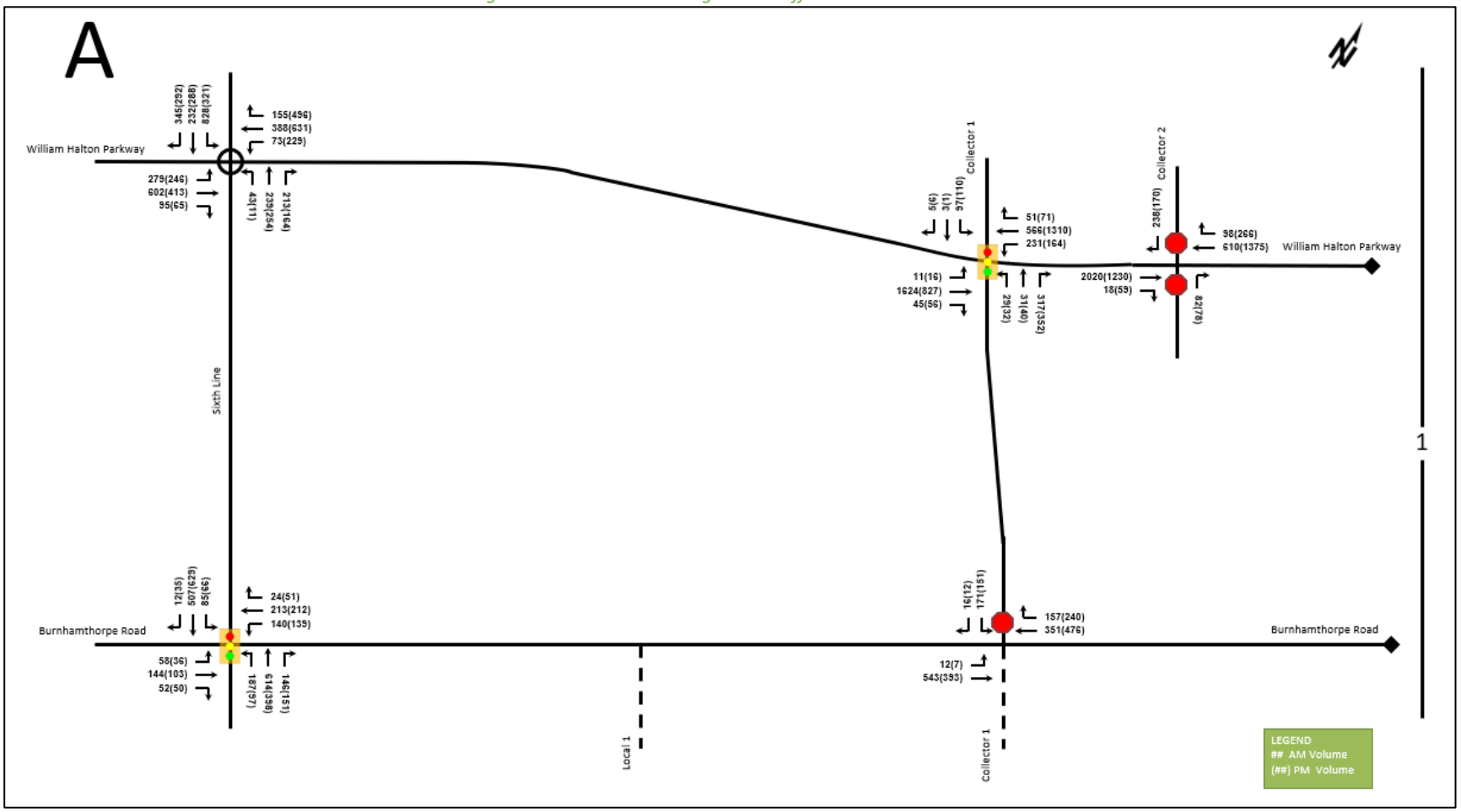


Figure 67: 2041 Future Background Traffic Volumes – Section B

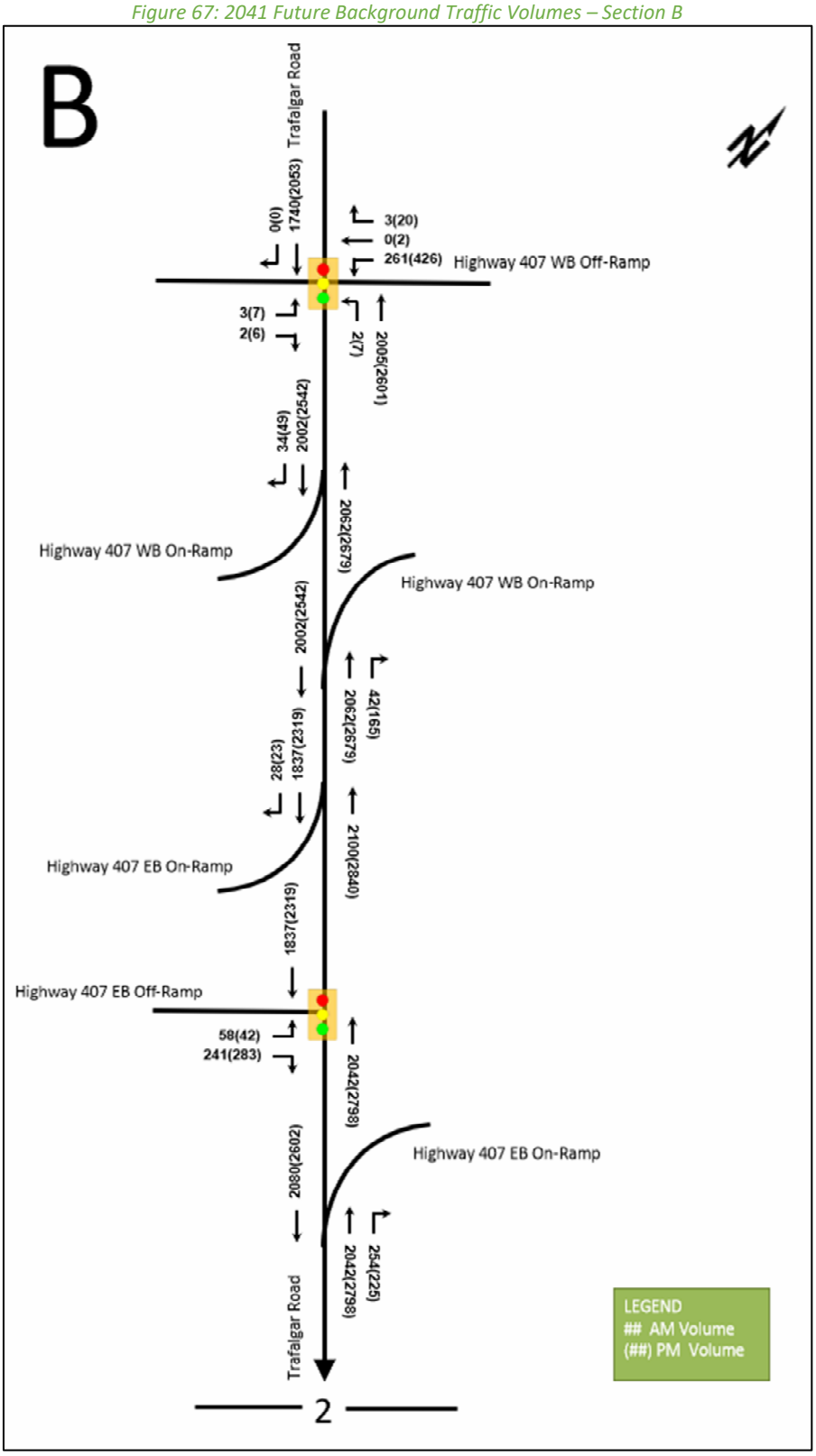


Figure 68: 2041 Future Background Traffic Volumes – Section C

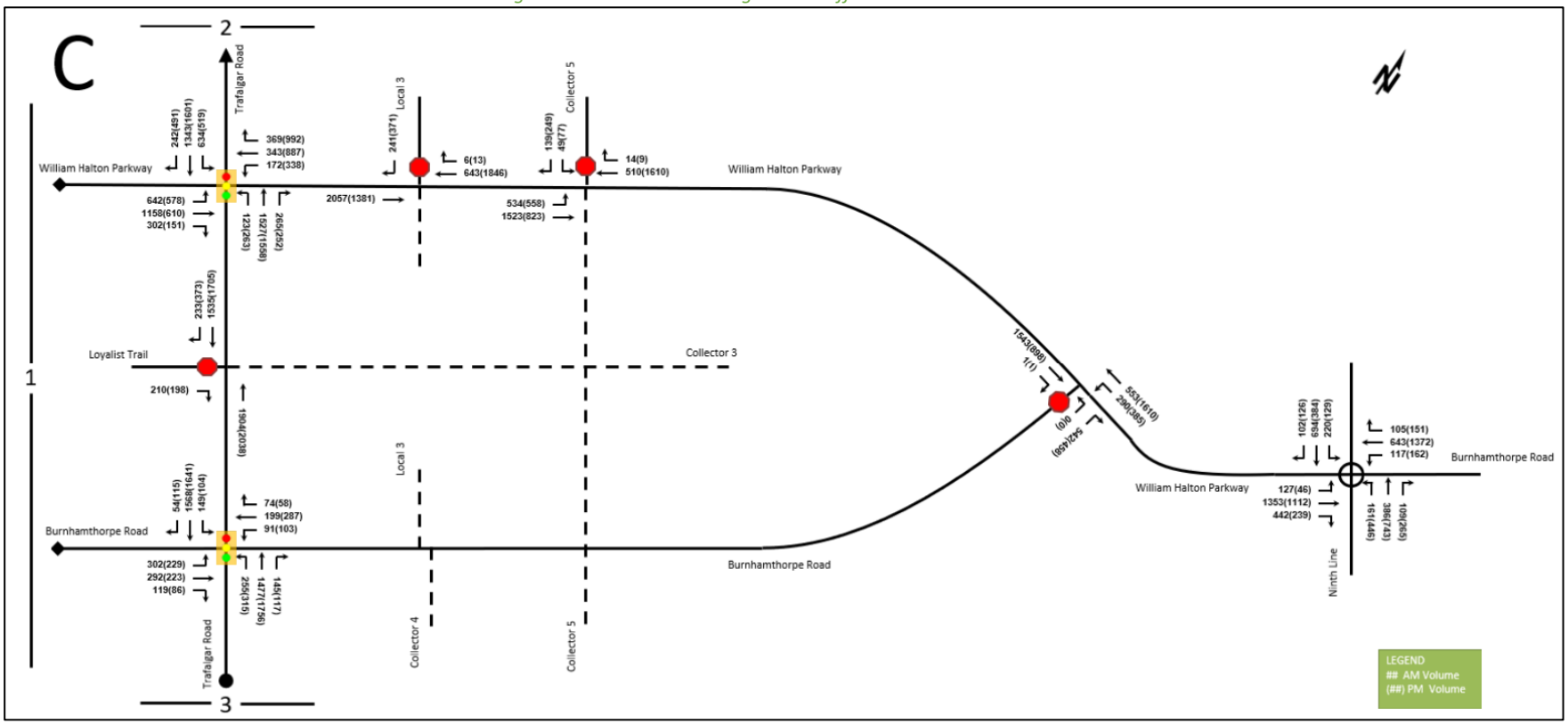
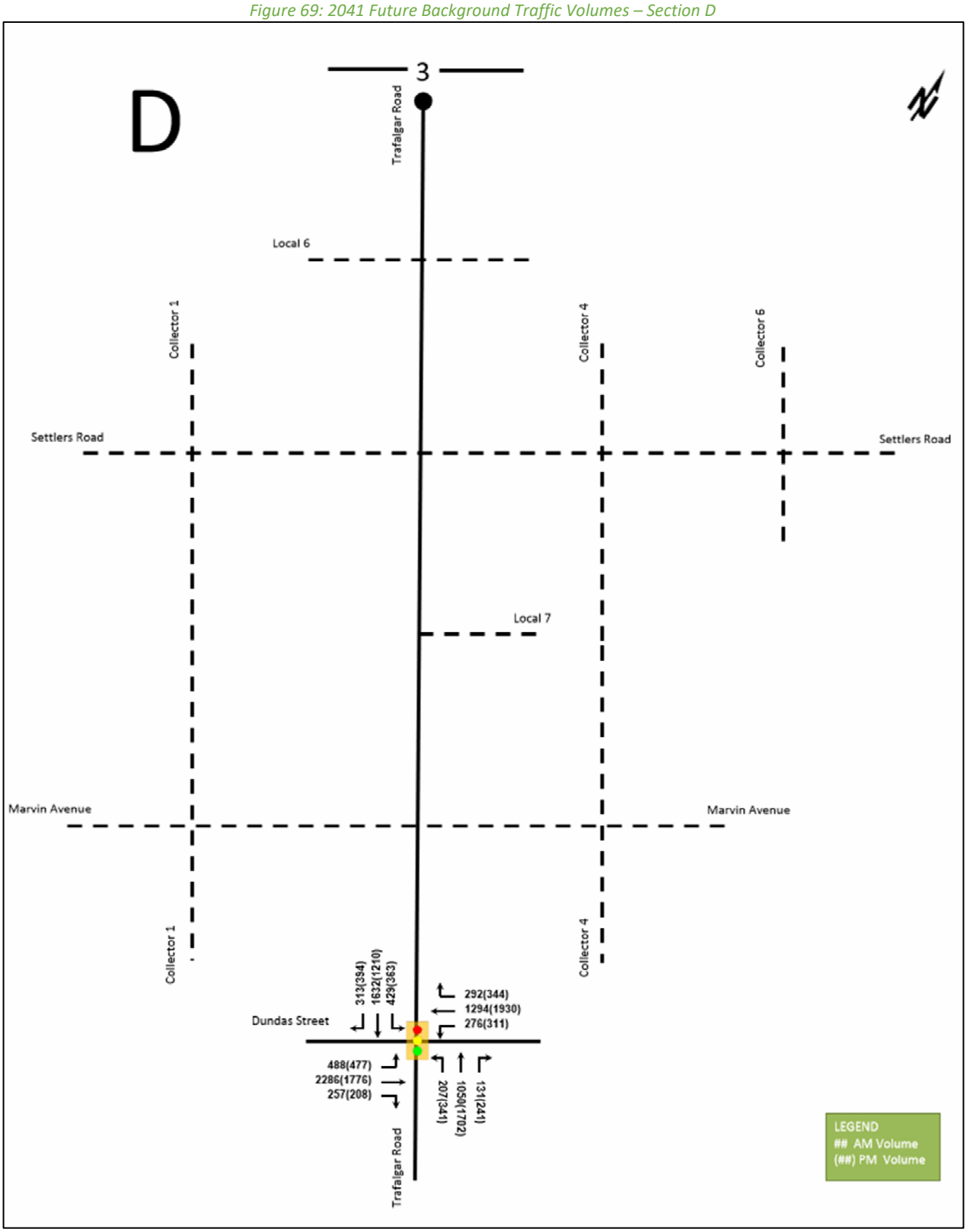


Figure 69: 2041 Future Background Traffic Volumes – Section D



4.1.11.1 Future Background Saturday Peak Hour Conditions

Background development traffic from other Study Area developments as discussed in Section 4.1.8 have been included within the Saturday analysis. As the TISs of the background developments do not include Saturday volumes, the site generated traffic from the PM peak period has been considered for the Saturday analysis. As Saturday trip generation rates are generally lower than weekday PM trip generation rates, this allows for a conservative development of the Saturday future background volumes.

Similar to the AM and PM peak period analysis, a compound annual growth rate (CAGR) of 2% from 2024 to 2031 and 1% from 2031 to 2041 will be applied to Trafalgar Road and the Highway 407 Interchanges for the Saturday analysis. Background growth rates indicated by the Region of Halton and Town of Oakville are discussed in Section 4.1.9.

Combining background development traffic, the background growth rate, and the existing traffic volumes, the future background Saturday traffic volumes were projected. Figure 70, Figure 71, and Figure 72 below illustrate the 2031, 2036, and 2041 future background Saturday traffic volumes respectively.

Figure 70: 2031 Future Background Saturday Traffic Volumes

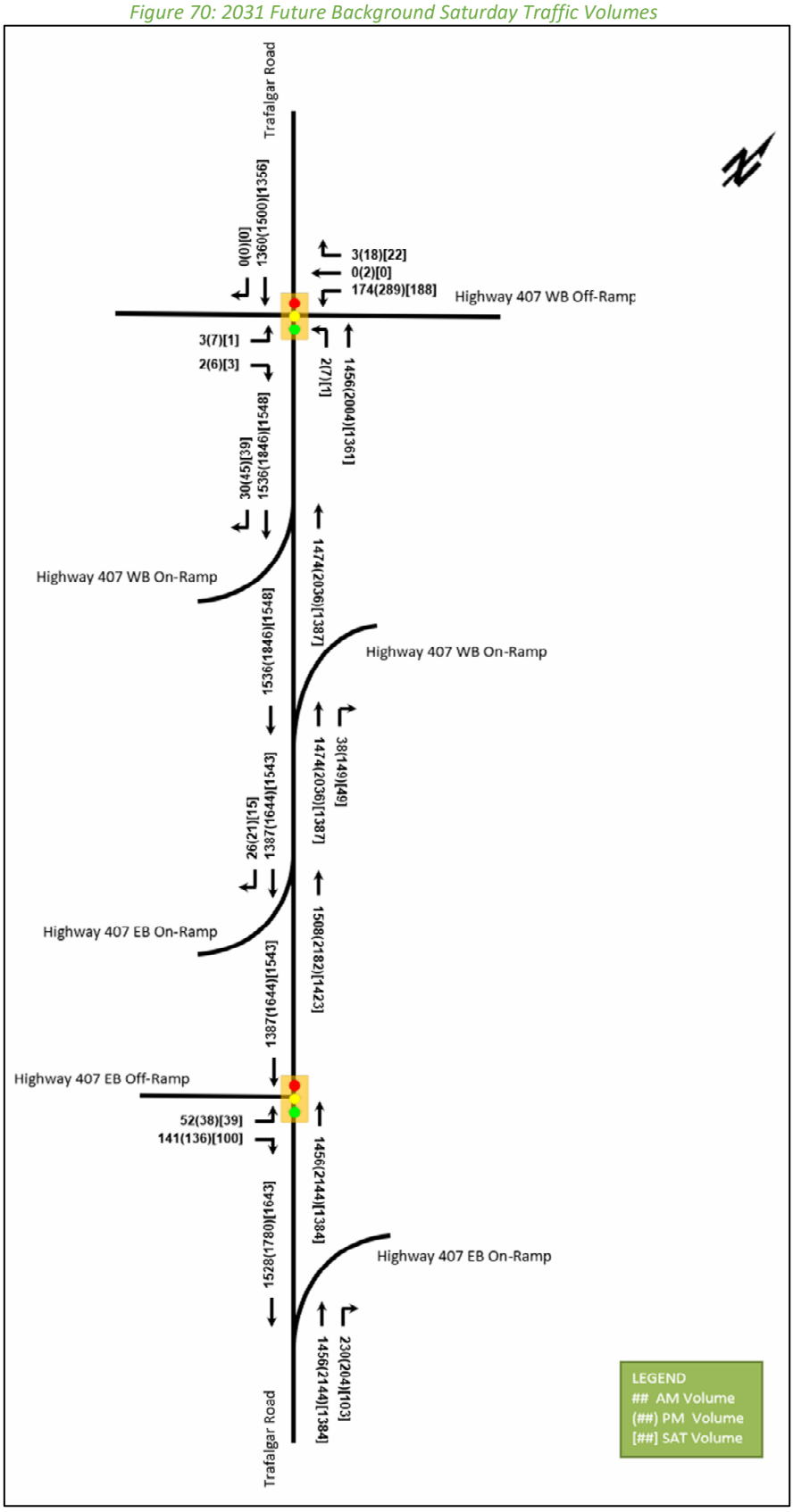


Figure 71: 2036 Future Background Saturday Traffic Volumes

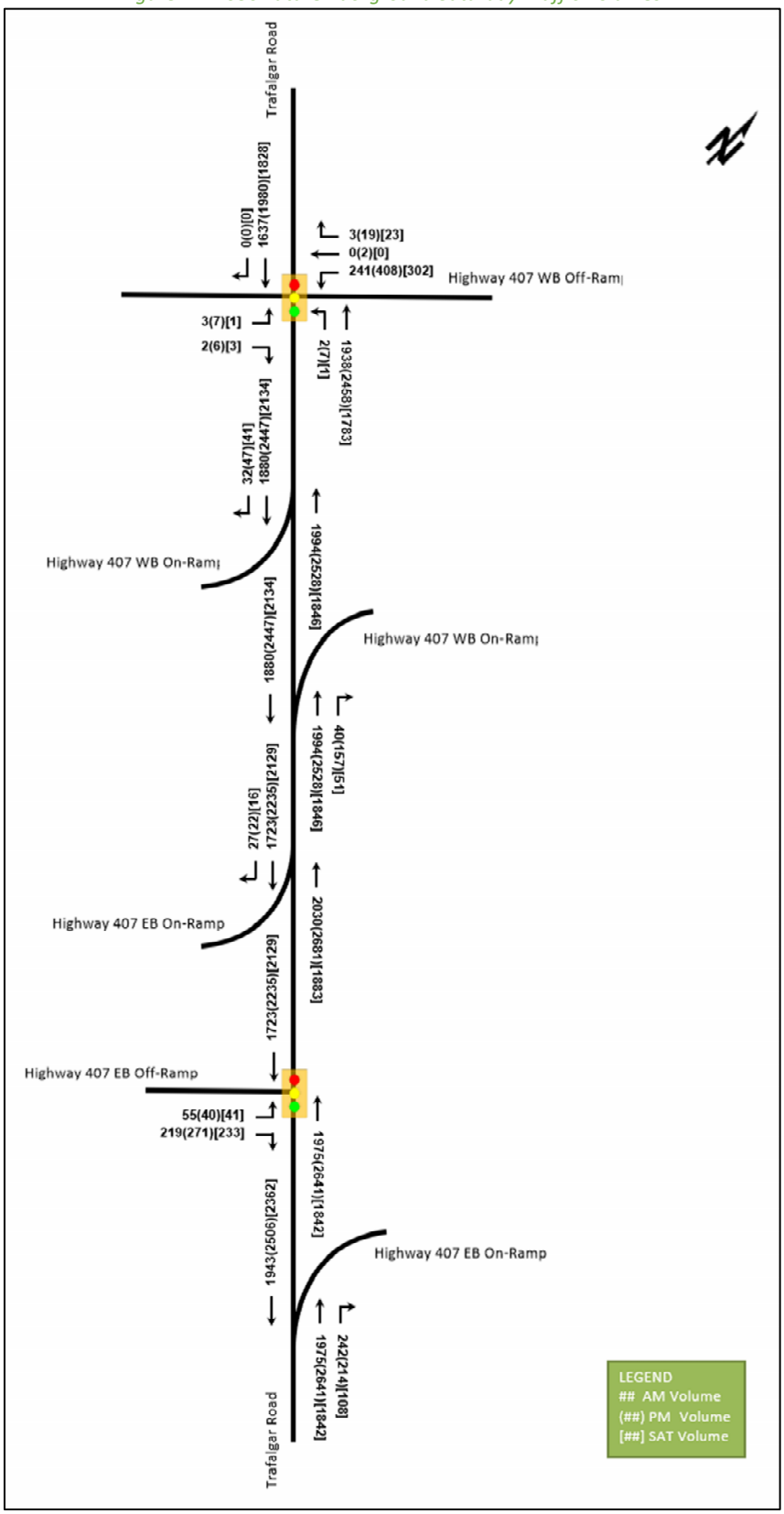
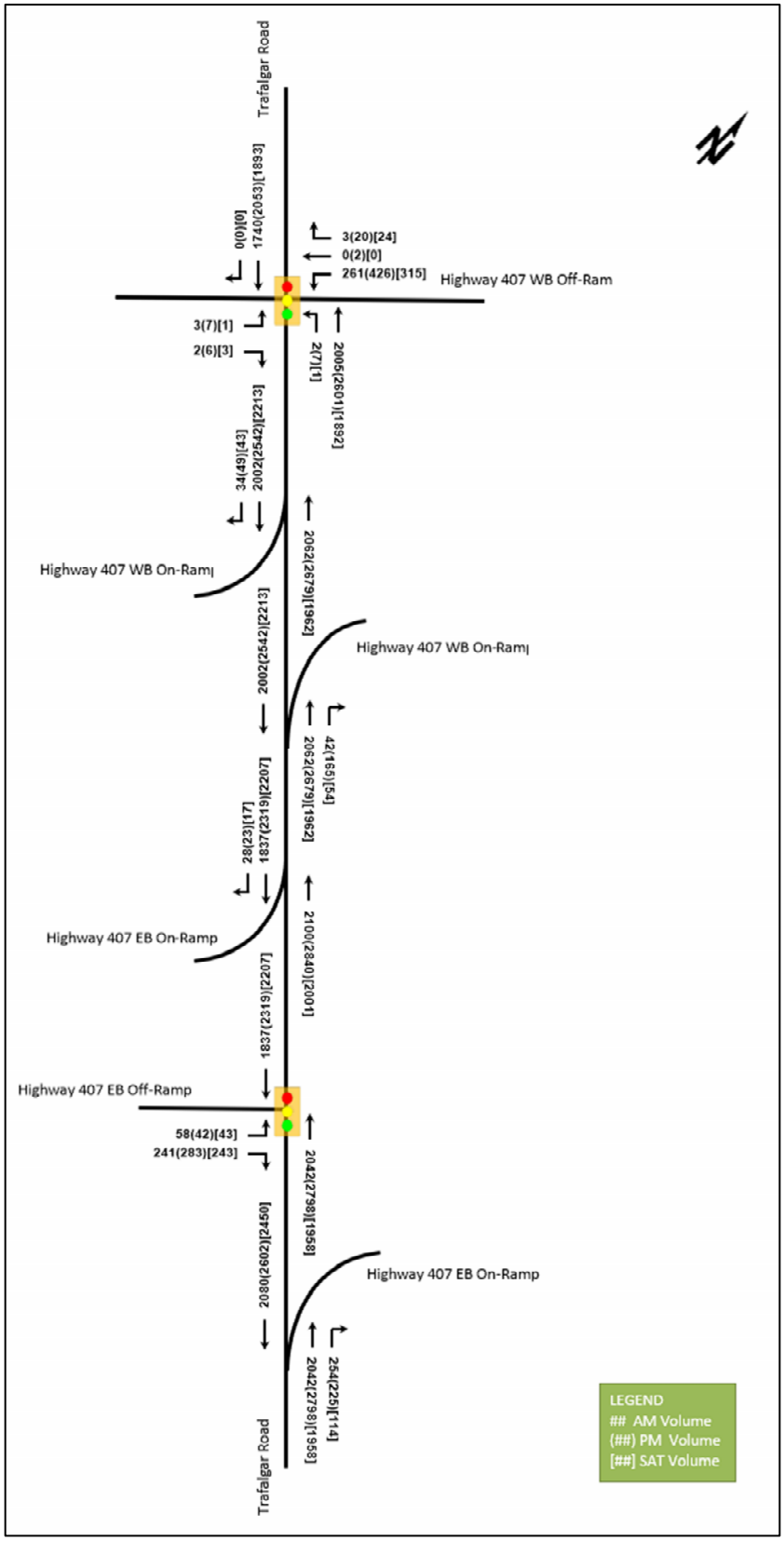


Figure 72: 2041 Future Background Saturday Traffic Volumes



5 Forecasting

5.1 Development-Generated Travel Demand

5.1.1 Trip Generation and Mode Shares

The major land uses of this proposed development consist of residential units, retail, and office. The land use information is preliminary and provides an estimate of the scale of the total trip generation. It is noted that the site statistics presented below have been adjusted since the first submission of the TIS. These changes result in negligible updates to the traffic analysis results and do not influence the overall recommendations of the TIS. Any future changes to unit counts and GFAs will be discussed at future Draft Plan and Site Plan stages. The site statistics for each participating landowner are summarized in Table 3.

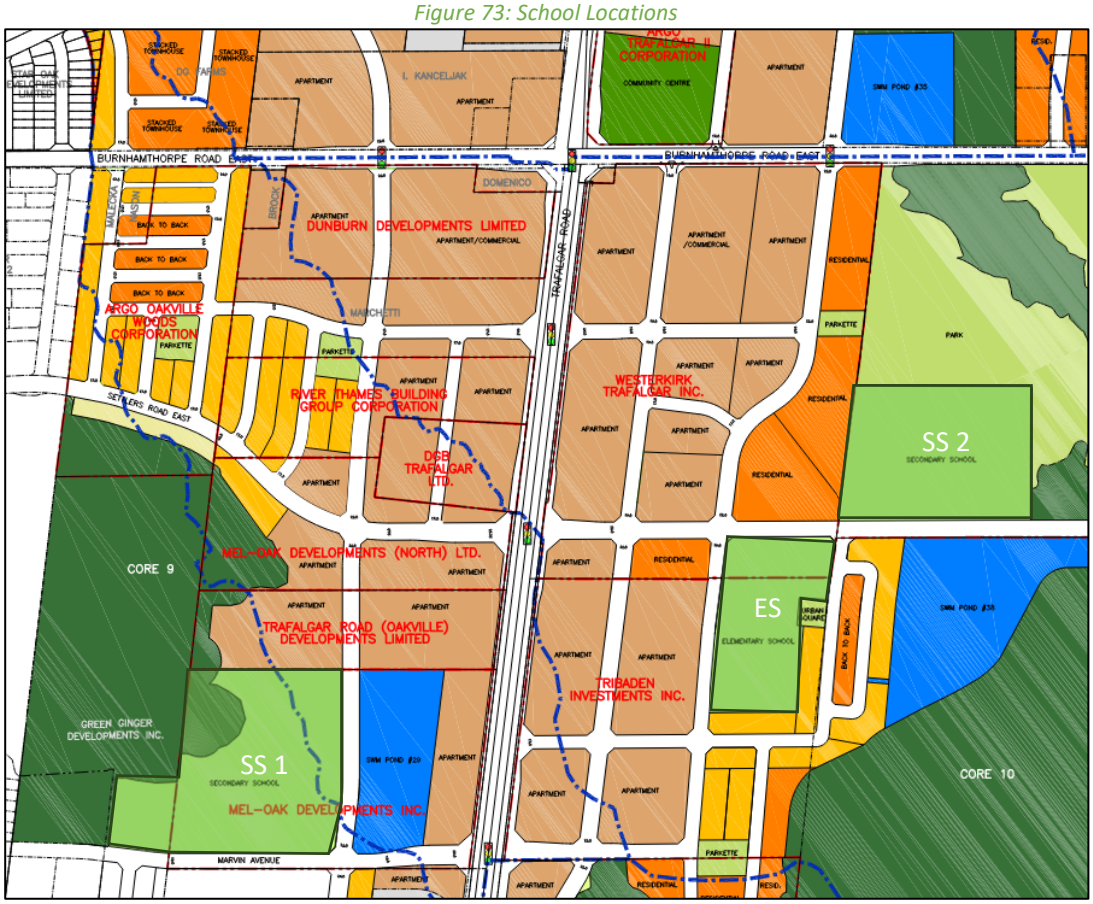
Table 3: Landowners Site Statistics Summary

Land-Use	LUC 210 Single Detached (Units)	LUC 215 Townhouse (Units)	LUC 221 Mid-Rise (Units)	LUC 222 High-Rise (Units)	LUC 822 Strip Retail Plaza (<40k) (GFA – ft²)	LUC 821 Shopping Plaza (40-150k) (GFA – ft²)	LUC 820 Shopping Center (>150k) (GFA – ft²)	LUC 710 Employment (GFA – ft²)	School (Yes/No)	LUC 495 Community Center (GFA – ft²)
Star Oak	-	-	-	-	-	-	-	630,000	-	-
Argo Oakville Woods	12	209	-	-	-	-	-	-	-	-
Fieldgate	-	50	-	-	-	100,000	-	-	-	-
River Thames *	-	50	-	995	3530	-	-	-	-	-
DGB Trafalgar **	-	-	-	1117	3962	-	-	-	-	-
Mel-Oak North	-	20	-	1674	7577	-	-	-	-	-
Mel-Oak	-	-	-	1214	8611	-	-	-	1 SS LUC 525	-
Trafalgar Road	-	-	460	1155	8558	-	-	-	-	-
Argo Trafalgar ***	-	266	-	1215	-	49,891	-	-	-	66,282
Westerkirk	-	-	-	6500	-	-	200,000	-	1 Partial ES LUC 520	-
Tribaden	-	180	-	4400	-	-	-	-	1 Partial ES LUC 520	-

*	Townhouse numbers assumed based on proposed unit counts in adjacent Argo Oakville Woods development. Apartment land use unit counts estimated based on 3444 Trafalgar Road report and land area of Block 3 and Block 4. Unit counts from 3444 Trafalgar Road report do not identify the type of units and are instead shown as a single total. As such, any units contained in the 3-storey buildings have been considered within the high-rise total as they are likely to be minimal.
**	Apartment land use unit counts estimated based on 3444 Trafalgar Road report and land area of Block 3 and Block 4. Unit counts from 3444 Trafalgar Road report do not identify the type of units and are instead shown as a single total. As such, any units contained in the 3-storey buildings have been considered within the high-rise total as they are likely to be minimal.
***	Site statistics presented are preliminary and intended primarily for estimating overall development trip generation. Unit counts and commercial GFAs are subject to refinement through future Draft Plan and Site Plan submission stages. Future refinements to site statistics are not anticipated to impact the findings or conclusions of this study.

In addition to the secondary school and elementary school considered as part of the development, an additional secondary school located to the east of the subject site has been considered as part of the trip generation. As the secondary school is located immediately to the east of the Westerkirk development, school traffic will likely travel throughout the development road network and impact the Study Area intersections and will follow similar trip generation assumptions as the secondary school within the subject lands. Figure 73 illustrates the locations of the secondary and elementary schools considered in the trip generation.

Figure 73: School Locations



The ITE Trip Generation Manual 11th Edition has been reviewed for appropriate trip generation rates and rate equations for each of the proposed land uses. The ITE vehicle trip generation rates and equations are summarized in Table 4 below. Within this study, the ITE vehicle trip generation rates and rate equations are treated as person trip generation rates and rate equations, as majority of ITE data was collected across the United States between 1980 and 2020, and are therefore representative of car-centric environments where vehicle trips represent total trips generated by a development. This approach is consistent with the methodology used in North Oakville and has been outlined in Terms of Reference shown in Appendix A and has been reviewed and approved by Town and Region staff.

Table 4: ITE Trip Generation Vehicle Trip Rates and Rate Equations

Land Use	ITE LUC	Peak Hour	Average Rate	Fitted Curve Equation	Method
Single Family Detached	210	AM	0.70	LN(T)=0.91LN(X)+0.12	Fitted Curve
		PM	0.94	LN(T)=0.94LN(X)+0.27	Fitted Curve

Single Family Attached	215	AM	0.48	T=0.52(X)-5.70	Fitted Curve
		PM	0.57	T=0.60(X)-3.93	Fitted Curve
Multifamily Housing (Mid-Rise)	221	AM	0.37	T=0.44(X)-11.61	Fitted Curve
		PM	0.39	T=0.39(X)+0.34	Fitted Curve
Multifamily Housing (High-Rise)	222	AM	0.27	T=0.22(X)+18.85	Fitted Curve
		PM	0.32	T=0.26(X)+23.12	Fitted Curve
General Office Building	710	AM	1.52	LN(T)=0.86LN(X)+1.16	Fitted Curve
		PM	1.44	LN(T)=0.83LN(X)+1.29	Fitted Curve
Shopping Centre (>150k)	820	AM	0.84	T=0.59(X)+133.55	Fitted Curve
		PM	3.4	Ln(T)=0.72Ln(X)+3.02	Fitted Curve
Shopping Plaza (40-150k)	821	AM	1.73	N/A	Average Rate
		PM	5.19	N/A	Average Rate
Strip Retail Plaza (<40k)	822	AM	2.36	LN(T)=0.66LN(X)+1.84	Average Rate
		PM	6.59	LN(T)=0.71LN(X)+2.72	Fitted Curve
Elementary School	520	AM	0.74	N/A	Average Rate
		PM	0.16	N/A	Average Rate
High School	525	AM	0.52	LN(T)=0.71LN(X)+1.41	Fitted Curve
		PM	0.14	N/A	Average Rate

The Single Family Detached and Single Family Attached generation rates have been used to estimate trips for the approximately 12 single detached and 775 townhouse units, respectively. The Multifamily Housing (Mid-Rise) and Multifamily Housing (High-Rise) land use categories were used to estimate trips for the approximately 460 mid-rise and 18,270 high-rise units. While the final development concept will refine the built form and may include a mix of high-rise, mid-rise, and low-rise residential unit types, the foregoing represents a conservative estimate of the traffic that could be generated by the subject development. The rate equations are applied as the regressions were calculated based on more than 20 studies for each and the criteria of R^2 values being greater than 0.75 were met.

The General Office Building land use category has been used to estimate trips for the 58,530 square metre employment spaces. The rate equations were applied as the regressions were calculated based on more than 20 studies and the criteria of R^2 values being greater than 0.75 were met.

The trip generation at the retail land uses was calculated using the Shopping Centre (>150k), Shopping Plaza (40-150k), and Strip Retail Plaza (<40k) land use codes based on the retail GFAs of each land parcel. The total estimated GFA of the combined retail spaces is approximately 35,501 square metres. The retail GFAs provided will be further refined as the development applications proceed and has been estimated for trip generation purposes within this study. The average rates were used for all peak hours with the exception of the PM peak for the Strip Retail Plaza. The size and projected trips may change when detailed site plans are developed.

The elementary school and secondary school trip generation were calculated using the Elementary School and High School land use codes. The student trip generation rates were chosen as it represents a more conservative trip generation compared to the employee trip generation rates. Additionally, students are expected to travel to and from the schools during the AM and PM peak periods, while school staff are likely to arrive before the AM peak period and leave after the PM peak period. The number of students for the elementary school is estimated based on the class size limit of 23 students per class based on the Ontario Education Act. The number of students for SS1 has been projected by the Halton Catholic District School Boad (HCDSB) and was used to estimate the

number of students for SS2 based on a comparison of the school size. As a fitted curve equation was not provided for the Elementary School land use, the average rates were used for the AM and PM peak periods. For the High School land use code, the average rate was applied for the AM peak period and the rate equations were applied for the PM peak period.

Using the above trip rates, the total person trip generation for the developments, excluding the school trip generation, has been determined and is summarized in Table 5. The total person trip generation for the elementary school and two secondary schools is shown in Table 6.

Table 5: Non-School Person Trip Generation

Landowner	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Star Oak	715	98	813	130	632	762
Argo Oakville Woods	28	85	113	80	55	135
Fieldgate	112	82	194	269	276	545
River Thames	72	196	268	206	136	342
DGB Trafalgar	75	202	277	214	139	353
Mel-Oak North	112	296	408	323	214	537
Trafalgar Road	127	359	486	344	228	572
Mel-Oak	88	223	311	246	164	410
Argo Trafalgar	246	392	638	509	413	922
Westerkirk	528	1154	1682	1494	1126	2620
Tribaden	330	946	1276	934	578	1512
Total	**2433**	**4033**	**6466**	**4749**	**3961**	**8710**

Table 6: Total School Person Trip Generation

School	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Elementary School	120	102	222	22	26	48
Secondary School 1	501	236	737	101	109	210
Secondary School 2	435	205	640	83	89	172
Total	**1056**	**543**	**1599**	**206**	**224**	**430**

The mode shares used for 2031, 2036, and 2041 analysis horizons for the residential, retail, and employment land uses are based on the target transportation modal split for 2031 outlined in the Halton Region Transportation Master Plan (2011) and have been confirmed for use with Regional and Town staff through the Terms of Reference shown in Appendix A. As a result, for the purposes of this study, a transit mode split of 20% will be used for the 2031 horizon year. While the Town of Oakville Transportation Master Plan Review (2018) projects a lower transit mode split in 2031, presence of transit routes both local and Regional within the Study Area will likely increase the potential for transit and active transportation modes and reduce auto driver percentages accordingly. While the auto driver percentage will likely decrease with the implementation of more transit routes as well as the completion of future higher order transit corridors including the Bus Rapid Transit (BRT) services along Dundas Street and Trafalgar Road, and the build-out of more cycling and pedestrian facilities, the same mode split will be used for the 2036 and 2041 horizons as a conservative measure as the current TMP only projects to 2031. The Halton Region TMP also projects an auto driver mode share of 72%, an active transportation mode share of 5%, and a TDM mode share of 3% for the 2031 planning horizon. It is noted that the Halton Region TMP defines active transportation modes as any non-motorised or lightly motorised travel, including walking, cycling, rollerblading, and movements with mobility devices. The TDM mode includes any initiatives aimed at reducing the amount of

travel by single occupant vehicles and achieving a more balanced mode split particularly during peak hours. The mode share percentages during the peak hours are summarized in Table 7.

Table 7: Mode Share Assumptions

Travel Mode	2031 Regional Projection	2031 Oakville Projection Scenario D	2031 Applied	2036 Applied	2041 Applied
Auto Driver	72%	76%	72%	72%	72%
Transit	20%	12%	20%	20%	20%
Active Transportation	5%	6%	5%	5%	5%
TDM	3%	6%	3%	3%	3%
Total	**100%**	**100%**	**100%**	**100%**	**100%**

Using the above mode shares and trip rates, the non-school trips by mode have been projected. Table 8 summarizes the total trip generation by mode.

Table 8: Non-School Trip Generation by Mode

Travel Mode	Mode Share	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Auto Driver	72%	1752	2904	4656	3419	2852	6271
Transit	20%	487	807	1293	950	792	1742
Active Transportation	5%	122	202	323	237	198	436
TDM	3%	73	121	194	142	119	261
Total	**100%**	**2433**	**4033**	**6466**	**4749**	**3961**	**8710**

Where applicable, pass-by and diverted link trips have been accounted for using the ITE Trip Generation Manual 11th Edition Vehicle Pass-by Weekday PM tables. As land use 822 (Strip Retail Plaza) does not have pass-by tables, and land use 820 (Shopping Centre) includes developments with GFAs well beyond what is considered by the subject development, the Vehicle Pass-by table for land use 821 (Shopping Plaza) was considered. The proposed reduction rate is anticipated to be acceptable as retail areas with GFAs less than 40k square feet (for example convenience stores, coffee shops, and high-turnover restaurant chains) are still anticipated to generate pass-by trips and it is therefore appropriate to consider the impact of pass-by trips at these locations.

From this table, the primary trip percentage was selected to understand the number of non-pass-by and non-diverted link trips generated by the retail land uses within the subject development lands. The average primary trip percentages for the PM peak period were taken from this table. It is noted that no pass-by or diverted link trips are expected in the AM peak period for retail land uses. For the residential land uses, a primary trip percentage has not been applied as they are unlikely to attract pass-by or diverted link trips. The primary trip percentage used for the retail land use in the PM peak period has been summarized in Table 9 as per the ITE Trip Generation Manual. The resulting reductions are shown in Table 10.

Table 9: Land Use Pass-by Rates

Land Use	Pass-by Rate	
	AM	PM
Strip Retail Plaza	-	38.92%
Shopping Plaza		
Shopping Center		

Table 10: Vehicle Primary Trip Reductions

Landowner	PM Peak Hour		
	In	Out	Total
Fieldgate	-114	-114	-228
River Thames	-8	-8	-16
DGB Trafalgar	-9	-9	-18
Mel-Oak North	-17	-17	-34
Trafalgar Road	-16	-16	-32
Mel-Oak	-16	-16	-32
Argo Trafalgar	-57	-57	-114
Westerkirk	-205	-205	-410
Total	**-442**	**-442**	**-884**

Based on these vehicle primary trip reductions, the net new non-school total trip generation by mode has been developed and is shown in Table 11 below.

Table 11: Non-School Net New Trip Generation by Mode

Travel Mode	Mode Share	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Auto Driver	72%	1752	2904	4656	3419	2852	6271
Primary Trip Reduction		-	-	-	*-442*	*-442*	*-884*
Net New Auto Driver		*1752*	*2904*	*4656*	*2977*	*2410*	*5387*
Transit	20%	487	807	1293	950	792	1742
Active Transportation	5%	122	202	323	237	198	436
TDM	3%	73	121	194	142	119	261
Total	**100%**	**2433**	**4033**	**6466**	**4307**	**3519**	**7828**

As shown above, the proposed development is anticipated to generate 4656 AM and 5387 PM net new non-school trip two-way peak-hour auto trips.

Elementary school trips are assumed to be internal to the development, consisting mostly of active transportation or parents dropping students off on their way to work. As such, trips generated from the elementary school will not be considered in the site trip assignment. The secondary school trips were assumed to be split as follows 80% external and 20% internal trips. The external trips are assumed to consist of vehicle trips traveling to and from outside of the development, while the internal trips are assumed to be represented by auto passenger or active transportation trips within the development. The resulting secondary school internal and external trip generation is summarized in Table 12 below.

Table 12: Secondary School Internal and External Trip Generation

Internal/External	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Internal	749	352	1101	147	158	305
External	187	89	276	37	40	77
Total	936	441	1377	184	198	382

As shown above, the secondary schools are anticipated to generate 1101 AM and 305 PM external two-way peak-hour auto trips.

Under these assumptions, the EM4 JC7 JC9 lands will generate the same two-way vehicle trips during the AM and PM peak hours in the 2031, 2036, and 2041 analysis horizons. These two-way vehicle trips are 5757 in the AM peak hour and 5692 in the PM peak hour.

5.1.2 Trip Distribution

To understand the travel patterns of the developments, the aggregated Transportation Tomorrow Survey (TTS) data for trips of all purposes in Oakville during AM and PM peak periods has been used as a reference. The trips to/from the north and east are larger as a large portion of the trips are destined to Toronto, York, and Peel Region. The percentages of trips to each direction are kept constant between the 2031, 2036 and 2041 horizons. Table 13 summarizes the distribution.

Table 13: 2016 TTS Oakville Trip Distribution

To/From	Percent of Trips
North	15%
South	40%
East	30%
West	15%
Total	100%

5.1.3 Trip Assignment

Using the distribution outlined above, turning movement splits, intersection and access turning restrictions, and access to major transportation infrastructure, the trips generated by the site have been assigned to the Study Area road network. The site trip generation of subject development based on the auto driver volumes discussed above are summarized in Figure 74, Figure 75, Figure 76, and Figure 77.

Figure 74: Site Trip Generation – Section A

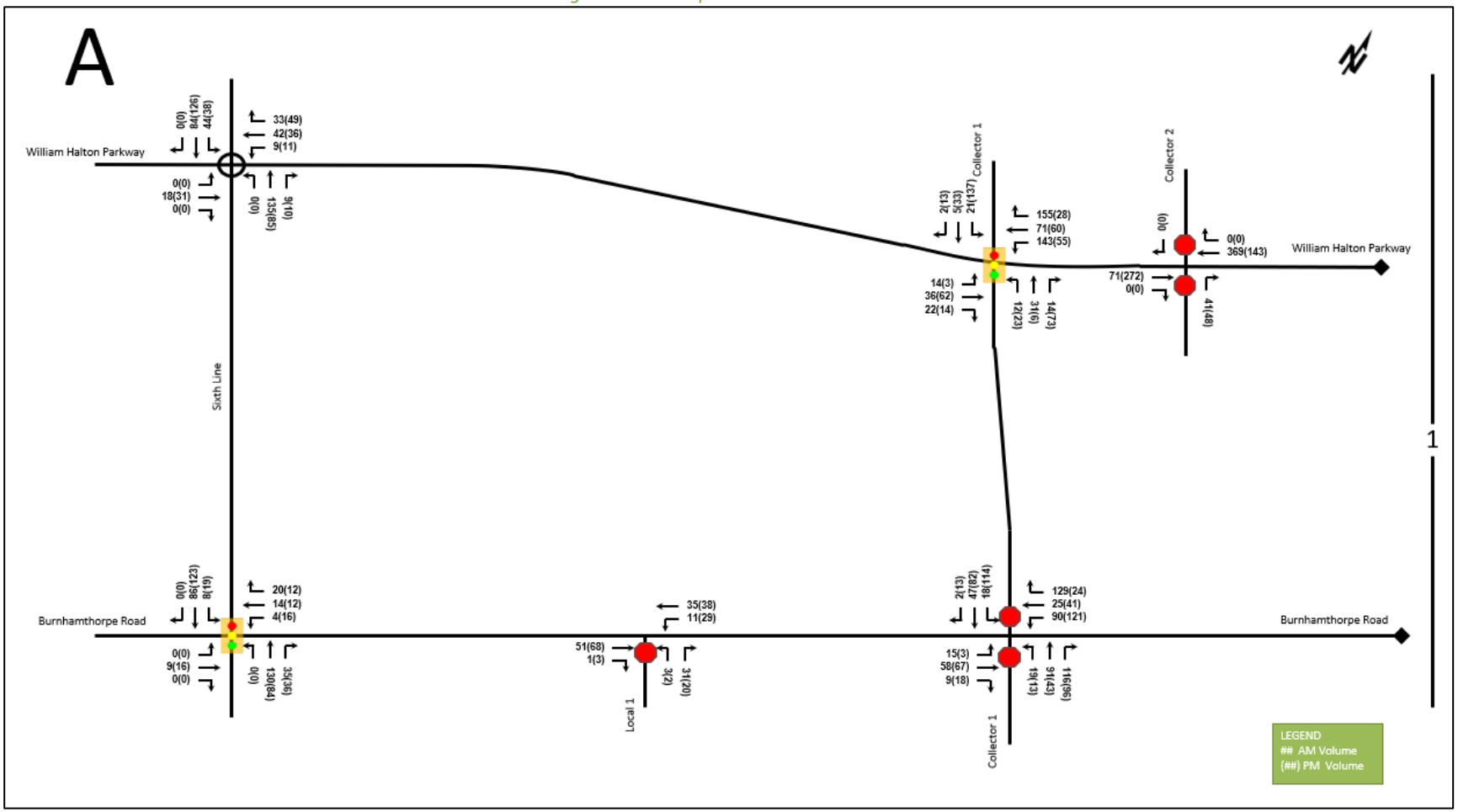


Figure 75: Site Trip Generation – Section B

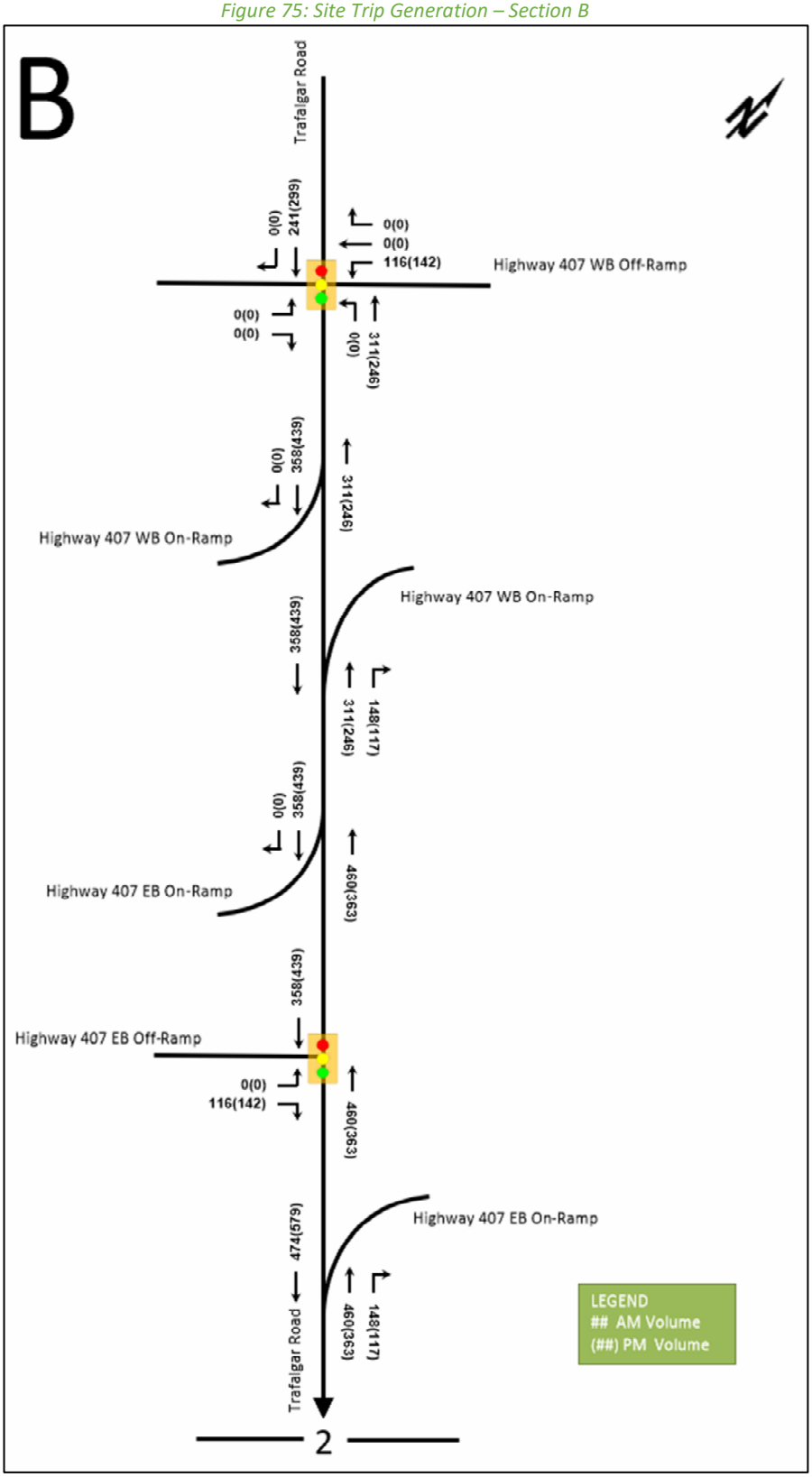


Figure 76: Site Trip Generation – Section C

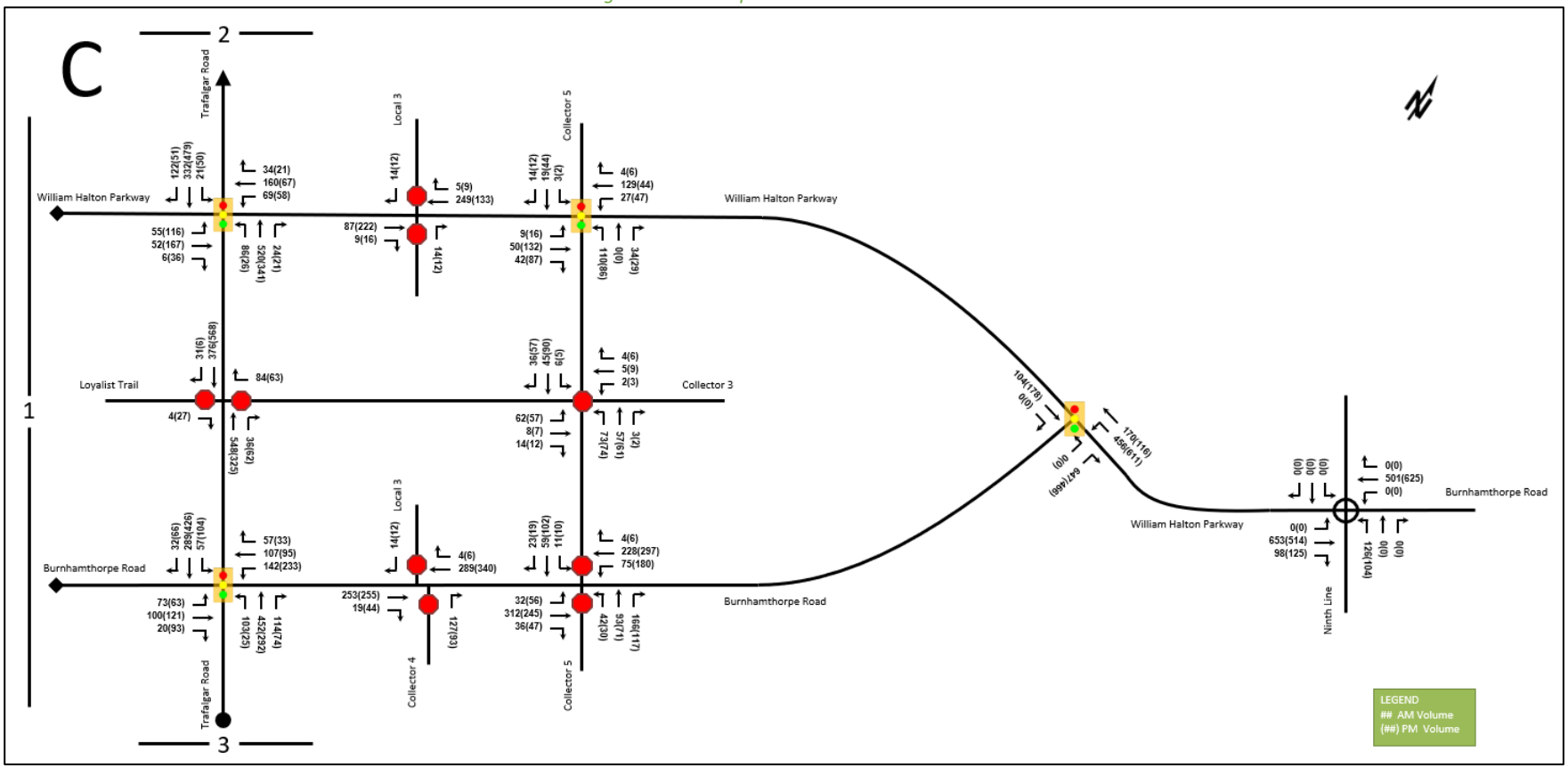
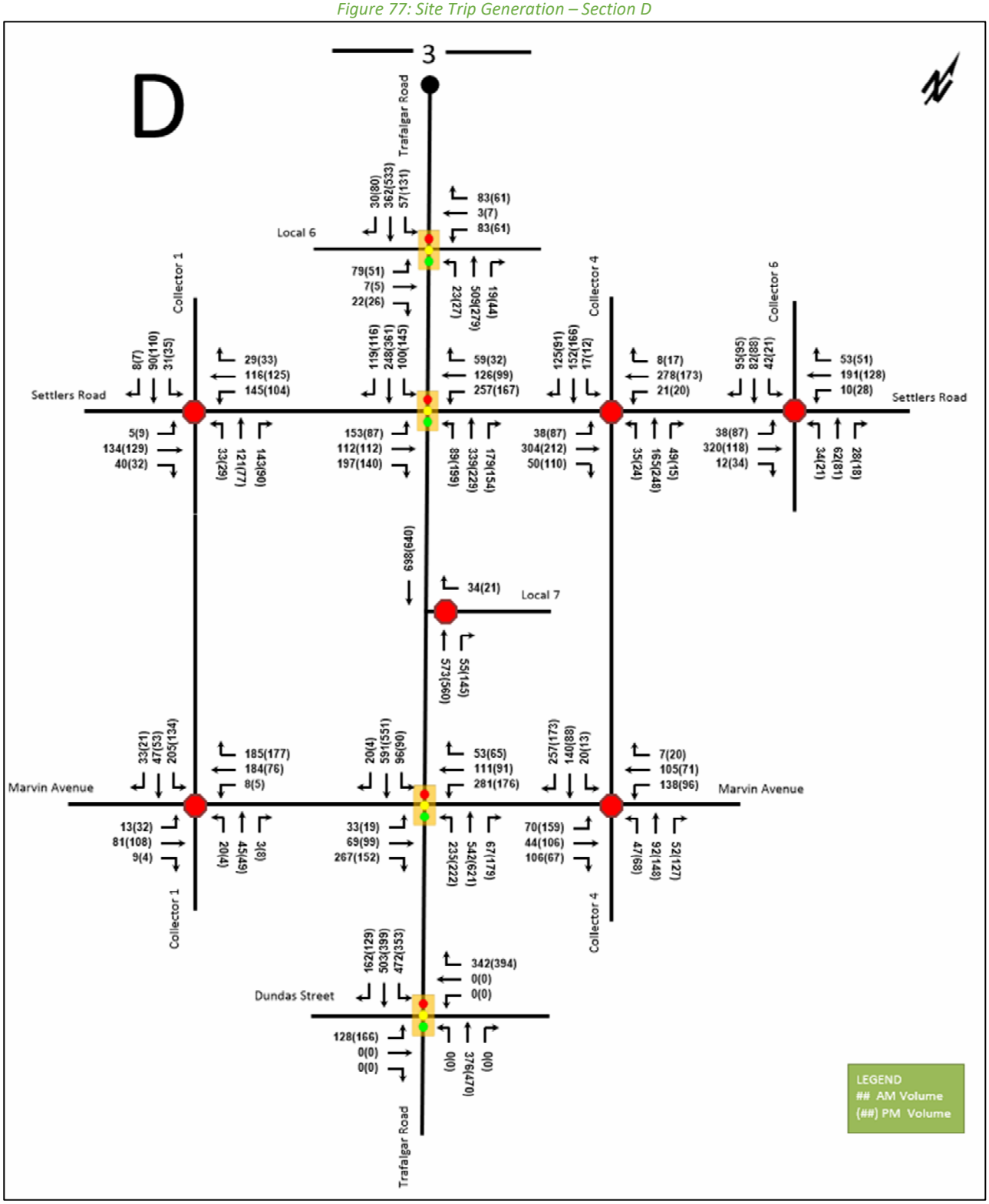


Figure 77: Site Trip Generation – Section D



5.1.4 Future Total Travel Demands

The site generated vehicle traffic has been combined with the 2031, 2036, and 2041 future background traffic volumes to estimate the future total traffic volumes. Figure 78, Figure 79, Figure 80, and Figure 81 illustrate the 2031 future total traffic volumes. Figure 82, Figure 83, Figure 84, and Figure 85 illustrate the 2036 future total traffic volumes. Figure 86, Figure 87, Figure 88, and Figure 89 illustrate the 2041 future total traffic volumes.

Figure 78: 2031 Future Total Traffic Volumes – Section A

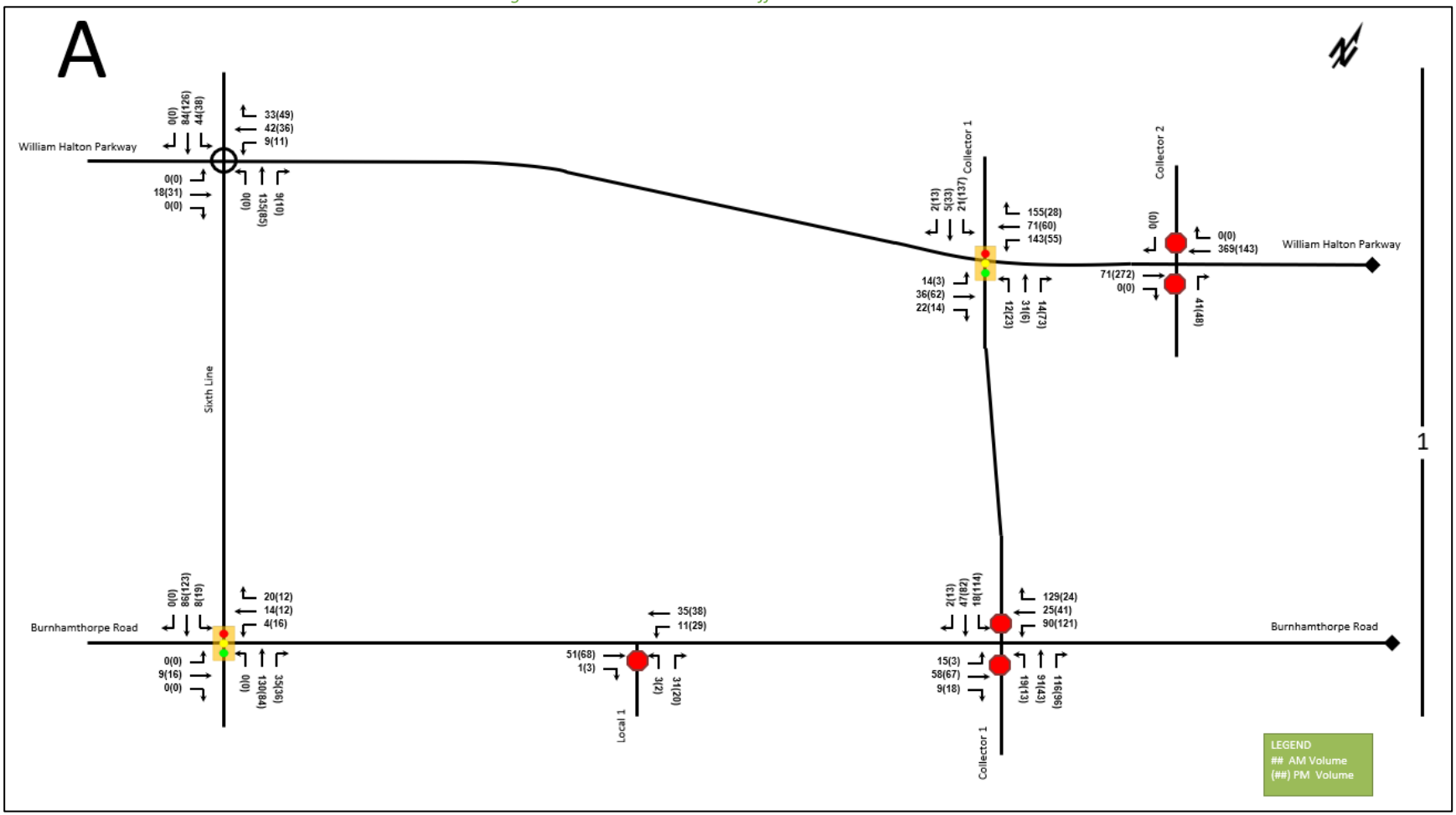


Figure 79: 2031 Future Total Traffic Volumes – Section B

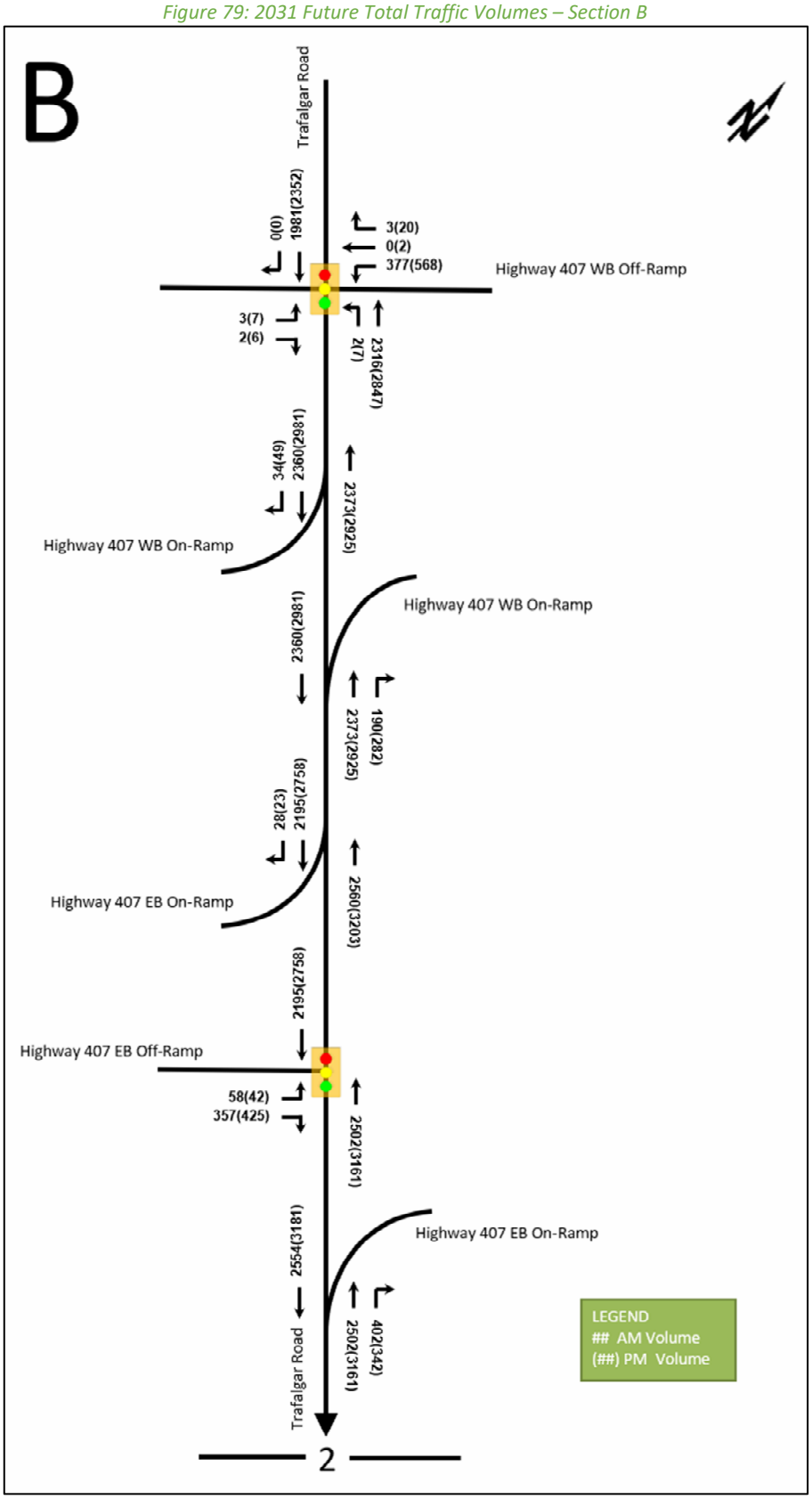


Figure 80: 2031 Future Total Traffic Volumes – Section C

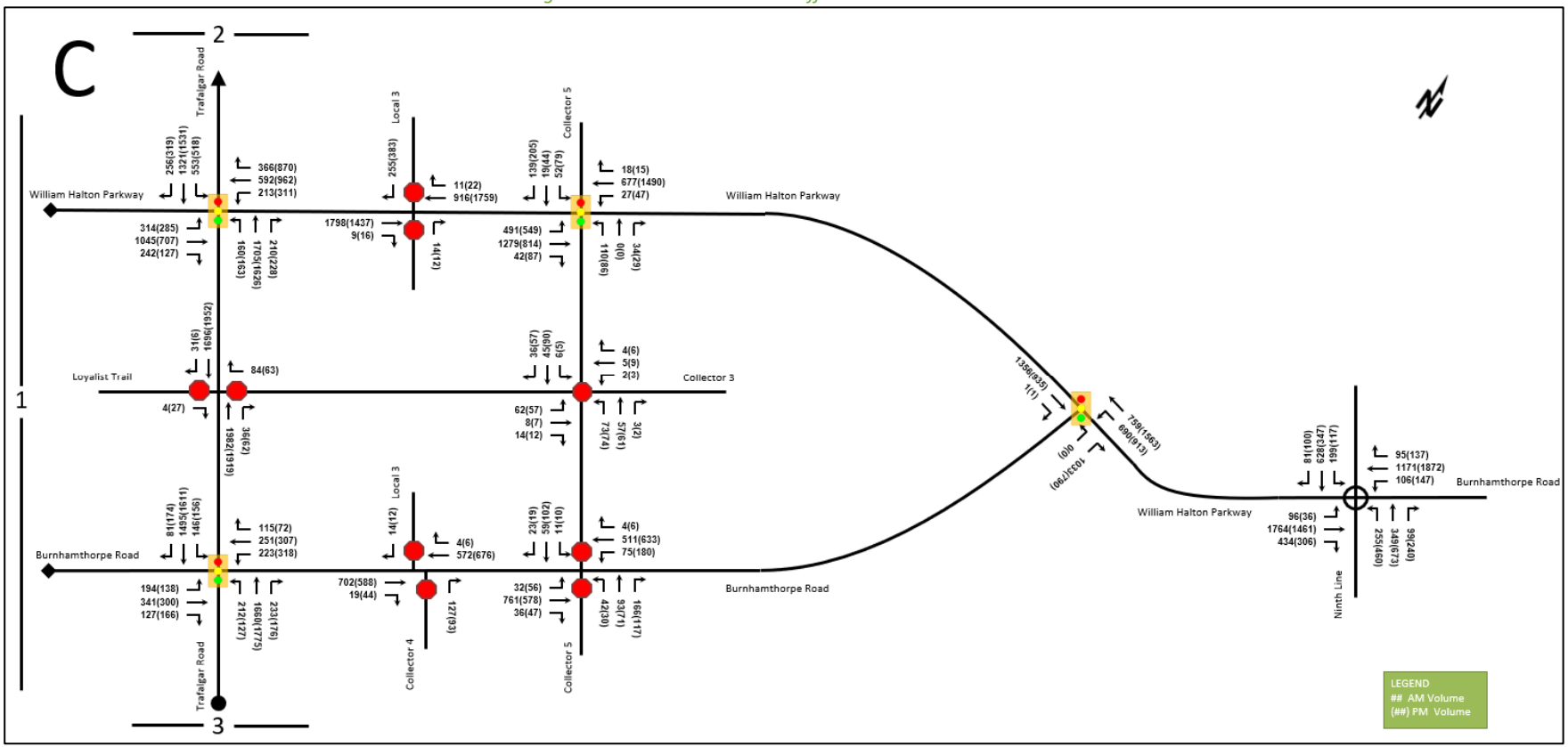


Figure 81: 2031 Future Total Traffic Volumes – Section D

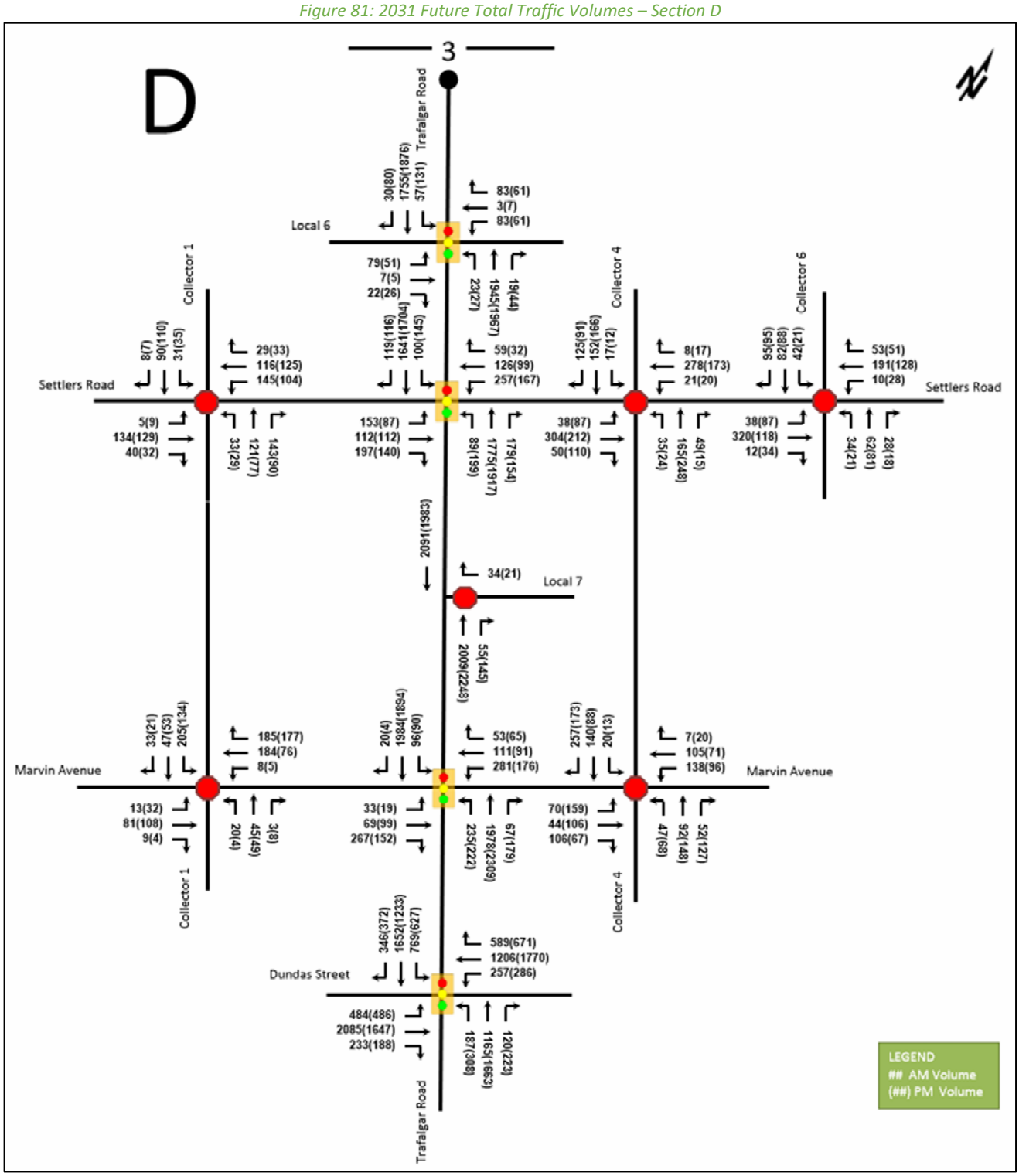


Figure 82: 2036 Future Total Traffic Volumes – Section A

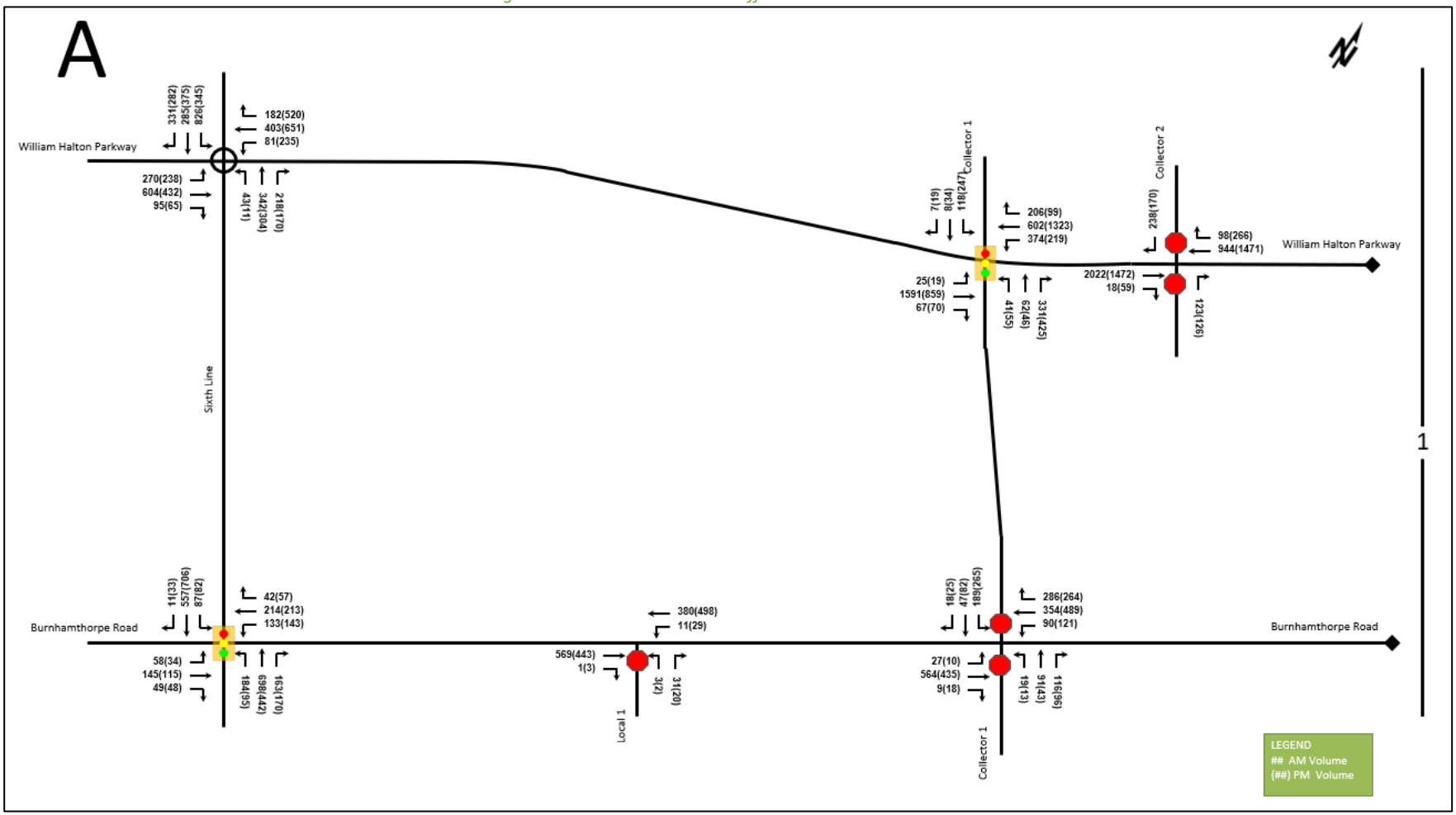


Figure 83: 2036 Future Total Traffic Volumes – Section B

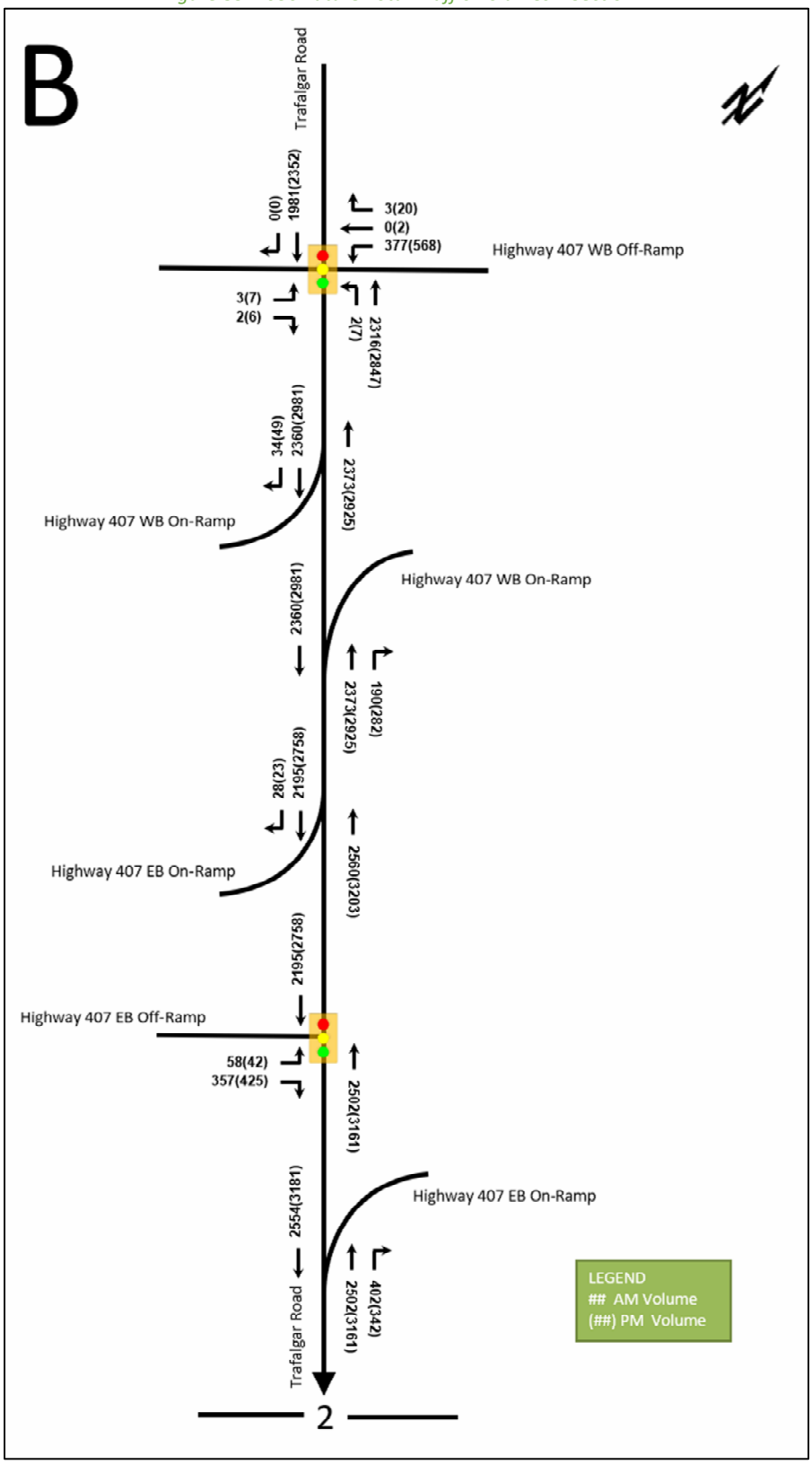


Figure 84: 2036 Future Total Traffic Volumes – Section C

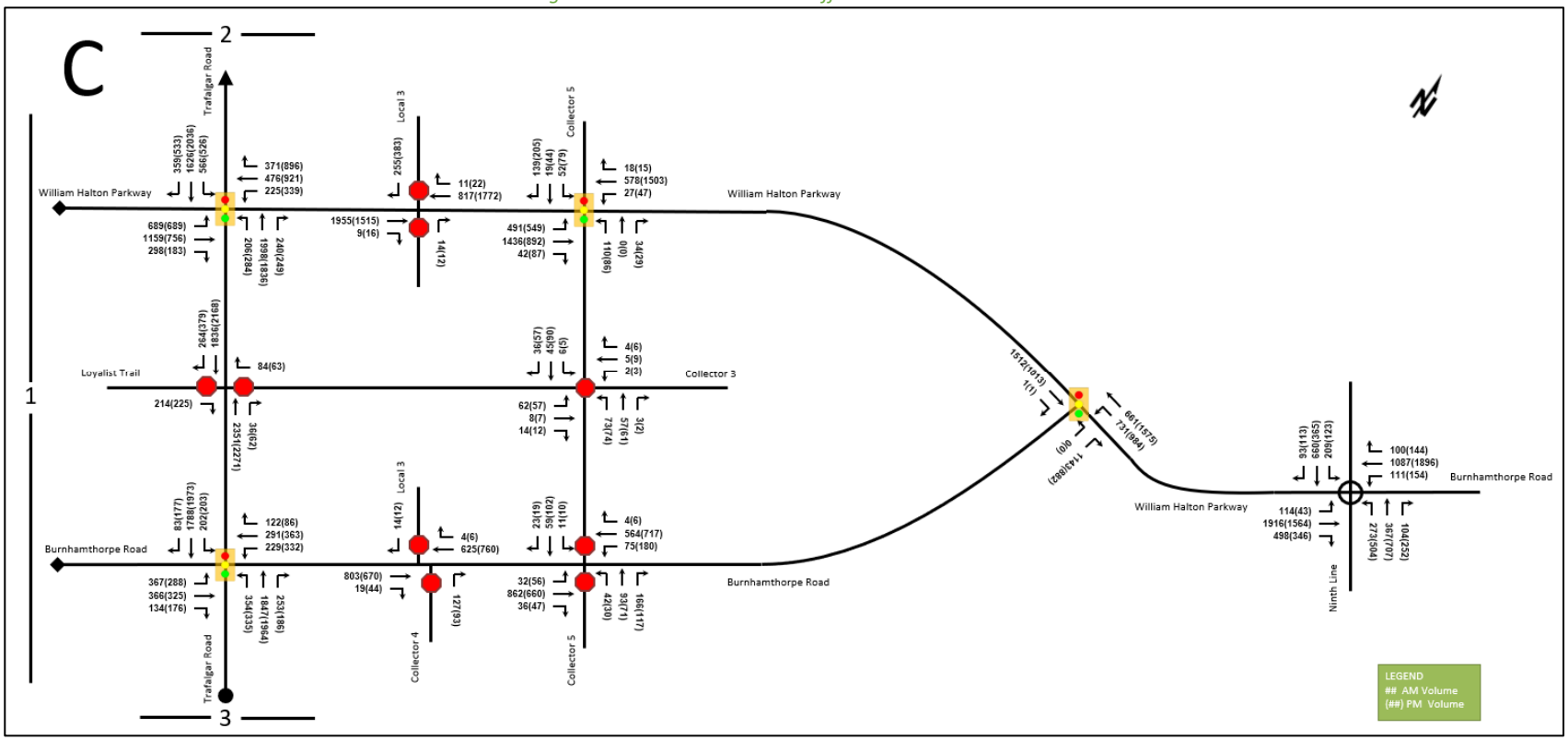


Figure 85: 2036 Future Total Traffic Volumes – Section D

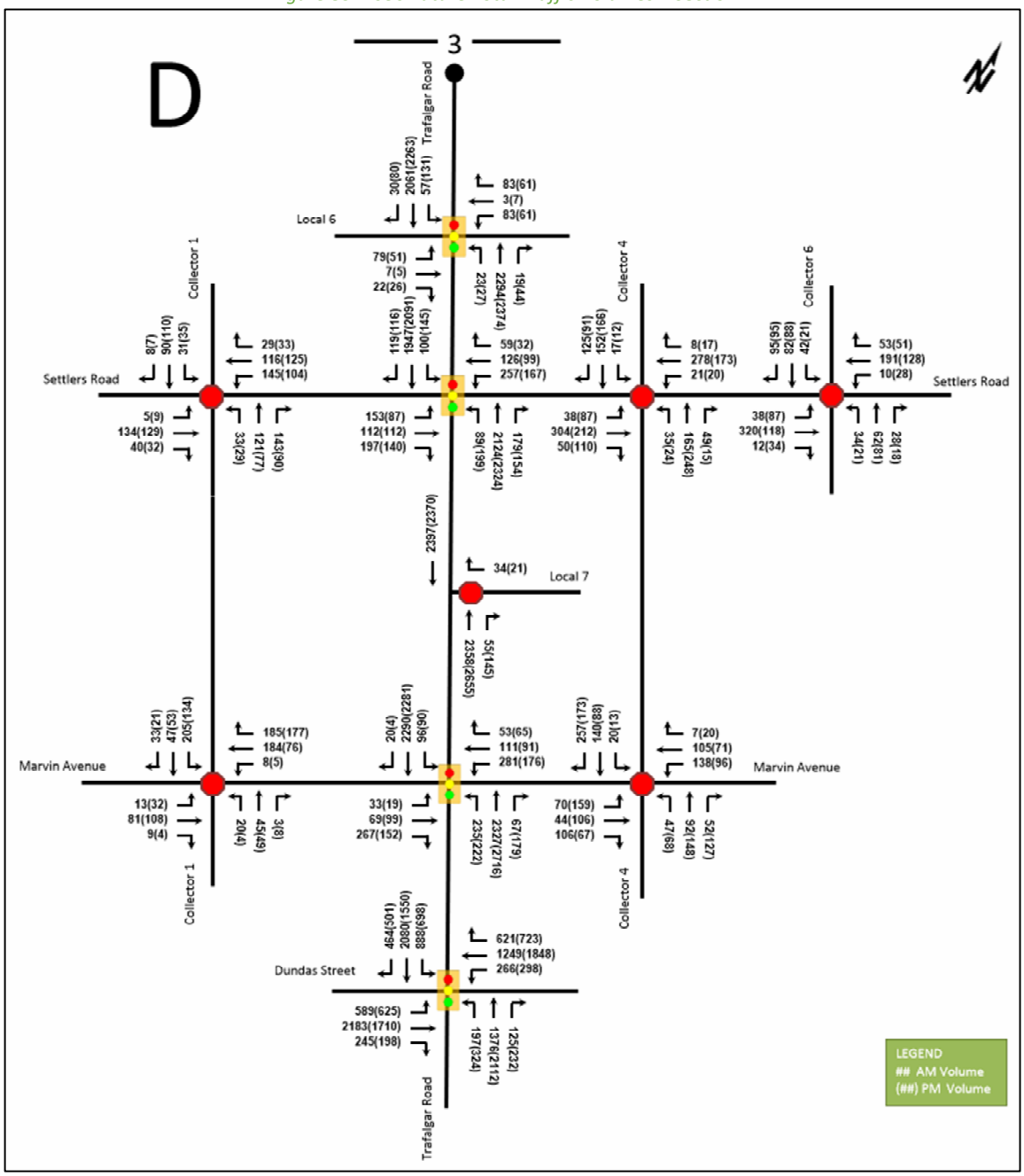


Figure 86: 2041 Future Total Traffic Volumes – Section A

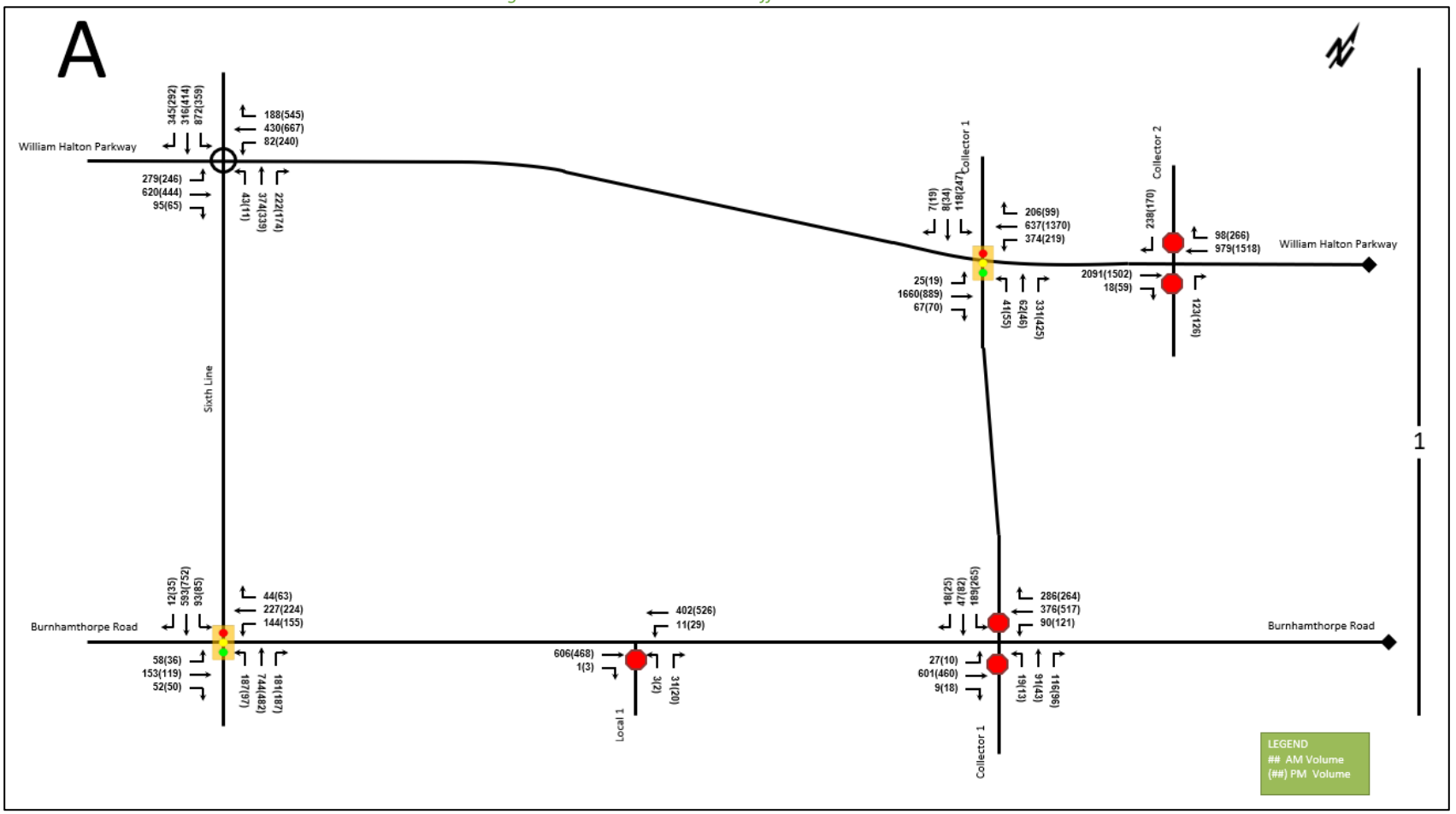


Figure 87: 2041 Future Total Traffic Volumes – Section B

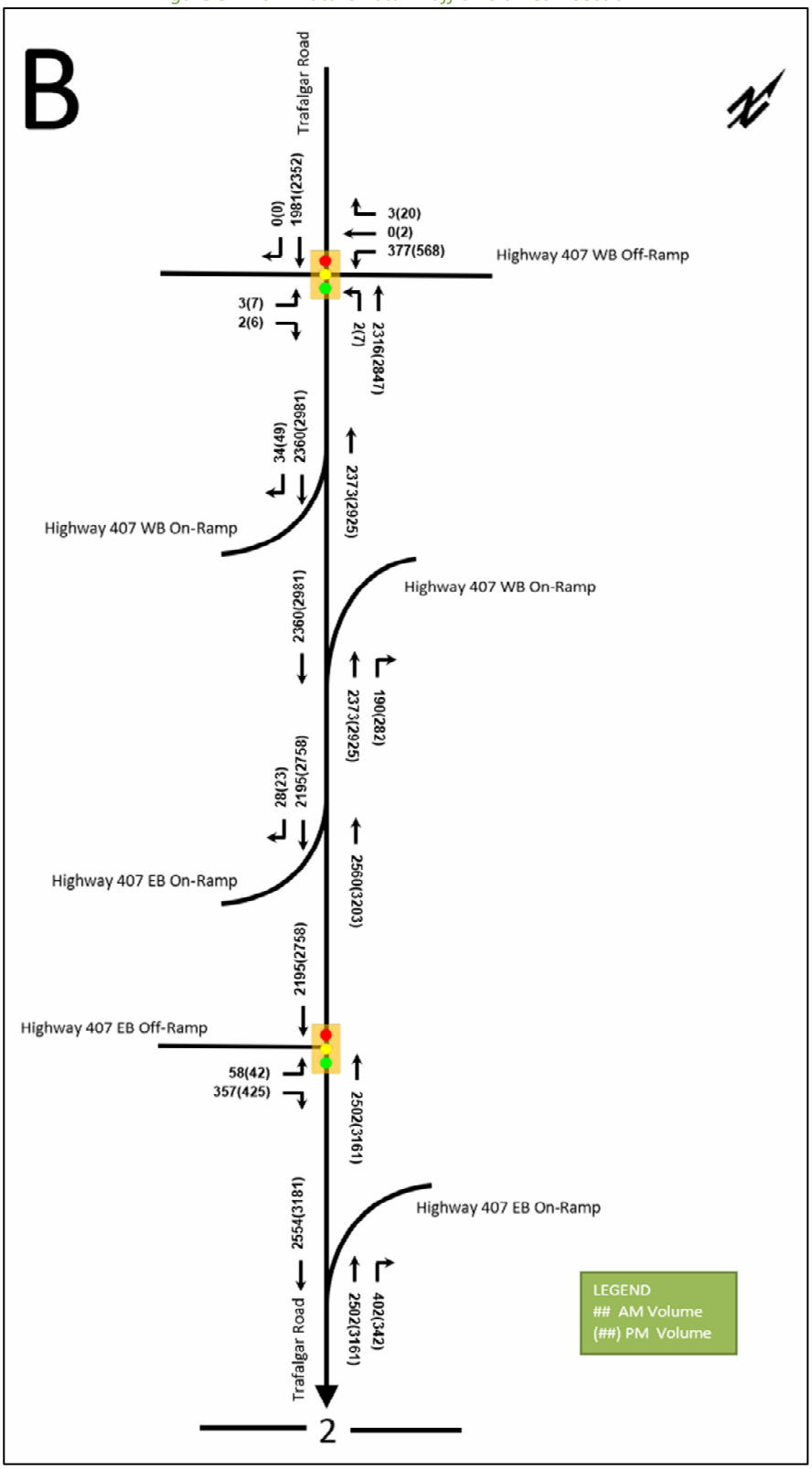


Figure 88: 2041 Future Total Traffic Volumes – Section C

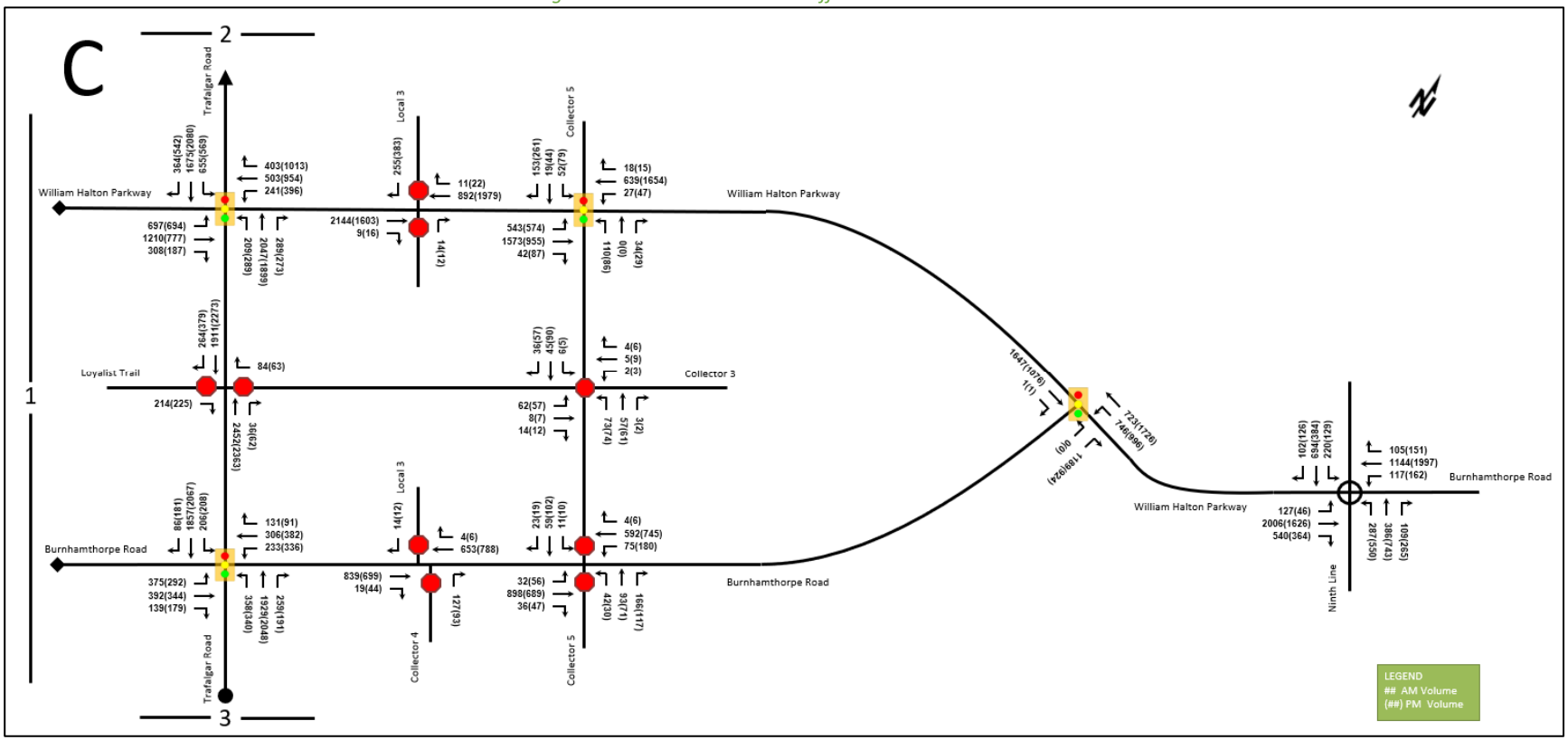
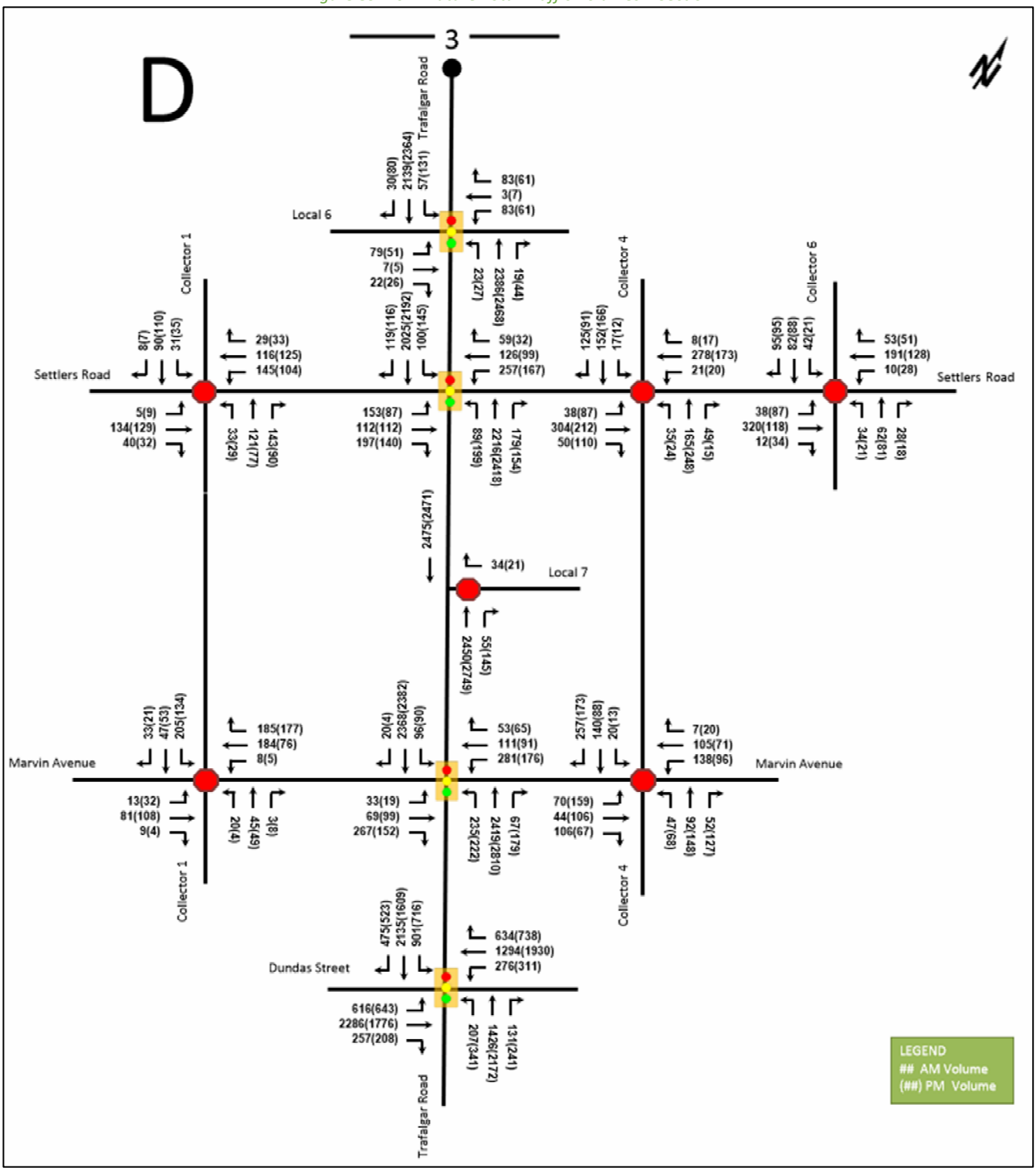


Figure 89: 2041 Future Total Traffic Volumes – Section D



5.1.5 Saturday Analysis

5.1.5.1 Development Generated Travel Demand

Site statistics for each landowner as summarized in Table 3 of Section 5.1.1 have been considered within the Saturday analysis. The ITE Trip Generation Manual 11th Edition has been reviewed for appropriate Saturday trip generation rates and rate equations for each of the proposed land uses. The ITE Saturday vehicle trip generation rates and equations are summarized in Table 14. It is noted that elementary and high school land uses have not been included in the Saturday analysis, as schools are not expected to generate significant vehicle traffic on Saturdays.

Table 14: ITE Saturday Trip Generation Vehicle Trip Rates and Rate Equations

Land Use	ITE LUC	Peak Hour	Average Rate	Fitted Curve Equation	Method
Single Family Detached	210	Sat	0.92	T=0.86(X)+9.72	Fitted Curve
Single Family Attached	215	Sat	0.57	LN(T)=0.82LN(X)+0.43	Fitted Curve
Multifamily Housing (Mid-Rise)	221	Sat	0.39	LN(T)=1.00LN(X)-0.91	Fitted Curve
Multifamily Housing (High-Rise)	222	Sat	0.36	T=0.30(X)+30.34	Fitted Curve
General Office Building	710	Sat	0.53	N/A	Average Rate
Shopping Centre (>150k)	820	Sat	4.4	Ln(T)=0.76LN(X)+3.00	Fitted Curve
Shopping Plaza (40-150k)	821	Sat	6.22	T=7.75(X)-98.93	Average Rate
Strip Retail Plaza (<40k)	822	Sat	6.57	N/A	Average Rate

Similar to the weekday AM and PM analysis, the fitted curve equation was selected where 20 or more data points were provided and the R^2 values being greater than 0.75 were met, based on the ITE Trip Generation Manual. Where these criteria were not met or a fitted curve equation was not provided, the average rate was selected. Using the above vehicle trip rates, the total Saturday trip generation for the development is summarized in Table 15.

Table 15: Total Saturday Person Peak Hour Trip Generation

Landowner	SAT Peak Hour		
	In	Out	Total
Star Oak	180	154	334
Argo Oakville Woods	70	73	143
Fieldgate	341	319	660
River Thames	211	165	376
DGB Trafalgar	223	172	395
Mel-Oak North	337	261	598
Trafalgar Road	337	279	616
Mel-Oak	250	195	445
Argo Trafalgar	493	426	919
Westerkirk	1697	1379	3076
Tribaden	829	643	1472
Total	**4968**	**4066**	**9034**

The mode shares used for the 2031, 2036, and 2041 Saturday analysis horizons are consistent with those applied to the AM and PM peak period analysis. Under these assumptions, the EM4 JC7 JC9 lands will generate the same two-way vehicle trips during the AM, PM, and Saturday peak hours in the 2031, 2036, and 2041 analysis horizons. Mode share percentages used within the Saturday analysis are summarized in Section 5.1.1. Using those mode shares and above trip rates, the trips by mode have been projected and are summarized in Table 16 below.

Table 16: Trip Generation by Mode – Saturday Peak

Travel Mode	Mode Share	SAT Peak Hour		
		In	Out	Total
Auto Driver	72%	3577	2928	6504
Transit	20%	994	813	1807
Active Transportation	5%	248	203	452
TDM	3%	149	122	271
Total	**100%**	**4968**	**4066**	**9034**

Where applicable, pass-by and diverted link trips have been accounted for. The ITE Trip Generation Manual 11th Edition Vehicle Pass-by Saturday tables have not been used as only Saturday data is only available for land use 821 (Shopping Plaza), however only one site is included in the data set. As such, the Vehicle Pass-by Saturday tables from the ITE Trip Generation Manual 3rd Edition using the same methodology applied for the weekday PM analysis have been used. As land uses 821 (Shopping Plaza) and 822 (Strip Retail Plaza) do not have pass-by tables provided, the Vehicle Pass-by table for the Saturday peak period for land use 820 (Shopping Centre) was considered. From this table, the primary trip percentage was selected to understand the number of non-pass-by and non-diverted link trips generated by the retail land uses within the subject development lands. For the residential land uses, a primary trip percentage has not been applied as they are unlikely to attract pass-by or diverted link trips. The primary trip percentage used for the retail land use in the Saturday peak period has been summarized in Table 17 as per the ITE Trip Generation Manual. The resulting reductions are shown in Table 18.

Table 17: Land Use Saturday Pass-by Rates

Land Use	Pass-by Rate
	Sat
Strip Retail Plaza	38.50%
Shopping Plaza	
Shopping Center	

Table 18: Saturday Pass-by Reductions

Landowner	Sat Peak Hour		
	In	Out	Total
Fieldgate	-138	-138	-276
River Thames	-6	-6	-12
DGB Trafalgar	-6	-6	-12
Mel-Oak North	-11	-11	-22
Trafalgar Road	-13	-13	-26
Mel-Oak	-13	-13	-26
Argo Trafalgar	-69	-69	-138
Westerkirk	-250	-250	-500
Total	**-506**	**-506**	**-1012**

Based on these vehicle primary trip reductions, the net new trip generation by mode has been developed and is shown in Table 16 below.

Table 19: Saturday Trip Generation by Mode

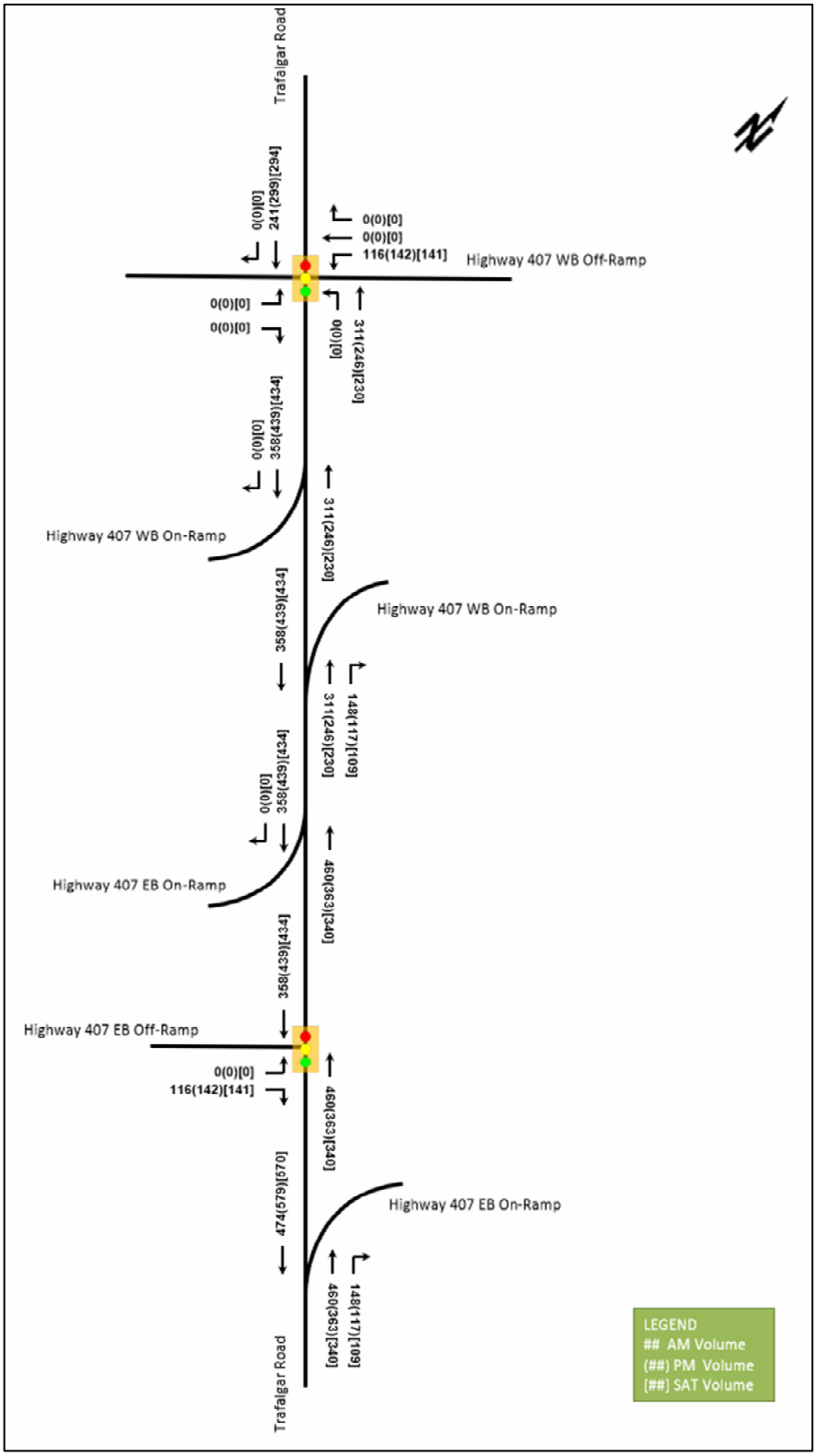
Travel Mode	Mode Share	SAT Peak Hour		
		In	Out	Total
Auto Driver	72%	3577	2928	6504
Primary Trip Reduction		*-506*	*-506*	*-1012*
Net New Auto Driver		*3071*	*2422*	*5492*
Transit	20%	994	813	1807
Active Transportation	5%	248	203	452
TDM	3%	149	122	271
Total	100%	**4462**	**3560**	**8022**

As shown above, the proposed development is anticipated to generate 5492 net new Saturday external two-way peak hour auto trips. It is noted that this is less than the net new AM and PM external two-way peak hour auto trips shown to be generated by the subject development lands. As the collected Saturday intersection turning movement count volumes are observed to be generally lower than the AM and PM turning movement count volumes at the intersections where Saturday data was collected, the AM and PM peak periods selected for analysis at all Study Area intersections are deemed appropriate. Furthermore, as Saturday peak period analysis is not typically used to design and plan for future roadway and intersection needs, while the intersections requested to be analyzed during the Saturday peak period by MTO staff have been analyzed using Synchro software within this report, no other Study Area intersections have been analyzed during the Saturday peak period.

The travel patterns for the Saturday analysis are assumed to follow the same distribution applied for the weekday AM and PM peak periods. The trip distribution derived from the aggregated Transportation Tomorrow Survey (TTS) data has been discussed and summarized in Table 13 of Section 5.1.2. The percentages of trips to each direction are kept constant between the 2031, 2036 and 2041 horizons.

Using the distribution discussed, the Saturday trips generated by the site have been assigned to the Study Area road network based on the auto driver volumes discussed above and is summarized in Figure 90.

Figure 90: Site Saturday Trip Generation



The site generated Saturday vehicle traffic has been combined with the 2031, 2036, and 2041 future background traffic volumes to estimate the future total traffic volumes. Figure 91, Figure 92, and Figure 93 illustrate the 2031, 2036, and 2041 future total Saturday traffic volumes, respectively.

Figure 91: 2031 Future Total Saturday Traffic Volumes

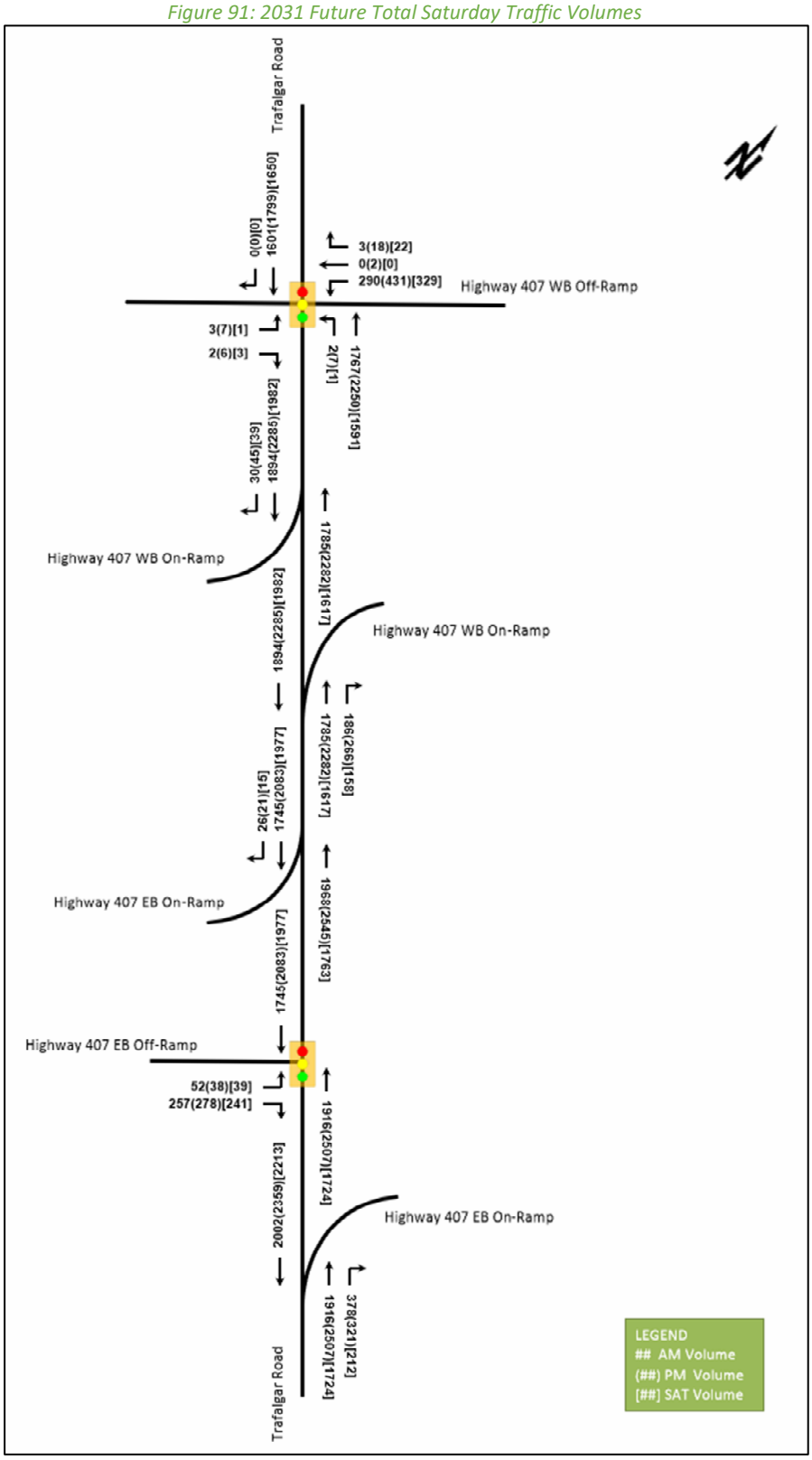


Figure 92: 2036 Future Total Saturday Traffic Volumes

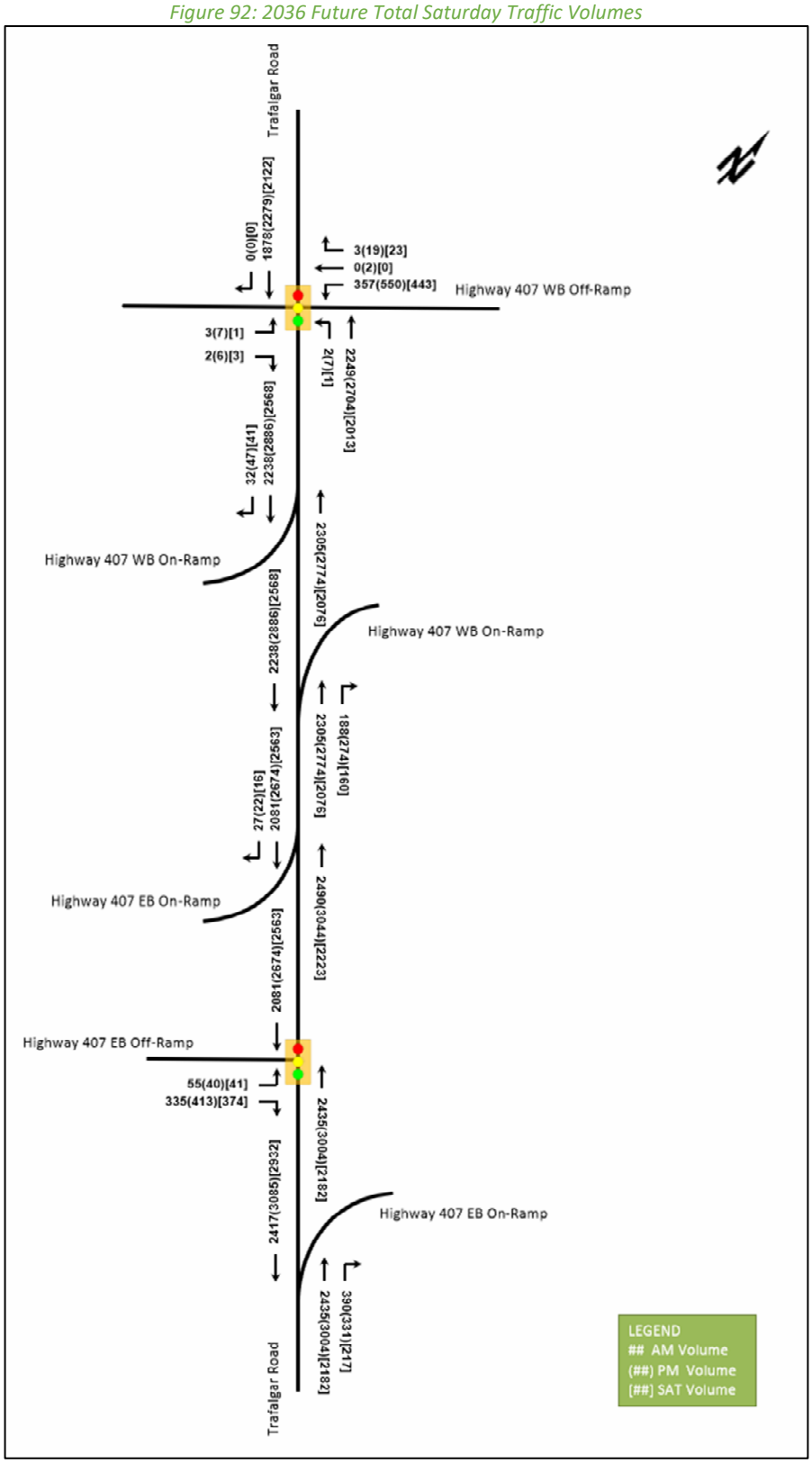
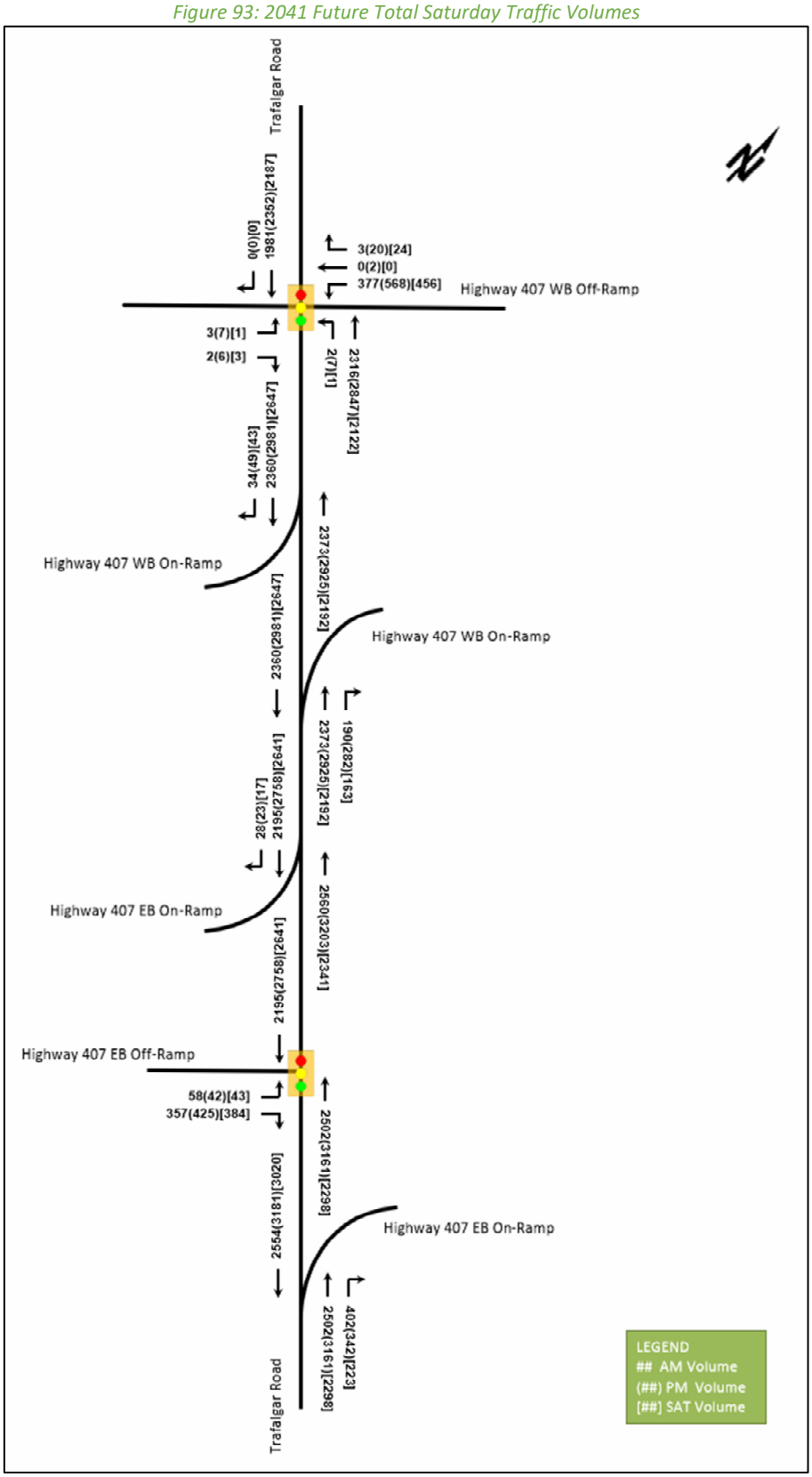


Figure 93: 2041 Future Total Saturday Traffic Volumes



6 Collector Road Network Assessment

Information on collector roads rights-of-way within the proposed development area and Study Area is summarized in Table 20 below. As Avenue/Transit Corridors and Connector/Transit Corridors function as collector roads within North Oakville, these roads have been referred to as collector roads for simplicity within this study.

Table 20: Study Area Collector Road Review

Collector Road	Direction	Secondary Plan Classification	North Oakville Urban Design and Open Space Guidelines Right-of-way (m)
Collector 1	North-South	Avenue/Transit Corridor	24
Collector 2		Avenue/Transit Corridor	24
Collector 4		Avenue/Transit Corridor	24
Collector 5		Avenue/Transit Corridor	24
Collector 6		Avenue/Transit Corridor Connector/Transit Corridor	24/19
Collector 3	East-West	Avenue/Transit Corridor	24
Settlers Road		Avenue/Transit Corridor	24
Marvin Avenue		Connector/Transit Corridor	19

As discussed above, areas within the subject development area east and west of Trafalgar Road are designated as "Urban Core Areas" within the North Oakville East Secondary Plan. Within the Urban Core Area, the Avenue/Transit corridor roadways are identified as having the following 24-metre right-of-way cross-section and the Connector/Transit corridor roadways are identified as having the following 19-metre right-of-way cross-section within the North Oakville Urban Design and Open Space Guidelines (2009). The Urban Core Avenue/Transit corridor cross-section is shown in Figure 94 and the Urban Core Connector/Transit corridor cross-section is shown in Figure 95.

Figure 94: Urban Core 24-metre Avenue/Transit Corridor Cross-section

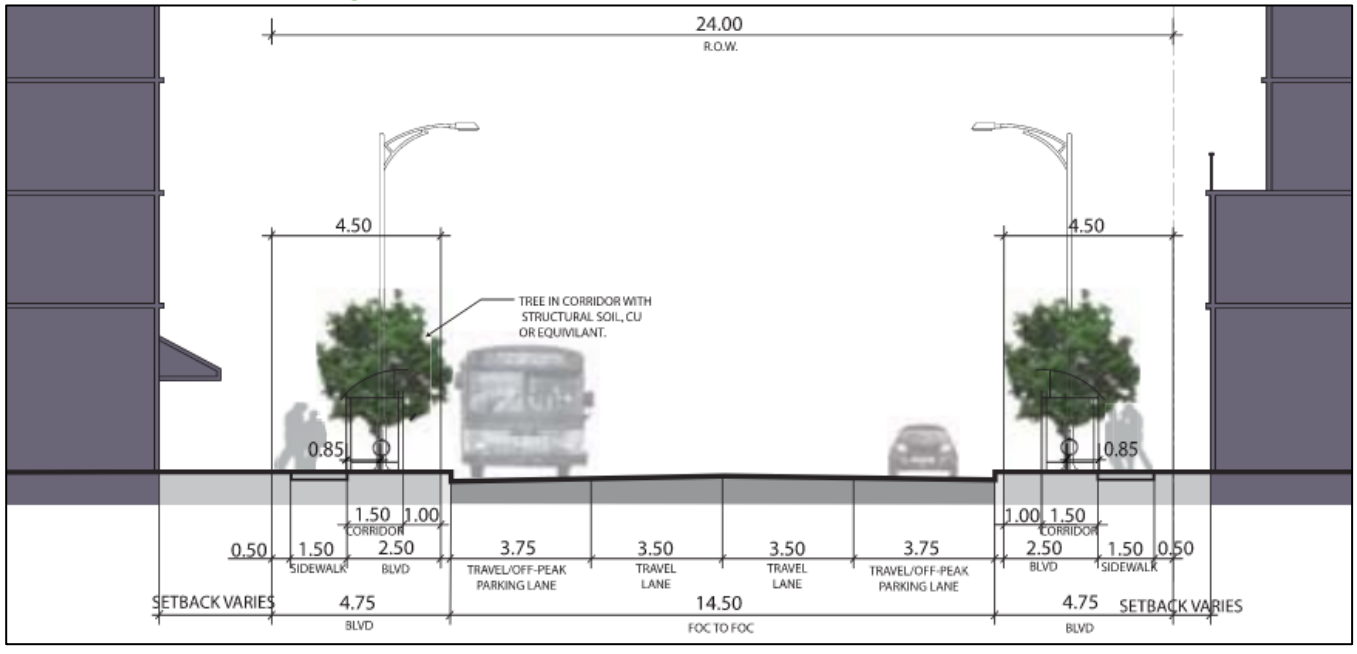
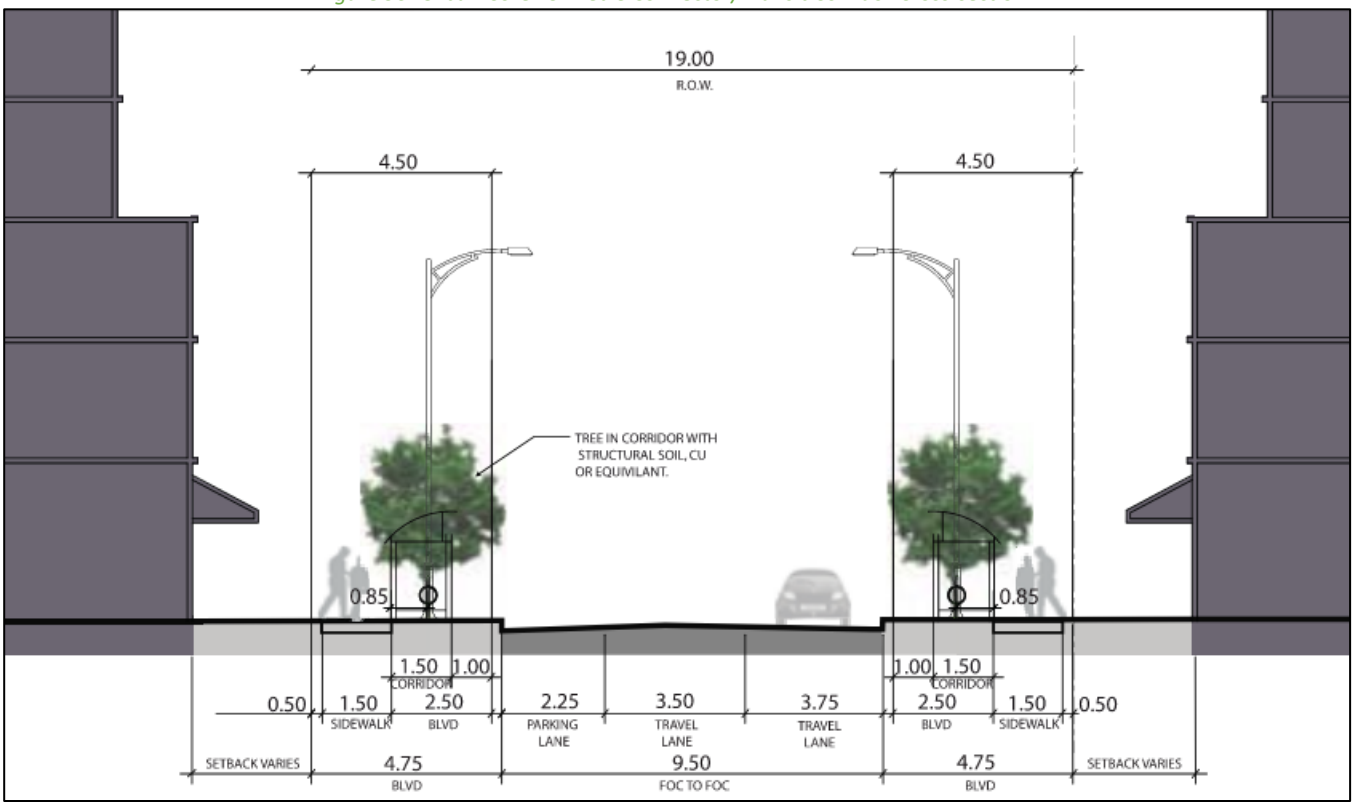
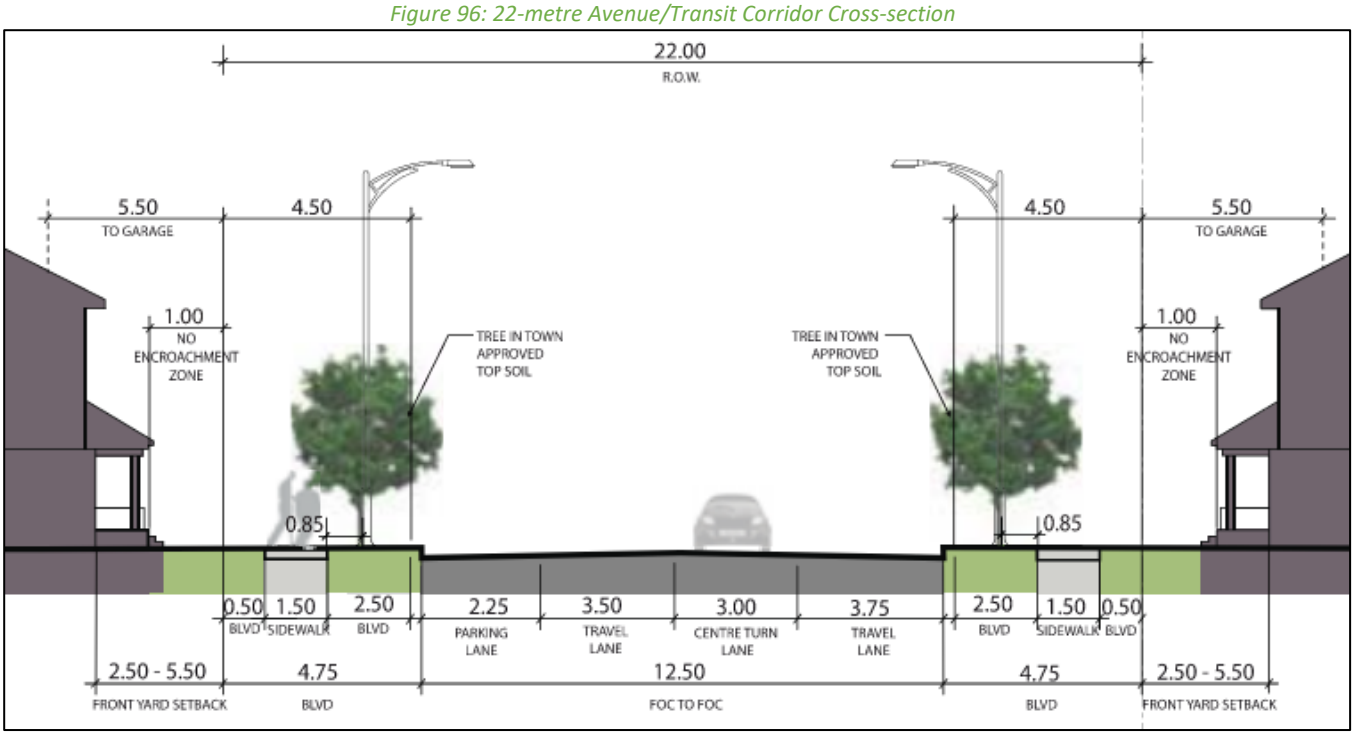


Figure 95: Urban Core 19-metre Connector/Transit Corridor Cross-section



It is noted that in other areas within North Oakville, a 19-metre cross-section is also considered for Connector/Transit Corridors, however a 22-metre cross-section is considered for Avenue/Transit Corridors as shown in Figure 96 below.

Figure 96: 22-metre Avenue/Transit Corridor Cross-section



Both the 24 and 22-metre Avenue/Transit Corridor cross-sections identify boulevards and sidewalks on both sides of the street. The 22-metre cross-section proposes one parking lane, one travel lane in each direction, and a centre turn lane. The 24-metre cross-section proposes one travel lane in each direction and one travel/off-peak parking lane in each direction. Within the Study Area, only one travel lane in each direction is anticipated to be required to support the projected 2041 volumes. The maximum projected volume and v/c ratio on each collector road in each direction of travel is presented below in Table 21.

Table 21: 2041 Projected Avenue/Transit Corridor Collector Road Volumes and V/C Ratios

Collector Road	Direction	AM(PM)							
		NB		SB		EB		WB	
		Volume	v/c	Volume	v/c	Volume	v/c	Volume	v/c
Collector 1	North-South	434 (**526**)	0.54 (0.66)	**449** (372)	0.56 (0.47)	-	-	-	-
Collector 2		123 (**266**)	0.15 (0.33)	**238** (170)	0.30 (0.21)	-	-	-	-
Collector 4		249 (**352**)	0.31 (0.44)	**417** (296)	0.52 (0.37)	-	-	-	-
Collector 5		543 (**589**)	0.68 (0.74)	224 (**384**)	0.28 (0.48)	-	-	-	-
Collector 6		153 (**219**)	0.19 (0.27)	**219** (204)	0.27 (0.26)	-	-	-	-
Collector 3	East-West	-	-	-	-	**84** (76)	0.11 (0.10)	114 (**140**)	0.14 (0.18)
Settlers Road		-	-	-	-	**462** (411)	0.58 (0.51)	**442** (414)	0.55 (0.52)

As shown above, the maximum one-way peak hour volume on the Avenue/Transit Corridors within the Study Area is 589 vehicles. Using the industry standard of 800 vehicles/lane/hour as the assumed capacity, the maximum v/c ratio on the Avenue/Transit Corridor collector roadways within the Study Area is 0.74. As such, a single travel lane in each direction along the Avenue/Transit Corridor collector roadways is considered sufficient to accommodate the projected traffic volumes along these roads. The 22-metre cross-section as shown in Figure 96 above, has therefore been applied within the Study Area instead of the 24-metre cross-section shown in Figure 94.

7 Operational Analysis

To understand the operational characteristics of the Study Area intersections, Synchro (Version 11), and Sidra (Version 10) have been used to model the Study Area intersections. The vehicle LOS for roundabouts modelled in Sidra has been based on the HCM average delay criteria.

Peak Hour Factors (PHF) have been calculated based on the existing turning movement counts and will be applied to both existing and future analysis horizons. At future intersections, a default PHF of 0.90 has been used. Peak Hour Factors can be seen in the collected traffic data shown in Appendix B.

The Heavy Vehicle percentage (HV %) has been calculated for each turning movement at the Study Area intersections. All Heavy Vehicle percentages calculated to be less than 2% were entered into the Synchro model as 2% in order to produce a conservative analysis. At intersections where no Heavy Vehicle percentage is available, 2% has been used.

Pedestrian volumes were provided for those intersections with turning movement count information in both existing and future analysis. Pedestrian volumes of 5 pedestrians/h and cycling volumes of 5 cyclists/h have been used at all new intersections in the future analysis horizons where applicable.

All other parameters have been coded using accepted best practices and default parameters where applicable.

LOS has been defined using HCM definition for LOS at signalized intersections in Table 22 and unsignalized intersections in Table 23.

Table 22: Level of Service Criteria for Signalized Intersections

Level of Service	Average Control Delay (Seconds/Vehicle)
A	≤10
B	>10 – 20
C	>20 – 35
D	>35 – 55
E	>55 – 80
F	>80

Table 23: Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (Second/Vehicle)
A	≤10
B	>10 – 15
C	>15 – 25
D	>25 – 35
E	>35 – 50
F	>50

Criteria for critical movements and critical intersections for both signalized and unsignalized intersections will be defined by both Town of Oakville and Halton Region guidelines for all Study Area intersections. Critical movements at the Highway 407 ramp terminal intersections will be defined by Ministry of Transportation Ontario guidelines.

The Town of Oakville *Terms of Reference (TOR) for Transportation Impact Studies (TIS)* and *Transportation Functional Design Studies (2009)* defines critical movements as v/c ratios of 0.85 for overall intersection operations, v/c ratios of 1.0 for individual through or turning movements, queues for individual movements that exceed available turning lane storage, and queues for through lanes that block vehicles from entering turning lanes. Critical movements at unsignalized intersections are defined as individual movements exceeding level of service (LOS) E based on average delay.

Halton Region *Transportation Impact Study Guidelines (2011)* define critical movements as v/c ratio of 0.85 or above for overall intersection operations, through movements, or shared through/turning movements, and v/c ratios of 0.95 or above for exclusive movements. Critical movements at unsignalized intersections are defined as individual movements exceeding LOS D based on average delay. Critical movements are also defined as individual movements with 95th percentile queue lengths projected to exceed available turning lane storage for signalized and unsignalized intersections.

The Ministry of Transportation Ontario *General Guidelines for the Preparation of Traffic Impact Studies (2023)* defines critical movements as v/c ratios greater than 0.85 at signalized intersections and v/c ratio greater than 0.75 at ramp terminal approaches.

Therefore, at signalized intersections, critical movements and intersections are identified using Halton Region's criteria for v/c ratios of 0.85 or above for overall intersection operations, through movements, and shared through/turning movements, and v/c ratios of 0.95 or above for exclusive movements. At unsignalized intersections, critical movements are identified as individual movements exceeding LOS D based on average delay, as per Halton Region's criteria. Critical movements for both signalized and unsignalized intersections are also identified as individual movements with queues exceeding available turning lane storage and queues for through lanes blocking vehicles from entering turning lanes, as per the Town of Oakville's guidelines. At the Highway 407 terminal ramp approaches, critical movements are defined as v/c ratios greater than 0.75. Critical movements have been noted in red in the operational analysis tables below.

Mitigation measures will be considered at over capacity movements (v/c ratios equal to or greater than 1.00, 95th percentile queues that exceed provided storage lengths, and LOS F at unsignalized intersections) identified in future horizon analysis.

7.1 2024 Existing Conditions

7.1.1 2024 Existing Intersection Configuration

The existing configurations of the Study Area intersections are illustrated in Figure 97 and Figure 98, as described in Section 0.

Figure 97: 2024 Existing Intersection Configuration – Section A

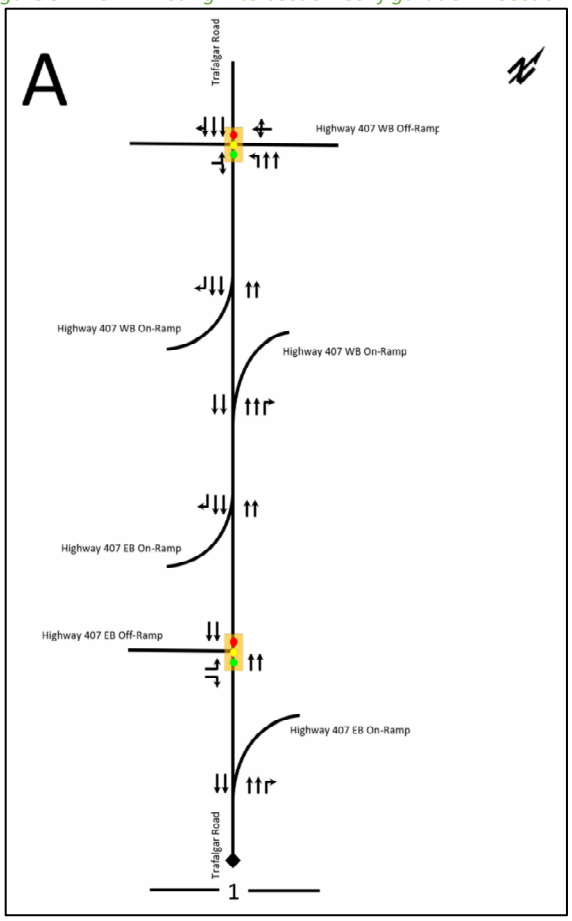
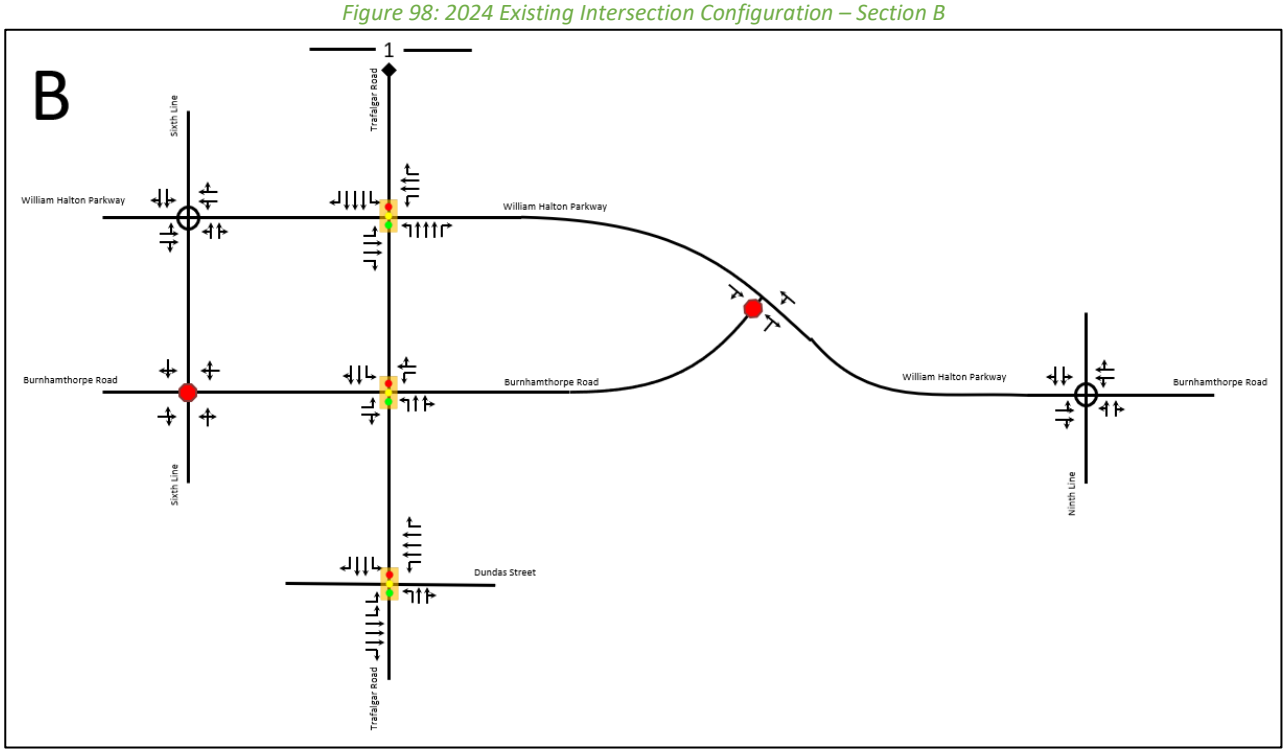


Figure 98: 2024 Existing Intersection Configuration – Section B



7.1.2 2024 Existing Conditions Operational Analysis

The existing intersection volumes have been analyzed to establish a baseline condition and determine the impact of the subject development as well as the surrounding background developments on the Study Area road network. The Study Area intersections have been designed based on aerial photos and turning lane storage lengths have been rounded to the closest five-metre. The analyzed intersection configurations are reflective of those illustrated in Figure 97 and Figure 98 above.

Table 24 summarizes the operational analysis of the 2024 existing conditions and Table 25 summarizes the 95th percentile queue lengths. Appendix F contains the 2024 existing conditions Synchro and Sidra worksheets.

Table 24: 2024 Existing Conditions Operational Analysis

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
William Halton Parkway at Trafalgar Road *(Signalized)*	EBL	D	0.40	39	D	0.38	38
	EBT	D	0.68	51	D	0.26	43
	EBR	D	0.11	42	D	0.05	41
	WBL	D	0.11	43	D	0.15	38
	WBT	D	0.22	47	D	0.55	49
	WBR	D	0.07	45	E	0.79	63
	NBL	B	0.17	15	B	0.24	16
	NBT	C	0.35	22	C	0.45	25
	NBR	B	0.01	18	B	0.02	19
	SBL	B	0.64	17	B	0.48	17
	SBT	B	0.33	19	C	0.31	22
	SBR	B	0.06	16	B	0.10	19
	Overall	**C**	**0.67**	**29**	**C**	**0.56**	**33**
Burnhamthorpe Road at Trafalgar Road *(Signalized)*	EBL	D	0.42	48	D	0.33	50
	EBT/R	E	0.70	57	D	0.59	55
	WBL	E	0.74	72	E	0.61	60
	WBT/R	D	0.33	46	D	0.44	51
	NBL	A	0.20	9	A	0.18	6
	NBT/R	A	0.40	10	A	0.49	8
	SBL	A	0.14	5	A	0.04	4
	SBT/R	A	0.41	6	A	0.31	4
	Overall	**B**	**0.48**	**16**	**B**	**0.50**	**13**
William Halton Parkway at Burnhamthorpe Road *(Unsignalized)*	EBT/R	A	0.48	0	A	0.22	0
	WBL/T	A	0.17	5	A	0.12	3
	NBL/R	D	0.57	27	B	0.26	12
	Overall	**A**	**-**	**6**	**A**	**-**	**6**

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Dundas Street at Trafalgar Road *(Signalized)*	EBL	E	0.66	59	E	0.65	60
	EBT	D	0.89	44	D	0.70	41
	EBR	C	0.18	27	C	0.11	32
	WBL	D	0.72	39	D	0.78	41
	WBT	C	0.44	32	D	0.85	47
	WBR	C	0.09	28	C	0.13	32
	NBL	E	0.86	67	D	0.76	42
	NBT/R	D	0.71	48	E	0.91	56
	SBL	D	0.65	35	D	0.71	44
	SBT	D	0.79	48	D	0.47	37
	SBR	D	0.12	35	C	0.12	33
	Overall	**D**	**0.85**	**43**	**D**	**0.85**	**45**
Sixth Line at William Halton Parkway *(Roundabout)*	EBL/T	B	0.31	10	A	0.17	6
	EBT/R	B	0.31	10	A	0.17	9
	WBL/T	A	0.18	6	A	0.33	8
	WBT/R	A	0.18	6	B	0.33	13
	NBL/T	A	0.21	9	A	0.14	6
	NBT/R	A	0.21	10	A	0.14	7
	SBL/T	B	0.65	13	A	0.29	7
	SBT/R	B	0.43	11	A	0.29	9
	Overall	**B**	**0.65**	**11**	**A**	**0.39**	**8**
Sixth Line at Burnhamthorpe Road *(Unsignalized)*	EBL/T/R	A	0.08	11	A	0.05	9
	WBL/T/R	A	0.19	10	A	0.19	9
	NBL/T/R	B	0.41	11	A	0.34	10
	SBL/T/R	A	0.28	10	A	0.32	10
	Overall	**A**	**-**	**10**	**A**	**-**	**10**
Trafalgar Road at Highway 407 WB Off-Ramp *(Signalized)*	EBL	C	0.03	25	C	0.03	22
	EBR	C	0.00	25	C	0.00	22
	WBL	C	0.38	28	C	0.41	25
	WBL/T/R	C	0.40	28	C	0.43	25
	WBR	C	0.00	25	C	0.01	22
	NBL	A	0.01	3	A	0.02	4
	NBT	A	0.40	4	A	0.65	8
	SBT/R	A	0.37	6	A	0.32	8
	Overall	**A**	**0.44**	**7**	**A**	**0.66**	**9**
Trafalgar Road at Highway 407 EB Off-Ramp *(Signalized)*	EBL	C	0.30	29	C	0.22	28
	EBR	C	0.09	27	C	0.05	27
	NBT	A	0.38	4	A	0.64	6
	SBT	A	0.44	5	A	0.40	4
	Overall	**A**	**0.42**	**6**	**A**	**0.59**	**6**

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Ninth Line at William Halton Parkway / Burnhamthorpe Road *(Roundabout)*	EBL/T	F	1.05	77	B	0.51	12
	EBT/R	F	1.05	70	B	0.51	14
	WBL/T	A	0.35	9	D	0.81	32
	WBT/R	B	0.35	13	E	0.81	36
	NBL/T	C	0.57	20	E	0.92	40
	NBT/R	C	0.57	17	C	0.92	33
	SBL/T	C	0.68	18	C	0.58	19
	SBT/R	C	0.68	16	C	0.58	21
	Overall	**D**	**1.05**	**31**	**D**	**0.92**	**27**

Table 25: 2024 Existing Conditions Queue Lengths

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
William Halton Parkway at Trafalgar Road *(Signalized)*	EBL	210	43	30
	EBT	-	94	37
	EBR	60	18	8
	WBL	160	8	18
	WBT	-	28	71
	WBR	150	14	107
	NBL	180	14	20
	NBT	-	69	93
	NBR	60	0	0
	SBL	-	49	28
	SBT	-	69	61
	SBR	-	9	13
Burnhamthorpe Road at Trafalgar Road *(Signalized)*	EBL	40	30	21
	EBT/R	-	62	45
	WBL	30	33	30
	WBT/R	-	32	36
	NBL	130	16	15
	NBT/R	-	74	92
	SBL	170	8	2
	SBT/R	-	65	38
William Halton Parkway at Burnhamthorpe Road *(Unsignalized)*	EBT/R	-	0	0
	WBL/T	-	5	3
	NBL/R	-	26	8
Dundas Street at Trafalgar Road *(Signalized)*	EBL	110	48	47
	EBT	-	#203	109
	EBR	85	25	16
	WBL	165	#65	#67
	WBT	-	75	140
	WBR	85	9	18
	NBL	120	#49	#68
	NBT/R	-	86	#160
	SBL	45	44	#48
	SBT	-	110	70
	SBR	55	17	16

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
Sixth Line at William Halton Parkway *(Roundabout)*	EBL/T	-	7	4
	EBT/R	-	7	4
	WBL/T	-	4	8
	WBT/R	-	4	10
	NBL/T	-	4	3
	NBT/R	-	4	3
	SBL/T	-	47	7
	SBT/R	-	12	7
Sixth Line at Burnhamthorpe Road *(Unsignalized)*	EBL/T/R	-	1	1
	WBL/T/R	-	3	3
	NBL/T/R	-	7	6
	SBL/T/R	-	4	5
Trafalgar Road at Highway 407 WB Off-Ramp *(Signalized)*	EBL	-	2	4
	EBR	5	0	0
	WBL	-	17	26
	WBL/T/R	-	18	27
	WBR	60	0	0
	NBL	-	1	1
	NBT	-	35	81
	SBT/R	-	38	35
Trafalgar Road at Highway 407 EB Off-Ramp *(Signalized)*	EBL	-	14	9
	EBR	875	11	9
	NBT	-	31	55
	SBT	-	37	26
Ninth Line at William Halton Parkway / Burnhamthorpe Road *(Roundabout)*	EBL/T	-	169	19
	EBT/R	-	169	19
	WBL/T	-	9	45
	WBT/R	-	9	45
	NBL/T	-	20	118
	NBT/R	-	20	118
	SBL/T	-	41	18
	SBT/R	-	41	18
Notes:	# - 95% percentile exceeds capacity m - volume for the 95th percentile queue is metered by an upstream signal			

In general, the Study Area intersections operate with acceptable LOS in both the AM and PM peak periods.

Critical movements are noted at the signalized intersection of Dundas Street at Trafalgar Road. The eastbound through movement in the AM peak period, and the westbound through and shared northbound through / right-turn movement in the PM peak period operates at a v/c ratio greater than or equal to 0.85. The overall intersection also operates at a v/c ratio greater than or equal to 0.85 in both the AM and PM peak periods. This is a likely result of the high eastbound and westbound through volumes at this intersection.

It is also noted that the 95th percentile queue length of the southbound left-turn at Dundas Street and Trafalgar Road extends beyond the available storage distance in the PM peak period and the westbound left-turn at Burnhamthorpe and Trafalgar Road extends beyond the available storage distance in the AM peak period. The northbound through at William Halton Parkway and Trafalgar Road, the eastbound through at Burnhamthorpe Road and Trafalgar Road, and the eastbound through, northbound through / right-turn, and the southbound through at Dundas Street and Trafalgar Road have queue lengths extending past adjacent turning lanes.

Critical and over capacity movements are also noted at Ninth Line at William Halton Parkway / Burnhamthorpe Road for the eastbound movements in the AM and the westbound movements in the PM peak period. This is a result of high eastbound and westbound through movements during the AM and PM peak periods respectively.

7.1.2.1 Existing Conditions Operational Analysis – Saturday Scenario

As discussed in Section 5.1.5, a Saturday peak period scenario has been considered for the Highway 407 ramp intersections at Trafalgar Road. Table 26 summarizes the operational analysis of the 2024 Saturday existing conditions and Table 27 summarizes the 95th percentile queue lengths. Appendix F contains the 2024 Saturday existing conditions Synchro worksheets.

Table 26: 2024 Existing Conditions Saturday Operational Analysis

Intersection	Mvmnt	SAT Peak Hour		
		LOS	V/C	Del. (s)
Trafalgar Road at Highway 407 WB Off-Ramp *(Signalized)*	EBL	C	0.01	25
	EBR	C	0.00	25
	WBL	C	0.37	28
	WBL/T/R	C	0.04	25
	WBR	C	0.01	25
	NBL	A	0.00	3
	NBT	A	0.37	4
	SBT/R	A	0.26	6
	Overall	**A**	**0.41**	**7**
Trafalgar Road at Highway 407 EB Off-Ramp *(Signalized)*	EBL	C	0.27	26
	EBR	C	0.02	24
	NBT	A	0.37	4
	SBT	A	0.37	4
	Overall	**A**	**0.36**	**5**

Table 27: 2024 Existing Conditions Saturday Queue Lengths

Intersection	Mvmnt	Storage Dist. (m)	SAT Q (95th)
Trafalgar Road at Highway 407 WB Off-Ramp *(Signalized)*	EBL	-	1
	EBR	5	0
	WBL	-	18
	WBL/T/R	-	8
	WBR	60	0
	NBL	-	0
	NBT	-	32
	SBT/R	-	26
Trafalgar Road at Highway 407 EB Off-Ramp *(Signalized)*	EBL	-	10
	EBR	875	6
	NBT	-	29
	SBT	-	29
Notes:	# - 95% percentile exceeds capacity		

As shown above, the selected Study Area intersections operate with acceptable LOS in the Saturday peak period. No critical or over capacity movements are noted.

7.2 Future Background Conditions

7.2.1 Future Background Intersection Control

Using the Ontario Traffic Manual (OTM) Book 12 Justification 7 methodology for examining traffic control signal warrants, the following unsignalized intersections have been reviewed:

- Burnhamthorpe Road at Sixth Line
- William Halton Parkway at Burnhamthorpe Road
- William Halton Parkway at Collector 1
- William Halton Parkway at Collector 2
- William Halton Parkway at Collector 5
- Burnhamthorpe Road at Collector 1

A summary of the traffic control signal warrant analysis for future background conditions can be found in Table 28. Traffic control warrant sheets have been included in Appendix G.

Table 28: Future Background Signal Warrant Summary

Intersection	Horizon	Warranted?
Sixth Line at Burnhamthorpe Road	2031 FB	No
	2036 FB	
	2041 FB	Yes
William Halton Parkway at Burnhamthorpe Road	2031 FB	Yes
	2036 FB	
	2041 FB	
William Halton Parkway at Collector 1	2031 FB	-
	2036 FB	Yes
	2041 FB	
William Halton Parkway at Collector 2	2031 FB	-
	2036 FB	No
	2041 FB	
William Halton Parkway at Collector 5	2031 FB	No
	2036 FB	
	2041 FB	Yes
Burnhamthorpe Road at Collector 1	2031 FB	-
	2036 FB	No
	2041 FB	

As indicated above, signals are warranted at William Halton Parkway and Burnhamthorpe Road in all future background analysis horizons. Although signal warrants are not met at Sixth Line and Burnhamthorpe Road in the 2031 future background analysis horizon, the Sixth Line Class Environmental Assessment Study (2014) report recommends signals at this intersection as discussed in Section 4.1.4. As such, both the intersections of William Halton Parkway at Burnhamthorpe Road and Sixth Line at Burnhamthorpe Road will be analyzed as signalized intersections beginning in the 2031 future background horizon. The intersection of William Halton Parkway at Collector 1 will be analyzed as a signalized intersection in the 2036 future background analysis horizon and the intersection of William Halton Parkway at Collector 5 will be analyzed as a signalized intersection in the 2041 future background analysis horizon. This is consistent with the configuration analyzed in the Infrastructure Ontario TIS discussed in Section 4.1.8.6. Signal warrants at the intersections of William Halton Parkway at Collector 2 and Burnhamthorpe Road at Collector 1 are not met in any future analysis horizon and as such, signals have not been considered at these intersections.

At applicable signalized intersections, Amber Clearance, All Red Clearance, Walk, and Flash Don't Walk times were calculated using the methodology provided in OTM Book 12-Traffic Signals. A walk time of 7 seconds was assumed, and a pedestrian walking speed of 1.2 m/s was used. The minimum initial values for the Study Area intersections were taken from OTM Book 12.

Intersection methods of control for all other existing intersections will be consistent with those considered in the existing conditions analysis.

7.2.2 Future Background Intersection Design

As discussed in Section 4.1, road widening and improvement projects assumed to be completed by 2031 include the widening of Trafalgar Road from four to six lanes south of Highway 407, the widening of Burnhamthorpe Road in the Urban Core area from two to four lanes, the widening of Sixth Line from two to four lanes, and the widening of Ninth Line from two to four lanes. The configurations of these corridors have been coded into Synchro to be consistent with the preliminary designs outlined within the New North Oakville Transportation Corridor ESR (2010), Trafalgar Road Improvements ESR (2015), Burnhamthorpe Road Character Study ESR (2014), Sixth Line ESR (2014), and Ninth Line Transportation Corridor Improvements ESR (2020), as well as the detailed design of Trafalgar Road, where applicable. Where more than one configuration is available for an intersection, the drawings from the most recent report have typically been referenced for the intersection design. The intersections of Trafalgar Road at William Halton Parkway and Dundas Street have been coded based on the configurations presented in the Trafalgar Road Improvements ESR and Detailed Design Drawings. The Burnhamthorpe Road Character Study ESR has been used to inform the intersection configurations of Burnhamthorpe Road at Sixth Line, Trafalgar Road, and William Halton Parkway. It is noted that the recent Trafalgar Road detailed design drawings do not integrate the Burnhamthorpe Road widening as shown in the Burnhamthorpe Road Character Study ESR. As such, at the intersection of Trafalgar Road and Burnhamthorpe Road, the north and south legs have been modelled using the approach configurations shown in the Trafalgar Road detailed design drawings and the east and west legs have been modelled using the Burnhamthorpe Road Character Study ESR.

It is additionally noted that the North Oakville East Secondary Plan indicates that the intersection of William Halton Parkway and Burnhamthorpe Road is planned to be a four-legged intersection. However, as no information regarding the build-out of the north leg of the intersection is available, it is assumed that William Halton Parkway and Burnhamthorpe Road will operate as a three-legged intersection for all future analysis horizons.

Along Dundas Street and Trafalgar Road, a lane utilization factor of 0.80 has been applied in accordance with the Halton Region Transportation Impact Study Guidelines to account for the capacity reduction on these roads as a result of the implementation of the outer HOV lanes in the 2031 and 2036 future background horizons. In the 2041 future background horizon, the HOV lanes are expected to be converted to BRT lanes along Dundas Street and Trafalgar Road. As a result, Dundas Street and Trafalgar Road will be reduced and modelled as a four-lane road in the 2041 future background horizon. As no documents are currently available to indicate the configurations of Trafalgar Road and Dundas Street with the implementation of BRT lanes, it has been assumed that the BRT lanes will be located on the inside of general travel lanes. As such, all left-turn movement signal timing settings have been set to protected along Trafalgar Road and Dundas Street.

The need for auxiliary right-turn lanes along arterial roads have been assessed using the criteria presented in the Halton Region Access Management Guidelines. These guidelines indicate that a right-turn lane may be warranted at accesses that have sufficient volume of decelerating vehicles, have right turn volume at signalized intersections of 10% of the through traffic volume, or have constrained sight distance approaching the access. At unsignalized

intersections on arterial roads, a vehicle threshold of 60 vehicles during the peak period has been used to determine the need for an auxiliary right-turn lane. As such, right-turn lanes have been added to movements satisfying these conditions within all future background horizons.

All other applicable future background intersections have been modelled with intersection configurations and signal timing plans that are consistent with those used in the existing conditions operational analysis. Signal timing split have been optimized between each analysis horizon.

It is noted that the available storage length for auxiliary turning lanes has been shortened where necessary to fit within the new link distance in cases where the original storage length would otherwise exceed the available space.

The resulting intersection configurations analyzed in the initial 2031 and 2036 future background horizon are summarized below in Figure 99, Figure 100, Figure 101, Figure 102, Figure 103, and Figure 104.

Figure 99: 2031 Future Background Base Intersection Configuration – Section A

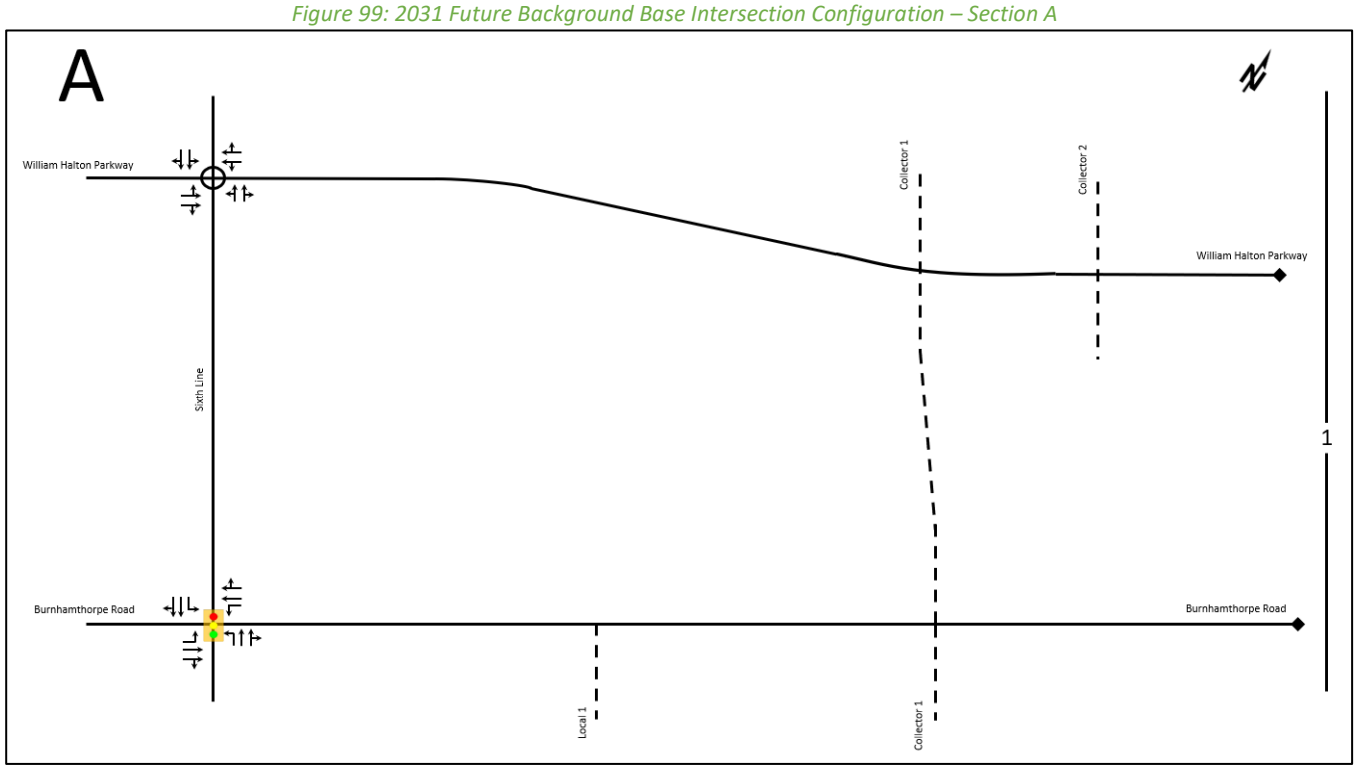


Figure 100: 2036 Future Background Base Intersection Configuration – Section A

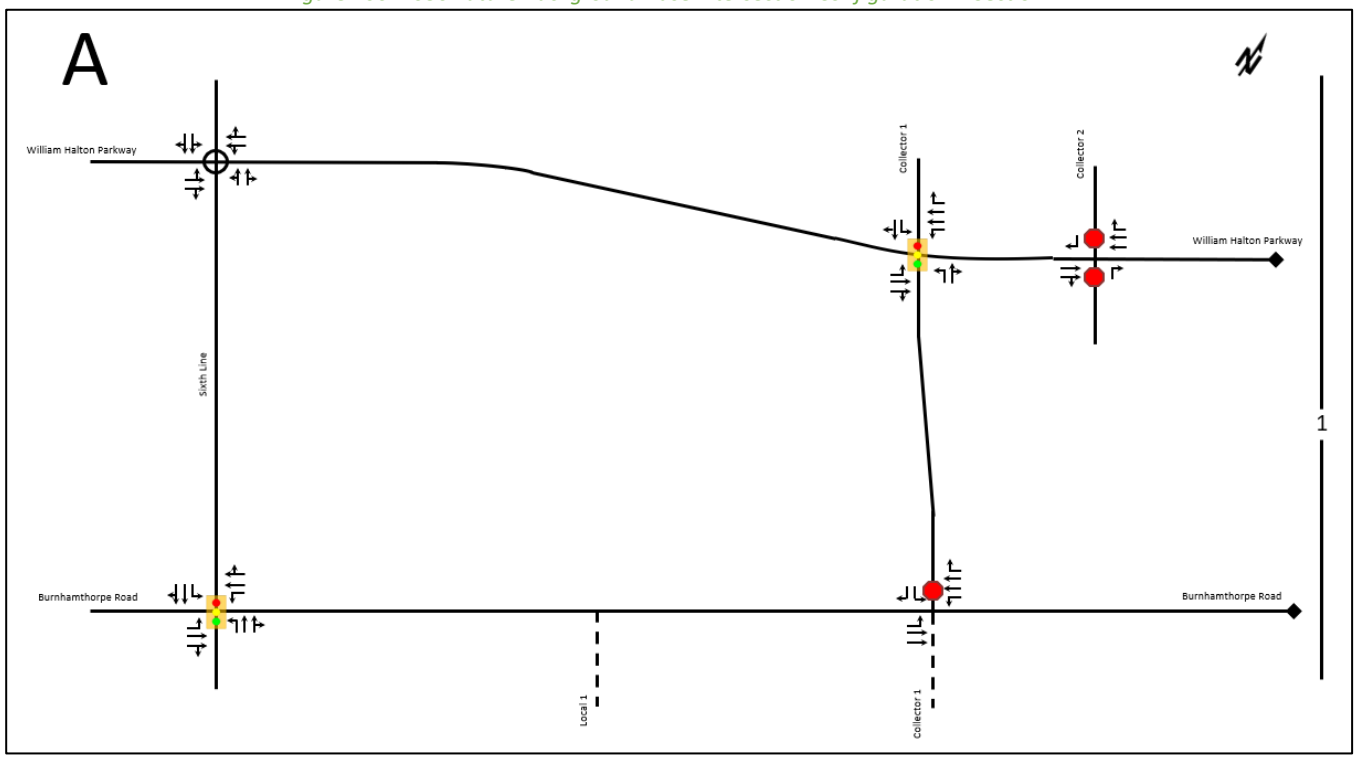


Figure 101: 2031 Future Background Base Intersection Configuration – Section B

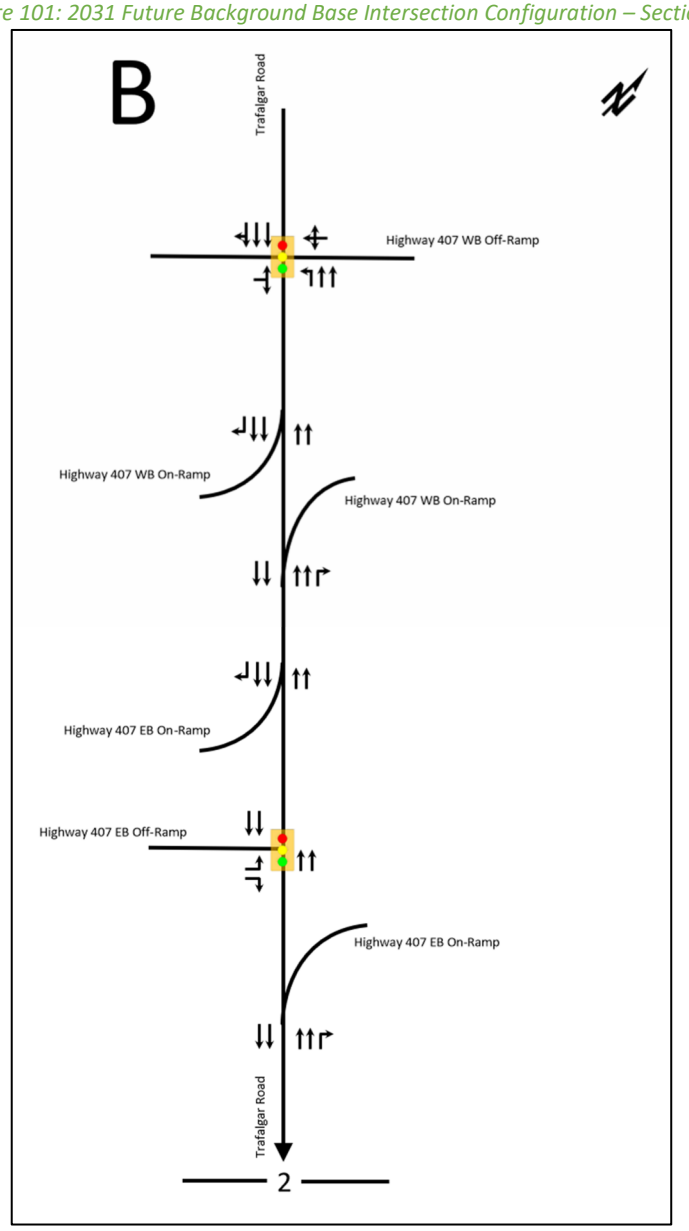


Figure 102: 2031 Future Background Base Intersection Configuration – Section C

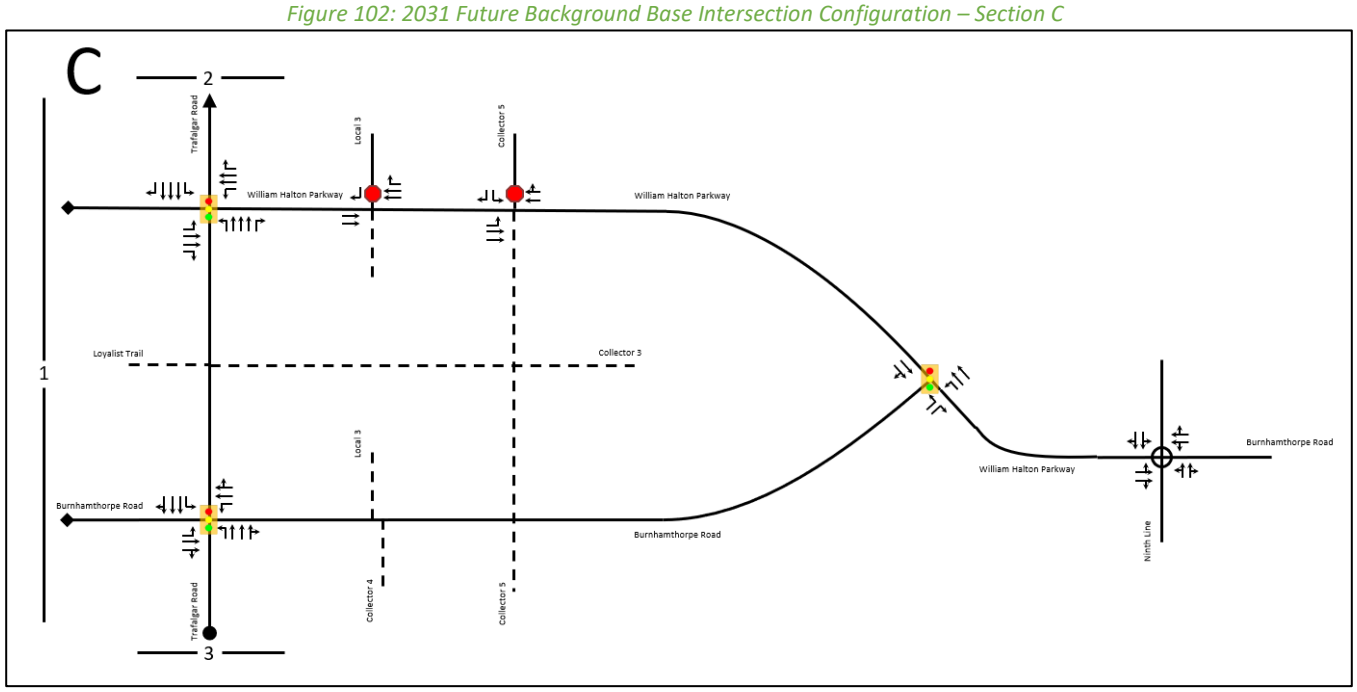


Figure 103: 2036 Future Background Base Intersection Configuration – Section C

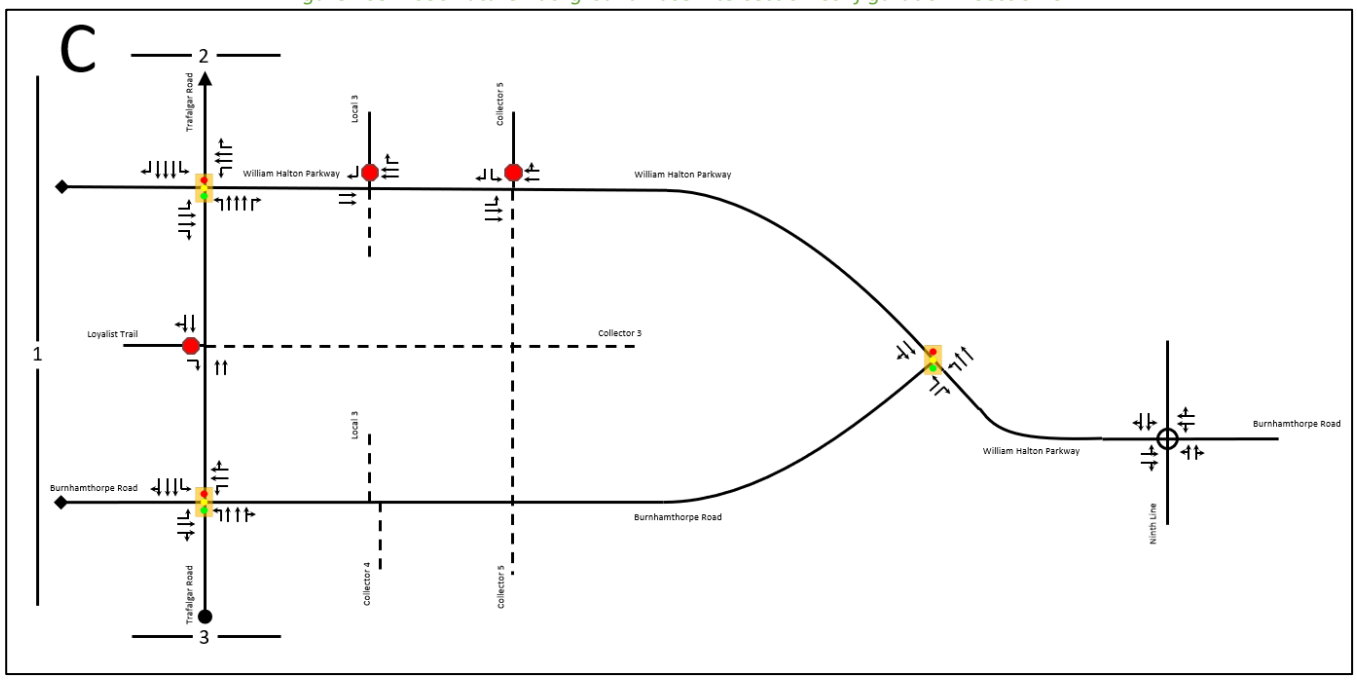
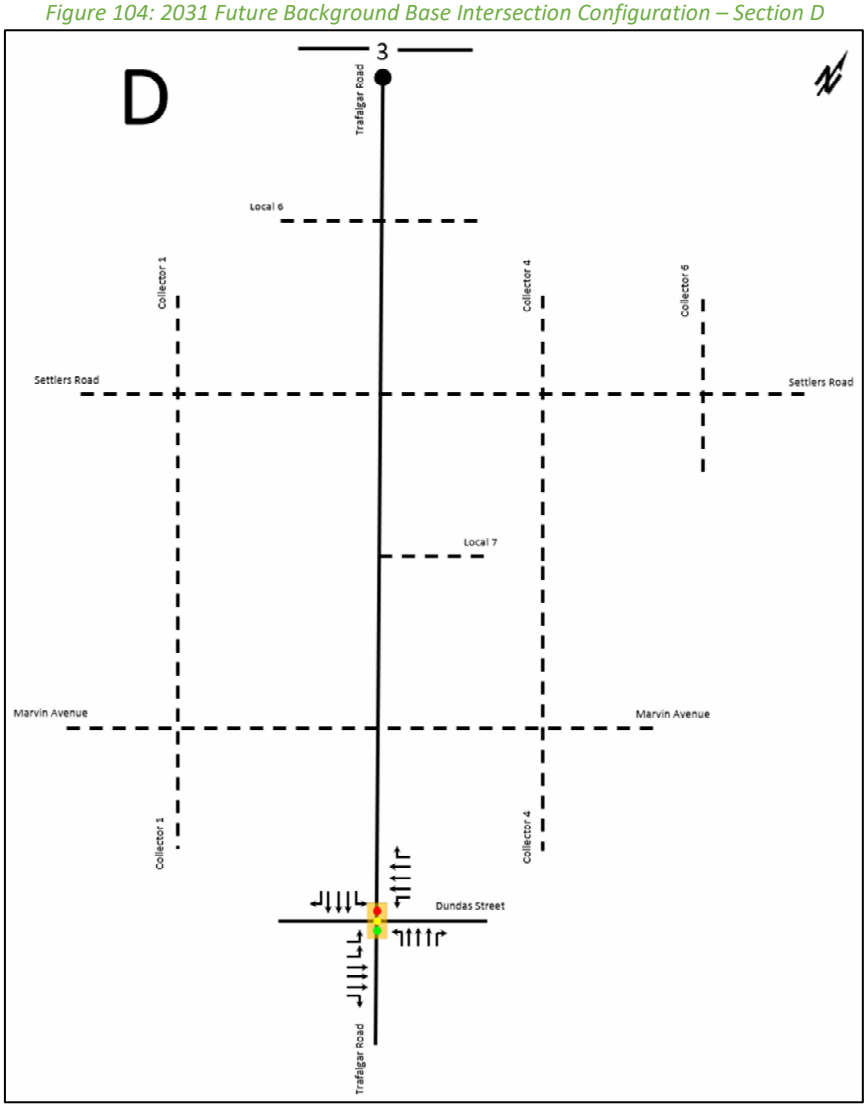


Figure 104: 2031 Future Background Base Intersection Configuration – Section D



7.2.3 2031 Future Background Conditions Operational Analysis

The 2031 future background conditions have been examined to determine the future traffic conditions without the addition of the proposed development.

Table 29 summarizes the operational analysis and Table 30 summarizes the queue lengths of 2031 future background conditions. Synchro and Sidra worksheets have been included in Appendix H.

Table 29: 2031 Future Background Conditions Operational Analysis

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
William Halton Parkway at Trafalgar Road *(Signalized)*	EBL	E	0.91	68	F	1.16	163
	EBT	E	1.01	76	D	0.57	44
	EBR	D	0.31	36	D	0.06	36
	WBL	F	1.05	124	D	0.85	50
	WBT	D	0.44	37	D	0.81	47
	WBR	C	0.25	35	F	1.32	205
	NBL	C	0.42	32	D	0.66	38
	NBT	E	1.01	73	F	1.05	89
	NBR	D	0.26	37	D	0.26	39
	SBL	F	1.49	273	F	1.54	303
	SBT	C	0.56	28	D	0.67	38
	SBR	C	0.11	22	C	0.28	31
	Overall	**E**	**1.33**	**76**	**F**	**1.48**	**97**
Mitigation: AM & PM EB, WB, SB double left-turn lanes, EBL storage of 80 m, WBR storage of 205 m, WBL storage of 60 m, NBL storage of 90 m, SBL storage of 140 m, signal timing optimization							
William Halton Parkway at Trafalgar Road (Signalized)	*EBL*	*F*	*0.97*	*108*	*F*	*1.08*	*158*
	EBT	*E*	*0.91*	*56*	*D*	*0.52*	*39*
	EBR	*C*	*0.29*	*35*	*C*	*0.06*	*33*
	WBL	*F*	*0.93*	*115*	*E*	*0.74*	*68*
	WBT	*D*	*0.44*	*40*	*D*	*0.72*	*39*
	WBR	*D*	*0.34*	*39*	*F*	*1.29*	*185*
	NBL	*E*	*0.59*	*69*	*F*	*0.91*	*107*
	NBT	*E*	*0.98*	*70*	*F*	*1.03*	*81*
	NBR	*D*	*0.22*	*38*	*D*	*0.30*	*39*
	SBL	*F*	*1.03*	*106*	*F*	*1.35*	*236*
	SBT	*D*	*0.64*	*37*	*D*	*0.77*	*46*
	SBR	*C*	*0.12*	*28*	*D*	*0.35*	*37*
	Overall	***E***	***0.98***	***60***	***F***	***1.18***	***89***
Burnhamthorpe Road at Trafalgar Road *(Signalized)*	EBL	E	0.73	61	E	0.68	65
	EBT/R	D	0.62	48	D	0.50	49
	WBL	F	0.82	84	E	0.74	71
	WBT/R	D	0.33	44	D	0.55	50
	NBL	D	0.73	40	C	0.55	21
	NBT/R	B	0.54	14	B	0.56	11
	SBL	A	0.41	9	A	0.29	7
	SBT/R	A	0.44	7	A	0.41	5
	Overall	**C**	**0.73**	**20**	**B**	**0.58**	**17**

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
William Halton Parkway at Burnhamthorpe Road *(Signalized)*	EBT/R	C	0.91	34	C	0.66	26
	WBL	E	0.94	62	B	0.73	19
	WBT	A	0.32	10	B	0.77	17
	NBL	A	0.00	0	A	0.00	0
	NBR	C	0.54	31	C	0.22	22
	Overall	**C**	**0.83**	**30**	**B**	**0.60**	**20**
Dundas Street at Trafalgar Road *(Signalized)*	EBL	F	0.98	99	F	1.23	192
	EBT	F	1.29	175	F	1.06	81
	EBR	C	0.26	29	C	0.18	29
	WBL	F	1.40	243	F	1.51	292
	WBT	D	0.85	45	F	1.13	107
	WBR	C	0.27	32	C	0.32	31
	NBL	F	1.21	172	F	1.39	236
	NBT	D	0.59	38	D	0.86	47
	NBR	C	0.10	32	C	0.27	33
	SBL	F	1.44	260	F	1.61	332
	SBT	D	0.86	48	D	0.60	38
	SBR	C	0.18	33	C	0.27	33
	Overall	**F**	**1.38**	**103**	**F**	**1.55**	**99**
Mitigation: AM & PM WB, NB, SB double left-turn lanes, WBL storage of 90 m, NBL storage of 90 m, SBL storage of 100 m, signal timing optimization							
Dundas Street at Trafalgar Road (Signalized)	*EBL*	*F*	*1.24*	*191*	*F*	*1.23*	*192*
	EBT	*F*	*1.26*	*163*	*E*	*1.04*	*73*
	EBR	*C*	*0.26*	*28*	*C*	*0.18*	*28*
	WBL	*F*	*1.11*	*152*	*F*	*1.22*	*190*
	WBT	*D*	*0.80*	*41*	*F*	*1.13*	*107*
	WBR	*C*	*0.26*	*29*	*C*	*0.32*	*31*
	NBL	*F*	*0.96*	*111*	*F*	*1.35*	*245*
	NBT	*D*	*0.59*	*38*	*D*	*0.86*	*47*
	NBR	*C*	*0.10*	*32*	*C*	*0.27*	*33*
	SBL	*F*	*1.51*	*316*	*F*	*1.22*	*190*
	SBT	*D*	*0.86*	*48*	*D*	*0.60*	*38*
	SBR	*C*	*0.19*	*33*	*C*	*0.30*	*34*
	Overall	***F***	***1.15***	***101***	***F***	***1.05***	***89***
Sixth Line at William Halton Parkway *(Roundabout)*	EBL/T	F	0.94	52	C	0.60	17
	EBT/R	F	0.94	51	C	0.60	16
	WBL/T	B	0.49	12	E	0.93	40
	WBT/R	B	0.49	12	E	0.93	40
	NBL/T	E	0.70	37	B	0.34	12
	NBT/R	E	0.70	37	B	0.34	12
	SBL/T	F	1.10	84	D	0.75	29
	SBT/R	D	0.80	26	D	0.75	28
	Overall	**E**	**1.10**	**44**	**D**	**0.93**	**28**

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Mitigation: AM & PM channelized EB and SB right turn lane							
Sixth Line at William Halton Parkway (Roundabout)	*EBL/T*	*E*	*0.84*	*37*	*B*	*0.54*	*15*
	EBT	*E*	*0.84*	*36*	*B*	*0.54*	*14*
	EBR	*A*	*0.06*	*3*	*A*	*0.04*	*3*
	WBL/T	*B*	*0.49*	*12*	*E*	*0.93*	*40*
	WBT/R	*B*	*0.49*	*12*	*E*	*0.93*	*40*
	NBL/T	*E*	*0.70*	*37*	*B*	*0.34*	*12*
	NBT/R	*E*	*0.70*	*37*	*B*	*0.34*	*12*
	SBL/T	*F*	*1.10*	*84*	*B*	*0.48*	*15*
	SBT	*A*	*0.28*	*9*	*B*	*0.46*	*15*
	SBR	*A*	*0.19*	*4*	*A*	*0.16*	*4*
	Overall	***E***	***1.10***	***36***	***C***	***0.93***	***24***
Sixth Line at Burnhamthorpe Road *(Signalized)*	EBL	C	0.31	27	C	0.17	23
	EBT/R	C	0.24	26	C	0.16	23
	WBL	C	0.61	33	C	0.52	27
	WBT/R	C	0.32	27	C	0.34	24
	NBL	A	0.37	8	A	0.21	6
	NBT/R	A	0.32	7	A	0.21	6
	SBL	A	0.19	7	A	0.11	6
	SBT/R	A	0.23	6	A	0.28	6
	Overall	**B**	**0.42**	**13**	**B**	**0.34**	**12**
Trafalgar Road at Highway 407 WB Off-Ramp *(Signalized)*	EBL	C	0.02	26	C	0.05	33
	EBR	C	0.00	25	C	0.00	32
	WBL	C	0.43	28	D	0.60	40
	WBL/T/R	C	0.45	29	D	0.62	41
	WBR	C	0.00	25	C	0.01	32
	NBL	A	0.02	5	A	0.04	5
	NBT	A	0.75	10	B	0.85	13
	SBT/R	A	0.54	9	A	0.49	9
	Overall	**B**	**0.74**	**11**	**B**	**0.85**	**14**
Trafalgar Road at Highway 407 EB Off-Ramp *(Signalized)*	EBL	C	0.19	24	C	0.13	24
	EBR	C	0.57	29	C	0.60	31
	NBT	B	0.77	12	D	1.03	40
	SBT	B	0.73	11	B	0.80	13
	Overall	**B**	**0.73**	**12**	**C**	**0.93**	**28**
Mitigation: PM cycle length extended to 120 s, signal optimization							
Trafalgar Road at Highway 407 EB Off-Ramp (Signalized)	*EBL*	-	-	-	*D*	*0.20*	*47*
	EBR	-	-	-	*E*	*0.70*	*62*
	NBT	-	-	-	*B*	*0.85*	*12*
	SBT	-	-	-	*A*	*0.66*	*7*
	Overall	**-**	**-**	**-**	***B***	***0.83***	***12***

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Ninth Line at William Halton Parkway / Burnhamthorpe Road *(Roundabout)*	EBL/T	F	2.02	484	F	1.11	90
	EBT/R	F	2.02	425	F	1.11	73
	WBL/T	C	0.69	19	F	1.37	195
	WBT/R	C	0.69	19	F	1.37	195
	NBL/T	C	0.62	24	F	1.64	324
	NBT/R	C	0.62	25	F	1.64	324
	SBL/T	F	0.99	64	E	0.81	43
	SBT/R	F	0.99	63	E	0.81	41
	Overall	**F**	**2.02**	**175**	**F**	**1.64**	**178**
Mitigation: AM & PM channelized EB and SB right turn lane							
Ninth Line at William Halton Parkway / Burnhamthorpe Road (Roundabout)	*EBL/T*	*F*	*1.36*	*191*	*E*	*0.93*	*42*
	EBT	*F*	*1.36*	*135*	*E*	*0.93*	*36*
	EBR	*A*	*0.21*	*6*	*A*	*0.12*	*4*
	WBL/T	*C*	*0.71*	*20*	*F*	*1.34*	*181*
	WBT/R	*C*	*0.71*	*20*	*F*	*1.34*	*181*
	NBL/T	*F*	*0.86*	*57*	*F*	*1.73*	*367*
	NBT/R	*F*	*0.86*	*56*	*F*	*1.73*	*368*
	SBL/T	*B*	*0.44*	*15*	*D*	*0.67*	*30*
	SBT	*F*	*1.33*	*181*	*D*	*0.67*	*29*
	SBR	*A*	*0.05*	*3*	*A*	*0.06*	*4*
	Overall	***F***	***1.36***	***86***	***F***	***1.73***	***174***
Local 3 at William Halton Parkway *(Unsignalized)*	EBT	A	0.56	0	A	0.40	0
	WBT	A	0.22	0	A	0.53	0
	WBR	A	0.00	0	A	0.01	0
	SBR	C	0.44	15	F	1.51	281
	Overall	**B**	**-**	**1**	**D**	**-**	**32**
Mitigation to William Halton Parkway at Trafalgar Road							
Local 3 at William Halton Parkway (Unsignalized)	*EBT*	*A*	*0.56*	*0*	*A*	*0.40*	*0*
	WBT	*A*	*0.22*	*0*	*A*	*0.53*	*0*
	WBR	*A*	*0.22*	*0*	*A*	*0.91*	*0*
	SBR	*B*	*0.40*	*15*	*C*	*0.71*	*25*
	Overall	***B***	**-**	***1***	***D***	**-**	***3***
Collector 5 at William Halton Parkway *(Unsignalized)*	EBL	A	0.57	0	F	1.50	0
	EBT	A	0.40	0	A	0.27	0
	WBT	A	0.24	0	A	0.65	0
	WBT/R	A	0.13	0	A	0.33	0
	SBL	F	4.28	Err	F	3.57	Err
	SBR	A	0.21	12	E	0.00	0
	Overall	**B**	**-**	**202**	**E**	**-**	**613**
Mitigation: AM & PM intersection signalization** with **120 s cycle length, signal timing optimization							
Collector 5 at William Halton Parkway (Signalized)	*EBL*	*C*	*0.89*	*23*	*F*	*1.13*	*115*
	EBT	*A*	*0.49*	*6*	*A*	*0.28*	*4*
	WBT/R	*A*	*0.23*	*3*	*D*	*0.96*	*40*
	SBL	*D*	*0.26*	*43*	*D*	*0.38*	*42*
	SBR	*D*	*0.09*	*41*	*D*	*0.14*	*40*
	Overall	***B***	***0.81***	***10***	***D***	***1.05***	***45***

Table 30: 2031 Future Background Conditions Queue Lengths

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
William Halton Parkway at Trafalgar Road *(Signalized)*	EBL	190	#94	#85
	EBT	-	#194	91
	EBR	60	44	2
	WBL	160	#70	#87
	WBT	-	67	154
	WBR	150	23	#331
	NBL	60	18	38
	NBT	-	#177	#207
	NBR	55	35	37
	SBL	45	#258	#249
	SBT	-	102	131
	SBR	55	15	40
Mitigation: AM & PM EB, WB, SB double left-turn lanes, EBL storage of 80 m, WBR storage of 205 m, WBL storage of 60 m, NBL storage of 90 m, SBL storage of 140 m, signal timing optimization				
William Halton Parkway at Trafalgar Road (Signalized)	*EBL*	*80*	*#69*	*#54*
	EBT	*-*	*#188*	*89*
	EBR	*60*	*43*	*8*
	WBL	*60*	*#45*	*53*
	WBT	*-*	*71*	*143*
	WBR	*215*	*41*	*#351*
	NBL	*90*	*39*	*#81*
	NBT	*-*	*#185*	*#204*
	NBR	*55*	*31*	*45*
	SBL	*140*	*#126*	*#129*
	SBT	*-*	*122*	*137*
	SBR	*55*	*19*	*53*
Burnhamthorpe Road at Trafalgar Road *(Signalized)*	EBL	100	48	33
	EBT/R	-	50	36
	WBL	120	37	36
	WBT/R	-	28	40
	NBL	130	#63	#46
	NBT/R	-	116	114
	SBL	170	13	7
	SBT/R	-	76	60
William Halton Parkway at Burnhamthorpe Road *(Signalized)*	EBT/R	-	#157	82
	WBL	50	#72	45
	WBT	-	37	118
	NBL	30	0	0
	NBR	-	59	3
Mitigation: WBL storage of 100 m				
William Halton Parkway at Burnhamthorpe Road (Signalized)	*EBT/R*	*-*	*#157*	*82*
	WBL	*100*	*#72*	*45*
	WBT	*-*	*37*	*118*
	NBL	*30*	*0*	*0*
	NBR	*-*	*59*	*3*

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
Dundas Street at Trafalgar Road *(Signalized)*	EBL	110	#86	#84
	EBT	-	#327	#233
	EBR	85	37	25
	WBL	165	#135	#147
	WBT	-	146	#259
	WBR	85	37	46
	NBL	120	#91	#134
	NBT	-	88	144
	NBR	50	16	38
	SBL	50	#141	#142
	SBT		139	93
	SBR	65	25	37
Mitigation: AM & PM WB, NB, SB double left-turn lanes, WBL storage of 90 m, NBL storage of 90 m, SBL storage of 100 m, signal timing optimization				
Dundas Street at Trafalgar Road (Signalized)	*EBL*	*110*	*#97*	*#84*
	EBT	*-*	*#323*	*#229*
	EBR	*85*	*36*	*24*
	WBL	*90*	*#73*	*#77*
	WBT	*-*	*140*	*#259*
	WBR	*85*	*35*	*45*
	NBL	*90*	*#50*	*#84*
	NBT	*-*	*88*	*144*
	NBR	*50*	*16*	*38*
	SBL	*100*	*#86*	*#73*
	SBT	*-*	*139*	*93*
	SBR	*65*	*26*	*42*
Sixth Line at William Halton Parkway *(Roundabout)*	EBL/T	-	80	25
	EBT/R	-	80	25
	WBL/T	-	18	151
	WBT/R	-	18	151
	NBL/T	-	21	8
	NBT/R	-	21	8
	SBL/T	-	275	34
	SBT/R	-	61	34
Mitigation: AM & PM channelized EB and SB right turn lane				
Sixth Line at William Halton Parkway (Roundabout)	*EBL/T*	*-*	*49*	*20*
	EBT	*-*	*49*	*20*
	EBR	*-*	*0*	*0*
	WBL/T	*-*	*18*	*151*
	WBT/R	*-*	*18*	*151*
	NBL/T	*-*	*21*	*8*
	NBT/R	*-*	*21*	*8*
	SBL/T	*-*	*275*	*13*
	SBT	*-*	*6*	*13*
	SBR	*-*	*0*	*0*

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
Sixth Line at Burnhamthorpe Road *(Signalized)*	EBL	55	18	11
	EBT/R	-	17	12
	WBL	40	33	28
	WBT/R	-	22	21
	NBL	30	30	13
	NBT/R	-	35	18
	SBL	30	12	8
	SBT/R	-	25	28
Trafalgar Road at Highway 407 WB Off-Ramp *(Signalized)*	EBL	-	3	5
	EBR	5	0	0
	WBL	-	30	49
	WBL/T/R	-	31	50
	WBR	60	0	0
	NBL	-	1	2
	NBT	-	111	205
	SBT/R	-	71	79
Trafalgar Road at Highway 407 EB Off-Ramp *(Signalized)*	EBL	-	15	11
	EBR	875	32	32
	NBT	-	118	#242
	SBT	-	106	#138
Mitigation: PM cycle length extended to 120 s, signal optimization				
Trafalgar Road at Highway 407 EB Off-Ramp (Signalized)	*EBL*	-	-	*19*
	EBR	*875*	-	*44*
	NBT	-	-	*224*
	SBT	-	-	*119*
Ninth Line at William Halton Parkway / Burnhamthorpe Road *(Roundabout)*	EBL/T	-	1228	292
	EBT/R	-	1228	292
	WBL/T	-	40	596
	WBT/R	-	40	596
	NBL/T	-	22	721
	NBT/R	-	22	721
	SBL/T	-	110	31
	SBT/R	-	113	31
Mitigation: AM & PM channelized EB and SB right turn lane				
Ninth Line at William Halton Parkway / Burnhamthorpe Road (Roundabout)	*EBL/T*	-	*529*	*116*
	EBT	-	*529*	*116*
	EBR	-	*0*	*0*
	WBL/T	-	*41*	*566*
	WBT/R	-	*41*	*566*
	NBL/T	-	*38*	*781*
	NBT/R	-	*38*	*781*
	SBL/T	-	*12*	*20*
	SBT	-	*438*	*20*
	SBR	-	*0*	*0*
Local 3 at William Halton Parkway *(Unsignalized)*	EBT	-	0	0
	WBT	-	0	0
	WBT/R	-	0	0
	SBR	-	17	181

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
Mitigation to William Halton Parkway at Trafalgar Road				
Local 3 at William Halton Parkway (Unsignalized)	*EBT*	-	*0*	*0*
	WBT	-	*0*	*0*
	WBT/R	-	*0*	*0*
	SBR	-	*15*	*43*
Collector 5 at William Halton Parkway *(Unsignalized)*	EBL	30	28	240
	EBT	-	0	0
	WBT	-	0	0
	WBT/R	-	0	0
	SBL	30	Err	Err
	SBR	-	6	35
Mitigation: AM & PM intersection signalization** with **120 s cycle length, signal timing optimization				
Collector 5 at William Halton Parkway (Signalized)	*EBL*	*85*	*#207*	*#232*
	EBT	-	*107*	*48*
	WBT/R	-	*38*	*#282*
	SBL	*40*	*20*	*29*
	SBR	-	*15*	*18*
Notes:	# - 95% percentile exceeds capacity m - volume for the 95th percentile queue is metered by an upstream signal			

With the addition of background traffic growth as well as the nearby background development traffic, critical and over-capacity movements are noted at some Study Area intersections.

The signalized intersection of William Halton Parkway at Trafalgar Road is expected to operate at an overall v/c ratio greater than or equal to 0.85 in both the AM and PM peak periods. The eastbound left-turn, westbound left-turn, southbound left-turn, and eastbound through, movements are anticipated to operate at a v/c ratio greater than or equal to 0.95 for the left-turns and 0.85 for the through movements respectively in one or both peak periods. The westbound right and southbound left movements are also expected to have 95th percentile queues exceeding available storage distances in one or both peak periods. This is expected due to high volumes along Trafalgar Road and William Halton Parkway at this intersection in both the AM and PM peak periods. As a mitigation measure, double left-turn lanes have been added to the eastbound, westbound, and southbound approaches, with adjustments to left-turn storage distances on each approach, and signal timing optimization. Despite these mitigation measures, critical and over capacity movements are still noted due to high intersection volumes. It is additionally noted that the westbound right-turn lane has been extended to the maximum distance that can be accommodated along William Halton Parkway without impacting turning lanes at the intersection of William Halton Parkway and Collector 5 to the east. As such, no further extension of this lane will be proposed in future analysis horizons.

The signalized intersection of William Halton Parkway at Burnhamthorpe Road is expected to operate at an overall acceptable v/c ratio in both peak periods. The eastbound through / right-turn operates at a v/c ratio greater than or equal to 0.85 in the AM peak period. The 95th percentile queue on the westbound left is also expected to extend past the available storage distance in the PM AM hour. As a mitigation measure, the westbound left-turn storage has been extended to accommodate the 95th percentile queue length.

The signalized intersection of Dundas Street at Trafalgar Road is expected to operate at an overall v/c ratio greater than or equal to 0.85 in both the AM and PM peak periods. The left-turn and through movements are anticipated to operate at a v/c ratio greater than or equal to 0.95 and 0.85 respectively in all directions in one or both peak

periods. The northbound left and southbound left 95th percentile queues are also expected to exceed available storage distances. This is expected due to high volumes at this intersection in both the AM and PM peak periods. As a mitigation measure, double left-turn lanes have been added to the westbound, northbound, and southbound approaches, with adjustments to left-turn storage distances on each approach, and signal timing optimization. Despite these mitigation measures, critical and over capacity movements are still noted due to high intersection volumes.

The roundabout at Sixth Line and William Halton Parkway is expected to operate at LOS E or worse in the AM peak period. The eastbound, northbound, and southbound approaches experience movements LOS E or worse in the AM peak and the westbound approach experiences movements LOS E or worse in the PM peak. This is likely due to high volumes of southbound left turning vehicles at this intersection. As a mitigation measure, channelized right-turn lanes are added to the eastbound and southbound approaches. Despite these mitigation measures, critical and over capacity movements are still noted as the result of high intersection volumes along William Halton Parkway and high southbound left volumes in the AM peak period.

The signalized intersection of Trafalgar Road at the Highway 407 WB off-ramp is expected to operate at an overall v/c ratio greater than or equal to 0.85 in the PM peak hour. The northbound through movement is expected to operate at a v/c ratio greater than or equal to 0.85 in the PM peak hour. This is expected due to high northbound volumes on Trafalgar Road. The operation of ramp movements is considered a priority over other movements at the ramp intersections as poor operation of ramp movements can present a safety issue should queues back up to through traffic along the highway. Therefore, no mitigation measures have been applied as there is still residual capacity available on the Regional Road and mitigation measures may result in the ramp movements deteriorating. As such, critical and over capacity movements are still noted due to high volumes along Trafalgar Road.

The signalized intersection of Trafalgar Road at the Highway 407 EB off-ramp is expected to operate at an overall v/c ratio greater than or equal to 0.85 in the PM peak hour. The northbound through movement is expected to operate at a v/c ratio greater than or equal to 0.85 in the PM peak hour. As a mitigation measure, the cycle length was increased in the PM peak hour and signal timing was optimized. The operation of ramp movements is considered a priority over other movements at the ramp intersections as poor operation of ramp movements can present a safety issue should queues back up to through traffic along the highway. As such, critical and over capacity movements are still noted due to high volumes along Trafalgar Road.

The roundabout at Ninth Line at William Halton Parkway / Burnhamthorpe Road is expected to operate at LOS E or worse in both the AM and PM peak hours. This is a result of high volumes travelling through this intersection during both peak hours. As a mitigation measure, channelized right turn lanes are added to the eastbound and southbound approaches. Despite these mitigation measures, critical and over capacity movements are still noted as the result of high intersection volumes.

The southbound right turn at the unsignalized intersection of Local 3 at William Halton Parkway is expected to operate at LOS E or worse in the PM peak period. Due to the close proximity of this intersection to William Halton Parkway and Trafalgar Road, the mitigation measures at that intersection are shown to influence the results and improve the operations at Local 3 and Trafalgar Road.

The eastbound left turn in the AM peak hour and southbound left turn in both peak hours at the unsignalized intersection of Collector 5 at William Halton Parkway is expected to operate at LOS E or worse and at an overall v/c ratio greater than or equal to 0.85. This is expected due to a high eastbound and westbound through volume

on William Halton Parkway. As a mitigation measure, the intersection has been signalized, and signal timing optimization has been performed. It is noted that a double eastbound left-turn lane could not be added as the north leg has only one receiving lane. Additionally, the eastbound left turn lane has been extended to the maximum distance that can be accommodated without impacting the turning lanes at the intersection of William Halton Parkway and Trafalgar Road to the west. As such, no further extension of this lane will be proposed in future analysis horizons.

The poor operation of some Study Area intersections is expected due to the high traffic volumes projected along Trafalgar Road, William Halton Parkway, and Dundas Street. Additionally, due to the planned HOV lanes along Trafalgar Road and Dundas Street, capacity is also constrained along these corridors within the Study Area. As a result of the high volumes and reduced capacity, some over-capacity movements are not able to be mitigated using reasonable mitigation measures.

7.2.3.1 2031 Future Background Conditions Analysis – Saturday Scenario

As discussed in Section 5.1.5, a Saturday peak period scenario has been considered for the Highway 407 ramp intersections at Trafalgar Road.

Table 31 summarizes the operational analysis of the 2031 Saturday existing conditions and Table 32 summarizes the 95th percentile queue lengths. Appendix H contains the 2031 Saturday future background conditions Synchro worksheets.

Table 31: 2031 Future Background Conditions Saturday Operational Analysis

Intersection	Mvmnt	SAT Peak Hour		
		LOS	V/C	Del. (s)
Trafalgar Road at Highway 407 WB Off-Ramp *(Signalized)*	EBL	C	0.01	23
	EBR	C	0.00	23
	WBL	C	0.41	25
	WBL/T/R	C	0.15	24
	WBR	C	0.01	23
	NBL	A	0.01	5
	NBT	A	0.66	8
	SBT/R	A	0.52	9
	Overall	**A**	**0.66**	**9**
Trafalgar Road at Highway 407 EB Off-Ramp *(Signalized)*	EBL	C	0.17	22
	EBR	C	0.53	25
	NBT	A	0.68	9
	SBT	A	0.75	10
	Overall	**A**	**0.71**	**10**

Table 32: 2031 Future Background Conditions Saturday Queue Lengths

Intersection	Mvmnt	Storage Dist. (m)	SAT Q (95th)
Trafalgar Road at Highway 407 WB Off-Ramp *(Signalized)*	EBL	-	1
	EBR	5	0
	WBL	-	26
	WBL/T/R	-	15
	WBR	60	0
	NBL	-	1
	NBT	-	82
	SBT/R	-	63

Intersection	Mvmnt	Storage Dist. (m)	SAT Q (95th)
Trafalgar Road at Highway 407 EB Off-Ramp *(Signalized)*	EBL	-	10
	EBR	875	21
	NBT	-	83
	SBT	-	#104
Notes:	# - 95% percentile exceeds capacity		

The signalized intersections of Trafalgar Road at the Highway 407 WB and EB off-ramps are expected to operate acceptably, no mitigation measures are required.

7.2.4 2036 Future Background Conditions Operational Analysis

The analysis parameters and mitigation measures used in the 2031 future background conditions have been carried forward as part of the analysis of 2036 future background conditions.

Table 33 summarizes the results of the operational analysis and Table 34 summarizes the 95th percentile queue lengths for 2036 future background conditions. Synchro and Sidra worksheets have been included in Appendix I.

Table 33: 2036 Future Background Conditions Operational Analysis

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
William Halton Parkway at Trafalgar Road *(Signalized)*	EBL	F	1.67	375	F	1.96	505
	EBT	E	0.93	55	D	0.55	40
	EBR	C	0.35	33	C	0.10	33
	WBL	F	0.88	98	E	0.77	69
	WBT	D	0.32	38	D	0.74	43
	WBR	D	0.55	43	F	1.48	270
	NBL	F	0.95	125	F	1.85	470
	NBT	F	1.14	120	F	1.14	121
	NBR	D	0.32	38	D	0.33	38
	SBL	F	1.64	365	F	1.83	451
	SBT	E	0.93	55	F	1.16	129
	SBR	C	0.30	35	D	0.73	51
	Overall	**F**	**1.20**	**123**	**F**	**1.46**	**174**
Mitigation: AM & PM NB double left-turn lane, signal timing optimization, EBL storage of 190 m, EBR storage of 80 m, SBL storage of 170 m, SBR storage of 130 m							
William Halton Parkway at Trafalgar Road (Signalized)	*EBL*	*F*	*1.67*	*375*	*F*	*1.96*	*505*
	EBT	*E*	*0.93*	*55*	*D*	*0.54*	*39*
	EBR	*C*	*0.41*	*34*	*C*	*0.12*	*32*
	WBL	*F*	*0.88*	*98*	*E*	*0.77*	*69*
	WBT	*D*	*0.32*	*38*	*D*	*0.73*	*41*
	WBR	*D*	*0.55*	*43*	*F*	*1.51*	*284*
	NBL	*F*	*0.77*	*85*	*F*	*1.43*	*286*
	NBT	*F*	*1.14*	*120*	*F*	*1.17*	*132*
	NBR	*D*	*0.28*	*37*	*D*	*0.34*	*39*
	SBL	*F*	*1.64*	*365*	*F*	*1.83*	*451*
	SBT	*D*	*0.86*	*46*	*F*	*1.09*	*98*
	SBR	*C*	*0.16*	*32*	*D*	*0.68*	*46*
	Overall	***F***	***1.22***	***121***	***F***	***1.44***	***165***

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Burnhamthorpe Road at Trafalgar Road *(Signalized)*	EBL	F	1.06	110	F	0.95	86
	EBT/R	C	0.41	34	C	0.30	34
	WBL	D	0.42	35	D	0.37	35
	WBT/R	C	0.25	32	C	0.33	34
	NBL	F	4.10	1463	F	4.66	1707
	NBT/R	C	0.84	32	C	0.83	28
	SBL	D	0.69	37	C	0.64	29
	SBT/R	B	0.66	17	B	0.66	17
	Overall	**F**	**2.67**	**113**	**F**	**3.15**	**136**
Mitigation: AM & PM permitted + protected NBL, signal timing optimization, EBL storage of 140 m							
Burnhamthorpe Road at Trafalgar Road (Signalized)	*EBL*	*E*	*0.97*	*80*	*F*	*0.95*	*86*
	EBT/R	*C*	*0.36*	*31*	*C*	*0.28*	*34*
	WBL	*C*	*0.37*	*32*	*D*	*0.37*	*35*
	WBT/R	*C*	*0.23*	*30*	*C*	*0.33*	*34*
	NBL	*F*	*0.96*	*80*	*F*	*0.97*	*81*
	NBT/R	*C*	*0.86*	*34*	*C*	*0.83*	*28*
	SBL	*D*	*0.77*	*41*	*C*	*0.64*	*30*
	SBT/R	*D*	*0.98*	*53*	*D*	*0.96*	*47*
	Overall	***D***	***0.99***	***46***	***D***	***0.99***	***42***
William Halton Parkway at Burnhamthorpe Road (Signalized)	EBT/R	E	1.04	59	C	0.77	32
	WBL	F	1.06	97	D	0.86	36
	WBT	A	0.26	9	B	0.76	16
	NBL	A	0.00	0	A	0.00	0
	NBR	D	0.79	41	C	0.28	24
	Overall	**D**	**1.00**	**51**	**C**	**0.68**	**24**
Mitigation: AM signal cycle length extension to 120 s, signal timing optimization, WBL storage of 120 m							
William Halton Parkway at Burnhamthorpe Road (Signalized)	EBT/R	D	0.91	38	C	0.77	32
	WBL	E	0.95	76	D	0.86	36
	WBT	A	0.23	8	B	0.76	16
	NBL	A	0.00	0	A	0.00	0
	NBR	E	0.86	64	C	0.28	24
	Overall	**D**	**0.95**	**41**	**C**	**0.68**	**24**
Dundas Street at Trafalgar Road *(Signalized)*	EBL	F	1.84	452	F	1.81	440
	EBT	F	1.32	189	E	1.03	71
	EBR	C	0.29	29	C	0.19	27
	WBL	F	1.56	341	F	1.48	299
	WBT	D	0.84	44	F	1.15	117
	WBR	C	0.36	32	C	0.43	33
	NBL	F	1.15	173	F	1.61	355
	NBT	D	0.73	41	F	1.17	128
	NBR	C	0.13	31	C	0.33	34
	SBL	F	1.88	474	F	1.73	408
	SBT	F	1.09	96	D	0.82	44
	SBR	C	0.44	34	D	0.58	39
	Overall	**F**	**1.35**	**147**	**F**	**1.25**	**133**

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Sixth Line at William Halton Parkway *(Roundabout)*	EBL/T	F	0.94	55	C	0.61	18
	EBT	F	0.94	54	C	0.61	18
	EBR	A	0.06	3	A	0.04	3
	WBL/T	B	0.45	11	E	0.96	46
	WBT/R	B	0.45	11	E	0.96	46
	NBL/T	F	0.81	52	B	0.42	15
	NBT/R	F	0.81	51	B	0.42	14
	SBL/T	F	1.14	97	C	0.60	18
	SBT	A	0.30	8	C	0.51	16
	SBR	A	0.19	4	A	0.17	4
	Overall	**E**	**1.14**	**47**	**D**	**0.96**	**27**
Mitigation: AM & PM channelized WB right turn lane							
Sixth Line at William Halton Parkway (Roundabout)	*EBL/T*	*F*	*0.94*	*55*	*C*	*0.61*	*18*
	EBT	*F*	*0.94*	*54*	*C*	*0.61*	*18*
	EBR	*A*	*0.06*	*3*	*A*	*0.04*	*3*
	WBL/T	*A*	*0.33*	*9*	*C*	*0.62*	*15*
	WBT	*A*	*0.33*	*9*	*B*	*0.62*	*15*
	WBR	*A*	*0.09*	*3*	*A*	*0.28*	*4*
	NBL/T	*F*	*0.81*	*52*	*B*	*0.42*	*15*
	NBT/R	*F*	*0.81*	*51*	*B*	*0.42*	*14*
	SBL/T	*F*	*1.14*	*97*	*C*	*0.60*	*18*
	SBT	*A*	*0.30*	*8*	*C*	*0.51*	*16*
	SBR	*A*	*0.19*	*4*	*A*	*0.17*	*5*
	Overall	***E***	***1.14***	***46***	***B***	***0.62***	***13***
Sixth Line at Burnhamthorpe Road *(Signalized)*	EBL	C	0.29	27	C	0.17	24
	EBT/R	C	0.24	26	C	0.18	23
	WBL	D	0.65	35	C	0.58	29
	WBT/R	C	0.35	27	C	0.36	24
	NBL	A	0.40	9	A	0.22	7
	NBT/R	A	0.36	7	A	0.24	6
	SBL	A	0.23	8	A	0.13	6
	SBT/R	A	0.25	7	A	0.30	7
	Overall	**B**	**0.46**	**13**	**B**	**0.37**	**12**
Trafalgar Road at Highway 407 WB Off-Ramp *(Signalized)*	EBL	D	0.03	37	C	0.06	34
	EBR	D	0.00	37	C	0.00	34
	WBL	D	0.67	48	D	0.70	46
	WBL/T/R	D	0.70	51	D	0.75	50
	WBR	D	0.00	37	C	0.01	34
	NBL	A	0.02	5	A	0.08	8
	NBT	B	0.91	16	E	1.07	56
	SBT/R	A	0.57	9	B	0.65	12
	Overall	**B**	**0.91**	**15**	**D**	**1.05**	**37**

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Mitigation: PM cycle length extension to 120 s, signal timing optimization							
Trafalgar Road at Highway 407 WB Off-Ramp (Signalized)	*EBL*	-	-	-	*C*	*0.06*	*34*
	EBR	-	-	-	*C*	*0.00*	*33*
	WBL	-	-	-	*D*	*0.70*	*45*
	WBL/T/R	-	-	-	*D*	*0.75*	*49*
	WBR	-	-	-	*C*	*0.01*	*33*
	NBL	-	-	-	*A*	*0.08*	*8*
	NBT	-	-	-	*E*	*1.07*	*57*
	SBT/R	-	-	-	*B*	*0.66*	*12*
	Overall	**-**	**-**	**-**	***D***	***1.05***	***38***
Trafalgar Road at Highway 407 EB Off-Ramp *(Signalized)*	EBL	C	0.16	25	B	0.08	16
	EBR	D	0.75	38	C	0.75	29
	NBT	E	1.08	62	F	1.61	294
	SBT	C	0.94	24	F	1.38	190
	Overall	**D**	**0.99**	**43**	**F**	**1.29**	**233**
Mitigation: AM cycle length extension to 120 s, signal timing optimization							
Trafalgar Road at Highway 407 EB Off-Ramp (Signalized)	*EBL*	*C*	*0.15*	*27*	-	-	-
	EBR	*D*	*0.75*	*40*	-	-	-
	NBT	*E*	*1.07*	*58*	-	-	-
	SBT	*C*	*0.92*	*23*	-	-	-
	Overall	***D***	***0.98***	***41***	**-**	**-**	**-**
Ninth Line at William Halton Parkway / Burnhamthorpe Road *(Roundabout)*	EBL/T	F	1.60	296	F	1.06	74
	EBT	F	1.60	216	F	1.06	57
	EBR	A	0.25	7	A	0.14	4
	WBL/T	C	0.67	19	F	1.33	175
	WBT/R	C	0.67	19	F	1.33	175
	NBL/T	F	0.91	66	F	2.01	490
	NBT/R	F	0.91	65	F	2.01	492
	SBL/T	B	0.44	14	D	0.72	35
	SBT	F	1.33	181	D	0.72	34
	SBR	A	0.06	3	A	0.07	4
	Overall	**F**	**1.60**	**117**	**F**	**2.01**	**210**
Collector 1 at William Halton Parkway *(Signalized)*	EBL	B	0.03	15	B	0.20	17
	EBT/R	E	1.07	70	B	0.56	16
	WBL	E	0.93	70	E	0.93	67
	WBT	A	0.27	9	C	0.82	22
	WBR	A	0.04	8	B	0.05	11
	NBL	D	0.14	39	C	0.10	23
	NBT/R	D	0.73	53	D	0.84	42
	SBL	D	0.60	38	C	0.59	23
	SBT/R	C	0.01	29	B	0.01	16
	Overall	**D**	**0.94**	**54**	**C**	**0.87**	**25**

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Mitigation: AM & PM EBR storage of 30 m, WBL storage of 120 m, SBL storage of 40 m, signal timing optimization							
Collector 1 at William Halton Parkway *(Signalized)*	*EBL*	*B*	*0.03*	*15*	*B*	*0.20*	*17*
	EBT	*D*	*1.00*	*49*	*B*	*0.52*	*15*
	EBR	*B*	*0.03*	*15*	*B*	*0.04*	*11*
	WBL	*F*	*1.15*	*144*	*D*	*0.83*	*47*
	WBT	*A*	*0.27*	*10*	*C*	*0.82*	*22*
	WBR	*A*	*0.04*	*8*	*B*	*0.05*	*11*
	NBL	*D*	*0.13*	*36*	*C*	*0.10*	*23*
	NBT/R	*E*	*0.82*	*60*	*D*	*0.84*	*28*
	SBL	*D*	*0.61*	*39*	*C*	*0.59*	*19*
	SBT/R	*C*	*0.01*	*29*	*B*	*0.01*	*16*
	Overall	***D***	***1.07***	***49***	***C***	***0.81***	***24***
Collector 2 at William Halton Parkway *(Unsignalized)*	EBT	A	0.85	0	A	0.52	0
	EBT/R	A	0.44	0	A	0.43	0
	WBT	A	0.19	0	A	0.43	0
	WBR	A	0.06	0	A	0.17	0
	NBR	B	0.16	12	B	0.15	12
	SBR	B	0.33	12	B	0.27	12
	Overall	**C**	-	**1**	**A**	-	**1**
Collector 1 at Burnhamthorpe Road *(Unsignalized)*	EBL	A	0.01	0	A	0.01	0
	EBT	A	0.17	0	A	0.12	0
	WBT	A	0.14	0	A	0.20	0
	WBT/R	A	0.17	0	A	0.25	0
	SBL	D	0.56	29	D	0.52	28
	SBR	B	0.02	10	B	0.02	10
	Overall	**A**	-	**4**	**A**	-	**4**
Local 3 at William Halton Parkway *(Unsignalized)*	EBT	A	0.61	0	A	0.42	0
	WBT	A	0.19	0	A	0.54	0
	WBR	A	0.00	0	A	0.01	0
	SBR	B	0.39	13	C	0.71	25
	Overall	**B**	-	**1**	**D**	-	**3**
Loyalist Trail at Trafalgar Road *(Unsignalized)*	EBR	B	0.31	12	B	0.30	12
	NBT	A	0.39	0	A	0.42	0
	SBT	A	0.38	0	A	0.42	0
	SBT/R	A	0.34	0	A	0.45	0
	Overall	**A**	-	**<1**	**B**	-	**<1**
Collector 5 at William Halton Parkway *(Signalized)*	EBL	B	0.80	13	F	1.13	114
	EBT	A	0.56	4	A	0.31	4
	WBT	A	0.19	3	D	0.97	41
	WBT/R	A	0.19	3	D	0.97	41
	SBL	D	0.26	43	D	0.38	42
	SBR	D	0.09	41	D	0.14	40
	Overall	**A**	**0.73**	**8**	**D**	**1.05**	**45**

Table 34: 2036 Future Background Conditions Queue Lengths

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
William Halton Parkway at Trafalgar Road *(Signalized)*	EBL	80	#181	#173
	EBT	-	#211	96
	EBR	60	53	16
	WBL	60	#46	58
	WBT	-	52	141
	WBR	205	82	#392
	NBL	90	#77	#172
	NBT	-	#250	#250
	NBR	55	48	51
	SBL	140	#159	#145
	SBT	-	#189	#262
	SBR	55	47	126
Mitigation: AM & PM NB double left-turn lane, signal timing optimization, EBL storage of 190 m, EBR storage of 80 m, SBL storage of 170 m, SBR storage of 130 m				
William Halton Parkway at Trafalgar Road (Signalized)	*EBL*	*190*	*#181*	*#173*
	EBT	*-*	*#211*	*95*
	EBR	*80*	*67*	*19*
	WBL	*60*	*#46*	*58*
	WBT	*-*	*52*	*140*
	WBR	*205*	*82*	*#409*
	NBL	*90*	*#35*	*#82*
	NBT	*-*	*#250*	*#254*
	NBR	*55*	*40*	*51*
	SBL	*170*	*#159*	*#145*
	SBT	*-*	*172*	*#251*
	SBR	*130*	*43*	*119*
Burnhamthorpe Road at Trafalgar Road *(Signalized)*	EBL	100	#140	#102
	EBT/R	-	54	38
	WBL	120	35	36
	WBT/R	-	33	43
	NBL	130	#163	#186
	NBT/R	-	#194	178
	SBL	170	42	#31
	SBT/R	-	124	126
Mitigation: AM & PM permitted + protected NBL, signal timing optimization, EBL storage of 140 m				
Burnhamthorpe Road at Trafalgar Road (Signalized)	*EBL*	*140*	*#131*	*#102*
	EBT/R	*-*	*48*	*35*
	WBL	*120*	*33*	*36*
	WBT/R	*-*	*31*	*43*
	NBL	*130*	*#104*	*#118*
	NBT/R	*-*	*175*	*178*
	SBL	*170*	*#51*	*#30*
	SBT/R	*-*	*#209*	*#210*
William Halton Parkway at Burnhamthorpe Road *(Signalized)*	EBT/R	-	#192	95
	WBL	100	#90	#85
	WBT	-	30	120
	NBL	30	0	0
	NBR	-	#107	16

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
Mitigation: AM signal cycle length extension to 120 s, signal timing optimization, WBL storage of 120 m				
William Halton Parkway at Burnhamthorpe Road (Signalized)	*EBT/R*	-	#210	95
	WBL	120	#108	#85
	WBT	-	32	120
	NBL	30	0	0
	NBR	-	#134	16
Dundas Street at Trafalgar Road *(Signalized)*	EBL	110	#130	#127
	EBT	-	#345	#235
	EBR	85	42	25
	WBL	90	#80	#85
	WBT	-	149	#272
	WBR	85	52	65
	NBL	90	#57	#93
	NBT	-	117	#248
	NBR	50	20	49
	SBL	100	#120	#100
	SBT	-	#232	137
	SBR	65	65	90
Mitigation: EBL storage of 150 m, NBL storage of 100 m, SBL storage of 130 m, SBR storage of 100 m				
Dundas Street at Trafalgar Road (Signalized)	*EBL*	*150*	#130	#127
	EBT	-	#345	#235
	EBR	*85*	42	25
	WBL	*90*	#80	#85
	WBT	-	149	#272
	WBR	*85*	52	65
	NBL	*100*	#57	#93
	NBT	-	117	#248
	NBR	*50*	20	49
	SBL	*130*	#120	#100
	SBT	-	#232	137
	SBR	*100*	65	90
Sixth Line at William Halton Parkway *(Roundabout)*	EBL/T	-	74	23
	EBT	-	75	23
	EBR	-	0	0
	WBL/T	-	15	165
	WBT/R	-	15	165
	NBL/T	-	29	11
	NBT/R	-	29	11
	SBL/T	-	367	21
	SBT	-	7	16
	SBR	-	0	0

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
Mitigation: AM & PM channelized WB right turn lane				
Sixth Line at William Halton Parkway *(Roundabout)*	*EBL/T*	-	74	23
	EBT	-	75	23
	EBR	-	0	0
	WBL/T	-	8	32
	WBT	-	8	32
	WBR	-	0	328
	NBL/T	-	29	11
	NBT/R	-	29	11
	SBL/T	-	367	21
	SBT	-	7	16
	SBR	-	0	0
Sixth Line at Burnhamthorpe Road *(Signalized)*	EBL	55	18	11
	EBT/R	-	18	13
	WBL	40	37	32
	WBT/R	-	25	23
	NBL	30	34	14
	NBT/R	-	43	22
	SBL	30	15	10
	SBT/R	-	30	32
Mitigation: NBL storage of 40 m				
Sixth Line at Burnhamthorpe Road (Signalized)	*EBL*	*55*	18	11
	EBT/R	-	18	13
	WBL	*40*	37	32
	WBT/R	-	25	23
	NBL	*40*	34	14
	NBT/R	-	43	22
	SBL	*30*	15	10
	SBT/R	-	30	32
Trafalgar Road at Highway 407 WB Off-Ramp *(Signalized)*	EBL	-	3	5
	EBR	5	0	0
	WBL	-	49	64
	WBL/T/R	-	#54	69
	WBR	60	0	0
	NBL	-	1	2
	NBT	-	211	#382
	SBT/R	-	90	143
Mitigation: PM cycle length extension to 120 s, signal timing optimization				
Trafalgar Road at Highway 407 WB Off-Ramp (Signalized)	*EBL*	-	-	*5*
	EBR	*5*	-	*0*
	WBL	-	-	*63*
	WBL/T/R	-	-	*68*
	WBR	*60*	-	*0*
	NBL	-	-	*2*
	NBT	-	-	*#370*
	SBT/R	-	-	*139*

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
Trafalgar Road at Highway 407 EB Off-Ramp *(Signalized)*	EBL	-	16	9
	EBR	875	56	55
	NBT	-	#266	#353
	SBT	-	#214	#288
Mitigation: AM cycle length extension to 120 s, signal timing optimization				
Trafalgar Road at Highway 407 EB Off-Ramp (Signalized)	*EBL*	-	*17*	-
	EBR	*875*	*61*	-
	NBT	-	*#292*	-
	SBT	-	*#235*	-
Ninth Line at William Halton Parkway / Burnhamthorpe Road *(Roundabout)*	EBL/T	-	815	222
	EBT	-	815	222
	EBR	-	0	0
	WBL/T	-	33	569
	WBT/R	-	33	569
	NBL/T	-	49	988
	NBT/R	-	49	988
	SBL/T	-	12	23
	SBT	-	463	23
	SBR	-	0	0
Collector 1 at William Halton Parkway *(Signalized)*	EBL	30	5	8
	EBT/R	-	#308	85
	WBL	30	#100	#74
	WBT	-	46	#164
	WBR	-	6	8
	NBL	30	114	11
	NBT/R	-	68	85
	SBL	30	31	22
	SBT/R	-	4	2
Mitigation: AM & PM EBR storage of 30 m, WBL storage of 120 m, SBL storage of 40 m, signal timing optimization				
Collector 1 at William Halton Parkway (Signalized)	*EBL*	*30*	*5*	*8*
	EBT	-	*#281*	*78*
	EBR	*30*	*1*	*5*
	WBL	*120*	*#111*	*#70*
	WBT	-	*46*	*#164*
	WBR	-	*6*	*8*
	NBL	*30*	*14*	*11*
	NBT/R	-	*82*	*85*
	SBL	*40*	*31*	*22*
	SBT/R	-	*4*	*2*
Collector 2 at William Halton Parkway *(Unsignalized)*	EBT	-	0	0
	EBT/R	-	0	0
	WBT	-	0	0
	WBR	-	0	0
	NBR	-	12	4
	SBR	-	12	8
Local 3 at William Halton Parkway *(Unsignalized)*	EBT	-	0	0
	WBT	-	0	0
	WBR	-	0	0
	SBR	-	13	44

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
Loyalist Trail at Trafalgar Road *(Unsignalized)*	EBR	-	10	10
	NBT	-	0	0
	SBT	-	0	0
	SBT/R	-	0	0
Collector 5 at William Halton Parkway *(Signalized)*	EBL	85	#193	#236
	EBT	-	131	55
	WBT	-	31	#283
	WBT/R	-	31	#283
	SBL	40	20	29
	SBR	-	15	18
Notes:	# - 95% percentile exceeds capacity m - volume for the 95th percentile queue is metered by an upstream signal			

With the addition of background growth and nearby background development traffic, several study intersections are expected to operate with movements and/or overall v/c ratios greater than or equal to 0.85 in one or both the AM and PM peak periods in the 2036 future background horizon. Extended queues are also noted. Study Area intersections are shown to operate slightly worse than the mitigated 2031 future background analysis.

Mitigation measures including double left-turn lanes, increased storage distances, and signal timing optimization has been considered at these intersections. As a result of the mitigation measures, some intersections are expected to function adequately, however, the following intersections are expected to continue operating with critical or over capacity movements in one or both peak periods:

- William Halton Parkway at Trafalgar Road
- Burnhamthorpe Road at Trafalgar Road
- William Halton Parkway at Burnhamthorpe Road
- Dundas Street at Trafalgar Road
- Sixth Line at William Halton Parkway
- Highway 407 WB Off-Ramp at Trafalgar Road
- Ninth Line at William Halton Parkway / Burnhamthorpe Road
- Highway 407 EB Off-Ramp at Trafalgar Road
- Collector 1 at William Halton Parkway
- Collector 5 at William Halton Parkway

This is expected due to the high traffic volumes projected along Trafalgar Road, Burnhamthorpe Road, William Halton Parkway, and Dundas Street. Additionally, due to the planned HOV lanes along Trafalgar Road and Dundas Street, capacity is also constrained along these corridors within the Study Area. As a result of the high volumes and reduced capacity, some over-capacity movements are not able to be mitigated using reasonable mitigation measures.

7.2.4.1 2036 Future Background Conditions Analysis – Saturday Scenario

As discussed in Section 5.1.5, a Saturday peak period scenario has been considered for the Highway 407 ramp intersections at Trafalgar Road. Table 33 summarizes the operational analysis of the 2036 Saturday existing conditions and Table 36 summarizes the 95th percentile queue lengths. Appendix I contains the 2036 Saturday future background conditions Synchro worksheets.

Table 35: 2036 Future Background Conditions Saturday Operational Analysis

Intersection	Mvmnt	SAT Peak Hour		
		LOS	V/C	Del. (s)
Trafalgar Road at Highway 407 WB Off-Ramp *(Signalized)*	EBL	C	0.01	29
	EBR	C	0.00	29
	WBL	D	0.62	27
	WBL/T/R	C	0.38	32
	WBR	C	0.01	29
	NBL	A	0.01	6
	NBT	B	0.82	12
	SBT/R	B	0.64	10
	Overall	**B**	**0.82**	**13**
Trafalgar Road at Highway 407 EB Off-Ramp (Signalized)	EBL	C	0.10	22
	EBR	D	0.75	35
	NBT	C	0.97	29
	SBT	E	1.12	77
	Overall	**D**	**1.01**	**53**
Mitigation: Cycle length extension to 120 s, signal timing optimization				
Trafalgar Road at Highway 407 EB Off-Ramp (Signalized)	*EBL*	*C*	*0.10*	*24*
	EBR	*D*	*0.75*	*28*
	NBT	*C*	*0.94*	*26*
	SBT	*E*	*1.09*	*66*
	Overall	***D***	***0.99***	***47***

Table 36: 2036 Future Background Conditions Saturday Queue Lengths

Intersection	Mvmnt	Storage Dist. (m)	SAT Q (95th)
Trafalgar Road at Highway 407 WB Off-Ramp *(Signalized)*	EBL	-	2
	EBR	5	0
	WBL	-	58
	WBL/T/R	-	40
	WBR	60	0
	NBL	-	1
	NBT	-	161
	SBT/R	-	107
Trafalgar Road at Highway 407 EB Off-Ramp (Signalized)	EBL	-	12
	EBR	875	56
	NBT	-	#217
	SBT	-	#269
Mitigation: Cycle length extension to 120 s, signal timing optimization			
Trafalgar Road at Highway 407 EB Off-Ramp (Signalized)	*EBL*	*-*	*13*
	EBR	*875*	*61*
	NBT	*-*	*#241*
	SBT	*-*	*#300*
Notes:	# - 95% percentile exceeds capacity		

The signalized intersections of Trafalgar Road at the Highway 407 EB off-ramp is expected to operate at an overall v/c ratio greater than or equal to 0.85 in the Saturday peak period in the 2036 future background horizon. Ramp movements are shown to operate with a v/c ratio equal to or less than 0.75. The northbound and southbound through movements at this intersection is expected to continue to operate at critical or over capacity v/c ratios

due to the high volumes projected along Trafalgar Road and are not able to be mitigated using reasonable measures.

7.2.5 2041 Future Background Conditions Operational Analysis

The analysis parameters and mitigation measures used in the 2036 future background conditions have been carried forward as part of the analysis of 2041 future background conditions. It is however noted that the through lanes along both Dundas Street and Trafalgar Road have been reduced to two lanes in each direction to reflect the implementation of BRT lanes along these corridors. As further details regarding the BRT corridors on both Dundas Street and Trafalgar Road are not available, it has been assumed that centre BRT lanes will be present along Dundas Street and Trafalgar Road and as such, protected left-turn lanes have been considered along these corridors. This assumption has been made as it provides the most conservative analysis in the absence of further BRT configuration details.

Table 37 summarizes the results of the operational analysis and Table 38 summarizes the 95th percentile queue lengths for the 2041 future background conditions. Synchro and Sidra worksheets have been included in Appendix J.

Table 37: 2041 Future Background Conditions Operational Analysis

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
William Halton Parkway at Trafalgar Road *(Signalized)*	EBL	F	2.06	550	F	2.34	678
	EBT	E	1.02	75	D	0.60	42
	EBR	D	0.45	36	D	0.16	35
	WBL	F	1.11	167	E	0.87	77
	WBT	D	0.35	38	D	0.75	42
	WBR	D	0.66	47	F	1.76	392
	NBL	F	0.79	88	F	1.67	395
	NBT	F	1.37	216	F	1.41	235
	NBR	D	0.37	36	D	0.37	37
	SBL	F	2.05	546	F	2.39	706
	SBT	F	1.06	85	F	1.33	200
	SBR	C	0.28	30	D	0.70	45
	Overall	**F**	**1.42**	**186**	**F**	**1.71**	**250**
Burnhamthorpe Road at Trafalgar Road *(Signalized)*	EBL	F	1.14	139	F	0.98	92
	EBT/R	C	0.42	34	C	0.30	33
	WBL	D	0.47	36	C	0.39	35
	WBT/R	C	0.28	33	C	0.35	34
	NBL	F	1.43	273	F	1.32	219
	NBT/R	F	1.20	129	F	1.12	94
	SBL	E	0.74	63	F	1.03	152
	SBT/R	F	1.17	116	F	1.27	164
	Overall	**F**	**1.19**	**116**	**F**	**1.18**	**118**
William Halton Parkway at Burnhamthorpe Road *(Signalized)*	EBT/R	E	1.09	77	C	0.82	34
	WBL	F	1.25	168	D	0.92	47
	WBT	A	0.30	10	B	0.83	18
	NBL	A	0.00	0	A	0.00	0
	NBR	E	0.95	61	C	0.36	26
	Overall	**E**	**1.18**	**70**	**C**	**0.75**	**27**

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Dundas Street at Trafalgar Road ***(Signalized)***	EBL	F	2.44	724	F	2.09	567
	EBT	F	1.75	379	F	1.36	205
	EBR	C	0.33	29	C	0.23	28
	WBL	F	1.63	368	F	1.54	328
	WBT	F	1.06	83	F	1.49	265
	WBR	C	0.38	31	C	0.47	33
	NBL	F	1.21	195	F	1.93	501
	NBT	E	0.94	57	F	1.50	271
	NBR	C	0.14	30	C	0.36	34
	SBL	F	2.19	613	F	2.07	560
	SBT	F	1.43	241	F	1.06	88
	SBR	C	0.46	34	D	0.61	39
	Overall	**F**	**1.73**	**256**	**F**	**1.58**	**240**
Sixth Line at William Halton Parkway ***(Roundabout)***	EBL/T	F	0.98	65	C	0.66	21
	EBT	F	0.98	63	C	0.66	21
	EBR	A	0.06	3	A	0.04	3
	WBL/T	A	0.36	10	C	0.65	17
	WBT	A	0.36	10	C	0.65	17
	WBR	A	0.09	3	A	0.29	5
	NBL/T	F	0.88	63	B	0.48	16
	NBT/R	F	0.88	62	B	0.48	16
	SBL/T	F	1.23	133	C	0.64	20
	SBT	A	0.36	9	C	0.60	19
	SBR	A	0.20	4	A	0.17	5
	Overall	**F**	**1.23**	**59**	**B**	**0.66**	**15**
Sixth Line at Burnhamthorpe Road ***(Signalized)***	EBL	C	0.28	27	C	0.18	24
	EBT/R	C	0.24	26	C	0.18	24
	WBL	D	0.68	37	C	0.61	30
	WBT/R	C	0.36	27	C	0.37	25
	NBL	B	0.42	10	A	0.24	8
	NBT/R	A	0.40	8	A	0.27	7
	SBL	A	0.28	9	A	0.14	6
	SBT/R	A	0.27	7	A	0.33	7
	Overall	**B**	**0.49**	**14**	**B**	**0.40**	**13**
Trafalgar Road at Highway 407 WB Off-Ramp ***(Signalized)***	EBL	D	0.04	39	C	0.06	32
	EBR	D	0.00	38	C	0.00	31
	WBL	D	0.71	54	D	0.70	43
	WBL/T/R	E	0.75	58	D	0.75	47
	WBR	D	0.00	38	C	0.01	31
	NBL	A	0.03	6	A	0.07	9
	NBT	B	0.93	19	F	1.16	92
	SBT/R	A	0.60	9	B	0.70	13
	Overall	**B**	**0.94**	**17**	**E**	**1.12**	**56**
Trafalgar Road at Highway 407 EB Off-Ramp ***(Signalized)***	EBL	D	0.21	43	B	0.08	15
	EBR	F	1.00	107	C	0.75	27
	NBT	C	0.96	26	F	1.79	375
	SBT	B	0.85	17	F	1.50	244
	Overall	**C**	**0.96**	**27**	**F**	**1.38**	**298**

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Ninth Line at William Halton Parkway / Burnhamthorpe Road *(Roundabout)*	EBL/T	F	1.70	339	F	1.15	103
	EBT	F	1.70	252	F	1.15	76
	EBR	A	0.28	7	A	0.15	4
	WBL/T	D	0.75	24	F	1.41	209
	WBT/R	D	0.75	23	F	1.41	209
	NBL/T	F	0.99	86	F	2.20	578
	NBT/R	F	0.99	84	F	2.20	701
	SBL/T	C	0.50	17	E	0.77	40
	SBT	F	1.49	249	E	0.77	39
	SBR	A	0.28	7	A	0.08	4
	Overall	**F**	**1.70**	**143**	**F**	**2.20**	**251**
Collector 1 at William Halton Parkway *(Signalized)*	EBL	B	0.03	14	B	0.20	17
	EBT/R	E	1.02	56	B	0.54	16
	WBL	B	0.03	14	B	0.04	11
	WBT/R	F	1.37	231	E	0.89	58
	NBL	B	0.30	11	C	0.86	24
	NBT/R	A	0.04	9	B	0.05	11
	SBL	D	0.12	37	C	0.10	22
	SBT/R	E	0.85	62	D	0.84	42
	Overall	**D**	**0.62**	**39**	**C**	**0.58**	**23**
Collector 2 at William Halton Parkway *(Unsignalized)*	EBT	C	0.01	28	B	0.01	16
	EBT/R	E	1.22	59	C	0.85	25
	WBT	A	0.88	0	A	0.54	0
	WBR	A	0.45	0	A	0.31	0
	NBR	A	0.20	0	A	0.45	0
	SBR	A	0.06	0	A	0.17	0
	Overall	**B**	**0.17**	**13**	**B**	**0.14**	**12**
Collector 1 at Burnhamthorpe Road *(Unsignalized)*	EBL	A	0.01	9	A	0.01	9
	EBT	A	0.18	0	A	0.13	0
	WBT	A	0.15	0	A	0.02	0
	WBT/R	A	0.18	0	A	0.23	0
	SBL	D	0.60	32	D	0.55	31
	SBT/R	B	0.03	10	B	0.02	10
	Overall	**A**	**-**	**5**	**A**	**-**	**4**
Local 3 at William Halton Parkway *(Unsignalized)*	EBT	A	0.67	0	A	0.45	0
	WBT	A	0.21	0	A	0.60	0
	WBR	A	0.00	0	A	0.01	0
	SBR	B	0.39	14	D	0.74	28
	Overall	**C**	**-**	**1**	**D**	**-**	**3**
Loyalist Trail at Trafalgar Road *(Unsignalized)*	EBR	B	0.36	14	C	0.38	15
	NBT	A	0.63	0	A	0.67	0
	SBT	A	0.67	0	A	0.74	0
	SBR	A	0.49	0	A	0.61	0
	Overall	**C**	**-**	**1**	**D**	**-**	**1**

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Collector 5 at William Halton Parkway *(Unsignalized)*	EBL	E	1.05	62	F	1.23	152
	EBT	A	0.68	7	A	0.34	4
	WBT/R	A	0.23	4	E	1.05	62
	SBL	C	0.20	27	D	0.38	42
	SBR	C	0.10	27	D	0.18	40
	Overall	**B**	**0.89**	**18**	**E**	**1.14**	**61**

Table 38: 2041 Future Background Conditions Queue Lengths

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
William Halton Parkway at Trafalgar Road *(Signalized)*	EBL	190	#194	#182
	EBT	-	#236	101
	EBR	80	74	26
	WBL	60	#55	#76
	WBT	-	57	147
	WBR	205	102	#491
	NBL	90	#36	#88
	NBT	-	#361	#369
	NBR	55	55	57
	SBL	170	#192	#167
	SBT	-	#276	#368
	SBR	130	42	127
Burnhamthorpe Road at Trafalgar Road (Signalized)	EBL	140	#149	#107
	EBT/R	-	56	39
	WBL	120	38	37
	WBT/R	-	36	47
	NBL	130	#144	#158
	NBT/R	-	#324	#325
	SBL	170	60	#65
	SBT/R	-	#310	#334
William Halton Parkway at Burnhamthorpe Road (Signalized)	*EBT/R*	-	#215	102
	WBL	120	#102	#99
	WBT	-	35	144
	NBL	30	0	0
	NBR	-	#137	30
Dundas Street at Trafalgar Road *(Signalized)*	EBL	150	#145	#137
	EBT	-	#516	#366
	EBR	85	49	34
	WBL	90	#83	#89
	WBT	-	#242	#412
	WBR	85	55	73
	NBL	100	#60	#102
	NBT	-	#185	#369
	NBR	50	22	53
	SBL	130	#127	#109
	SBT	-	#352	#227
	SBR	100	70	97

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
Sixth Line at William Halton Parkway *(Roundabout)*	EBL/T	-	92	26
	EBT	-	95	26
	EBR	-	0	0
	WBL/T	-	10	36
	WBT	-	10	36
	WBR	-	0	130
	NBL/T	-	37	13
	NBT/R	-	37	13
	SBL/T	-	491	24
	SBT	-	9	21
	SBR	-	0	0
Sixth Line at Burnhamthorpe Road *(Signalized)*	EBL	55	18	11
	EBT/R	-	19	13
	WBL	40	40	35
	WBT/R	-	26	24
	NBL	40	37	16
	NBT/R	-	51	27
	SBL	30	18	11
	SBT/R	-	34	37
Trafalgar Road at Highway 407 WB Off-Ramp *(Signalized)*	EBL	-	3	5
	EBR	5	0	0
	WBL	-	#56	63
	WBL/T/R	-	#61	68
	WBR	60	0	0
	NBL	-	1	2
	NBT	-	235	#400
	SBT/R	-	94	151
Trafalgar Road at Highway 407 EB Off-Ramp *(Signalized)*	EBL	-	26	9
	EBR	875	#113	54
	NBT	-	#317	#369
	SBT	-	300	#295
Ninth Line at William Halton Parkway / Burnhamthorpe Road *(Roundabout)*	EBL/T	-	952	315
	EBT	-	952	315
	EBR	-	0	0
	WBL/T	-	43	696
	WBT/R	-	43	696
	NBL/T	-	78	1150
	NBT/R	-	78	1150
	SBL/T	-	14	26
	SBT	-	613	26
	SBR	-	0	0

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
Collector 1 at William Halton Parkway ***(Signalized)***	EBL	30	5	8
	EBT	-	#294	82
	EBR	30	1	5
	WBL	120	#119	#72
	WBT/R	-	49	#174
	NBL	30	6	8
	NBT/R	-	14	11
	SBL	40	#94	86
	SBT/R	-	31	22
Collector 2 at William Halton Parkway ***(Unsignalized)***	EBT	-	0	0
	EBT/R	-	0	0
	WBT	-	0	0
	WBT/R	-	0	0
	NBR	-	5	4
	SBR	-	11	9
Collector 1 at Burnhamthorpe Road ***(Unsignalized)***	EBL	-	0	0
	EBT	-	0	0
	WBT	-	0	0
	WBT/R	-	0	0
	SBL	-	28	24
	SBT/R	-	1	0
Local 3 at William Halton Parkway ***(Unsignalized)***	EBT	-	0	0
	WBT	-	0	0
	WBT/R	-	0	0
	SBR	-	14	48
Loyalist Trail at Trafalgar Road ***(Unsignalized)***	EBR	-	12	14
	NBT	-	0	0
	SBT	-	0	0
	SBT/R	-	0	0
Collector 5 at William Halton Parkway ***(Signalized)***	EBL	85	#199	#255
	EBT	-	#170	61
	WBT/R	-	38	#322
	SBL	40	14	29
	SBR	-	12	20
Notes:	# - 95% percentile exceeds capacity m - volume for the 95th percentile queue is metered by an upstream signal			

With the addition of background growth and nearby background development traffic, several study intersections are expected to operate with movements and/or overall v/c ratios greater than or equal to 0.85 in one or both the AM and PM peak periods in the 2041 future total horizon. Extended queues are also noted. The following intersections are shown to operate with critical or over capacity movements in one or both peak periods:

- William Halton Parkway at Trafalgar Road
- Burnhamthorpe Road at Trafalgar Road
- William Halton Parkway at Burnhamthorpe Road
- Dundas Street at Trafalgar Road
- Sixth Line at William Halton Parkway
- Highway 407 WB Off-Ramp at Trafalgar Road

- Highway 407 EB Off-Ramp at Trafalgar Road
- Ninth Line at William Halton Parkway / Burnhamthorpe Road
- Collector 1 at William Halton Parkway
- Collector 2 at William Halton Parkway
- Collector 5 at William Halton Parkway

This is expected due to the high traffic volumes projected along Trafalgar Road, Burnhamthorpe Road, William Halton Parkway, and Dundas Street. Additionally, the planned conversion of Trafalgar Road and Dundas Street into transit corridors with BRT lanes further limits capacity along these routes within the Study Area. As a result of the high volumes and reduced capacity, critical movements are not able to be mitigated using reasonable mitigation measures discussed in previous analysis horizons and are shown to be significantly worsened in the 2041 future background analysis horizon. As such, no mitigation measures at individual intersections have been considered.

Correspondence with Halton Region staff, as shown in Appendix K, indicates that the bus-only BRT lanes along Trafalgar Road recommended in the DMTR will undergo further review and refinement through the Region's ongoing Integrated Master Plan (IMP). It is assumed that this is the case for the future Dundas Street BRT as well. As part of this process, region wide modelling is expected to be conducted to assess and address the impacts of the BRT implementation from a corridor perspective. As the high volumes along the Study Area roadways are a reflection of background development site traffic and growth rates provided by both Town and Region staff, these volumes represent both projected local and regional growth as the result of development of adjacent lands and region wide development. The poor operation noted at Study Area intersections cannot be addressed using Synchro analysis software using intersection specific mitigation measures. Instead, macroscopic modelling is required by the Region to identify feasible corridor level solutions. As the IMP is an ongoing study, the results and modelling of this scenario are not yet available, however it is recommended and anticipated that the modelling of these BRT scenarios will address the high traffic volumes in this area and the impact of reducing one through lane in each travel direction along Dundas Street as well as Trafalgar Road.

In order for the Study Area intersections to function adequately, a shift in mode share from single occupancy vehicles to transit is required to reduce traffic volumes along Trafalgar Road and Dundas Street. As such, a high level evaluation of this potential shift in mode share has been undertaken by calculating the necessary reduction in vehicle volume to ensure adequate function of intersections along Trafalgar Road and Dundas Street. In order to do this, northbound and southbound volumes along Trafalgar Road and eastbound and westbound volumes at Dundas Street were reduced until the corresponding through movements operated at a v/c ratio of less than 1.00 at each intersection. The maximum reduction of traffic for each direction in each peak period is presented in Table 39 below.

Table 39: 2041 Future Background Volume Reductions

Corridor	AM				PM			
	NB	SB	EB	WB	NB	SB	EB	WB
Trafalgar Road	694	843	-	-	2915	1671	-	-
Dundas Street	-	-	986	84	-	-	476	650

To estimate the number of buses required along the Trafalgar Road and Dundas Street BRT corridors to accommodate the reduction in vehicle trips, the reduced vehicle trips along these corridors were first converted into passenger trips. A 3% Transportation Demand Management mode share, which is intended to represent

carpooling, and a 72% single-occupancy mode share is identified in the Halton Region TMP. The resulting vehicle occupancy rate based on these mode shares is 1.04. As Halton Region does not yet have information regarding BRT capacities, a bus capacity of 37 passengers based on a 40-foot bus from the Town of Oakville has been assumed for this analysis. With a conservative assumption of 70% bus occupancy, the corresponding number of buses needed to accommodate the reduced vehicle volumes along Trafalgar Road and Dundas Street for the AM and PM peak hour is presented in in Table 40 below.

Table 40: 2041 Future Background Required Bus Trips

Corridor	AM				PM			
	NB	SB	EB	WB	NB	SB	EB	WB
Trafalgar Road	17	20	-	-	50	32	-	-
Dundas Street	-	-	40	3	-	-	19	26

As shown above, the maximum required number of one-way buses with a maximum capacity of 37 people is 50. It is however noted that articulated buses will provide additional bus capacity and are recommended for use along Trafalgar Road.

7.2.5.1 2041 Future Background Conditions Operational Analysis – Saturday Scenario

As discussed in Section 5.1.5, a Saturday peak period scenario has been considered for the Highway 407 ramp intersections at Trafalgar Road. Table 33 summarizes the operational analysis of the 2041 Saturday existing conditions and Table 36 summarizes the 95th percentile queue lengths. Appendix J contains the 2041 Saturday future background conditions Synchro worksheets.

Table 41: 2041 Future Background Conditions Saturday Operational Analysis

Intersection	Mvmnt	SAT Peak Hour		
		LOS	V/C	Del. (s)
Trafalgar Road at Highway 407 WB Off-Ramp *(Signalized)*	EBL	C	0.01	32
	EBR	C	0.00	32
	WBL	D	0.63	40
	WBL/T/R	C	0.42	35
	WBR	C	0.02	32
	NBL	A	0.01	7
	NBT	B	0.85	14
	SBT/R	B	0.64	11
	Overall	**B**	**0.85**	**14**
Trafalgar Road at Highway 407 EB Off-Ramp (Signalized)	EBL	C	0.10	23
	EBR	D	0.75	36
	NBT	D	1.03	45
	SBT	F	1.16	95
	Overall	**E**	**1.04**	**39**

Table 42: 2041 Future Background Conditions Saturday Queue Lengths

Intersection	Mvmnt	Storage Dist. (m)	SAT Q (95th)
Trafalgar Road at Highway 407 WB Off-Ramp *(Signalized)*	EBL	-	2
	EBR	5	0
	WBL	-	53
	WBL/T/R	-	39
	WBR	60	0
	NBL	-	1
	NBT	-	202
	SBT/R	-	121
Trafalgar Road at Highway 407 EB Off-Ramp (Signalized)	EBL	-	13
	EBR	875	61
	NBT	-	#261
	SBT	-	#311
Notes:	# - 95% percentile exceeds capacity		

The signalized intersections of Trafalgar Road at the Highway 407 WB and EB off-ramps are expected to operate at an overall v/c ratio greater than or equal to 0.85 in the Saturday peak period in the 2041 future background horizon. Ramp movements are shown to operate with a v/c ratio less than 0.75 after signal timing optimization. The northbound and southbound through movements at these intersections are expected to continue to operate at critical or over capacity v/c ratios due to the high volumes projected along Trafalgar Road and are not able to be mitigated using reasonable measures.

As discussed in Section 7.2.5, the planned conversion of Trafalgar Road into a transit corridor with BRT lanes further limits vehicle capacity along Trafalgar Road. As part of this process, region wide modelling is expected to be conducted as part of the IMP study to assess and address the impacts of the BRT implementation from a corridor perspective. As the IMP is an ongoing study, the results and modelling of this scenario is not yet available.

Similar to the process discussed in the AM and PM analysis, the necessary reduction in volume along Trafalgar Road has been determined in order for the northbound and southbound movements at each intersection to operate at a v/c ratio of below 1.00. The maximum reduction of traffic for each direction results in a required reduction of 78 northbound and 317 southbound vehicles along Trafalgar Road for the Saturday peak period.

To estimate the number of buses required along the Trafalgar Road and Dundas Street BRT corridors to accommodate the reduction in vehicle trips, the reduced vehicle trips along these corridors were first converted into passenger trips. A 3% Transportation Demand Management mode share, which is intended to represent carpooling, and a 72% single-occupancy mode share is identified in the Halton Region TMP. The resulting vehicle occupancy rate based on these mode shares is 1.04. As Halton Region does not yet have information regarding BRT capacities, a bus capacity of 37 passengers based on a 40-foot bus from the Town of Oakville has been assumed for this analysis. With a conservative assumption of 70% bus occupancy, the corresponding maximum number of buses needed to accommodate the reduced vehicle volumes along Trafalgar Road is 3 in the northbound direction and 13 in the southbound direction for the Saturday peak period.

7.2.6 Future Background Intersection Configuration

The resulting recommended intersection configurations for the Study Area intersections based on the Synchro analysis above is summarized below. Figure 105, Figure 106, Figure 107, and Figure 108 show the 2031 future background intersection configuration. Figure 109, Figure 110, Figure 111, and Figure 112 show the 2036 future background intersection configuration. Figure 113, Figure 114, Figure 115, and Figure 116 show the 2041 future

background intersection configuration. As discussed in Section 7.2.2, no documents are currently available to indicate the configurations of Trafalgar Road and Dundas Street with the implementation of BRT lanes in the 2041 future background horizon. As such, it has been assumed that the BRT lanes will be located on the inside of general travel lanes.

Figure 105: 2031 Future Background Intersection Configuration – Section A

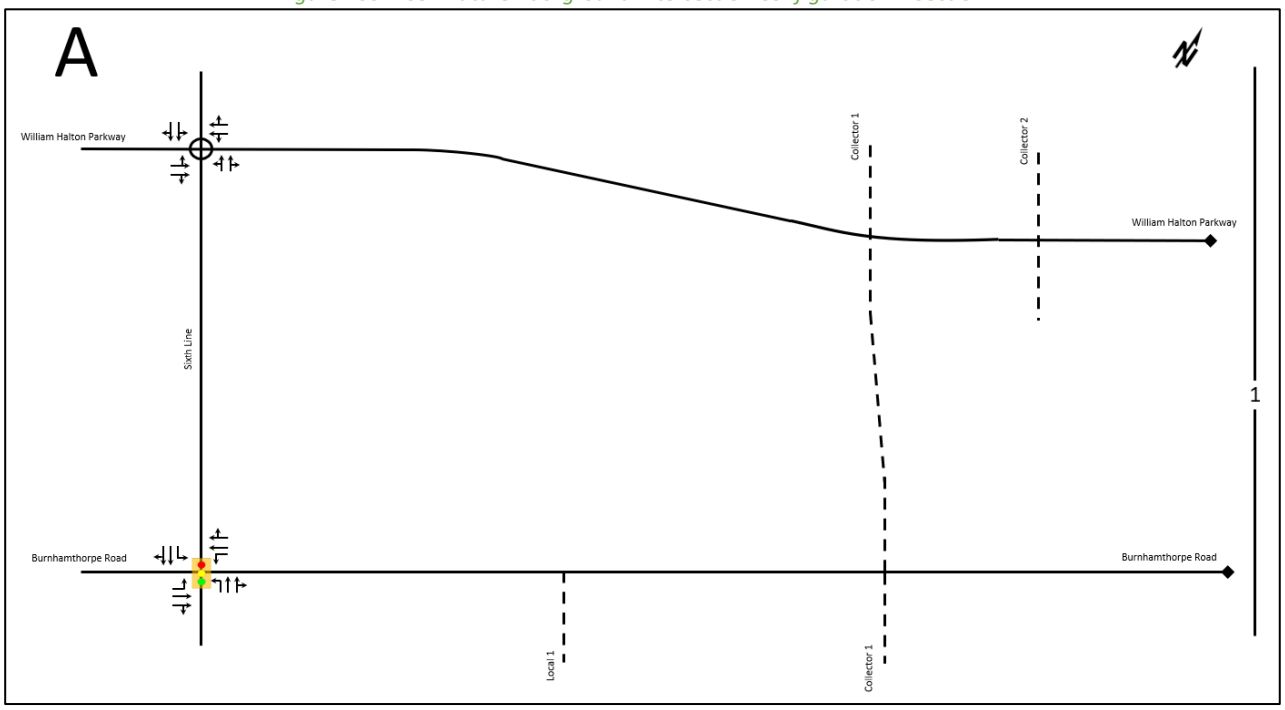


Figure 106: 2031 Future Background Intersection Configuration – Section B

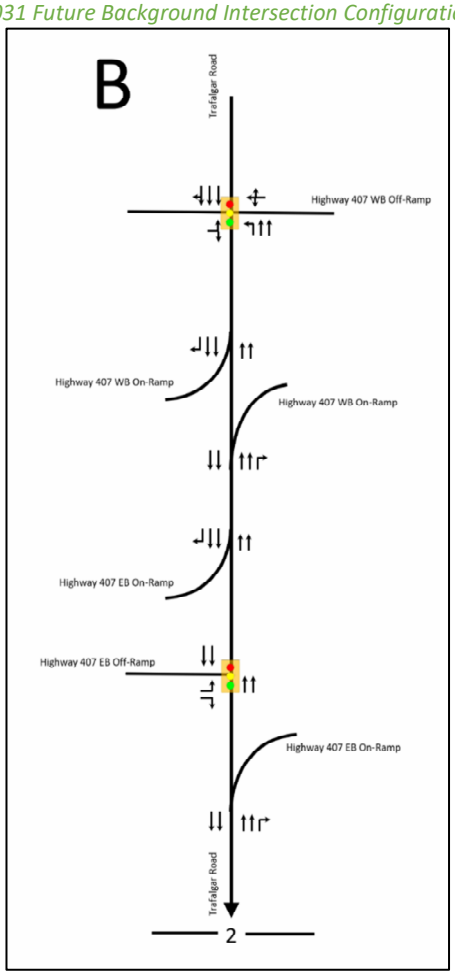


Figure 107: 2031 Future Background Intersection Configuration – Section C

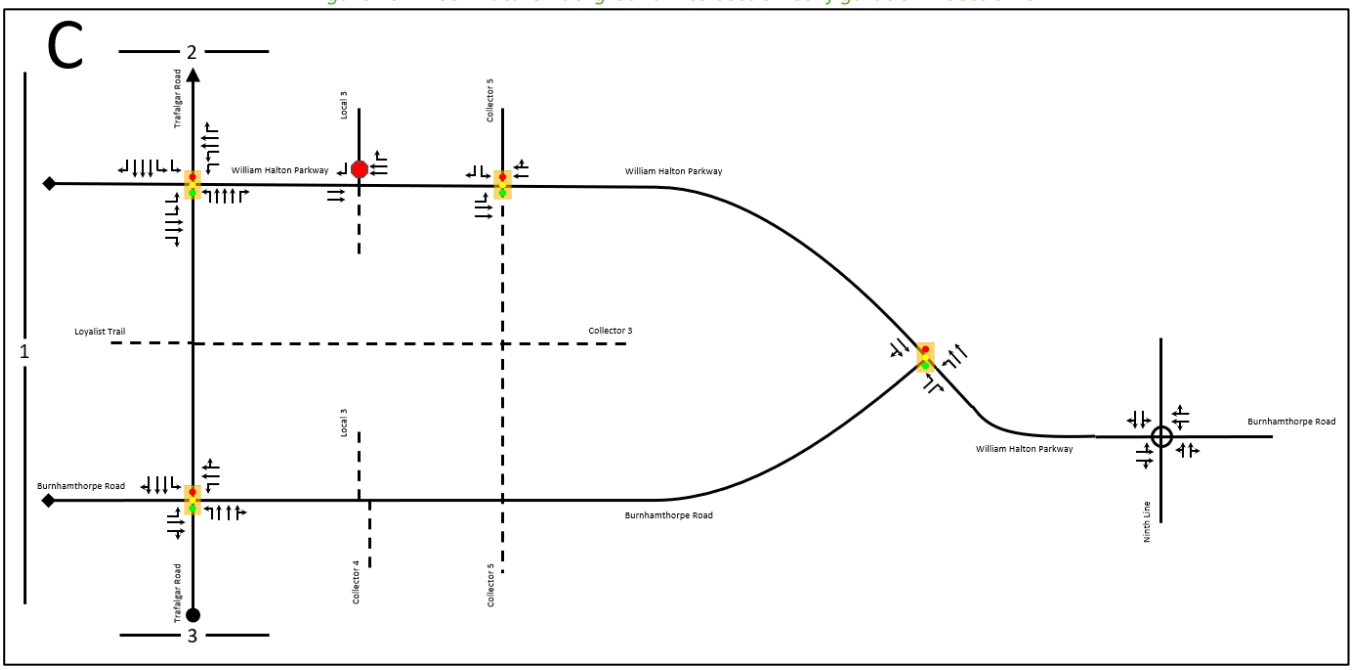


Figure 108: 2031 Future Background Intersection Configuration – Section D

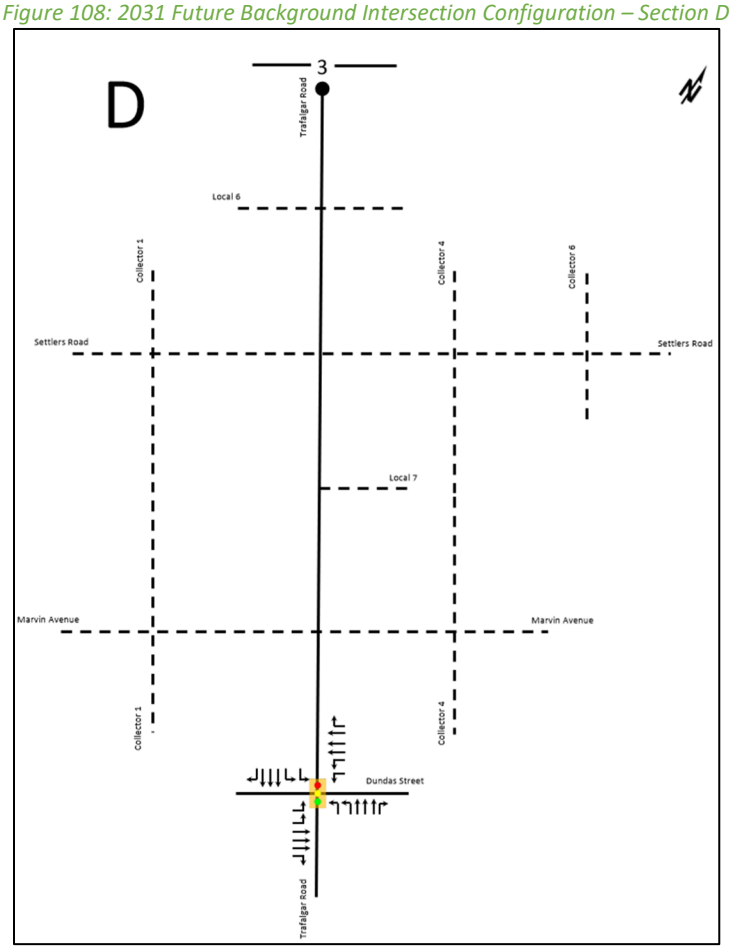


Figure 109: 2036 Future Background Intersection Configuration – Section A

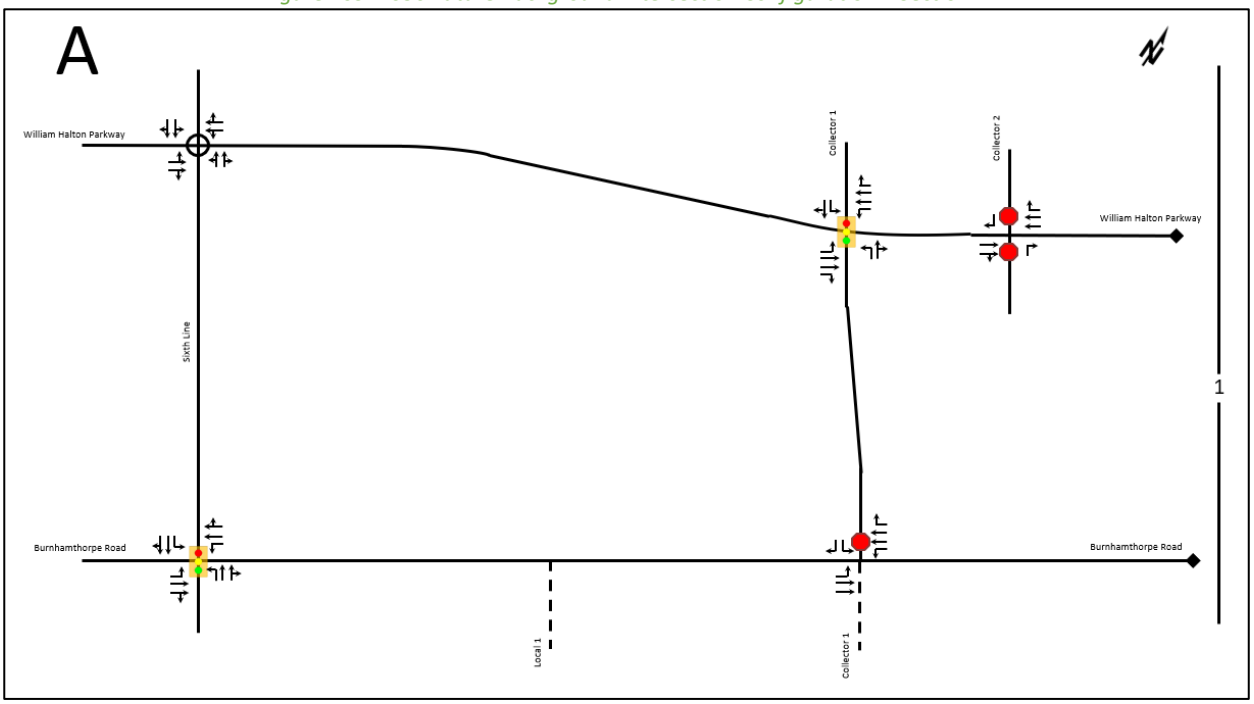


Figure 110: 2036 Future Background Intersection Configuration – Section B

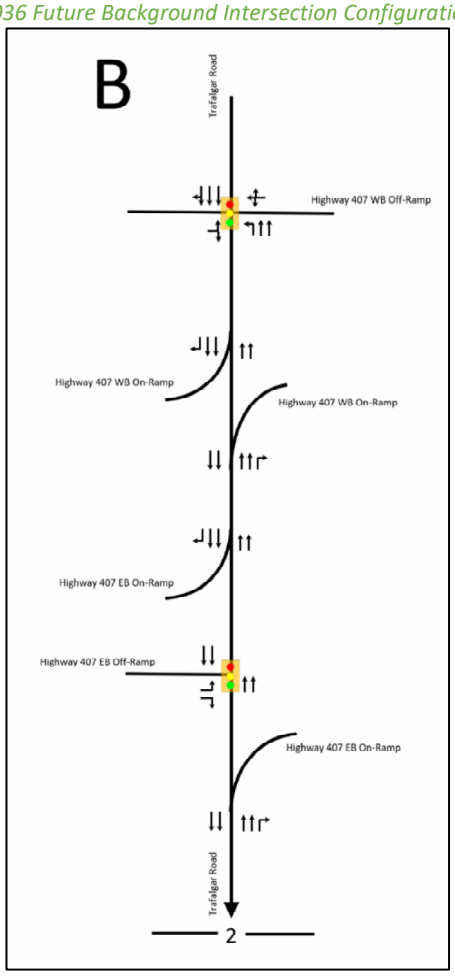


Figure 111: 2036 Future Background Intersection Configuration – Section C

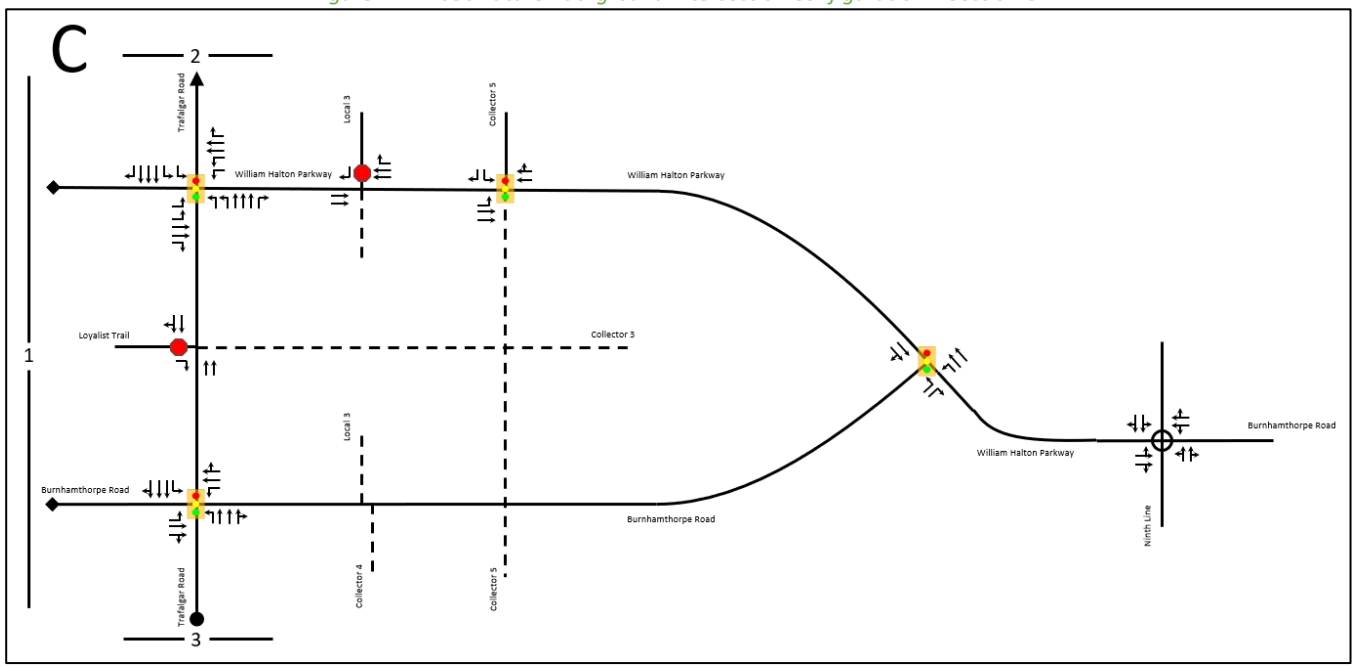


Figure 112: 2036 Future Background Intersection Configuration – Section D

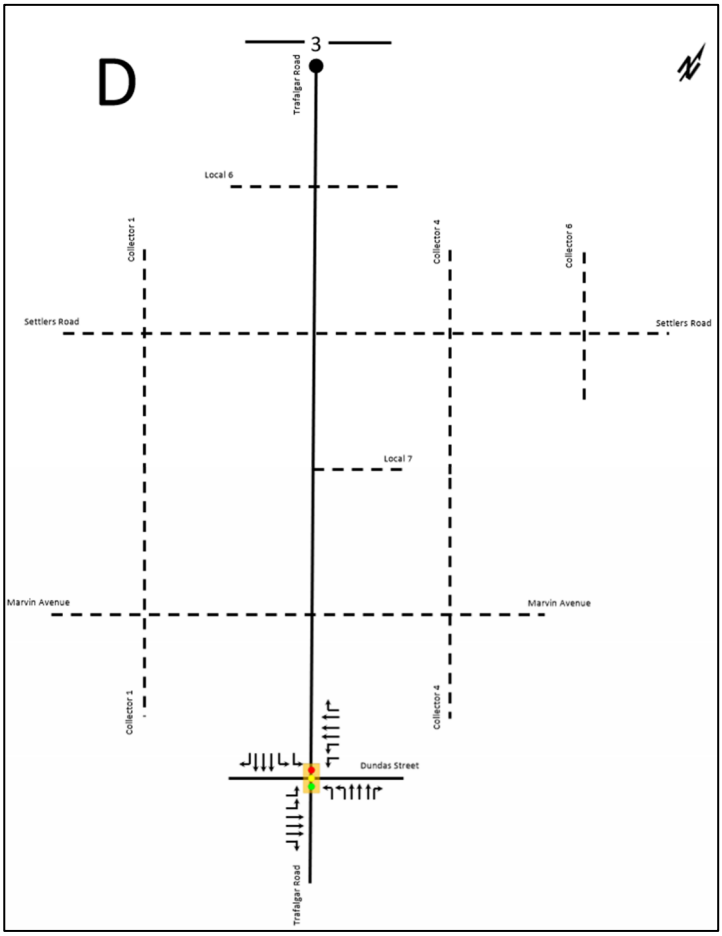


Figure 113: 2041 Future Background Intersection Configuration – Section A

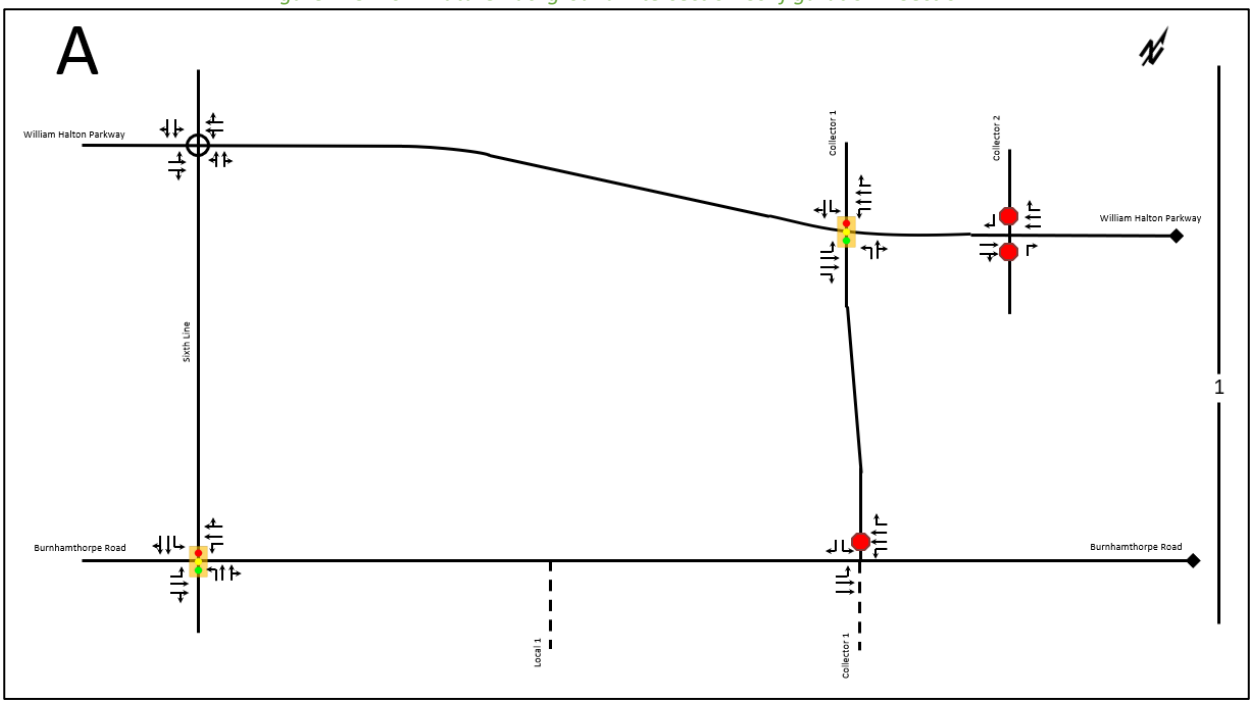


Figure 114: 2041 Future Background Intersection Configuration – Section B

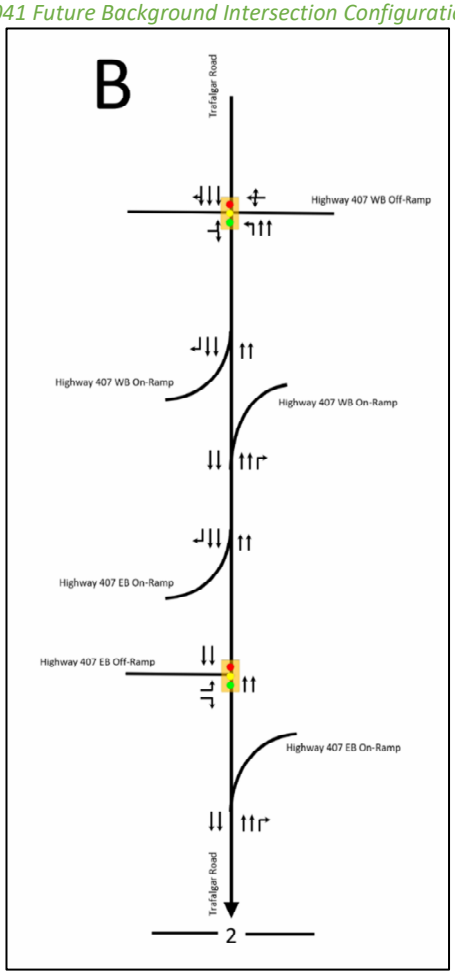


Figure 115: 2041 Future Background Intersection Configuration – Section C

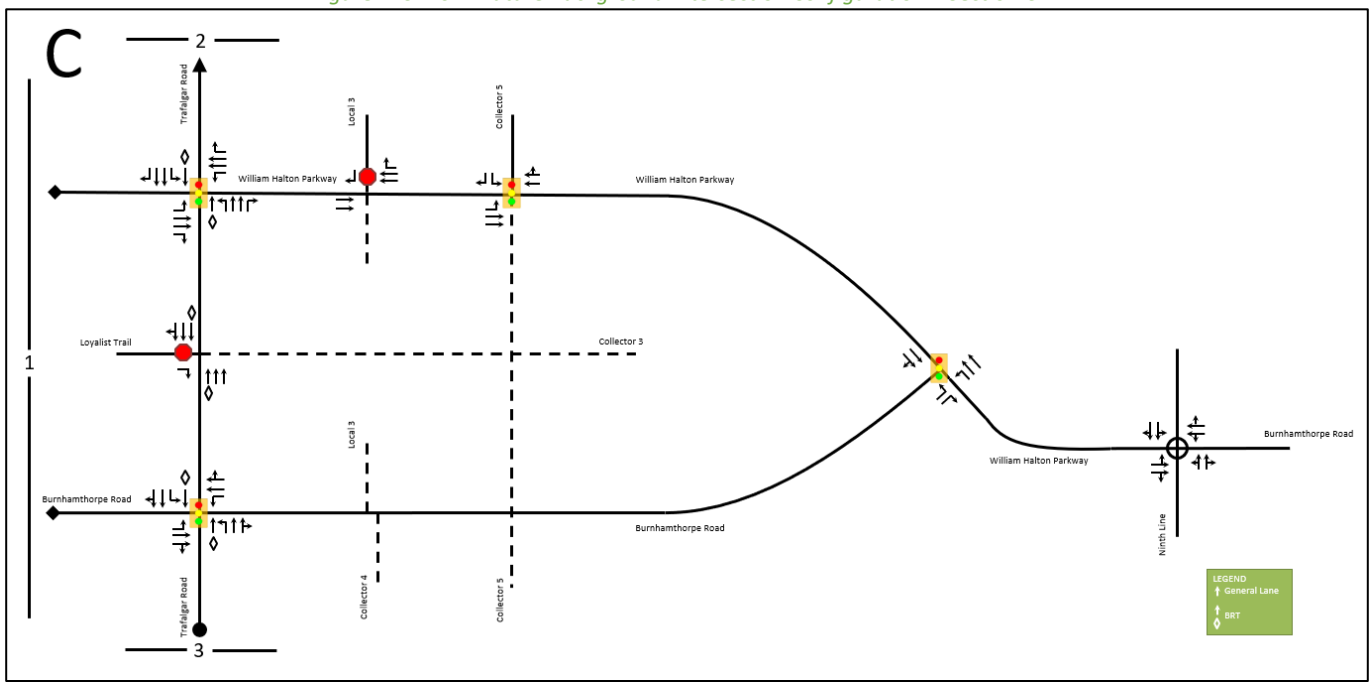
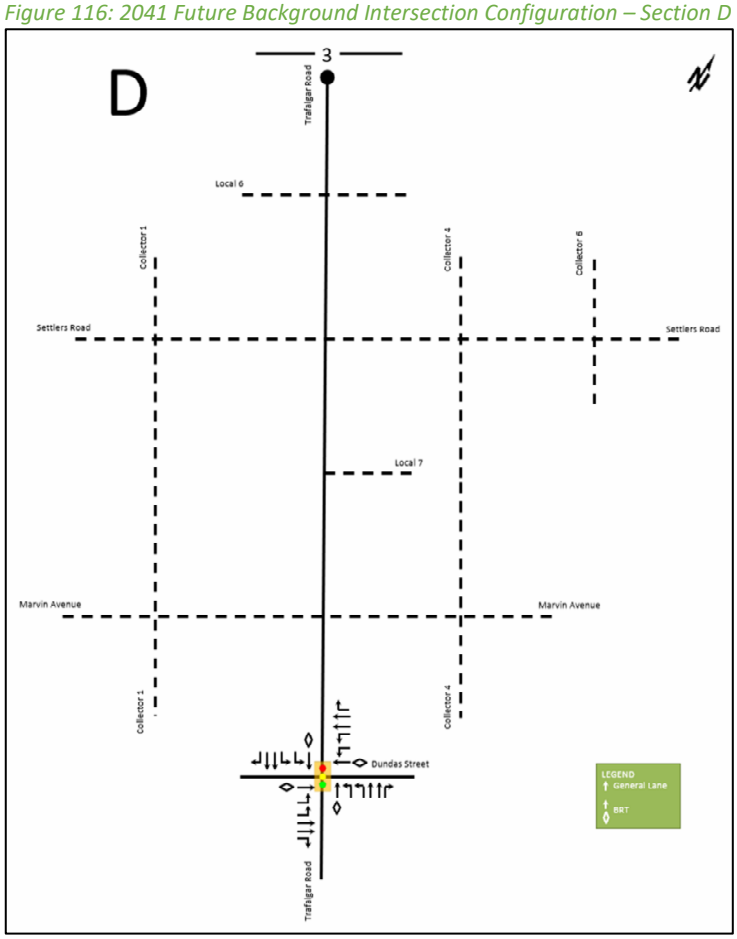


Figure 116: 2041 Future Background Intersection Configuration – Section D



7.3 Future Total Conditions

7.3.1 Future Total Intersection Control

Using the Ontario Traffic Manual (OTM) Book 12 Justification 7 methodology for examining traffic control signal warrants, the following unsignalized intersections have been reviewed:

- Burnhamthorpe Road at Sixth Line
- William Halton Parkway at Burnhamthorpe Road
- Local 1 at Burnhamthorpe Road
- William Halton Parkway at Collector 1
- William Halton Parkway at Collector 2
- William Halton Parkway at Collector 5
- Burnhamthorpe Road at Collector 1
- Collector 3 at Collector 5
- Burnhamthorpe Road at Collector 5
- Trafalgar Road at Local 6
- Trafalgar Road at Settlers Road
- Settlers Road at Collector 1
- Settlers Road at Collector 4
- Settlers Road at Collector 6
- Marvin Avenue at Trafalgar Road
- Marvin Avenue at Collector 1
- Marvin Avenue at Collector 4

A summary of the traffic control signal warrant analysis for future total conditions can be found in Table 28. Traffic control warrant sheets have been included in Appendix G.

Table 43: Future Total Signal Warrant Summary

Intersection	Horizon	Warranted?
Burnhamthorpe Road at Sixth Line	2031 FT	No
	2036 FT	Yes
	2041 FT	
William Halton Parkway at Burnhamthorpe Road	2031 FT	Yes
	2036 FT	
	2041 FT	
Local 1 at Burnhamthorpe Road	2031 FT	No
	2036 FT	
	2041 FT	
William Halton Parkway at Collector 1	2031 FT	No
	2036 FT	Yes
	2041 FT	
William Halton Parkway at Collector 2	2031 FT	No
	2036 FT	
	2041 FT	
William Halton Parkway at Collector 5	2031 FT	Yes
	2036 FT	
	2041 FT	

Burnhamthorpe Road at Collector 1	2031 FT	No
	2036 FT	
	2041 FT	
Collector 3 at Collector 5	2031 FT	No
	2036 FT	
	2041 FT	
Burnhamthorpe Road at Collector 5	2031 FT	No
	2036 FT	
	2041 FT	
Trafalgar Road at Local 6	2031 FT	No
	2036 FT	
	2041 FT	
Settlers Road at Trafalgar Road	2031 FT	Yes
	2036 FT	
	2041 FT	
Settlers Road at Collector 1	2031 FT	No
	2036 FT	
	2041 FT	
Settlers Road at Collector 4	2031 FT	No
	2036 FT	
	2041 FT	
Settlers Road at Collector 6	2031 FT	No
	2036 FT	
	2041 FT	
Marvin Avenue at Trafalgar Road	2031 FT	Yes
	2036 FT	
	2041 FT	
Marvin Avenue at Collector 1	2031 FT	No
	2036 FT	
	2041 FT	
Marvin Avenue at Collector 4	2031 FT	No
	2036 FT	
	2041 FT	

As indicated above, signals are warranted at William Halton Parkway and Burnhamthorpe Road, William Halton Parkway and Collector 5, Settlers Road and Trafalgar Road, and Marvin Avenue at Trafalgar Road in all future total horizons. Signals are also warranted at Burnhamthorpe and Sixth Line and at William Halton Parkway at Collector 1 in the 2036 future total horizon.

Although signal warrants are not met at Sixth Line and Burnhamthorpe Road in the 2031 future total analysis horizon, the Sixth Line Class Environmental Assessment Study (2014) report recommends signals at this intersection as discussed in Section 4.1.4. As such, this intersection will be analyzed as a signalized intersection beginning in the 2031 future total horizon.

Signal warrants at all other intersections within the Study Area are not met in any future analysis. It is however noted that the intersection of Trafalgar Road and Local 6 has been signalized to better accommodate multi-modal travel including vehicle, pedestrian, and cyclist crossings at this intersection. The signal will benefit the area road network by providing an east-west pedestrian and cyclist crossing approximately midway along what would otherwise be a long (approximately 400 metre) urbanized block between Burnhamthorpe Road and Settlers Road,

while still accommodating the progression of through traffic north-south on Trafalgar Road. The TAC Geometric Design Guide for Canadian Roads indicate that along arterial roadways within areas of intensification, a minimum of 200 metres between adjacent signalized intersections is recommended. Along Trafalgar Road, the signalized intersection of Local 6 and Trafalgar Road is located 215 metres north of Settlers Road and 180 metres south of Burnhamthorpe Road. The location of this intersection has, however, been optimized based on the surrounding development parcels it is intending to support, as the east leg of the intersection has been matched to the proposed location of the west leg of the intersection.

A signal warrant will also be undertaken as part of the future development application for the Westerkirk lands on the east side of Trafalgar Road. Notwithstanding warrant compliance based on vehicle traffic volumes alone, signalization of this intersection provides significant additional benefits to the area transportation network, including:

- Providing a safe pedestrian crossing mid-block on Trafalgar Road – As this section of Trafalgar Road continues to develop and densify, increasing numbers of residents, employees and visitors will seek to cross the road. Long distances between formal pedestrian crossings – approximately 200 metres or more – result in lower compliance and safety issues as people choose to jaywalk rather than walk the extra distance to a signal.
- Connecting the 'main streets' of the two future communities – the east leg of Local 6, through the Westerkirk lands, is intended to be the 'main retail street' of the mixed-use, complete community that is being planned. The signal would provide east-west pedestrian connectivity between the two communities on the east and west sides of Trafalgar Road, providing a pedestrian-friendly entry point into both communities.
- Connecting to transit stops – The intersection would provide a formal crossing opportunity for pedestrians and cyclists between the future BRT stops on Trafalgar Road and the two future communities on both sides of Trafalgar Road.

The choice to implement a signal should take into consideration the needs and safety of vulnerable road users (i.e. pedestrians, cyclists and transit riders) and not be made based on vehicle volumes alone. Similarly, minimum intersection spacing guidelines exist primarily for the purpose of ensuring vehicular traffic progression through adjacent signals but should be balanced with the needs of other travel modes as well as the needs of adjacent land uses (e.g. urban streetscapes, which attract more pedestrians and cyclists to both sides of the street). Based on the foregoing, the introduction of a signal on Trafalgar Road at Local 6 is appropriate and will benefit multi-modal travel in the area.

Intersection methods of control for all other existing intersections will be consistent with those considered in the future background conditions analysis.

Additionally, all-way stop control was evaluated at the following internal site intersections using the Ontario Traffic Manual Book 5 for all future total analysis horizons:

- Collector 3 at Collector 5
- Settlers Road at Collector 1
- Settlers Road at Collector 4
- Settlers Road at Collector 6
- Marvin Avenue at Collector 1
- Marvin Avenue at Collector 4

With the exception of the intersection of Collector 3 and Collector 5, all the internal intersections have total vehicle volumes on all approaches exceeding 375 for the highest hour recorded and the volume split satisfying the 70/30 volume split requirement. As such, Collector 3 and Collector 5 will be analyzed with stop control on the minor approaches and all other internal unsignalized site intersections will be analyzed as all-way stop control intersections in all future total analysis horizons. The all-way stop-control warrant sheets can be seen in Appendix L.

At applicable signalized intersections, Amber Clearance, All Red Clearance, Walk, and Flash Don't Walk times were calculated using the methodology provided in OTM Book 12-Traffic Signals. A walk time of 7 seconds was assumed, and a pedestrian walking speed of 1.2 m/s was used to calculate Flash Don't Walk times. The minimum initial values for the Study Area intersections were taken from OTM Book 12.

7.3.2 Future Total Intersection Design

The need for auxiliary right-turn lanes along arterial roads have been assessed using the criteria presented in the Halton Region Access Management Guidelines. These guidelines indicate that a right-turn lane may be warranted at accesses that have sufficient volume of decelerating vehicles, have right turn volume at signalized intersections of 10% of the through traffic volume, or have constrained sight distance approaching the access. At unsignalized intersections on arterial roads, a vehicle threshold of 60 vehicles during the peak period has been used to determine the need for an auxiliary right-turn lane. As such, right-turn lanes have been added to movements satisfying these conditions within all future total horizons.

All applicable intersections have been modelled with intersection configurations and signal timing plans that are consistent with those used in the future background conditions operational analysis. New intersection configurations have been proposed with consideration given to Town of Oakville and Halton Region standard cross-sections and roadway design material as presented and discussed in Section 4.1.

It is noted that the available storage length for auxiliary turning lanes has been shortened where necessary to fit within the new link distance in cases where the original storage length would otherwise exceed the available space.

Since the initial submission of this TIS, minor changes have been made to the future total road network as shown in the concept plan. These changes include slight shifts in the alignment of some internal roads which result in offset legs on some future intersections. However, as these changes have only been noted on right-in / right-out intersections, the offset legs do not interact and therefore have no impact the overall intersection configurations or the results of the analysis. Where applicable, intersections with offset legs have been modelled in Synchro using link offset values. These offsets are not reflected in the following volume figures, as the figures are not to scale and are intended for visual reference only.

The resulting intersection configurations analyzed in the initial 2031 future total horizon are summarized below in Figure 117, Figure 118, Figure 119, and Figure 120.

Figure 117: 2031 Future Total Base Intersection Configuration – Section A

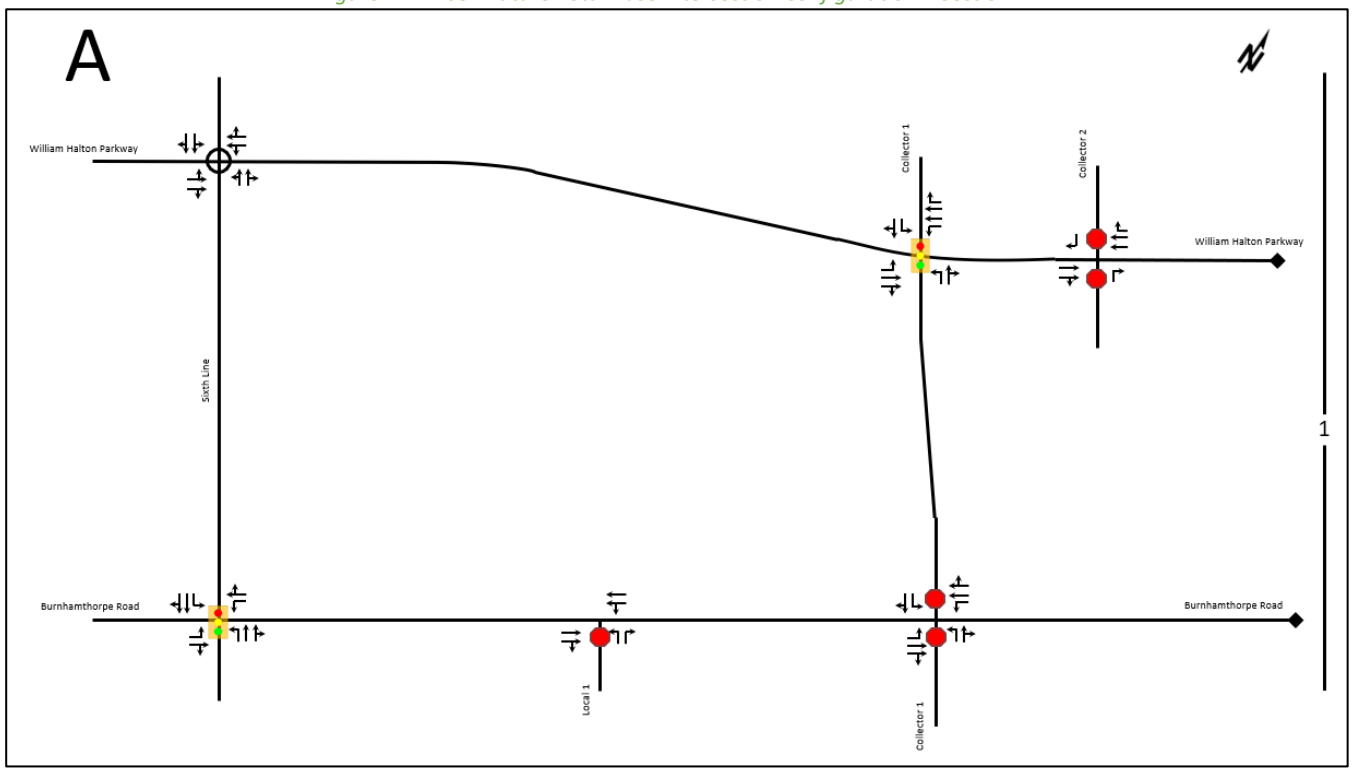


Figure 118: 2031 Future Total Base Intersection Configuration – Section B

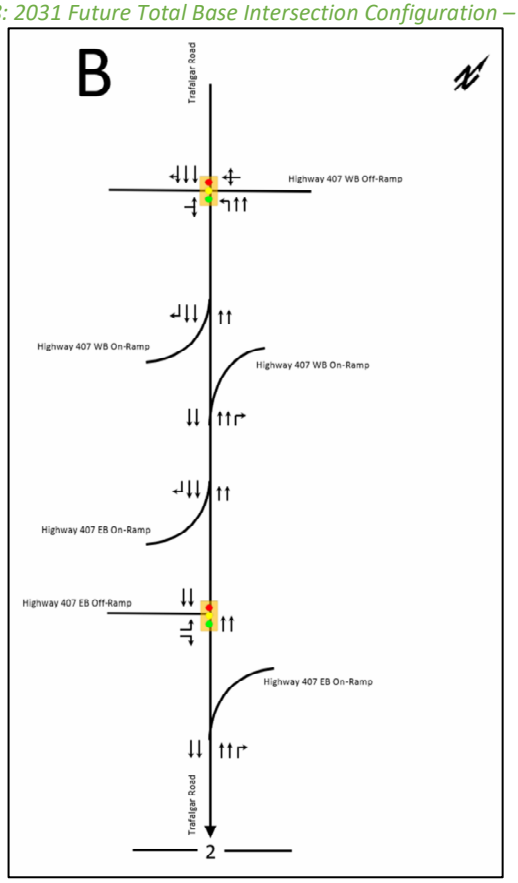


Figure 119: 2031 Future Total Base Intersection Configuration – Section C

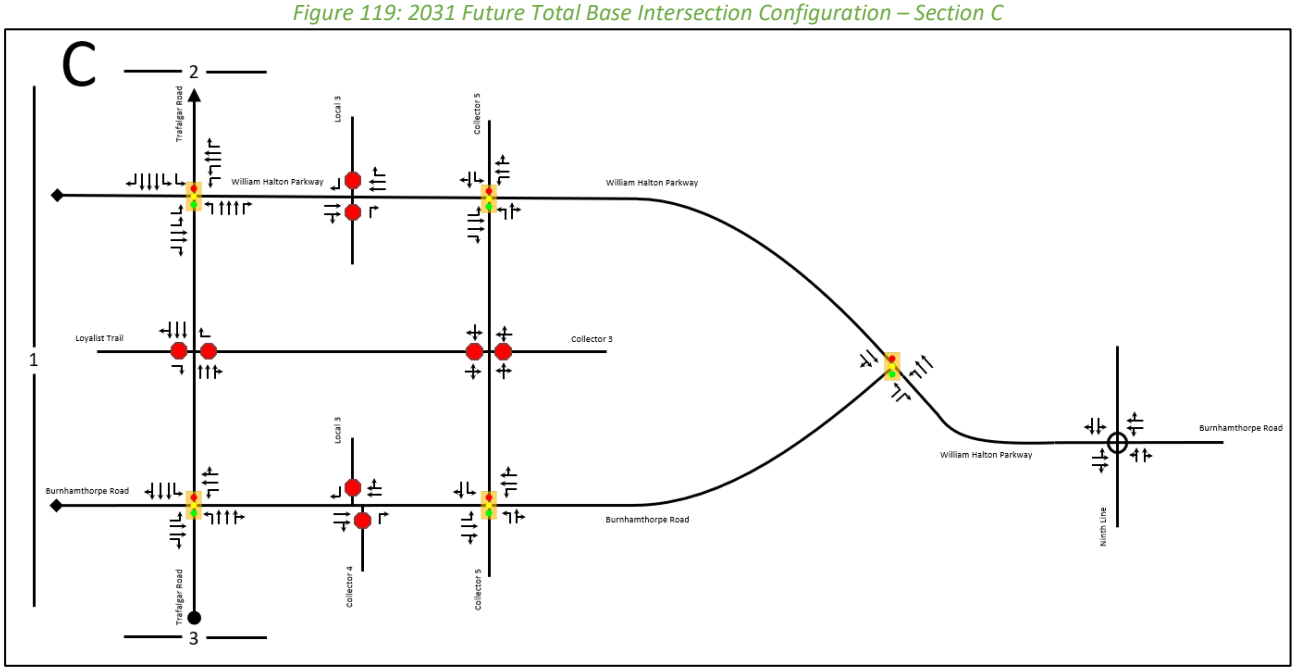
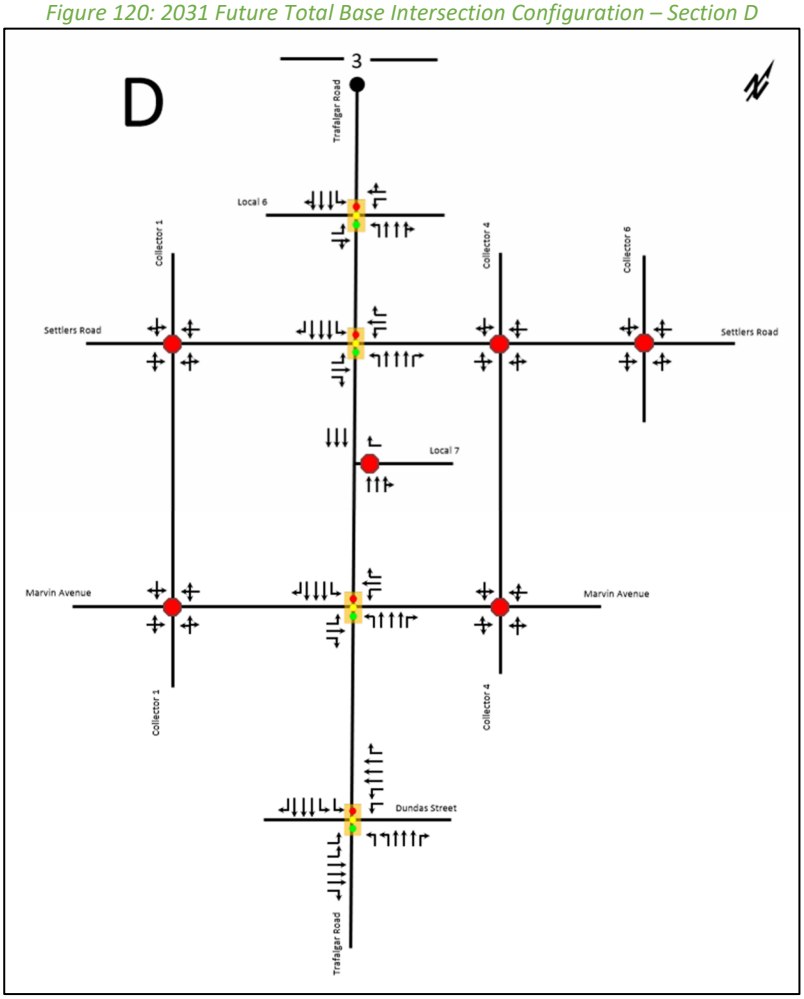


Figure 120: 2031 Future Total Base Intersection Configuration – Section D



7.3.3 2031 Future Total Conditions Operational Analysis

The site generated traffic has been added to the 2031 future background to determine the 2031 future total traffic conditions with the addition of the proposed development.

Table 44 summarizes the results of the operational analysis for 2031 future total conditions and Table 45 summarizes the 95th percentile queue lengths. Synchro and Sidra worksheets have been included in Appendix M.

Table 44: 2031 Future Total Conditions Operational Analysis

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
William Halton Parkway at Trafalgar Road *(Signalized)*	EBL	F	1.41	272	F	1.58	349
	EBT	F	1.04	87	D	0.70	45
	EBR	D	0.33	38	C	0.11	35
	WBL	F	1.06	145	F	0.88	82
	WBT	D	0.60	43	D	0.80	44
	WBR	D	0.57	44	F	1.45	257
	NBL	F	0.99	129	F	1.56	357
	NBT	F	1.18	135	F	1.19	139
	NBR	C	0.31	34	D	0.32	37
	SBL	F	1.47	287	F	1.84	453
	SBT	D	0.87	47	E	1.01	69
	SBR	C	0.29	32	D	0.43	36
	Overall	**F**	**1.19**	**107**	**F**	**1.37**	**140**
***Mitigation:** AM & PM NB double left-turn lane, signal timing optimization, SBL storage of 190 m, SBR storage of 80 m, signal timing optimization*							
William Halton Parkway at Trafalgar Road (Signalized)	*EBL*	*F*	*1.17*	*172*	*F*	*1.58*	*349*
	EBT	*E*	*1.00*	*73*	*D*	*0.70*	*45*
	EBR	*D*	*0.32*	*36*	*C*	*0.09*	*34*
	WBL	*F*	*0.96*	*111*	*F*	*0.88*	*82*
	WBT	*D*	*0.59*	*42*	*D*	*0.80*	*44*
	WBR	*D*	*0.65*	*46*	*F*	*1.45*	*257*
	NBL	*E*	*0.64*	*68*	*F*	*1.04*	*145*
	NBT	*F*	*1.10*	*96*	*F*	*1.19*	*139*
	NBR	*C*	*0.29*	*31*	*D*	*0.28*	*36*
	SBL	*F*	*2.50*	*754*	*F*	*1.84*	*453*
	SBT	*D*	*0.88*	*48*	*E*	*0.97*	*59*
	SBR	*C*	*0.24*	*31*	*C*	*0.41*	*34*
	Overall	***F***	***1.20***	***125***	***F***	***1.40***	***133***
Burnhamthorpe Road at Trafalgar Road *(Signalized)*	EBL	E	0.90	73	D	0.54	35
	EBT/R	D	0.51	35	C	0.44	32
	WBL	F	1.31	215	F	1.43	255
	WBT/R	C	0.38	34	C	0.34	31
	NBL	F	3.69	1279	F	2.20	620
	NBT/R	E	1.04	63	D	0.99	50
	SBL	D	0.69	40	F	1.01	107
	SBT/R	B	0.67	18	C	0.77	23
	Overall	**F**	**2.52**	**102**	**E**	**1.81**	**65**

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Mitigation: AM & PM permitted + protected WBL, NBL, SBL, EBR storage of 30 m, signal timing optimization							
Burnhamthorpe Road at Trafalgar Road (Signalized)	*EBL*	*E*	*0.89*	*72*	*E*	*0.78*	*64*
	EBT	*D*	*0.42*	*37*	*D*	*0.44*	*42*
	EBR	*C*	*0.09*	*34*	*D*	*0.20*	*40*
	WBL	*D*	*0.79*	*47*	*F*	*1.18*	*151*
	WBT/R	*C*	*0.32*	*29*	*C*	*0.38*	*34*
	NBL	*E*	*0.87*	*59*	*C*	*0.67*	*32*
	NBT/R	*F*	*1.12*	*97*	*E*	*1.02*	*57*
	SBL	*D*	*0.80*	*48*	*D*	*0.68*	*39*
	SBT/R	*E*	*1.04*	*71*	*C*	*0.89*	*35*
	Overall	***E***	***1.02***	***72***	***D***	***1.06***	***51***
William Halton Parkway at Burnhamthorpe Road *(Signalized)*	EBT/R	F	1.31	187	F	1.08	98
	WBL	F	1.68	354	F	1.27	165
	WBT	B	0.41	14	B	0.68	12
	NBL	-	-	-	-	-	-
	NBR	F	1.58	309	E	0.90	73
	Overall	**F**	**1.68**	**216**	**E**	**1.21**	**76**
Mitigation: AM & PM double WBL storage of 170 m, signal timing optimization							
William Halton Parkway at Burnhamthorpe Road (Signalized)	*EBT/R*	*F*	*1.25*	*158*	*E*	*0.93*	*56*
	WBL	*F*	*1.42*	*252*	*E*	*1.01*	*69*
	WBT	*B*	*0.45*	*18*	*C*	*0.80*	*22*
	NBL	-	-	-	-	-	-
	NBR	*F*	*1.51*	*276*	*E*	*0.95*	*68*
	Overall	***F***	***1.39***	***179***	***D***	***1.01***	***49***
Dundas Street at Trafalgar Road *(Signalized)*	EBL	F	2.14	590	F	1.92	488
	EBT	F	1.34	200	E	1.04	73
	EBR	C	0.28	30	C	0.18	28
	WBL	F	1.51	320	F	1.42	275
	WBT	D	0.85	45	F	1.15	118
	WBR	E	0.97	73	F	1.08	104
	NBL	F	1.09	155	F	1.53	322
	NBT	D	0.85	46	F	1.18	134
	NBR	C	0.08	30	C	0.32	34
	SBL	F	2.61	793	F	2.50	748
	SBT	F	1.07	86	D	0.84	44
	SBR	C	0.49	33	D	0.55	37
	Overall	**F**	**1.48**	**191**	**F**	**1.34**	**167**
Sixth Line at William Halton Parkway *(Roundabout)*	EBL/T	E	0.91	49	C	0.65	21
	EBT	E	0.91	48	C	0.65	20
	EBR	A	0.06	3	A	0.04	3
	WBL/T	C	0.61	16	F	1.07	76
	WBT/R	C	0.61	16	F	1.07	76
	NBL/T	F	0.93	69	C	0.46	15
	NBT/R	F	0.93	66	B	0.46	15
	SBL/T	F	1.21	128	C	0.63	21
	SBT	B	0.44	12	C	0.63	20
	SBR	A	0.19	4	A	0.16	4
	Overall	**F**	**1.21**	**53**	**E**	**1.07**	**41**

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Mitigation: AM & PM channelized WB right turn lane							
Sixth Line at William Halton Parkway (Roundabout)	*EBL/T*	*E*	*0.91*	*49*	*C*	*0.65*	*21*
	EBT	*E*	*0.91*	*48*	*C*	*0.65*	*20*
	EBR	*A*	*0.06*	*3*	*A*	*0.04*	*3*
	WBL/T	*B*	*0.48*	*13*	*C*	*0.71*	*20*
	WBT	*B*	*0.48*	*12*	*C*	*0.71*	*19*
	WBR	*A*	*0.09*	*3*	*A*	*0.28*	*5*
	NBL/T	*F*	*0.93*	*69*	*C*	*0.46*	*15*
	NBT/R	*F*	*0.93*	*66*	*B*	*0.46*	*15*
	SBL/T	*F*	*1.21*	*128*	*C*	*0.67*	*24*
	SBT	*B*	*0.44*	*12*	*C*	*0.67*	*23*
	SBR	*A*	*0.19*	*4*	*A*	*0.16*	*5*
	Overall	***F***	***1.21***	***53***	***C***	***0.71***	***16***
Sixth Line at Burnhamthorpe Road *(Signalized)*	EBL	C	0.31	27	C	0.17	24
	EBT/R	C	0.25	26	C	0.18	24
	WBL	C	0.62	34	C	0.58	30
	WBT/R	C	0.36	27	C	0.36	25
	NBL	A	0.41	9	A	0.24	7
	NBT/R	A	0.41	7	A	0.27	6
	SBL	A	0.27	8	A	0.16	6
	SBT/R	A	0.27	6	A	0.34	7
	Overall	**B**	**0.46**	**13**	**B**	**0.40**	**12**
Trafalgar Road at Highway 407 WB Off-Ramp *(Signalized)*	EBL	C	0.03	32	C	0.05	30
	EBR	C	0.00	32	C	0.00	30
	WBL	D	0.68	43	D	0.70	41
	WBL/T/R	D	0.71	46	D	0.75	45
	WBR	C	0.00	32	C	0.01	30
	NBL	A	0.02	6	A	0.06	8
	NBT	B	0.87	15	D	1.01	16
	SBT/R	A	0.59	10	B	0.62	12
	Overall	**B**	**0.88**	**15**	**C**	**1.00**	**28**
Trafalgar Road at Highway 407 EB Off-Ramp *(Signalized)*	EBL	D	0.16	39	B	0.07	15
	EBR	F	0.93	81	C	0.75	27
	NBT	C	0.93	25	F	1.58	279
	SBT	B	0.84	18	F	1.32	166
	Overall	**C**	**0.93**	**26**	**F**	**1.25**	**215**
Mitigation: EB shared left/right turn lane, AM & PM signal timing optimization							
Trafalgar Road at Highway 407 EB Off-Ramp (Signalized)	*EBL/R*	*E*	*0.70*	*57*	*D*	*0.68*	*51*
	EBR	*E*	*0.75*	*63*	*E*	*0.75*	*58*
	NBT	*B*	*0.86*	*15*	*E*	*1.07*	*57*
	SBT	*B*	*0.78*	*11*	*B*	*0.90*	*19*
	Overall	***B***	***0.84***	***17***	***D***	***1.01***	***41***

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Ninth Line at William Halton Parkway / Burnhamthorpe Road *(Roundabout)*	EBL/T	F	1.99	466	F	1.39	199
	EBT	F	1.99	363	F	1.39	145
	EBR	A	0.28	6	A	0.19	5
	WBL/T	F	1.17	112	F	1.67	320
	WBT/R	F	1.17	111	F	1.67	319
	NBL/T	F	1.12	124	F	2.44	691
	NBT/R	F	1.12	121	F	2.44	695
	SBL/T	F	1.30	183	E	0.76	43
	SBT	F	1.30	181	E	0.76	41
	SBR	A	0.05	3	A	0.06	4
	Overall	**F**	**1.99**	**203**	**F**	**2.44**	**317**
Collector 1 at William Halton Parkway *(Signalized)*	EBL	A	0.03	3	A	0.02	5
	EBT/R	A	0.65	6	A	0.40	7
	WBL	F	1.09	110	A	0.18	6
	WBT	A	0.30	3	A	0.65	9
	WBR	A	0.11	3	A	0.02	5
	NBL	C	0.08	32	C	0.10	26
	NBT/R	C	0.18	33	C	0.07	26
	SBL	C	0.15	32	C	0.59	32
	SBT/R	C	0.03	32	C	0.11	26
	Overall	**B**	**0.97**	**12**	**B**	**0.63**	**10**
Mitigation: AM permitted + protected WBL, signal timing optimization, WBL storage of 50 m							
Collector 1 at William Halton Parkway (Signalized)	*EBL*	*A*	*0.04*	*6*	A	0.02	5
	EBT/R	*B*	*0.74*	*14*	A	0.40	7
	WBL	*C*	*0.62*	*24*	A	0.18	6
	WBT	*A*	*0.28*	*3*	A	0.65	9
	WBR	*A*	*0.11*	*3*	A	0.02	5
	NBL	*D*	*0.09*	*43*	C	0.10	26
	NBT/R	*D*	*0.19*	*43*	C	0.07	26
	SBL	*D*	*0.16*	*43*	C	0.59	32
	SBT/R	*D*	*0.03*	*42*	C	0.11	26
	Overall	***B***	***0.66***	***12***	**B**	**0.63**	**10**
Collector 2 at William Halton Parkway *(Unsignalized)*	EBL	A	0.68	0	A	0.40	0
	EBT/R	A	0.34	0	A	0.23	0
	WBT	A	0.33	0	A	0.47	0
	WBR	A	0.00	0	A	0.00	0
	NBR	B	0.07	11	B	0.08	11
	SBR	A	0.00	0	A	0.00	0
	Overall	**A**	**-**	**1**	**A**	**-**	**1**

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Collector 1 at Burnhamthorpe Road *(Unsignalized)*	EBL	A	0.02	9	A	0.00	9
	EBT	A	0.23	0	A	0.17	0
	EBT/R	A	0.12	0	A	0.10	0
	WBL	A	0.10	9	A	0.12	9
	WBT	A	0.14	0	A	0.20	0
	WBT/R	A	0.16	0	A	0.12	0
	NBL	E	0.18	42	F	0.18	60
	NBT/R	F	0.96	91	D	0.48	26
	SBL	F	0.48	154	F	1.49	357
	SBT/R	E	0.36	42	F	0.65	61
	Overall	**A**	**-**	**18**	**A**	**-**	**38**
*Mitigation: **AM** & PM **signalization with 90 s** cycle length, signal timing optimization*							
Collector 1 at Burnhamthorpe Road (Signalized)	*EBL*	*A*	*0.03*	*5*	*A*	*0.01*	*5*
	EBT/R	*A*	*0.27*	*6*	*A*	*0.21*	*6*
	WBL	*A*	*0.20*	*6*	*A*	*0.24*	*7*
	WBT/R	*A*	*0.22*	*6*	*A*	*0.25*	*6*
	NBL	*C*	*0.08*	*24*	*C*	*0.06*	*23*
	NBT/R	*C*	*0.52*	*27*	*C*	*0.22*	*24*
	SBL	*C*	*0.11*	*24*	*C*	*0.53*	*28*
	SBT/R	*C*	*0.15*	*24*	*C*	*0.27*	*24*
	Overall	***B***	***0.32***	***10***	***B***	***0.31***	***11***
Local 1 at Burnhamthorpe Road *(Unsignalized)*	EBT	A	0.23	0	A	0.17	0
	EBT/R	A	0.11	0	A	0.09	0
	WBT/L	A	0.01	1	A	0.03	2
	WBT	A	0.15	0	A	0.20	0
	NBL	C	0.01	17	C	0.01	16
	NBR	B	0.05	11	A	0.03	10
	Overall	**A**	**-**	**1**	**A**	**-**	**1**
Local 3 at William Halton Parkway *(Unsignalized)*	EBT	A	0.78	0	A	0.63	0
	EBT/R	A	0.40	0	A	0.32	0
	WBT	A	0.30	0	A	0.57	0
	WBR	A	0.01	0	A	0.01	0
	NBR	B	0.03	11	B	0.02	12
	SBR	B	0.34	12	C	0.71	24
	Overall	**B**	**-**	**1**	**D**	**-**	**3**
Local 3 / Collector 4 at Burnhamthorpe Road *(Unsignalized)*	EBT	A	0.31	0	A	0.26	0
	EBT/R	A	0.17	0	A	0.16	0
	WBT	A	0.25	0	A	0.29	0
	WBT/R	A	0.13	0	A	0.15	0
	NBR	B	0.18	11	B	0.14	11
	SBR	B	0.02	11	B	0.02	11
	Overall	**A**	**-**	**1**	**A**	**-**	**1**
Loyalist Trail / Collector 3 at Trafalgar Road *(Unsignalized)*	EBR	A	0.01	10	B	0.04	10
	WBR	B	0.15	12	B	0.11	12
	NBT	A	0.52	0	A	0.50	0
	NBT/R	A	0.28	0	A	0.29	0
	SBT	A	0.44	0	A	0.51	0
	SBT/R	A	0.24	0	A	0.26	0

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
	Overall	**A**	**-**	**0**	**A**	**-**	**0**
Collector 3 at Collector 5 ***(Unsignalized)***	EBL/T/R	B	0.15	12	B	0.15	4
	WBL/T/R	B	0.02	11	B	0.03	1
	NBL/T/R	A	0.05	4	A	0.06	1
	SBL/T/R	A	0.00	1	A	0.00	0
	Overall	**A**	**-**	**6**	**A**	**-**	**5**
Collector 5 at William Halton Parkway ***(Signalized)***	EBL	C	0.86	27	F	1.22	158
	EBT	B	0.69	13	B	0.48	16
	EBR	A	0.03	7	B	0.06	12
	WBL	B	0.18	18	D	0.47	50
	WBT/R	C	0.64	27	E	1.06	69
	NBL	D	0.60	37	D	0.59	38
	NBT/R	C	0.02	29	C	0.02	30
	SBL	C	0.23	31	D	0.44	42
	SBT/R	C	0.17	30	D	0.49	42
	Overall	**C**	**0.83**	**21**	**E**	**0.99**	**65**
Collector 5 at Burnhamthorpe Road ***(Unsignalized)***	EBL	A	0.04	9	A	0.07	9
	EBT	A	0.33	0	A	0.25	0
	EBT/R	A	0.19	0	A	0.16	0
	WBL	B	0.11	10	B	0.22	10
	WBT	A	0.22	0	A	0.28	0
	WBT/R	A	0.11	0	A	0.14	0
	NBL	F	2.09	870	F	Err	Err
	NBT/R	F	1.62	350	F	1.85	127
	SBL	F	Err	Err	F	Err	Err
	SBT/R	F	0.89	135	F	2.47	829
	Overall	**A**	**-**	**Err**	**B**	**-**	**Err**
Mitigation: AM & PM signalization with 90 s cycle length, WBL storage of 50 m, signal timing optimization							
Collector 5 at Burnhamthorpe Road ***(Signalized)***	*EBL*	*A*	*0.07*	*5*	*A*	*0.13*	*5*
	EBT/R	*A*	*0.40*	*7*	*A*	*0.30*	*5*
	WBL	*A*	*0.24*	*7*	*A*	*0.42*	*8*
	WBT/R	*A*	*0.26*	*6*	*A*	*0.30*	*5*
	NBL	*C*	*0.19*	*24*	*C*	*0.16*	*28*
	NBT/R	*C*	*0.61*	*30*	*C*	*0.47*	*30*
	SBL	*C*	*0.09*	*24*	*C*	*0.07*	*27*
	SBT/R	*C*	*0.21*	*24*	*C*	*0.42*	*29*
	Overall	***B***	***0.45***	***11***	***B***	***0.43***	***10***
Local 6 at Trafalgar Road ***(Signalized)***	EBL	C	0.43	29	C	0.31	33
	EBT/R	C	0.11	26	C	0.14	32
	WBL	C	0.42	29	C	0.36	33
	WBT/R	C	0.38	28	C	0.08	31
	NBL	B	0.26	11	B	0.34	20
	NBT/R	A	0.66	8	B	0.78	16
	SBL	C	0.63	34	B	0.61	18
	SBT/R	A	0.60	8	A	0.62	7
	Overall	**A**	**0.61**	**10**	**B**	**0.70**	**13**

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Settlers Road at Trafalgar Road *(Signalized)*	EBL	D	0.73	53	D	0.51	43
	EBT	D	0.36	39	D	0.44	41
	EBR	D	0.36	39	D	0.10	38
	WBL	D	0.82	50	D	0.61	36
	WBT	C	0.26	30	C	0.23	31
	WBR	C	0.04	28	C	0.02	29
	NBL	C	0.55	21	D	0.86	52
	NBT/R	C	0.90	31	C	0.90	29
	SBL	C	0.61	26	D	0.85	51
	SBT/R	C	0.80	26	C	0.86	29
	Overall	**C**	**0.88**	**31**	**C**	**0.87**	**32**
Mitigation: AM & PM signal timing optimization, EBR storage of 40 m, NBR storage of 40 m, SBL storage of 80 m, SBR storage of 30 m							
Settlers Road at Trafalgar Road (Signalized)	*EBL*	*E*	*0.75*	*60*	*D*	*0.54*	*51*
	EBT	*D*	*0.36*	*43*	*D*	*0.47*	*49*
	EBR	*D*	*0.37*	*44*	*D*	*0.10*	*45*
	WBL	*E*	*0.88*	*65*	*D*	*0.70*	*49*
	WBT	*C*	*0.28*	*34*	*D*	*0.26*	*38*
	WBR	*C*	*0.04*	*32*	*D*	*0.02*	*35*
	NBL	*C*	*0.57*	*25*	*E*	*0.68*	*57*
	NBT	*C*	*0.87*	*31*	*C*	*0.92*	*25*
	NBR	*B*	*0.19*	*16*	*C*	*0.15*	*24*
	SBL	*C*	*0.60*	*27*	*C*	*0.67*	*35*
	SBT	*C*	*0.80*	*27*	*D*	*0.90*	*36*
	SBR	*B*	*0.10*	*15*	*B*	*0.10*	*18*
	Overall	***C***	***0.88***	***32***	***C***	***0.87***	***33***
Collector 1 at Settlers Road *(Unsignalized)*	EBL/T/R	B	0.32	12	B	0.28	11
	WBL/T/R	B	0.51	15	B	0.43	12
	NBL/T/R	B	0.50	14	B	0.32	11
	SBL/T/R	B	0.24	11	B	0.27	11
	Overall	**B**	**-**	**13**	**B**	**-**	**11**
Collector 4 at Settlers Road *(Unsignalized)*	EBL/T/R	E	0.89	47	E	0.85	37
	WBL/T/R	D	0.74	30	C	0.48	17
	NBL/T/R	C	0.62	23	C	0.64	23
	SBL/T/R	D	0.70	27	C	0.60	20
	Overall	**D**	**-**	**33**	**D**	**-**	**26**
Collector 6 at Settlers Road *(Unsignalized)*	EBL/T/R	C	0.64	18	B	0.39	12
	WBL/T/R	B	0.45	13	B	0.33	11
	NBL/T/R	B	0.25	12	B	0.21	10
	SBL/T/R	B	0.40	13	B	0.33	11
	Overall	**B**	**-**	**15**	**B**	**-**	**11**
Local 7 at Trafalgar Road (Unsignalized)	WBR	B	0.06	11	B	0.04	12
	NBT	A	0.53	0	A	0.59	0
	NBT/R	A	0.30	0	A	0.39	0
	SBT	A	0.46	0	A	0.43	0
	Overall	**A**	**-**	**0**	**B**	**-**	**0**

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Marvin Avenue at Trafalgar Road *(Signalized)*	EBL	D	0.18	38	D	0.12	39
	EBT	D	0.25	39	D	0.42	41
	EBR	D	0.68	48	D	0.13	39
	WBL	E	0.93	70	D	0.65	39
	WBT	C	0.25	30	C	0.22	31
	WBR	C	0.04	28	C	0.05	29
	NBL	F	1.03	98	F	1.02	93
	NBT/R	C	0.91	30	E	1.08	68
	SBL	C	0.58	24	C	0.52	24
	SBT/R	D	0.96	39	C	0.86	28
	Overall	**D**	**1.07**	**40**	**D**	**1.02**	**50**
Mitigation: AM & PM signal timing optimization, EBR storage of 70 m, NBL storage of 130 m, NBR storage of 40 m, SBL storage of 40 m, SBR storage of 30 m							
Marvin Avenue at Trafalgar Road (Signalized)	*EBL*	*D*	*0.17*	*38*	*D*	*0.12*	*46*
	EBT	*D*	*0.25*	*38*	*D*	*0.45*	*49*
	EBR	*D*	*0.69*	*49*	*D*	*0.17*	*47*
	WBL	*E*	*0.93*	*68*	*D*	*0.74*	*53*
	WBT	*C*	*0.24*	*30*	*D*	*0.25*	*39*
	WBR	*C*	*0.04*	*28*	*D*	*0.05*	*37*
	NBL	*F*	*1.30*	*197*	*D*	*0.64*	*36*
	NBT	*F*	*1.00*	*45*	*D*	*1.02*	*49*
	NBR	*B*	*0.05*	*14*	*B*	*0.18*	*13*
	SBL	*C*	*0.58*	*27*	*D*	*0.57*	*42*
	SBT	*D*	*1.02*	*51*	*D*	*1.06*	*55*
	SBR	*B*	*0.01*	*14*	*B*	*0.00*	*18*
	Overall	***D***	***1.24***	***54***	***D***	***0.96***	***49***
Collector 1 at Marvin Avenue *(Unsignalized)*	EBL/T/R	A	0.18	10	A	0.23	10
	WBL/T/R	B	0.58	15	B	0.36	10
	NBL/T/R	A	0.13	10	A	0.10	9
	SBL/T/R	B	0.49	14	B	0.33	11
	Overall	**B**	**-**	**13**	**B**	**-**	**10**
Collector 4 at Marvin Avenue *(Unsignalized)*	EBL/T/R	B	0.44	15	C	0.70	24
	WBL/T/R	C	0.52	17	C	0.42	16
	NBL/T/R	B	0.39	14	C	0.69	23
	SBL/T/R	C	0.75	24	C	0.56	18
	Overall	**C**	**-**	**19**	**C**	**-**	**21**

Table 45: 2031 Future Total Conditions Queue Lengths

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
William Halton Parkway at Trafalgar Road *(Signalized)*	EBL	105	#96	#92
	EBT	-	#221	120
	EBR	60	50	19
	WBL	120	#63	#73
	WBT	-	100	161
	WBR	205	84	#396
	NBL	85	#97	#115
	NBT	-	#289	#276
	NBR	55	49	50
	SBL	140	#154	#156
	SBT	-	177	#232
	SBR	60	44	68
Mitigation: *AM & PM NB double left-turn lane, signal timing optimization, SBL storage of 190 m, SBR storage of 80 m, signal timing optimization*				
William Halton Parkway at Trafalgar Road (Signalized)	*EBL*	*105*	*#89*	*#92*
	EBT	*-*	*#213*	*120*
	EBR	*60*	*48*	*12*
	WBL	*120*	*#60*	*#73*
	WBT	*-*	*99*	*161*
	WBR	*205*	*101*	*#396*
	NBL	*85*	*37*	*#51*
	NBT	*-*	*#274*	*#276*
	NBR	*55*	*46*	*42*
	SBL	*190*	*#179*	*#156*
	SBT	*-*	*179*	*#225*
	SBR	*80*	*32*	*66*
Burnhamthorpe Road at Trafalgar Road *(Signalized)*	EBL	100	#94	50
	EBT/R	-	68	61
	WBL	120	#126	#163
	WBT/R	-	48	48
	NBL	130	#140	#76
	NBT/R	-	#277	#241
	SBL	170	42	#67
	SBT/R	-	127	157
Mitigation: AM & PM permitted + protected WBL, NBL, SBL, EBR storage of 30 m, signal timing optimization				
Burnhamthorpe Road at Trafalgar Road (Signalized)	*EBL*	*100*	*#85*	*50*
	EBT	*-*	*51*	*43*
	EBR	*30*	*14*	*23*
	WBL	*120*	*60*	*#108*
	WBT/R	*-*	*40*	*43*
	NBL	*130*	*#97*	*#52*
	NBT/R	*-*	*#278*	*#268*
	SBL	*170*	*#66*	*#71*
	SBT/R	*-*	*#222*	*#234*
William Halton Parkway at Burnhamthorpe Road *(Signalized)*	EBT/R	-	#278	#175
	WBL	100	#317	#345
	WBT	-	67	128
	NBL	30	0	0
	NBR	-	#355	#138

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
Mitigation: AM & PM double WBL storage of 170 m, signal timing optimization				
William Halton Parkway at Burnhamthorpe Road (Signalized)	*EBT/R*	*-*	*#270*	*#156*
	WBL	*170*	*#160*	*#144*
	WBT	*-*	*76*	*182*
	NBL	*30*	*0*	*0*
	NBR	*-*	*#378*	*#187*
Dundas Street at Trafalgar Road *(Signalized)*	EBL	125	#140	#136
	EBT	-	#335	#229
	EBR	85	41	24
	WBL	80	#77	#81
	WBT	-	146	#262
	WBR	85	#202	#244
	NBL	90	#53	#88
	NBT	-	142	#253
	NBR	50	13	47
	SBL	90	#216	#178
	SBT	-	#237	146
	SBR	65	76	87
Mitigation: EBL storage of 160 m, WBL storage of 90 m, WBR storage of 260 m, SBL storage of 250 m, SBR storage of 100 m				
Dundas Street at Trafalgar Road (Signalized)	*EBL*	*160*	*#140*	*#136*
	EBT	*-*	*#335*	*#229*
	EBR	*85*	*41*	*24*
	WBL	*90*	*#77*	*#81*
	WBT	*-*	*146*	*#262*
	WBR	*260*	*#202*	*#244*
	NBL	*90*	*#53*	*#88*
	NBT	*-*	*142*	*#253*
	NBR	*50*	*13*	*47*
	SBL	*230*	*#216*	*#178*
	SBT	*-*	*#237*	*146*
	SBR	*100*	*76*	*87*
Sixth Line at William Halton Parkway *(Roundabout)*	EBL/T	-	63	26
	EBT	-	64	26
	EBR	-	0	0
	WBL/T	-	27	262
	WBT/R	-	27	267
	NBL/T	-	49	13
	NBT/R	-	50	13
	SBL/T	-	407	23
	SBT	-	13	23
	SBR	-	0	0

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
Mitigation: AM & PM channelized WB right turn lane				
Sixth Line at William Halton Parkway (Roundabout)	*EBL/T*	*-*	*63*	*26*
	EBT	*-*	*64*	*26*
	EBR	*-*	*0*	*0*
	WBL/T	*-*	*16*	*46*
	WBT	*-*	*16*	*46*
	WBR	*-*	*0*	*0*
	NBL/T	*-*	*49*	*13*
	NBT/R	*-*	*50*	*13*
	SBL/T	*-*	*408*	*25*
	SBT	*-*	*14*	*25*
	SBR	*-*	*0*	*0*
Sixth Line at Burnhamthorpe Road *(Signalized)*	EBL	55	18	11
	EBT/R	-	18	13
	WBL	40	34	32
	WBT/R	-	24	23
	NBL	30	32	15
	NBT/R	-	48	26
	SBL	30	16	12
	SBT/R	-	31	38
Mitigation: NBL storage of 40 m				
Sixth Line at Burnhamthorpe Road (Signalized)	*EBL*	*55*	*18*	*10*
	EBT/R	*-*	*17*	*13*
	WBL	*40*	*33*	*30*
	WBT/R	*-*	*24*	*21*
	NBL	*40*	*32*	*15*
	NBT/R	*-*	*48*	*26*
	SBL	*30*	*16*	*11*
	SBT/R	*-*	*31*	*37*
Trafalgar Road at Highway 407 WB Off-Ramp *(Signalized)*	EBL	-	3	4
	EBR	5	0	0
	WBL	-	57	61
	WBL/T/R	-	60	66
	WBR	60	0	0
	NBL	-	1	2
	NBT	-	182	#316
	SBT/R	-	90	122
Trafalgar Road at Highway 407 EB Off-Ramp *(Signalized)*	EBL	-	23	9
	EBR	875	#111	54
	NBT	-	#273	#326
	SBT	-	200	#259
Mitigation: EB shared left/right turn lane, AM & PM signal timing optimization				
Trafalgar Road at Highway 407 EB Off-Ramp (Signalized)	*EBL/R*	*-*	*55*	*55*
	EBR	*875*	*57*	*59*
	NBT	*-*	*229*	*#430*
	SBT	*-*	*175*	*#319*

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
Ninth Line at William Halton Parkway / Burnhamthorpe Road *(Roundabout)*	EBL/T	-	1417	697
	EBTR	-	1417	697
	EBR	-	0	0
	WBL/T	-	335	1139
	WBT/R	-	345	1170
	NBL/T	-	133	994
	NBT/R	-	155	1198
	SBL/T	-	261	24
	SBT	-	280	24
	SBR	-	0	0
Collector 1 at William Halton Parkway (Signalized)	EBL	30	4	2
	EBT/R	-	161	62
	WBL	30	#58	12
	WBT	-	50	127
	WBR	30	8	4
	NBL	30	6	9
	NBT/R	-	12	11
	SBL	40	8	36
	SBT/R	-	4	12
Mitigation: AM permitted + protected WBL, signal timing optimization, WBL storage of 50 m				
Collector 1 at William Halton Parkway (Signalized)	*EBL*	*30*	*5*	-
	EBT/R	-	*#228*	-
	WBL	*50*	*38*	-
	WBT	-	*48*	-
	WBR	*30*	*7*	-
	NBL	*30*	*8*	-
	NBT/R	-	*16*	-
	SBL	*40*	*11*	-
	SBT/R	-	*5*	-
Collector 2 at William Halton Parkway *(Unsignalized)*	EBT	-	0	0
	EBT/R	-	0	0
	WBT	-	0	0
	WBR	-	0	0
	NBR	-	2	2
	SBR	-	0	0
Collector 1 at Burnhamthorpe Road *(Unsignalized)*	EBL	30	0	0
	EBT	-	0	0
	EBT/R	-	0	0
	WBL	30	3	3
	WBT	-	0	0
	WBT/R	-	0	0
	NBL	30	5	5
	NBT/R	-	66	19
	SBL	30	13	76
	SBT/R	-	12	28

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
*Mitigation: **AM** & PM **signalization with 90 s** cycle length, signal timing optimization*				
Collector 1 at Burnhamthorpe Road (Signalized)	*EBL*	*30*	*4*	*1*
	EBT/R	*-*	*37*	*28*
	WBL	*30*	*17*	*22*
	WBT/R	*-*	*26*	*33*
	NBL	*30*	*7*	*5*
	NBT/R	*-*	*35*	*17*
	SBL	*30*	*7*	*28*
	SBT/R	*-*	*13*	*21*
Local 1 at Burnhamthorpe Road *(Unsignalized)*	EBT	-	0	0
	EBT/R	-	0	0
	WBT/L	-	0	1
	WBT	-	0	0
	NBL	30	0	0
	NBR	-	1	1
Local 3 at William Halton Parkway *(Unsignalized)*	EBT	-	0	0
	EBT/R	-	0	0
	WBT	-	0	0
	WBR	30	0	0
	NBR	-	1	1
	SBR	-	12	44
Local 3 / Collector 4 at Burnhamthorpe Road *(Unsignalized)*	EBT	-	0	0
	EBT/R	-	0	0
	WBT	-	0	0
	WBT/R	-	0	0
	NBR	-	5	4
	SBR	-	1	1
Loyalist Trail / Collector 3 at Trafalgar Road *(Unsignalized)*	EBR	-	0	1
	WBR	-	4	3
	NBT	-	0	0
	NBR	30	0	0
	SBT	-	0	0
	SBR	30	0	0
Collector 3 at Collector 5 *(Unsignalized)*	EBL/T/R	-	4	4
	WBL/T/R	-	0	1
	NBL/T/R	-	1	1
	SBL/T/R	-	0	0
Collector 5 at William Halton Parkway *(Signalized)*	EBL	85	#147	#135
	EBT	-	#179	106
	EBR	30	2	9
	WBL	30	6	25
	WBT/R	-	95	#306
	NBL	40	33	26
	NBT/R	-	0	0
	SBL	40	17	30
	SBT/R	-	17	41

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
Collector 5 at Burnhamthorpe Road *(Unsignalized)*	EBL	30	1	2
	EBT	-	0	0
	EBT/R	-	0	0
	WBL	30	3	7
	WBT	-	0	0
	WBT/R	-	0	0
	NBL	30	46	Err
	NBT/R	-	147	127
	SBL	30	Err	Err
	SBT/R	-	40	104
Mitigation: AM & PM signalization with 90 s cycle length, WBL storage of 50 m, signal timing optimization				
Collector 5 at Burnhamthorpe Road (Signalized)	*EBL*	*30*	*7*	*11*
	EBT/R	*-*	*57*	*42*
	WBL	*50*	*16*	*39*
	WBT/R	*-*	*35*	*44*
	NBL	*30*	*13*	*11*
	NBT/R	*-*	*43*	*32*
	SBL	*30*	*5*	*5*
	SBT/R	*-*	*18*	*30*
Local 6 at Trafalgar Road *(Signalized)*	EBL	30	21	17
	EBT/R	-	9	11
	WBL	30	22	20
	WBT/R	-	22	11
	NBL	30	11	#17
	NBT/R	-	138	#198
	SBL	17	#34	#42
	SBT/R	-	118	135
Settlers Road at Trafalgar Road *(Signalized)*	EBL	60	57	33
	EBT	-	39	39
	EBR	30	36	16
	WBL	85	73	48
	WBT	-	38	31
	WBR	30	9	2
	NBL	90	#25	#86
	NBT/R	-	#221	#244
	SBL	60	#33	#65
	SBT/R	-	173	#209

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
Mitigation: AM & PM signal timing optimization, EBR storage of 40 m, NBR storage of 40 m, SBL storage of 80 m, SBR storage of 30 m				
Settlers Road at Trafalgar Road (Signalized)	*EBL*	*60*	*57*	*33*
	EBT	*-*	*39*	*39*
	EBR	*40*	*36*	*16*
	WBL	*85*	*74*	*48*
	WBT	*-*	*38*	*31*
	WBR	*30*	*9*	*2*
	NBL	*60*	*#29*	*m#49*
	NBT	*-*	*#238*	*m#223*
	NBR	*40*	*29*	*m16*
	SBL	*80*	*#37*	*#67*
	SBT	*-*	*#208*	*#230*
	SBR	*30*	*15*	*15*
Collector 1 at Settlers Road *(Unsignalized)*	SBT	-	11	9
	SBR	-	22	17
	NBL/T/R	-	21	11
	SBL/T/R	-	7	8
Collector 4 at Settlers Road *(Unsignalized)*	EBL/T/R	-	75	68
	WBL/T/R	-	45	20
	NBL/T/R	-	30	34
	SBL/T/R	-	40	29
Collector 6 at Settlers Road *(Unsignalized)*	EBL/T/R	-	35	14
	WBL/T/R	-	17	11
	NBL/T/R	-	8	6
	SBL/T/R	-	15	11
Local 7 at Trafalgar Road (Unsignalized)	WBR	-	2	1
	NBT	-	0	0
	NBT/R	-	0	0
	SBT	-	0	0
Marvin Avenue at Trafalgar Road *(Signalized)*	EBL	30	15	10
	EBT	-	26	35
	EBR	30	59	17
	WBL	90	80	50
	WBT	-	34	28
	WBR	30	7	10
	NBL	110	#109	#105
	NBT/R	-	#238	#327
	SBL	30	#31	#27
	SBT/R	-	#245	#219

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
Mitigation: AM & PM signal timing optimization, EBR storage of 70 m, NBL storage of 130 m, NBR storage of 40 m, SBL storage of 40 m, SBR storage of 30 m				
Marvin Avenue at Trafalgar Road (Signalized)	*EBL*	*30*	*15*	*10*
	EBT	*-*	*26*	*35*
	EBR	*70*	*60*	*19*
	WBL	*90*	*80*	*50*
	WBT	*-*	*34*	*29*
	WBR	*30*	*7*	*10*
	NBL	*130*	*#120*	*#117*
	NBT	*-*	*#282*	*#358*
	NBR	*40*	*4*	*29*
	SBL	*40*	*#31*	*m20*
	SBT	*-*	*#287*	*#258*
	SBR	*30*	*0*	*m0*
Collector 1 at Marvin Avenue *(Unsignalized)*	EBL/T/R	-	5	7
	WBL/T/R	-	28	12
	NBL/T/R	-	3	2
	SBL/T/R	-	20	11
Collector 4 at Marvin Avenue *(Unsignalized)*	EBL/T/R	-	17	41
	WBL/T/R	-	22	16
	NBL/T/R	-	14	41
	SBL/T/R	-	50	26
Notes:	# - 95% percentile exceeds capacity m - volume for the 95th percentile queue is metered by an upstream signal			

With the addition of site generated traffic, several study intersections are expected to operate with critical and over-capacity movements in the 2031 future total horizon. Mitigation measures including double turning lanes, increased storage distances, and signal timing optimization have been considered at these intersections. As a result of the mitigation measures, some intersections are expected to function adequately, however, the following intersections are expected to continue operating with critical or over capacity movements in one or both peak periods:

- William Halton Parkway at Trafalgar Road
- Burnhamthorpe Road at Trafalgar Road
- William Halton Parkway at Burnhamthorpe Road
- Dundas Street at Trafalgar Road
- Sixth Line at William Halton Parkway
- Highway 407 WB Off-Ramp at Trafalgar Road
- Highway 407 EB Off-Ramp at Trafalgar Road
- Ninth Line at William Halton Parkway / Burnhamthorpe Road
- Collector 5 at William Halton Parkway
- Settlers Road at Trafalgar Road
- Collector 4 at Settlers Road
- Marvin Avenue at Trafalgar Road

The poor operation of some Study Area intersections is expected due to the high traffic volumes projected along Trafalgar Road, Burnhamthorpe Road, William Halton Parkway, and Dundas Street. Additionally, due to the

planned HOV lanes along Trafalgar Road and Dundas Street, capacity is also constrained along these corridors within the Study Area. As a result of the high volumes and reduced capacity, some critical movements are not able to be mitigated using reasonable mitigation measures.

It is noted that overall intersection operations at Burnhamthorpe Road and Trafalgar Road may be improved with the addition of northbound and southbound auxiliary right-turn lanes. However, discussion with Region staff have confirmed that these turning lanes are not being included in the ongoing detail design. As such, the configurations proposed through the mitigation measures will be carried to future analysis horizons for this intersection and do not include the inclusion of a northbound or southbound right-turn lane.

Additionally, due to intersection spacing constraints between Burnhamthorpe Road and Local 6 on Trafalgar Road, the northbound left-turn lane at Burnhamthorpe Road and Trafalgar Road and the southbound left-turn lane at Local 6 and Trafalgar Road cannot be extended to accommodate the expected 95th percentile queue lengths without impacting the adjacent intersection turning lanes. This is for the condition whereby the corridor traffic volumes exceed the capacity of the corridor. In reality, the actual throughput along Trafalgar Road will be tempered by the available capacity, thus, the effective queues will be lower than what is reported. It is noted that queuing at the intersection of Local 6 and Trafalgar Road will be evaluated in more detail through a separate study prepared by Westerkirk. As such, the storage lengths of these turning lanes will remain the same for all future total analysis horizons for the purposes of this study.

All access intersections to the subject development lands operate well with no noted critical or over-capacity movements. The exceptions to this are the intersections of Settlers Road at Trafalgar Road and Marvin Avenue at Trafalgar Road, as well as Collector 5 and William Halton Parkway. At the two intersections along Trafalgar, all movements operate well with critical and over-capacity movements noted only on the northbound and southbound through movements. This is a result of high volumes along Trafalgar Road. At the intersection of Collector 5 and William Halton Parkway, critical movements in the PM peak period are noted on movements entering the north leg. This is a result of traffic associated with the Infrastructure Ontario development north of William Halton Parkway, as well as high projected through volumes along William Halton Parkway.

7.3.3.1 2031 Future Total Conditions Operational Analysis – Saturday Scenario

As discussed in Section 5.1.5, a Saturday peak period scenario has been considered for the Highway 407 ramp intersections at Trafalgar Road. Table 46 summarizes the operational analysis of the 2031 Saturday future total conditions and Table 47 summarizes the 95th percentile queue lengths. Appendix M contains the 2031 Saturday future total conditions Synchro worksheets.

Table 46: 2031 Future Total Conditions Saturday Operational Analysis

Intersection	Mvmnt	SAT Peak Hour		
		LOS	V/C	Del. (s)
Trafalgar Road at Highway 407 WB Off-Ramp *(Signalized)*	EBL	C	0.01	26
	EBR	C	0.00	26
	WBL	C	0.60	32
	WBL/T/R	C	0.41	29
	WBR	C	0.01	26
	NBL	A	0.01	6
	NBT	B	0.76	11
	SBT/R	B	0.61	11
	Overall	**B**	**0.78**	**13**

Intersection	Mvmnt	SAT Peak Hour		
		LOS	V/C	Del. (s)
Trafalgar Road at Highway 407 EB Off-Ramp *(Signalized)*	EBL	D	0.12	39
	EBR	E	0.89	74
	NBT	B	0.77	15
	SBT	B	0.88	20
	Overall	**C**	**0.88**	**21**
Mitigation: EB shared left/right turn lane, signal timing optimization				
Trafalgar Road at Highway 407 EB Off-Ramp (Signalized)	*EBL/R*	*E*	*0.68*	*57*
	EBR	*E*	*0.74*	*63*
	NBT	*A*	*0.70*	*9*
	SBT	*B*	*0.81*	*12*
	Overall	***B***	***0.80***	***14***

Table 47: 2031 Future Total Conditions Saturday Queue Lengths

Intersection	Mvmnt	Storage Dist. (m)	SAT Q (95th)
Trafalgar Road at Highway 407 WB Off-Ramp *(Signalized)*	EBL	-	2
	EBR	5	0
	WBL	-	55
	WBL/T/R	-	41
	WBR	60	0
	NBL	-	1
	NBT	-	139
	SBT/R	-	99
Trafalgar Road at Highway 407 EB Off-Ramp *(Signalized)*	EBL	-	18
	EBR	875	#100
	NBT	-	#175
	SBT	-	#243
Mitigation: EB shared left/right turn lane, signal timing optimization			
Trafalgar Road at Highway 407 EB Off-Ramp (Signalized)	*EBL*	*-*	*51*
	EBR	*875*	*54*
	NBT	*-*	*143*
	SBT	*-*	*199*
Notes:	# - 95% percentile exceeds capacity		

The signalized intersections of Trafalgar Road at the Highway 407 WB and EB off-ramp are expected to operate at an overall v/c ratio greater than or equal to 0.85 in the Saturday peak period in the 2031 future total horizon. Mitigation measures have been considered to ensure the off-ramps do not exceed a v/c ratio of 0.75.

7.3.4 2036 Future Total Conditions Operational Analysis

The analysis parameters and mitigation measures used in the 2031 future total conditions have been carried forward as part of the analysis of 2036 future total conditions.

Table 48 summarizes the results of the operational analysis and Table 49 summarizes the 95th percentile queue lengths for the 2036 future total conditions. Synchro and Sidra worksheets have been included in Appendix N.

Table 48: 2036 Future Total Conditions Operational Analysis

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
William Halton Parkway at Trafalgar Road *(Signalized)*	EBL	F	2.06	550	F	2.35	682
	EBT	F	1.06	89	D	0.72	45
	EBR	D	0.45	37	D	0.21	35
	WBL	F	1.01	126	E	0.87	78
	WBT	D	0.49	41	D	0.80	45
	WBR	D	0.68	48	F	1.59	317
	NBL	F	1.15	179	F	1.57	347
	NBT	F	1.42	237	F	1.37	219
	NBR	D	0.31	35	D	0.37	38
	SBL	F	1.97	512	F	2.21	622
	SBT	F	1.05	81	F	1.40	228
	SBR	C	0.39	33	D	0.78	51
	Overall	**F**	**1.45**	**184**	**F**	**1.67**	**237**
Burnhamthorpe Road at Trafalgar Road *(Signalized)*	EBL	F	1.35	216	F	1.18	155
	EBT	C	0.34	30	C	0.32	32
	EBR	C	0.10	27	C	0.18	31
	WBL	C	0.66	30	E	0.91	58
	WBT/R	C	0.30	23	C	0.34	25
	NBL	F	1.83	425	F	1.71	372
	NBT/R	F	1.44	238	F	1.28	164
	SBL	F	1.37	234	F	1.31	207
	SBT/R	F	1.41	228	F	1.37	208
	Overall	**F**	**1.60**	**205**	**F**	**1.50**	**165**
Mitigation: AM & PM permitted + protected EBL, signal timing optimization							
Burnhamthorpe Road at Trafalgar Road (Signalized)	*EBL*	*F*	*2.17*	*588*	*F*	*1.68*	*374*
	EBT	*D*	*0.68*	*50*	*D*	*0.55*	*46*
	EBR	*D*	*0.10*	*42*	*D*	*0.25*	*43*
	WBL	*F*	*1.22*	*180*	*F*	*1.44*	*266*
	WBT/R	*D*	*0.75*	*53*	*D*	*0.75*	*52*
	NBL	*D*	*0.86*	*50*	*D*	*0.82*	*47*
	NBT/R	*F*	*1.29*	*169*	*F*	*1.24*	*148*
	SBL	*C*	*0.59*	*30*	*C*	*0.58*	*30*
	SBT/R	*F*	*1.31*	*183*	*F*	*1.37*	*208*
	Overall	***F***	***1.45***	***170***	***F***	***1.32***	***161***
William Halton Parkway at Burnhamthorpe Road *(Signalized)*	EBT/R	F	1.39	220	F	1.10	104
	WBL	F	1.69	370	F	1.46	247
	WBT	B	0.40	18	B	0.69	12
	NBL	A	0.00	0	A	0.00	0
	NBR	F	1.67	347	F	1.21	165
	Overall	**F**	**1.57**	**250**	**F**	**1.43**	**115**

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Dundas Street at Trafalgar Road *(Signalized)*	EBL	F	2.35	680	F	2.47	732
	EBT	F	1.32	189	F	1.08	87
	EBR	C	0.28	28	C	0.21	29
	WBL	F	1.37	256	F	1.48	299
	WBT	D	0.83	42	F	1.20	139
	WBR	E	0.98	73	F	1.20	148
	NBL	F	1.00	125	F	1.84	458
	NBT	E	1.00	67	F	1.47	258
	NBR	C	0.13	31	C	0.34	33
	SBL	F	4.53	1663	F	3.10	1018
	SBT	F	1.51	277	E	1.03	73
	SBR	D	0.78	47	D	0.79	46
	Overall	**F**	**1.74**	**310**	**F**	**1.55**	**242**
Sixth Line at William Halton Parkway *(Roundabout)*	EBL/T	F	1.02	75	D	0.73	28
	EBT	F	1.02	73	D	0.73	27
	EBR	A	0.06	3	A	0.04	3
	WBL/T	B	0.41	11	C	0.70	19
	WBT	B	0.41	11	C	0.70	19
	WBR	A	0.11	3	A	0.30	5
	NBL/T	F	1.05	102	C	0.56	20
	NBT/R	F	1.05	101	C	0.56	19
	SBL/T	F	1.25	141	D	0.75	28
	SBT	B	0.45	11	D	0.75	27
	SBR	A	0.11	4	A	0.17	5
	Overall	**F**	**1.25**	**68**	**C**	**0.75**	**19**
Mitigation: AM & PM channelized NB right turn lane							
Sixth Line at William Halton Parkway (Roundabout)	*EBL/T*	*F*	*1.01*	*74*	*D*	*0.73*	*28*
	EBT	*F*	*1.01*	*73*	*D*	*0.73*	*27*
	EBR	*A*	*0.06*	*3*	*A*	*0.04*	*3*
	WBL/T	*B*	*0.41*	*12*	*C*	*0.70*	*19*
	WBT	*B*	*0.41*	*11*	*C*	*0.70*	*19*
	WBR	*A*	*0.11*	*3*	*A*	*0.30*	*5*
	NBL/T	*E*	*0.67*	*36*	*B*	*0.36*	*14*
	NBT	*D*	*0.67*	*34*	*B*	*0.36*	*13*
	NBR	*A*	*0.13*	*4*	*A*	*0.10*	*4*
	SBL/T	*F*	*1.25*	*142*	*D*	*0.75*	*28*
	SBT	*B*	*0.45*	*11*	*D*	*0.75*	*27*
	SBR	*A*	*0.19*	*4*	*A*	*0.17*	*5*
	Overall	***F***	***1.25***	***56***	***C***	***0.75***	***18***
Sixth Line at Burnhamthorpe Road *(Signalized)*	EBL	C	0.30	27	C	0.17	25
	EBT/R	C	0.25	26	C	0.19	24
	WBL	D	0.66	35	C	0.63	32
	WBT/R	C	0.39	27	C	0.38	26
	NBL	B	0.44	11	A	0.26	8
	NBT/R	A	0.45	8	A	0.30	7
	SBL	A	0.33	10	A	0.19	7
	SBT/R	A	0.29	7	A	0.36	7
	Overall	**B**	**0.50**	**14**	**B**	**0.43**	**13**

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Trafalgar Road at Highway 407 WB Off-Ramp *(Signalized)*	EBL	C	0.03	32	C	0.04	21
	EBR	C	0.00	32	C	0.00	20
	WBL	D	0.72	45	C	0.71	30
	WBL/T/R	D	0.75	48	C	0.75	33
	WBR	C	0.00	32	C	0.01	21
	NBL	A	0.03	9	B	0.06	14
	NBT	F	1.14	83	F	1.41	204
	SBT/R	B	0.71	13	C	0.95	27
	Overall	**D**	**1.10**	**51**	**F**	**1.30**	**113**
Trafalgar Road at Highway 407 EB Off-Ramp *(Signalized)*	EBL/R	D	0.70	42	C	0.70	31
	EBR	D	0.75	46	C	0.75	35
	NBT	F	1.25	133	F	1.62	296
	SBT	D	1.06	53	F	1.45	223
	Overall	**F**	**1.13**	**92**	**F**	**1.34**	**245**
Ninth Line at William Halton Parkway / Burnhamthorpe Road *(Roundabout)*	EBL/T	F	2.20	562	F	1.53	260
	EBT	F	2.20	445	F	1.53	191
	EBR	A	0.32	7	A	0.22	5
	WBL/T	F	1.12	95	F	1.71	338
	WBT/R	F	1.12	95	F	1.71	338
	NBL/T	F	1.16	139	F	2.57	744
	NBT/R	F	1.16	126	F	2.57	747
	SBL/T	F	1.34	201	E	0.81	49
	SBT	F	1.34	200	E	0.81	46
	SBR	A	0.06	4	A	0.04	4
	Overall	**F**	**2.20**	**238**	**F**	**2.57**	**348**
Collector 1 at William Halton Parkway *(Signalized)*	EBL	C	0.09	21	C	0.26	22
	EBT/R	F	1.22	141	B	0.62	19
	WBL	F	1.29	191	F	1.56	303
	WBT	B	0.31	11	C	0.88	28
	WBR	B	0.15	10	B	0.11	13
	NBL	C	0.11	31	B	0.11	17
	NBT/R	D	0.59	38	C	0.75	28
	SBL	F	1.21	197	F	1.42	243
	SBT/R	C	0.02	30	B	0.07	16
	Overall	**F**	**1.29**	**104**	**E**	**1.49**	**58**
Mitigation: AM & PM permitted + protected SBL, signal timing optimization, EBR storage of 30 m, WBL storage of 110 m, SBL storage of 120 m							
Collector 1 at William Halton Parkway (Signalized)	*EBL*	*B*	*0.09*	*20*	*D*	*0.33*	*40*
	EBT	*F*	*1.17*	*115*	*D*	*0.75*	*36*
	EBR	*B*	*0.05*	*19*	*C*	*0.05*	*24*
	WBL	*F*	*1.33*	*206*	*D*	*0.86*	*47*
	WBT	*B*	*0.31*	*11*	*C*	*0.83*	*29*
	WBR	*A*	*0.15*	*10*	*B*	*0.11*	*15*
	NBL	*D*	*0.17*	*38*	*D*	*0.20*	*36*
	NBT/R	*E*	*0.85*	*62*	*E*	*0.91*	*68*
	SBL	*D*	*0.76*	*50*	*E*	*0.95*	*71*
	SBT/R	*C*	*0.02*	*28*	*C*	*0.07*	*21*
	Overall	***F***	***1.21***	***88***	***D***	***0.95***	***40***

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Collector 2 at William Halton Parkway ***(Unsignalized)***	EBL	A	0.88	0	A	0.64	0
	EBT/R	A	0.45	0	A	0.36	0
	WBT	A	0.31	0	A	0.48	0
	WBR	A	0.06	0	A	0.10	0
	NBR	B	0.22	13	B	0.25	14
	SBR	B	0.39	14	B	0.28	13
	Overall	**C**	**-**	**1**	**B**	**-**	**1**
Collector 1 at Burnhamthorpe Road ***(Signalized)***	EBL	A	0.08	7	A	0.04	9
	EBT/R	A	0.32	9	A	0.27	10
	WBL	A	0.24	9	B	0.30	11
	WBT/R	A	0.32	9	B	0.45	12
	NBL	B	0.06	20	B	0.04	18
	NBT/R	C	0.38	22	B	0.16	19
	SBL	D	0.77	37	C	0.79	34
	SBT/R	C	0.12	20	B	0.19	19
	Overall	**B**	**0.46**	**14**	**B**	**0.57**	**15**
Local 1 at Burnhamthorpe Road ***(Unsignalized)***	EBT	A	0.25	0	A	0.19	0
	EBT/R	A	0.12	0	A	0.10	0
	WBT/L	A	0.01	1	A	0.03	2
	WBT	A	0.17	0	A	0.22	0
	NBL	C	0.01	18	C	0.01	18
	NBR	B	0.05	11	B	0.03	10
	Overall	**A**	**-**	**1**	**A**	**-**	**1**
Local 3 at William Halton Parkway ***(Unsignalized)***	EBT	A	0.85	0	A	0.66	0
	EBT/R	A	0.43	0	A	0.34	0
	WBT	A	0.27	0	A	0.58	0
	WBR	A	0.01	0	A	0.01	0
	NBR	B	0.03	11	B	0.02	12
	SBR	B	0.32	11	C	0.66	21
	Overall	**C**	**-**	**1**	**D**	**-**	**2**
Local 3 / Collector 4 at Burnhamthorpe Road ***(Unsignalized)***	EBT	A	0.35	0	A	0.29	0
	EBT/R	A	0.19	0	A	0.17	0
	WBT	A	0.27	0	A	0.33	0
	WBT/R	A	0.14	0	A	0.17	0
	NBR	B	0.20	12	B	0.14	11
	SBR	B	0.02	10	B	0.02	10
	Overall	**A**	**-**	**1**	**A**	**-**	**1**
Loyalist Trail / Collector 3 at Trafalgar Road ***(Unsignalized)***	EBR	B	0.35	13	B	0.35	13
	WBR	B	0.13	11	B	0.10	11
	NBT	A	0.61	0	A	0.59	0
	NBT/R	A	0.33	0	A	0.34	0
	SBT	A	0.48	0	A	0.57	0
	SBT/R	A	0.41	0	A	0.53	0
	Overall	**B**	**-**	**1**	**C**	**-**	**1**

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Collector 3 at Collector 5 ***(Unsignalized)***	EBL/T/R	B	0.15	12	B	0.15	13
	WBL/T/R	B	0.02	11	B	0.03	11
	NBL/T/R	A	0.05	4	A	0.06	4
	SBL/T/R	A	0.00	1	A	0.00	0
	Overall	**A**	-	**6**	**A**	-	**5**
Collector 5 at William Halton Parkway ***(Signalized)***	EBL	B	0.81	19	F	1.52	278
	EBT	A	0.69	10	B	0.45	10
	EBR	A	0.03	5	A	0.08	7
	WBL	C	0.32	31	C	0.24	21
	WBT/R	C	0.59	26	F	1.19	122
	NBL	C	0.56	34	D	0.58	37
	NBT/R	C	0.02	28	C	0.02	29
	SBL	C	0.23	29	D	0.44	41
	SBT/R	C	0.17	29	D	0.49	41
	Overall	**B**	**0.78**	**17**	**F**	**1.35**	**104**
Collector 5 at Burnhamthorpe Road ***(Signalized)***	EBL	A	0.08	6	A	0.15	5
	EBT/R	A	0.46	8	A	0.33	6
	WBL	A	0.29	9	A	0.47	10
	WBT/R	A	0.29	7	A	0.34	6
	NBL	C	0.17	23	C	0.16	28
	NBT/R	C	0.64	30	C	0.47	30
	SBL	C	0.08	23	C	0.07	27
	SBT/R	C	0.19	24	C	0.42	29
	Overall	**B**	**0.51**	**12**	**B**	**0.47**	**10**
Local 6 at Trafalgar Road ***(Signalized)***	EBL	D	0.48	44	D	0.38	44
	EBT/R	D	0.11	40	D	0.17	41
	WBL	D	0.47	44	D	0.43	44
	WBT/R	D	0.41	43	D	0.09	41
	NBL	C	0.38	20	C	0.42	26
	NBT/R	B	0.79	11	C	0.94	24
	SBL	F	0.91	97	D	0.77	47
	SBT/R	A	0.72	9	A	0.78	9
	Overall	**B**	**0.83**	**13**	**B**	**0.87**	**18**
Settlers Road at Trafalgar Road ***(Signalized)***	EBL	E	0.75	60	D	0.54	51
	EBT	D	0.36	43	D	0.47	49
	EBR	D	0.37	44	D	0.10	45
	WBL	E	0.88	65	D	0.70	49
	WBT	C	0.28	34	D	0.26	38
	WBR	C	0.04	32	D	0.02	35
	NBL	C	0.57	28	E	0.62	57
	NBT	E	1.04	60	E	1.12	79
	NBR	B	0.19	16	C	0.15	23
	SBL	C	0.60	31	D	0.67	36
	SBT	D	0.95	37	F	1.15	107
	SBR	B	0.10	15	B	0.10	19
	Overall	**D**	**0.99**	**47**	**F**	**0.99**	**81**

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Collector 1 at Settlers Road *(Unsignalized)*	EBL/T/R	B	0.32	12	B	0.28	11
	WBL/T/R	B	0.51	15	B	0.43	12
	NBL/T/R	B	0.50	14	B	0.32	11
	SBL/T/R	B	0.24	11	B	0.27	11
	Overall	**B**	-	**13**	**B**	-	**11**
Collector 4 at Settlers Road *(Unsignalized)*	EBL/T/R	E	0.89	47	E	0.85	37
	WBL/T/R	D	0.74	30	C	0.48	17
	NBL/T/R	C	0.62	23	C	0.64	23
	SBL/T/R	D	0.70	27	C	0.60	20
	Overall	**D**	-	**33**	**D**	-	**26**
Collector 6 at Settlers Road *(Unsignalized)*	EBL/T/R	C	0.64	18	B	0.39	12
	WBL/T/R	B	0.45	13	B	0.33	11
	NBL/T/R	B	0.25	12	B	0.21	10
	SBL/T/R	B	0.40	13	B	0.33	11
	Overall	**B**	-	**15**	**B**	-	**11**
Local 7 at Trafalgar Road (Unsignalized)	WBR	B	0.07	12	B	0.05	13
	NBT	A	0.62	0	A	0.69	0
	NBT/R	A	0.34	0	A	0.44	0
	SBT	A	0.52	0	A	0.52	0
	Overall	**B**	-	**0**	**C**	-	**0**
Marvin Avenue at Trafalgar Road *(Signalized)*	EBL	D	0.17	38	D	0.12	46
	EBT	D	0.25	38	D	0.45	49
	EBR	D	0.69	49	D	0.17	47
	WBL	E	0.93	68	D	0.74	53
	WBT	C	0.24	30	D	0.25	39
	WBR	C	0.04	28	D	0.05	37
	NBL	F	1.30	197	D	0.64	36
	NBT	F	1.17	109	F	1.20	119
	NBR	B	0.05	14	B	0.18	13
	SBL	C	0.58	27	D	0.57	40
	SBT	F	1.17	111	F	1.27	154
	SBR	B	0.01	14	B	0.00	18
	Overall	**F**	**1.24**	**102**	**F**	**1.09**	**118**
Collector 1 at Marvin Avenue *(Unsignalized)*	EBL/T/R	A	0.18	10	A	0.23	10
	WBL/T/R	B	0.58	15	B	0.36	10
	NBL/T/R	A	0.13	10	A	0.10	9
	SBL/T/R	B	0.49	14	B	0.33	11
	Overall	**B**	-	**13**	**B**	-	**10**
Collector 4 at Marvin Avenue *(Unsignalized)*	EBL/T/R	B	0.44	15	C	0.70	24
	WBL/T/R	C	0.52	17	C	0.42	16
	NBL/T/R	B	0.39	14	C	0.69	23
	SBL/T/R	C	0.75	24	C	0.56	18
	Overall	**C**	-	**19**	**C**	-	**21**

Table 49: 2036 Future Total Conditions Queue Lengths

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
William Halton Parkway at Trafalgar Road *(Signalized)*	EBL	105	#206	#211
	EBT	-	#243	129
	EBR	60	72	32
	WBL	120	#64	#76
	WBT	-	79	156
	WBR	205	105	#427
	NBL	85	#64	#91
	NBT	-	#368	#333
	NBR	55	46	58
	SBL	180	#173	#166
	SBT	-	#256	#368
	SBR	80	57	#146
Mitigation: EBL storage of 220 m, EBR storage of 80 m, NBL storage of 120 m, NBR storage of 70 m				
William Halton Parkway at Trafalgar Road (Signalized)	*EBL*	*220*	*#206*	*#211*
	EBT	*-*	*#243*	*129*
	EBR	*80*	*72*	*32*
	WBL	*100*	*#64*	*#76*
	WBT	*-*	*79*	*156*
	WBR	*205*	*105*	*#427*
	NBL	*120*	*#64*	*#91*
	NBT	*-*	*#368*	*#333*
	NBR	*70*	*46*	*58*
	SBL	*180*	*#173*	*#166*
	SBT	*-*	*#256*	*#368*
	SBR	*80*	*57*	*#146*
Burnhamthorpe Road at Trafalgar Road *(Signalized)*	EBL	100	#186	#140
	EBT	-	51	45
	EBR	30	14	24
	WBL	120	57	#106
	WBT/R	-	43	51
	NBL	130	#186	#165
	NBT/R	-	#344	#315
	SBL	170	#102	#96
	SBT/R	-	#309	#328
Mitigation: AM & PM permitted + protected EBL, signal timing optimization				
Burnhamthorpe Road at Trafalgar Road (Signalized)	*EBL*	*210*	*#206*	*#151*
	EBT	*-*	*61*	*51*
	EBR	*30*	*17*	*28*
	WBL	*120*	*#103*	*#156*
	WBT/R	*-*	*63*	*38*
	NBL	*130*	*#144*	*#128*
	NBT/R	*-*	*#325*	*#311*
	SBL	*170*	*#67*	*#63*
	SBT/R	*-*	*#298*	*#328*
William Halton Parkway at Burnhamthorpe Road *(Signalized)*	EBT/R	-	#314	#189
	WBL	170	#179	#394
	WBT	-	67	134
	NBL	30	0	0
	NBR	-	#443	#201

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
Dundas Street at Trafalgar Road *(Signalized)*	EBL	160	#169	#178
	EBT	-	#345	#243
	EBR	85	39	30
	WBL	95	#76	#85
	WBT	-	147	#280
	WBR	260	#215	#280
	NBL	90	#53	#96
	NBT	-	#192	#351
	NBR	50	20	51
	SBL	250	#265	#203
	SBT	-	#354	#216
	SBR	100	#138	#148
Mitigation: EBL storage of 190 m, WBL storage of 100 m, WBR storage of 290 m, NBL storage of 110 m, NBR storage of 60 m, SBL storage of 280 m, SBR storage of 160 m				
Dundas Street at Trafalgar Road (Signalized)	*EBL*	*190*	*#169*	*#178*
	EBT	*-*	*#345*	*#243*
	EBR	*85*	*39*	*30*
	WBL	*100*	*#76*	*#85*
	WBT	*-*	*147*	*#280*
	WBR	*290*	*#215*	*#280*
	NBL	*110*	*#53*	*#96*
	NBT	*-*	*#192*	*#351*
	NBR	*60*	*20*	*51*
	SBL	*280*	*#265*	*#203*
	SBT	*-*	*#354*	*#216*
	SBR	*160*	*#138*	*#148*
Sixth Line at William Halton Parkway *(Roundabout)*	EBL/T	-	107	31
	EBT	-	110	31
	EBR	-	0	0
	WBL/T	-	12	41
	WBT	-	12	41
	WBR	-	0	0
	NBL/T	-	88	17
	NBT/R	-	93	17
	SBL/T	-	506	35
	SBT	-	15	35
	SBR	-	0	0

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
Mitigation: AM & PM channelized NB right turn lane				
Sixth Line at William Halton Parkway (Roundabout)	*EBL/T*	*-*	*106*	*31*
	EBT	*-*	*110*	*31*
	EBR	*-*	*0*	*0*
	WBL/T	*-*	*12*	*41*
	WBT	*-*	*12*	*41*
	WBR	*-*	*0*	*0*
	NBL/T	*-*	*19*	*9*
	NBT	*-*	*19*	*9*
	NBR	*-*	*0*	*0*
	SBL/T	*-*	*508*	*35*
	SBT	*-*	*15*	*35*
	SBR	*-*	*0*	*0*
Sixth Line at Burnhamthorpe Road *(Signalized)*	EBL	55	18	11
	EBT/R	-	19	15
	WBL	40	38	37
	WBT/R	-	27	25
	NBL	40	38	17
	NBT/R	-	59	32
	SBL	30	20	14
	SBT/R	-	37	45
Trafalgar Road at Highway 407 WB Off-Ramp *(Signalized)*	EBL	-	3	3
	EBR	5	0	0
	WBL	-	58	58
	WBL/T/R	-	62	63
	WBR	60	0	0
	NBL	-	1	2
	NBT	-	#368	#358
	SBT/R	-	143	#194
Trafalgar Road at Highway 407 EB Off-Ramp *(Signalized)*	EBL/R	-	60	53
	EBR	875	63	56
	NBT	-	#419	#449
	SBT	-	#331	#389
Ninth Line at William Halton Parkway / Burnhamthorpe Road *(Roundabout)*	EBL/T	-	1687	887
	EBT	-	1687	887
	EBR	-	0	0
	WBL/T	-	272	1229
	WBT/R	-	280	1229
	NBL/T	-	194	1317
	NBT/R	-	194	1317
	SBL/T	-	301	27
	SBT	-	323	28
	SBR	-	0	0

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
Collector 1 at William Halton Parkway *(Signalized)*	EBL	30	10	9
	EBT/R	-	#325	86
	WBL	50	#171	#79
	WBT	-	47	#150
	WBR	30	9	14
	NBL	30	17	14
	NBT/R	-	82	#109
	SBL	40	#77	#111
	SBT/R	-	7	12
Mitigation: AM & PM permitted + protected SBL, signal timing optimization, EBR storage of 30 m, WBL storage of 110 m, SBL storage of 120 m				
Collector 1 at William Halton Parkway (Signalized)	*EBL*	*30*	*10*	*13*
	EBT	*-*	*#314*	*130*
	EBR	*30*	*6*	*7*
	WBL	*190*	*#179*	*#80*
	WBT	*-*	*53*	*188*
	WBR	*30*	*10*	*16*
	NBL	*30*	*18*	*23*
	NBT/R	*-*	*#101*	*#131*
	SBL	*120*	*#38*	*#98*
	SBT/R	*-*	*7*	*14*
Collector 2 at William Halton Parkway *(Unsignalized)*	EBT	-	0	0
	EBT/R	-	0	0
	WBT	-	0	0
	WBR	30	0	0
	NBR	-	6	8
	SBR	-	14	9
Collector 1 at Burnhamthorpe Road *(Signalized)*	EBL	30	7	4
	EBT/R	-	42	37
	WBL	30	19	28
	WBT/R	-	30	58
	NBL	30	7	5
	NBT/R	-	32	16
	SBL	30	48	62
	SBT/R	-	14	20
Mitigation: SBL storage of 70 m				
Collector 1 at Burnhamthorpe Road (Signalized)	*EBL*	*30*	*7*	*4*
	EBT/R	*-*	*42*	*37*
	WBL	*30*	*19*	*28*
	WBT/R	*-*	*30*	*58*
	NBL	*30*	*7*	*5*
	NBT/R	*-*	*32*	*16*
	SBL	*70*	*48*	*62*
	SBT/R	*-*	*14*	*20*

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
Local 1 at Burnhamthorpe Road *(Unsignalized)*	EBT	-	0	0
	EBT/R	-	0	0
	WBT/L	-	0	0
	WBT	-	0	0
	NBL	30	0	0
	NBR	-	1	1
Local 3 at William Halton Parkway *(Unsignalized)*	EBT	-	0	0
	EBT/R	-	0	0
	WBT	-	0	0
	WBR	30	0	0
	NBR	-	1	1
	SBR	-	11	37
Local 3 / Collector 4 at Burnhamthorpe Road *(Unsignalized)*	EBT	-	0	0
	EBT/R	-	0	0
	WBT	-	0	0
	WBT/R	-	0	0
	NBR	-	6	4
	SBR	-	1	0
Loyalist Trail / Collector 3 at Trafalgar Road *(Unsignalized)*	EBR	-	12	12
	WBR	-	3	3
	NBT	-	0	0
	NBT/R	-	0	0
	SBT	-	0	0
	SBT/R	-	0	0
Collector 3 at Collector 5 *(Unsignalized)*	EBL/T/R	-	4	4
	WBL/T/R	-	0	1
	NBL/T/R	-	1	1
	SBL/T/R	-	0	0
Collector 5 at William Halton Parkway *(Signalized)*	EBL	85	#135	#270
	EBT	-	158	94
	EBR	30	6	11
	WBL	30	15	20
	WBT/R	-	80	#325
	NBL	30	33	26
	NBT/R	-	2	0
	SBL	40	17	30
	SBT/R	-	17	41
Collector 5 at Burnhamthorpe Road *(Signalized)*	EBL	30	7	12
	EBT/R	-	67	49
	WBL	50	18	43
	WBT/R	-	39	51
	NBL	30	13	11
	NBT/R	-	48	32
	SBL	30	5	5
	SBT/R	-	18	30

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
Local 6 at Trafalgar Road *(Signalized)*	EBL	30	31	21
	EBT/R	-	12	14
	WBL	30	32	24
	WBT/R	-	31	13
	NBL	30	#17	#20
	NBT/R	-	244	#340
	SBL	17	#32	#58
	SBT/R	-	194	#256
Mitigation: EBL storage of 40 m, WBL storage of 40 m				
Local 6 at Trafalgar Road (Signalized)	*EBL*	*40*	*31*	*21*
	EBT/R	*-*	*12*	*13*
	WBL	*40*	*32*	*24*
	WBT/R	*-*	*31*	*13*
	NBL	*30*	*#17*	*#20*
	NBT/R	*-*	*#303*	*#332*
	SBL	*17*	*#32*	*#58*
	SBT/R	*-*	*170*	*213*
Settlers Road at Trafalgar Road *(Signalized)*	EBL	60	57	33
	EBT	-	39	39
	EBR	40	36	16
	WBL	85	74	48
	WBT	-	38	31
	WBR	30	9	2
	NBL	60	#29	m#46
	NBT	-	#316	m#239
	NBR	40	29	m12
	SBL	80	#37	#65
	SBT	-	#277	#309
	SBR	30	15	14
Collector 1 at Settlers Road *(Unsignalized)*	SBT	-	11	9
	SBR	-	22	17
	NBL/T/R	-	21	11
	SBL/T/R	-	7	8
Collector 4 at Settlers Road *(Unsignalized)*	EBL/T/R	-	75	68
	WBL/T/R	-	45	20
	NBL/T/R	-	30	34
	SBL/T/R	-	40	29
Collector 6 at Settlers Road *(Unsignalized)*	EBL/T/R	-	35	14
	WBL/T/R	-	17	11
	NBL/T/R	-	8	6
	SBL/T/R	-	15	11
Local 7 at Trafalgar Road (Unsignalized)	WBR	-	2	1
	NBT	-	0	0
	NBT/R	-	0	0
	SBT	-	0	0

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
Marvin Avenue at Trafalgar Road *(Signalized)*	EBL	30	15	10
	EBT	-	26	35
	EBR	70	61	19
	WBL	90	80	50
	WBT	-	34	29
	WBR	30	7	10
	NBL	130	#120	#117
	NBT	-	#359	#448
	NBR	40	4	29
	SBL	40	#31	m15
	SBT	-	#355	m#258
	SBR	30	0	m0
Collector 1 at Marvin Avenue *(Unsignalized)*	EBL/T/R	-	5	7
	WBL/T/R	-	28	12
	NBL/T/R	-	3	2
	SBL/T/R	-	20	11
Collector 4 at Marvin Avenue *(Unsignalized)*	EBL/T/R	-	17	41
	WBL/T/R	-	22	16
	NBL/T/R	-	14	41
	SBL/T/R	-	50	26
Notes:	# - 95% percentile exceeds capacity m - volume for the 95th percentile queue is metered by an upstream signal			

With the addition of site generated traffic, several study intersections are expected to operate with critical and over-capacity movements in the 2036 future total horizon. Mitigation measures including double turning lanes, increased storage distances, and signal timing optimization has been considered at these intersections. As a result of the mitigation measures, some intersections are expected to function adequately, however, the following intersections are expected to continue operating under critical or over capacity movements in one or both peak periods:

- William Halton Parkway at Trafalgar Road
- Burnhamthorpe Road at Trafalgar Road
- William Halton Parkway at Burnhamthorpe Road
- Dundas Street at Trafalgar Road
- Sixth Line at William Halton Parkway
- Highway 407 WB Off-Ramp at Trafalgar Road
- Highway 407 EB Off-Ramp at Trafalgar Road
- Ninth Line at William Halton Parkway / Burnhamthorpe Road
- Collector 1 at William Halton Parkway
- Collector 5 at William Halton Parkway
- Local 6 at Trafalgar Road
- Settlers Road at Trafalgar Road
- Collector 4 at Settlers Road
- Marvin Avenue at Trafalgar Road

The poor operation of some Study Area intersections is expected due to the high traffic volumes projected along Trafalgar Road, Burnhamthorpe Road, William Halton Parkway, and Dundas Street. Additionally, due to the

planned HOV lanes along Trafalgar Road and Dundas Street, capacity is also constrained along these corridors within the Study Area. As a result of the high volumes and reduced capacity, some critical movements are not able to be mitigated using reasonable mitigation measures.

As discussed in Section 7.3.3, overall intersection operations at Burnhamthorpe Road and Trafalgar Road may be improved with the addition of northbound and southbound auxiliary right-turn lanes. However, discussion with Region staff have confirmed that these turning lanes have not been included in the detail design of Trafalgar Road. As such, the configurations proposed through the mitigation measures will be carried to future analysis horizons for this intersection and do not include a northbound or southbound right-turn lane. Additionally, due to intersection spacing constraints between Burnhamthorpe Road and Local 6 on Trafalgar Road, the northbound left-turn lane at Burnhamthorpe Road and Trafalgar Road and the southbound left-turn lane at Local 6 and Trafalgar Road cannot be extended to accommodate the expected 95th percentile queue lengths without impacting the adjacent intersection turning lanes. This is for the condition whereby the corridor traffic volumes exceed the capacity of the corridor. In reality, the actual throughput along Trafalgar Road will be tempered by the available capacity, thus, the effective queues will be lower than what is reported. Queuing at the intersection of Local 6 and Trafalgar Road will be evaluated in more detail through a separate study prepared by Westerkirk. As such, the storage lengths of these turning lanes will remain the same for all future total analysis horizons for the purposes of this study.

It is noted that all access intersections to the subject development lands operate well with no noted critical or over-capacity movements. The exceptions to this are the intersections of Settlers Road at Trafalgar Road, Marvin Avenue at Trafalgar Road, and Local 6 at Trafalgar Road. At these three intersections, all movements generally operate well with critical and over-capacity movements noted only on the northbound and southbound through movements. This is a result of high volumes along Trafalgar Road.

7.3.4.1 2036 Future Total Conditions Operational Analysis – Saturday Sensitivity Scenario

As discussed in Section 5.1.5, a Saturday peak period scenario has been considered for the Highway 407 ramp intersections at Trafalgar Road. Table 50 summarizes the operational analysis of the 2036 Saturday future total conditions and Table 51 summarizes the 95th percentile queue lengths. Appendix N contains the 2036 Saturday future total conditions Synchro worksheets.

Table 50: 2036 Future Total Conditions Saturday Operational Analysis

Intersection	Mvmnt	SAT Peak Hour		
		LOS	V/C	Del. (s)
Trafalgar Road at Highway 407 WB Off-Ramp (Signalized)	EBL	C	0.01	30
	EBR	C	0.00	30
	WBL	D	0.75	45
	WBL/T/R	D	0.60	38
	WBR	C	0.01	30
	NBL	A	0.01	10
	NBT	C	0.94	23
	SBT/R	B	0.75	14
	Overall	**C**	**0.94**	**21**
Trafalgar Road at Highway 407 EB Off-Ramp (Signalized)	EBL/R	D	0.69	37
	EBR	D	0.75	41
	NBT	E	1.08	59
	SBT	F	1.26	139
	Overall	**F**	**1.12**	**97**

Table 51: 2036 Future Total Conditions Saturday Queue Lengths

Intersection	Mvmnt	Storage Dist. (m)	SAT Q (95th)
Trafalgar Road at Highway 407 WB Off-Ramp (Signalized)	EBL	-	1
	EBR	5	0
	WBL	-	67
	WBL/T/R	-	55
	WBR	60	0
	NBL	-	1
	NBT	-	#283
	SBT/R	-	162
Trafalgar Road at Highway 407 EB Off-Ramp (Signalized)	EBL	-	57
	EBR	875	61
	NBT	-	#317
	SBT	-	#400
Notes:	# - 95% percentile exceeds capacity m - volume for the 95th percentile queue is metered by an upstream signal		

The signalized intersections of Trafalgar Road at the Highway 407 WB and EB off-ramp is expected to operate at an overall v/c ratio greater than or equal to 0.85 in the Saturday peak period in the 2036 future total horizon. Mitigation measures have been considered to ensure the off-ramps do not exceed a v/c ratio of 0.75. However, the northbound and southbound through movements at these intersections are expected to continue to operate at critical or over capacity v/c ratios due to the high volumes projected along Trafalgar Road and are not able to be mitigated using reasonable measures.

7.3.5 2041 Future Total Conditions Operational Analysis

The analysis parameters and mitigation measures used in the 2036 future total conditions have been carried forward as part of the analysis of 2041 future total conditions. It is however noted that the through lanes along both Dundas Street and Trafalgar Road have been reduced to two lanes in each direction to reflect the implementation of BRT lanes along these corridors. As further details regarding the BRT corridors on both Dundas Street and Trafalgar Road are not available, it has been assumed that centre BRT lanes will be present along Dundas Street and Trafalgar Road and as such, protected left turn lanes have been considered along these corridors. This assumption has been made as it provides the most conservative analysis in the absence of further BRT configuration details. Table 52 summarizes the results of the operational analysis and Table 53 summarizes the 95th percentile queue lengths for the 2036 future total conditions. Synchro and Sidra worksheets have been included in Appendix O.

Table 52: 2041 Future Total Conditions Operational Analysis

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
William Halton Parkway at Trafalgar Road *(Signalized)*	EBL	F	2.41	706	F	2.80	887
	EBT	F	1.08	97	D	0.77	47
	EBR	D	0.47	37	D	0.23	36
	WBL	F	1.55	341	F	1.05	121
	WBT	D	0.51	41	D	0.83	47
	WBR	D	0.75	53	F	1.82	419
	NBL	F	1.34	255	F	1.60	360
	NBT	F	1.72	374	F	1.68	356
	NBR	C	0.40	35	D	0.40	37
	SBL	F	2.47	737	F	2.63	809
	SBT	F	1.30	182	F	1.73	378
	SBR	C	0.43	32	D	0.80	51
	Overall	**F**	**1.67**	**276**	**F**	**1.97**	**335**
Burnhamthorpe Road at Trafalgar Road *(Signalized)*	EBL	F	2.24	620	F	1.72	388
	EBT	D	0.70	50	D	0.56	46
	EBR	D	0.14	42	D	0.21	42
	WBL	F	1.26	196	F	1.46	274
	WBT/R	D	0.75	52	D	0.76	52
	NBL	F	1.04	103	F	1.01	98
	NBT/R	F	1.78	389	F	1.68	345
	SBL	D	0.68	51	D	0.70	53
	SBT/R	F	1.72	367	F	1.81	406
	Overall	**F**	**1.75**	**309**	**F**	**1.58**	**298**
William Halton Parkway at Burnhamthorpe Road *(Signalized)*	EBT/R	F	1.48	258	F	1.17	130
	WBL	F	1.72	385	F	1.58	300
	WBT	B	0.43	18	B	0.78	17
	NBL	A	0.00	0	A	0.00	0
	NBR	F	1.79	400	F	1.28	189
	Overall	**F**	**1.66**	**279**	**F**	**1.53**	**136**
Dundas Street at Trafalgar Road *(Signalized)*	EBL	F	3.09	1013	F	2.82	892
	EBT	F	1.78	396	F	1.41	232
	EBR	C	0.34	30	C	0.24	29
	WBL	F	1.63	368	F	1.54	328
	WBT	F	1.08	91	F	1.55	294
	WBR	F	1.02	83	F	1.21	151
	NBL	F	1.21	195	F	1.93	501
	NBT	F	1.31	189	F	1.87	436
	NBR	C	0.14	31	C	0.35	33
	SBL	F	3.67	1270	F	3.58	1235
	SBT	F	1.83	419	F	1.35	206
	SBR	D	0.77	45	D	0.83	50
	Overall	**F**	**2.08**	**393**	**F**	**1.93**	**369**

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Sixth Line at William Halton Parkway *(Roundabout)*	EBL/T	F	1.06	87	D	0.79	35
	EBT	F	1.06	86	D	0.79	33
	EBR	A	0.06	3	A	0.04	3
	WBL/T	B	0.45	13	C	0.74	22
	WBT	B	0.45	12	C	0.74	22
	WBR	A	0.11	3	A	0.32	6
	NBL/T	E	0.71	38	C	0.41	15
	NBT	E	0.71	37	B	0.41	15
	NBR	A	0.13	4	A	0.10	4
	SBL/T	F	1.35	183	E	0.82	35
	SBT	B	0.51	13	D	0.82	34
	SBR	A	0.20	5	A	0.17	5
	Overall	**F**	**1.35**	**69**	**C**	**0.82**	**21**
Sixth Line at Burnhamthorpe Road *(Signalized)*	EBL	C	0.29	27	C	0.17	25
	EBT/R	C	0.26	26	C	0.19	25
	WBL	D	0.69	37	C	0.66	34
	WBT/R	C	0.39	27	C	0.38	26
	NBL	B	0.48	12	A	0.29	9
	NBT/R	A	0.49	9	A	0.33	7
	SBL	B	0.39	12	A	0.21	8
	SBT/R	A	0.32	8	A	0.39	8
	Overall	**B**	**0.54**	**14**	**B**	**0.46**	**13**
Trafalgar Road at Highway 407 WB Off-Ramp *(Signalized)*	EBL	C	0.03	28	B	0.04	19
	EBR	C	0.00	28	B	0.00	19
	WBL	D	0.72	41	C	0.71	29
	WBL/T/R	D	0.75	43	C	0.75	31
	WBR	C	0.00	28	B	0.01	19
	NBL	A	0.03	10	B	0.05	15
	NBT	F	1.21	117	F	1.53	258
	SBT/R	B	0.79	15	D	1.03	43
	Overall	**E**	**1.16**	**68**	**F**	**1.38**	**147**
Trafalgar Road at Highway 407 EB Off-Ramp *(Signalized)*	EBL/R	D	0.70	38	C	0.70	31
	EBR	D	0.75	42	C	0.75	34
	NBT	F	1.33	169	F	1.73	346
	SBT	F	1.16	93	F	1.52	254
	Overall	**F**	**1.18**	**126**	**F**	**1.41**	**283**
Ninth Line at William Halton Parkway / Burnhamthorpe Road *(Roundabout)*	EBL/T	F	2.32	612	F	1.62	301
	EBT	F	2.32	489	F	1.62	225
	EBR	A	0.34	7	A	0.23	5
	WBL/T	F	1.18	118	F	1.81	383
	WBT/R	F	1.18	117	F	1.81	383
	NBL/T	F	1.22	161	F	2.70	802
	NBT/R	F	1.22	148	F	2.70	805
	SBL/T	F	1.41	228	F	0.86	55
	SBT	F	1.41	227	F	0.86	53
	SBR	A	0.06	4	A	0.08	4
	Overall	**F**	**2.32**	**266**	**F**	**2.70**	**388**

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Collector 1 at William Halton Parkway *(Signalized)*	EBL	B	0.09	20	D	0.34	41
	EBT	F	1.22	136	D	0.77	37
	EBR	B	0.05	19	C	0.05	24
	WBL	F	1.33	206	E	0.93	65
	WBT	B	0.33	11	C	0.86	31
	WBR	A	0.16	10	B	0.11	16
	NBL	D	0.17	38	D	0.19	35
	NBT/R	E	0.85	62	E	0.92	71
	SBL	D	0.76	50	E	0.95	73
	SBT/R	C	0.02	28	C	0.07	21
	Overall	**F**	**1.21**	**98**	**D**	**0.99**	**43**
Collector 2 at William Halton Parkway *(Unsignalized)*	EBL	A	0.91	0	A	0.65	0
	EBT/R	A	0.47	0	A	0.37	0
	WBT	A	0.32	0	A	0.50	0
	WBR	A	0.06	0	A	0.17	0
	NBR	B	0.22	13	B	0.22	12
	SBR	B	0.39	14	B	0.28	13
	Overall	**D**	**-**	**1**	**B**	**-**	**1**
Collector 1 at Burnhamthorpe Road *(Signalized)*	EBL	A	0.08	7	A	0.04	9
	EBT/R	A	0.34	9	B	0.29	10
	WBL	A	0.25	9	B	0.31	12
	WBT/R	A	0.33	9	B	0.47	12
	NBL	C	0.06	20	B	0.04	18
	NBT/R	C	0.38	22	B	0.16	19
	SBL	D	0.78	38	C	0.79	34
	SBT/R	C	0.12	21	B	0.19	19
	Overall	**B**	**0.48**	**14**	**B**	**0.58**	**15**
Local 1 at Burnhamthorpe Road *(Unsignalized)*	EBT	A	0.26	0	A	0.20	0
	EBT/R	A	0.13	0	A	0.10	0
	WBT/L	A	0.01	1	A	0.03	2
	WBT	A	0.18	0	A	0.23	0
	NBL	C	0.01	19	C	0.01	18
	NBR	B	0.05	11	B	0.03	10
	Overall	**A**	**-**	**1**	**A**	**-**	**1**
Local 3 at William Halton Parkway *(Unsignalized)*	EBT	A	0.93	0	A	0.70	0
	EBT/R	A	0.47	0	A	0.36	0
	WBT	A	0.29	0	A	0.65	0
	WBR	A	0.01	0	A	0.01	0
	NBR	B	0.03	13	B	0.03	12
	SBR	B	0.32	11	C	0.65	20
	Overall	**C**	**-**	**1**	**E**	**-**	**2**
Local 3 / Collector 4 at Burnhamthorpe Road *(Unsignalized)*	EBT	A	0.37	0	A	0.30	0
	EBT/R	A	0.20	0	A	0.18	0
	WBT	A	0.28	0	A	0.34	0
	WBT/R	A	0.14	0	A	0.18	0
	NBR	B	0.19	11	B	0.14	11
	SBR	B	0.02	10	B	0.02	10
	Overall	**A**	**-**	**1**	**A**	**-**	**1**

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Loyalist Trail / Collector 3 at Trafalgar Road ***(Unsignalized)***	EBR	B	0.39	15	F	0.92	77
	WBR	C	0.25	18	C	0.17	15
	NBT	A	1.07	0	A	1.03	0
	NBT/R	A	0.56	0	A	0.56	0
	SBT	A	0.83	0	A	0.99	0
	SBT/R	A	0.59	0	A	0.74	0
	Overall	**E**	-	**1**	**F**	-	**3**
Collector 3 at Collector 5 ***(Unsignalized)***	EBL/T/R	B	0.15	12	B	0.15	13
	WBL/T/R	B	0.02	11	B	0.03	11
	NBL/T/R	A	0.05	4	A	0.06	4
	SBL/T/R	A	0.00	1	A	0.00	0
	Overall	**A**	-	**6**	**A**	-	**5**
Collector 5 at William Halton Parkway ***(Signalized)***	EBL	D	0.93	38	F	1.59	312
	EBT	B	0.76	11	B	0.48	11
	EBR	A	0.03	5	A	0.08	7
	WBL	C	0.34	32	C	0.26	21
	WBT/R	C	0.65	27	F	1.31	176
	NBL	D	0.60	36	D	0.59	37
	NBT/R	C	0.02	28	C	0.02	29
	SBL	C	0.22	29	D	0.43	41
	SBT/R	C	0.18	29	D	0.55	43
	Overall	**C**	**0.89**	**21**	**F**	**1.40**	**132**
Collector 5 at Burnhamthorpe Road ***(Signalized)***	EBL	A	0.08	5	A	0.15	5
	EBT/R	A	0.46	8	A	0.35	6
	WBL	A	0.29	9	B	0.49	10
	WBT/R	A	0.29	6	A	0.35	6
	NBL	C	0.19	26	C	0.16	28
	NBT/R	C	0.65	33	C	0.47	30
	SBL	C	0.09	26	C	0.07	27
	SBT/R	C	0.21	26	C	0.42	29
	Overall	**B**	**0.51**	**12**	**B**	**0.48**	**10**
Local 6 at Trafalgar Road ***(Signalized)***	EBL	D	0.48	44	D	0.38	45
	EBT/R	D	0.05	40	D	0.05	41
	WBL	D	0.48	44	D	0.44	45
	WBT/R	D	0.07	40	D	0.09	42
	NBL	E	0.62	76	D	0.44	54
	NBT/R	F	1.18	107	F	1.24	130
	SBL	E	0.68	69	F	1.08	149
	SBT/R	D	1.02	42	F	1.14	86
	Overall	**E**	**1.03**	**74**	**F**	**1.10**	**106**

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Settlers Road at Trafalgar Road *(Signalized)*	EBL	E	0.75	60	D	0.54	51
	EBT	D	0.36	43	D	0.47	49
	EBR	D	0.37	44	D	0.10	45
	WBL	E	0.88	65	D	0.70	49
	WBT	C	0.28	34	D	0.26	38
	WBR	C	0.04	32	D	0.02	35
	NBL	E	0.56	56	D	0.61	53
	NBT	F	1.50	260	F	1.68	337
	NBR	B	0.20	19	C	0.17	30
	SBL	D	0.56	54	D	0.54	48
	SBT	F	1.34	186	F	1.67	340
	SBR	B	0.11	17	C	0.11	22
	Overall	**F**	**1.22**	**180**	**F**	**1.26**	**276**
Collector 1 at Settlers Road *(Unsignalized)*	EBL/T/R	B	0.32	12	B	0.28	11
	WBL/T/R	B	0.51	15	B	0.43	12
	NBL/T/R	B	0.50	14	B	0.32	11
	SBL/T/R	B	0.24	11	B	0.27	11
	Overall	**B**	**-**	**13**	**B**	**-**	**11**
Collector 4 at Settlers Road *(Unsignalized)*	EBL/T/R	E	0.89	47	E	0.85	37
	WBL/T/R	D	0.74	30	C	0.48	17
	NBL/T/R	C	0.62	23	C	0.64	23
	SBL/T/R	D	0.70	27	C	0.60	20
	Overall	**D**	**-**	**33**	**D**	**-**	**26**
Collector 6 at Settlers Road *(Unsignalized)*	EBL/T/R	C	0.64	18	B	0.39	12
	WBL/T/R	B	0.45	13	B	0.33	11
	NBL/T/R	B	0.25	12	B	0.21	10
	SBL/T/R	B	0.40	13	B	0.33	11
	Overall	**B**	**-**	**15**	**B**	**-**	**11**
Local 7 at Trafalgar Road (Unsignalized)	WBR	B	0.07	12	B	0.05	14
	NBT	A	1.07	0	A	1.20	0
	NBT/R	A	0.57	0	A	0.69	0
	SBT	A	0.81	0	A	0.81	0
	Overall	**D**	**-**	**0**	**F**	**-**	**0**
Marvin Avenue at Trafalgar Road *(Signalized)*	EBL	D	0.18	38	D	0.12	46
	EBT	D	0.25	39	D	0.45	49
	EBR	D	0.69	49	D	0.14	46
	WBL	E	0.93	69	D	0.74	53
	WBT	C	0.24	30	D	0.25	39
	WBR	C	0.04	28	D	0.05	37
	NBL	F	1.56	328	D	0.64	46
	NBT	F	1.53	269	F	1.68	336
	NBR	B	0.05	14	B	0.19	15
	SBL	F	0.93	111	D	0.56	45
	SBT	F	1.59	298	F	1.83	408
	SBR	B	0.01	15	C	0.00	21
	Overall	**F**	**1.42**	**247**	**F**	**1.40**	**312**

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Collector 1 at Marvin Avenue *(Unsignalized)*	EBL/T/R	A	0.18	10	A	0.23	10
	WBL/T/R	B	0.58	15	B	0.36	10
	NBL/T/R	A	0.13	10	A	0.10	9
	SBL/T/R	B	0.49	14	B	0.33	11
	Overall	**B**	-	**13**	**B**	-	**10**
Collector 4 at Marvin Avenue *(Unsignalized)*	EBL/T/R	B	0.44	15	C	0.70	24
	WBL/T/R	C	0.52	17	C	0.42	16
	NBL/T/R	B	0.39	14	C	0.69	23
	SBL/T/R	C	0.75	24	C	0.56	18
	Overall	**C**	-	**19**	**C**	-	**21**

Table 53: 2041 Future Total Conditions Queue Lengths

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
William Halton Parkway at Trafalgar Road (Signalized)	EBL	220	#217	#220
	EBT	-	#256	134
	EBR	80	78	35
	WBL	100	#81	#99
	WBT	-	84	164
	WBR	205	#124	#502
	NBL	120	#69	#93
	NBT	-	#517	#475
	NBR	70	61	64
	SBL	180	#207	#183
	SBT	-	#380	#521
	SBR	80	69	#162
Burnhamthorpe Road at Trafalgar Road *(Signalized)*	EBL	100	#212	#154
	EBT	-	65	53
	EBR	30	19	26
	WBL	120	#107	#160
	WBT/R	-	66	71
	NBL	130	#181	#166
	NBT/R	-	#495	#472
	SBL	170	#99	#99
	SBT/R	-	#441	#487
William Halton Parkway at Burnhamthorpe Road *(Signalized)*	EBT/R	-	#348	#207
	WBL	140	#183	#411
	WBT	-	73	176
	NBL	30	0	0
	NBR	-	#472	#229

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
Dundas Street at Trafalgar Road ***(Signalized)***	EBL	190	#184	#186
	EBT	-	#520	#373
	EBR	85	50	35
	WBL	200	#83	#89
	WBT	-	#245	#419
	WBR	290	#227	#287
	NBL	110	#60	#102
	NBT	-	#299	#500
	NBR	60	22	53
	SBL	280	#262	#212
	SBT	-	#493	#335
	SBR	160	#135	#162
Sixth Line at William Halton Parkway ***(Roundabout)***	EBL/T	-	134	36
	EBT	-	139	36
	EBR	-	0	0
	WBL/T	-	14	46
	WBT	-	14	46
	WBR	-	0	0
	NBL/T	-	21	10
	NBT	-	21	10
	NBR	-	0	0
	SBL/T	-	642	44
	SBT	-	19	44
	SBR	-	0	0
Sixth Line at Burnhamthorpe Road ***(Signalized)***	EBL	55	18	12
	EBT/R	-	20	15
	WBL	50	41	40
	WBT/R	-	29	27
	NBL	40	43	19
	NBT/R	-	70	38
	SBL	30	24	16
	SBT/R	-	43	51
Trafalgar Road at Highway 407 WB Off-Ramp ***(Signalized)***	EBL	-	3	3
	EBR	5	0	0
	WBL	-	56	57
	WBL/T/R	-	59	62
	WBR	60	0	0
	NBL	-	1	2
	NBT	-	#359	#371
	SBT/R	-	#173	#201
Trafalgar Road at Highway 407 EB Off-Ramp ***(Signalized)***	EBL/R	-	60	54
	EBR	875	63	57
	NBT	-	#419	#477
	SBT	-	#347	#404

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
Ninth Line at William Halton Parkway / Burnhamthorpe Road *(Roundabout)*	EBL/T	-	1840	1009
	EBT	-	1840	1009
	EBR	-	0	0
	WBL/T	-	357	1383
	WBT/R	-	357	1383
	NBL/T	-	246	1444
	NBT/R	-	246	1444
	SBL/T	-	351	32
	SBT	-	377	32
	SBR	-	0	0
Collector 1 at William Halton Parkway *(Signalized)*	EBL	30	10	13
	EBT	-	#334	134
	EBR	30	6	7
	WBL	110	#179	#86
	WBT	-	57	200
	WBR	30	12	16
	NBL	30	18	23
	NBT/R	-	#101	#138
	SBL	40	#38	#99
	SBT/R	-	7	14
Collector 2 at William Halton Parkway *(Unsignalized)*	EBT	-	0	0
	EBT/R	-	0	0
	WBT	-	0	0
	WBR	30	0	0
	NBR	-	6	6
	SBR	-	14	9
Collector 1 at Burnhamthorpe Road *(Unsignalized)*	EBL	30	7	4
	EBT/R	-	45	39
	WBL	30	19	28
	WBT/R	-	33	62
	NBL	30	7	5
	NBT/R	-	33	16
	SBL	70	48	62
	SBT/R	-	14	20
Local 1 at Burnhamthorpe Road *(Unsignalized)*	EBT	-	0	0
	EBT/R	-	0	0
	WBT/L	-	0	1
	WBT	-	0	0
	NBL	30	0	0
	NBR	-	1	1
Local 3 at William Halton Parkway *(Unsignalized)*	EBT	-	0	0
	EBT/R	-	0	0
	WBT	-	0	0
	WBR	30	0	0
	NBR	-	13	1
	SBR	-	11	37

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
Local 3 / Collector 4 at Burnhamthorpe Road *(Unsignalized)*	EBT	-	0	0
	EBT/R	-	0	0
	WBT	-	0	0
	WBT/R	-	0	0
	NBR	-	5	4
	SBR	-	1	0
Loyalist Trail / Collector 3 at Trafalgar Road *(Unsignalized)*	EBR	-	14	64
	WBR	-	7	5
	NBT	-	0	0
	NBT/R	-	0	0
	SBT	-	0	0
	SBT/R	-	0	0
Collector 3 at Collector 5 *(Unsignalized)*	EBL/T/R	-	4	4
	WBL/T/R	-	0	1
	NBL/T/R	-	1	1
	SBL/T/R	-	0	0
Collector 5 at William Halton Parkway *(Unsignalized)*	EBL	85	#170	#284
	EBT	-	#191	103
	EBR	30	6	11
	WBL	30	#16	20
	WBT/R	-	89	#369
	NBL	30	34	26
	NBT/R	-	2	0
	SBL	40	17	30
	SBT/R	-	18	47
Collector 5 at Burnhamthorpe Road *(Signalized)*	EBL	30	7	12
	EBT/R	-	70	51
	WBL	50	18	45
	WBT/R	-	41	53
	NBL	30	14	11
	NBT/R	-	49	32
	SBL	30	5	5
	SBT/R	-	19	30
Local 6 at Trafalgar Road *(Signalized)*	EBL	40	31	21
	EBT/R	-	9	9
	WBL	40	32	24
	WBT/R	-	13	13
	NBL	30	15	17
	NBT/R	-	#491	#525
	SBL	17	#35	#84
	SBT/R	-	#424	#503

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
Settlers Road at Trafalgar Road *(Signalized)*	EBL	60	57	33
	EBT	-	39	39
	EBR	40	36	16
	WBL	85	74	48
	WBT	-	38	31
	WBR	30	9	2
	NBL	90	#57	m35
	NBT	-	#477	m#222
	NBR	40	29	m7
	SBL	70	#64	#91
	SBT	-	#423	#482
	SBR	30	15	15
Collector 1 at Settlers Road *(Unsignalized)*	SBT	-	11	9
	SBR	-	22	17
	NBL/T/R	-	21	11
	SBL/T/R	-	7	8
Collector 4 at Settlers Road *(Unsignalized)*	EBL/T/R	-	75	68
	WBL/T/R	-	45	20
	NBL/T/R	-	30	34
	SBL/T/R	-	40	29
Collector 6 at Settlers Road *(Unsignalized)*	EBL/T/R	-	35	14
	WBL/T/R	-	17	11
	NBL/T/R	-	8	6
	SBL/T/R	-	15	11
Local 7 at Trafalgar Road (Unsignalized)	WBR	-	2	0
	NBT	-	0	0
	NBT/R	-	0	0
	SBT	-	0	0
Marvin Avenue at Trafalgar Road *(Signalized)*	EBL	30	15	10
	EBT	-	26	35
	EBR	50	59	18
	WBL	90	80	50
	WBT	-	34	29
	WBR	30	7	10
	NBL	120	#143	#134
	NBT	-	#531	#644
	NBR	30	4	29
	SBL	30	#63	m18
	SBT	-	#529	m#254
	SBR	30	0	m0
Collector 1 at Marvin Avenue *(Unsignalized)*	EBL/T/R	-	5	7
	WBL/T/R	-	28	12
	NBL/T/R	-	3	2
	SBL/T/R	-	20	11
Collector 4 at Marvin Avenue *(Unsignalized)*	EBL/T/R	-	17	41
	WBL/T/R	-	22	16
	NBL/T/R	-	14	41
	SBL/T/R	-	50	26

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
Notes:	# - 95% percentile exceeds capacity m - volume for the 95th percentile queue is metered by an upstream signal			

With the addition of site generated traffic, the following study intersections are expected to operate with movements and/or overall v/c ratios greater than or equal to 0.85 in one or both the AM and PM peak periods in the 2041 future total horizon:

- William Halton Parkway at Trafalgar Road
- Burnhamthorpe Road at Trafalgar Road
- William Halton Parkway at Burnhamthorpe Road
- Dundas Street at Trafalgar Road
- Sixth Line at William Halton Parkway
- Highway 407 WB Off-Ramp at Trafalgar Road
- Highway 407 EB Off-Ramp at Trafalgar Road
- Ninth Line at William Halton Parkway / Burnhamthorpe Road
- Collector 1 at William Halton Parkway
- Local 3 at William Halton Parkway
- Loyalist Trail / Collector 3 at Trafalgar Road
- Collector 5 at William Halton Parkway
- Local 6 at Trafalgar Road
- Settlers Road at Trafalgar Road
- Collector 4 at Settlers Road
- Local 7 at Trafalgar Road
- Marvin Avenue at Trafalgar Road

This is expected due to the high traffic volumes projected along Trafalgar Road, Burnhamthorpe Road, William Halton Parkway, and Dundas Street. Additionally, the planned conversion of Trafalgar Road and Dundas Street into transit corridors with BRT lanes further limits capacity along these routes within the Study Area. As a result of the high volumes and reduced capacity, critical movements are not able to be mitigated using reasonable mitigation measures discussed in previous analysis horizons and are shown to be significantly worsened in the 2041 future total analysis horizon. As such, no mitigation measures at individual intersections have been considered.

As discussed in Section 7.2.5, bus-only BRT lanes along Trafalgar Road are recommended in the DMTR and will undergo further review and refinement through the Region's ongoing Integrated Master Plan (IMP). It is assumed that this is the case for the future Dundas Street BRT as well. As part of this process, region wide modelling is expected to be conducted to assess and address the impacts of the BRT implementation from a corridor perspective. As the high volumes along the Study Area roadways are a reflection of background development site traffic and growth rates provided by both Town and Regions staff, these volumes represent both projected local and regional growth as the result of development of adjacent lands and region wide development. The poor operation noted at Study Area intersections cannot be addressed using Synchro analysis software using intersection specific mitigation measures. Instead, macroscopic modelling is required by the Region to identify feasible corridor level solutions. As the IMP is an ongoing study, the results and modelling of this scenario are not yet available, however it is recommended and anticipated that the modelling of these BRT scenarios will address

the high traffic volumes in this area and the impact of reducing one through lane in each travel direction along Dundas Street as well as Trafalgar Road.

In order for the Study Area intersections to function adequately, a shift in mode share from single occupancy vehicles to transit is required to reduce traffic volumes along Trafalgar Road and Dundas Street. As such, a high-level evaluation of this potential shift in mode share has been undertaken by calculating the necessary reduction in vehicle volume to ensure adequate function of intersections along Trafalgar Road and Dundas Street. In order to do this, northbound and southbound volumes along Trafalgar Road and eastbound and westbound volumes at Dundas Street were reduced until the corresponding through movements operated at a v/c ratio of less than 1.00 at each intersection. The maximum reduction of traffic for each direction in each peak period is presented in Table 54 below.

Table 54: 2041 Future Total Volume Reductions

Corridor	AM				PM			
	NB	SB	EB	WB	NB	SB	EB	WB
Trafalgar Road	969	975	-	-	1341	1092	-	-
Dundas Street	-	-	1016	114	-	-	536	700

To estimate the number of buses required along the Trafalgar Road and Dundas Street BRT corridors to accommodate the reduction in vehicle trips, the reduced vehicle trips along these corridors were first converted into passenger trips. A 3% Transportation Demand Management mode share, which is intended to represent carpooling, and a 72% single-occupancy mode share is identified in the Halton Region TMP. The resulting vehicle occupancy rate based on these mode shares is 1.04. As Halton Region does not yet have information regarding BRT capacities, a bus capacity of 37 passengers based on a 40-foot bus from the Town of Oakville has been assumed for this analysis. With a conservative assumption of 70% bus occupancy, the corresponding number of buses needed to accommodate the reduced vehicle volumes along Trafalgar Road and Dundas Street for the AM and PM peak hour is presented in in Table 55 below.

Table 55: 2041 Future Total Required Bus Trips

Corridor	AM				PM			
	NB	SB	EB	WB	NB	SB	EB	WB
Trafalgar Road	39	39	-	-	54	44	-	-
Dundas Street	-	-	41	5	-	-	22	28

As shown above, the maximum number of one-way buses with a capacity of 37 people at 70% capacity is 59 in the AM and 97 in the PM on Trafalgar Road, and 40 in the AM and 28 in the PM on Dundas Street. It is further noted that articulated buses will provide additional bus capacity and are recommended for use along Trafalgar Road and Dundas Street.

7.3.5.1 2041 Future Total Conditions Operational Analysis – Saturday Analysis

As discussed in Section 5.1.5, a Saturday peak period scenario has been considered for the Highway 407 ramp intersections at Trafalgar Road. Table 56 summarizes the operational analysis of the 2041 Saturday future total conditions and Table 57 summarizes the 95th percentile queue lengths. Appendix O contains the 2041 Saturday future total conditions Synchro worksheets.

Table 56: 2041 Future Total Conditions Saturday Operational Analysis

Intersection	Mvmnt	SAT Peak Hour		
		LOS	V/C	Del. (s)
Trafalgar Road at Highway 407 WB Off-Ramp (Signalized)	EBL	C	0.01	30
	EBR	C	0.00	30
	WBL	D	0.75	45
	WBL/T/R	D	0.61	38
	WBR	C	0.02	30
	NBL	B	0.01	11
	NBT	C	1.00	34
	SBT/R	B	0.78	15
	Overall	**C**	**0.99**	**26**
Trafalgar Road at Highway 407 EB Off-Ramp (Signalized)	EBL/R	D	0.69	35
	EBR	D	0.75	39
	NBT	F	1.15	92
	SBT	F	1.33	167
	Overall	**F**	**1.17**	**124**

Table 57: 2041 Future Total Conditions Saturday Queue Lengths

Intersection	Mvmnt	Storage Dist. (m)	SAT Q (95th)
Trafalgar Road at Highway 407 WB Off-Ramp (Signalized)	EBL	-	1
	EBR	5	0
	WBL	-	69
	WBL/T/R	-	57
	WBR	60	0
	NBL	-	1
	NBT	-	#311
	SBT/R	-	#184
Trafalgar Road at Highway 407 EB Off-Ramp (Signalized)	EBL	-	57
	EBR	875	60
	NBT	-	#337
	SBT	-	#408
Notes:	# - 95% percentile exceeds capacity		

The signalized intersections of Trafalgar Road at the Highway 407 WB and EB off-ramps are expected to operate at an overall v/c ratio greater than or equal to 0.85 in the Saturday peak period in the 2041 future total horizon. The ramp movement at the EB off-ramp is shown to operate with a v/c ratio of 0.75 or less. The ramp movement at the WB off-ramp could not be reduced to 0.75 or lower with signal timing optimization as high volumes along Trafalgar Road do not allow more time to be given to the westbound movement. The northbound and southbound through movements at these intersections are expected to continue to operate at critical or over capacity v/c ratios due to the high volumes projected along Trafalgar Road and are not able to be mitigated using reasonable measures.

As discussed in Section 7.3.5, the planned conversion of Trafalgar Road into a transit corridor with BRT lanes further limits vehicle capacity along Trafalgar Road. As part of this process, region wide modelling is expected to be conducted as part of the IMP study to assess and address the impacts of the BRT implementation from a corridor perspective. As the IMP is an ongoing study, the results and the modelling of this scenario are not yet available.

Similar to the process discussed in the AM and PM analysis, the necessary reduction in volume along Trafalgar Road has been determined in order for the northbound and southbound movements at each intersection to operate at a v/c ratio of below 1.00. The maximum reduction of traffic for each direction results in 1970 northbound and 1980 southbound vehicles along Trafalgar Road for the Saturday peak period.

To estimate the number of buses required along the Trafalgar Road and Dundas Street BRT corridors to accommodate the reduction in vehicle trips, the reduced vehicle trips along these corridors were first converted into passenger trips. A 3% Transportation Demand Management mode share, which is intended to represent carpooling, and a 72% single-occupancy mode share is identified in the Halton Region TMP. The resulting vehicle occupancy rate based on these mode shares is 1.04. As Halton Region does not yet have information regarding BRT capacities, a bus capacity of 37 passengers based on a 40-foot bus from the Town of Oakville has been assumed for this analysis. With a conservative assumption of 70% bus occupancy, the corresponding maximum number of buses needed to accommodate the reduced vehicle volumes along Trafalgar Road is 13 in the northbound direction and 27 in the southbound direction for the Saturday peak period.

7.3.6 Future Total Intersection Configuration

The resulting recommended intersection configuration for the Study Area intersections based on the Synchro analysis above is summarized below. Figure 121, Figure 122, Figure 123, and Figure 124 show the 2031 future total intersection configuration. Figure 125, Figure 126, Figure 127, and Figure 128 show the 2036 future total intersection configuration. Figure 129, Figure 130, Figure 131, and Figure 132 show the 2041 future total intersection configuration.

As discussed in Section 7.2.2, no documents are currently available to indicate the configurations of Trafalgar Road and Dundas Street with the implementation of BRT lanes in the 2041 future total horizon. As such, it has been assumed that the BRT lanes will be located on the inside of general travel lanes. As noted in Section 7.3.2, minor adjustments in the road network since the initial submission of this TIS, including shifts in alignment of some intersection legs, have not been reflected in the volume figures as they are not to scale and intended for visual reference only.

Figure 121: 2031 Future Total Intersection Configuration – Section A

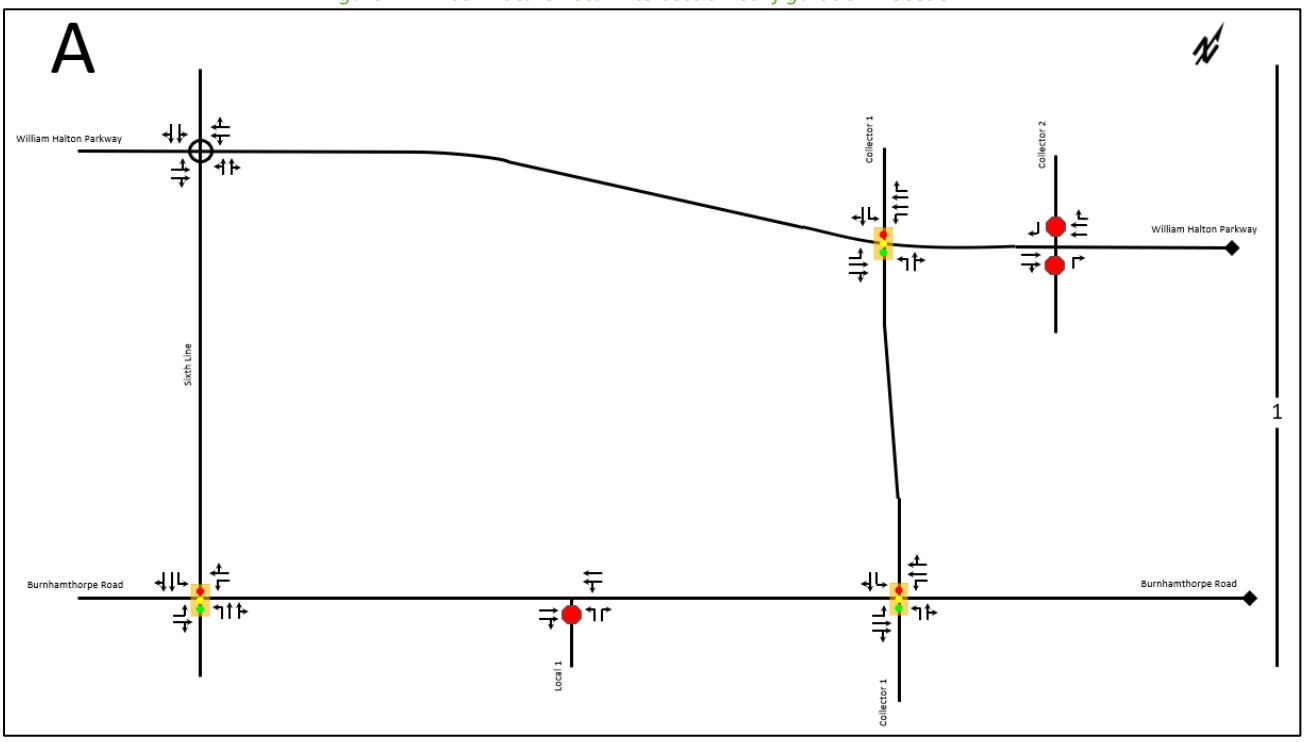


Figure 122: 2031 Future Total Configuration – Section B

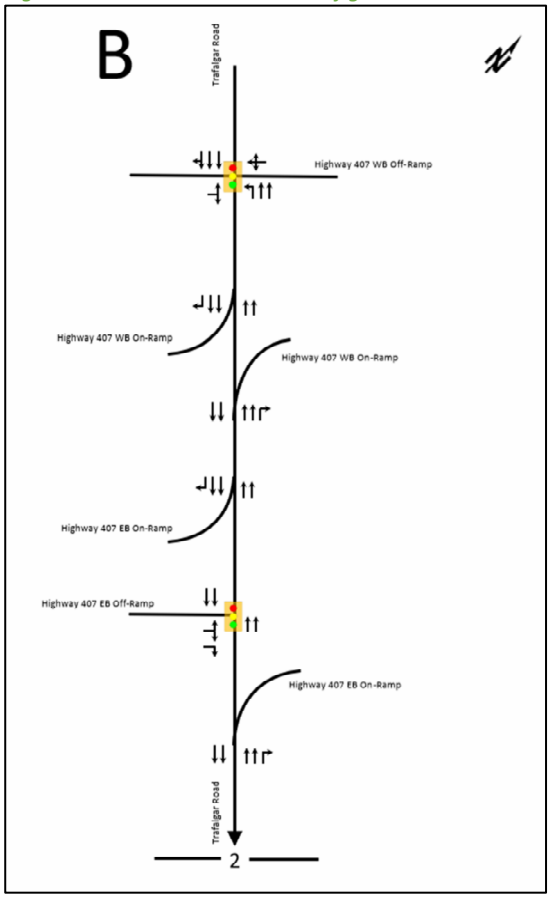


Figure 123: 2031 Future Total Intersection Configuration – Section C

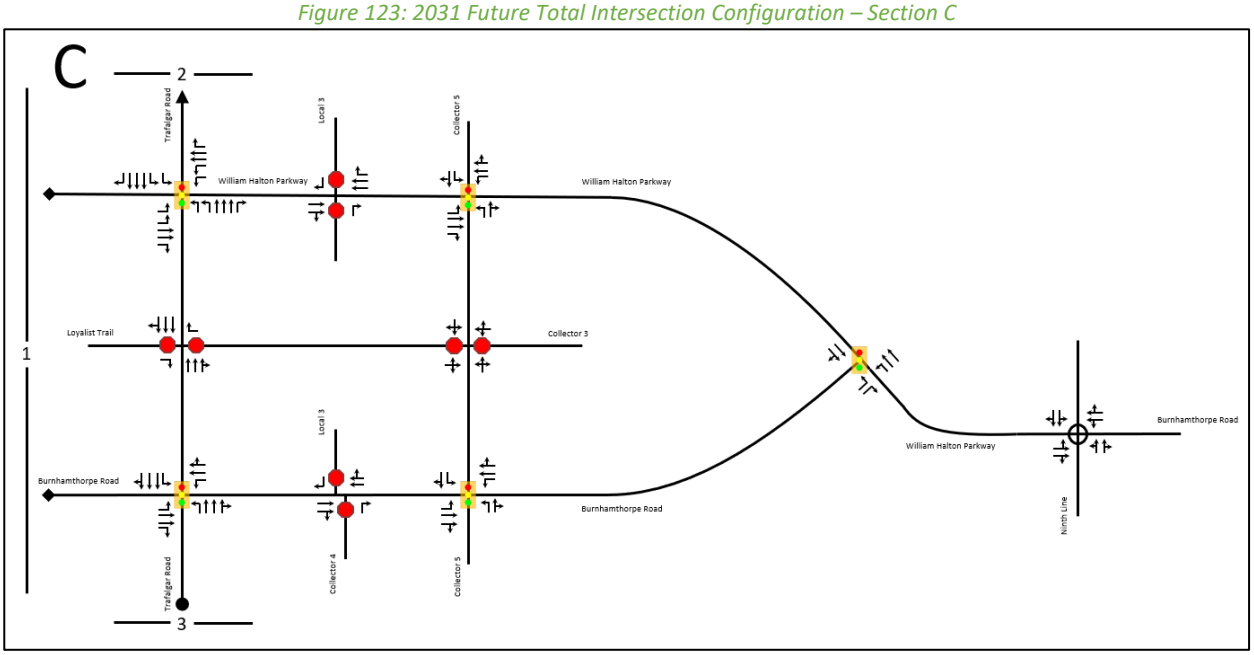


Figure 124: 2031 Future Total Intersection Configuration – Section D

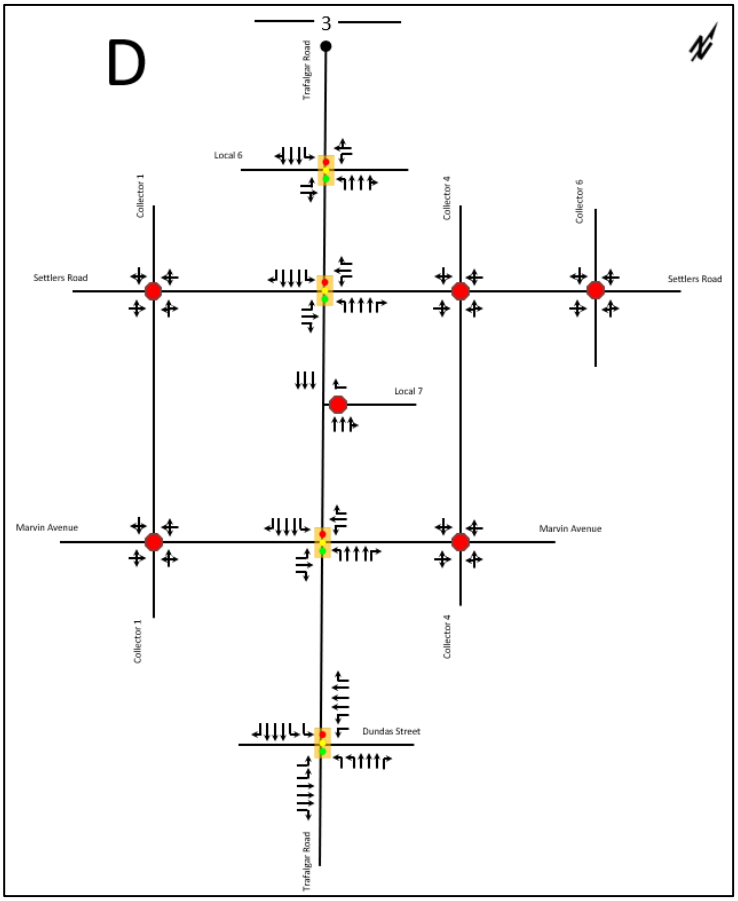


Figure 125: 2036 Future Total Intersection Configuration – Section A

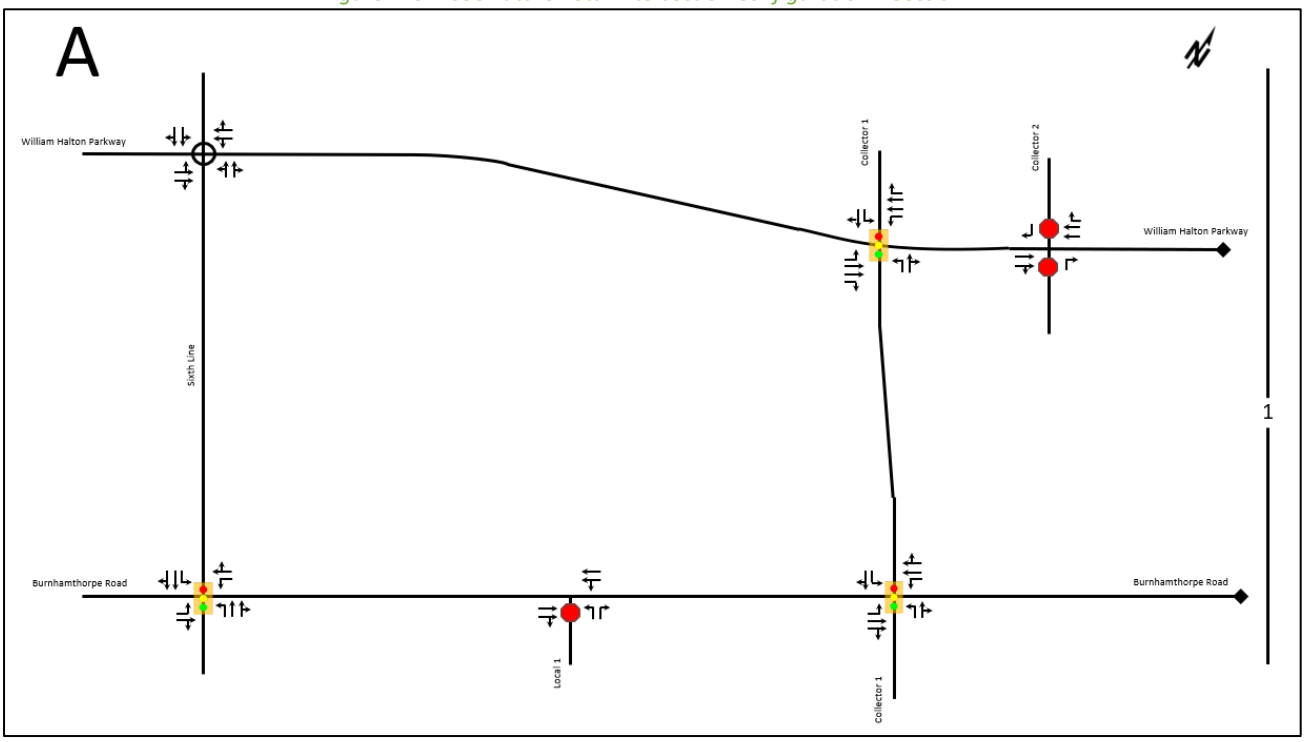


Figure 126: 2036 Future Total Intersection Configuration – Section B

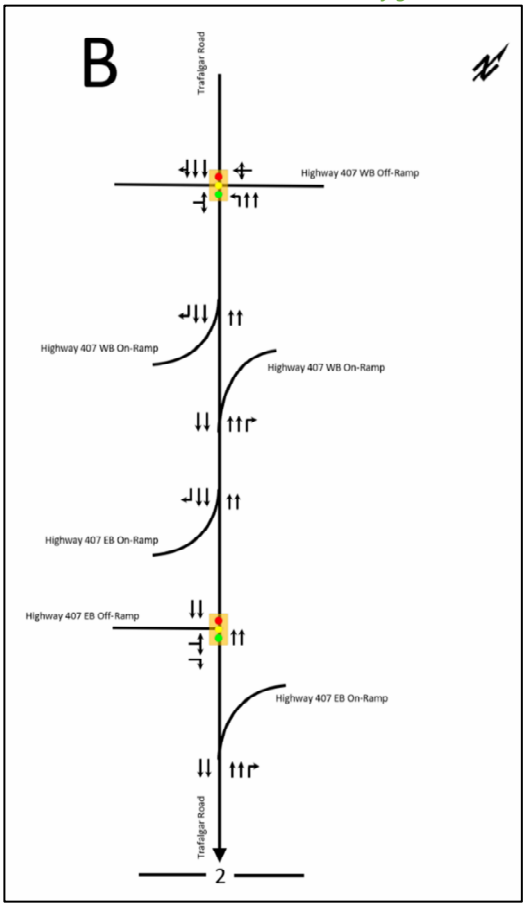


Figure 127: 2036 Future Total Intersection Configuration – Section C

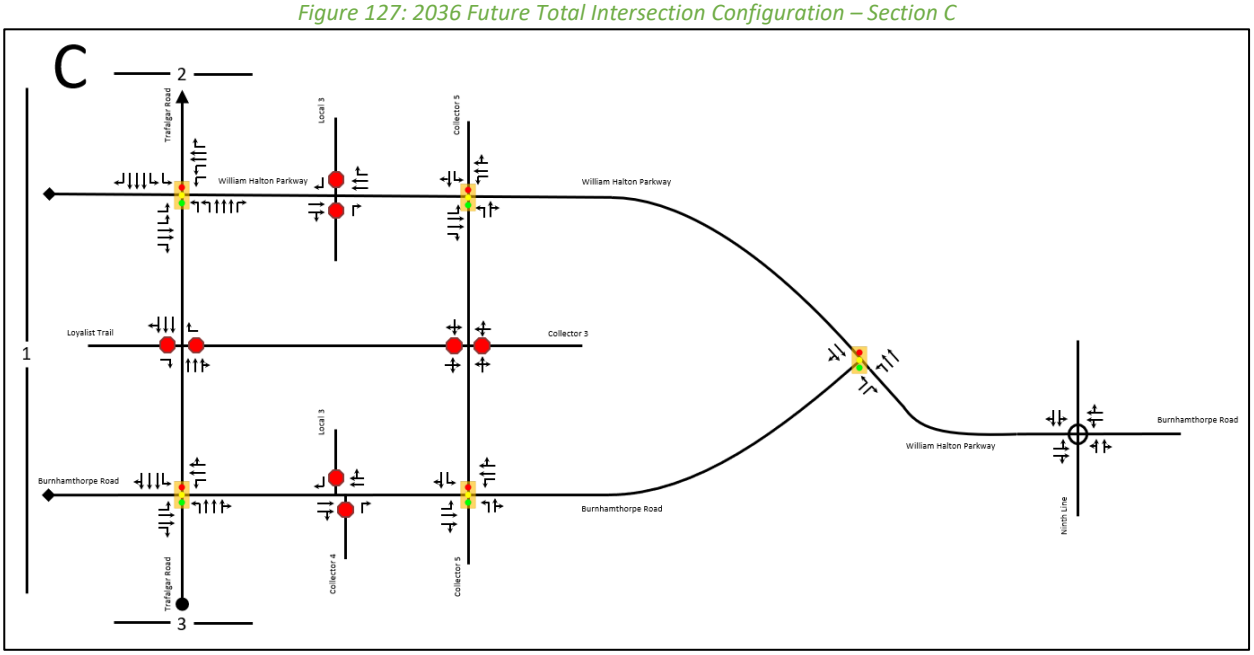


Figure 128: 2036 Future Total Intersection Configuration – Section D

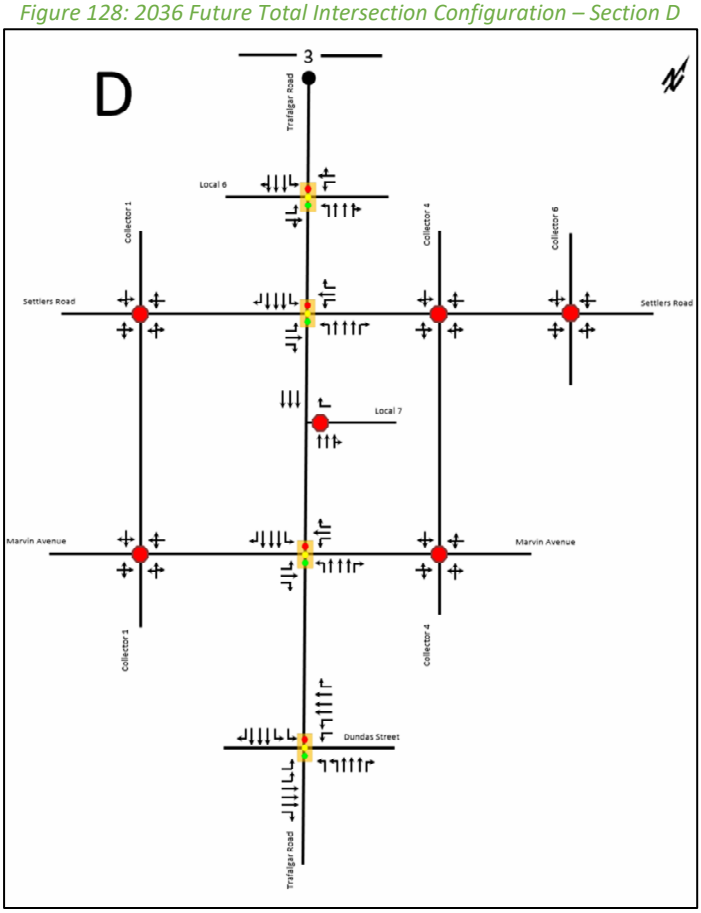


Figure 129: 2041 Future Total Intersection Configuration – Section A

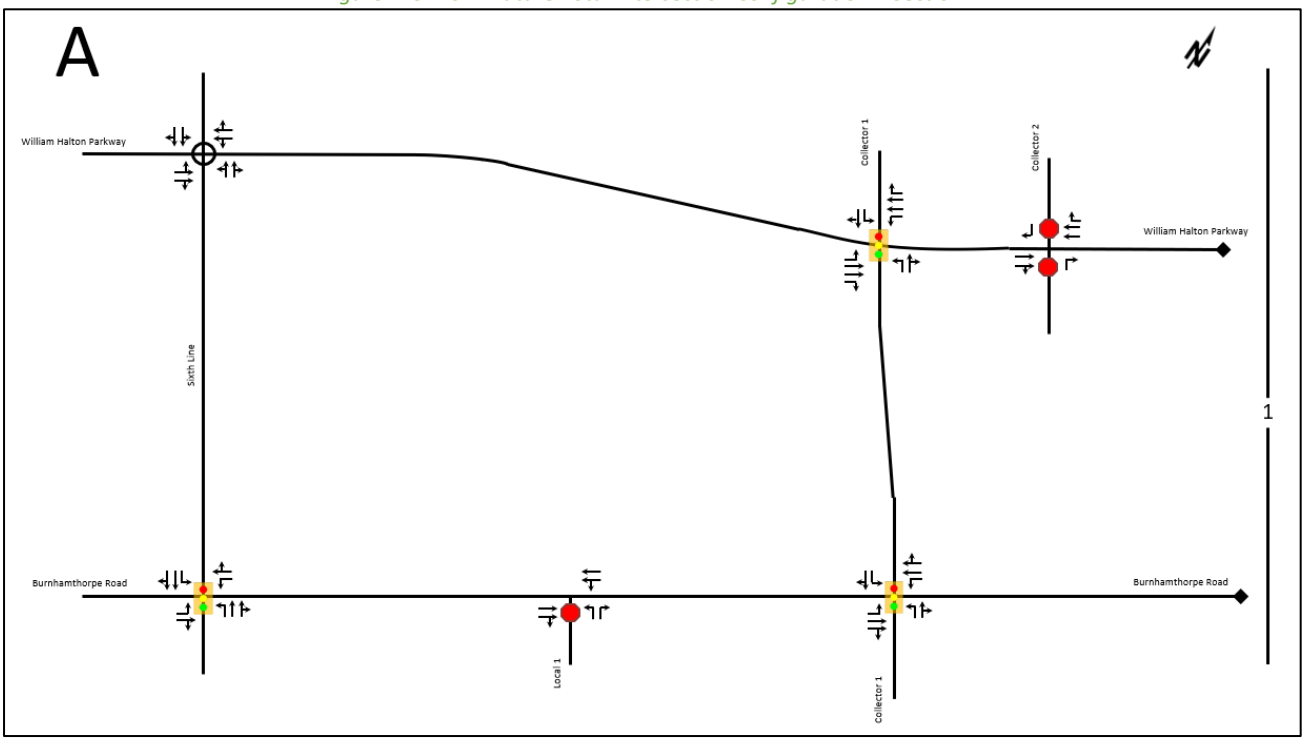


Figure 130: 2041 Future Total Intersection Configuration – Section B

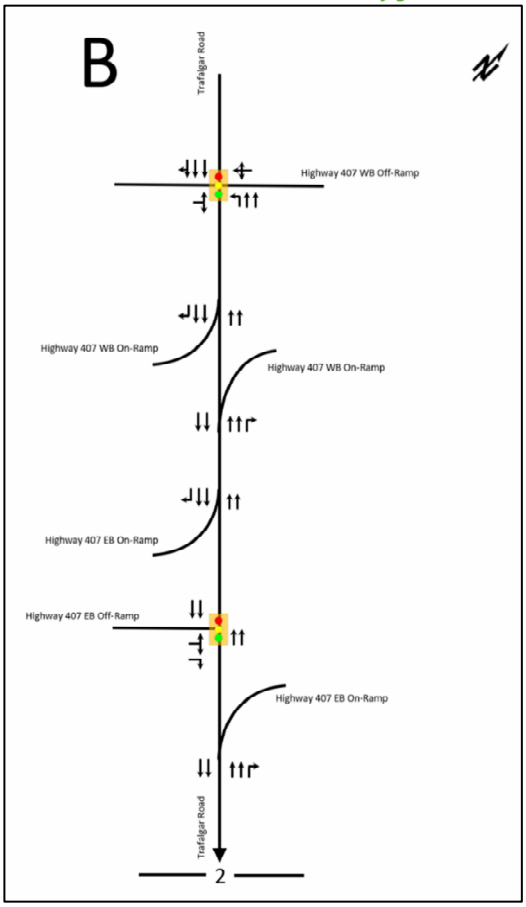


Figure 131: 2041 Future Total Intersection Configuration – Section C

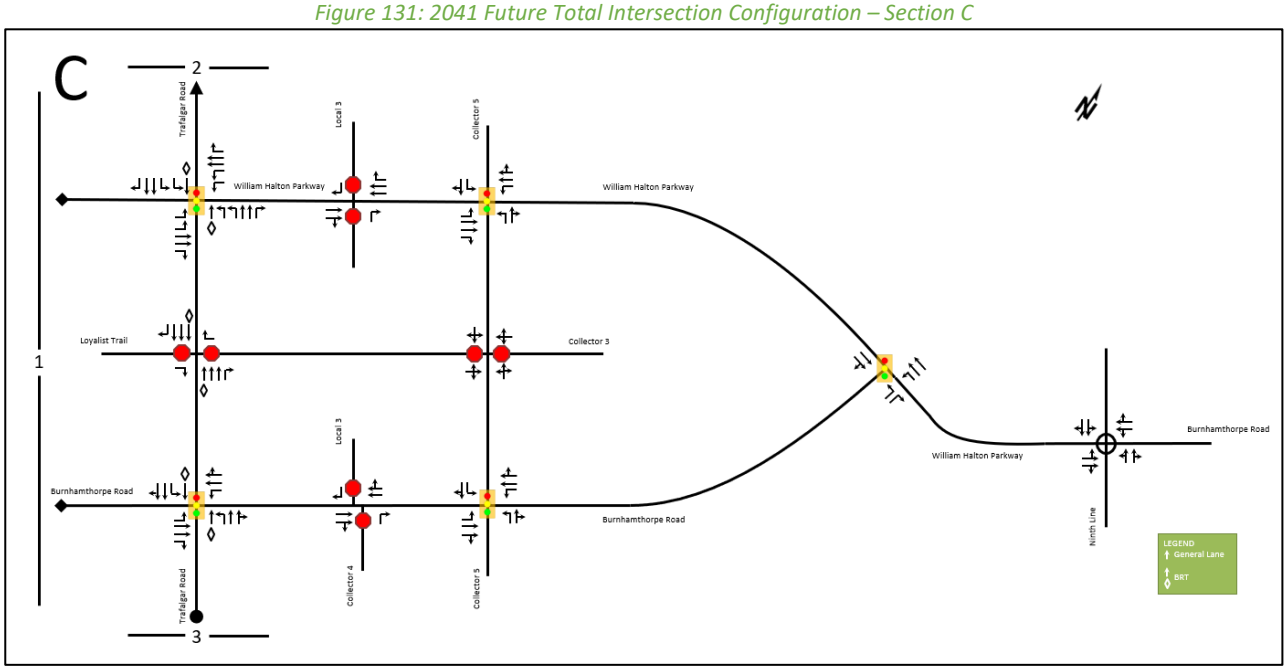
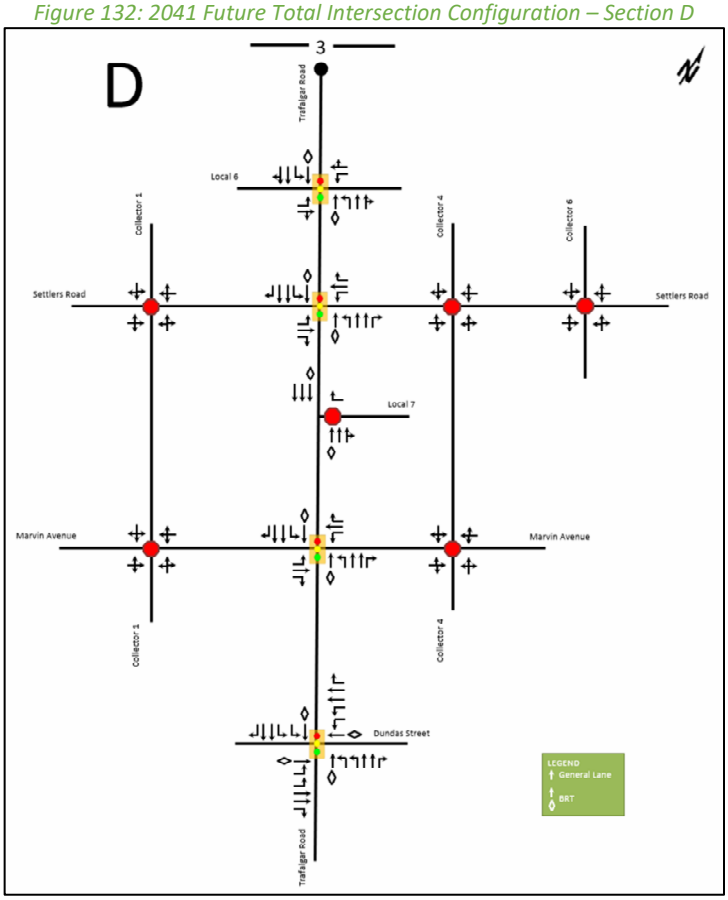


Figure 132: 2041 Future Total Intersection Configuration – Section D



8 Concept Plan Review

8.1 Intersection and Access Spacing

Intersection and access spacing for roadways within the Study Area are summarized in Table 58 below. Spacing along regional roads has been measured intersection stop-bar to intersection stop-bar. Spacing along Town of Oakville roads has been measured from intersection centreline to intersection centreline. This is reflective of the Regional access and intersection spacing requirements being measured intersection stop-bar to intersection stop-bar, and the Town's access and intersection spacing requirements being measured intersection centreline to intersection centreline.

The Halton Region TMP classifies Trafalgar Road as an N1 Urban Road and William Halton Parkway as a C2 Urban Road. Based on these classifications, the Halton Region Access Management Guidelines require a minimum spacing of 250 metres on Trafalgar Road and 300 metres for William Halton Parkway for full movement accesses, measured stop bar to stop bar. Right-in-right-out accesses require a minimum spacing of 115 metres on regional roads.

The North Oakville TOR for TIS and TFDS requires a minimum intersection spacing of 40 metres for adjacent three-leg and 60 metres for adjacent four-leg intersections on local roadways, measured centreline to centreline. For connector and avenue roadways, a minimum intersection spacing of 60 metres is required. For arterial roads, a minimum spacing of 200 metres for minor arterials and 400 metres for major arterials is required between signalized intersections. Adjacent all way stops require a minimum spacing of 250 metres.

Measured spacing that is less than the required spacing is identified in red below.

Table 58: Study Area Intersection and Access Spacing

Roadway	Classification	Town/Region	Segment	Direction of Spacing	Spacing (m)	
					Stop Bar	Centerline
Trafalgar Road	Arterial	Region	Threshing Mill – Marvin Avenue	North-South	490 m	-
			Marvin Avenue – Local 7		106 m	
			Local 7 – Settlers Rod		233 m	
			Settlers Road – Local 6		215 m	
			Local 6 – Burnhamthorpe Road		180 m	
			Burnhamthorpe Road – Loyalist Trail		220 m	
			Loyalist Trail – William Halton Parkway		125 m	
William Halton Parkway	Arterial	Region	Collector 1 – Collector 2	East-West	145 m	-
			Collector 2 – Trafalgar Road		138 m	
			Trafalgar Road – Local 3		75 m	
			Local 3 – Local 3 (Offset)		20 m	
			Local 3 – Collector 5		176 m	
			Collector 5 – Local road		245 m	

Burnhamthorpe Road	Major Collector	Town	Local road – Local 1	East-West	-	136 m
			Local 1 – Collector 1			205 m
			Collector 1 – Trafalgar Road			245 m
			Trafalgar Road – Collector 4			134 m
			Collector 4 – Local 3 (Offset)			55 m
			Local 3 – Collector 5			150 m
			Collector 5 – Local road			294 m
Settlers Road	Minor Collector	Town	Local road – Local road	East-West	-	71 m
			Local road – Local road			71 m
			Local road – Local road			72 m
			Local road – Local road			71 m
			Local road – Collector 1			120 m
			Collector 1 – Local road			104 m
			Local road – Trafalgar Road			121 m
			Trafalgar Road – Collector 4			127 m
			Collector 4 – Collector 6			123 m
			Collector 6 – Local road			157 m
			Local road – Local road			45 m
Marvin Avenue	Minor Collector	Town	Collector 1 – Trafalgar Road	East-West	-	186 m
			Trafalgar Road – Collector 4			126 m
			Collector 4 – Collector 6			138 m
Collector 2	Collector	Town	Loyalist Trail – William Halton Parkway	North-South	-	207 m
Loyalist Trail	Collector	Town	Local road – Local road	East-West	-	131 m
			Local road – Collector 1			162 m
			Collector 1 – Trafalgar Road			195 m
Collector 3	Collector	Town	Trafalgar Road – Local 3	East-West	-	120 m
			Local 3 – Local 3 (Offset)			60 m
			Local 3 – Collector 5			150 m
			Collector 5 – Local road			280 m
Local 6	Local	Town	Local road – Local 1	East-West	-	138 m
			Local 1 – Collector 1			215 m
			Collector 1 – Trafalgar Road			232 m
			Trafalgar Road – Collector 4			128 m
			Collector 4 – Collector 5			200 m

Local 7	Local	Town	Trafalgar Road – Collector 4	East-West	-	127 m
			Collector 4 – Collector 6			127 m
			Collector 6 – Local road			82 m
			Local road – Local road			80 m
			Local road – Local road	North-South		113 m
			Local road – Settlers Road			123 m
Collector 1	Collector	Town	William Halton Parkway – Loyalist Trail	North-South	-	328 m
			Loyalist Trail – Burnhamthorpe Road			240 m
			Burnhamthorpe Road – Local 6			225 m
			Local 6 – Settlers Road			252 m
			Settlers Road – Marvin Avenue			427 m
Local 3	Local	Town	William Halton Parkway – Collector 3	North-South	-	180 m
			Collector 3 – Burnhamthorpe Road			255 m
Collector 4	Collector	Town	Burnhamthorpe Road – Local 6	North-South	-	225 m
			Local 6 – Settlers Road			258 m
			Settlers Road – Local 7			275 m
			Local 7 – Marvin Avenue			145 m
Collector 5	Collector	Town	Collector road – Local road	North-South	-	153 m
			Local road – William Halton Parkway			168 m
			William Halton Parkway – Collector 3			175 m
			Collector 3 – Burnhamthorpe Road			250 m
			Burnhamthorpe Road – Local 6			227 m
Collector 6	Collector	Town	Local 6 – Settlers Road	North-South		258 m
			Settlers Road – Local 7			275 m
Local Road (E of Collector 5)	Local	Town	Collector road – Local road	North-South	-	193 m
			Local road – William Halton Parkway			167 m
			William Halton Parkway – Collector 3			200 m
			Collector 3 – Burnhamthorpe Road			223 m

Local road (W of Local 1)	Local	Town	Loyalist Trail – Local road	North-South	-	122 m
			Local road – Burnhamthorpe Road			73 m
			Burnhamthorpe Road – Local road			66 m
			Local road – Local road			45 m
			Local road – Local road			45 m
			Local road – Local road			45 m
			Local road – Settlers Road			107 m
Local 1	Local	Town	Burnhamthorpe Road – Local road	North-South	-	74 m
			Local road – Local road			45 m
			Local road – Local road			45 m
			Local road – Local road			45 m
			Local road – Settlers Road			133 m

As shown above, the majority of intersections and accesses adhere to the Town and Region spacing requirements.

It is however noted that along Trafalgar Road, the right-in / right-out intersection of Trafalgar Road and Local 7 is located 106 metres north of Marvin Avenue, measured intersection stop-bar to intersection stop-bar. As TAC Design Guidelines indicate that along divided arterials, right-in / right-out intersections with a median may be permitted to be 100 metres from an adjacent all-way intersection, measured between the closest edges of pavement of the adjacent intersection roads. As such the spacing of this intersection should be considered acceptable.

Along Trafalgar Road, the signalized intersection of Local 6 and Trafalgar Road is located 215 metres north of Settlers Road and 180 metres south of Burnhamthorpe Road. As discussed in Section 7.3.1, this intersection has been signalized to support the full-movement nature of this intersection to allow for additional east-west connections between the lands east and west of Trafalgar Road given the high volumes noted along Burnhamthorpe Road. TAC Design Guidelines indicate that along arterial roadways within areas of intensification, 200 metres between adjacent signalized intersections is required. The location of this intersection has however been optimized based on the surrounding development parcels it is intending to support, and the east leg of the intersection has been matched to the location of the west leg of the intersection. When preparing a land use plan, it is recognized that other factors influence intersection locations, as described above, however from a transportation perspective as the minimum intersection spacing is not met, it is recommended that, if possible, the intersection of Local 6 and Trafalgar Road be shifted south to increase the distance to Burnhamthorpe Road. This is something that should be further examined at subsequent development application stages.

Along William Halton Parkway, the right-in / right-out intersection of Local 3 and William Halton Parkway is located 75 metres east of Trafalgar Road. TAC Design Guidelines indicate that along divided arterials, right-in / right-out intersections without a median opening may be permitted to be 100 metres from an adjacent all-way intersection, measured between the closest edges of pavement of the adjacent intersection roads. Measured between the closest edges of pavement of the adjacent intersection roads, the intersection of Local 3 at William Halton Parkway is 94 metres from Trafalgar Road. The location of this intersection has however been optimized based on the surrounding development parcels it is intending to support. Additionally, the spacing between the north leg and

the south leg of the intersection of Local 3 and William Halton Parkway is less than the required 60 metre minimum. However, these legs both operate as right-in / right-out intersections and as such, are not expected to interact with each other.

Along William Halton Parkway, the signalized intersection of William Halton Parkway and Collector 5 is located 245 metres east of a full-movement local road intersection to the east. Further details about this local road intersection are unknown and may be subject to change. In the event that this local road intersection is signalized, it is noted that TAC Design Guidelines indicate that along arterial roadways within areas of intensification, 200 metres between adjacent signalized intersections is required. Therefore, the intersection location of William Halton Parkway and Collector 5 is considered acceptable.

Along Burnhamthorpe Road, the spacing between the intersections of Collector 4 and Local 3 is less than the required 60 metre minimum. However, these intersections both operate as right-in / right-out intersections and as such, are not expected to interact with each other.

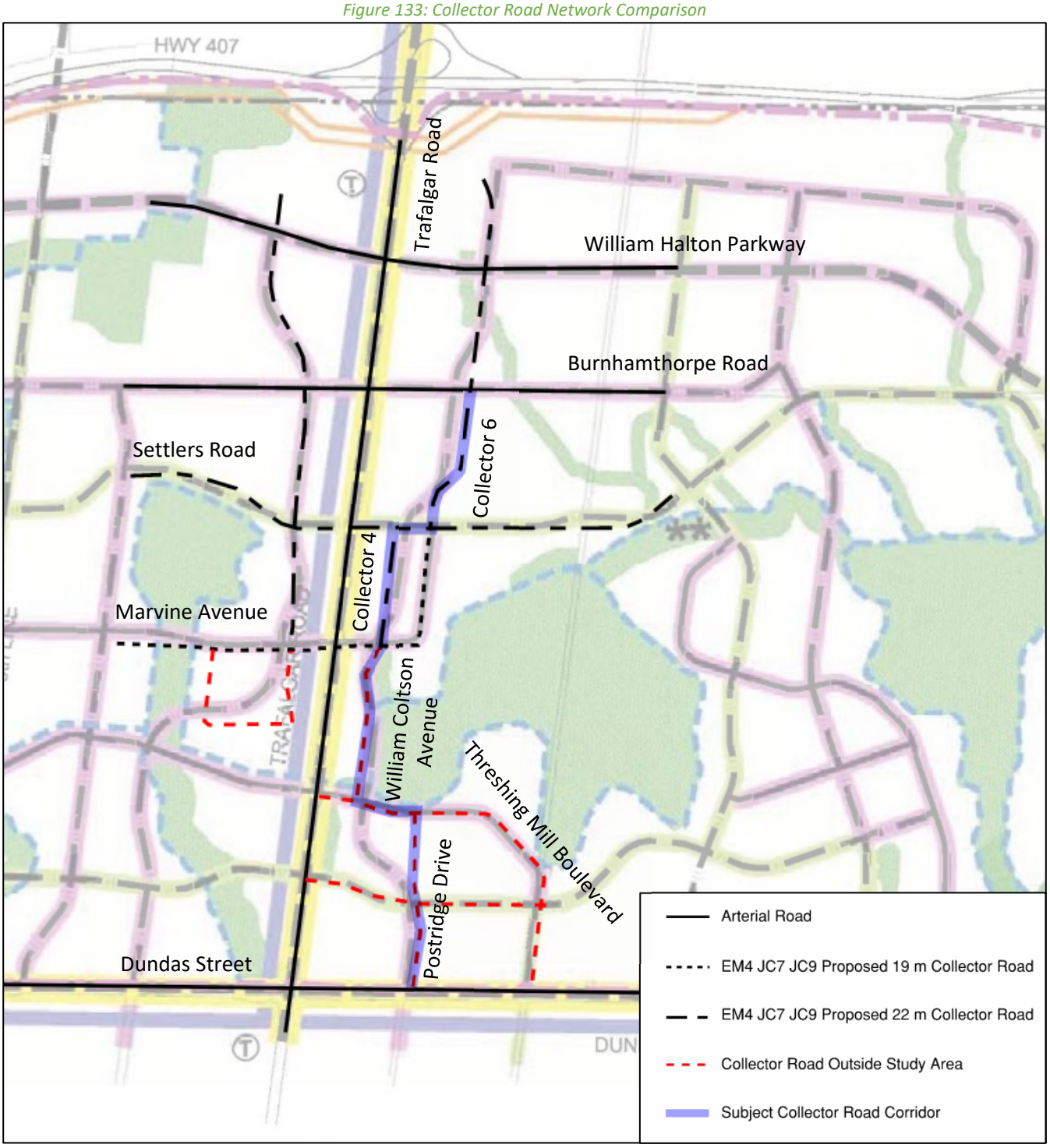
Along Settlers Road, two local roads are noted to have 45 metres between them measured intersection centreline to intersection centreline. Details of these local roadways are subject to future analysis at draft plan and site plan application submissions, however it is assumed that these will operate as right-in/right-out intersections. Additionally, following the provision of a site plan for the school located on the north side of Settlers Road, these local roadways may be shifted to line up with accesses to the school. As such, the spacing of these local roads will be evaluated at future submission stages.

8.2 Collector Road Layout

The North Oakville East Secondary Plan collector road network is discussed and illustrated in Section 4.1.7 of this report. The Secondary Plan identifies a system of collector roads intended to support the arterial road network and accommodate future transit service. The concept plan of the proposed development generally conforms to the collector road network identified in the North Oakville East Secondary Plan. However, minor deviations are noted with respect to the alignment of Collector 4 and Collector 6 within the subject lands east of Trafalgar Road.

The North Oakville East Secondary Plan illustrates a continuous avenue/transit corridor connecting Marvin Avenue and Burnhamthorpe Road. Within the proposed concept plan, the continuity of this connection is not maintained, and a discontinuity is introduced where north-south vehicle travel between Marvin Avenue and Burnhamthorpe Road are accommodated via Settlers Road between Collector 4 and Collector 6, rather than a single collector road alignment. A comparison between the proposed collector road network and the North Oakville East Secondary Plan Transportation Plan is illustrated in Figure 133 below. The subject collector road corridor has been highlighted within the figure.

Figure 133: Collector Road Network Comparison



Town staff have indicated that the intended function of the collector road in the Secondary Plan is to provide a continuous north-south corridor to relieve traffic demand and provide routing opportunity for future transit service as an alternative to Trafalgar Road.

While the proposed concept plan introduces a deviation from this intended continuous corridor, it is noted that a similar condition exists within the broader secondary plan area south of the subject development. South of Marvin

Avenue, the collector road does not currently function as a continuous corridor connecting to Dundas Street despite being conceptually identified as such in the North Oakville East Secondary Plan. North-south travel between Marvin Avenue and Dundas Street is currently accommodated through a series of connecting north-south and east-west collector roads, including William Coltson Avenue, Threshing Mill Boulevard, and Postridge Drive. This travel pattern is similarly reflected within the subject lands where connectivity is maintained through a series of roadways rather than a single continuous corridor.

The proposed concept plan also provides a grid structure east of Trafalgar Road that supports multiple parallel north-south and east-west route options between Marvin Avenue and Burnhamthorpe Road. This allows traffic to be distributed across the roadways, including Settlers Road, Local 6, Local 7, and Marvin Avenue, rather than concentrating movements along a single continuous corridor. The proposed configuration is expected to improve overall operational performance and circulation.

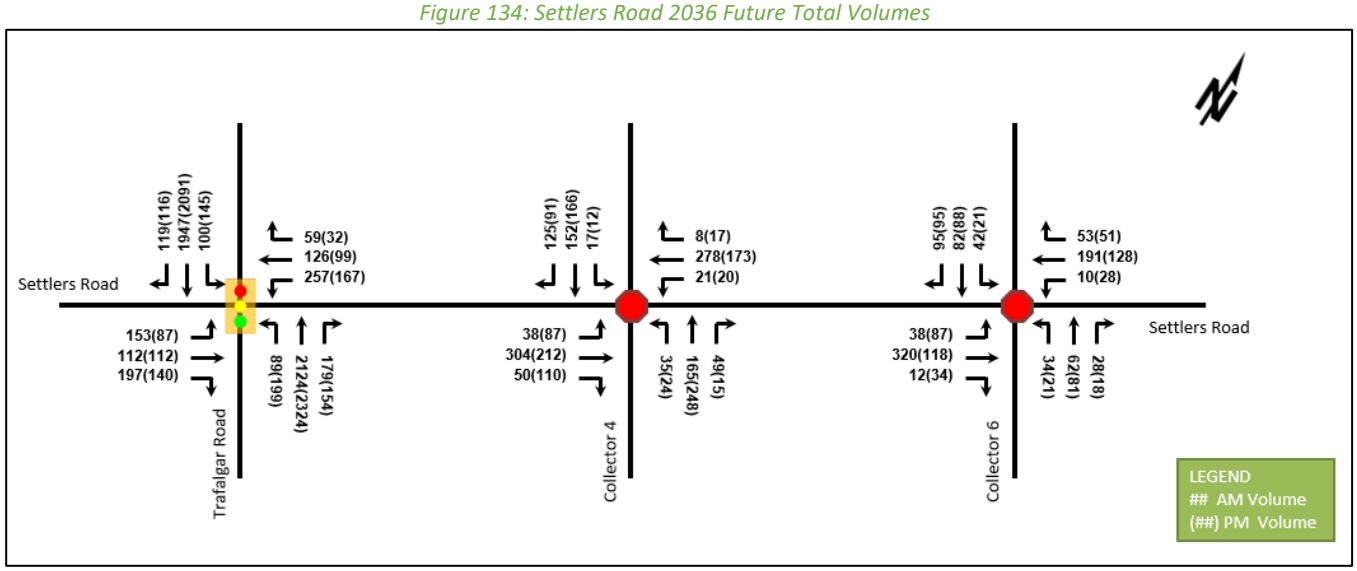
8.2.1 Operational Analysis

An operational analysis of the routing between Marvin Avenue and Burnhamthorpe Road has been undertaken to understand how the proposed collector road network alignment will function from a transportation operation perspective.

Under the proposed network layout, it is anticipated that vehicles travelling northbound east of Trafalgar Road will proceed north on Collector 4 from Marvin Avenue, make a northbound right-turn onto Settlers Road, and then an eastbound left-turn onto Collector 6 to continue north towards Burnhamthorpe Road. Conversely, southbound vehicles are expected to travel south along Collector 6 from Burnhamthorpe Road, make a southbound right-turn onto Settlers Road, and then a westbound left-turn onto Collector 4 to continue south towards Marvin Avenue.

The 2036 future total volumes along Settlers Road from Trafalgar Road to Collector 6 has been derived from the current study and is presented in Figure 134 below. It is noted that a site-specific study will be prepared for the Westerkirk property as part of a future Draft Plan submission, which will analyze the subject intersections in greater detail.

Figure 134: Settlers Road 2036 Future Total Volumes



The Settlers Road 2036 future total conditions operational analysis are summarized in Table 59 and the 95th percentile queues are summarized in Table 60. It is noted that these results are consistent with the operational analysis results presented in Section 7.3.4.

Table 59: 2036 Future Total Conditions Operational Analysis – Settlers Road

Intersection	Mvmnt	AM Peak Hour			PM Peak Hour		
		LOS	V/C	Del. (s)	LOS	V/C	Del. (s)
Settlers Road at Trafalgar Road *(Signalized)*	EBL	E	0.75	60	D	0.54	51
	EBT	D	0.36	43	D	0.47	49
	EBR	D	0.37	44	D	0.10	45
	WBL	E	0.88	65	D	0.70	49
	WBT	C	0.28	34	D	0.26	38
	WBR	C	0.04	32	D	0.02	35
	NBL	C	0.57	28	E	0.62	57
	NBT	E	1.04	60	E	1.12	79
	NBR	B	0.19	16	C	0.15	23
	SBL	C	0.60	31	D	0.67	36
	SBT	D	0.95	37	F	1.15	107
	SBR	B	0.10	15	B	0.10	19
	Overall	**D**	**0.99**	**47**	**F**	**0.99**	**81**
Collector 4 at Settlers Road *(Unsignalized)*	EBL/T/R	E	0.89	47	E	0.85	37
	WBL/T/R	D	0.74	30	C	0.48	17
	NBL/T/R	C	0.62	23	C	0.64	23
	SBL/T/R	D	0.70	27	C	0.60	20
	Overall	**D**	**-**	**33**	**D**	**-**	**26**
Collector 6 at Settlers Road *(Unsignalized)*	EBL/T/R	C	0.64	18	B	0.39	12
	WBL/T/R	B	0.45	13	B	0.33	11
	NBL/T/R	B	0.25	12	B	0.21	10
	SBL/T/R	B	0.40	13	B	0.33	11
	Overall	**B**	**-**	**15**	**B**	**-**	**11**

Table 60:2036 Future Total Conditions 95th Percentile Queue Lengths – Settlers Road

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
Settlers Road at Trafalgar Road *(Signalized)*	EBL	60	57	33
	EBT	-	39	39
	EBR	40	36	16
	WBL	85	74	48
	WBT	-	38	31
	WBR	30	9	2
	NBL	60	#29	m#46
	NBT	-	#316	m#239
	NBR	40	29	m12
	SBL	80	#37	#65
	SBT	-	#277	#309
	SBR	30	15	14
Collector 4 at Settlers Road *(Unsignalized)*	EBL/T/R	-	75	68
	WBL/T/R	-	45	20
	NBL/T/R	-	30	34
	SBL/T/R	-	40	29

Intersection	Mvmnt	Storage Dist. (m)	AM Q (95th)	PM Q (95th)
Collector 6 at Settlers Road ***(Unsignalized)***	EBL/T/R	-	35	14
	WBL/T/R	-	17	11
	NBL/T/R	-	8	6
	SBL/T/R	-	15	11
Notes:	# - 95% percentile exceeds capacity m - volume for the 95th percentile queue is metered by an upstream signal			

As shown above, critical movements are identified at the intersections of Settlers Road at Trafalgar Road and Collector 4 at Settlers Road.

At the intersection of Settlers Road and Trafalgar Road, critical movements are limited to the northbound and southbound approaches along Trafalgar Road. As discussed in Section 7.3, this is due to high volumes on Trafalgar Road. However, no critical movements are identified on the eastbound and westbound approaches on Settlers Road. The 95th percentile queue lengths on the westbound approach on Settlers Road are shown to fit within the storage distance of the turning lanes and are not expected to exceed the intersection spacing or result in blockage of the Collector 4 and Settlers Road intersection.

At the intersection of Collector 4 and Settlers Road, the eastbound approach is identified to have LOS E. However no over-capacity movements are noted. The 95th percentile queue length of the eastbound approach also remain within the intersection spacing to Trafalgar Road and are not anticipated to interfere with adjacent intersection operations.

No critical movements are identified at the intersection of Collector 6 and Settlers Road. Queue lengths are minimal and are not anticipated to block movements at Collector 4.

Overall, the operational analysis of the intersections along Settlers Road are expected to function within acceptable limits under the 2036 future total conditions. The proposed alignment of the route formed by Collector 4, Settlers Road, and Collector 6 is expected to operate effectively as a north-south connection between Marvin Avenue and Burnhamthorpe Road.

8.3 Conceptual Intersection Layout

A conceptual intersection layout, shown in Appendix P, has been prepared and illustrates the proposed configurations of Study Area intersections that may impact the subject lands. These intersection layouts are reflective of what is anticipated to be required at the time of full build-out of the subject development lands and can be used to identify any impacts on the proposed rights-of-way of roadways within the Study Area. Information for these conceptual layouts has been taken from planning documents including the Trafalgar Road Improvements EA (2016) and detailed design drawings and the Burnhamthorpe Road Character Study ESR (2014), as well as mitigation measures recommended from the 2031 future total analysis. The conceptual intersection layouts have also been informed by TAC design guidelines, North Oakville standard roadway cross-sections, and the North Oakville TOR for TIS and TFDS. As discussed in Section 4.1.2, the detailed design of Trafalgar Road has been referenced for the configurations of intersections along Trafalgar Road in future analysis horizons. Where intersection information is not available in the detailed design, or conflicting information is available, other material such as the preliminary designs of the Study Area intersections shown in the Trafalgar Road EA and other intersection design information discussed in Section 4.1 will be used.

As no site survey is available at this stage, it is noted that the intersection layout is provided for conceptual purposes only. The purpose is to support future submissions and coordination to ensure that the appropriate

right-of-way allowances are made for the road network to accommodate the projected traffic volumes and infrastructure requirements at full build-out of the subject development lands.

Following the provision of survey and the refinement of development statistics, a sight distance analysis will be performed at applicable access intersections and will be based on decision sight distance and turning sight distance as requested by Halton Region staff.

9 Transportation Demand Management Recommendations

The proposed development lands consist of a mix of residential unit types including townhouses, mid-rise and high-rise units. Additionally, retail, employment land uses, and schools are also proposed within the development lands. To support a mixed-use development with a significant amount of residential land uses, the most effective Transportation Demand Management (TDM) measures are the access and usability of transit, cycling, and pedestrian facilities. Additionally, it is noted that retail spaces within the mixed-use buildings provide residents convenient options for shopping locations within the development, reducing traffic generated externally on arterial roads.

The placement of proposed sidewalks and cycling facilities within the proposed development have been implemented based on the North Oakville Urban Design and Open Space Guidelines (2009), the North Oakville Trails Plan (2013), the North Oakville Secondary Plan, and are reflective of the future Study Area roadway improvements and cross sections discussed in both Section 4.1 and Section 6 above.

By the 2031 horizon, the active transportation infrastructure will include:

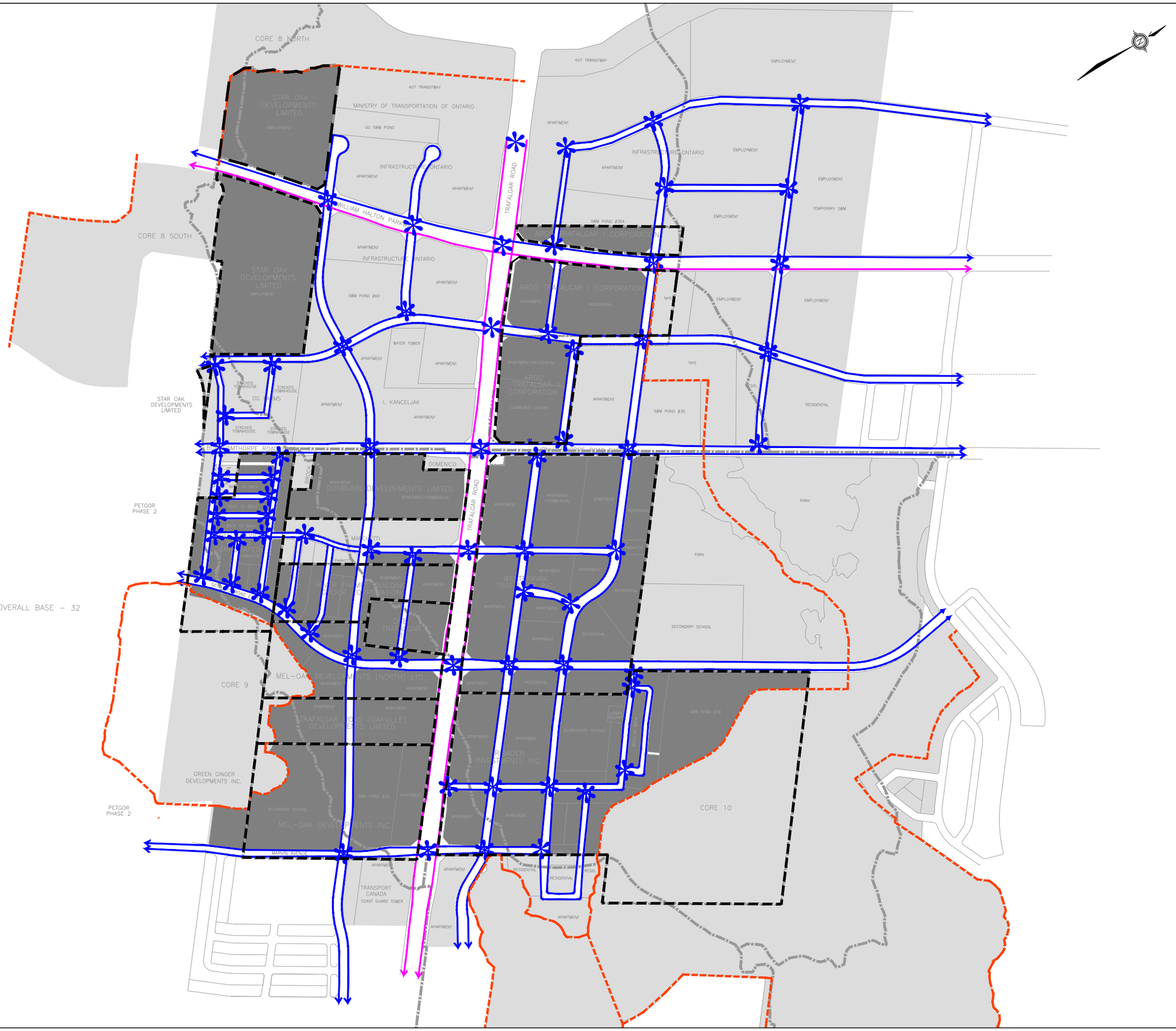
- Bike lanes on both sides of William Halton Parkway, Burnhamthorpe Road, Dundas Street, Sixth Line, and Ninth Line
- Signed bike routes along Settlers Road and Marvin Avenue
- A multi-use pathway on the south side of William Halton Parkway and on the west side of Ninth Line north of William Halton Parkway
- Multi-use pathways on both sides of Trafalgar Road, Dundas Street, and Ninth Line south of William Halton Parkway
- Sidewalks on both sides of connector and local roadways

Based on this information, a pedestrian facilities and trail plan and a cycling facilities concept plan have been prepared and are shown in Figure 135 and Figure 136 below. Within the pedestrian facilities and trail plan, it is noted that major trails within the Study Area have been shown. These trails are based on information shown in the North Oakville Trails Plan (2019) and are conceptual in nature. The exact location of these trails will be refined as part of future submission stages.

Within the Study Area, Trafalgar Road and Dundas Street are designated as busway corridors. William Halton Parkway, Burnhamthorpe Road, Ninth Line, Marvin Avenue, and a north-south collector road east and west of Trafalgar Road has been identified as community service corridors. Sixth Line and Settlers Road has been planned as secondary transit corridors. Bus stops anticipated to serve the subject development lands have been proposed based on Town of Oakville and Halton Region best practices with consideration given to the road network layout. Additionally, the Trafalgar Road EA preliminary design has been referenced to place transit stops along Trafalgar Road. It is noted that the EA does not consider the implementation of the BRT. In the absence of BRT stop locations, it has been assumed that BRT stops will be located in the same area as the bus stops identified in the Trafalgar Road EA preliminary design. Figure 137 illustrates the transit stop locations and Figure 138 illustrates the

transit facilities concept plan. It is noted that within the transit stop location figure and the transit facilities concept plan, stops associated with participating development lands are shown in blue and transit stops not associated with participating properties are shown in orange. Therefore, orange transit stops have been included as a concept and are subject to change based on work done by other.

Figure 135: Pedestrian Facilities and Trail Plan



Notes:

Legend:

- Sidewalk
- Multi–Use Pathway
- Pedestrian Crossing Opportunity
- Major Trail
- Participating Properties
- Non–Participating Properties
- Participating Property Boundries

REV:	DESCRIPTION:	BY:	DATE:
03	Issued for Review:	EA	2026-04-10

STATUS:

CGH Transportation
628 Haines Road
Newmarket, ON
L3Y 6V5
(905) 251-4070

CLIENT: EM4 JC7 JC9 Landowner's Group

ARCHITECT:

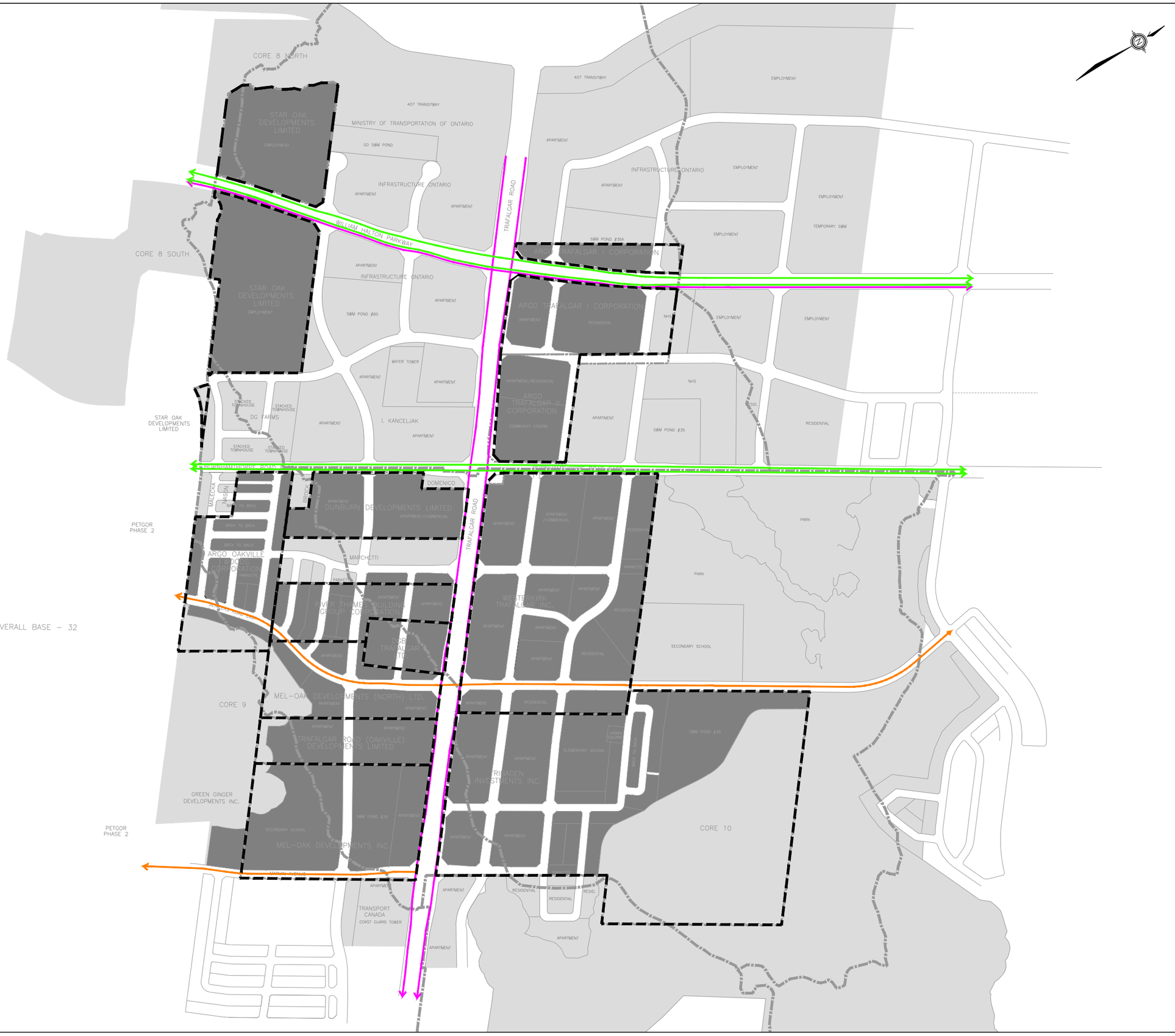
SITE: EM4 JC7 JC9 Area

TITLE: Pedestrian Facilities and Trail Plan

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2026-04-10	EA	BB

PROJECT NO:	DRAWING NO:	REVISION:
2023-084	01	03

Figure 136: Cycling Facilities Concept Plan



Notes:

Legend:

- Cycle Lane
- Signed Bike Route
- Multi–Use Pathway
- Participating Properties
- Non–Participating Properties
- Participating Property Boundries

REV:	DESCRIPTION:	BY:	DATE:
03	Issued for Review:	EA	2026-04-10

STATUS:

CGH Transportation
628 Haines Road
Newmarket, ON
L3Y 6V5
(905) 251-4070

CLIENT: EM4 JC7 JC9 Landowner's Group

ARCHITECT:

SITE: EM4 JC7 JC9 Area

TITLE: Cycling Facilities Concept Plan

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2026-04-10	EA	BB

PROJECT NO:	DRAWING NO:	REVISION:
2023-084	02	03

Figure 137: Transit Stop Locations



Notes:

Legend:

●	Transit Stop–Associated With Participating Properties
●	Transit Stop–Not Associated With Participating Properties
▬	Participating Properties
▬	Non–Participating Properties
- - -	Participating Property Boundries

REV:	DESCRIPTION:	BY:	DATE:
03	Issued for Review:	EA	2026-04-10

STATUS:

CGH Transportation
628 Haines Road
Newmarket, ON
L3Y 6V5
(905) 251-4070

CLIENT: EM4 JC7 JC9 Landowner's Group

ARCHITECT:

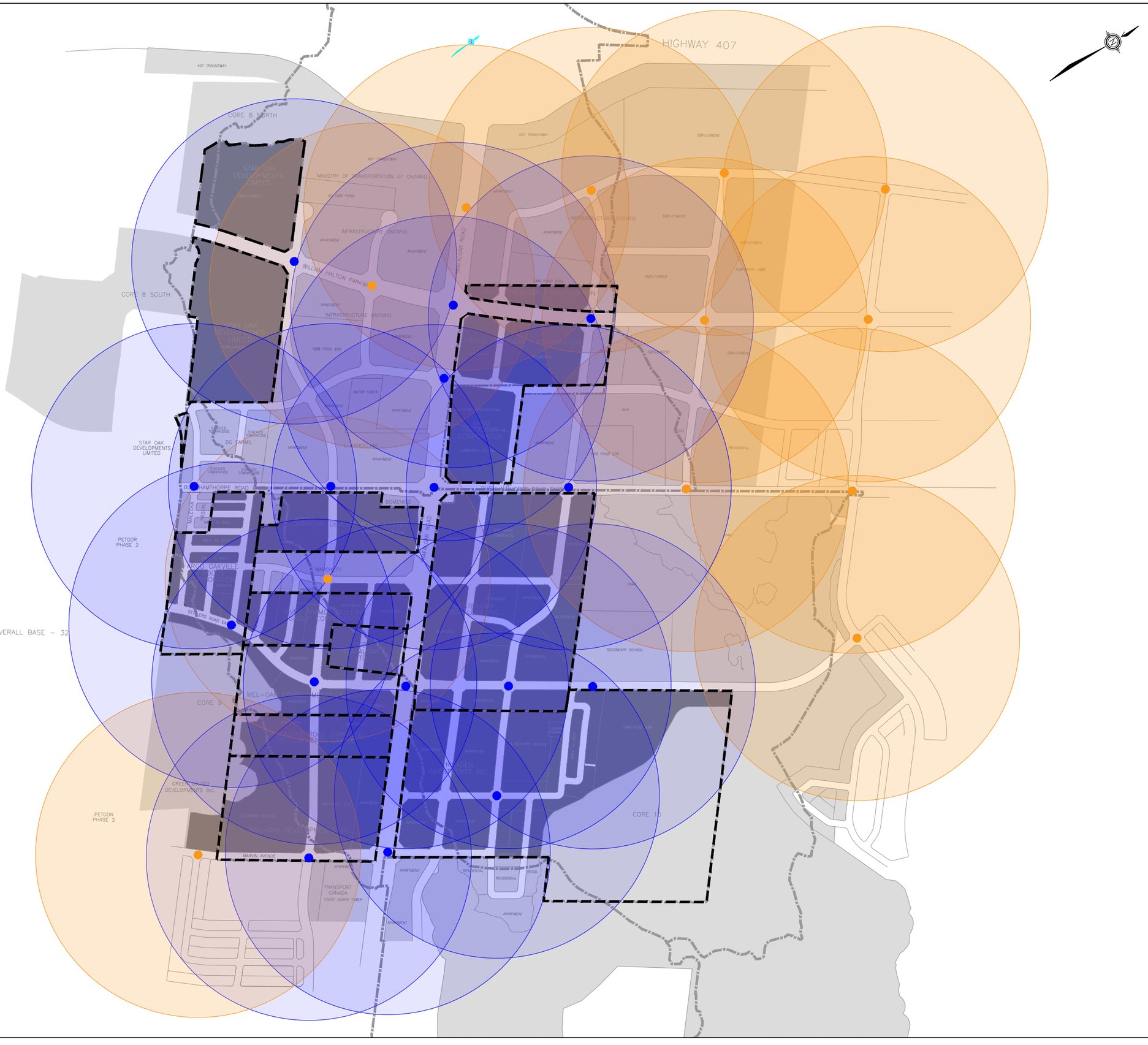
SITE: EM4 JC7 JC9 Area

TITLE: Transit Stop Locations

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2026-04-10	EA	BB

PROJECT NO:	DRAWING NO:	REVISION:
2023-084	03	03

Figure 138: Transit Facilities Concept Plan



Notes:	
Legend:	
●	Transit Stop–Associated With Participating Properties
▬	400m Transit Walking Distance
●	Transit Stop–Not Associated With Participating Properties
▬	400m Transit Walking Distance
▬	Participating Properties
▬	Non–Participating Properties
▬	Participating Property Boundries

REV:	DESCRIPTION:	BY:	DATE:
03	Issued for Review:	EA	2026-04-10

STATUS:

CGH Transportation
628 Haines Road
Newmarket, ON
L3Y 6V5
(905) 251-4070

CLIENT: EM4 JC7 JC9 Landowner's Group

ARCHITECT:

SITE: EM4 JC7 JC9 Area

TITLE: Transit Facilities Concept Plan

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2026-04-10	EA	BB

PROJECT NO:	DRAWING NO:	REVISION:
2023-084	04	03

10 Recommendations

It is noted that due to significant background development traffic generation and high compound annual growth rates provided by Town and Region staff, high volumes are noted along all arterial and major collector roadways within the Study Area. As such, multiple intersection improvements and mitigation measures have been proposed to support the 2031 full-build out analysis horizon. The resulting proposed intersection configurations are shown in Section 7.3.6 above, and in the form of conceptual intersection layouts as shown in Appendix P.

Limited intersection configuration changes have been proposed in the 2036 future total analysis horizon; however, the proposed intersection configurations are shown in Section 7.3.6.

Within the 2041 future total analysis, high volumes within the Study Area are noted. The planned conversion of Trafalgar Road and Dundas Street into transit corridors with BRT lanes further limits capacity along these routes within the Study Area. As a result of the high volumes and reduced capacity, critical movements are not able to be mitigated using reasonable mitigation measures. The poor operation noted at Study Area intersections cannot be addressed using Synchro analysis software using intersection specific mitigation measures. Instead, macroscopic modelling is required by the Region to identify feasible corridor level solutions. As the IMP is an ongoing study, the results and modelling of this scenario are not yet available, however it is recommended and anticipated that the modelling of these BRT scenarios will address the high traffic volumes in this area and the impact of reducing one through lane in each travel direction along Dundas Street as well as Trafalgar Road.

In order for the Study Area intersections to function adequately, a shift in mode share from single occupancy vehicles to transit is required to reduce traffic volumes along Trafalgar Road and Dundas Street.

11 Conclusions

This Transportation Impact Study has examined the trip generation, access requirements, and Study Area road network impact of the proposed EM4, JC7, and JC9 development. The TIS has shown the following:

a) The combined development analyzed herein will include a mix of residential units, employment, and retail land uses. It is currently projected to contain approximately 12 single detached units, 775 townhouse units, 460 mid-rise and 18,270 high-rise residential units, along with 35,501 square metres of retail, 58,530 square metres of employment, and three schools distributed throughout the lands. These preliminary site statistics have been developed for purposes of this traffic study. They are not final and are subject to change at future submission stages.
b) The Study Area is bounded by Sixth Line to the west, Ninth Line to the east, Highway 407 to the north, and Dundas Street to the south.
c) The TIS evaluates a total of 14 accesses intended to serve the combined developments, including four accesses on William Halton Parkway, five accesses on Burnhamthorpe Road, and five accesses on Trafalgar Road.
d) The study intersections consist of 10 existing intersections and 14 future intersections.
e) Nearby developments that are major trip generators have been included in the background traffic projections. These developments are Sherborne Lodge, Remington ENO, Landowner's Group Neighborhood 9/10/11, Sixth Oak School and Employment Lands, Star Oak Development, Infrastructure Ontario's Trafalgar Lands, Green Ginger Trafalgar Road, Bressa and Dunoak, Joshua Creek, Capoak and Redoak, and SmartCentres Oakville North. The developments contain a great variety of land uses from residential, industrial, office, to institutional and retail. Developments that were identified to generate

background traffic within the proposed study area but do not have an available TIS were assumed to be captured in background growth rates.

f) Background growth rates have been provided by Region of Halton and Town of Oakville for existing roads within the Study Area. A compound annual growth rate (CAGR) of 2% from 2024 to 2031 and 1% from 2031 to 2041 has been applied to William Halton Parkway, Dundas Road, Ninth Line, Trafalgar Road, and the Highway 407 Interchanges. A 3% CAGR has been applied to Burnhamthorpe Road and Sixth Line from 2024 to 2041.

g) To reflect the functional change of William Halton Parkway within the Study Area, the Region's EMME Model projections along William Halton Parkway for 2031 PM peak hour was considered and applied to all future analysis horizons using a methodology approved by Region staff.

h) To estimate the impact of the subject development on the Study Area, a vehicle trip generation exercise has been undertaken for each land use. The trip generation of the residential units, office, and retail buildings used the corresponding ITE rates. The mode shares have been determined using the target transit mode split for 2031 projected in the Halton Region Transportation Master Plan. The 2036 and 2041 horizon mode shares are beyond the timeline of this Transportation Master Plan and the same mode share as 2031 have been used. Primary trip reduction rates have been considered for the development due to its mixed-use nature. The subject development is anticipated to generate 5757 AM and 5692 PM peak hour external net new two-way auto trips combined during all future horizons.

i) In addition to the weekday AM and PM peak periods, a Saturday peak analysis is conducted at the two Highway 407 ramp terminal intersections on Trafalgar Road in response to the Ministry of Transportation Ontario (MTO) comments. The subject development is anticipated to generate 5492 net new Saturday external two-way peak hour auto trips.

j) Using the existing traffic volumes in 2024, an operational analysis of existing conditions was undertaken. Through this analysis, it was determined that several Study Area intersections operate with critical movements. As no over capacity movements are noted and multiple sections of the road network are planned to be widened in future horizons, no mitigation measures have been proposed.

k) The 2031 future background operational analysis indicates critical and overcapacity movements at multiple Study Area intersections in the AM and PM peak periods. Mitigation measures including additional turn lanes, increased storage distances, and signal timing optimization have been considered to address overcapacity movements. However, due to the high volumes along Trafalgar Road, Burnhamthorpe Road, William Halton Parkway, and Dundas Street, critical movements are still present following the implementation of the mitigation measures.

l) The 2036 future background operational analysis indicates critical and overcapacity movements at multiple Study Area intersections in the AM and PM peak periods. Mitigation measures including additional turn lanes, increased storage distances, and signal timing optimization have been considered to address overcapacity movements. However, due to the high volumes along Trafalgar Road, Burnhamthorpe Road, William Halton Parkway, and Dundas Street, critical movements are still present following the implementation of the mitigation measures.

m) The 2041 future background operational analysis indicates critical and overcapacity movements at multiple Study Area intersections in the AM and PM peak periods. As a result of the high volumes and reduced capacity due to the implementation of BRT lanes on Trafalgar Road and Dundas Street, critical movements are not able to be mitigated using reasonable measures discussed in previous analysis horizons. In order for the Study Area intersections to function adequately, through volumes along Trafalgar Road and Dundas Street were reduced to achieve a v/c ratio of below 1.00 at each intersection.

The corresponding number of transit vehicles to support the vehicle trips reduced has been estimated in order to promote a mode shift away from single occupancy vehicles.

n) The future background Saturday analysis for the 2031, 2036, and 2041 horizons indicates critical and overcapacity movements at the Highway 407 ramp terminals. Mitigation measures have been considered to address critical movements at the off-ramps. However, due to the high volumes along Trafalgar Road, critical movements are still present following the mitigation measures. In order for the Study Area intersections to function adequately in the 2041 horizon, through volumes along Trafalgar Road and Dundas Street were reduced to achieve a v/c ratio of below 1.00 at each intersection. The corresponding number of transit vehicles to support the vehicle trips reduced has been estimated in order to promote a mode shift away from single occupancy vehicles.

o) The 2031 future total operational analysis indicates critical and overcapacity movements at multiple Study Area intersections in the AM and PM peak periods. Mitigation measures including additional turn lanes, increased storage distances, and signal timing optimization have been considered to address overcapacity movements. However, due to the high volumes along Trafalgar Road, Burnhamthorpe Road, William Halton Parkway, and Dundas Street, critical movements are still present following the implementation of the mitigation measures.

p) The 2036 future total operational analysis indicates critical and overcapacity movements at multiple Study Area intersections in the AM and PM peak periods. Mitigation measures including additional turn lanes, increased storage distances, and signal timing optimization have been considered to address overcapacity movements. However, due to the high volumes along Trafalgar Road, Burnhamthorpe Road, William Halton Parkway, and Dundas Street, critical movements are still present following the implementation of the mitigation measures.

q) The 2041 future total operational analysis indicates critical and overcapacity movements at multiple Study Area intersections in the AM and PM peak periods. As a result of the high volumes and reduced capacity due to the implementation of BRT lanes on Trafalgar Road and Dundas Street, critical movements are not able to be mitigated using reasonable measures discussed in previous analysis horizons. In order for the Study Area intersections to function adequately, through volumes along Trafalgar Road and Dundas Street was reduced to achieve a v/c ratio of below 1.00 at each intersection. The corresponding number of transit vehicles to support the vehicle trips reduced has been estimated in order to promote a mode shift away from single occupancy vehicles.

r) It is noted that in all future total analysis horizons, the access intersections to the subject development lands generally operate well with no noted over-capacity turning movements into or out of the subject development lands. Exceptions to this are primarily noted at access intersections along Trafalgar Road and William Halton Parkway and are a result of high through volumes along these corridors.

s) The future total Saturday analysis for the 2031, 2036, and 2041 horizons indicates critical and overcapacity movements at the Highway 407 ramp terminals. Mitigation measures have been considered to address critical movements at the off-ramps. However, due to the high volumes along Trafalgar Road, critical movements are still present following the mitigation measures. In order for the Study Area intersections to function adequately in the 2041 horizon, through volumes along Trafalgar Road were reduced to achieve a v/c ratio of below 1.00 at each intersection. The corresponding number of transit vehicles to support the vehicle trips reduced has been estimated in order to promote a mode shift away from single occupancy vehicles.

t) The operations noted at Study Area intersections in the 2041 future analysis horizons cannot be addressed using Synchro analysis software using intersection specific mitigation measures. Macroscopic modelling is required by the Region to identify feasible corridor level solutions. As the IMP is an ongoing study, the

results and modelling of this scenario are not yet available, however it is recommended and anticipated that the modelling of these BRT scenarios will address the high traffic volumes in this area and the impact of reducing one through lane in each travel direction along Dundas Street as well as Trafalgar Road.

u) TDM measures are proposed to further encourage commuters to shift away from single occupant vehicle trips. For this development, which primarily consists of mixed-use residential land uses, the most effective measures involve access and usability of transit, cycling and pedestrian facilities. To ensure the proposed developments are appropriate served by transit, cycling, and pedestrian facilities, concept plans have been prepared.

v) A conceptual intersection layout of the subject lands has been developed to support future submissions and coordination to ensure that the appropriate right-of-way allowances are made for the road network to accommodate the projected traffic volumes and infrastructure requirements.

The impact of the EM4, JC7, and JC9 development lands is consistent with future growth expected in the surrounding Study Area. The proposed accesses and internal site intersections will operate well. The proposed development will provide a good pedestrian and cycling network along with good access to transit throughout the development. It is therefore recommended that, from a transportation perspective, the proposed development application proceed.

Prepared By:





Mark Crockford, P. Eng.
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Mark.Crockford@CGHTransportation.com

Jade Huangfu, BASc.
647-822-6294
Jade.Huangfu@CGHTransportation.com

Appendix A

Scope Confirmation

Technical Memorandum

To:	Aquisha Khan – Town of Oakville Ayesha Khan – Halton Region	Date:	2023-11-20
Cc:	EM4 JC7 JC9 Landowner's Group		
From:	Mark Crockford, P. Eng.	Project Number:	2023-084

Re: EM4 JC7 JC9 Area Wide Transportation Impact Analysis – Terms of Reference

CGH has been retained to undertake an area wide Transportation Impact Analysis for the combined Landowners' Group for each of EM4, JC7, and JC9 in North Oakville. The subject development areas are linked via catchment areas for their respective EIR/FSS. The developments are located along the corridor of Trafalgar Road, starting just north of William Halton Parkway and continuing to the south to Burnhamthorpe Road East. The proposed developments include a mix of residential and employment land uses. The unit count and employment areas are still being refined and will be finalized in later stages. The preliminary concept plan is shown in Attachment 1. Please note this concept plan is subject to change and is considered a draft. It has been circulated for discussion purposes only. A single TIS covering all three catchment areas is proposed.

We have prepared the following TIS scope of work for Halton Region's and the Town of Oakville's review. Please let us know if you have any comments or questions.

Transportation Impact Study Requirements (TIS):

The study will be in accordance with the Halton Region's *Guidelines for the Preparation of Traffic Impact Studies* and North Oakville's *Terms of Reference for Transportation Impact Studies and Transportation Functional Design Studies*.

Study Area:

- An overview of the transportation system existing conditions will be documented (including transit, cycling, pedestrian, and automobile modes).
- A summary of existing transportation planning policies within the Study Area will be identified.
- An overview of the Study Area road network will be provided including the road classification and descriptions of:
    - Trafalgar Road
    - William Halton Parkway
    - Burnhamthorpe Road
    - Sixth Line
    - Dundas Street
- The following intersections will be included in the Transportation Impact Study:
    - Trafalgar Road at Burnhamthorpe Road East
    - Trafalgar Road and William Halton Parkway
    - Trafalgar Road and Dundas Street
    - William Halton Parkway and Sixth Line
    - Burnhamthorpe Road at Sixth Line
    - William Halton Parkway and Burnhamthorpe Road East

Analysis Assumptions:

- Horizon years: 2023, 2033 (Buildout), 2038 (+5 years) and 2043 (+ 10 years).
- AM and PM peak hours will be analyzed.

Existing Study Area Multimodal Conditions:

- The study area is rapidly evolving. To avoid double-counting background development traffic from background developments that may have been partially built-out within the last year, Turning Movement Count data from April 21, 2022, will be used in combination with a compound annual background growth rate (CAGR) to determine the existing 2023 volumes. A CAGR of 1.5% will be used for Burnhamthorpe Road, Trafalgar Road, and William Halton Parkway, and a 0.5% CAGR will be used for Dundas Street to bring 2022 counts to 2023 existing conditions.
- **Signal Timing Plans will be requested from Halton Region's and the Town of Oakville's traffic signal operations division. These include:**
    - Burnhamthorpe Road and Trafalgar Road
    - Trafalgar Road and William Halton Parkway
    - Trafalgar Road and Dundas Street

Planned Transportation Improvements:

- Halton Region is making improvements to Trafalgar Road in the Town of Oakville to address future traffic demands and provide safe travel options for motorists, pedestrians and cyclists. Phase 1 construction has been completed, while Phase 2 is currently under design. Phase 2 of this project covers the section between Hays Boulevard and William Halton Parkway which includes the intersections within the subject Study Area. The road will be widened from 4 to 6 lanes and new sidewalks, multi-use paths and transit stops will be added. It is projected to be completed in 2026. According to the Trafalgar Road Improvements Class Environmental Assessment Study completed in 2015, upon completion of the widening project, the outer traffic lanes will be converted to High Occupancy Vehicle (HOV) lanes in the interim, and to BRT lanes by as early as 2031. A lane utilization factor of 0.8 will be used to estimate the impact of HOV lanes on north-south capacity along Trafalgar Road, in line with Region's recommendation for Dundas Street HOV lane analysis within Joshua Creek TIS prepared by CGH in 2021. **As part of this TOR, CGH would like to request the timelines associated with the HOV and BRT implementation along Trafalgar Road as well as the EMME link volumes along Trafalgar Road prior and post BRT implementation.**
- West of the development, the William Halton Parkway extension from Sixth Line to Third Line is under construction and will be completed by 2024. It will replace the regional arterial status that is currently held by Burnhamthorpe Road. Region of Halton has indicated the following volume projections along William Halton Parkway:
    - 2031 PM peak hour volume west of Trafalgar: 2100 (800 east and 1300 west)
    - 2031 PM Peak hour volume east of Trafalgar: 2400 (800 east and 1600 west)
- On average, the AM peak hour volumes are equal to 8% of daily traffic, where the PM peak hour volumes are equal to 10% of the daily traffic. Therefore, the PM peak hour volumes projected by Halton Region will be multiplied by a factor of 0.8 to determine the AM Peak hour volumes. Additionally, the PM peak hour volumes direction will be changed to represent the higher traffic flow towards east in the AM peak hour. The resulting AM peak hour volume projections along the William Halton Parkway are listed below:
    - 2031 AM peak hour volume west of Trafalgar: 1680 (1040 east and 640 west)
    - 2031 AM Peak hour volume east of Trafalgar: 1920 (1280 east and 640 west)
- As a result, on WHP implementation, the east-west through traffic travel pattern within the Study Area for this project will potentially change by 2033 and beyond.
- Dundas Street is currently a three-lane road in each direction, with all lanes operating as general-purpose traffic lanes with no restrictions. It has been indicated by Halton Region staff that by 2024, outer traffic lanes along Dundas Street are anticipated to be converted to HOV lanes. A lane utilization factor of 0.8, as instructed by Halton Region

staff, will be used to estimate the impact of HOV lanes on east-west capacity along Dundas Street, in line with Joshua Creek TIS prepared by CGH in 2021.

Background Growth:

- The following background developments will be considered in the study:
    - Sherborne Lodge Development
    - Remington Eno Development
    - Neighbourhood 9,10,11 Development
    - Sixth Oak Inc. School and Employment Lands
    - Star Oak Development
    - Crosstrail & TWKD at 40, 64 & 86 Burnhamthorpe Rd E
    - EMGO Draft Plan
    - Petgor Draft Plan
    - Infrastructure Ontario (IO) Trafalgar Lands
    - Green Ginger-Dundas Street East-Phase 2 Part of Lots 13 & 14
    - SmartCentres - 256, 260 and 294 Hays Boulevard and 271 Oak Park Boulevard - Z.1413.34 and OPA 1413.34
    - Bressa and Dunoak
    - Joshua Creek
- Additionally, the following developments were identified to generate background traffic within the proposed study area, but don't include a TIS within Oakville Active Development Applications Portal:
    - Minto Communities Oakvillage
    - 1086 Burnhamthorpe Road East
    - 98 Kaitting Trail
    - 2481, 2485, 2489 Taunton Road
- **Through this Terms of Reference, CGH would like to request the Traffic Impact Studies for these four developments to be considered as part of the background horizon volumes.**
- Majority of the growth in background horizons will be due to developments explicitly accounted for within the TIS, as outlined above. In addition to these developments, a background CAGR of 1.5% between 2023 and 2033 and 0.75% between 2033 and 2043 will be used for Burnhamthorpe Road, Trafalgar Road, and William Halton Parkway. Along Dundas Street, a CAGR of 0.5% will be used between 2023 and 2043. This is because areas south of Dundas Street are already build-out, resulting in less anticipated growth, and the implementation of HOV lanes by 2024 will constrain capacity of Dundas Street, resulting in less growth in through / nonlocal trips along this roadway.

Development Site Trip Distribution and Assignment:

- Trip generation: ITE Trip Generation Manual 11th Edition
    - Total person trip generation of the proposed development will be determined using ITE 11th Edition vehicle trip generation. The ITE vehicle trip generation will be treated as the total person trip generation, as majority of ITE studies were collected across United States in 1980s, 1990s, 2000s, the 2010s, and the 2020s. Thus, majority of the ITE data is representative of car-centric environments, where vehicle trips represent total person trips generated by a development. This methodology is consistent with ARGO Trafalgar TIS prepared by CGH in 2023.
    - The projected mode shares will be multiplied by total person trip generation to determine projected trips by each mode, including auto mode.
- Mode Share:
    - Halton's 2011 Transportation Master Plan utilizes a transit mode split of 10% for 2021, 15% for 2026 and 20% for 2031. For the purposes of this study, a transit mode split of 20% will be utilized for the buildout year 2033. The same 20% split will be used for the 2038 and 2043 horizon years as the current Halton Region's Transportation Master Plan and Active Transportation Master Plan Study only projects to 2031.

  - In 2033, assumption of travel via other modes (active transportation i.e.: walk, cycle) should utilize a 5% mode split, and 3% will be assigned to TDM (i.e. telecommuting). Transit mode splits will be adjusted from the 2011 TMP assumptions to reasonable percentages based on current year (2023), 2033, 2038, and 2043 planned and proposed mode splits based on existing facilities and service in the area to date (planned &/or proposed). Reasonable assumptions and rationale will be outlined clearly in the Study.
- Trip distribution and assignment: Transportation Tomorrow Survey (TTS), existing traffic routing patterns and access to major transportation infrastructure.

Site Access:

- Required/recommended road improvements either as a result of the development impacts, or general non-development improvements will be identified

The TIS report will include:

- Site Plan and Map,
- Type and Size of Proposed Land Uses
- Existing Conditions (Study Area Intersections, Road Network, Pedestrian Routes, Cycling Routes, Transit Services),
- Existing Traffic Conditions (Site Operating Characteristics, Data Collection/Traffic Counts, Analysis Periods)
- Future Background Conditions (Horizon Years, Horizon Year Volumes)
- Background Traffic Demand (with TMC's < 2 years old)
- Background Traffic Demand Forecast (with acceptable growth rates)
- Site Generated Traffic (Transit Modal Split, Trip Generation/Distribution/Assignment)
- Future Total Traffic Demand
- Capacity Analysis (by Intersection, with LOS, Avg. Delay, V/C ratios)
- Traffic Impacts (Tables – Total Traffic with/without Mitigation)
- Access Considerations – Existing, Proposed, Geometrics (turn lanes, sight lines)
- Recommendations
- TDM recommendations (Transit, Pedestrian & Cycling Facilities Analysis)
- Conclusions

Attachment 1

DRAFT Concept Plan - For Discussion Purposes Only

CGH TRANSPORTATION

407 TRANSITWAY
MINISTRY OF TRANSPORTATION OF ONTARIO
EMPLOYMENT
APARTMENT
STAR OAK
INFRASTRUCTURE ONTARIO
WATER TOWER
SWM
STACKED TOWNHOUSE
ARGO TRAFALGAR CORPORATION
CHANNEL
RESIDENTIAL
BURNHAMTHORPE ROAD EAST
BACK TO BACK
APARTMENT/COMMERCIAL
OAKVILLE WOODS
MARCHETTI
PARKETTE
RIVER THAMES BUILDING GROUP CORPORATION
OG3 TRAFALGAR LIMITED
WESTERKIRK
PARK
SECONDARY SCHOOL
MEL-OAK DEVELOPMENTS (NORTH) LTD.
TRAFALGAR ROAD (OAKVILLE) DEVELOPMENTS LIMITED
ELEMENTARY SCHOOL
TRIBADEN
MEL-OAK DEVELOPMENTS INC.
HANS HOLDING
COAST GUARD TOWER
GREEN GINGER DEVELOPMENTS INC.
TRAFALGAR ROAD
EM AND JC OVERALL BASE – 14

DRAFT - FOR DISCUSSION PURPOSES ONLY

Outlook

RE: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

From Aquisha Khan <aquisha.khan@oakville.ca>
Date Fri 2024-03-01 11:52
To Robin Marinac <robin.marinac@cghtransportation.com>; Leigh Musson <leigh.musson@oakville.ca>; Gabe Charles <gabe.charles@oakville.ca>; Eric Chan <eric.chan@oakville.ca>
Cc Mark Crockford <mark.crockford@cghtransportation.com>; Ayesha.Khan@halton.ca <Ayesha.Khan@halton.ca>; Jade Huangfu <jade.huangfu@cghtransportation.com>; Leigh Musson <leigh.musson@oakville.ca>; Gabe Charles <gabe.charles@oakville.ca>; Eric Chan <eric.chan@oakville.ca>

Hi Robin/Mark;

As per our conversation please find the adjustments that were discussed below in red. If I missed anything, please let me know.

Have a wonderful day and an amazing weekend 😊!

Aquisha Khan, (She/Her/Hers), P. Eng.,
Transportation Engineer, East Oakville
Transportation Planning Services,
Town of Oakville | P: 905-845-6601, Ext. 3236 | C: 289-952-9345 | www.oakville.ca

Aquisha Khan, **(She/Her/Hers)**, **P. Eng.**
Transportation Engineer
Transportation and Engineering
Town of Oakville | 905-845-6601, ext. 3236 | www.oakville.ca

Vision: A vibrant and livable community for all
Please consider the environment before printing this email.
http://www.oakville.ca/privacy.html

From: Robin Marinac <robin.marinac@cghtransportation.com>
Sent: Tuesday, February 20, 2024 11:16 AM
To: Leigh Musson <leigh.musson@oakville.ca>; Gabe Charles <gabe.charles@oakville.ca>; Eric Chan <eric.chan@oakville.ca>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Ayesha.Khan@halton.ca; Jade Huangfu <jade.huangfu@cghtransportation.com>; Leigh Musson <leigh.musson@oakville.ca>; Gabe Charles <gabe.charles@oakville.ca>; Eric Chan <eric.chan@oakville.ca>; Aquisha Khan <aquisha.khan@oakville.ca>
Subject: RE: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

SECURITY CAUTION: This email originated from outside of The Town of Oakville. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Leigh, Gabe and Eric,

I hope you all had a lovely long weekend.

Were any of you able to discuss the Terms of Reference comments with Aquisha last week? Any notes that you can provide would be helpful so that we can continue with our work.

I apologize for being so adamant with my follow-ups on this, however as we had to wait over two months to receive the original round of comments on our Terms of Reference, we are now working on a very tight timeline and would appreciate feedback to allow us to move forward.

Kind regards,
Robin Marinac

Robin Marinac, P.Eng.
CGH Transportation Inc.
P: 437-242-5183
E: robin.marinac@cghtransportation.com

From: Robin Marinac
Sent: Wednesday, February 14, 2024 1:56 PM
To: Aquisha Khan <aquisha.khan@oakville.ca>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Ayesha.Khan@halton.ca; Jade Huangfu <jade.huangfu@cghtransportation.com>; Leigh Musson <leigh.musson@oakville.ca>; Gabe Charles <gabe.charles@oakville.ca>; Eric Chan <eric.chan@oakville.ca>
Subject: RE: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

Hi Aquisha,

Thank you for letting us know.

Is there any chance that you would be able to provide some preliminary feedback on our comments below this week? Alternatively is there someone from your department we could meet with in your absence next week?

Kind regards,
Robin Marinac

Robin Marinac, P.Eng.
CGH Transportation Inc.
P: 437-242-5183
E: robin.marinac@cghtransportation.com

From: Aquisha Khan <aquisha.khan@oakville.ca>
Sent: Wednesday, February 14, 2024 10:36 AM
To: Robin Marinac <robin.marinac@cghtransportation.com>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Ayesha.Khan@halton.ca; Jade Huangfu <jade.huangfu@cghtransportation.com>; Leigh Musson <leigh.musson@oakville.ca>; Gabe Charles <gabe.charles@oakville.ca>; Eric Chan <eric.chan@oakville.ca>
Subject: RE: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

Unfortunately, I am unavailable.

From: Robin Marinac <robin.marinac@cghtransportation.com>
Sent: Wednesday, February 14, 2024 10:08 AM
To: Aquisha Khan <aquisha.khan@oakville.ca>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Ayesha.Khan@halton.ca; Jade Huangfu <jade.huangfu@cghtransportation.com>; Leigh Musson <leigh.musson@oakville.ca>; Gabe Charles <gabe.charles@oakville.ca>; Eric Chan <eric.chan@oakville.ca>
Subject: RE: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

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Hi Aquisha,

Thank you for the quick response and for proposing the additional meeting times below.

As we'd like to try and move forward with our work as quickly as we can, I was wondering if you instead have availability during the following times tomorrow:

- 12:00pm-1:30pm

- 2:30pm-3:30pm

If those times do not work for you, would you be able to provide some initial thoughts on our responses below prior to being away next week?

Kind regards,
Robin Marinac

Robin Marinac, P.Eng.
CGH Transportation Inc.
P: 437-242-5183
E: robin.marinac@cghtransportation.com

From: Aquisha Khan <aquisha.khan@oakville.ca>
Sent: Wednesday, February 14, 2024 9:52 AM
To: Robin Marinac <robin.marinac@cghtransportation.com>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Ayesha.Khan@halton.ca; Jade Huangfu <jade.huangfu@cghtransportation.com>; Leigh Musson <leigh.musson@oakville.ca>; Gabe Charles <gabe.charles@oakville.ca>; Eric Chan <eric.chan@oakville.ca>
Subject: RE: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

Good Morning Robin,

Happy Valentines Day!

Thank you for the request to meet, unfortunately, I am not available next week. The next availability for Town staff are as follows:

- Wednesday Feb 28 from 9:30am – 10:30am
- Friday March 01 from 11am – 12pm

I hope one of times work for you and your team.

Regards

Have a wonderful day 😊 !

Aquisha Khan, (She/Her/Hers), P. Eng.,
Transportation Engineer, East Oakville
Transportation Planning Services,
Town of Oakville | P: 905-845-6601, Ext. 3236 | C: 289-952-9345 | www.oakville.ca

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From: Robin Marinac <robin.marinac@cghtransportation.com>
Sent: Tuesday, February 13, 2024 11:15 PM
To: Aquisha Khan <aquisha.khan@oakville.ca>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Ayesha.Khan@halton.ca; Jade Huangfu <jade.huangfu@cghtransportation.com>; Leigh Musson <leigh.musson@oakville.ca>; Gabe Charles <gabe.charles@oakville.ca>; Eric Chan <eric.chan@oakville.ca>
Subject: RE: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

SECURITY CAUTION: This email originated from outside of The Town of Oakville. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Aquisha,

Thank you for providing the comments below on our TOR. We have included our responses in blue. It may be easier to discuss these on a call. Please let me know if you are available for any of the times listed below:

- February 20th 10:00am-12:00pm and 4:00pm-5:00pm
- February 21st 1:00pm-2:00pm

- February 22nd 10:00am-12:00pm

Kind regards,
Robin Marinac

Robin Marinac, P.Eng.
CGH Transportation Inc.
P: 437-242-5183
E: robin.marinac@cghtransportation.com

From: Aquisha Khan <aquisha.khan@oakville.ca>
Sent: Tuesday, January 30, 2024 5:25 PM
To: Robin Marinac <robin.marinac@cghtransportation.com>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Ayesha.Khan@halton.ca; Jade Huangfu <jade.huangfu@cghtransportation.com>; Leigh Musson <leigh.musson@oakville.ca>; Gabe Charles <gabe.charles@oakville.ca>; Eric Chan <eric.chan@oakville.ca>
Subject: RE: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

Hello Robin;

Forgive the delay, Town's response to the Terms of Reference are as follows:

  - Study Intersections:
- Please circulate TOR to MTO to get their input to this study's requirements.

Noted.

[AK] The highlighted intersections to be included in the study, the others may be dismissed.

- Please include the following intersections:
  - ~~Trafalgar Road and Wheat Boom intersection~~
  - ~~Trafalgar Road and Threshing Mills intersection~~
  - Trafalgar Road & Loyalist Trail
  - ~~Dundas Street East & 9th Line~~
  - Burnhamthorpe Road East & 9th Line
  - All existing and future collector roads intersecting Burnhamthorpe Road inclusive of the following:
    - ~~Post Road~~
    - ~~Vernon Powell~~
    - ~~Eternity Way~~
  - All future collector roads intersecting William Halton Parkway

As the intersections of Trafalgar Road at Wheat Boom Drive and at Threshing Mill Boulevard are not within the subject development lands and increases to turning movements are not expected at these intersections as a result of the subject lands, site generated volume is anticipated to be assigned primarily to the northbound through and southbound through movements at these intersections. As a result, we feel that it is not necessary to include these two intersections in our study. The inclusion of Dundas Street and Trafalgar Road just south of these two intersections is anticipated to better capture any trips south of the subject lands travelling to/from the south, east, and west. Future collector intersections on Trafalgar Road within the subject development lands will be considered and are anticipated to better reflect the impact of the site generated trips on the existing and future road network than these two suggested additional intersections. This justification was also shared with the Halton Region review staff (Ayesha), who accepted our explanation for excluding these intersections.

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The intersection of Trafalgar Road at Loyalist Trail as well as collector road intersections along Burnhamthorpe Road and William Halton Parkway within the subject development lands will be analyzed as part of future analysis horizons in the study. However,

the intersections of Dundas Street at Ninth Line and Burnhamthorpe Road at Ninth Line are both located well beyond the scope of our study area boundaries and should not be considered. Additionally, the Region has reviewed our TOR and has not identified these intersections, which I believe are the responsibility of the Region, as being required.

It is noted that the proposed study intersections were determined using similar criteria to the analyzed study area intersections for the adjacent Neighbourhood 9/10/11 development and are therefore expected to sufficiently reflect the impact of site generated trips on the surrounding network.

Additionally, please note that our future total study area network is anticipated to include upwards of 20 intersections. As such, we feel that these additional intersections should not be included in our analysis.

- Assumption Analysis:
- Horizon years should align with the Planned Transportation Improvements, i.e. the horizon years should be: existing, 2031, 2036, 2041, and ~~2051~~

Our proposed horizon years of existing, 2033, 2038, and 2043 aligns with the landowners' anticipated build-out, build-out plus five years, and build out plus ten years of the development respectively. Based on the Halton Region and Town of Oakville guidelines, five and ten years beyond development are appropriate. Additionally, the Region has reviewed our horizons and found them to be appropriate.

[AK] 2051 horizon to be removed from the analysis. If the full build out is 2033, use that in the analysis and then 2036 and 2041 for the future horizons.

- AM, PM and Weekend Peak Period should be taking under consideration.

[AK] Include in the trip generation table, the trips for all three peak period and state the reason for providing capacity analysis for AM/PM peak or PM/Weekend Peak.

The Halton Region TIS Guidelines and the North Oakville TOR for TIS suggest that the weekend peak period should be taken under consideration for retail, entertainment, religious, institutional, and sports facility uses. Our development consists of approximately 13,900 residential units, 650 000 square metres of office GFA, and 41 000 square metres of supporting retail GFA. As the development consists mostly of residential and office land uses, corresponding to typical weekday AM and PM peak hours, weekend peak period analysis should not be included in our TIS.

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- A CAGR of 3% will be used for Burnhamthorpe Road, Trafalgar Road, and William Halton Parkway, and a 2% CAGR will be used for Dundas Street.

Comments received from Halton Region staff indicate a CAGR of 1.5% should be used from existing-2033 and 0.75% from 2033-2043 for Burnhamthorpe Road, Trafalgar Road, and William Halton Parkway, and a CAGR of 0.5% from 2023-2043 for Dundas Street. As site generated traffic is likely to account for a significant portion of growth of the surrounding network traffic, a 3% and 2% CAGR are too conservative for the purposes of this study. Additionally, as requested site traffic associated with all developments and site applications from Ward 6 and Ward 7 of the Town of Oakville Development and Site Plan Applications portal, where TISs are available, will be considered. This is expected to make up a significant portion of background traffic growth on these roads. As a result, we would propose that the CAGR provided by Halton Region is considered to be more appropriate for the purposes of this study.

[AK] For all regional roads, please use their growth rates provided and apply 3% to Town owned roads

- Signal Timing Plans:
  - Please obtain signal timing plan for all signalized intersections within the study area corridor from the region for Regional Road intersection.
  - Please obtain signal timing plans for the signalized intersections for 6th Line and Burnhamthorpe Road.

Noted.

- Mode Share:
- The most recent TTS data should be used.

Noted.

- Geometric Analysis:
- Intersection details for future design should be include (radius, corner clearance, daylight triangles etc., access locations, access widths)
- Sightline analysis should be included

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- TDM Measures:

- Trail and transit connectivity/impacts to be included.
- Forecast any future traffic calming measures for implementation

Noted.

- This study should include and identify intersection separation distance analysis and traffic device analysis along William Halton Parkway, Burnhamthorpe Road, Threshing Mills Boulevard , Wheat Boom Boulevard, and Future Marvin Road to ensure they meet Town/Region/Province Requirements.

Noted.

- Figures for all conditions to be included in report.

Noted.

- Mitigation measures to be included for all conditions.

Noted.

- Parking Section should be included to identify forecasted parking requirements

Noted. Future parking requirements will be noted based on existing by-law requirements. This will be further explored during the Site Plan application for each site. ***[AK]*** this would be based on the Town of Oakville zoning requirements for parking for the proposed developments.

- Preliminary Phasing Construction Mitigation Plan to be included as per OTM Book 7

As the study is intended to be used as a Draft Plan application, the details and timeline of the construction for the development is unknown. The Preliminary Phasing Construction Mitigation Plan would be more appropriately examined during the detailed engineering stage of each site.
[AK] This would be a statement as a reminder to consider OTM Book 7 and that a memo is to be provided prior to any construction/clearance of lands.

Have a wonderful day ☺

Aquisha Khan, P. Eng.
Transportation Engineer,
Transportation Strategy Department,
Town of Oakville | 905-845-6601, | www.oakville.ca
Complete our Community Development customer service survey

Canada's Best Place to Live (MoneySense 2018)
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From: Robin Marinac <robin.marinac@cghtransportation.com>
Sent: January 28, 2024 4:59 PM
To: Aquisha Khan <aquisha.khan@oakville.ca>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Ayesha.Khan@halton.ca; Jade Huangfu <jade.huangfu@cghtransportation.com>
Subject: RE: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

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Hi Aquisha,

Do you think we will be able to receive feedback on our Terms of Reference this week?

Kind regards,
Robin Marinac

Robin Marinac, P.Eng.
CGH Transportation Inc.
P: 437-242-5183
E: robin.marinac@cghtransportation.com

From: Robin Marinac
Sent: Friday, January 12, 2024 8:49 AM
To: Aquisha Khan <aquisha.khan@oakville.ca>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Ayesha.Khan@halton.ca; Jade Huangfu <jade.huangfu@cghtransportation.com>
Subject: RE: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

Hi Aquisha,

I hope you had a nice winter break!

I just wanted to see if you had any updates regarding when we can expect to receive the TOR review and comments.

Kind regards,
Robin Marinac

Robin Marinac, P.Eng.
CGH Transportation Inc.
P: 437-242-5183
E: robin.marinac@cghtransportation.com

From: Robin Marinac
Sent: Monday, December 18, 2023 1:55 PM
To: Aquisha Khan <aquisha.khan@oakville.ca>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Ayesha.Khan@halton.ca
Subject: RE: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

Hi Aquisha,

Thank you very much for the update!

Kind regards,
Robin Marinac

Robin Marinac, P.Eng.
CGH Transportation Inc.
P: 437-242-5183
E: robin.marinac@cghtransportation.com

From: Aquisha Khan <aquisha.khan@oakville.ca>
Sent: Thursday, December 14, 2023 9:20 AM
To: Robin Marinac <robin.marinac@cghtransportation.com>; Ayesha.Khan@halton.ca
Cc: Mark Crockford <mark.crockford@cghtransportation.com>
Subject: RE: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

Hi Robin;

I just wanted to update on the status of the Terms of Reference review. Town staff received the TOR and is currently reviewing it. We will respond to you shortly. Please be patient with us.

Thanks

Happy Holidays and have a wonder winter day! 😊!

Aquisha Khan, (She/Her/Hers), P. Eng.,
Transportation Engineer, East Oakville
Transportation Planning Services,
Town of Oakville | P: 905-845-6601, Ext. 3236 | C: 289-952-9345 | www.oakville.ca

Aquisha Khan, (She/Her/Hers), P. Eng.
Transportation Engineer
Transportation and Engineering
Town of Oakville | 905-845-6601, ext.3236 | www.oakville.ca

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From: Robin Marinac <robin.marinac@cghtransportation.com>
Sent: Monday, November 20, 2023 4:41 PM
To: Ayesha.Khan@halton.ca; Aquisha Khan <aquisha.khan@oakville.ca>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>
Subject: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

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Hi Ayesha and Aquisha,

Please see the attached Terms of Reference Scoping Document for the EM4 JC7 JC9 Area Transportation Impact Analysis. I'd like to note that the concept provided in the attachment is a draft concept only and has been included for discussion purposes only. Please let me know if you have any questions or comments as part of your review.

Kind regards,
Robin Marinac

Robin Marinac, P.Eng.
CGH Transportation Inc.
P: 437-242-5183
E: robin.marinac@cghtransportation.com

Outlook

RE: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

From Aquisha Khan <aquisha.khan@oakville.ca>
Date Fri 2024-03-01 11:52
To Robin Marinac <robin.marinac@cghtransportation.com>; Leigh Musson <leigh.musson@oakville.ca>; Gabe Charles <gabe.charles@oakville.ca>; Eric Chan <eric.chan@oakville.ca>
Cc Mark Crockford <mark.crockford@cghtransportation.com>; Ayesha.Khan@halton.ca <Ayesha.Khan@halton.ca>; Jade Huangfu <jade.huangfu@cghtransportation.com>; Leigh Musson <leigh.musson@oakville.ca>; Gabe Charles <gabe.charles@oakville.ca>; Eric Chan <eric.chan@oakville.ca>

Hi Robin/Mark;

As per our conversation please find the adjustments that were discussed below in red. If I missed anything, please let me know.

Have a wonderful day and an amazing weekend 😊!

Aquisha Khan, (She/Her/Hers), P. Eng.,
Transportation Engineer, East Oakville
Transportation Planning Services,
Town of Oakville | P: 905-845-6601, Ext. 3236 | C: 289-952-9345 | www.oakville.ca

Aquisha Khan, **(She/Her/Hers)**, **P. Eng.**
Transportation Engineer
Transportation and Engineering
Town of Oakville | 905-845-6601, ext. 3236 | www.oakville.ca

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http://www.oakville.ca/privacy.html

From: Robin Marinac <robin.marinac@cghtransportation.com>
Sent: Tuesday, February 20, 2024 11:16 AM
To: Leigh Musson <leigh.musson@oakville.ca>; Gabe Charles <gabe.charles@oakville.ca>; Eric Chan <eric.chan@oakville.ca>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Ayesha.Khan@halton.ca; Jade Huangfu <jade.huangfu@cghtransportation.com>; Leigh Musson <leigh.musson@oakville.ca>; Gabe Charles <gabe.charles@oakville.ca>; Eric Chan <eric.chan@oakville.ca>; Aquisha Khan <aquisha.khan@oakville.ca>
Subject: RE: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

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Hi Leigh, Gabe and Eric,

I hope you all had a lovely long weekend.

Were any of you able to discuss the Terms of Reference comments with Aquisha last week? Any notes that you can provide would be helpful so that we can continue with our work.

I apologize for being so adamant with my follow-ups on this, however as we had to wait over two months to receive the original round of comments on our Terms of Reference, we are now working on a very tight timeline and would appreciate feedback to allow us to move forward.

Kind regards,
Robin Marinac

Robin Marinac, P.Eng.
CGH Transportation Inc.
P: 437-242-5183
E: robin.marinac@cghtransportation.com

From: Robin Marinac
Sent: Wednesday, February 14, 2024 1:56 PM
To: Aquisha Khan <aquisha.khan@oakville.ca>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Ayesha.Khan@halton.ca; Jade Huangfu <jade.huangfu@cghtransportation.com>; Leigh Musson <leigh.musson@oakville.ca>; Gabe Charles <gabe.charles@oakville.ca>; Eric Chan <eric.chan@oakville.ca>
Subject: RE: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

Hi Aquisha,

Thank you for letting us know.

Is there any chance that you would be able to provide some preliminary feedback on our comments below this week? Alternatively is there someone from your department we could meet with in your absence next week?

Kind regards,
Robin Marinac

Robin Marinac, P.Eng.
CGH Transportation Inc.
P: 437-242-5183
E: robin.marinac@cghtransportation.com

From: Aquisha Khan <aquisha.khan@oakville.ca>
Sent: Wednesday, February 14, 2024 10:36 AM
To: Robin Marinac <robin.marinac@cghtransportation.com>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Ayesha.Khan@halton.ca; Jade Huangfu <jade.huangfu@cghtransportation.com>; Leigh Musson <leigh.musson@oakville.ca>; Gabe Charles <gabe.charles@oakville.ca>; Eric Chan <eric.chan@oakville.ca>
Subject: RE: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

Unfortunately, I am unavailable.

From: Robin Marinac <robin.marinac@cghtransportation.com>
Sent: Wednesday, February 14, 2024 10:08 AM
To: Aquisha Khan <aquisha.khan@oakville.ca>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Ayesha.Khan@halton.ca; Jade Huangfu <jade.huangfu@cghtransportation.com>; Leigh Musson <leigh.musson@oakville.ca>; Gabe Charles <gabe.charles@oakville.ca>; Eric Chan <eric.chan@oakville.ca>
Subject: RE: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

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Hi Aquisha,

Thank you for the quick response and for proposing the additional meeting times below.

As we'd like to try and move forward with our work as quickly as we can, I was wondering if you instead have availability during the following times tomorrow:

- 12:00pm-1:30pm

- 2:30pm-3:30pm

If those times do not work for you, would you be able to provide some initial thoughts on our responses below prior to being away next week?

Kind regards,
Robin Marinac

Robin Marinac, P.Eng.
CGH Transportation Inc.
P: 437-242-5183
E: robin.marinac@cghtransportation.com

From: Aquisha Khan <aquisha.khan@oakville.ca>
Sent: Wednesday, February 14, 2024 9:52 AM
To: Robin Marinac <robin.marinac@cghtransportation.com>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Ayesha.Khan@halton.ca; Jade Huangfu <jade.huangfu@cghtransportation.com>; Leigh Musson <leigh.musson@oakville.ca>; Gabe Charles <gabe.charles@oakville.ca>; Eric Chan <eric.chan@oakville.ca>
Subject: RE: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

Good Morning Robin,

Happy Valentines Day!

Thank you for the request to meet, unfortunately, I am not available next week. The next availability for Town staff are as follows:

- Wednesday Feb 28 from 9:30am – 10:30am
- Friday March 01 from 11am – 12pm

I hope one of times work for you and your team.

Regards

Have a wonderful day 😊 !

Aquisha Khan, (She/Her/Hers), P. Eng.,
Transportation Engineer, East Oakville
Transportation Planning Services,
Town of Oakville | P: 905-845-6601, Ext. 3236 | C: 289-952-9345 | www.oakville.ca

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Sent: Tuesday, February 13, 2024 11:15 PM
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Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Ayesha.Khan@halton.ca; Jade Huangfu <jade.huangfu@cghtransportation.com>; Leigh Musson <leigh.musson@oakville.ca>; Gabe Charles <gabe.charles@oakville.ca>; Eric Chan <eric.chan@oakville.ca>
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CGH Transportation Inc.
P: 437-242-5183
E: robin.marinac@cghtransportation.com

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Sent: Tuesday, January 30, 2024 5:25 PM
To: Robin Marinac <robin.marinac@cghtransportation.com>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Ayesha.Khan@halton.ca; Jade Huangfu <jade.huangfu@cghtransportation.com>; Leigh Musson <leigh.musson@oakville.ca>; Gabe Charles <gabe.charles@oakville.ca>; Eric Chan <eric.chan@oakville.ca>
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Noted.

[AK] The highlighted intersections to be included in the study, the others may be dismissed.

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  - Burnhamthorpe Road East & 9th Line
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The intersection of Trafalgar Road at Loyalist Trail as well as collector road intersections along Burnhamthorpe Road and William Halton Parkway within the subject development lands will be analyzed as part of future analysis horizons in the study. However,

the intersections of Dundas Street at Ninth Line and Burnhamthorpe Road at Ninth Line are both located well beyond the scope of our study area boundaries and should not be considered. Additionally, the Region has reviewed our TOR and has not identified these intersections, which I believe are the responsibility of the Region, as being required.

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Additionally, please note that our future total study area network is anticipated to include upwards of 20 intersections. As such, we feel that these additional intersections should not be included in our analysis.

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[AK] 2051 horizon to be removed from the analysis. If the full build out is 2033, use that in the analysis and then 2036 and 2041 for the future horizons.

- AM, PM and Weekend Peak Period should be taking under consideration.

[AK] Include in the trip generation table, the trips for all three peak period and state the reason for providing capacity analysis for AM/PM peak or PM/Weekend Peak.

The Halton Region TIS Guidelines and the North Oakville TOR for TIS suggest that the weekend peak period should be taken under consideration for retail, entertainment, religious, institutional, and sports facility uses. Our development consists of approximately 13,900 residential units, 650 000 square metres of office GFA, and 41 000 square metres of supporting retail GFA. As the development consists mostly of residential and office land uses, corresponding to typical weekday AM and PM peak hours, weekend peak period analysis should not be included in our TIS.

- Existing Study Area Multimodal conditions:
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Comments received from Halton Region staff indicate a CAGR of 1.5% should be used from existing-2033 and 0.75% from 2033-2043 for Burnhamthorpe Road, Trafalgar Road, and William Halton Parkway, and a CAGR of 0.5% from 2023-2043 for Dundas Street. As site generated traffic is likely to account for a significant portion of growth of the surrounding network traffic, a 3% and 2% CAGR are too conservative for the purposes of this study. Additionally, as requested site traffic associated with all developments and site applications from Ward 6 and Ward 7 of the Town of Oakville Development and Site Plan Applications portal, where TISs are available, will be considered. This is expected to make up a significant portion of background traffic growth on these roads. As a result, we would propose that the CAGR provided by Halton Region is considered to be more appropriate for the purposes of this study.

[AK] For all regional roads, please use their growth rates provided and apply 3% to Town owned roads

- Signal Timing Plans:
  - Please obtain signal timing plan for all signalized intersections within the study area corridor from the region for Regional Road intersection.
  - Please obtain signal timing plans for the signalized intersections for 6th Line and Burnhamthorpe Road.

Noted.

- Mode Share:
- The most recent TTS data should be used.

Noted.

- Geometric Analysis:
- Intersection details for future design should be include (radius, corner clearance, daylight triangles etc., access locations, access widths)
- Sightline analysis should be included

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- TDM Measures:

- Trail and transit connectivity/impacts to be included.
- Forecast any future traffic calming measures for implementation

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- This study should include and identify intersection separation distance analysis and traffic device analysis along William Halton Parkway, Burnhamthorpe Road, Threshing Mills Boulevard , Wheat Boom Boulevard, and Future Marvin Road to ensure they meet Town/Region/Province Requirements.

Noted.

- Figures for all conditions to be included in report.

Noted.

- Mitigation measures to be included for all conditions.

Noted.

- Parking Section should be included to identify forecasted parking requirements

Noted. Future parking requirements will be noted based on existing by-law requirements. This will be further explored during the Site Plan application for each site. ***[AK]*** this would be based on the Town of Oakville zoning requirements for parking for the proposed developments.

- Preliminary Phasing Construction Mitigation Plan to be included as per OTM Book 7

As the study is intended to be used as a Draft Plan application, the details and timeline of the construction for the development is unknown. The Preliminary Phasing Construction Mitigation Plan would be more appropriately examined during the detailed engineering stage of each site.
[AK] This would be a statement as a reminder to consider OTM Book 7 and that a memo is to be provided prior to any construction/clearance of lands.

Have a wonderful day ☺

Aquisha Khan, P. Eng.
Transportation Engineer,
Transportation Strategy Department,
Town of Oakville | 905-845-6601, | www.oakville.ca
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From: Robin Marinac <robin.marinac@cghtransportation.com>
Sent: January 28, 2024 4:59 PM
To: Aquisha Khan <aquisha.khan@oakville.ca>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Ayesha.Khan@halton.ca; Jade Huangfu <jade.huangfu@cghtransportation.com>
Subject: RE: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

SECURITY CAUTION: This email originated from outside of The Town of Oakville. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Aquisha,

Do you think we will be able to receive feedback on our Terms of Reference this week?

Kind regards,
Robin Marinac

Robin Marinac, P.Eng.
CGH Transportation Inc.
P: 437-242-5183
E: robin.marinac@cghtransportation.com

From: Robin Marinac
Sent: Friday, January 12, 2024 8:49 AM
To: Aquisha Khan <aquisha.khan@oakville.ca>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Ayesha.Khan@halton.ca; Jade Huangfu <jade.huangfu@cghtransportation.com>
Subject: RE: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

Hi Aquisha,

I hope you had a nice winter break!

I just wanted to see if you had any updates regarding when we can expect to receive the TOR review and comments.

Kind regards,
Robin Marinac

Robin Marinac, P.Eng.
CGH Transportation Inc.
P: 437-242-5183
E: robin.marinac@cghtransportation.com

From: Robin Marinac
Sent: Monday, December 18, 2023 1:55 PM
To: Aquisha Khan <aquisha.khan@oakville.ca>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Ayesha.Khan@halton.ca
Subject: RE: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

Hi Aquisha,

Thank you very much for the update!

Kind regards,
Robin Marinac

Robin Marinac, P.Eng.
CGH Transportation Inc.
P: 437-242-5183
E: robin.marinac@cghtransportation.com

From: Aquisha Khan <aquisha.khan@oakville.ca>
Sent: Thursday, December 14, 2023 9:20 AM
To: Robin Marinac <robin.marinac@cghtransportation.com>; Ayesha.Khan@halton.ca
Cc: Mark Crockford <mark.crockford@cghtransportation.com>
Subject: RE: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

Hi Robin;

I just wanted to update on the status of the Terms of Reference review. Town staff received the TOR and is currently reviewing it. We will respond to you shortly. Please be patient with us.

Thanks

Happy Holidays and have a wonder winter day! 😊!

Aquisha Khan, (She/Her/Hers), P. Eng.,
Transportation Engineer, East Oakville
Transportation Planning Services,
Town of Oakville | P: 905-845-6601, Ext. 3236 | C: 289-952-9345 | www.oakville.ca

Aquisha Khan, (She/Her/Hers), P. Eng.
Transportation Engineer
Transportation and Engineering
Town of Oakville | 905-845-6601, ext.3236 | www.oakville.ca

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From: Robin Marinac <robin.marinac@cghtransportation.com>
Sent: Monday, November 20, 2023 4:41 PM
To: Ayesha.Khan@halton.ca; Aquisha Khan <aquisha.khan@oakville.ca>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>
Subject: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

SECURITY CAUTION: This email originated from outside of The Town of Oakville. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Ayesha and Aquisha,

Please see the attached Terms of Reference Scoping Document for the EM4 JC7 JC9 Area Transportation Impact Analysis. I'd like to note that the concept provided in the attachment is a draft concept only and has been included for discussion purposes only. Please let me know if you have any questions or comments as part of your review.

Kind regards,
Robin Marinac

Robin Marinac, P.Eng.
CGH Transportation Inc.
P: 437-242-5183
E: robin.marinac@cghtransportation.com

Outlook

RE: Terms of Reference Review Request - EM4 JC7 JC9 N Oakville TIS TOR

From Nunes, Paul (MTO) <Paul.Nunes@ontario.ca>
Date Mon 2024-03-18 11:43
To Robin Marinac <robin.marinac@cghtransportation.com>
Cc Mark Crockford <mark.crockford@cghtransportation.com>; Jade Huangfu <jade.huangfu@cghtransportation.com>

2 attachments (201 KB)
Action Plans.JPG; 407 EB Schedules.JPG;

Hi Robin,

Re: EM4 JC7 JC9 Area Wide Transportation Impact Analysis – Terms of Reference
North Oakville, Halton Region, ON. (Hwy 407)

MTO Traffic Office comments:

1. 41000 square meters (441320 square feet) is not an insignificant size, our preference is to include the Saturday analysis. Consultant can include the Saturday analysis only for the 407 ramps.

407 ETR Concession Company:

1. There are no schedules/day plans/action plans/splits for the WB off ramp.
2. Attached is schedule/action plans for the EB off ramp.

Thanks,

PaulN

From: Robin Marinac <robin.marinac@cghtransportation.com>
Sent: March 16, 2024 11:01 AM
To: Nunes, Paul (MTO) <Paul.Nunes@ontario.ca>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Jade Huangfu <jade.huangfu@cghtransportation.com>
Subject: RE: Terms of Reference Review Request - EM4 JC7 JC9 N Oakville TIS TOR

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Hi Paul,

Thank you for the provided STPs. Are you able to provide us with a version that also shows the information from the tabs in your screenshot? This would be the schedule, day plan, action plan, patterns, and splits information.

Can you please also provide feedback on our responses in green? We'd like to confirm that our justification for not including a Saturday analysis has been accepted so that we can proceed with our work.

Kind regards,
Robin Marinac

Robin Marinac, P.Eng.
CGH Transportation Inc.
P: 437-242-5183
E: robin.marinac@cghtransportation.com

From: Nunes, Paul (MTO) <Paul.Nunes@ontario.ca>
Sent: Tuesday, March 12, 2024 10:24 AM
To: Robin Marinac <robin.marinac@cghtransportation.com>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Jade Huangfu <jade.huangfu@cghtransportation.com>
Subject: RE: Terms of Reference Review Request - EM4 JC7 JC9 N Oakville TIS TOR

Good morning Robin,

Re: EM4 JC7 JC9 Area Wide Transportation Impact Analysis – Terms of Reference
North Oakville, Halton Region, ON. (Hwy 407)

Please find attached the 2 intersections requested.

Regarding the access from the Go Lot, both the MTO & 407 ETR Concession Company would not support this proposal, all traffic from the development should access via Trafalgar/William Halton.

Also, we believe the subject GO lot is operated by Metrolinx, therefore, I have reached out to them for comment as well.

Thanks,

PaulN

From: Robin Marinac <robin.marinac@cghtransportation.com>
Sent: March 11, 2024 7:30 AM
To: Nunes, Paul (MTO) <Paul.Nunes@ontario.ca>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Jade Huangfu <jade.huangfu@cghtransportation.com>
Subject: RE: Terms of Reference Review Request - EM4 JC7 JC9 N Oakville TIS TOR

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Hi Paul,

I hope you had a nice weekend.

Do you have an idea of when you might be able to provide further feedback on our submitted responses? When you have a chance can you please also provide the requested STPs or direct us to the individual who can provide them?

Kind regards,
Robin Marinac

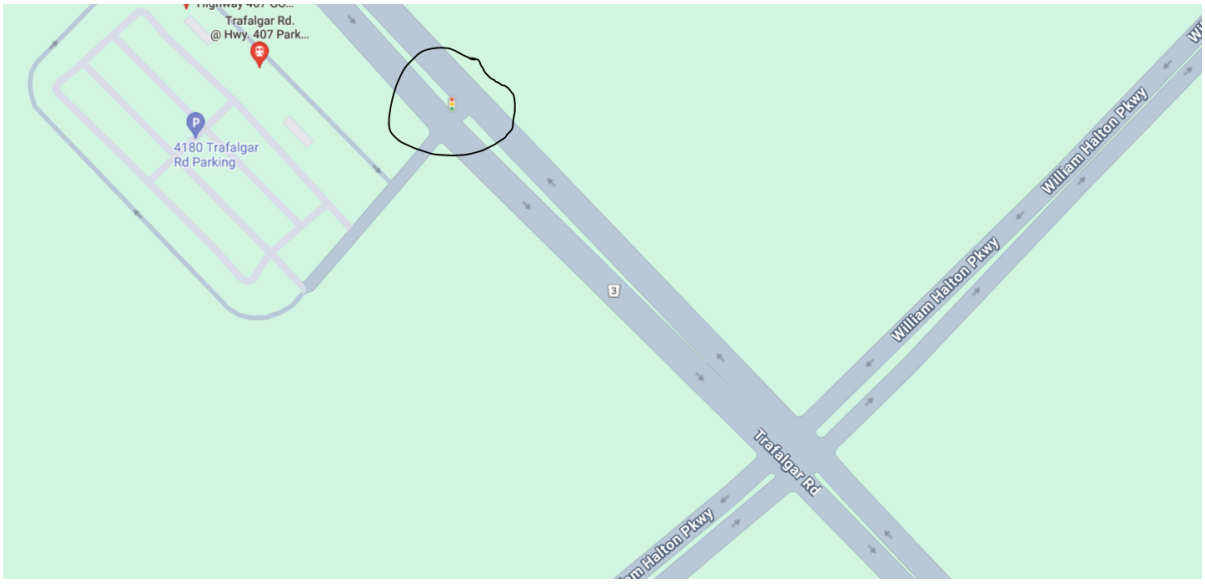
Robin Marinac, P.Eng.
CGH Transportation Inc.
P: 437-242-5183
E: robin.marinac@cghtransportation.com

From: Robin Marinac
Sent: Monday, March 4, 2024 9:15 AM
To: Nunes, Paul (MTO) <Paul.Nunes@ontario.ca>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Jade Huangfu <jade.huangfu@cghtransportation.com>
Subject: RE: Terms of Reference Review Request - EM4 JC7 JC9 N Oakville TIS TOR

Hi Paul,

I hope you had a nice weekend!

We were referring to the signalized intersection just north of Trafalgar Road and William Halton Parkway that provides access to the GO lot.



Kind regards,
Robin Marinac

Robin Marinac, P.Eng.
CGH Transportation Inc.
P: 437-242-5183
E: robin.marinac@cghtransportation.com

From: Nunes, Paul (MTO) <Paul.Nunes@ontario.ca>
Sent: Monday, March 4, 2024 8:55 AM
To: Robin Marinac <robin.marinac@cghtransportation.com>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Jade Huangfu <jade.huangfu@cghtransportation.com>
Subject: RE: Terms of Reference Review Request - EM4 JC7 JC9 N Oakville TIS TOR

Good morning Robin,

Re: EM4 JC7 JC9 Area Wide Transportation Impact Analysis – Terms of Reference
North Oakville, Halton Region, ON. (Hwy 407)

Regarding the tie in with signalized intersections, please confirm which intersections? Are you referencing to Trafalgar/William Halton Pkwy signalized intersection south of the GO lot?

Thanks,

Paul Nunes
Senior Project Manager (Peel/Halton) | Corridor Management, Central Region West | Operations Division
Ministry of Transportation | Ontario Public Service
416-270-3108 | paul.nunes@ontario.ca

Ontario

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From: Robin Marinac <robin.marinac@cghtransportation.com>
Sent: February 29, 2024 6:25 PM
To: Nunes, Paul (MTO) <Paul.Nunes@ontario.ca>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Jade Huangfu <jade.huangfu@cghtransportation.com>
Subject: RE: Terms of Reference Review Request - EM4 JC7 JC9 N Oakville TIS TOR

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Hi Paul,

Thank you for providing your review below. Please see our responses in green below. Please let me know if you have any questions or would like to discuss this over a call.

Kind regards,
Robin Marinac

Robin Marinac, P.Eng.
CGH Transportation Inc.
P: 437-242-5183
E: robin.marinac@cghtransportation.com

From: Nunes, Paul (MTO) <Paul.Nunes@ontario.ca>
Sent: Tuesday, February 27, 2024 8:53 AM
To: Robin Marinac <robin.marinac@cghtransportation.com>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Jade Huangfu <jade.huangfu@cghtransportation.com>
Subject: RE: Terms of Reference Review Request - EM4 JC7 JC9 N Oakville TIS TOR

Good morning Robin,

Re: EM4 JC7 JC9 Area Wide Transportation Impact Analysis – Terms of Reference
North Oakville, Halton Region, ON. (Hwy 407)

After review of the terms of reference for the above described proposed TIS, and in accordance with the PTHIA, the MTO offers the following comments:

MTO Traffic:

1. The study area should include the 407 ramps;

Noted. The 407 ramps on Trafalgar Road will be considered within the project analysis.

2. Study should include AM/PM and Saturday analysis;

The Halton Region TIS Guidelines and the North Oakville TOR for TIS suggest that the weekend peak period should be taken under consideration for retail, entertainment, religious, institutional, and sports facility uses. Our development consists of approximately 13,900 residential units, 650 000 square metres of office GFA, and 41 000 square metres of supporting retail GFA. As the development consists mostly of residential and office land uses, corresponding to typical weekday AM and PM peak hours, as a result we would propose that the weekend peak period analysis should not be included in our TIS.

3. What is the growth rate proposed and justification? Maybe we missed it;

While the majority of the growth in the future background analysis horizons will be the result of development explicitly accounted for within the TIS in the form of background development traffic taken from TISs prepared by others, a compound annual growth rate of 1.5% will be applied between existing 2024 and the future 2033 analysis horizon. A 0.75% compound annual growth rate will be used between 2033 and 2043. These growth rates will be applied to the Trafalgar Road interchanges as no 407 historical data is available to calculate growth rates. It is noted that these growth rates have been accepted by Region staff.

4. Proponent to follow MTO TIS guidelines which include executive summary and intro, which is in addition to what is being proposed;

Noted. An introduction and executive summary will be included in the study.

407ETR

1. 407ETR will only be able to provide Single Timing counts for the Trafalgar Interchange. 407ETR does not provide traffic volumes for any of the interchanges within the Highway 407 network;

Noted. Can you please provide these Signal Timing plans, or point us in the direction of a colleague who can?

2. All access points or signalized intersections will need to be min 400 m away from the existing signalized intersections of the Trafalgar Interchange;

Noted. Beyond the existing unsignalized access for the 4180 Trafalgar Road Parking lot and the signalized intersection for the 4180 Trafalgar Road Parking lot which are approximately 100 metres and 240 metres south of the Highway 407 EB Off-ramp, respectively, no additional intersections are proposed within 400 metres of the existing signalized intersections of the Trafalgar interchange. It should be noted that the subject development and surroundings areas are proposed to tie into the existing signalized intersection.

3. All access to sites shall be from the existing municipal road system (i.e. Trafalgar Road), no direct access to Highway 407ETR will be permitted now or in the future;

Noted.

Please do not hesitate to contact me if you have any questions.

Thanks,

Paul Nunes | Senior Project Manager (Peel/Halton)
Highway Corridor Management Section | Central Operations | Ontario Ministry of Transportation
159 Sir William Hearst Avenue, 7th Floor, Toronto, ON. M3M 0B7
Telephone: 416-270-3108 | Email: paul.nunes@ontario.ca

Ontario

From: Nunes, Paul (MTO)
Sent: February 24, 2024 5:16 PM
To: Robin Marinac <robin.marinac@cghtransportation.com>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Jade Huangfu <jade.huangfu@cghtransportation.com>; Akhtar, Usman (MTO) <Usman.Akhtar@ontario.ca>
Subject: RE: Terms of Reference Review Request - EM4 JC7 JC9 N Oakville TIS TOR

Hi Robin,

Re: EM4 JC7 JC9 Area Wide Transportation Impact Analysis – Terms of Reference
North Oakville, Halton Region, ON. (Hwy 407)

Received, and I have circulated for review and comments.

Thanks,

Paul Nunes | Senior Project Manager (Peel/Halton)
Highway Corridor Management Section | Central Operations | Ontario Ministry of Transportation
159 Sir William Hearst Avenue, 7th Floor, Toronto, ON. M3M 0B7
Telephone: 416-270-3108 | Email: paul.nunes@ontario.ca

Ontario

From: Robin Marinac <robin.marinac@cghtransportation.com>
Sent: February 21, 2024 3:15 PM
To: Akhtar, Usman (MTO) <Usman.Akhtar@ontario.ca>; Nunes, Paul (MTO) <Paul.Nunes@ontario.ca>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Jade Huangfu <jade.huangfu@cghtransportation.com>
Subject: RE: Terms of Reference Review Request - EM4 JC7 JC9 N Oakville TIS TOR

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Hi Usman,

Thank you for your quick response.

Paul – it's nice to meet you. I've attached the TOR for the North Oakville TIS we are looking to have you review.

Please let me know if you have any questions or if you'd like to discuss over a call.

Kind regards,
Robin Marinac

Robin Marinac, P.Eng.
CGH Transportation Inc.
P: 437-242-5183
E: robin.marinac@cghtransportation.com

From: Akhtar, Usman (MTO) <Usman.Akhtar@ontario.ca>
Sent: Wednesday, February 21, 2024 2:26 PM
To: Robin Marinac <robin.marinac@cghtransportation.com>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Jade Huangfu <jade.huangfu@cghtransportation.com>; Nunes, Paul (MTO) <Paul.Nunes@ontario.ca>
Subject: FW: Terms of Reference Review Request - EM4 JC7 JC9 N Oakville TIS TOR

Hi Robin,

Please contact my colleague Paul Nunes (CC'd on this email).

Thanks,

Usman

From: Robin Marinac <robin.marinac@cghtransportation.com>
Sent: February 21, 2024 2:22 PM
To: Akhtar, Usman (MTO) <Usman.Akhtar@ontario.ca>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Jade Huangfu <jade.huangfu@cghtransportation.com>
Subject: Terms of Reference Review Request - EM4 JC7 JC9 N Oakville TIS TOR

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Hi Usman,

I received your contact information from my colleague Mark Crockford. We are looking to circulate a Terms of Reference document for Traffic Impact Study in North Oakville for review by MTO. I'm not sure who the appropriate contact would be to send this to, and so I'm hoping to get your help in passing this along to them.

Please let me know if you have any questions or comments on this.

Kind regards,
Robin Marinac

Robin Marinac, P.Eng.
CGH Transportation Inc.
P: 437-242-5183
E: robin.marinac@cghtransportation.com

Project Number	2023-084
Project	EM4 JC7 JC9
Document	Halton Region Peer Review Comments
Date	12-May-25

Comment #	Comment	Response
General		
Transportation Engineering		
1	Balance the volumes along Trafalgar Road under all horizon year scenarios and justify the discrepancies in volume above 10% where applicable. Section 3.5 of the subject TIS indicates that the existing conditions volumes were balanced between the 407 interchange ramps along Trafalgar Road to establish a baseline scenario. However, volumes should have also been balanced along Trafalgar Road due to the lack of substantial accesses. Additionally, there are large discrepancies in volumes along Trafalgar Road between Marvin Avenue and Dundas Street which cannot be explained by the additional developments. For example, there is a difference of 597 southbound vehicles exiting Marvin Avenue and entering Dundas Street during the AM peak period for the 2041 Future Total scenario, as shown in Figure 1. While this midblock extends over 1 kilometre, this is a 20% increase in vehicular traffic with limited number of accesses for vehicles to enter/exit from.	Volumes have been balanced in existing conditions only. This balancing will carry through to future horizons. Background development volumes are anticipated to be properly assigned and balanced as they are taken from provided background TISs. Therefore additional balancing in future horizons is not required. Volume balancing to within 10% was conducted for the intersections along Trafalgar that were not counted on the same day, including the Highway 407 interchanges and the Trafalgar Road Parking Lot Access. As noted in Section 3.5 of the TIS, the volumes at the Highway 407 ramps were lower than those observed along the remainder of Trafalgar Road and were therefore balanced to reflect corridor volumes. Volume imbalances between intersections that were counted on the same day are within an acceptable range and are reflective of accesses between intersections. These imbalances are considered to be justified and do not require balancing. The increase in vehicle traffic between Marvin Avenue and Dundas Street in the future total horizons can be attributed to both existing and background development traffic using Threshing Mill Boulevard and Wheat Boom Drive along Trafalgar Road. Several background developments, including Coscorp Joshua Creek, Green Ginger, and Joshua Creek Phase 3, have assigned site-generated traffic to these accesses, as shown in their respective volume figures in Section 4.1.8. Additionally, an existing residential subdivision is located northeast of the Dundas Street and Trafalgar Road intersection which is expected to primarily use Threshing Mill Boulevard and Wheat Boom Drive to access Trafalgar Road. Given the influence of both background developments and existing traffic patterns, the observed increase in volumes along this segment of Trafalgar Road is considered to be reasonable.
2	Provide clarification to which land use codes were used for each portion of the Landowners Site Statistics within Table 3. While Table 3 of the TIS provides a breakdown of the land use information of each participating landowner and Table 4 summarizes the ITE trip generation rates used for each Land Use Code (LUC), it is recommended to also include the specific LUC used for each landowner.	Noted. This will be included in the updated TIS.
3	Adjust the auto drive rate reduction in future scenarios to account for the existing modal split. The TIS also states that a transit mode split of 20% was used for all future analysis horizons based on the target mode share outlined in the Halton Region Transportation Master Plan. As a result, the estimated vehicular trips were reduced by 20%. However, applying a 20% reduction on vehicular trips would assume that the existing transit mode split is 0%. To give a more conservative estimate, the reduction to vehicular trips should be based on the change in mode split instead, which is approximately 10% between 2021 to 2031 based on the Region's TMP.	As outlined in the Terms of Reference submitted to both the Region and Town staff on November 20, 2023, a 20% transit mode split was proposed for future horizon scenarios in accordance with the Halton Region TMP. This proposed mode split was reviewed and approved as part of correspondence with Region Staff on December 14, 2023. While we acknowledge that using a 10% transit mode split may produce a more conservative analysis, adjusting the mode split is not expected to significantly impact the results of the operational analysis, given that most of the Study Area intersections are already operating with capacity constraints under future conditions. Additionally, it is noted that the mode split reduction is only applied to trips generated by the subject development, not background trips. Therefore, the change in mode split in relation to the existing mode split is not applicable to newly generated trips. In reality, transit mode shift in this area should actually be anticipated to be higher than 20% given density and proximity to future BRT, and the fact that the Region's projections are intended to be an average (i.e. some areas will have higher transit mode shares, and some will have lower transit mode shares than 20%)
4	Provide justification for applying a 38.92% pass-by trip reduction to retail spaces that are smaller than LUC 821 Shopping Plaza (40 – 150k). Lastly, Table 9 of the TIS report indicates that a pass-by rate of 38.92% was used for all retail land uses during the PM peak period. This percentage was obtained from the average primary trip percentages provided in the ITE Trip Generation Manual 11th Edition Vehicle Passs-by Weekday PM table for LUC 821 Shopping Plaza (40 – 150k). However, as shown in Table 3, several of the proposed retail developments were found to be smaller than this. While pass-by trip reductions are appropriate for retail spaces with larger gross floor area, the lack of available rates for smaller retail lands indicate they likely do not generate many pass-by trips.	As land use 822 (Strip Retail Plaza) does not have pass-by tables, and land use 820 (Shopping Centre) includes developments with GFAs well beyond what is considered by the subject development, the Vehicle Pass-by table for land use 821 (Shopping Plaza) was considered. It is noted that a total of 826 two-way primary trip reductions were calculated. 638 of these trips were calculated in relation to retail land uses with GFAs greater than 40k square feet. As such, only 188 two-way vehicle trips (94 in and 94 out) come from retail land uses with GFAs less than 40k square feet. As a result, the impact of considering a pass-by rate for retail land uses with GFAs less than 40k square feet is relatively minimal given these locations are dispersed throughout the subject lands and therefore will not be concentrated at a single intersection or area. Additionally, the proposed reduction rate is anticipated to be acceptable as retail areas with GFAs less than 40k square feet do generate pass-by trips (example: convenience stores, coffee shops, high-turnover restaurant chains etc.) and it is therefore appropriate to consider the impact of pass-by trips at these locations.
5	Include the Sidra worksheets in Appendix M, N and O. The subject TIS states that Sidra (version 9.1) was used to model the roundabouts at Sixth Line & William Halton Parkway and Ninth Line & William Halton Parkway because Synchro is not appropriate for roundabout analysis. However, the Sidra worksheets were not provided in the report for the 2031, 2036 and 2041 Future Total conditions.	Noted. This will be included in the updated TIS.
6	Conduct SimTraffic queue analysis for all horizon years and future scenarios and update the tables in the report accordingly. The TIS provides queuing results using the Synchro queue analysis. Although it is not required by the Region, using SimTraffic queue analysis would assess queue lengths more accurately.	As SimTraffic isn't a requirement, it has not been considered. Additionally, as this is a higher level study with traffic volumes based on multiple assumptions and volume projections, SimTraffic is not considered an appropriate analysis tool.
7	Provide justification for the use of a 0.90 PHF which differs from the Synchro default value of 0.92. The parameters of the Synchro model were reviewed for compliance with industry best practice. While Section 7 indicated a Peak Hour Factor (PHF) of 0.90 was used for all movements at future intersections, this differs from the Synchro default of 0.92 with no accompanying justification provided. Adjustments from the default value may over or underestimate performance unless supported by field study data. Alterations of this value may artificially increase or decrease the adjusted flow vehicle per hour, impacting the results of the analysis.	Noted, a PHF of 0.92 will be used at future intersections in other Halton Region TISs moving forward. The use of a 0.90 PHF is conservative and will produce operational results that indicate slightly worse intersection movement operation when compared to a PHF of 0.92. As the difference between a 0.90 PHF, and a 0.92 PHF will be minor (v/c ratio reductions of 0.00-0.05), it is proposed that no adjustments to the PHF be made in the resubmission of the TIS as this adjustment will not alter the overall report conclusions and findings.

8	Correct the model errors within the Synchro files. The Synchro files submitted contain errors which may impact the results of the operational analysis. Examples of these errors include lack of coordination upstream causing starvation and storage lengths exceed link lengths.	Please identify if additional errors are present. Given the high level volume projections used within the analysis, signal coordination was not deemed to be an appropriate tool as the results would not be considered accurate enough to be implemented. It is expected that signal coordination will be undertaken as part of the Region's future review of the existing and proposed roadway corridors considered within the TIS. As such, signal coordination will not be considered in the resubmission of the TIS. Locations where storage lengths exceed link lengths will be reviewed and adjusted.
9	Extend the link lengths within the Synchro model to provide more accurate queueing metrics. For some of the intersections, the reported 95th percentile queue length exceeds the link lengths, which may artificially reduce queuing constraints within the network. For example, the link length at Collector Road 2 & William Halton Parkway is 150 metres at the west-leg but Table 52 indicates that the WBL 95th percentile queue is expected to be 271 metres during the 2041 Future Total AM peak hour.	It is assumed that this comment is referencing the 271 metre WBL queue length at Collector 1 & William Halton Parkway in the 2041 FT horizon, as no WBL is present at the Collector 2 & William Halton Parkway intersection. The link lengths in the Synchro model have been determined using the proposed intersection spacing and access locations shown within the concept plan. While the reported 95th percentile queue length for certain movements, such as the WBL at Collector 1 & William Halton Parkway, exceeds the link distance in the model, extending the westbound leg of this intersection would result in intersection spacing that no longer reflects the layout of the site. The opportunity to extend link lengths where appropriate, will be evaluated.

2. Transportation Study
   a. [Circ. 1] – EM4 TIS was prepared to determine regional road improvements required along Trafalgar Road. The Town has not reviewed nor accepted the EM4 TIS. Transportation Engineering staff have only provided review of the Transportation Memo, specific to the subject lands of the applications (24T-25005.1314, Z.1314.10).

   b. [Circ. 1] Assumptions have been made regarding the North Oakville road network that could significantly impact site layout and development opportunities for adjacent lands. Furthermore, the EM4 TIS was prepared without consultation with surrounding landowners. As such, the background assumptions and any resulting traffic analysis are not acceptable in their current form.

   c. EM4 TIS must be revised to reflect the road network previously approved under the North Oakville Secondary Plan, and to incorporate accurate background development statistics and land use info (refer to the document attached by the Planning staff).

   d. [Circ. 1] If the applicant wishes to propose an alternative road network, such a scenario should be evaluated separately under a "sensitivity analysis" with consultation from the affected landowners.

   e. [Circ. 1 – Information Only] Transportation comments pertaining to the area-wide TIS (referred herein as EM4 TIS) will be provided once these critical assumptions have been updated.

Circulation 1 comments are based on the Transportation Memo dated July 22nd, 2025 (CGH)

f. [Circ. 1] – Please include Context Map previously used for the EM4 TIS analysis (Figure 2 of the EM4 TIS) and compare it to the updated context map with the revised Subject Development included. The context map should be scaled appropriately to show intersections proposed north of Burnhamthorpe Road.

g. [Circ. 1] - Confirm the phasing of the development and buildout horizon year.

h. [Circ. 1] – Further detail of the Functional Road Design is required.
   i. List all internal roads within the subdivision and the associated road classifications in a table.
   ii. Confirm all proposed road cross-sections meet the Town's standards.
   iii. If a deviation from the Town standard and/or from the approved North Oakville Secondary Plan is proposed, justifications should be provided (i.e., Street B alignment).
   iv. Section 2.2 – Include a conformance review of Settlers Road (i.e., cross section).
   v. Section 2.3 – Outline TAC GDGCR intersection spacing requirements along Burnhamthorpe Road and along Settlers. Streets connecting to Burnhamthorpe Road from the north, should also be considered when determining available spacing. Include a diagram with the spacings shown, if necessary.
   vi. Section 2.3 – Note, the road layout shown in North Oakville Secondary Plan allows an evenly spaced intersection along Burnhamthorpe Road. It also allows the neighbouring lands to the east to use Street B as potential access.

Project Number	2023-084
Project	EM4 JC7 JC9
Document	1st Submission Consolidated Comments Report - ARGO Oakville Woods
Date	24-Nov-25

Comment #	Comment	Response
	Transportation Services, Transportation Engineer	
	Transportation Services (M. Chan)	
12	2. Transportation Study a. [Circ. 1] – EM4 TIS was prepared to determine regional road improvements required along Trafalgar Road. The Town has not reviewed nor accepted the EM4 TIS. Transportation Engineering staff have only provided review of the Transportation Memo, specific to the subject lands of the applications (24T-25005.1314, Z.1314.10).	The first submission of the EM4 JC7 JC9 TIS was circulated to both the Town and the Region in November 2024. Comments were provided by the Region on the first submission of the TIS. Based on discussion with Syed from the Town of Oakville, it has been confirmed that Town staff have no additional comments beyond those provided by the Region. Comments provided by the Region are being addressed and will be incorporated in an updated EM4 JC7 JC9 TIS.
13	b. [Circ. 1] Assumptions have been made regarding the North Oakville road network that could significantly impact site layout and development opportunities for adjacent lands. Furthermore, the EM4 TIS was prepared without consultation with surrounding landowners. As such, the background assumptions and any resulting traffic analysis are not acceptable in their current form.	Please see the comparison between the EM4 JC7 JC9 concept plan and the North Oakville East Secondary Plan (NOESP) road network. The approximate locations of participating landowners have been shown on the NOESP for reference. While some deviations in the road network are noted between Marvin Avenue and William Halton Parkway east of Trafalgar Road, these changes are minor and located only within the properties of participating landowners. As no functional changes to the structure or access to major corridors have been introducted within the EM4 concept plan, these minor changes are not expected to impact the intent of the planned network or impact development opportunities for adjacent lands. Additionally, a Terms of Reference dated November 20, 2023, was provided to the Town which was reviewed and approved by Aquisha Khan. Through this process, background developments and growth rate assumptions were confirmed by Town staff. As the TIS was completed in accordance with the approved Terms of Reference, the background assumptions and resulting analysis are considered acceptable. The Terms of Reference as well as related email correspondence is included in Appendix A of the TIS.
14	c. EM4 TIS must be revised to reflect the road network previously approved under the North Oakville Secondary Plan, and to incorporate accurate background development statistics and land use info (refer to the document attached by the Planning staff).	Please refer to above response to Comment b. Given that the road network assumptions, background development information, and growth rate assumptions used in the TIS were approved by Town staff through the Terms of Reference dated November 20, 2023, no revisions to the background analysis in the TIS are proposed.
15	d. [Circ. 1] If the applicant wishes to propose an alternative road network, such a scenario should be evaluated separately under a “sensitivity analysis” with consultation from the affected landowners.	Please refer to above response to Comment b. Minor changes shown in the EM4 JC7 JC9 concept plan occur fully within the boundaries of participating landowner properties and do not alter the function of the NOESP road network. Justification of the collector road netwrok layout east of Trafalgar Road, as well as operational analysis of the collector road corridor specified by Town staff has been included in the updated TIS in Section 8.2.
16	e. [Circ. 1 – Information Only] Transportation comments pertaining to the area-wide TIS (referred herein as EM4 TIS) will be provided once these critical assumptions have been updated.	Noted.

Appendix B

Turning Movement Count Data

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Project #24-011 - CGH Transportation

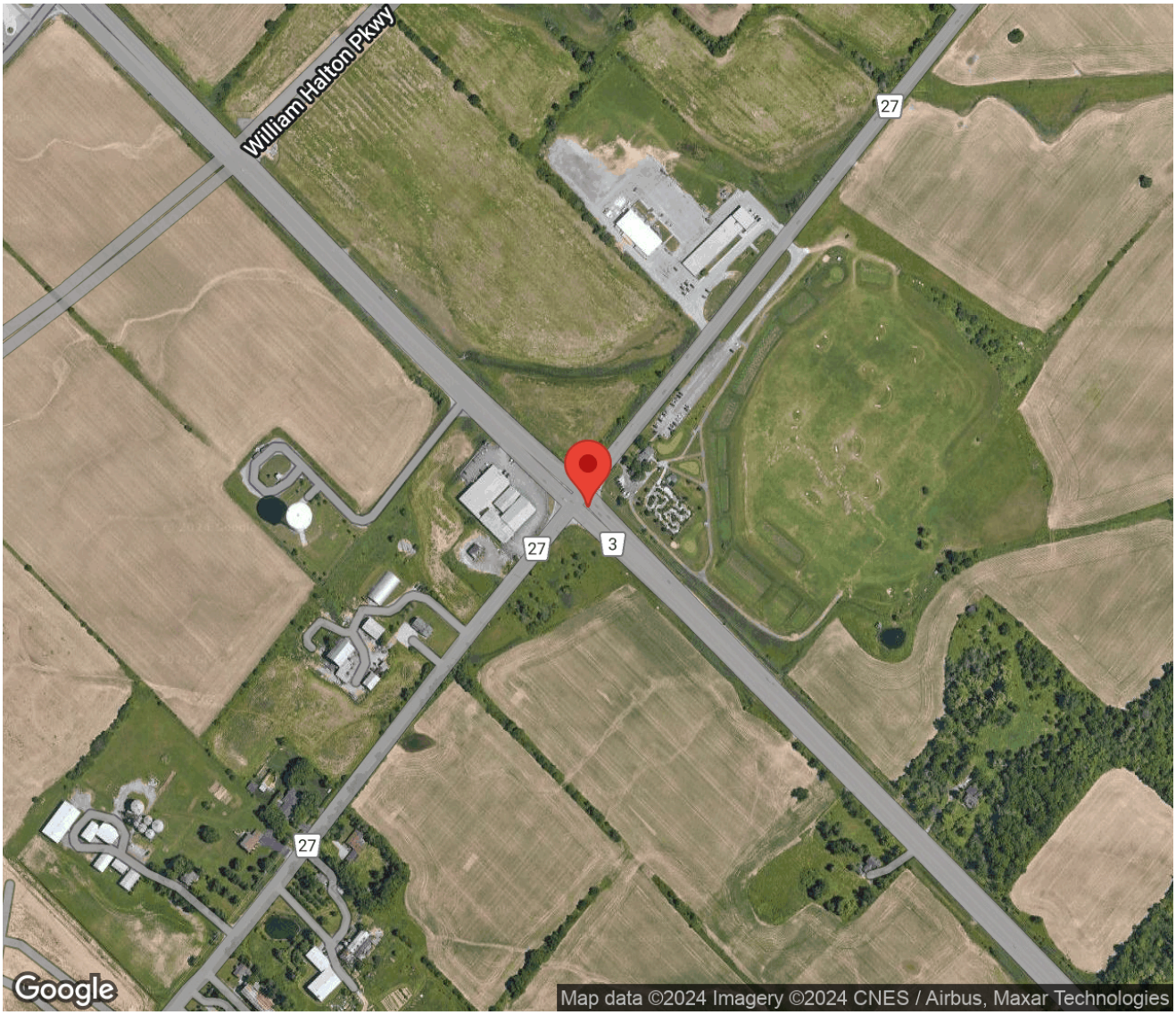
Intersection Count Report

Intersection:	Burnhamthorpe Rd E & Trafalgar Rd
Municipality:	Oakville
Count Date:	Wednesday, Jan 17, 2024
Site Code:	2401100001
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-09:00, 16:00-18:00
Weather:	Clear
Comments:	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Map

Intersection:	Burnhamthorpe Rd E & Trafalgar Rd
Site Code:	2401100001
Municipality:	Oakville
Count Date:	Jan 17, 2024



Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection: Burnhamthorpe Rd E & Trafalgar Rd
Site Code: 2401100001
Municipality: Oakville
Count Date: Jan 17, 2024

Trafalgar Rd - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	3	683	24	0	710	0	23	559	39	0	621	0	1331
08:00 - 09:00	56	916	28	0	1000	0	59	729	90	0	878	1	1878
BREAK													
16:00 - 17:00	11	616	64	0	691	0	74	995	87	0	1156	2	1847
17:00 - 18:00	11	773	68	0	852	0	80	987	81	0	1148	0	2000
GRAND TOTAL	**81**	**2988**	**184**	**0**	**3253**	**0**	**236**	**3270**	**297**	**0**	**3803**	**3**	**7056**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection: Burnhamthorpe Rd E & Trafalgar Rd
Site Code: 2401100001
Municipality: Oakville
Count Date: Jan 17, 2024

Burnhamthorpe Rd E - Traffic Summary

	East Approach Totals						West Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	48	48	5	0	101	1	30	67	66	0	163	0	264
08:00 - 09:00	67	65	29	1	162	0	71	114	75	0	260	0	422
BREAK													
16:00 - 17:00	46	72	5	0	123	0	64	87	53	0	204	0	327
17:00 - 18:00	63	86	8	0	157	0	37	87	39	0	163	0	320
GRAND TOTAL	**224**	**271**	**47**	**1**	**543**	**1**	**202**	**355**	**233**	**0**	**790**	**0**	**1333**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Burnhamthorpe Rd E & Trafalgar Rd
Site Code: 2401100001
Municipality: Oakville
Count Date: Jan 17, 2024

North Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
07:00	1	118	1	0	120	0	8	1	0	9	0	0	0	0	0	0
07:15	1	129	10	0	140	0	6	2	0	8	0	0	0	0	0	0
07:30	1	186	5	0	192	0	8	2	0	10	0	0	0	0	0	0
07:45	0	221	3	0	224	0	7	0	0	7	0	0	0	0	0	0
08:00	9	198	6	0	213	0	9	0	0	9	0	0	0	0	0	0
08:15	16	235	5	0	256	0	7	0	0	7	0	0	0	0	0	0
08:30	18	228	8	0	254	0	7	0	0	7	0	0	0	0	0	0
08:45	13	226	9	0	248	0	6	0	0	6	0	0	0	0	0	0
SUBTOTAL	59	1541	47	0	1647	0	58	5	0	63	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Burnhamthorpe Rd E & Trafalgar Rd
Site Code: 2401100001
Municipality: Oakville
Count Date: Jan 17, 2024

North Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	1	138	16	0	155	0	4	4	0	8	0	0	0	0	0	0
16:15	4	146	13	0	163	1	6	3	0	10	0	0	0	0	0	0
16:30	3	156	13	0	172	0	2	3	0	5	0	0	0	0	0	0
16:45	2	161	12	0	175	0	3	0	0	3	0	0	0	0	0	0
17:00	2	176	19	0	197	0	4	0	0	4	0	0	0	0	0	0
17:15	6	192	13	0	211	0	7	0	0	7	0	0	0	0	0	0
17:30	2	177	13	0	192	0	6	0	0	6	0	0	0	0	0	0
17:45	1	209	22	0	232	0	2	1	0	3	0	0	0	0	0	0
SUBTOTAL	21	1355	121	0	1497	1	34	11	0	46	0	0	0	0	0	0
GRAND TOTAL	**80**	**2896**	**168**	**0**	**3144**	**1**	**92**	**16**	**0**	**109**	**0**	**0**	**0**	**0**	**0**	**0**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Burnhamthorpe Rd E & Trafalgar Rd
Site Code: 2401100001
Municipality: Oakville
Count Date: Jan 17, 2024

South Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	4	109	6	0	119	0	2	0	0	2	0	0	0	0	0	0
07:15	5	116	4	0	125	1	4	0	0	5	0	0	0	0	0	0
07:30	6	152	10	0	168	1	8	0	0	9	0	0	0	0	0	0
07:45	5	165	19	0	189	1	3	0	0	4	0	0	0	0	0	0
08:00	6	184	11	0	201	2	6	0	0	8	0	0	0	0	0	0
08:15	22	224	22	0	268	0	5	1	0	6	0	0	0	0	0	0
08:30	17	189	32	0	238	0	3	0	0	3	0	0	0	0	0	1
08:45	11	115	24	0	150	1	3	0	0	4	0	0	0	0	0	0
SUBTOTAL	76	1254	128	0	1458	6	34	1	0	41	0	0	0	0	0	1

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Burnhamthorpe Rd E & Trafalgar Rd
Site Code: 2401100001
Municipality: Oakville
Count Date: Jan 17, 2024

South Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	12	209	25	0	246	1	3	0	0	4	0	0	0	0	0	0
16:15	23	249	21	0	293	0	7	0	0	7	0	0	0	0	0	1
16:30	23	238	21	0	282	0	6	0	0	6	0	0	0	0	0	1
16:45	15	276	20	0	311	0	7	0	0	7	0	0	0	0	0	0
17:00	18	253	26	0	297	0	5	0	0	5	0	0	0	0	0	0
17:15	25	274	27	0	326	0	2	0	0	2	0	0	0	0	0	0
17:30	19	256	12	0	287	0	4	0	0	4	0	0	0	0	0	0
17:45	18	190	15	0	223	0	3	1	0	4	0	0	0	0	0	0
SUBTOTAL	153	1945	167	0	2265	1	37	1	0	39	0	0	0	0	0	2
GRAND TOTAL	**229**	**3199**	**295**	**0**	**3723**	**7**	**71**	**2**	**0**	**80**	**0**	**0**	**0**	**0**	**0**	**3**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Burnhamthorpe Rd E & Trafalgar Rd
Site Code: 2401100001
Municipality: Oakville
Count Date: Jan 17, 2024

East Approach - Burnhamthorpe Rd E

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	21	27	3	0	51	0	1	0	0	1	0	0	0	0	0	1
07:15	12	7	1	0	20	1	1	0	0	2	0	0	0	0	0	0
07:30	9	7	0	0	16	0	0	0	0	0	0	0	0	0	0	0
07:45	5	5	1	0	11	0	0	0	0	0	0	0	0	0	0	0
08:00	9	14	3	0	26	0	0	0	0	0	0	0	0	0	0	0
08:15	14	10	1	0	25	0	1	0	0	1	0	0	0	0	0	0
08:30	25	10	15	1	51	0	0	0	0	0	0	0	0	0	0	0
08:45	19	27	10	0	56	0	3	0	0	3	0	0	0	0	0	0
SUBTOTAL	114	107	34	1	256	1	6	0	0	7	0	0	0	0	0	1

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Burnhamthorpe Rd E & Trafalgar Rd
Site Code: 2401100001
Municipality: Oakville
Count Date: Jan 17, 2024

East Approach - Burnhamthorpe Rd E

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
16:00	13	17	2	0	32	0	0	1	0	1	0	0	0	0	0	0
16:15	9	16	0	0	25	0	0	0	0	0	0	0	0	0	0	0
16:30	9	20	1	0	30	0	1	0	0	1	0	0	0	0	0	0
16:45	15	18	1	0	34	0	0	0	0	0	0	0	0	0	0	0
17:00	17	16	2	0	35	0	0	0	0	0	0	0	0	0	0	0
17:15	8	24	1	0	33	0	0	0	0	0	0	0	0	0	0	0
17:30	26	25	5	0	56	0	0	0	0	0	0	0	0	0	0	0
17:45	12	21	0	0	33	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	109	157	12	0	278	0	1	1	0	2	0	0	0	0	0	0
GRAND TOTAL	**223**	**264**	**46**	**1**	**534**	**1**	**7**	**1**	**0**	**9**	**0**	**0**	**0**	**0**	**0**	**1**

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Burnhamthorpe Rd E & Trafalgar Rd
Site Code: 2401100001
Municipality: Oakville
Count Date: Jan 17, 2024

West Approach - Burnhamthorpe Rd E

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	2	9	8	0	19	0	0	3	0	3	0	0	0	0	0	0
07:15	8	14	15	0	37	0	0	2	0	2	0	0	0	0	0	0
07:30	6	13	13	0	32	1	0	3	0	4	0	0	0	0	0	0
07:45	11	31	22	0	64	2	0	0	0	2	0	0	0	0	0	0
08:00	17	22	13	0	52	0	0	1	0	1	0	0	0	0	0	0
08:15	16	29	17	0	62	0	0	0	0	0	0	0	0	0	0	0
08:30	22	31	29	0	82	0	1	0	0	1	0	0	0	0	0	0
08:45	16	31	15	0	62	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	98	180	132	0	410	3	1	9	0	13	0	0	0	0	0	0

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Burnhamthorpe Rd E & Trafalgar Rd
Site Code: 2401100001
Municipality: Oakville
Count Date: Jan 17, 2024

West Approach - Burnhamthorpe Rd E

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
16:00	9	20	6	0	35	6	0	2	0	8	0	0	0	0	0	0
16:15	10	23	14	0	47	6	1	0	0	7	0	0	0	0	0	0
16:30	11	20	15	0	46	4	1	0	0	5	0	0	0	0	0	0
16:45	15	21	16	0	52	3	1	0	0	4	0	0	0	0	0	0
17:00	5	25	8	0	38	0	0	0	0	0	0	0	0	0	0	0
17:15	12	18	14	0	44	0	1	0	0	1	0	0	0	0	0	0
17:30	9	19	8	0	36	0	0	0	0	0	0	0	0	0	0	0
17:45	11	24	9	0	44	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	82	170	90	0	342	19	4	2	0	25	0	0	0	0	0	0
GRAND TOTAL	**180**	**350**	**222**	**0**	**752**	**22**	**5**	**11**	**0**	**38**	**0**	**0**	**0**	**0**	**0**	**0**

Peak Hour Diagram

Specified Period
From: 07:00:00
To: 09:00:00

One Hour Peak
From: 08:00:00
To: 09:00:00

Intersection: Burnhamthorpe Rd E & Trafalgar Rd
Site Code: 2401100001
Count Date: Jan 17, 2024

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

North Approach

	Out	In	Total
Cars	971	812	1783
Trucks	29	17	46
Bicycles	0	0	0
	1000	**829**	**1829**

Trafalgar Rd

Bicycles	0	0	0	0
Trucks	0	29	0	0
Cars	28	887	56	0
Totals	**28**	**916**	**56**	**0**

Peds: 0

East Approach

	Out	In	Total
Cars	158	259	417
Trucks	4	2	6
Bicycles	0	0	0
	162	**261**	**423**

Burnhamthorpe Rd E

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	0	71	**71**
0	1	113	**114**
0	1	74	**75**

Peds: 0



Peds: 0

Burnhamthorpe Rd E

Totals	Cars	Trucks	Bicycles
1	1	0	0
29	29	0	0
65	61	4	0
67	67	0	0

Peds: 1

West Approach

	Out	In	Total
Cars	258	145	403
Trucks	2	7	9
Bicycles	0	0	0
	260	**152**	**412**

Totals	**59**	**729**	**90**	**0**
Cars	56	712	89	0
Trucks	3	17	1	0
Bicycles	0	0	0	0

Trafalgar Rd

South Approach

	Out	In	Total
Cars	857	1028	1885
Trucks	21	30	51
Bicycles	0	0	0
	878	**1058**	**1936**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Burnhamthorpe Rd E & Trafalgar Rd
Site Code: 2401100001
Count Date: Jan 17, 2024
Period: 07:00 - 09:00

Peak Hour Data (08:00 - 09:00)

Start Time	North Approach Trafalgar Rd						South Approach Trafalgar Rd						East Approach Burnhamthorpe Rd E						West Approach Burnhamthorpe Rd E						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
08:00	9	207	6	0	0	222	8	190	11	0	0	209	9	14	3	0	0	26	17	22	14	0	0	53	510
08:15	16	242	5	0	0	263	22	229	23	0	0	274	14	11	1	0	0	26	16	29	17	0	0	62	625
08:30	18	235	8	0	0	261	17	192	32	0	1	241	25	10	15	1	0	51	22	32	29	0	0	83	636
08:45	13	232	9	0	0	254	12	118	24	0	0	154	19	30	10	0	0	59	16	31	15	0	0	62	529
Grand Total	**56**	**916**	**28**	**0**	**0**	**1000**	**59**	**729**	**90**	**0**	**1**	**878**	**67**	**65**	**29**	**1**	**0**	**162**	**71**	**114**	**75**	**0**	**0**	**260**	**2300**
Approach %	5.6	91.6	2.8	0		-	6.7	83	10.3	0		-	41.4	40.1	17.9	0.6		-	27.3	43.8	28.8	0		-	
Totals %	2.4	39.8	1.2	0		43.5	2.6	31.7	3.9	0		38.2	2.9	2.8	1.3	0		7	3.1	5	3.3	0		11.3	
PHF	**0.78**	**0.95**	**0.78**	**0**		**0.95**	**0.67**	**0.8**	**0.7**	**0**		**0.8**	**0.67**	**0.54**	**0.48**	**0.25**		**0.69**	**0.81**	**0.89**	**0.65**	**0**		**0.78**	**0.9**
Cars	56	887	28	0		971	56	712	89	0		857	67	61	29	1		158	71	113	74	0		258	2244
% Cars	100	96.8	100	0		97.1	94.9	97.7	98.9	0		97.6	100	93.8	100	100		97.5	100	99.1	98.7	0		99.2	97.6
Trucks	0	29	0	0		29	3	17	1	0		21	0	4	0	0		4	0	1	1	0		2	56
% Trucks	0	3.2	0	0		2.9	5.1	2.3	1.1	0		2.4	0	6.2	0	0		2.5	0	0.9	1.3	0		0.8	2.4
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					0	-					1	-					0	-					0	-	1
% Peds					0	-					100	-					0	-					0	-	

Peak Hour Diagram

Specified Period
From: 16:00:00
To: 18:00:00

One Hour Peak
From: 16:45:00
To: 17:45:00

Intersection: Burnhamthorpe Rd E & Trafalgar Rd
Site Code: 2401100001
Count Date: Jan 17, 2024

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

North Approach

	Out	In	Total
Cars	775	1109	1884
Trucks	20	21	41
Bicycles	0	0	0
	795	**1130**	**1925**

Trafalgar Rd

Bicycles	0	0	0	0
Trucks	0	20	0	0
Cars	57	706	12	0
Totals	**57**	**726**	**12**	**0**

East Approach

	Out	In	Total
Cars	158	180	338
Trucks	0	2	2
Bicycles	0	0	0
	158	**182**	**340**

Peds: 0

Burnhamthorpe Rd E

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	3	41	**44**
0	2	83	**85**
0	0	46	**46**

Peds: 0



Peds: 0

Burnhamthorpe Rd E

Totals	Cars	Trucks	Bicycles
0	0	0	0
9	9	0	0
83	83	0	0
66	66	0	0

Peds: 0

West Approach

	Out	In	Total
Cars	170	217	387
Trucks	5	0	5
Bicycles	0	0	0
	175	**217**	**392**

Trafalgar Rd

Totals	**77**	**1077**	**85**	**0**
Cars	77	1059	85	0
Trucks	0	18	0	0
Bicycles	0	0	0	0

South Approach

	Out	In	Total
Cars	1221	818	2039
Trucks	18	20	38
Bicycles	0	0	0
	1239	**838**	**2077**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Burnhamthorpe Rd E & Trafalgar Rd
Site Code: 2401100001
Count Date: Jan 17, 2024
Period: 16:00 - 18:00

Peak Hour Data (16:45 - 17:45)

Start Time	North Approach Trafalgar Rd						South Approach Trafalgar Rd						East Approach Burnhamthorpe Rd E						West Approach Burnhamthorpe Rd E						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
16:45	2	164	12	0	0	178	15	283	20	0	0	318	15	18	1	0	0	34	18	22	16	0	0	56	586
17:00	2	180	19	0	0	201	18	258	26	0	0	302	17	16	2	0	0	35	5	25	8	0	0	38	576
17:15	6	199	13	0	0	218	25	276	27	0	0	328	8	24	1	0	0	33	12	19	14	0	0	45	624
17:30	2	183	13	0	0	198	19	260	12	0	0	291	26	25	5	0	0	56	9	19	8	0	0	36	581
Grand Total	**12**	**726**	**57**	**0**	**0**	**795**	**77**	**1077**	**85**	**0**	**0**	**1239**	**66**	**83**	**9**	**0**	**0**	**158**	**44**	**85**	**46**	**0**	**0**	**175**	**2367**
Approach %	1.5	91.3	7.2	0		-	6.2	86.9	6.9	0		-	41.8	52.5	5.7	0		-	25.1	48.6	26.3	0		-	
Totals %	0.5	30.7	2.4	0		33.6	3.3	45.5	3.6	0		52.3	2.8	3.5	0.4	0		6.7	1.9	3.6	1.9	0		7.4	
PHF	**0.5**	**0.91**	**0.75**	**0**		**0.91**	**0.77**	**0.95**	**0.79**	**0**		**0.94**	**0.63**	**0.83**	**0.45**	**0**		**0.71**	**0.61**	**0.85**	**0.72**	**0**		**0.78**	**0.95**
Cars	12	706	57	0		775	77	1059	85	0		1221	66	83	9	0		158	41	83	46	0		170	2324
% Cars	100	97.2	100	0		97.5	100	98.3	100	0		98.5	100	100	100	0		100	93.2	97.6	100	0		97.1	98.2
Trucks	0	20	0	0		20	0	18	0	0		18	0	0	0	0		0	3	2	0	0		5	43
% Trucks	0	2.8	0	0		2.5	0	1.7	0	0		1.5	0	0	0	0		0	6.8	2.4	0	0		2.9	1.8
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

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Project #24-011 - CGH Transportation

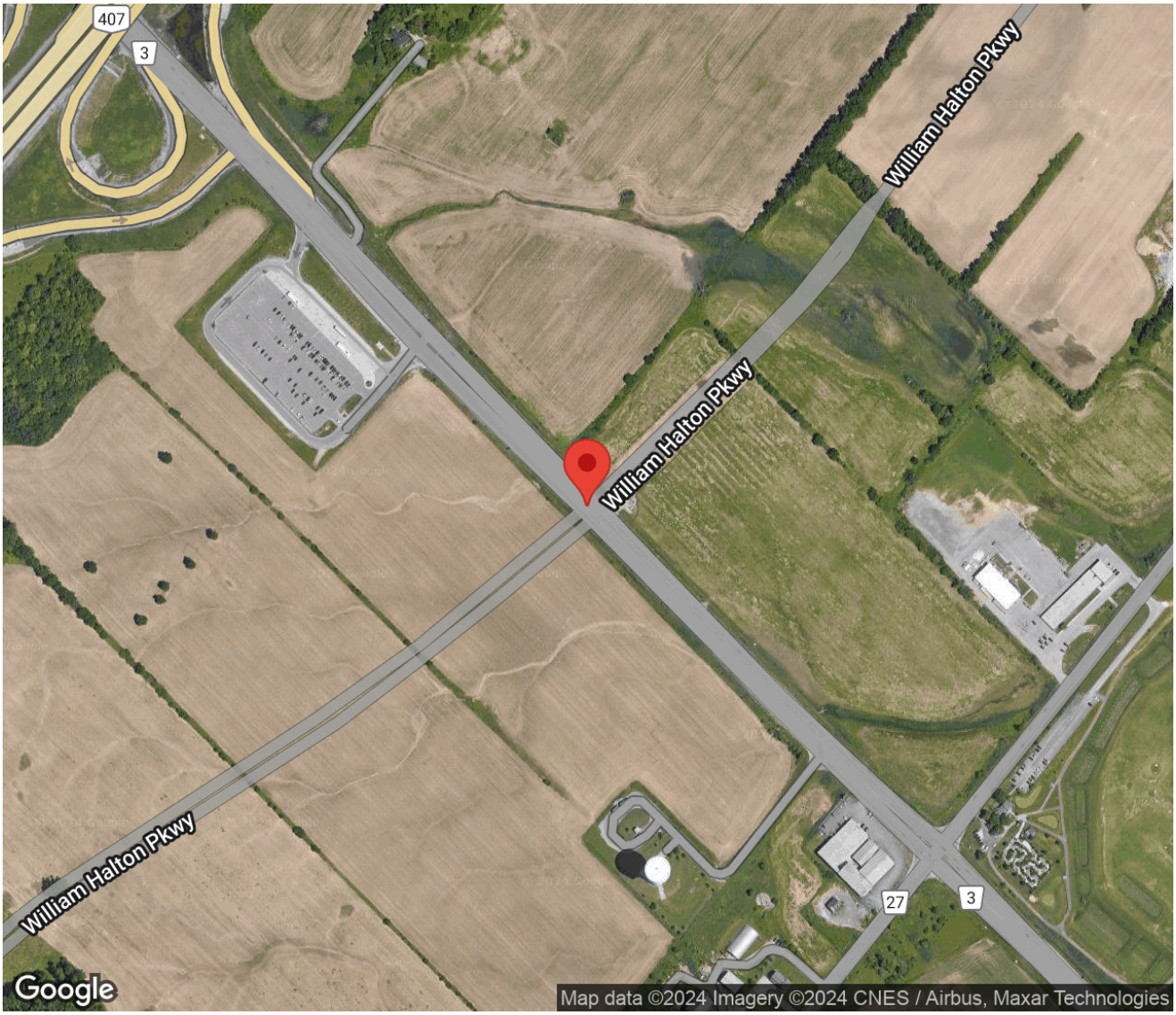
Intersection Count Report

Intersection:	William Halton Pkwy & Trafalgar Rd
Municipality:	Oakville
Count Date:	Wednesday, Jan 17, 2024
Site Code:	2401100002
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-09:00, 16:00-18:00
Weather:	Clear
Comments:	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Map

Intersection:	William Halton Pkwy & Trafalgar Rd
Site Code:	2401100002
Municipality:	Oakville
Count Date:	Jan 17, 2024



Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection: William Halton Pkwy & Trafalgar Rd
Site Code: 2401100002
Municipality: Oakville
Count Date: Jan 17, 2024

Trafalgar Rd - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	223	600	55	0	878	0	30	567	13	0	610	0	1488
08:00 - 09:00	216	807	83	1	1107	0	54	742	14	1	811	0	1918
BREAK													
16:00 - 17:00	127	612	118	1	858	0	80	973	14	0	1067	0	1925
17:00 - 18:00	115	735	128	0	978	0	81	930	19	0	1030	0	2008
GRAND TOTAL	**681**	**2754**	**384**	**2**	**3821**	**0**	**245**	**3212**	**60**	**1**	**3518**	**0**	**7339**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection: William Halton Pkwy & Trafalgar Rd
Site Code: 2401100002
Municipality: Oakville
Count Date: Jan 17, 2024

William Halton Pkwy - Traffic Summary

Hour	East Approach Totals (Includes Cars, Trucks, Bicycles)						West Approach Totals (Includes Cars, Trucks, Bicycles)						Total
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
07:00 - 08:00	18	85	111	0	214	0	130	347	103	0	580	0	794
08:00 - 09:00	19	169	94	0	282	0	125	523	166	0	814	0	1096
BREAK													
16:00 - 17:00	32	355	334	0	721	0	62	216	55	0	333	0	1054
17:00 - 18:00	43	345	408	1	797	0	91	206	67	0	364	0	1161
GRAND TOTAL	**112**	**954**	**947**	**1**	**2014**	**0**	**408**	**1292**	**391**	**0**	**2091**	**0**	**4105**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: William Halton Pkwy & Trafalgar Rd
Site Code: 2401100002
Municipality: Oakville
Count Date: Jan 17, 2024

North Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
07:00	41	110	5	0	156	1	7	0	0	8	0	0	0	0	0	0
07:15	50	117	14	0	181	2	7	0	0	9	0	0	0	0	0	0
07:30	65	153	20	0	238	4	11	0	0	15	0	0	0	0	0	0
07:45	59	189	16	0	264	1	6	0	0	7	0	0	0	0	0	0
08:00	48	165	19	0	232	2	10	0	0	12	0	0	0	0	0	0
08:15	56	206	18	1	281	1	6	0	0	7	0	0	0	0	0	0
08:30	60	214	27	0	301	3	5	0	0	8	0	0	0	0	0	0
08:45	44	193	19	0	256	2	8	0	0	10	0	0	0	0	0	0
SUBTOTAL	423	1347	138	1	1909	16	60	0	0	76	0	0	0	0	0	0

Ontario Traffic Inc.
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Traffic Count Data

Intersection: William Halton Pkwy & Trafalgar Rd
Site Code: 2401100002
Municipality: Oakville
Count Date: Jan 17, 2024

North Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	29	126	24	0	179	7	10	0	0	17	0	0	0	0	0	0
16:15	25	155	25	0	205	1	11	0	0	12	0	0	0	0	0	0
16:30	33	150	34	1	218	2	4	0	0	6	0	0	0	0	0	0
16:45	28	155	35	0	218	2	1	0	0	3	0	0	0	0	0	0
17:00	33	156	28	0	217	0	2	1	0	3	0	0	0	0	0	0
17:15	33	188	39	0	260	4	7	0	0	11	0	0	0	0	0	0
17:30	22	158	35	0	215	1	4	0	0	5	0	0	0	0	0	0
17:45	19	216	24	0	259	3	4	1	0	8	0	0	0	0	0	0
SUBTOTAL	222	1304	244	1	1771	20	43	2	0	65	0	0	0	0	0	0
GRAND TOTAL	645	2651	382	2	3680	36	103	2	0	141	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: William Halton Pkwy & Trafalgar Rd
Site Code: 2401100002
Municipality: Oakville
Count Date: Jan 17, 2024

South Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	9	98	4	0	111	0	0	0	0	0	0	0	0	0	0	0
07:15	5	126	3	0	134	0	4	0	0	4	0	0	0	0	0	0
07:30	7	141	3	0	151	0	9	0	0	9	0	0	0	0	0	0
07:45	9	183	3	0	195	0	6	0	0	6	0	0	0	0	0	0
08:00	12	191	0	0	203	0	5	0	0	5	0	0	0	0	0	0
08:15	13	214	8	0	235	1	5	1	0	7	0	0	0	0	0	0
08:30	20	194	2	0	216	0	3	0	0	3	0	0	0	0	0	0
08:45	8	127	3	1	139	0	3	0	0	3	0	0	0	0	0	0
SUBTOTAL	83	1274	26	1	1384	1	35	1	0	37	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: William Halton Pkwy & Trafalgar Rd
Site Code: 2401100002
Municipality: Oakville
Count Date: Jan 17, 2024

South Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	14	210	4	0	228	2	9	0	0	11	0	0	0	0	0	0
16:15	16	236	0	0	252	0	12	0	0	12	0	0	0	0	0	0
16:30	24	218	3	0	245	0	11	0	0	11	0	0	0	0	0	0
16:45	24	268	6	0	298	0	9	1	0	10	0	0	0	0	0	0
17:00	22	225	6	0	253	0	5	0	0	5	0	0	0	0	0	0
17:15	21	276	3	0	300	0	3	0	0	3	0	0	0	0	0	0
17:30	22	228	7	0	257	0	2	0	0	2	0	0	0	0	0	0
17:45	16	189	2	0	207	0	2	1	0	3	0	0	0	0	0	0
SUBTOTAL	159	1850	31	0	2040	2	53	2	0	57	0	0	0	0	0	0
GRAND TOTAL	**242**	**3124**	**57**	**1**	**3424**	**3**	**88**	**3**	**0**	**94**	**0**	**0**	**0**	**0**	**0**	**0**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: William Halton Pkwy & Trafalgar Rd
Site Code: 2401100002
Municipality: Oakville
Count Date: Jan 17, 2024

East Approach - William Halton Pkwy

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	2	12	20	0	34	2	0	7	0	9	0	0	0	0	0	0
07:15	3	20	23	0	46	1	0	7	0	8	0	0	0	0	0	0
07:30	7	36	26	0	69	0	0	3	0	3	0	0	0	0	0	0
07:45	3	16	21	0	40	0	1	4	0	5	0	0	0	0	0	0
08:00	5	37	18	0	60	0	0	3	0	3	0	0	0	0	0	0
08:15	5	46	22	0	73	0	2	2	0	4	0	0	0	0	0	0
08:30	2	43	23	0	68	0	0	0	0	0	0	0	0	0	0	0
08:45	7	40	25	0	72	0	1	1	0	2	0	0	0	0	0	0
SUBTOTAL	34	250	178	0	462	3	4	27	0	34	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: William Halton Pkwy & Trafalgar Rd
Site Code: 2401100002
Municipality: Oakville
Count Date: Jan 17, 2024

East Approach - William Halton Pkwy

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	6	86	81	0	173	1	2	6	0	9	0	0	0	0	0	0
16:15	8	63	58	0	129	0	0	0	0	0	0	0	0	0	0	0
16:30	7	72	79	0	158	0	1	1	0	2	0	0	0	0	0	0
16:45	9	131	107	0	247	1	0	2	0	3	0	0	0	0	0	0
17:00	12	81	107	0	200	1	0	3	0	4	0	0	0	0	0	0
17:15	10	82	125	1	218	0	0	0	0	0	0	0	0	0	0	0
17:30	12	116	96	0	224	0	0	0	0	0	0	0	0	0	0	0
17:45	8	65	77	0	150	0	1	0	0	1	0	0	0	0	0	0
SUBTOTAL	72	696	730	1	1499	3	4	12	0	19	0	0	0	0	0	0
GRAND TOTAL	**106**	**946**	**908**	**1**	**1961**	**6**	**8**	**39**	**0**	**53**	**0**	**0**	**0**	**0**	**0**	**0**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: William Halton Pkwy & Trafalgar Rd
Site Code: 2401100002
Municipality: Oakville
Count Date: Jan 17, 2024

West Approach - William Halton Pkwy

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	26	43	10	0	79	0	0	0	0	0	0	0	0	0	0	0
07:15	34	56	17	0	107	0	0	0	0	0	0	0	0	0	0	0
07:30	35	122	39	0	196	1	0	0	0	1	0	0	0	0	0	0
07:45	34	126	37	0	197	0	0	0	0	0	0	0	0	0	0	0
08:00	37	127	38	0	202	0	1	0	0	1	0	0	0	0	0	0
08:15	36	150	42	0	228	0	1	0	0	1	0	0	0	0	0	0
08:30	24	124	46	0	194	0	2	0	0	2	0	0	0	0	0	0
08:45	28	117	40	0	185	0	1	0	0	1	0	0	0	0	0	0
SUBTOTAL	254	865	269	0	1388	1	5	0	0	6	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: William Halton Pkwy & Trafalgar Rd
Site Code: 2401100002
Municipality: Oakville
Count Date: Jan 17, 2024

West Approach - William Halton Pkwy

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	16	44	12	0	72	0	1	0	0	1	0	0	0	0	0	0
16:15	15	60	11	0	86	1	2	0	0	3	0	0	0	0	0	0
16:30	16	63	14	0	93	0	1	0	0	1	0	0	0	0	0	0
16:45	14	44	18	0	76	0	1	0	0	1	0	0	0	0	0	0
17:00	29	48	20	0	97	1	1	0	0	2	0	0	0	0	0	0
17:15	25	50	21	0	96	0	1	0	0	1	0	0	0	0	0	0
17:30	19	60	9	0	88	0	0	0	0	0	0	0	0	0	0	0
17:45	17	45	17	0	79	0	1	0	0	1	0	0	0	0	0	0
SUBTOTAL	151	414	122	0	687	2	8	0	0	10	0	0	0	0	0	0
GRAND TOTAL	**405**	**1279**	**391**	**0**	**2075**	**3**	**13**	**0**	**0**	**16**	**0**	**0**	**0**	**0**	**0**	**0**

Peak Hour Diagram

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Specified Period		One Hour Peak	
From:	07:00:00	From:	07:45:00
To:	09:00:00	To:	08:45:00

Intersection: William Halton Pkwy & Trafalgar Rd
Site Code: 2401100002
Count Date: Jan 17, 2024

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

North Approach

	Out	In	Total
Cars	1078	998	2076
Trucks	34	28	62
Bicycles	0	0	0
	1112	**1026**	**2138**

Trafalgar Rd

Bicycles	0	0	0	0
Trucks	0	27	7	0
Cars	80	774	223	1
Totals	**80**	**801**	**230**	**1**

East Approach

	Out	In	Total
Cars	241	763	1004
Trucks	12	12	24
Bicycles	0	0	0
	253	**775**	**1028**

William Halton Pkwy

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	0	131	**131**
0	4	527	**531**
0	0	163	**163**

Peds: 0



Peds: 0

Peds: 0

William Halton Pkwy

	Totals	Cars	Trucks	Bicycles
	0	0	0	0
	93	84	9	0
	145	142	3	0
	15	15	0	0

West Approach

	Out	In	Total
Cars	821	276	1097
Trucks	4	4	8
Bicycles	0	0	0
	825	**280**	**1105**

Totals	**55**	**801**	**14**	**0**
Cars	54	782	13	0
Trucks	1	19	1	0
Bicycles	0	0	0	0

Trafalgar Rd

South Approach

	Out	In	Total
Cars	849	952	1801
Trucks	21	27	48
Bicycles	0	0	0
	870	**979**	**1849**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: William Halton Pkwy & Trafalgar Rd
Site Code: 2401100002
Count Date: Jan 17, 2024
Period: 07:00 - 09:00

Peak Hour Data (07:45 - 08:45)

Start Time	North Approach Trafalgar Rd						South Approach Trafalgar Rd						East Approach William Halton Pkwy						West Approach William Halton Pkwy						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
07:45	60	195	16	0	0	271	9	189	3	0	0	201	3	17	25	0	0	45	34	126	37	0	0	197	714
08:00	50	175	19	0	0	244	12	196	0	0	0	208	5	37	21	0	0	63	37	128	38	0	0	203	718
08:15	57	212	18	1	0	288	14	219	9	0	0	242	5	48	24	0	0	77	36	151	42	0	0	229	836
08:30	63	219	27	0	0	309	20	197	2	0	0	219	2	43	23	0	0	68	24	126	46	0	0	196	792
Grand Total	**230**	**801**	**80**	**1**	**0**	**1112**	**55**	**801**	**14**	**0**	**0**	**870**	**15**	**145**	**93**	**0**	**0**	**253**	**131**	**531**	**163**	**0**	**0**	**825**	**3060**
Approach %	20.7	72	7.2	0.1		-	6.3	92.1	1.6	0		-	5.9	57.3	36.8	0		-	15.9	64.4	19.8	0		-	
Totals %	7.5	26.2	2.6	0		36.3	1.8	26.2	0.5	0		28.4	0.5	4.7	3	0		8.3	4.3	17.4	5.3	0		27	
PHF	**0.91**	**0.91**	**0.74**	**0.25**		**0.9**	**0.69**	**0.91**	**0.39**	**0**		**0.9**	**0.75**	**0.76**	**0.93**	**0**		**0.82**	**0.89**	**0.88**	**0.89**	**0**		**0.9**	**0.92**
Cars	223	774	80	1		1078	54	782	13	0		849	15	142	84	0		241	131	527	163	0		821	2989
% Cars	97	96.6	100	100		96.9	98.2	97.6	92.9	0		97.6	100	97.9	90.3	0		95.3	100	99.2	100	0		99.5	97.7
Trucks	7	27	0	0		34	1	19	1	0		21	0	3	9	0		12	0	4	0	0		4	71
% Trucks	3	3.4	0	0		3.1	1.8	2.4	7.1	0		2.4	0	2.1	9.7	0		4.7	0	0.8	0	0		0.5	2.3
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Peak Hour Diagram

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Specified Period		One Hour Peak	
From:	16:00:00	From:	16:45:00
To:	18:00:00	To:	17:45:00

Intersection: William Halton Pkwy & Trafalgar Rd
Site Code: 2401100002
Count Date: Jan 17, 2024

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

North Approach

	Out	In	Total
Cars	910	1519	2429
Trucks	22	25	47
Bicycles	0	0	0
	932	**1544**	**2476**

Trafalgar Rd

Bicycles	0	0	0	0
Trucks	1	14	7	0
Cars	137	657	116	0
Totals	**138**	**671**	**123**	**0**

East Approach

	Out	In	Total
Cars	889	341	1230
Trucks	7	11	18
Bicycles	0	0	0
	896	**352**	**1248**

Peds: 0

William Halton Pkwy

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	1	87	**88**
0	3	202	**205**
0	0	68	**68**

Peds: 0



Peds: 0

William Halton Pkwy

Totals	Cars	Trucks	Bicycles
1	1	0	0
440	435	5	0
410	410	0	0
45	43	2	0

Peds: 0

West Approach

	Out	In	Total
Cars	357	636	993
Trucks	4	1	5
Bicycles	0	0	0
	361	**637**	**998**

Trafalgar Rd

Totals	**89**	**1016**	**23**	**0**
Cars	89	997	22	0
Trucks	0	19	1	0
Bicycles	0	0	0	0

South Approach

	Out	In	Total
Cars	1108	768	1876
Trucks	20	16	36
Bicycles	0	0	0
	1128	**784**	**1912**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: William Halton Pkwy & Trafalgar Rd
Site Code: 2401100002
Count Date: Jan 17, 2024
Period: 16:00 - 18:00

Peak Hour Data (16:45 - 17:45)

Start Time	North Approach Trafalgar Rd						South Approach Trafalgar Rd						East Approach William Halton Pkwy						West Approach William Halton Pkwy						Total Vehicles
	↰	↑	↱	↶	Peds	Total	↰	↑	↱	↶	Peds	Total	↰	↑	↱	↶	Peds	Total	↰	↑	↱	↶	Peds	Total	
16:45	30	156	35	0	0	221	24	277	7	0	0	308	10	131	109	0	0	250	14	45	18	0	0	77	856
17:00	33	158	29	0	0	220	22	230	6	0	0	258	13	81	110	0	0	204	30	49	20	0	0	99	781
17:15	37	195	39	0	0	271	21	279	3	0	0	303	10	82	125	1	0	218	25	51	21	0	0	97	889
17:30	23	162	35	0	0	220	22	230	7	0	0	259	12	116	96	0	0	224	19	60	9	0	0	88	791
Grand Total	**123**	**671**	**138**	**0**	**0**	**932**	**89**	**1016**	**23**	**0**	**0**	**1128**	**45**	**410**	**440**	**1**	**0**	**896**	**88**	**205**	**68**	**0**	**0**	**361**	**3317**
Approach %	13.2	72	14.8	0		-	7.9	90.1	2	0		-	5	45.8	49.1	0.1		-	24.4	56.8	18.8	0		-	
Totals %	3.7	20.2	4.2	0		28.1	2.7	30.6	0.7	0		34	1.4	12.4	13.3	0		27	2.7	6.2	2.1	0		10.9	
PHF	**0.83**	**0.86**	**0.88**	**0**		**0.86**	**0.93**	**0.91**	**0.82**	**0**		**0.92**	**0.87**	**0.78**	**0.88**	**0.25**		**0.9**	**0.73**	**0.85**	**0.81**	**0**		**0.91**	**0.93**
Cars	116	657	137	0		910	89	997	22	0		1108	43	410	435	1		889	87	202	68	0		357	3264
% Cars	94.3	97.9	99.3	0		97.6	100	98.1	95.7	0		98.2	95.6	100	98.9	100		99.2	98.9	98.5	100	0		98.9	98.4
Trucks	7	14	1	0		22	0	19	1	0		20	2	0	5	0		7	1	3	0	0		4	53
% Trucks	5.7	2.1	0.7	0		2.4	0	1.9	4.3	0		1.8	4.4	0	1.1	0		0.8	1.1	1.5	0	0		1.1	1.6
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Ontario Traffic Inc.
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Project #24-011 - CGH Transportation

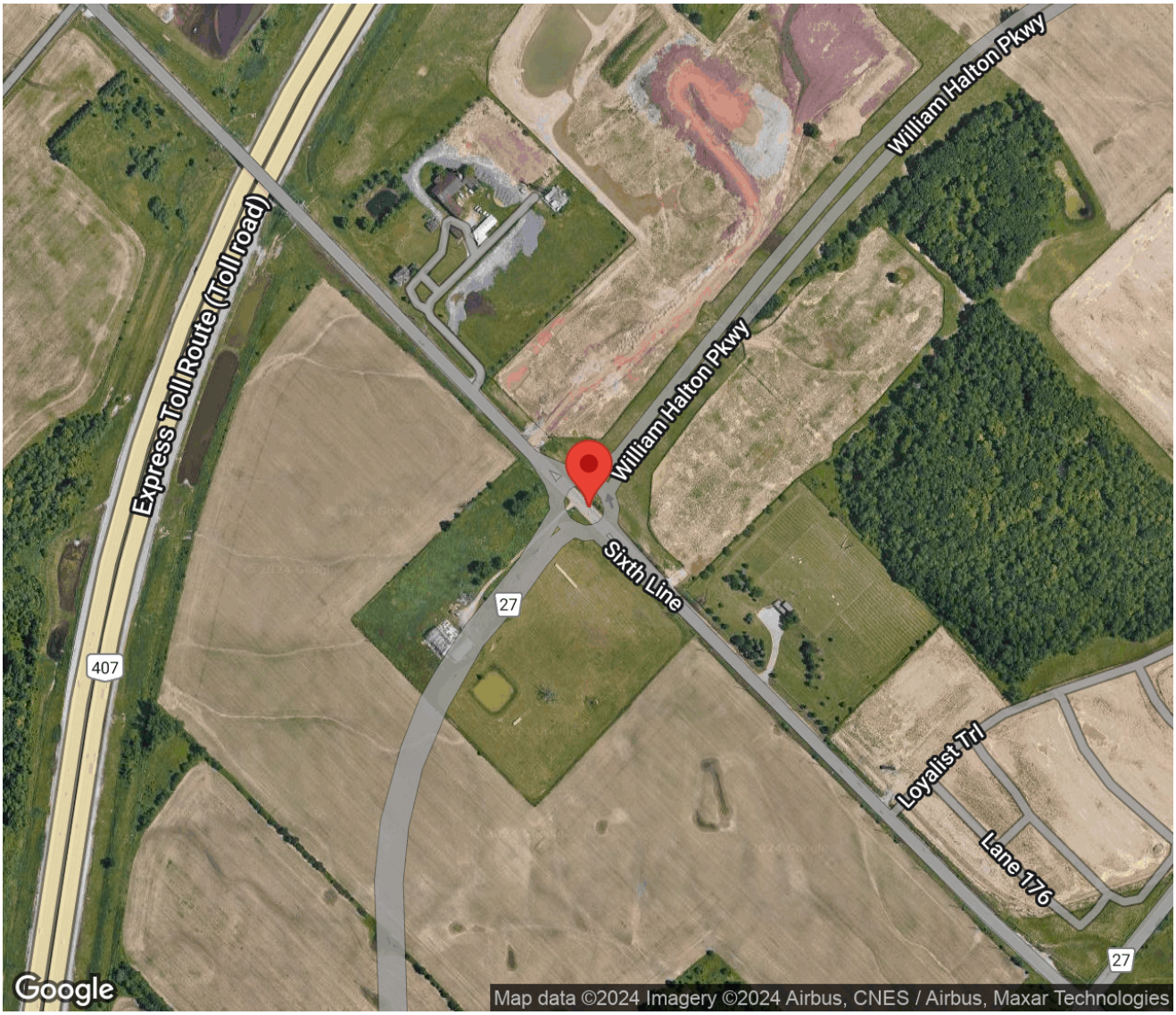
Intersection Count Report

Intersection:	William Halton Pkwy & Sixth Line
Municipality:	Oakville
Count Date:	Wednesday, Jan 17, 2024
Site Code:	2401100003
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-09:00, 16:00-18:00
Weather:	Clear
Comments:	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Map

Intersection:	William Halton Pkwy & Sixth Line
Site Code:	2401100003
Municipality:	Oakville
Count Date:	Jan 17, 2024



Ontario Traffic Inc.
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Traffic Count Summary

Intersection: William Halton Pkwy & Sixth Line
Site Code: 2401100003
Municipality: Oakville
Count Date: Jan 17, 2024

Sixth Line - Traffic Summary

Hour	North Approach Totals (Includes Cars, Trucks, Bicycles)						South Approach Totals (Includes Cars, Trucks, Bicycles)						Total
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
07:00 - 08:00	355	103	154	0	612	0	5	116	63	1	185	0	797
08:00 - 09:00	548	150	209	0	907	0	3	127	86	0	216	0	1123
BREAK													
16:00 - 17:00	169	154	159	0	482	0	8	144	43	0	195	0	677
17:00 - 18:00	175	176	164	0	515	0	3	151	55	0	209	0	724
GRAND TOTAL	**1247**	**583**	**686**	**0**	**2516**	**0**	**19**	**538**	**247**	**1**	**805**	**0**	**3321**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection: William Halton Pkwy & Sixth Line
Site Code: 2401100003
Municipality: Oakville
Count Date: Jan 17, 2024

William Halton Pkwy - Traffic Summary

Hour	East Approach Totals (Includes Cars, Trucks, Bicycles)						West Approach Totals (Includes Cars, Trucks, Bicycles)						Total
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
07:00 - 08:00	13	79	74	0	166	0	121	165	4	0	290	0	456
08:00 - 09:00	21	179	111	0	311	0	137	177	5	0	319	0	630
BREAK													
16:00 - 17:00	36	199	304	0	539	0	127	121	2	0	250	0	789
17:00 - 18:00	53	213	302	1	569	0	125	135	6	0	266	0	835
GRAND TOTAL	**123**	**670**	**791**	**1**	**1585**	**0**	**510**	**598**	**17**	**0**	**1125**	**0**	**2710**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: William Halton Pkwy & Sixth Line
Site Code: 2401100003
Municipality: Oakville
Count Date: Jan 17, 2024

North Approach - Sixth Line

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	40	14	29	0	83	0	0	0	0	0	0	0	0	0	0	0
07:15	68	18	27	0	113	0	0	0	0	0	0	0	0	0	0	0
07:30	115	36	34	0	185	0	2	1	0	3	0	0	0	0	0	0
07:45	132	33	63	0	228	0	0	0	0	0	0	0	0	0	0	0
08:00	132	40	44	0	216	1	0	0	0	1	0	0	0	0	0	0
08:15	147	29	65	0	241	0	0	4	0	4	0	0	0	0	0	0
08:30	146	34	51	0	231	0	2	0	0	2	0	0	0	0	0	0
08:45	121	44	45	0	210	1	1	0	0	2	0	0	0	0	0	0
SUBTOTAL	901	248	358	0	1507	2	5	5	0	12	0	0	0	0	0	0

Ontario Traffic Inc.
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Traffic Count Data

Intersection: William Halton Pkwy & Sixth Line
Site Code: 2401100003
Municipality: Oakville
Count Date: Jan 17, 2024

North Approach - Sixth Line

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	34	30	32	0	96	1	0	1	0	2	0	0	0	0	0	0
16:15	48	39	53	0	140	0	0	0	0	0	0	0	0	0	0	0
16:30	49	47	33	0	129	0	0	0	0	0	0	0	0	0	0	0
16:45	37	38	40	0	115	0	0	0	0	0	0	0	0	0	0	0
17:00	51	44	45	0	140	0	0	0	0	0	0	0	0	0	0	0
17:15	45	51	40	0	136	1	1	0	0	2	0	0	0	0	0	0
17:30	37	39	41	0	117	1	0	0	0	1	0	0	0	0	0	0
17:45	40	41	38	0	119	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	341	329	322	0	992	3	1	1	0	5	0	0	0	0	0	0
GRAND TOTAL	**1242**	**577**	**680**	**0**	**2499**	**5**	**6**	**6**	**0**	**17**	**0**	**0**	**0**	**0**	**0**	**0**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: William Halton Pkwy & Sixth Line
Site Code: 2401100003
Municipality: Oakville
Count Date: Jan 17, 2024

South Approach - Sixth Line

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	0	12	8	0	20	0	1	0	0	1	0	0	0	0	0	0
07:15	2	30	17	0	49	0	0	0	0	0	0	0	0	0	0	0
07:30	0	34	15	0	49	0	0	0	1	1	0	0	0	0	0	0
07:45	3	39	23	0	65	0	0	0	0	0	0	0	0	0	0	0
08:00	1	22	21	0	44	0	1	0	0	1	0	0	0	0	0	0
08:15	0	43	28	0	71	0	0	1	0	1	0	0	0	0	0	0
08:30	2	37	22	0	61	0	0	0	0	0	0	0	0	0	0	0
08:45	0	23	14	0	37	0	1	0	0	1	0	0	0	0	0	0
SUBTOTAL	8	240	148	0	396	0	3	1	1	5	0	0	0	0	0	0

Ontario Traffic Inc.
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Traffic Count Data

Intersection: William Halton Pkwy & Sixth Line
Site Code: 2401100003
Municipality: Oakville
Count Date: Jan 17, 2024

South Approach - Sixth Line

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	3	37	7	0	47	0	1	0	0	1	0	0	0	0	0	0
16:15	1	33	10	0	44	0	0	0	0	0	0	0	0	0	0	0
16:30	2	35	16	0	53	0	0	0	0	0	0	0	0	0	0	0
16:45	2	37	10	0	49	0	1	0	0	1	0	0	0	0	0	0
17:00	0	31	17	0	48	0	2	1	0	3	0	0	0	0	0	0
17:15	2	41	13	0	56	0	0	0	0	0	0	0	0	0	0	0
17:30	1	40	8	0	49	0	0	0	0	0	0	0	1	0	1	0
17:45	0	36	15	0	51	0	1	0	0	1	0	0	0	0	0	0
SUBTOTAL	11	290	96	0	397	0	5	1	0	6	0	0	1	0	1	0
GRAND TOTAL	**19**	**530**	**244**	**0**	**793**	**0**	**8**	**2**	**1**	**11**	**0**	**0**	**1**	**0**	**1**	**0**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: William Halton Pkwy & Sixth Line
Site Code: 2401100003
Municipality: Oakville
Count Date: Jan 17, 2024

East Approach - William Halton Pkwy

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	1	8	14	0	23	0	0	0	0	0	0	0	0	0	0	0
07:15	5	17	16	0	38	0	0	0	0	0	0	0	0	0	0	0
07:30	5	26	24	0	55	0	0	0	0	0	0	0	0	0	0	0
07:45	2	27	20	0	49	0	1	0	0	1	0	0	0	0	0	0
08:00	4	45	18	0	67	0	0	0	0	0	0	0	0	0	0	0
08:15	8	49	22	0	79	0	2	1	0	3	0	0	0	0	0	0
08:30	2	45	40	0	87	0	0	0	0	0	0	0	0	0	0	0
08:45	6	38	30	0	74	1	0	0	0	1	0	0	0	0	0	0
SUBTOTAL	33	255	184	0	472	1	3	1	0	5	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: William Halton Pkwy & Sixth Line
Site Code: 2401100003
Municipality: Oakville
Count Date: Jan 17, 2024

East Approach - William Halton Pkwy

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
16:00	8	49	69	0	126	0	0	3	0	3	0	0	0	0	0	0
16:15	5	43	67	0	115	0	1	0	0	1	0	0	0	0	0	0
16:30	6	50	60	0	116	0	0	1	0	1	0	0	0	0	0	0
16:45	17	56	104	0	177	0	0	0	0	0	0	0	0	0	0	0
17:00	13	45	86	0	144	0	1	0	0	1	0	0	0	0	0	0
17:15	14	55	66	0	135	0	0	0	0	0	0	0	0	0	0	0
17:30	15	70	87	0	172	0	0	0	0	0	0	0	0	0	0	0
17:45	11	41	62	1	115	0	1	1	0	2	0	0	0	0	0	0
SUBTOTAL	89	409	601	1	1100	0	3	5	0	8	0	0	0	0	0	0
GRAND TOTAL	**122**	**664**	**785**	**1**	**1572**	**1**	**6**	**6**	**0**	**13**	**0**	**0**	**0**	**0**	**0**	**0**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: William Halton Pkwy & Sixth Line
Site Code: 2401100003
Municipality: Oakville
Count Date: Jan 17, 2024

West Approach - William Halton Pkwy

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	27	32	0	0	59	0	0	0	0	0	0	0	0	0	0	0
07:15	26	31	1	0	58	0	0	0	0	0	0	0	0	0	0	0
07:30	33	50	0	0	83	0	1	0	0	1	0	0	0	0	0	0
07:45	35	51	3	0	89	0	0	0	0	0	0	0	0	0	0	0
08:00	43	49	1	0	93	0	0	0	0	0	0	0	0	0	0	0
08:15	40	57	0	0	97	1	0	0	0	1	0	0	0	0	0	0
08:30	27	32	2	0	61	0	2	0	0	2	0	0	0	0	0	0
08:45	25	37	2	0	64	1	0	0	0	1	0	0	0	0	0	0
SUBTOTAL	256	339	9	0	604	2	3	0	0	5	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: William Halton Pkwy & Sixth Line
Site Code: 2401100003
Municipality: Oakville
Count Date: Jan 17, 2024

West Approach - William Halton Pkwy

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	27	34	1	0	62	0	1	0	0	1	0	0	0	0	0	0
16:15	29	24	0	0	53	0	2	0	0	2	0	0	0	0	0	0
16:30	39	31	0	0	70	0	1	0	0	1	0	0	0	0	0	0
16:45	32	27	1	0	60	0	1	0	0	1	0	0	0	0	0	0
17:00	41	35	2	0	78	0	1	0	0	1	0	0	0	0	0	0
17:15	30	34	0	0	64	0	0	0	0	0	0	0	0	0	0	0
17:30	25	40	3	0	68	0	0	0	0	0	0	0	0	0	0	0
17:45	29	25	1	0	55	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	252	250	8	0	510	0	6	0	0	6	0	0	0	0	0	0
GRAND TOTAL	**508**	**589**	**17**	**0**	**1114**	**2**	**9**	**0**	**0**	**11**	**0**	**0**	**0**	**0**	**0**	**0**

Peak Hour Diagram

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Specified Period		One Hour Peak	
From:	07:00:00	From:	07:45:00
To:	09:00:00	To:	08:45:00

Intersection: William Halton Pkwy & Sixth Line
Site Code: 2401100003
Count Date: Jan 17, 2024

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Sixth Line runs N/S

North Approach

	Out	In	Total
Cars	916	386	1302
Trucks	7	3	10
Bicycles	0	0	0
	923	**389**	**1312**

Sixth Line

Bicycles	0	0	0	0
Trucks	4	2	1	0
Cars	223	136	557	0
Totals	**227**	**138**	**558**	**0**

Peds: 0

East Approach

	Out	In	Total
Cars	282	840	1122
Trucks	4	4	8
Bicycles	0	0	0
	286	**844**	**1130**

William Halton Pkwy

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	1	145	**146**
0	2	189	**191**
0	0	6	**6**

Peds: 0



Peds: 0

William Halton Pkwy

Totals	Cars	Trucks	Bicycles
0	0	0	0
101	100	1	0
169	166	3	0
16	16	0	0

Peds: 0

West Approach

	Out	In	Total
Cars	340	395	735
Trucks	3	7	10
Bicycles	0	0	0
	343	**402**	**745**

Sixth Line

Totals	**6**	**142**	**95**	**0**
Cars	6	141	94	0
Trucks	0	1	1	0
Bicycles	0	0	0	0

South Approach

	Out	In	Total
Cars	241	158	399
Trucks	2	2	4
Bicycles	0	0	0
	243	**160**	**403**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: William Halton Pkwy & Sixth Line
Site Code: 2401100003
Count Date: Jan 17, 2024
Period: 07:00 - 09:00

Peak Hour Data (07:45 - 08:45)

Start Time	North Approach Sixth Line						South Approach Sixth Line						East Approach William Halton Pkwy						West Approach William Halton Pkwy						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
07:45	132	33	63	0	0	228	3	39	23	0	0	65	2	28	20	0	0	50	35	51	3	0	0	89	432
08:00	133	40	44	0	0	217	1	23	21	0	0	45	4	45	18	0	0	67	43	49	1	0	0	93	422
08:15	147	29	69	0	0	245	0	43	29	0	0	72	8	51	23	0	0	82	41	57	0	0	0	98	497
08:30	146	36	51	0	0	233	2	37	22	0	0	61	2	45	40	0	0	87	27	34	2	0	0	63	444
Grand Total	**558**	**138**	**227**	**0**	**0**	**923**	**6**	**142**	**95**	**0**	**0**	**243**	**16**	**169**	**101**	**0**	**0**	**286**	**146**	**191**	**6**	**0**	**0**	**343**	**1795**
Approach %	60.5	15	24.6	0		-	2.5	58.4	39.1	0		-	5.6	59.1	35.3	0		-	42.6	55.7	1.7	0		-	
Totals %	31.1	7.7	12.6	0		51.4	0.3	7.9	5.3	0		13.5	0.9	9.4	5.6	0		15.9	8.1	10.6	0.3	0		19.1	
PHF	**0.95**	**0.86**	**0.82**	**0**		**0.94**	**0.5**	**0.83**	**0.82**	**0**		**0.84**	**0.5**	**0.83**	**0.63**	**0**		**0.82**	**0.85**	**0.84**	**0.5**	**0**		**0.88**	**0.9**
Cars	557	136	223	0		916	6	141	94	0		241	16	166	100	0		282	145	189	6	0		340	1779
% Cars	99.8	98.6	98.2	0		99.2	100	99.3	98.9	0		99.2	100	98.2	99	0		98.6	99.3	99	100	0		99.1	99.1
Trucks	1	2	4	0		7	0	1	1	0		2	0	3	1	0		4	1	2	0	0		3	16
% Trucks	0.2	1.4	1.8	0		0.8	0	0.7	1.1	0		0.8	0	1.8	1	0		1.4	0.7	1	0	0		0.9	0.9
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Peak Hour Diagram

Ontario Traffic Inc.
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Specified Period		One Hour Peak	
From:	16:00:00	From:	16:45:00
To:	18:00:00	To:	17:45:00

Intersection: William Halton Pkwy & Sixth Line
Site Code: 2401100003
Count Date: Jan 17, 2024

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Sixth Line runs N/S

North Approach

	Out	In	Total
Cars	508	620	1128
Trucks	3	3	6
Bicycles	0	0	0
	511	**623**	**1134**

Sixth Line

Bicycles	0	0	0	0
Trucks	0	1	2	0
Cars	166	172	170	0
Totals	**166**	**173**	**172**	**0**

Peds: 0

East Approach

	Out	In	Total
Cars	628	354	982
Trucks	1	5	6
Bicycles	0	1	1
	629	**360**	**989**

William Halton Pkwy

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	0	128	**128**
0	2	136	**138**
0	0	6	**6**

Peds: 0

N
W E
S

Peds: 0

William Halton Pkwy

Totals	Cars	Trucks	Bicycles
0	0	0	0
343	343	0	0
227	226	1	0
59	59	0	0

Peds: 0

West Approach

	Out	In	Total
Cars	270	397	667
Trucks	2	1	3
Bicycles	0	0	0
	272	**398**	**670**

Totals	**5**	**152**	**50**	**0**
Cars	5	149	48	0
Trucks	0	3	1	0
Bicycles	0	0	1	0

Sixth Line

South Approach

	Out	In	Total
Cars	202	237	439
Trucks	4	1	5
Bicycles	1	0	1
	207	**238**	**445**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: William Halton Pkwy & Sixth Line
Site Code: 2401100003
Count Date: Jan 17, 2024
Period: 16:00 - 18:00

Peak Hour Data (16:45 - 17:45)

Start Time	North Approach Sixth Line						South Approach Sixth Line						East Approach William Halton Pkwy						West Approach William Halton Pkwy						Total Vehicles
	↰	↑	↱	↶	Peds	Total	↰	↑	↱	↶	Peds	Total	↰	↑	↱	↶	Peds	Total	↰	↑	↱	↶	Peds	Total	
16:45	37	38	40	0	0	115	2	38	10	0	0	50	17	56	104	0	0	177	32	28	1	0	0	61	403
17:00	51	44	45	0	0	140	0	33	18	0	0	51	13	46	86	0	0	145	41	36	2	0	0	79	415
17:15	46	52	40	0	0	138	2	41	13	0	0	56	14	55	66	0	0	135	30	34	0	0	0	64	393
17:30	38	39	41	0	0	118	1	40	9	0	0	50	15	70	87	0	0	172	25	40	3	0	0	68	408
Grand Total	**172**	**173**	**166**	**0**	**0**	**511**	**5**	**152**	**50**	**0**	**0**	**207**	**59**	**227**	**343**	**0**	**0**	**629**	**128**	**138**	**6**	**0**	**0**	**272**	**1619**
Approach %	33.7	33.9	32.5	0		-	2.4	73.4	24.2	0		-	9.4	36.1	54.5	0		-	47.1	50.7	2.2	0		-	
Totals %	10.6	10.7	10.3	0		31.6	0.3	9.4	3.1	0		12.8	3.6	14	21.2	0		38.9	7.9	8.5	0.4	0		16.8	
PHF	**0.84**	**0.83**	**0.92**	**0**		**0.91**	**0.63**	**0.93**	**0.69**	**0**		**0.92**	**0.87**	**0.81**	**0.82**	**0**		**0.89**	**0.78**	**0.86**	**0.5**	**0**		**0.86**	**0.98**
Cars	170	172	166	0		508	5	149	48	0		202	59	226	343	0		628	128	136	6	0		270	1608
% Cars	98.8	99.4	100	0		99.4	100	98	96	0		97.6	100	99.6	100	0		99.8	100	98.6	100	0		99.3	99.3
Trucks	2	1	0	0		3	0	3	1	0		4	0	1	0	0		1	0	2	0	0		2	10
% Trucks	1.2	0.6	0	0		0.6	0	2	2	0		1.9	0	0.4	0	0		0.2	0	1.4	0	0		0.7	0.6
Bicycles	0	0	0	0		0	0	0	1	0		1	0	0	0	0		0	0	0	0	0		0	1
% Bicycles	0	0	0	0		0	0	0	2	0		0.5	0	0	0	0		0	0	0	0	0		0	0.1
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

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Project #24-011 - CGH Transportation

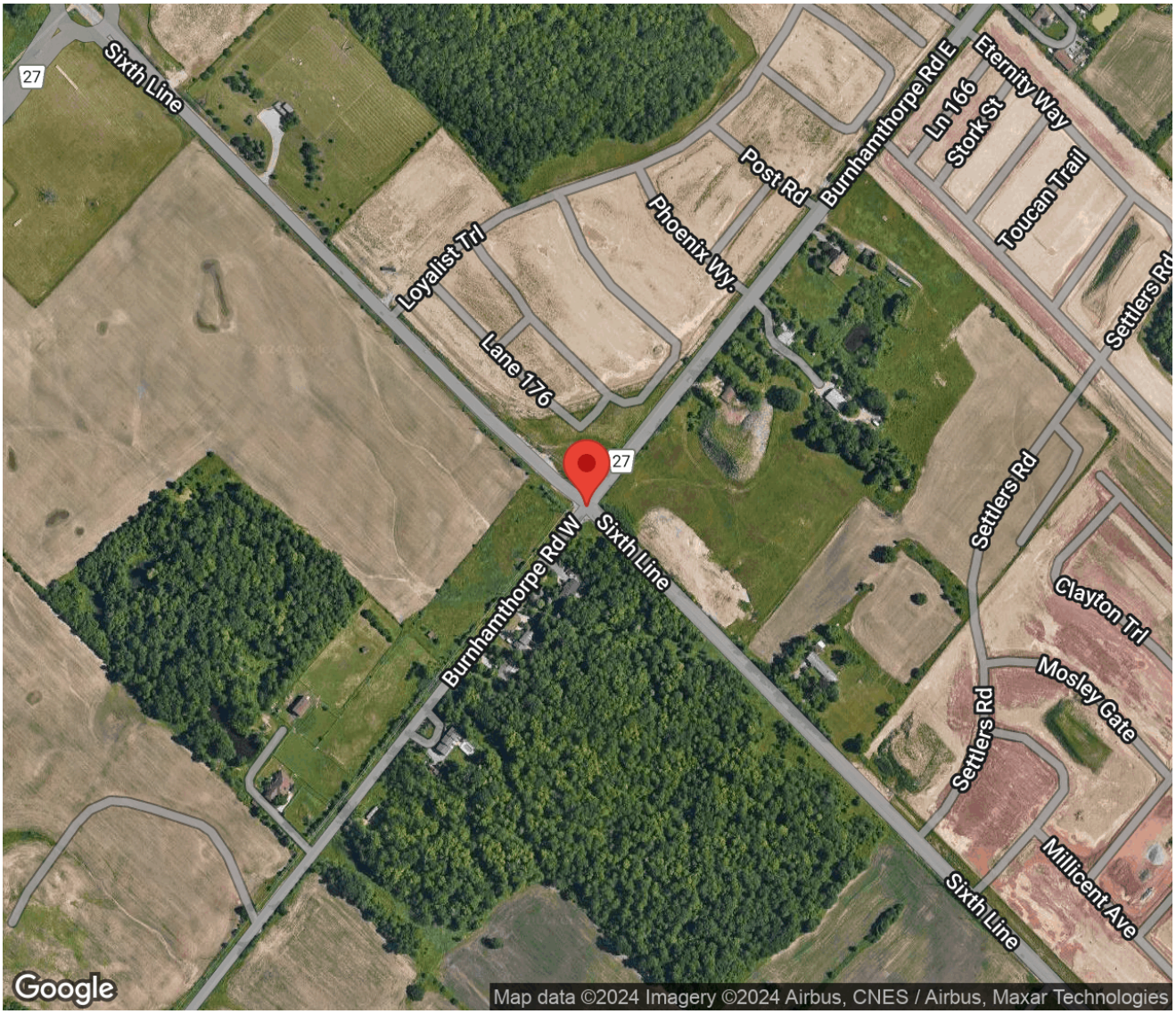
Intersection Count Report

Intersection:	Burnhamthorpe Rd & Sixth Line
Municipality:	Oakville
Count Date:	Wednesday, Jan 17, 2024
Site Code:	2401100004
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-09:00, 16:00-18:00
Weather:	Clear
Comments:	

Ontario Traffic Inc.
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Traffic Count Map

Intersection:	Burnhamthorpe Rd & Sixth Line
Site Code:	2401100004
Municipality:	Oakville
Count Date:	Jan 17, 2024



Ontario Traffic Inc.
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Traffic Count Summary

Intersection: Burnhamthorpe Rd & Sixth Line
Site Code: 2401100004
Municipality: Oakville
Count Date: Jan 17, 2024

Sixth Line - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	12	100	3	4	119	0	2	168	31	0	201	0	320
08:00 - 09:00	20	160	3	0	183	0	15	203	70	0	288	0	471
BREAK													
16:00 - 17:00	15	167	8	0	190	0	10	179	67	1	257	0	447
17:00 - 18:00	10	208	11	0	229	0	7	182	62	0	251	0	480
GRAND TOTAL	**57**	**635**	**25**	**4**	**721**	**0**	**34**	**732**	**230**	**1**	**997**	**0**	**1718**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection: Burnhamthorpe Rd & Sixth Line
Site Code: 2401100004
Municipality: Oakville
Count Date: Jan 17, 2024

Burnhamthorpe Rd - Traffic Summary

Hour	East Approach Totals (Includes Cars, Trucks, Bicycles)						West Approach Totals (Includes Cars, Trucks, Bicycles)						Total
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
07:00 - 08:00	36	23	5	3	67	0	2	14	2	0	18	0	85
08:00 - 09:00	45	54	9	3	111	0	2	32	12	0	46	0	157
BREAK													
16:00 - 17:00	43	45	18	0	106	0	6	18	3	0	27	0	133
17:00 - 18:00	57	39	21	0	117	0	4	16	9	0	29	0	146
GRAND TOTAL	**181**	**161**	**53**	**6**	**401**	**0**	**14**	**80**	**26**	**0**	**120**	**0**	**521**

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Burnhamthorpe Rd & Sixth Line
Site Code: 2401100004
Municipality: Oakville
Count Date: Jan 17, 2024

North Approach - Sixth Line

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
07:00	1	14	0	0	15	1	0	0	0	1	0	0	0	0	0	0
07:15	4	18	3	0	25	0	0	0	1	1	0	0	0	0	0	0
07:30	4	39	0	0	43	0	0	0	1	1	0	0	0	0	0	0
07:45	2	29	0	1	32	0	0	0	1	1	0	0	0	0	0	0
08:00	4	40	1	0	45	0	0	0	0	0	0	0	0	0	0	0
08:15	3	35	2	0	40	0	0	0	0	0	0	0	0	0	0	0
08:30	6	33	0	0	39	1	1	0	0	2	0	0	0	0	0	0
08:45	6	48	0	0	54	0	3	0	0	3	0	0	0	0	0	0
SUBTOTAL	30	256	6	1	293	2	4	0	3	9	0	0	0	0	0	0

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Burnhamthorpe Rd & Sixth Line
Site Code: 2401100004
Municipality: Oakville
Count Date: Jan 17, 2024

North Approach - Sixth Line

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	4	30	2	0	36	0	0	0	0	0	0	0	0	0	0	0
16:15	2	38	4	0	44	0	1	0	0	1	0	0	0	0	0	0
16:30	6	46	0	0	52	0	0	0	0	0	0	0	0	0	0	0
16:45	3	52	2	0	57	0	0	0	0	0	0	0	0	0	0	0
17:00	4	49	4	0	57	0	0	0	0	0	0	0	0	0	0	0
17:15	2	56	4	0	62	0	1	0	0	1	0	0	0	0	0	0
17:30	2	50	2	0	54	0	0	0	0	0	0	0	0	0	0	0
17:45	1	52	1	0	54	1	0	0	0	1	0	0	0	0	0	0
SUBTOTAL	24	373	19	0	416	1	2	0	0	3	0	0	0	0	0	0
GRAND TOTAL	**54**	**629**	**25**	**1**	**709**	**3**	**6**	**0**	**3**	**12**	**0**	**0**	**0**	**0**	**0**	**0**

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Burnhamthorpe Rd & Sixth Line
Site Code: 2401100004
Municipality: Oakville
Count Date: Jan 17, 2024

South Approach - Sixth Line

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
07:00	0	25	2	0	27	0	1	0	0	1	0	0	0	0	0	0
07:15	0	40	5	0	45	0	0	0	0	0	0	0	0	0	0	0
07:30	0	48	6	0	54	0	0	0	0	0	0	0	0	0	0	0
07:45	2	54	17	0	73	0	0	1	0	1	0	0	0	0	0	0
08:00	4	39	14	0	57	0	0	1	0	1	0	0	0	0	0	0
08:15	7	68	13	0	88	0	1	0	0	1	0	0	0	0	0	0
08:30	4	56	25	0	85	0	0	0	0	0	0	0	0	0	0	0
08:45	0	39	14	0	53	0	0	3	0	3	0	0	0	0	0	0
SUBTOTAL	17	369	96	0	482	0	2	5	0	7	0	0	0	0	0	0

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Burnhamthorpe Rd & Sixth Line
Site Code: 2401100004
Municipality: Oakville
Count Date: Jan 17, 2024

South Approach - Sixth Line

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	
16:00	6	44	9	0	59	0	0	1	0	1	0	0	0	0	0	0
16:15	0	46	17	0	63	0	1	1	0	2	0	0	0	0	0	0
16:30	4	43	19	0	66	0	0	1	0	1	0	0	0	0	0	0
16:45	0	45	19	1	65	0	0	0	0	0	0	0	0	0	0	0
17:00	1	44	18	0	63	0	1	0	0	1	0	0	0	0	0	0
17:15	2	45	15	0	62	0	0	1	0	1	0	0	0	0	0	0
17:30	3	44	11	0	58	0	0	0	0	0	0	0	0	0	0	0
17:45	1	47	17	0	65	0	1	0	0	1	0	0	0	0	0	0
SUBTOTAL	17	358	125	1	501	0	3	4	0	7	0	0	0	0	0	0
GRAND TOTAL	**34**	**727**	**221**	**1**	**983**	**0**	**5**	**9**	**0**	**14**	**0**	**0**	**0**	**0**	**0**	**0**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Burnhamthorpe Rd & Sixth Line
Site Code: 2401100004
Municipality: Oakville
Count Date: Jan 17, 2024

East Approach - Burnhamthorpe Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	8	8	1	0	17	2	1	0	0	3	0	0	0	0	0	0
07:15	7	2	1	0	10	3	1	0	1	5	0	0	0	0	0	0
07:30	7	2	1	0	10	1	3	0	1	5	0	0	0	0	0	0
07:45	7	5	2	0	14	1	1	0	1	3	0	0	0	0	0	0
08:00	10	6	1	0	17	0	0	1	1	2	0	0	0	0	0	0
08:15	10	13	6	0	29	2	2	0	1	5	0	0	0	0	0	0
08:30	9	19	0	0	28	0	0	0	1	1	0	0	0	0	0	0
08:45	13	14	1	0	28	1	0	0	0	1	0	0	0	0	0	0
SUBTOTAL	71	69	13	0	153	10	8	1	6	25	0	0	0	0	0	0

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Burnhamthorpe Rd & Sixth Line
Site Code: 2401100004
Municipality: Oakville
Count Date: Jan 17, 2024

East Approach - Burnhamthorpe Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
16:00	9	9	1	0	19	0	1	0	0	1	0	0	0	0	0	0
16:15	6	8	5	0	19	0	0	0	0	0	0	0	0	0	0	0
16:30	17	13	6	0	36	0	1	0	0	1	0	0	0	0	0	0
16:45	11	13	5	0	29	0	0	1	0	1	0	0	0	0	0	0
17:00	11	9	2	0	22	0	0	2	0	2	0	0	0	0	0	0
17:15	15	6	11	0	32	0	0	0	0	0	0	0	0	0	0	0
17:30	19	12	4	0	35	0	0	0	0	0	0	0	0	0	0	0
17:45	12	12	2	0	26	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	100	82	36	0	218	0	2	3	0	5	0	0	0	0	0	0
GRAND TOTAL	**171**	**151**	**49**	**0**	**371**	**10**	**10**	**4**	**6**	**30**	**0**	**0**	**0**	**0**	**0**	**0**

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Burnhamthorpe Rd & Sixth Line
Site Code: 2401100004
Municipality: Oakville
Count Date: Jan 17, 2024

West Approach - Burnhamthorpe Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
07:00	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0
07:15	2	3	1	0	6	0	0	0	0	0	0	0	0	0	0	0
07:30	0	5	0	0	5	0	1	0	0	1	0	0	0	0	0	0
07:45	0	2	1	0	3	0	0	0	0	0	0	0	0	0	0	0
08:00	0	4	1	0	5	0	0	0	0	0	0	0	0	0	0	0
08:15	1	4	4	0	9	0	0	0	0	0	0	0	0	0	0	0
08:30	1	16	4	0	21	0	0	0	0	0	0	0	0	0	0	0
08:45	0	8	3	0	11	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	4	45	14	0	63	0	1	0	0	1	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Burnhamthorpe Rd & Sixth Line
Site Code: 2401100004
Municipality: Oakville
Count Date: Jan 17, 2024

West Approach - Burnhamthorpe Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
16:00	2	4	1	0	7	0	0	0	0	0	0	0	0	0	0	0
16:15	0	7	1	0	8	0	2	0	0	2	0	0	0	0	0	0
16:30	3	2	1	0	6	0	0	0	0	0	0	0	0	0	0	0
16:45	1	3	0	0	4	0	0	0	0	0	0	0	0	0	0	0
17:00	1	4	4	0	9	0	0	0	0	0	0	0	0	0	0	0
17:15	2	8	3	0	13	0	0	0	0	0	0	0	0	0	0	0
17:30	1	1	1	0	3	0	0	0	0	0	0	0	0	0	0	0
17:45	0	3	1	0	4	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	10	32	12	0	54	0	2	0	0	2	0	0	0	0	0	0
GRAND TOTAL	**14**	**77**	**26**	**0**	**117**	**0**	**3**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**

Peak Hour Diagram

Specified Period
From: 07:00:00
To: 09:00:00

One Hour Peak
From: 08:00:00
To: 09:00:00

Intersection: Burnhamthorpe Rd & Sixth Line
Site Code: 2401100004
Count Date: Jan 17, 2024

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Sixth Line runs N/S

North Approach

	Out	In	Total
Cars	178	212	390
Trucks	5	2	7
Bicycles	0	0	0
	183	**214**	**397**

Sixth Line

Bicycles	0	0	0	0
Trucks	0	4	1	0
Cars	3	156	19	0
Totals	**3**	**160**	**20**	**0**

Peds: 0

East Approach

	Out	In	Total
Cars	102	117	219
Trucks	9	8	17
Bicycles	0	0	0
	111	**125**	**236**

Burnhamthorpe Rd

Bicycles	Trucks	Cars	Totals	
0	0	0	**0**	
0	0	2	**2**	
0	0	32	**32**	
0	0	12	**12**	

Peds: 0



Peds: 0

Burnhamthorpe Rd

	Totals	Cars	Trucks	Bicycles
	3	0	3	0
	9	8	1	0
	54	52	2	0
	45	42	3	0

Peds: 0

West Approach

	Out	In	Total
Cars	46	70	116
Trucks	0	2	2
Bicycles	0	0	0
	46	**72**	**118**

Sixth Line

Totals	**15**	**203**	**70**	**0**
Cars	15	202	66	0
Trucks	0	1	4	0
Bicycles	0	0	0	0

South Approach

	Out	In	Total
Cars	283	210	493
Trucks	5	7	12
Bicycles	0	0	0
	288	**217**	**505**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
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Peak Hour Summary

Intersection: Burnhamthorpe Rd & Sixth Line
Site Code: 2401100004
Count Date: Jan 17, 2024
Period: 07:00 - 09:00

Peak Hour Data (08:00 - 09:00)

Start Time	North Approach Sixth Line						South Approach Sixth Line						East Approach Burnhamthorpe Rd						West Approach Burnhamthorpe Rd						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
08:00	4	40	1	0	0	45	4	39	15	0	0	58	10	6	2	1	0	19	0	4	1	0	0	5	127
08:15	3	35	2	0	0	40	7	69	13	0	0	89	12	15	6	1	0	34	1	4	4	0	0	9	172
08:30	7	34	0	0	0	41	4	56	25	0	0	85	9	19	0	1	0	29	1	16	4	0	0	21	176
08:45	6	51	0	0	0	57	0	39	17	0	0	56	14	14	1	0	0	29	0	8	3	0	0	11	153
Grand Total	**20**	**160**	**3**	**0**	**0**	**183**	**15**	**203**	**70**	**0**	**0**	**288**	**45**	**54**	**9**	**3**	**0**	**111**	**2**	**32**	**12**	**0**	**0**	**46**	**628**
Approach %	10.9	87.4	1.6	0		-	5.2	70.5	24.3	0		-	40.5	48.6	8.1	2.7		-	4.3	69.6	26.1	0		-	
Totals %	3.2	25.5	0.5	0		29.1	2.4	32.3	11.1	0		45.9	7.2	8.6	1.4	0.5		17.7	0.3	5.1	1.9	0		7.3	
PHF	**0.71**	**0.78**	**0.38**	**0**		**0.8**	**0.54**	**0.74**	**0.7**	**0**		**0.81**	**0.8**	**0.71**	**0.38**	**0.75**		**0.82**	**0.5**	**0.5**	**0.75**	**0**		**0.55**	**0.89**
Cars	19	156	3	0		178	15	202	66	0		283	42	52	8	0		102	2	32	12	0		46	609
% Cars	95	97.5	100	0		97.3	100	99.5	94.3	0		98.3	93.3	96.3	88.9	0		91.9	100	100	100	0		100	97
Trucks	1	4	0	0		5	0	1	4	0		5	3	2	1	3		9	0	0	0	0		0	19
% Trucks	5	2.5	0	0		2.7	0	0.5	5.7	0		1.7	6.7	3.7	11.1	100		8.1	0	0	0	0		0	3
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

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Peak Hour Diagram

Specified Period		One Hour Peak	
From:	16:00:00	From:	16:30:00
To:	18:00:00	To:	17:30:00

Intersection: Burnhamthorpe Rd & Sixth Line
Site Code: 2401100004
Count Date: Jan 17, 2024

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Sixth Line runs N/S

North Approach

	Out	In	Total
Cars	228	208	436
Trucks	1	4	5
Bicycles	0	0	0
	229	**212**	**441**

Sixth Line

Bicycles	0	0	0	0
Trucks	0	1	0	0
Cars	10	203	15	0
Totals	**10**	**204**	**15**	**0**

East Approach

	Out	In	Total
Cars	119	103	222
Trucks	4	2	6
Bicycles	0	0	0
	123	**105**	**228**

Peds: 0

Burnhamthorpe Rd

Bicycles	Trucks	Cars	Totals	
0	0	0	**0**	
0	0	7	**7**	
0	0	17	**17**	
0	0	8	**8**	

Peds: 0



Peds: 0

Burnhamthorpe Rd

Totals	Cars	Trucks	Bicycles
0	0	0	0
27	24	3	0
42	41	1	0
54	54	0	0

Peds: 0

West Approach

	Out	In	Total
Cars	32	58	90
Trucks	0	1	1
Bicycles	0	0	0
	32	**59**	**91**

Sixth Line

Totals	**7**	**178**	**73**	**1**
Cars	7	177	71	1
Trucks	0	1	2	0
Bicycles	0	0	0	0

South Approach

	Out	In	Total
Cars	256	266	522
Trucks	3	1	4
Bicycles	0	0	0
	259	**267**	**526**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection:	Burnhamthorpe Rd & Sixth Line
Site Code:	2401100004
Count Date:	Jan 17, 2024
Period:	16:00 - 18:00

Peak Hour Data (16:30 - 17:30)

Start Time	North Approach Sixth Line						South Approach Sixth Line						East Approach Burnhamthorpe Rd						West Approach Burnhamthorpe Rd						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
16:30	6	46	0	0	0	52	4	43	20	0	0	67	17	14	6	0	0	37	3	2	1	0	0	6	162
16:45	3	52	2	0	0	57	0	45	19	1	0	65	11	13	6	0	0	30	1	3	0	0	0	4	156
17:00	4	49	4	0	0	57	1	45	18	0	0	64	11	9	4	0	0	24	1	4	4	0	0	9	154
17:15	2	57	4	0	0	63	2	45	16	0	0	63	15	6	11	0	0	32	2	8	3	0	0	13	171
Grand Total	**15**	**204**	**10**	**0**	**0**	**229**	**7**	**178**	**73**	**1**	**0**	**259**	**54**	**42**	**27**	**0**	**0**	**123**	**7**	**17**	**8**	**0**	**0**	**32**	**643**
Approach %	6.6	89.1	4.4	0		-	2.7	68.7	28.2	0.4		-	43.9	34.1	22	0		-	21.9	53.1	25	0		-	
Totals %	2.3	31.7	1.6	0		35.6	1.1	27.7	11.4	0.2		40.3	8.4	6.5	4.2	0		19.1	1.1	2.6	1.2	0		5	
PHF	**0.63**	**0.89**	**0.63**	**0**		**0.91**	**0.44**	**0.99**	**0.91**	**0.25**		**0.97**	**0.79**	**0.75**	**0.61**	**0**		**0.83**	**0.58**	**0.53**	**0.5**	**0**		**0.62**	**0.94**
Cars	15	203	10	0		228	7	177	71	1		256	54	41	24	0		119	7	17	8	0		32	635
% Cars	100	99.5	100	0		99.6	100	99.4	97.3	100		98.8	100	97.6	88.9	0		96.7	100	100	100	0		100	98.8
Trucks	0	1	0	0		1	0	1	2	0		3	0	1	3	0		4	0	0	0	0		0	8
% Trucks	0	0.5	0	0		0.4	0	0.6	2.7	0		1.2	0	2.4	11.1	0		3.3	0	0	0	0		0	1.2
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Ontario Traffic Inc.
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Project #24-011 - CGH Transportation

Intersection Count Report

Intersection:	Trafalgar Rd & Dundas St E
Municipality:	Oakville
Count Date:	Wednesday, Jan 17, 2024
Site Code:	2401100005
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-09:00, 16:00-18:00
Weather:	Clear
Comments:	

Ontario Traffic Inc.
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Traffic Count Map

Intersection:	Trafalgar Rd & Dundas St E
Site Code:	2401100005
Municipality:	Oakville
Count Date:	Jan 17, 2024



Ontario Traffic Inc.
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Traffic Count Summary

Intersection:	Trafalgar Rd & Dundas St E
Site Code:	2401100005
Municipality:	Oakville
Count Date:	Jan 17, 2024

Trafalgar Rd - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	131	541	117	0	789	4	65	341	48	2	456	12	1245
08:00 - 09:00	176	739	145	0	1060	4	161	486	93	2	742	2	1802
BREAK													
16:00 - 17:00	137	432	148	3	720	5	250	725	151	8	1134	17	1854
17:00 - 18:00	136	537	205	1	879	2	278	745	137	5	1165	10	2044
GRAND TOTAL	**580**	**2249**	**615**	**4**	**3448**	**15**	**754**	**2297**	**429**	**17**	**3497**	**41**	**6945**

Ontario Traffic Inc.
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Traffic Count Summary

Intersection:	Trafalgar Rd & Dundas St E
Site Code:	2401100005
Municipality:	Oakville
Count Date:	Jan 17, 2024

Dundas St E - Traffic Summary

	East Approach Totals						West Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	116	517	93	1	727	8	179	1426	164	1	1770	7	2497
08:00 - 09:00	153	732	134	2	1021	3	259	1678	203	3	2143	6	3164
BREAK													
16:00 - 17:00	219	1336	177	2	1734	4	243	1004	163	6	1416	12	3150
17:00 - 18:00	211	1313	170	0	1694	2	246	1025	172	10	1453	9	3147
GRAND TOTAL	**699**	**3898**	**574**	**5**	**5176**	**17**	**927**	**5133**	**702**	**20**	**6782**	**34**	**11958**

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Trafalgar Rd & Dundas St E
Site Code: 2401100005
Municipality: Oakville
Count Date: Jan 17, 2024

North Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	27	80	27	0	134	0	6	0	0	6	0	0	0	0	0	1
07:15	31	91	32	0	154	3	4	3	0	10	0	0	0	0	0	1
07:30	32	146	28	0	206	1	10	2	0	13	0	0	0	0	0	2
07:45	37	199	22	0	258	0	5	3	0	8	0	0	0	0	0	0
08:00	33	159	34	0	226	0	5	1	0	6	0	0	0	0	0	3
08:15	47	179	31	0	257	3	7	1	0	11	0	0	0	0	0	0
08:30	39	198	35	0	272	3	5	0	0	8	0	0	0	0	0	1
08:45	50	182	41	0	273	1	4	2	0	7	0	0	0	0	0	0
SUBTOTAL	296	1234	250	0	1780	11	46	12	0	69	0	0	0	0	0	8

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Trafalgar Rd & Dundas St E
Site Code: 2401100005
Municipality: Oakville
Count Date: Jan 17, 2024

North Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	30	95	32	0	157	4	2	4	0	10	0	0	0	0	0	0
16:15	30	100	36	0	166	1	5	0	0	6	0	0	0	0	0	2
16:30	42	117	34	1	194	0	2	0	0	2	0	0	0	0	0	1
16:45	28	111	41	2	182	2	0	1	0	3	0	0	0	0	0	2
17:00	34	133	51	0	218	0	3	0	0	3	0	0	0	0	0	1
17:15	32	115	49	0	196	3	1	0	0	4	0	0	0	0	0	1
17:30	27	146	45	0	218	2	5	0	0	7	0	0	0	0	0	0
17:45	38	134	58	1	231	0	0	2	0	2	0	0	0	0	0	0
SUBTOTAL	261	951	346	4	1562	12	18	7	0	37	0	0	0	0	0	7
GRAND TOTAL	**557**	**2185**	**596**	**4**	**3342**	**23**	**64**	**19**	**0**	**106**	**0**	**0**	**0**	**0**	**0**	**15**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Trafalgar Rd & Dundas St E
Site Code: 2401100005
Municipality: Oakville
Count Date: Jan 17, 2024

South Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	13	48	11	0	72	1	0	0	0	1	0	0	0	0	0	2
07:15	16	82	8	1	107	1	3	1	0	5	0	0	0	0	0	3
07:30	16	92	9	1	118	0	4	2	0	6	0	0	0	0	0	0
07:45	17	108	15	0	140	1	4	2	0	7	0	0	0	0	0	7
08:00	32	112	16	1	161	1	3	2	0	6	0	0	0	0	0	0
08:15	45	134	29	1	209	0	3	0	0	3	0	0	0	0	0	0
08:30	45	140	27	0	212	2	6	0	0	8	0	0	0	0	0	0
08:45	33	83	19	0	135	3	5	0	0	8	0	0	0	0	0	2
SUBTOTAL	217	799	134	4	1154	9	28	7	0	44	0	0	0	0	0	14

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Trafalgar Rd & Dundas St E
Site Code: 2401100005
Municipality: Oakville
Count Date: Jan 17, 2024

South Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	64	153	37	4	258	0	3	2	0	5	0	0	0	0	0	3
16:15	56	180	27	2	265	1	2	2	0	5	0	0	0	0	0	7
16:30	73	188	45	2	308	0	4	0	0	4	0	0	0	0	0	0
16:45	55	190	38	0	283	1	5	0	0	6	0	0	0	0	0	7
17:00	61	216	31	3	311	0	3	0	0	3	0	0	0	0	0	5
17:15	72	184	31	1	288	0	3	0	0	3	0	0	0	0	0	3
17:30	78	203	34	0	315	0	2	0	0	2	0	0	0	0	0	1
17:45	67	130	41	1	239	0	4	0	0	4	0	0	0	0	0	1
SUBTOTAL	526	1444	284	13	2267	2	26	4	0	32	0	0	0	0	0	27
GRAND TOTAL	**743**	**2243**	**418**	**17**	**3421**	**11**	**54**	**11**	**0**	**76**	**0**	**0**	**0**	**0**	**0**	**41**

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Trafalgar Rd & Dundas St E
Site Code: 2401100005
Municipality: Oakville
Count Date: Jan 17, 2024

East Approach - Dundas St E

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
07:00	19	123	33	0	175	0	7	0	0	7	0	0	0	0	0	1
07:15	25	114	17	0	156	3	15	1	0	19	0	0	0	0	0	3
07:30	26	114	18	1	159	2	13	1	0	16	0	0	0	0	0	2
07:45	40	123	22	0	185	1	8	1	0	10	0	0	0	0	0	2
08:00	32	157	37	0	226	1	18	2	0	21	0	0	0	0	0	3
08:15	31	162	49	1	243	3	14	2	0	19	0	0	0	0	0	0
08:30	43	168	30	0	241	2	9	1	0	12	0	0	0	0	0	0
08:45	40	194	12	1	247	1	10	1	0	12	0	0	0	0	0	0
SUBTOTAL	256	1155	218	3	1632	13	94	9	0	116	0	0	0	0	0	11

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Trafalgar Rd & Dundas St E
Site Code: 2401100005
Municipality: Oakville
Count Date: Jan 17, 2024

East Approach - Dundas St E

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	53	312	40	1	406	1	10	0	0	11	0	0	0	0	0	0
16:15	53	349	46	0	448	1	11	2	0	14	0	0	0	0	0	2
16:30	55	332	53	1	441	2	8	3	0	13	0	0	0	0	0	1
16:45	53	310	33	0	396	1	4	0	0	5	0	0	0	0	0	1
17:00	52	300	37	0	389	1	0	0	0	1	0	0	0	0	0	1
17:15	45	368	63	0	476	1	1	0	0	2	0	0	0	0	0	1
17:30	52	313	32	0	397	2	2	2	0	6	0	0	0	0	0	0
17:45	57	329	36	0	422	1	0	0	0	1	0	0	0	0	0	0
SUBTOTAL	420	2613	340	2	3375	10	36	7	0	53	0	0	0	0	0	6
GRAND TOTAL	**676**	**3768**	**558**	**5**	**5007**	**23**	**130**	**16**	**0**	**169**	**0**	**0**	**0**	**0**	**0**	**17**

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Trafalgar Rd & Dundas St E
Site Code: 2401100005
Municipality: Oakville
Count Date: Jan 17, 2024

West Approach - Dundas St E

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	43	292	31	0	366	0	5	0	0	5	0	0	0	0	0	0
07:15	30	297	29	0	356	0	12	1	0	13	0	0	0	0	0	1
07:30	49	387	51	1	488	0	7	2	0	9	0	0	0	0	0	1
07:45	57	422	50	0	529	0	4	0	0	4	0	0	0	0	0	5
08:00	70	404	48	2	524	3	3	2	0	8	0	0	0	0	0	1
08:15	67	417	54	0	538	0	11	2	0	13	0	0	0	0	0	0
08:30	62	390	40	1	493	1	8	2	0	11	0	0	0	0	0	0
08:45	55	437	55	0	547	1	8	0	0	9	0	0	0	0	0	5
SUBTOTAL	433	3046	358	4	3841	5	58	9	0	72	0	0	0	0	0	13

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Trafalgar Rd & Dundas St E
Site Code: 2401100005
Municipality: Oakville
Count Date: Jan 17, 2024

West Approach - Dundas St E

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	63	214	41	3	321	2	12	0	0	14	0	0	0	0	0	0
16:15	63	244	35	1	343	3	12	0	0	15	0	0	0	0	0	10
16:30	55	222	44	2	323	1	5	0	0	6	0	0	0	0	0	1
16:45	56	283	43	0	382	0	12	0	0	12	0	0	0	0	0	1
17:00	56	285	41	0	382	1	6	0	0	7	0	0	0	0	0	3
17:15	73	255	36	4	368	0	8	0	0	8	0	0	0	0	0	1
17:30	55	223	48	2	328	0	2	0	0	2	0	0	0	0	0	3
17:45	61	242	47	4	354	0	4	0	0	4	0	0	0	0	0	2
SUBTOTAL	482	1968	335	16	2801	7	61	0	0	68	0	0	0	0	0	21
GRAND TOTAL	**915**	**5014**	**693**	**20**	**6642**	**12**	**119**	**9**	**0**	**140**	**0**	**0**	**0**	**0**	**0**	**34**

Peak Hour Diagram

Specified Period
From: 07:00:00
To: 09:00:00

One Hour Peak
From: 08:00:00
To: 09:00:00

Intersection: Trafalgar Rd & Dundas St E
Site Code: 2401100005
Count Date: Jan 17, 2024

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Dundas St E runs E/W

North Approach

	Out	In	Total
Cars	1028	851	1879
Trucks	32	28	60
Bicycles	0	0	0
	1060	**879**	**1939**

Trafalgar Rd

Bicycles	0	0	0	0
Trucks	4	21	7	0
Cars	141	718	169	0
Totals	**145**	**739**	**176**	**0**

East Approach

	Out	In	Total
Cars	957	1910	2867
Trucks	64	39	103
Bicycles	0	0	0
	1021	**1949**	**2970**

Peds: 4

Dundas St E

Bicycles	Trucks	Cars	Totals
0	0	3	**3**
0	5	254	**259**
0	30	1648	**1678**
0	6	197	**203**

Peds: 6



Peds: 3

Dundas St E

Totals	Cars	Trucks	Bicycles
2	2	0	0
134	128	6	0
732	681	51	0
153	146	7	0

Peds: 2

West Approach

	Out	In	Total
Cars	2102	980	3082
Trucks	41	61	102
Bicycles	0	0	0
	2143	**1041**	**3184**

Trafalgar Rd

Totals	**161**	**486**	**93**	**2**
Cars	155	469	91	2
Trucks	6	17	2	0
Bicycles	0	0	0	0

South Approach

	Out	In	Total
Cars	717	1063	1780
Trucks	25	34	59
Bicycles	0	0	0
	742	**1097**	**1839**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Trafalgar Rd & Dundas St E
Site Code: 2401100005
Count Date: Jan 17, 2024
Period: 07:00 - 09:00

Peak Hour Data (08:00 - 09:00)

Start Time	North Approach Trafalgar Rd						South Approach Trafalgar Rd						East Approach Dundas St E						West Approach Dundas St E						Total Vehicles
	↰	↑	↱	↶	Peds	Total	↰	↑	↱	↶	Peds	Total	↰	↑	↱	↶	Peds	Total	↰	↑	↱	↶	Peds	Total	
08:00	33	164	35	0	3	232	33	115	18	1	0	167	33	175	39	0	3	247	73	407	50	2	1	532	1178
08:15	50	186	32	0	0	268	45	137	29	1	0	212	34	176	51	1	0	262	67	428	56	0	0	551	1293
08:30	42	203	35	0	1	280	47	146	27	0	0	220	45	177	31	0	0	253	63	398	42	1	0	504	1257
08:45	51	186	43	0	0	280	36	88	19	0	2	143	41	204	13	1	0	259	56	445	55	0	5	556	1238
Grand Total	**176**	**739**	**145**	**0**	**4**	**1060**	**161**	**486**	**93**	**2**	**2**	**742**	**153**	**732**	**134**	**2**	**3**	**1021**	**259**	**1678**	**203**	**3**	**6**	**2143**	**4966**
Approach %	16.6	69.7	13.7	0		-	21.7	65.5	12.5	0.3		-	15	71.7	13.1	0.2		-	12.1	78.3	9.5	0.1		-	
Totals %	3.5	14.9	2.9	0		21.3	3.2	9.8	1.9	0		14.9	3.1	14.7	2.7	0		20.6	5.2	33.8	4.1	0.1		43.2	
PHF	**0.86**	**0.91**	**0.84**	**0**		**0.95**	**0.86**	**0.83**	**0.8**	**0.5**		**0.84**	**0.85**	**0.9**	**0.66**	**0.5**		**0.97**	**0.89**	**0.94**	**0.91**	**0.38**		**0.96**	**0.96**
Cars	169	718	141	0		1028	155	469	91	2		717	146	681	128	2		957	254	1648	197	3		2102	4804
% Cars	96	97.2	97.2	0		97	96.3	96.5	97.8	100		96.6	95.4	93	95.5	100		93.7	98.1	98.2	97	100		98.1	96.7
Trucks	7	21	4	0		32	6	17	2	0		25	7	51	6	0		64	5	30	6	0		41	162
% Trucks	4	2.8	2.8	0		3	3.7	3.5	2.2	0		3.4	4.6	7	4.5	0		6.3	1.9	1.8	3	0		1.9	3.3
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					4	-					2	-					3	-					6	-	15
% Peds					26.7	-					13.3	-					20	-					40	-	

Ontario Traffic Inc.
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Peak Hour Diagram

Specified Period		One Hour Peak	
From:	16:00:00	From:	16:30:00
To:	18:00:00	To:	17:30:00

Intersection: Trafalgar Rd & Dundas St E
Site Code: 2401100005
Count Date: Jan 17, 2024

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Dundas St E runs E/W

North Approach

	Out	In	Total
Cars	790	1207	1997
Trucks	12	20	32
Bicycles	0	0	0
	802	**1227**	**2029**

Trafalgar Rd

Bicycles	0	0	0	0
Trucks	1	6	5	0
Cars	175	476	136	3
Totals	**176**	**482**	**141**	**3**

East Approach

	Out	In	Total
Cars	1702	1327	3029
Trucks	21	36	57
Bicycles	0	0	0
	1723	**1363**	**3086**

Peds: 5

Dundas St E

Bicycles	Trucks	Cars	Totals	
0	0	6	**6**	
0	2	240	**242**	
0	31	1045	**1076**	
0	0	164	**164**	

Peds: 6



Peds: 4

Dundas St E

	Totals	Cars	Trucks	Bicycles
	1	1	0	0
	189	186	3	0
	1323	1310	13	0
	210	205	5	0

Peds: 15

West Approach

	Out	In	Total
Cars	1455	1752	3207
Trucks	33	15	48
Bicycles	0	0	0
	1488	**1767**	**3255**

Totals	**262**	**793**	**145**	**6**
Cars	261	778	145	6
Trucks	1	15	0	0
Bicycles	0	0	0	0

Trafalgar Rd

South Approach

	Out	In	Total
Cars	1190	851	2041
Trucks	16	11	27
Bicycles	0	0	0
	1206	**862**	**2068**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Trafalgar Rd & Dundas St E
Site Code: 2401100005
Count Date: Jan 17, 2024
Period: 16:00 - 18:00

Peak Hour Data (16:30 - 17:30)

Start Time	North Approach Trafalgar Rd						South Approach Trafalgar Rd						East Approach Dundas St E						West Approach Dundas St E						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
16:30	42	119	34	1	1	196	73	192	45	2	0	312	57	340	56	1	1	454	56	227	44	2	1	329	1291
16:45	30	111	42	2	2	185	56	195	38	0	7	289	54	314	33	0	1	401	56	295	43	0	1	394	1269
17:00	34	136	51	0	1	221	61	219	31	3	5	314	53	300	37	0	1	390	57	291	41	0	3	389	1314
17:15	35	116	49	0	1	200	72	187	31	1	3	291	46	369	63	0	1	478	73	263	36	4	1	376	1345
Grand Total	**141**	**482**	**176**	**3**	**5**	**802**	**262**	**793**	**145**	**6**	**15**	**1206**	**210**	**1323**	**189**	**1**	**4**	**1723**	**242**	**1076**	**164**	**6**	**6**	**1488**	**5219**
Approach %	17.6	60.1	21.9	0.4		-	21.7	65.8	12	0.5		-	12.2	76.8	11	0.1		-	16.3	72.3	11	0.4		-	
Totals %	2.7	9.2	3.4	0.1		15.4	5	15.2	2.8	0.1		23.1	4	25.3	3.6	0		33	4.6	20.6	3.1	0.1		28.5	
PHF	**0.84**	**0.89**	**0.86**	**0.38**		**0.91**	**0.9**	**0.91**	**0.81**	**0.5**		**0.96**	**0.92**	**0.9**	**0.75**	**0.25**		**0.9**	**0.83**	**0.91**	**0.93**	**0.38**		**0.94**	**0.97**
Cars	136	476	175	3		790	261	778	145	6		1190	205	1310	186	1		1702	240	1045	164	6		1455	5137
% Cars	96.5	98.8	99.4	100		98.5	99.6	98.1	100	100		98.7	97.6	99	98.4	100		98.8	99.2	97.1	100	100		97.8	98.4
Trucks	5	6	1	0		12	1	15	0	0		16	5	13	3	0		21	2	31	0	0		33	82
% Trucks	3.5	1.2	0.6	0		1.5	0.4	1.9	0	0		1.3	2.4	1	1.6	0		1.2	0.8	2.9	0	0		2.2	1.6
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					5	-					15	-					4	-					6	-	30
% Peds					16.7	-					50	-					13.3	-					20	-	

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Project #24-011 - CGH Transportation

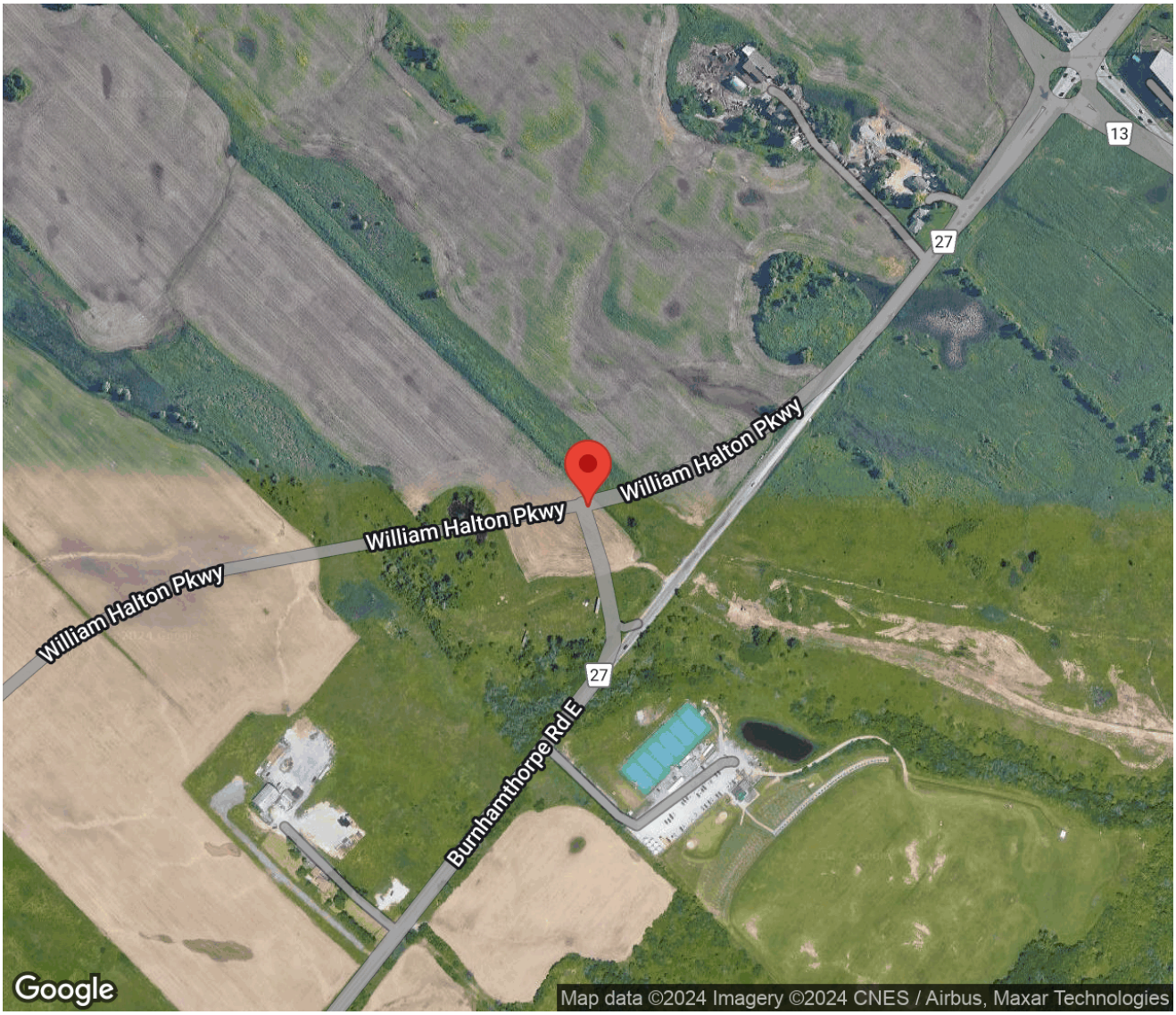
Intersection Count Report

Intersection:	William Halton Pkwy & Burnhamthorpe Rd
Municipality:	Oakville
Count Date:	Wednesday, Jan 17, 2024
Site Code:	2401100006
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-09:00, 16:00-18:00
Weather:	Clear
Comments:	

Ontario Traffic Inc.
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Traffic Count Map

Intersection:	William Halton Pkwy & Burnhamthorpe Rd
Site Code:	2401100006
Municipality:	Oakville
Count Date:	Jan 17, 2024



Ontario Traffic Inc.
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Traffic Count Summary

Intersection: William Halton Pkwy & Burnhamthorpe Rd
Site Code: 2401100006
Municipality: Oakville
Count Date: Jan 17, 2024

Burnhamthorpe Rd - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	0	0	0	0	0	0	0	0	103	0	103	0	103
08:00 - 09:00	0	0	0	0	0	0	0	0	198	0	198	0	198
BREAK													
16:00 - 17:00	0	0	0	0	0	0	0	0	173	0	173	0	173
17:00 - 18:00	0	0	0	0	0	0	0	0	173	0	173	0	173
GRAND TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**647**	**0**	**647**	**0**	**647**

Ontario Traffic Inc.
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Traffic Count Summary

Intersection: William Halton Pkwy & Burnhamthorpe Rd
Site Code: 2401100006
Municipality: Oakville
Count Date: Jan 17, 2024

William Halton Pkwy - Traffic Summary

Hour	East Approach Totals (Includes Cars, Trucks, Bicycles)						West Approach Totals (Includes Cars, Trucks, Bicycles)						Total
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
07:00 - 08:00	48	218	0	0	266	0	0	586	0	0	586	0	852
08:00 - 09:00	124	277	0	0	401	0	0	752	1	0	753	0	1154
BREAK													
16:00 - 17:00	114	712	0	0	826	0	0	363	1	0	364	0	1190
17:00 - 18:00	140	809	0	0	949	0	0	338	1	0	339	0	1288
GRAND TOTAL	**426**	**2016**	**0**	**0**	**2442**	**0**	**0**	**2039**	**3**	**0**	**2042**	**0**	**4484**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: William Halton Pkwy & Burnhamthorpe Rd
Site Code: 2401100006
Municipality: Oakville
Count Date: Jan 17, 2024

South Approach - Burnhamthorpe Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	0	0	19	0	19	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	15	0	15	0	0	0	0	0	0	0	0	0	0	0
07:30	0	0	27	0	27	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	42	0	42	0	0	0	0	0	0	0	0	0	0	0
08:00	0	0	37	0	37	0	0	0	0	0	0	0	0	0	0	0
08:15	0	0	45	0	45	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	61	0	61	0	0	1	0	1	0	0	0	0	0	0
08:45	0	0	53	0	53	0	0	1	0	1	0	0	0	0	0	0
SUBTOTAL	0	0	299	0	299	0	0	2	0	2	0	0	0	0	0	0

Ontario Traffic Inc.
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Traffic Count Data

Intersection: William Halton Pkwy & Burnhamthorpe Rd
Site Code: 2401100006
Municipality: Oakville
Count Date: Jan 17, 2024

South Approach - Burnhamthorpe Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
16:00	0	0	46	0	46	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	40	0	40	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	49	0	49	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	37	0	37	0	0	1	0	1	0	0	0	0	0	0
17:00	0	0	28	0	28	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	45	0	45	0	0	1	0	1	0	0	0	0	0	0
17:30	0	0	57	0	57	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	41	0	41	0	0	1	0	1	0	0	0	0	0	0
SUBTOTAL	0	0	343	0	343	0	0	3	0	3	0	0	0	0	0	0
GRAND TOTAL	0	0	642	0	642	0	0	5	0	5	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: William Halton Pkwy & Burnhamthorpe Rd
Site Code: 2401100006
Municipality: Oakville
Count Date: Jan 17, 2024

East Approach - William Halton Pkwy

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	10	39	0	0	49	2	9	0	0	11	0	0	0	0	0	0
07:15	11	53	0	0	64	0	8	0	0	8	0	0	0	0	0	0
07:30	13	57	0	0	70	0	3	0	0	3	0	0	0	0	0	0
07:45	12	43	0	0	55	0	6	0	0	6	0	0	0	0	0	0
08:00	20	61	0	0	81	2	2	0	0	4	0	0	0	0	0	0
08:15	21	71	0	0	92	1	4	0	0	5	0	0	0	0	0	0
08:30	38	70	0	0	108	0	0	0	0	0	0	0	0	0	0	0
08:45	40	66	0	0	106	2	3	0	0	5	0	0	0	0	0	0
SUBTOTAL	165	460	0	0	625	7	35	0	0	42	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: William Halton Pkwy & Burnhamthorpe Rd
Site Code: 2401100006
Municipality: Oakville
Count Date: Jan 17, 2024

East Approach - William Halton Pkwy

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
16:00	26	174	0	0	200	2	10	0	0	12	0	0	0	0	0	0
16:15	29	125	0	0	154	1	0	0	0	1	0	0	0	0	0	0
16:30	29	163	0	0	192	0	2	0	0	2	0	0	0	0	0	0
16:45	27	235	0	0	262	0	3	0	0	3	0	0	0	0	0	0
17:00	32	213	0	0	245	1	4	0	0	5	0	0	0	0	0	0
17:15	42	220	0	0	262	0	0	0	0	0	0	0	0	0	0	0
17:30	32	214	0	0	246	0	0	0	0	0	0	0	0	0	0	0
17:45	33	158	0	0	191	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	250	1502	0	0	1752	4	19	0	0	23	0	0	0	0	0	0
GRAND TOTAL	**415**	**1962**	**0**	**0**	**2377**	**11**	**54**	**0**	**0**	**65**	**0**	**0**	**0**	**0**	**0**	**0**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: William Halton Pkwy & Burnhamthorpe Rd
Site Code: 2401100006
Municipality: Oakville
Count Date: Jan 17, 2024

West Approach - William Halton Pkwy

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	0	86	0	0	86	0	2	0	0	2	0	0	0	0	0	0
07:15	0	110	0	0	110	0	1	0	0	1	0	0	0	0	0	0
07:30	0	188	0	0	188	0	4	0	0	4	0	0	0	0	0	0
07:45	0	193	0	0	193	0	2	0	0	2	0	0	0	0	0	0
08:00	0	181	0	0	181	0	2	0	0	2	0	0	0	0	0	0
08:15	0	198	0	0	198	0	2	0	0	2	0	0	0	0	0	0
08:30	0	193	0	0	193	0	5	0	0	5	0	0	0	0	0	0
08:45	0	169	1	0	170	0	2	0	0	2	0	0	0	0	0	0
SUBTOTAL	0	1318	1	0	1319	0	20	0	0	20	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: William Halton Pkwy & Burnhamthorpe Rd
Site Code: 2401100006
Municipality: Oakville
Count Date: Jan 17, 2024

West Approach - William Halton Pkwy

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	
16:00	0	73	0	0	73	0	7	0	0	7	0	0	0	0	0	0
16:15	0	91	0	0	91	0	5	0	0	5	0	0	0	0	0	0
16:30	0	89	1	0	90	0	1	0	0	1	0	0	0	0	0	0
16:45	0	91	0	0	91	0	6	0	0	6	0	0	0	0	0	0
17:00	0	78	0	0	78	0	2	0	0	2	0	0	0	0	0	0
17:15	0	92	1	0	93	0	4	0	0	4	0	0	0	0	0	0
17:30	0	80	0	0	80	0	2	0	0	2	0	0	0	0	0	0
17:45	0	76	0	0	76	0	4	0	0	4	0	0	0	0	0	0
SUBTOTAL	0	670	2	0	672	0	31	0	0	31	0	0	0	0	0	0
GRAND TOTAL	**0**	**1988**	**3**	**0**	**1991**	**0**	**51**	**0**	**0**	**51**	**0**	**0**	**0**	**0**	**0**	**0**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period		One Hour Peak	
From:	07:00:00	From:	08:00:00
To:	09:00:00	To:	09:00:00

Intersection: William Halton Pkwy & Burnhamthorpe Rd
Site Code: 2401100006
Count Date: Jan 17, 2024

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: William Halton Pkwy runs E/W

East Approach

	Out	In	Total
Cars	387	937	1324
Trucks	14	13	27
Bicycles	0	0	0
	401	**950**	**1351**

William Halton Pkwy

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	11	741	**752**
0	0	1	**1**

Peds: 0

Peds: 0

Peds: 0



William Halton Pkwy

Totals	Cars	Trucks	Bicycles
0	0	0	0
277	268	9	0
124	119	5	0

West Approach

	Out	In	Total
Cars	742	268	1010
Trucks	11	9	20
Bicycles	0	0	0
	753	**277**	**1030**

Totals	0	198	0
Cars	0	196	0
Trucks	0	2	0
Bicycles	0	0	0

Burnhamthorpe Rd

South Approach

	Out	In	Total
Cars	196	120	316
Trucks	2	5	7
Bicycles	0	0	0
	198	**125**	**323**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: William Halton Pkwy & Burnhamthorpe Rd
Site Code: 2401100006
Count Date: Jan 17, 2024
Period: 07:00 - 09:00

Peak Hour Data (08:00 - 09:00)

Start Time	North Approach						South Approach Burnhamthorpe Rd						East Approach William Halton Pkwy						West Approach William Halton Pkwy						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
08:00					0		0	37	0	0	37		22	63		0	0	85		183	0	0	0	183	305
08:15					0		0	45	0	0	45		22	75		0	0	97		200	0	0	0	200	342
08:30					0		0	62	0	0	62		38	70		0	0	108		198	0	0	0	198	368
08:45					0		0	54	0	0	54		42	69		0	0	111		171	1	0	0	172	337
Grand Total					**0**	**0**	**0**	**198**	**0**	**0**	**198**		**124**	**277**		**0**	**0**	**401**		**752**	**1**	**0**	**0**	**753**	**1352**
Approach %						-	0	100	0		-		30.9	69.1		0		-		99.9	0.1	0		-	
Totals %						0	0	14.6	0		14.6		9.2	20.5		0		29.7		55.6	0.1	0		55.7	
PHF						**0**	**0**	**0.8**	**0**		**0.8**		**0.74**	**0.92**		**0**		**0.9**		**0.94**	**0.25**	**0**		**0.94**	**0.92**
Cars						0	0	196	0		196		119	268		0		387		741	1	0		742	1325
% Cars						0	0	99	0		99		96	96.8		0		96.5		98.5	100	0		98.5	98
Trucks						0	0	2	0		2		5	9		0		14		11	0	0		11	27
% Trucks						0	0	1	0		1		4	3.2		0		3.5		1.5	0	0		1.5	2
Bicycles						0	0	0	0		0		0	0		0		0		0	0	0		0	0
% Bicycles						0	0	0	0		0		0	0		0		0		0	0	0		0	0
Peds					0	-				0	-						0	-					0	-	0
% Peds					0	-				0	-						0	-					0	-	

Peak Hour Diagram

Specified Period
From: 16:00:00
To: 18:00:00

One Hour Peak
From: 16:45:00
To: 17:45:00

Intersection: William Halton Pkwy & Burnhamthorpe Rd
Site Code: 2401100006
Count Date: Jan 17, 2024

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: William Halton Pkwy runs E/W

East Approach

	Out	In	Total
Cars	1015	508	1523
Trucks	8	16	24
Bicycles	0	0	0
	1023	**524**	**1547**

William Halton Pkwy

			Totals
0	0	0	**0**
0	14	341	**355**
0	0	1	**1**

Peds: 0



Peds: 0

Peds: 0

William Halton Pkwy

	Totals			
	0	0	0	0
	889	882	7	0
	134	133	1	0

West Approach

	Out	In	Total
Cars	342	882	1224
Trucks	14	7	21
Bicycles	0	0	0
	356	**889**	**1245**

Totals	0	169	0
Cars	0	167	0
Trucks	0	2	0
Bicycles	0	0	0

Burnhamthorpe Rd

South Approach

	Out	In	Total
Cars	167	134	301
Trucks	2	1	3
Bicycles	0	0	0
	169	**135**	**304**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: William Halton Pkwy & Burnhamthorpe Rd
Site Code: 2401100006
Count Date: Jan 17, 2024
Period: 16:00 - 18:00

Peak Hour Data (16:45 - 17:45)

Start Time	North Approach						South Approach Burnhamthorpe Rd						East Approach William Halton Pkwy						West Approach William Halton Pkwy						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
16:45					0		0	38	0	0	38		27	238		0	0	265		97	0	0	0	97	400
17:00					0		0	28	0	0	28		33	217		0	0	250		80	0	0	0	80	358
17:15					0		0	46	0	0	46		42	220		0	0	262		96	1	0	0	97	405
17:30					0		0	57	0	0	57		32	214		0	0	246		82	0	0	0	82	385
Grand Total					**0**	**0**	**0**	**169**	**0**	**0**	**169**		**134**	**889**		**0**	**0**	**1023**		**355**	**1**	**0**	**0**	**356**	**1548**
Approach %						-	0	100	0		-		13.1	86.9		0		-		99.7	0.3	0		-	
Totals %						0	0	10.9	0		10.9		8.7	57.4		0		66.1		22.9	0.1	0		23	
PHF						**0**	**0**	**0.74**	**0**		**0.74**		**0.8**	**0.93**		**0**		**0.97**		**0.91**	**0.25**	**0**		**0.92**	**0.96**
Cars						0	0	167	0		167		133	882		0		1015		341	1	0		342	1524
% Cars						0	0	98.8	0		98.8		99.3	99.2		0		99.2		96.1	100	0		96.1	98.4
Trucks						0	0	2	0		2		1	7		0		8		14	0	0		14	24
% Trucks						0	0	1.2	0		1.2		0.7	0.8		0		0.8		3.9	0	0		3.9	1.6
Bicycles						0	0	0	0		0		0	0		0		0		0	0	0		0	0
% Bicycles						0	0	0	0		0		0	0		0		0		0	0	0		0	0
Peds					0	-				0	-						0	-					0	-	0
% Peds					0	-				0	-						0	-					0	-	

Ontario Traffic Inc.
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Project #24-140 - CGH Transportation

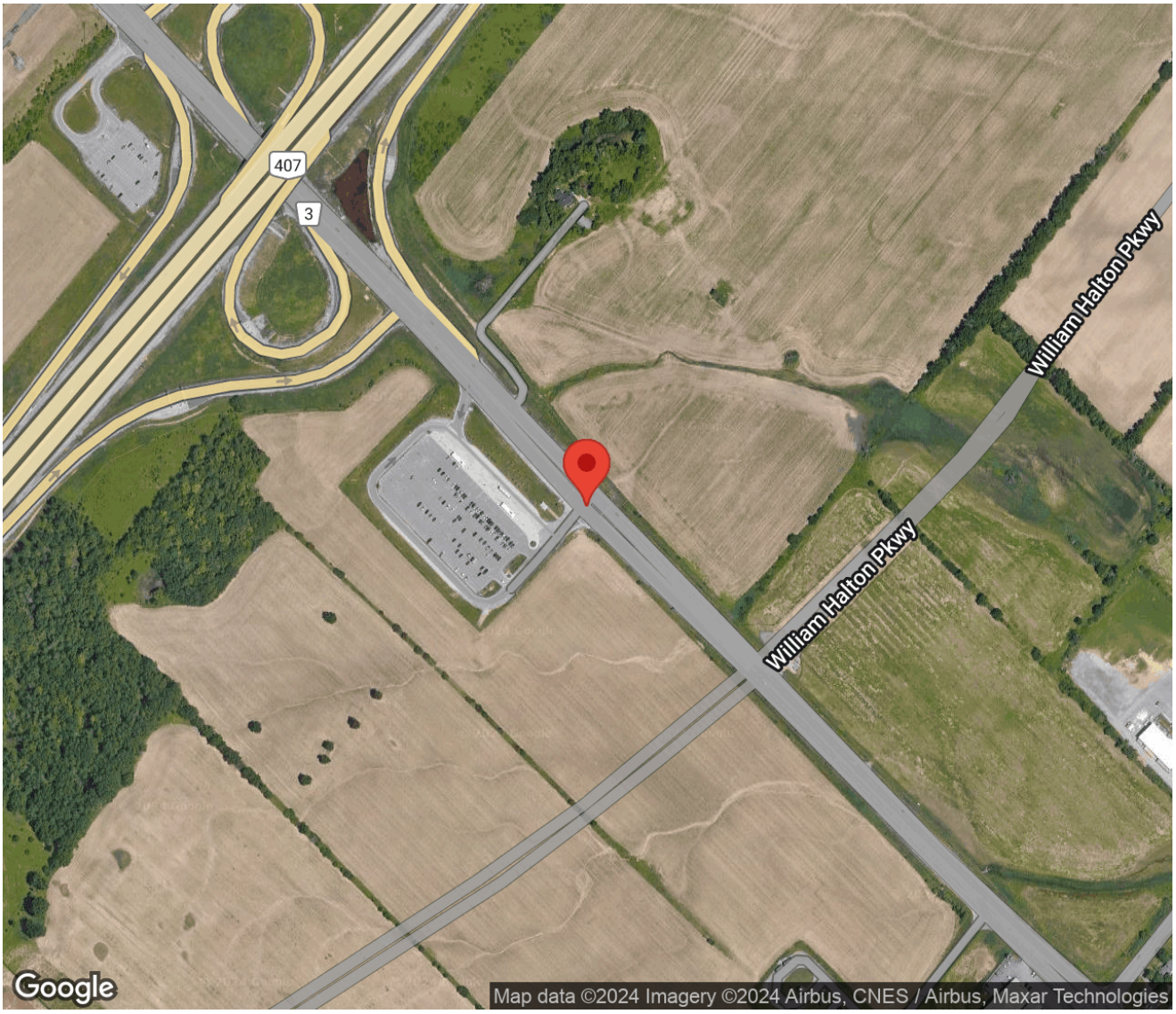
Intersection Count Report

Intersection:	Trafalgar Rd & 4180 Trafalgar Rd Parking Lot (south access)
Municipality:	Oakville
Count Date:	Thursday, Apr 04, 2024
Site Code:	2414000001
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-10:00, 16:00-19:00
Weather:	Clear
Comments:	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Map

Intersection:	Trafalgar Rd & 4180 Trafalgar Rd Parking Lot (south access)
Site Code:	2414000001
Municipality:	Oakville
Count Date:	Apr 04, 2024



Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	Trafalgar Rd & 4180 Trafalgar Rd Parking Lot (south access)
Site Code:	2414000001
Municipality:	Oakville
Count Date:	Apr 04, 2024

Trafalgar Rd - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	0	812	29	1	842	0	38	757	0	0	795	0	1637
08:00 - 09:00	0	1074	20	0	1094	0	39	948	0	0	987	0	2081
09:00 - 10:00	0	809	21	1	831	0	35	612	0	1	648	0	1479
BREAK													
16:00 - 17:00	0	871	20	0	891	0	18	1373	0	0	1391	0	2282
17:00 - 18:00	0	1045	25	0	1070	0	42	1486	0	0	1528	0	2598
18:00 - 19:00	0	702	18	1	721	0	26	865	0	0	891	0	1612
GRAND TOTAL	**0**	**5313**	**133**	**3**	**5449**	**0**	**198**	**6041**	**0**	**1**	**6240**	**0**	**11689**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	Trafalgar Rd & 4180 Trafalgar Rd Parking Lot (south access)
Site Code:	2414000001
Municipality:	Oakville
Count Date:	Apr 04, 2024

4180 Trafalgar Rd Parking Lot (south access) - Traffic Summary

	East Approach Totals						West Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	0	0	0	0	0	0	39	0	31	0	70	0	70
08:00 - 09:00	0	0	0	0	0	0	29	0	29	0	58	0	58
09:00 - 10:00	0	0	0	0	0	0	23	0	36	0	59	0	59
BREAK													
16:00 - 17:00	0	0	0	0	0	0	40	0	29	0	69	0	69
17:00 - 18:00	0	0	0	0	0	0	48	0	51	0	99	0	99
18:00 - 19:00	0	0	0	0	0	0	37	0	46	0	83	0	83
GRAND TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**216**	**0**	**222**	**0**	**438**	**0**	**438**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Trafalgar Rd & 4180 Trafalgar Rd Parking Lot (south access)
Site Code: 2414000001
Municipality: Oakville
Count Date: Apr 04, 2024

North Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	
07:00	0	149	7	0	156	0	6	0	0	6	0	0	0	0	0	0
07:15	0	166	10	0	176	0	12	0	0	12	0	0	0	0	0	0
07:30	0	230	9	1	240	0	8	0	0	8	0	0	0	0	0	0
07:45	0	236	3	0	239	0	5	0	0	5	0	0	0	0	0	0
08:00	0	217	10	0	227	0	8	0	0	8	0	0	0	0	0	0
08:15	0	259	2	0	261	0	3	0	0	3	0	0	0	0	0	0
08:30	0	285	4	0	289	0	9	0	0	9	0	0	0	0	0	0
08:45	0	278	4	0	282	0	15	0	0	15	0	0	0	0	0	0
09:00	0	187	8	0	195	0	12	0	0	12	0	0	0	0	0	0
09:15	0	215	3	0	218	0	9	0	0	9	0	0	0	0	0	0
09:30	0	184	5	0	189	0	17	0	0	17	0	0	0	0	0	0
09:45	0	175	5	1	181	0	10	0	0	10	0	0	0	0	0	0
SUBTOTAL	0	2581	70	2	2653	0	114	0	0	114	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Trafalgar Rd & 4180 Trafalgar Rd Parking Lot (south access)
Site Code: 2414000001
Municipality: Oakville
Count Date: Apr 04, 2024

North Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	0	176	6	0	182	0	10	0	0	10	0	0	0	0	0	0
16:15	0	217	5	0	222	0	9	0	0	9	0	0	0	0	0	0
16:30	0	203	4	0	207	0	7	0	0	7	0	0	0	0	0	0
16:45	0	243	5	0	248	0	6	0	0	6	0	0	0	0	0	0
17:00	0	244	7	0	251	0	3	0	0	3	0	0	0	0	0	0
17:15	0	275	5	0	280	0	7	0	0	7	0	0	0	0	0	0
17:30	0	262	8	0	270	0	10	0	0	10	0	0	0	0	0	0
17:45	0	235	5	0	240	0	9	0	0	9	0	0	0	0	0	0
18:00	0	199	3	1	203	0	7	0	0	7	0	0	0	0	0	0
18:15	0	165	4	0	169	0	2	0	0	2	0	0	0	0	0	0
18:30	0	160	6	0	166	0	3	0	0	3	0	0	0	0	0	0
18:45	0	164	4	0	168	0	2	1	0	3	0	0	0	0	0	0
SUBTOTAL	0	2543	62	1	2606	0	75	1	0	76	0	0	0	0	0	0
GRAND TOTAL	0	5124	132	3	5259	0	189	1	0	190	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Trafalgar Rd & 4180 Trafalgar Rd Parking Lot (south access)
Site Code: 2414000001
Municipality: Oakville
Count Date: Apr 04, 2024

South Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	
07:00	4	127	0	0	131	0	4	0	0	4	0	0	0	0	0	0
07:15	10	178	0	0	188	2	10	0	0	12	0	0	0	0	0	0
07:30	11	194	0	0	205	2	14	0	0	16	0	0	0	0	0	0
07:45	8	225	0	0	233	1	5	0	0	6	0	0	0	0	0	0
08:00	11	223	0	0	234	0	11	0	0	11	0	0	0	0	0	0
08:15	14	231	0	0	245	1	12	0	0	13	0	0	0	0	0	0
08:30	8	247	0	0	255	2	12	0	0	14	0	0	0	0	0	0
08:45	3	202	0	0	205	0	10	0	0	10	0	0	0	0	0	0
09:00	10	174	0	0	184	1	10	0	0	11	0	0	0	0	0	0
09:15	8	140	0	1	149	1	9	0	0	10	0	0	0	0	0	0
09:30	6	150	0	0	156	2	6	0	0	8	0	0	0	0	0	0
09:45	7	116	0	0	123	0	7	0	0	7	0	0	0	0	0	0
SUBTOTAL	100	2207	0	1	2308	12	110	0	0	122	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Trafalgar Rd & 4180 Trafalgar Rd Parking Lot (south access)
Site Code: 2414000001
Municipality: Oakville
Count Date: Apr 04, 2024

South Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	5	297	0	0	302	0	11	0	0	11	0	0	0	0	0	0
16:15	2	336	0	0	338	1	8	0	0	9	0	0	0	0	0	0
16:30	0	345	0	0	345	3	13	0	0	16	0	0	0	0	0	0
16:45	7	359	0	0	366	0	4	0	0	4	0	0	0	0	0	0
17:00	7	396	0	0	403	1	2	0	0	3	0	0	0	0	0	0
17:15	5	400	0	0	405	1	8	0	0	9	0	0	0	0	0	0
17:30	14	378	0	0	392	2	3	0	0	5	0	0	0	0	0	0
17:45	12	293	0	0	305	0	6	0	0	6	0	0	0	0	0	0
18:00	10	229	0	0	239	1	7	0	0	8	0	0	0	0	0	0
18:15	3	212	0	0	215	1	4	0	0	5	0	0	0	0	0	0
18:30	6	199	0	0	205	1	5	0	0	6	0	0	0	0	0	0
18:45	3	204	0	0	207	1	5	0	0	6	0	0	0	0	0	0
SUBTOTAL	74	3648	0	0	3722	12	76	0	0	88	0	0	0	0	0	0
GRAND TOTAL	174	5855	0	1	6030	24	186	0	0	210	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Trafalgar Rd & 4180 Trafalgar Rd Parking Lot (south access)
Site Code: 2414000001
Municipality: Oakville
Count Date: Apr 04, 2024

West Approach - 4180 Trafalgar Rd Parking Lot (south access)

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	3	0	4	0	7	4	0	1	0	5	0	0	0	0	0	0
07:15	8	0	8	0	16	6	0	0	0	6	0	0	0	0	0	0
07:30	6	0	7	0	13	5	0	4	0	9	0	0	0	0	0	0
07:45	3	0	7	0	10	4	0	0	0	4	0	0	0	0	0	0
08:00	3	0	6	0	9	5	0	2	0	7	0	0	0	0	0	0
08:15	3	0	10	0	13	6	0	0	0	6	0	0	0	0	0	0
08:30	3	0	6	0	9	4	0	2	0	6	0	0	0	0	0	0
08:45	1	0	3	0	4	4	0	0	0	4	0	0	0	0	0	0
09:00	2	0	5	0	7	2	0	0	0	2	0	0	0	0	0	0
09:15	0	0	11	0	11	3	0	1	0	4	0	0	0	0	0	0
09:30	2	0	8	0	10	5	0	2	0	7	0	0	0	0	0	0
09:45	4	0	7	0	11	5	0	2	0	7	0	0	0	0	0	0
SUBTOTAL	38	0	82	0	120	53	0	14	0	67	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Trafalgar Rd & 4180 Trafalgar Rd Parking Lot (south access)
Site Code: 2414000001
Municipality: Oakville
Count Date: Apr 04, 2024

West Approach - 4180 Trafalgar Rd Parking Lot (south access)

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	
16:00	5	0	7	0	12	6	0	0	0	6	0	0	0	0	0	0
16:15	9	0	8	0	17	5	0	1	0	6	0	0	0	0	0	0
16:30	4	0	3	0	7	4	0	2	0	6	0	0	0	0	0	0
16:45	6	0	7	0	13	1	0	1	0	2	0	0	0	0	0	0
17:00	8	0	11	0	19	7	0	0	0	7	0	0	0	0	0	0
17:15	7	0	7	0	14	5	0	2	0	7	0	0	0	0	0	0
17:30	4	0	15	0	19	5	0	1	0	6	0	0	0	0	0	0
17:45	9	0	14	0	23	3	0	1	0	4	0	0	0	0	0	0
18:00	4	0	9	0	13	5	0	0	0	5	0	0	0	0	0	0
18:15	6	0	11	0	17	5	0	1	0	6	0	0	0	0	0	0
18:30	3	0	12	0	15	4	0	2	0	6	0	0	0	0	0	0
18:45	5	0	10	0	15	5	0	1	0	6	0	0	0	0	0	0
SUBTOTAL	70	0	114	0	184	55	0	12	0	67	0	0	0	0	0	0
GRAND TOTAL	108	0	196	0	304	108	0	26	0	134	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period		One Hour Peak	
From:	07:00:00	From:	08:00:00
To:	10:00:00	To:	09:00:00

Intersection: Trafalgar Rd & 4180 Trafalgar Rd Parking Lot (south access)

Site Code: 2414000001

Count Date: Apr 04, 2024

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

North Approach

	Out	In	Total
Cars	1059	913	1972
Trucks	35	64	99
Bicycles	0	0	0
	1094	**977**	**2071**

Trafalgar Rd

Bicycles	0	0	0
Trucks	0	35	0
Cars	20	1039	0
Totals	**20**	**1074**	**0**

Peds: 0

4180 Trafalgar Rd Parking Lot (south access)

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	19	10	**29**
0	4	25	**29**

Peds: 0



Peds: 0

Peds: 0

West Approach

	Out	In	Total
Cars	35	56	91
Trucks	23	3	26
Bicycles	0	0	0
	58	**59**	**117**

Totals	**39**	**948**	**0**
Cars	36	903	0
Trucks	3	45	0
Bicycles	0	0	0

Trafalgar Rd

South Approach

	Out	In	Total
Cars	939	1064	2003
Trucks	48	39	87
Bicycles	0	0	0
	987	**1103**	**2090**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Trafalgar Rd & 4180 Trafalgar Rd Parking Lot (south access)
Site Code: 2414000001
Count Date: Apr 04, 2024
Period: 07:00 - 10:00

Peak Hour Data (08:00 - 09:00)

Start Time	North Approach Trafalgar Rd						South Approach Trafalgar Rd						East Approach						West Approach 4180 Trafalgar Rd Parking Lot (south access)						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
08:00		225	10	0	0	235	11	234		0	0	245					0		8		8	0	0	16	496
08:15		262	2	0	0	264	15	243		0	0	258					0		9		10	0	0	19	541
08:30		294	4	0	0	298	10	259		0	0	269					0		7		8	0	0	15	582
08:45		293	4	0	0	297	3	212		0	0	215					0		5		3	0	0	8	520
Grand Total		**1074**	**20**	**0**	**0**	**1094**	**39**	**948**		**0**	**0**	**987**					**0**	**0**	**29**		**29**	**0**	**0**	**58**	**2139**
Approach %		98.2	1.8	0		-	4	96		0		-						-	50		50	0		-	
Totals %		50.2	0.9	0		51.1	1.8	44.3		0		46.1						0	1.4		1.4	0		2.7	
PHF		**0.91**	**0.5**	**0**		**0.92**	**0.65**	**0.92**		**0**		**0.92**						**0**	**0.81**		**0.73**	**0**		**0.76**	**0.92**
Cars		1039	20	0		1059	36	903		0		939						0	10		25	0		35	2033
% Cars		96.7	100	0		96.8	92.3	95.3		0		95.1						0	34.5		86.2	0		60.3	95
Trucks		35	0	0		35	3	45		0		48						0	19		4	0		23	106
% Trucks		3.3	0	0		3.2	7.7	4.7		0		4.9						0	65.5		13.8	0		39.7	5
Bicycles		0	0	0		0	0	0		0		0						0	0		0	0		0	0
% Bicycles		0	0	0		0	0	0		0		0						0	0		0	0		0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Peak Hour Diagram

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

One Hour Peak
From: 16:45:00
To: 17:45:00

Intersection: Trafalgar Rd & 4180 Trafalgar Rd Parking Lot (south access)
Site Code: 2414000001
Count Date: Apr 04, 2024

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

North Approach

	Out	In	Total
Cars	1049	1558	2607
Trucks	26	35	61
Bicycles	0	0	0
	1075	**1593**	**2668**

Trafalgar Rd

Bicycles	0	0	0
Trucks	0	26	0
Cars	25	1024	0
Totals	**25**	**1050**	**0**

Peds: 0

4180 Trafalgar Rd Parking Lot (south access)

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	18	25	**43**
0	4	40	**44**

Peds: 0



Peds: 0

Peds: 0

West Approach

	Out	In	Total
Cars	65	58	123
Trucks	22	4	26
Bicycles	0	0	0
	87	**62**	**149**

Totals	**37**	**1550**	**0**
Cars	33	1533	0
Trucks	4	17	0
Bicycles	0	0	0

Trafalgar Rd

South Approach

	Out	In	Total
Cars	1566	1064	2630
Trucks	21	30	51
Bicycles	0	0	0
	1587	**1094**	**2681**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Trafalgar Rd & 4180 Trafalgar Rd Parking Lot (south access)
Site Code: 2414000001
Count Date: Apr 04, 2024
Period: 16:00 - 19:00

Peak Hour Data (16:45 - 17:45)

Start Time	North Approach Trafalgar Rd						South Approach Trafalgar Rd						East Approach						West Approach 4180 Trafalgar Rd Parking Lot (south access)						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
16:45		249	5	0	0	254	7	363		0	0	370					0		7		8	0	0	15	639
17:00		247	7	0	0	254	8	398		0	0	406					0		15		11	0	0	26	686
17:15		282	5	0	0	287	6	408		0	0	414					0		12		9	0	0	21	722
17:30		272	8	0	0	280	16	381		0	0	397					0		9		16	0	0	25	702
Grand Total		**1050**	**25**	**0**	**0**	**1075**	**37**	**1550**		**0**	**0**	**1587**					**0**	**0**	**43**		**44**	**0**	**0**	**87**	**2749**
Approach %		97.7	2.3	0		-	2.3	97.7		0		-						-	49.4		50.6	0		-	
Totals %		38.2	0.9	0		39.1	1.3	56.4		0		57.7						0	1.6		1.6	0		3.2	
PHF		**0.93**	**0.78**	**0**		**0.94**	**0.58**	**0.95**		**0**		**0.96**						**0**	**0.72**		**0.69**	**0**		**0.84**	**0.95**
Cars		1024	25	0		1049	33	1533		0		1566						0	25		40	0		65	2680
% Cars		97.5	100	0		97.6	89.2	98.9		0		98.7						0	58.1		90.9	0		74.7	97.5
Trucks		26	0	0		26	4	17		0		21						0	18		4	0		22	69
% Trucks		2.5	0	0		2.4	10.8	1.1		0		1.3						0	41.9		9.1	0		25.3	2.5
Bicycles		0	0	0		0	0	0		0		0						0	0		0	0		0	0
% Bicycles		0	0	0		0	0	0		0		0						0	0		0	0		0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Project #24-099 - CGH Transportation

Intersection Count Report

Intersection:	Trafalgar Rd & Hwy 407 North Ramp Terminal
Municipality:	Oakville
Count Date:	Thursday, Mar 07, 2024
Site Code:	2409900001
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-10:00, 16:00-19:00
Weather:	Clear
Comments:	

Ontario Traffic Inc.
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Traffic Count Map

Intersection:	Trafalgar Rd & Hwy 407 North Ramp Terminal
Site Code:	2409900001
Municipality:	Oakville
Count Date:	Mar 07, 2024



Ontario Traffic Inc.
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Traffic Count Summary

Intersection:	Trafalgar Rd & Hwy 407 North Ramp Terminal
Site Code:	2409900001
Municipality:	Oakville
Count Date:	Mar 07, 2024

Trafalgar Rd - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	0	833	19	0	852	0	4	656	20	0	680	0	1532
08:00 - 09:00	0	955	35	0	990	0	1	786	30	0	817	0	1807
09:00 - 10:00	0	717	26	0	743	0	0	537	22	0	559	0	1302
BREAK													
16:00 - 17:00	0	750	49	0	799	0	7	1273	158	0	1438	0	2237
17:00 - 18:00	0	730	39	0	769	0	2	1362	135	0	1499	0	2268
18:00 - 19:00	0	596	23	0	619	0	2	879	46	1	928	0	1547
GRAND TOTAL	**0**	**4581**	**191**	**0**	**4772**	**0**	**16**	**5493**	**411**	**1**	**5921**	**0**	**10693**

Ontario Traffic Inc.
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Traffic Count Summary

Intersection:	Trafalgar Rd & Hwy 407 North Ramp Terminal
Site Code:	2409900001
Municipality:	Oakville
Count Date:	Mar 07, 2024

Hwy 407 North Ramp Terminal - Traffic Summary

	East Approach Totals						West Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	76	0	5	0	81	0	1	0	2	1	4	0	85
08:00 - 09:00	112	0	3	0	115	0	1	0	0	0	1	0	116
09:00 - 10:00	62	1	7	0	70	0	3	0	1	1	5	0	75
BREAK													
16:00 - 17:00	135	3	13	0	151	0	0	0	6	0	6	0	157
17:00 - 18:00	168	0	15	0	183	0	3	0	3	3	9	0	192
18:00 - 19:00	122	0	7	0	129	0	1	0	2	0	3	0	132
GRAND TOTAL	**675**	**4**	**50**	**0**	**729**	**0**	**9**	**0**	**14**	**5**	**28**	**0**	**757**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Trafalgar Rd & Hwy 407 North Ramp Terminal
Site Code: 2409900001
Municipality: Oakville
Count Date: Mar 07, 2024

North Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
07:00	0	187	3	0	190	0	10	0	0	10	0	0	0	0	0	0
07:15	0	173	2	0	175	0	9	0	0	9	0	0	0	0	0	0
07:30	0	227	8	0	235	0	7	0	0	7	0	0	0	0	0	0
07:45	0	205	5	0	210	0	15	1	0	16	0	0	0	0	0	0
08:00	0	219	1	0	220	0	24	0	0	24	0	0	0	0	0	0
08:15	0	217	7	0	224	0	23	0	0	23	0	0	0	0	0	0
08:30	0	234	12	0	246	0	13	0	0	13	0	0	0	0	0	0
08:45	0	211	14	0	225	0	14	1	0	15	0	0	0	0	0	0
09:00	0	168	10	0	178	0	14	0	0	14	0	0	0	0	0	0
09:15	0	174	6	0	180	0	19	0	0	19	0	0	0	0	0	0
09:30	0	178	4	0	182	0	15	1	0	16	0	0	0	0	0	0
09:45	0	129	5	0	134	0	20	0	0	20	0	0	0	0	0	0
SUBTOTAL	0	2322	77	0	2399	0	183	3	0	186	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Trafalgar Rd & Hwy 407 North Ramp Terminal
Site Code: 2409900001
Municipality: Oakville
Count Date: Mar 07, 2024

North Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	
16:00	0	171	13	0	184	0	10	0	0	10	0	0	0	0	0	0
16:15	0	207	12	0	219	0	9	0	0	9	0	0	0	0	0	0
16:30	0	181	13	0	194	0	7	0	0	7	0	0	0	0	0	0
16:45	0	161	11	0	172	0	4	0	0	4	0	0	0	0	0	0
17:00	0	163	9	0	172	0	4	1	0	5	0	0	0	0	0	0
17:15	0	173	9	0	182	0	10	1	0	11	0	0	0	0	0	0
17:30	0	187	8	0	195	0	4	0	0	4	0	0	0	0	0	0
17:45	0	184	11	0	195	0	5	0	0	5	0	0	0	0	0	0
18:00	0	154	4	0	158	0	4	0	0	4	0	0	0	0	0	0
18:15	0	167	7	0	174	0	2	0	0	2	0	0	0	0	0	0
18:30	0	135	5	0	140	0	8	0	0	8	0	0	0	0	0	0
18:45	0	122	7	0	129	0	4	0	0	4	0	0	0	0	0	0
SUBTOTAL	0	2005	109	0	2114	0	71	2	0	73	0	0	0	0	0	0
GRAND TOTAL	0	4327	186	0	4513	0	254	5	0	259	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Trafalgar Rd & Hwy 407 North Ramp Terminal
Site Code: 2409900001
Municipality: Oakville
Count Date: Mar 07, 2024

South Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
07:00	0	116	0	0	116	0	11	1	0	12	0	0	0	0	0	0
07:15	0	152	1	0	153	0	13	3	0	16	0	0	0	0	0	0
07:30	3	149	3	0	155	0	14	3	0	17	0	0	0	0	0	0
07:45	0	187	6	0	193	1	14	3	0	18	0	0	0	0	0	0
08:00	0	179	5	0	184	0	10	2	0	12	0	0	0	0	0	0
08:15	0	173	7	0	180	0	11	2	0	13	0	0	0	0	0	0
08:30	1	211	5	0	217	0	29	3	0	32	0	0	0	0	0	0
08:45	0	162	5	0	167	0	11	1	0	12	0	0	0	0	0	0
09:00	0	112	3	0	115	0	20	2	0	22	0	0	0	0	0	0
09:15	0	110	3	0	113	0	19	3	0	22	0	0	0	0	0	0
09:30	0	123	3	0	126	0	17	2	0	19	0	0	0	0	0	0
09:45	0	114	3	0	117	0	22	3	0	25	0	0	0	0	0	0
SUBTOTAL	4	1788	44	0	1836	1	191	28	0	220	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Trafalgar Rd & Hwy 407 North Ramp Terminal
Site Code: 2409900001
Municipality: Oakville
Count Date: Mar 07, 2024

South Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	1	287	29	0	317	1	16	0	0	17	0	0	0	0	0	0
16:15	0	313	52	0	365	0	11	2	0	13	0	0	0	0	0	0
16:30	0	332	47	0	379	0	6	0	0	6	0	0	0	0	0	0
16:45	5	301	27	0	333	0	7	1	0	8	0	0	0	0	0	0
17:00	0	339	40	0	379	0	7	3	0	10	0	0	0	0	0	0
17:15	1	361	24	0	386	0	7	2	0	9	0	0	0	0	0	0
17:30	0	360	33	0	393	0	6	0	0	6	0	0	0	0	0	0
17:45	0	274	30	0	304	1	8	3	0	12	0	0	0	0	0	0
18:00	1	228	16	1	246	0	3	2	0	5	0	0	0	0	0	0
18:15	0	254	11	0	265	0	4	2	0	6	0	0	0	0	0	0
18:30	0	195	10	0	205	0	9	2	0	11	0	0	0	0	0	0
18:45	1	183	2	0	186	0	3	1	0	4	0	0	0	0	0	0
SUBTOTAL	9	3427	321	1	3758	2	87	18	0	107	0	0	0	0	0	0
GRAND TOTAL	13	5215	365	1	5594	3	278	46	0	327	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Trafalgar Rd & Hwy 407 North Ramp Terminal
Site Code: 2409900001
Municipality: Oakville
Count Date: Mar 07, 2024

East Approach - Hwy 407 North Ramp Terminal

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	10	0	1	0	11	4	0	0	0	4	0	0	0	0	0	0
07:15	12	0	1	0	13	3	0	0	0	3	0	0	0	0	0	0
07:30	18	0	2	0	20	7	0	0	0	7	0	0	0	0	0	0
07:45	18	0	1	0	19	4	0	0	0	4	0	0	0	0	0	0
08:00	25	0	0	0	25	5	0	0	0	5	0	0	0	0	0	0
08:15	17	0	0	0	17	2	0	0	0	2	0	0	0	0	0	0
08:30	28	0	2	0	30	7	0	0	0	7	0	0	0	0	0	0
08:45	22	0	1	0	23	6	0	0	0	6	0	0	0	0	0	0
09:00	17	0	1	0	18	4	0	0	0	4	0	0	0	0	0	0
09:15	7	0	1	0	8	2	0	0	0	2	0	0	0	0	0	0
09:30	12	0	4	0	16	3	0	0	0	3	0	0	0	0	0	0
09:45	10	1	1	0	12	7	0	0	0	7	0	0	0	0	0	0
SUBTOTAL	196	1	15	0	212	54	0	0	0	54	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Trafalgar Rd & Hwy 407 North Ramp Terminal
Site Code: 2409900001
Municipality: Oakville
Count Date: Mar 07, 2024

East Approach - Hwy 407 North Ramp Terminal

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	27	0	4	0	31	0	0	0	0	0	0	0	0	0	0	0
16:15	36	0	2	0	38	5	1	0	0	6	0	0	0	0	0	0
16:30	29	0	3	0	32	1	0	0	0	1	0	0	0	0	0	0
16:45	36	0	4	0	40	1	2	0	0	3	0	0	0	0	0	0
17:00	42	0	4	0	46	3	0	0	0	3	0	0	0	0	0	0
17:15	44	0	3	0	47	3	0	1	0	4	0	0	0	0	0	0
17:30	36	0	4	0	40	2	0	0	0	2	0	0	0	0	0	0
17:45	35	0	3	0	38	3	0	0	0	3	0	0	0	0	0	0
18:00	37	0	4	0	41	2	0	0	0	2	0	0	0	0	0	0
18:15	31	0	0	0	31	2	0	0	0	2	0	0	0	0	0	0
18:30	31	0	2	0	33	2	0	0	0	2	0	0	0	0	0	0
18:45	14	0	1	0	15	3	0	0	0	3	0	0	0	0	0	0
SUBTOTAL	398	0	34	0	432	27	3	1	0	31	0	0	0	0	0	0
GRAND TOTAL	**594**	**1**	**49**	**0**	**644**	**81**	**3**	**1**	**0**	**85**	**0**	**0**	**0**	**0**	**0**	**0**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Trafalgar Rd & Hwy 407 North Ramp Terminal
Site Code: 2409900001
Municipality: Oakville
Count Date: Mar 07, 2024

West Approach - Hwy 407 North Ramp Terminal

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45	1	0	2	0	3	0	0	0	1	1	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:00	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	0
09:15	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0
09:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	3	0	2	1	6	2	0	1	1	4	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Trafalgar Rd & Hwy 407 North Ramp Terminal
Site Code: 2409900001
Municipality: Oakville
Count Date: Mar 07, 2024

West Approach - Hwy 407 North Ramp Terminal

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	
16:00	0	0	2	0	2	0	0	1	0	1	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
16:45	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0	0
17:00	1	0	3	1	5	0	0	0	1	1	0	0	0	0	0	0
17:15	1	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0
17:30	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0
18:15	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
18:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	4	0	8	2	14	0	0	3	1	4	0	0	0	0	0	0
GRAND TOTAL	7	0	10	3	20	2	0	4	2	8	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period		One Hour Peak	
From:	07:00:00	From:	07:45:00
To:	10:00:00	To:	08:45:00

Intersection: Trafalgar Rd & Hwy 407 North Ramp Terminal
Site Code: 2409900001
Count Date: Mar 07, 2024

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

North Approach

	Out	In	Total
Cars	900	754	1654
Trucks	76	65	141
Bicycles	0	0	0
	976	**819**	**1795**

Trafalgar Rd

Bicycles	0	0	0	0
Trucks	1	75	0	0
Cars	25	875	0	0
Totals	**26**	**950**	**0**	**0**

Peds: 0

East Approach

	Out	In	Total
Cars	91	23	114
Trucks	18	10	28
Bicycles	0	0	0
	109	**33**	**142**

Hwy 407 North Ramp Terminal

Bicycles	Trucks	Cars	Totals
0	1	0	**1**
0	1	1	**2**
0	0	0	**0**
0	0	2	**2**

Peds: 0

Peds: 0



Peds: 0

Hwy 407 North Ramp Terminal

Totals	Cars	Trucks	Bicycles
0	0	0	0
3	3	0	0
0	0	0	0
106	88	18	0

West Approach

	Out	In	Total
Cars	3	26	29
Trucks	2	3	5
Bicycles	0	0	0
	5	**29**	**34**

Trafalgar Rd

Totals	**2**	**814**	**33**	**0**
Cars	1	750	23	0
Trucks	1	64	10	0
Bicycles	0	0	0	0

South Approach

	Out	In	Total
Cars	774	965	1739
Trucks	75	93	168
Bicycles	0	0	0
	849	**1058**	**1907**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Trafalgar Rd & Hwy 407 North Ramp Terminal
Site Code: 2409900001
Count Date: Mar 07, 2024
Period: 07:00 - 10:00

Peak Hour Data (07:45 - 08:45)

Start Time	North Approach Trafalgar Rd						South Approach Trafalgar Rd						East Approach Hwy 407 North Ramp Terminal						West Approach Hwy 407 North Ramp Terminal						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
07:45	0	220	6	0	0	226	1	201	9	0	0	211	22	0	1	0	0	23	1	0	2	1	0	4	464
08:00	0	243	1	0	0	244	0	189	7	0	0	196	30	0	0	0	0	30	0	0	0	0	0	0	470
08:15	0	240	7	0	0	247	0	184	9	0	0	193	19	0	0	0	0	19	1	0	0	0	0	1	460
08:30	0	247	12	0	0	259	1	240	8	0	0	249	35	0	2	0	0	37	0	0	0	0	0	0	545
Grand Total	**0**	**950**	**26**	**0**	**0**	**976**	**2**	**814**	**33**	**0**	**0**	**849**	**106**	**0**	**3**	**0**	**0**	**109**	**2**	**0**	**2**	**1**	**0**	**5**	**1939**
Approach %	0	97.3	2.7	0		-	0.2	95.9	3.9	0		-	97.2	0	2.8	0		-	40	0	40	20		-	
Totals %	0	49	1.3	0		50.3	0.1	42	1.7	0		43.8	5.5	0	0.2	0		5.6	0.1	0	0.1	0.1		0.3	
PHF	**0**	**0.96**	**0.54**	**0**		**0.94**	**0.5**	**0.85**	**0.92**	**0**		**0.85**	**0.76**	**0**	**0.38**	**0**		**0.74**	**0.5**	**0**	**0.25**	**0.25**		**0.31**	**0.89**
Cars	0	875	25	0		900	1	750	23	0		774	88	0	3	0		91	1	0	2	0		3	1768
% Cars	0	92.1	96.2	0		92.2	50	92.1	69.7	0		91.2	83	0	100	0		83.5	50	0	100	0		60	91.2
Trucks	0	75	1	0		76	1	64	10	0		75	18	0	0	0		18	1	0	0	1		2	171
% Trucks	0	7.9	3.8	0		7.8	50	7.9	30.3	0		8.8	17	0	0	0		16.5	50	0	0	100		40	8.8
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Peak Hour Diagram

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

One Hour Peak
From: 16:45:00
To: 17:45:00

Intersection: Trafalgar Rd & Hwy 407 North Ramp Terminal
Site Code: 2409900001
Count Date: Mar 07, 2024

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

North Approach

	Out	In	Total
Cars	721	1379	2100
Trucks	24	28	52
Bicycles	0	0	0
	745	**1407**	**2152**

Trafalgar Rd

Bicycles	0	0	0	0
Trucks	2	22	0	0
Cars	37	684	0	0
Totals	**39**	**706**	**0**	**0**

East Approach

	Out	In	Total
Cars	173	124	297
Trucks	12	6	18
Bicycles	0	0	0
	185	**130**	**315**

Hwy 407 North Ramp Terminal

Bicycles	Trucks	Cars	Totals
0	1	2	**3**
0	0	3	**3**
0	0	0	**0**
0	1	4	**5**

Peds: 0

Peds: 0

Peds: 0

Hwy 407 North Ramp Terminal

Totals	Cars	Trucks	Bicycles
0	0	0	0
16	15	1	0
2	0	2	0
167	158	9	0

West Approach

	Out	In	Total
Cars	9	45	54
Trucks	2	5	7
Bicycles	0	0	0
	11	**50**	**61**

Trafalgar Rd

Totals	**6**	**1388**	**130**	**0**
Cars	6	1361	124	0
Trucks	0	27	6	0
Bicycles	0	0	0	0

South Approach

	Out	In	Total
Cars	1491	846	2337
Trucks	33	32	65
Bicycles	0	0	0
	1524	**878**	**2402**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Trafalgar Rd & Hwy 407 North Ramp Terminal
Site Code: 2409900001
Count Date: Mar 07, 2024
Period: 16:00 - 19:00

Peak Hour Data (16:45 - 17:45)

Start Time	North Approach Trafalgar Rd						South Approach Trafalgar Rd						East Approach Hwy 407 North Ramp Terminal						West Approach Hwy 407 North Ramp Terminal						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
16:45	0	165	11	0	0	176	5	308	28	0	0	341	37	2	4	0	0	43	0	0	2	0	0	2	562
17:00	0	167	10	0	0	177	0	346	43	0	0	389	45	0	4	0	0	49	1	0	3	2	0	6	621
17:15	0	183	10	0	0	193	1	368	26	0	0	395	47	0	4	0	0	51	1	0	0	1	0	2	641
17:30	0	191	8	0	0	199	0	366	33	0	0	399	38	0	4	0	0	42	1	0	0	0	0	1	641
Grand Total	**0**	**706**	**39**	**0**	**0**	**745**	**6**	**1388**	**130**	**0**	**0**	**1524**	**167**	**2**	**16**	**0**	**0**	**185**	**3**	**0**	**5**	**3**	**0**	**11**	**2465**
Approach %	0	94.8	5.2	0		-	0.4	91.1	8.5	0		-	90.3	1.1	8.6	0		-	27.3	0	45.5	27.3		-	
Totals %	0	28.6	1.6	0		30.2	0.2	56.3	5.3	0		61.8	6.8	0.1	0.6	0		7.5	0.1	0	0.2	0.1		0.4	
PHF	**0**	**0.92**	**0.89**	**0**		**0.94**	**0.3**	**0.94**	**0.76**	**0**		**0.95**	**0.89**	**0.25**	**1**	**0**		**0.91**	**0.75**	**0**	**0.42**	**0.38**		**0.46**	**0.96**
Cars	0	684	37	0		721	6	1361	124	0		1491	158	0	15	0		173	3	0	4	2		9	2394
% Cars	0	96.9	94.9	0		96.8	100	98.1	95.4	0		97.8	94.6	0	93.8	0		93.5	100	0	80	66.7		81.8	97.1
Trucks	0	22	2	0		24	0	27	6	0		33	9	2	1	0		12	0	0	1	1		2	71
% Trucks	0	3.1	5.1	0		3.2	0	1.9	4.6	0		2.2	5.4	100	6.3	0		6.5	0	0	20	33.3		18.2	2.9
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Ontario Traffic Inc.
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Project #24-140 - CGH Transportation

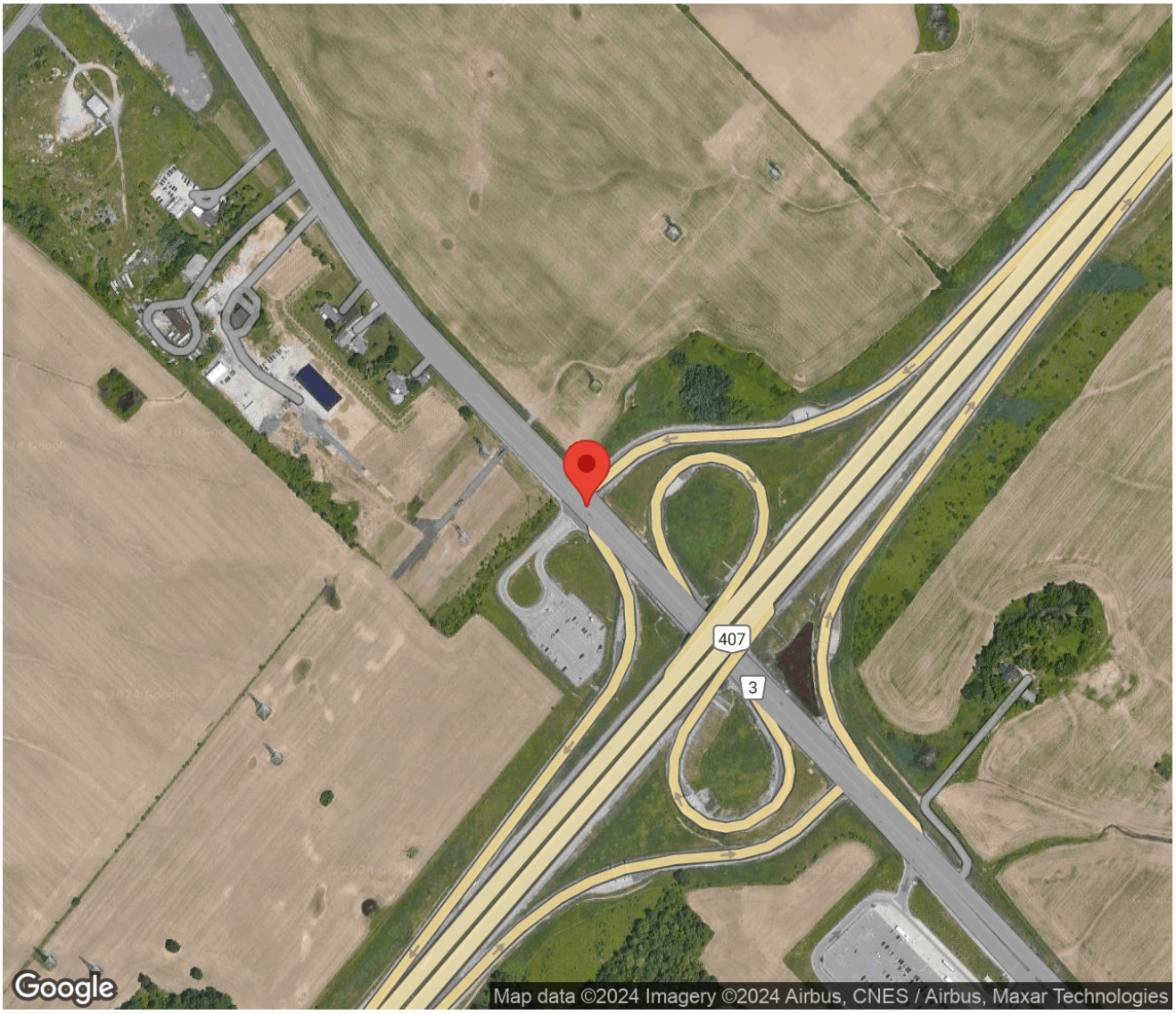
Intersection Count Report

Intersection:	Trafalgar Rd & Hwy 407 North Ramp Terminal - Trafalgar Car Pool Lot
Municipality:	Oakville
Count Date:	Saturday, Apr 13, 2024
Site Code:	2414000002
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	10:00-15:00
Weather:	Clear
Comments:	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Map

Intersection:	Trafalgar Rd & Hwy 407 North Ramp Terminal - Trafalgar Car Pool Lot
Site Code:	2414000002
Municipality:	Oakville
Count Date:	Apr 13, 2024



Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	Trafalgar Rd & Hwy 407 North Ramp Terminal - Trafalgar Car Pool Lot
Site Code:	2414000002
Municipality:	Oakville
Count Date:	Apr 13, 2024

Trafalgar Rd - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
10:00 - 11:00	0	563	20	0	583	0	0	516	19	0	535	0	1118
11:00 - 12:00	0	650	21	0	671	0	2	634	19	0	655	0	1326
12:00 - 13:00	0	678	23	0	701	0	0	759	32	0	791	0	1492
13:00 - 14:00	0	684	27	0	711	0	1	801	26	0	828	0	1539
14:00 - 15:00	0	735	44	0	779	0	0	775	49	0	824	0	1603
GRAND TOTAL	**0**	**3310**	**135**	**0**	**3445**	**0**	**3**	**3485**	**145**	**0**	**3633**	**0**	**7078**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	Trafalgar Rd & Hwy 407 North Ramp Terminal - Trafalgar Car Pool Lot
Site Code:	2414000002
Municipality:	Oakville
Count Date:	Apr 13, 2024

Hwy 407 North Ramp Terminal - Traffic Summary

	East Approach Totals						West Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
10:00 - 11:00	64	0	6	0	70	0	1	0	1	0	2	0	72
11:00 - 12:00	53	1	11	0	65	1	1	0	1	0	2	0	67
12:00 - 13:00	72	0	8	0	80	0	0	0	0	0	0	0	80
13:00 - 14:00	110	1	21	0	132	0	1	0	3	0	4	0	136
14:00 - 15:00	120	0	10	0	130	0	0	0	0	0	0	0	130
GRAND TOTAL	**419**	**2**	**56**	**0**	**477**	**1**	**3**	**0**	**5**	**0**	**8**	**0**	**485**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Trafalgar Rd & Hwy 407 North Ramp Terminal - Trafalgar Car Pool Lot
Site Code: 2414000002
Municipality: Oakville
Count Date: Apr 13, 2024

North Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
10:00	0	116	6	0	122	0	2	0	0	2	0	0	0	0	0	0
10:15	0	148	2	0	150	0	1	1	0	2	0	0	0	0	0	0
10:30	0	149	3	0	152	0	5	0	0	5	0	0	0	0	0	0
10:45	0	140	8	0	148	0	2	0	0	2	0	0	0	0	0	0
11:00	0	153	4	0	157	0	3	0	0	3	0	0	0	0	0	0
11:15	0	146	5	0	151	0	1	0	0	1	0	0	0	0	0	0
11:30	0	167	9	0	176	0	3	0	0	3	0	0	0	0	0	0
11:45	0	171	3	0	174	0	6	0	0	6	0	0	0	0	0	0
12:00	0	144	6	0	150	0	5	0	0	5	0	0	0	0	0	0
12:15	0	170	5	0	175	0	4	1	0	5	0	0	0	0	0	0
12:30	0	180	5	0	185	0	1	0	0	1	0	0	0	0	0	0
12:45	0	169	6	0	175	0	4	0	0	4	0	1	0	0	1	0
13:00	0	183	6	0	189	0	1	0	0	1	0	0	0	0	0	0
13:15	0	167	10	0	177	0	2	0	0	2	0	0	0	0	0	0
13:30	0	156	8	0	164	0	1	0	0	1	0	0	0	0	0	0
13:45	0	171	3	0	174	0	3	0	0	3	0	0	0	0	0	0
14:00	0	178	11	0	189	0	2	0	0	2	0	0	0	0	0	0
14:15	0	211	12	0	223	0	0	0	0	0	0	0	0	0	0	0
14:30	0	164	12	0	176	0	2	0	0	2	0	0	0	0	0	0
14:45	0	177	9	0	186	0	1	0	0	1	0	0	0	0	0	0
SUBTOTAL	0	3260	133	0	3393	0	49	2	0	51	0	1	0	0	1	0

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
GRAND TOTAL	0	3260	133	0	3393	0	49	2	0	51	0	1	0	0	1	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

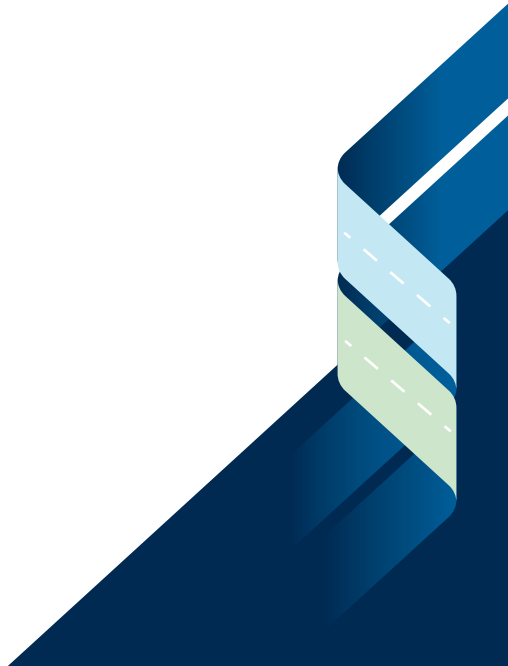
Traffic Count Data

Intersection: Trafalgar Rd & Hwy 407 North Ramp Terminal - Trafalgar Car Pool Lot
Site Code: 2414000002
Municipality: Oakville
Count Date: Apr 13, 2024

South Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
10:00	0	113	3	0	116	0	1	1	0	2	0	0	0	0	0	0
10:15	0	117	3	0	120	0	3	1	0	4	0	0	0	0	0	0
10:30	0	133	2	0	135	0	1	1	0	2	0	0	0	0	0	0
10:45	0	146	7	0	153	0	2	1	0	3	0	0	0	0	0	0
11:00	2	121	3	0	126	0	6	1	0	7	0	0	0	0	0	0
11:15	0	153	4	0	157	0	1	1	0	2	0	1	0	0	1	0
11:30	0	152	2	0	154	0	5	1	0	6	0	0	0	0	0	0
11:45	0	192	6	0	198	0	3	1	0	4	0	0	0	0	0	0
12:00	0	178	6	0	184	0	3	1	0	4	0	0	0	0	0	0
12:15	0	183	6	0	189	0	0	1	0	1	0	0	0	0	0	0
12:30	0	174	9	0	183	0	4	0	0	4	0	0	0	0	0	0
12:45	0	214	7	0	221	0	3	2	0	5	0	0	0	0	0	0
13:00	0	196	2	0	198	0	4	1	0	5	0	0	0	0	0	0
13:15	0	173	7	0	180	0	3	1	0	4	0	0	0	0	0	0
13:30	0	208	7	0	215	0	2	0	0	2	0	0	0	0	0	0
13:45	1	214	6	0	221	0	1	2	0	3	0	0	0	0	0	0
14:00	0	194	7	0	201	0	5	0	0	5	0	0	0	0	0	0
14:15	0	202	19	0	221	0	2	2	0	4	0	0	0	0	0	0
14:30	0	182	9	0	191	0	5	0	0	5	0	0	0	0	0	0
14:45	0	179	10	0	189	0	6	2	0	8	0	0	0	0	0	0
SUBTOTAL	3	3424	125	0	3552	0	60	20	0	80	0	1	0	0	1	0

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
GRAND TOTAL	3	3424	125	0	3552	0	60	20	0	80	0	1	0	0	1	0



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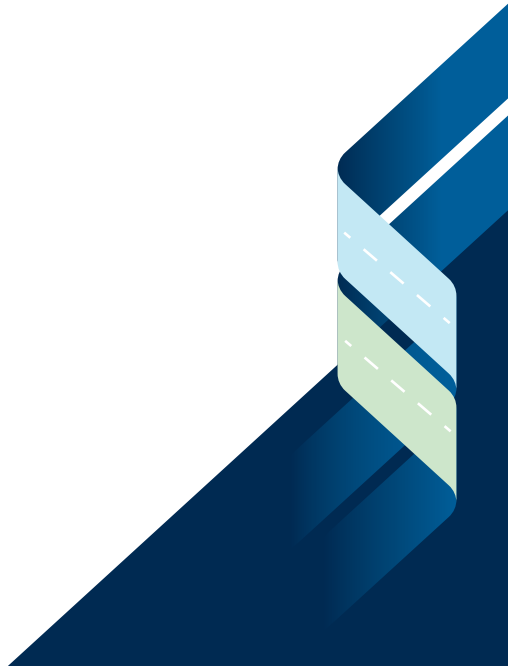
Traffic Count Data

Intersection: Trafalgar Rd & Hwy 407 North Ramp Terminal - Trafalgar Car Pool Lot
Site Code: 2414000002
Municipality: Oakville
Count Date: Apr 13, 2024

East Approach - Hwy 407 North Ramp Terminal

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	
10:00	11	0	3	0	14	1	0	0	0	1	0	0	0	0	0	0
10:15	17	0	0	0	17	1	0	0	0	1	0	0	0	0	0	0
10:30	18	0	2	0	20	2	0	0	0	2	0	0	0	0	0	0
10:45	14	0	1	0	15	0	0	0	0	0	0	0	0	0	0	0
11:00	12	0	3	0	15	1	0	0	0	1	0	0	0	0	0	0
11:15	7	0	4	0	11	2	0	0	0	2	0	0	0	0	0	0
11:30	18	1	4	0	23	1	0	0	0	1	0	0	0	0	0	1
11:45	11	0	0	0	11	1	0	0	0	1	0	0	0	0	0	0
12:00	13	0	2	0	15	1	0	0	0	1	0	0	0	0	0	0
12:15	22	0	1	0	23	1	0	0	0	1	0	0	0	0	0	0
12:30	21	0	2	0	23	2	0	0	0	2	0	0	0	0	0	0
12:45	11	0	3	0	14	1	0	0	0	1	0	0	0	0	0	0
13:00	27	0	4	0	31	1	0	0	0	1	0	0	0	0	0	0
13:15	34	1	4	0	39	1	0	0	0	1	0	0	0	0	0	0
13:30	26	0	6	0	32	2	0	0	0	2	0	0	0	0	0	0
13:45	19	0	7	0	26	0	0	0	0	0	0	0	0	0	0	0
14:00	36	0	4	0	40	1	0	0	0	1	0	0	0	0	0	0
14:15	28	0	2	0	30	1	0	0	0	1	0	0	0	0	0	0
14:30	27	0	4	0	31	2	0	0	0	2	0	0	0	0	0	0
14:45	23	0	0	0	23	2	0	0	0	2	0	0	0	0	0	0
SUBTOTAL	395	2	56	0	453	24	0	0	0	24	0	0	0	0	0	1

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
GRAND TOTAL	395	2	56	0	453	24	0	0	0	24	0	0	0	0	0	1



Ontario Traffic Inc.
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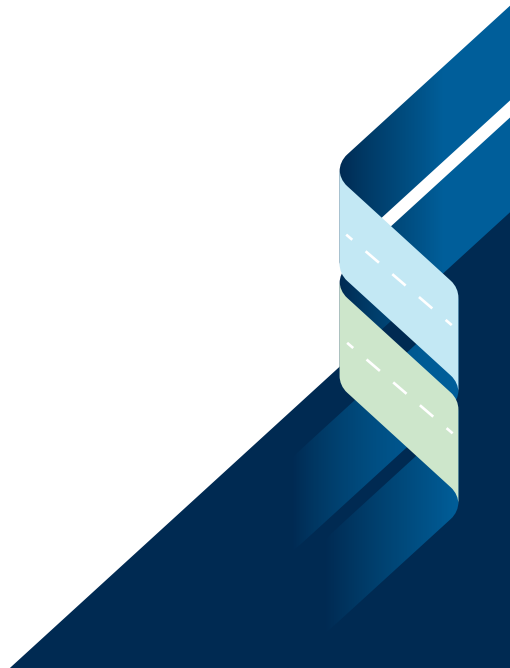
Traffic Count Data

Intersection: Trafalgar Rd & Hwy 407 North Ramp Terminal - Trafalgar Car Pool Lot
Site Code: 2414000002
Municipality: Oakville
Count Date: Apr 13, 2024

West Approach - Trafalgar Car Pool Lot + Hwy 407 On-Ramp

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
10:30	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
13:45	0	0	2	0	2	1	0	0	0	1	0	0	0	0	0	0
14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	2	0	5	0	7	1	0	0	0	1	0	0	0	0	0	0

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
GRAND TOTAL	2	0	5	0	7	1	0	0	0	1	0	0	0	0	0	0



Peak Hour Diagram

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Specified Period		One Hour Peak	
From:	10:00:00	From:	13:30:00
To:	15:00:00	To:	14:30:00

Intersection: Trafalgar Rd & Hwy 407 North Ramp Terminal - Trafalgar Car Pool Lot
Site Code: 2414000002
Count Date: Apr 13, 2024

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

North Approach

	Out	In	Total
Cars	750	837	1587
Trucks	6	11	17
Bicycles	0	0	0
	756	**848**	**1604**

Trafalgar Rd

Bicycles	0	0	0	0
Trucks	0	6	0	0
Cars	34	716	0	0
Totals	**34**	**722**	**0**	**0**

East Approach

	Out	In	Total
Cars	128	39	167
Trucks	4	4	8
Bicycles	0	0	0
	132	**43**	**175**

Trafalgar Car Pool Lot + Hwy 407 On-Ramp

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	1	0	**1**
0	0	0	**0**
0	0	3	**3**

Peds: 0

Peds: 0

Peds: 0

N
W
E
S

Hwy 407 North Ramp Terminal

Totals	Cars	Trucks	Bicycles
0	0	0	0
19	19	0	0
0	0	0	0
113	109	4	0

West Approach

	Out	In	Total
Cars	3	35	38
Trucks	1	0	1
Bicycles	0	0	0
	4	**35**	**39**

Totals	**1**	**828**	**43**	**0**
Cars	1	818	39	0
Trucks	0	10	4	0
Bicycles	0	0	0	0

Trafalgar Rd

South Approach

	Out	In	Total
Cars	858	828	1686
Trucks	14	10	24
Bicycles	0	0	0
	872	**838**	**1710**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Trafalgar Rd & Hwy 407 North Ramp Terminal - Trafalgar Car Pool Lot
Site Code: 2414000002
Count Date: Apr 13, 2024
Period: 10:00 - 15:00

Peak Hour Data (13:30 - 14:30)

Start Time	North Approach Trafalgar Rd						South Approach Trafalgar Rd						East Approach Hwy 407 North Ramp Terminal						West Approach Trafalgar Car Pool Lot + Hwy 407 On-Ramp						Total Vehicles
	↰	↑	↱	↶	Peds	Total	↰	↑	↱	↶	Peds	Total	↰	↑	↱	↶	Peds	Total	↰	↑	↱	↶	Peds	Total	
13:30	0	157	8	0	0	165	0	210	7	0	0	217	28	0	6	0	0	34	0	0	1	0	0	1	417
13:45	0	174	3	0	0	177	1	215	8	0	0	224	19	0	7	0	0	26	1	0	2	0	0	3	430
14:00	0	180	11	0	0	191	0	199	7	0	0	206	37	0	4	0	0	41	0	0	0	0	0	0	438
14:15	0	211	12	0	0	223	0	204	21	0	0	225	29	0	2	0	0	31	0	0	0	0	0	0	479
Grand Total	**0**	**722**	**34**	**0**	**0**	**756**	**1**	**828**	**43**	**0**	**0**	**872**	**113**	**0**	**19**	**0**	**0**	**132**	**1**	**0**	**3**	**0**	**0**	**4**	**1764**
Approach %	0	95.5	4.5	0		-	0.1	95	4.9	0		-	85.6	0	14.4	0		-	25	0	75	0		-	
Totals %	0	40.9	1.9	0		42.9	0.1	46.9	2.4	0		49.4	6.4	0	1.1	0		7.5	0.1	0	0.2	0		0.2	
PHF	**0**	**0.86**	**0.71**	**0**		**0.85**	**0.25**	**0.96**	**0.51**	**0**		**0.97**	**0.76**	**0**	**0.68**	**0**		**0.8**	**0.25**	**0**	**0.38**	**0**		**0.33**	**0.92**
Cars	0	716	34	0		750	1	818	39	0		858	109	0	19	0		128	0	0	3	0		3	1739
% Cars	0	99.2	100	0		99.2	100	98.8	90.7	0		98.4	96.5	0	100	0		97	0	0	100	0		75	98.6
Trucks	0	6	0	0		6	0	10	4	0		14	4	0	0	0		4	1	0	0	0		1	25
% Trucks	0	0.8	0	0		0.8	0	1.2	9.3	0		1.6	3.5	0	0	0		3	100	0	0	0		25	1.4
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Project #24-099 - CGH Transportation

Intersection Count Report

Intersection:	Trafalgar Rd & Hwy 407 South Ramp Terminal
Municipality:	Oakville
Count Date:	Thursday, Mar 07, 2024
Site Code:	2409900002
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-10:00, 16:00-19:00
Weather:	Clear
Comments:	

Ontario Traffic Inc.
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Traffic Count Map

Intersection:	Trafalgar Rd & Hwy 407 South Ramp Terminal
Site Code:	2409900002
Municipality:	Oakville
Count Date:	Mar 07, 2024



Ontario Traffic Inc.
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Traffic Count Summary

Intersection:	Trafalgar Rd & Hwy 407 South Ramp Terminal
Site Code:	2409900002
Municipality:	Oakville
Count Date:	Mar 07, 2024

Trafalgar Rd - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	0	832	16	0	848	0	0	650	123	0	773	0	1621
08:00 - 09:00	0	927	25	0	952	0	0	777	210	0	987	0	1939
09:00 - 10:00	0	695	18	0	713	0	0	539	114	0	653	0	1366
BREAK													
16:00 - 17:00	0	743	18	0	761	0	0	1409	180	0	1589	0	2350
17:00 - 18:00	0	724	15	0	739	0	0	1467	164	0	1631	0	2370
18:00 - 19:00	0	582	16	0	598	0	0	917	118	0	1035	0	1633
GRAND TOTAL	**0**	**4503**	**108**	**0**	**4611**	**0**	**0**	**5759**	**909**	**0**	**6668**	**0**	**11279**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	Trafalgar Rd & Hwy 407 South Ramp Terminal
Site Code:	2409900002
Municipality:	Oakville
Count Date:	Mar 07, 2024

Hwy 407 South Ramp Terminal - Traffic Summary

	East Approach Totals						West Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	0	0	0	0	0	0	30	0	59	0	89	0	89
08:00 - 09:00	0	0	0	0	0	0	35	0	68	0	103	0	103
09:00 - 10:00	0	0	0	0	0	0	25	0	45	0	70	0	70
BREAK													
16:00 - 17:00	0	0	0	0	0	0	20	0	34	0	54	0	54
17:00 - 18:00	0	0	0	0	0	0	32	0	46	0	78	0	78
18:00 - 19:00	0	0	0	0	0	0	20	0	21	0	41	0	41
GRAND TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**162**	**0**	**273**	**0**	**435**	**0**	**435**

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Trafalgar Rd & Hwy 407 South Ramp Terminal
Site Code: 2409900002
Municipality: Oakville
Count Date: Mar 07, 2024

North Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
07:00	0	186	4	0	190	0	10	1	0	11	0	0	0	0	0	0
07:15	0	177	3	0	180	0	8	0	0	8	0	0	0	0	0	0
07:30	0	224	5	0	229	0	5	0	0	5	0	0	0	0	0	0
07:45	0	207	3	0	210	0	15	0	0	15	0	0	0	0	0	0
08:00	0	213	4	0	217	0	26	0	0	26	0	0	0	0	0	0
08:15	0	206	10	0	216	0	20	1	0	21	0	0	0	0	0	0
08:30	0	228	4	0	232	0	13	1	0	14	0	0	0	0	0	0
08:45	0	206	5	0	211	0	15	0	0	15	0	0	0	0	0	0
09:00	0	159	6	0	165	0	15	0	0	15	0	0	0	0	0	0
09:15	0	174	2	0	176	0	18	0	0	18	0	0	0	0	0	0
09:30	0	171	5	0	176	0	14	0	0	14	0	0	0	0	0	0
09:45	0	121	5	0	126	0	23	0	0	23	0	0	0	0	0	0
SUBTOTAL	0	2272	56	0	2328	0	182	3	0	185	0	0	0	0	0	0

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Trafalgar Rd & Hwy 407 South Ramp Terminal
Site Code: 2409900002
Municipality: Oakville
Count Date: Mar 07, 2024

North Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	0	166	5	0	171	0	10	0	0	10	0	0	0	0	0	0
16:15	0	204	6	0	210	0	10	0	0	10	0	0	0	0	0	0
16:30	0	181	2	0	183	0	9	1	0	10	0	0	0	0	0	0
16:45	0	158	4	0	162	0	5	0	0	5	0	0	0	0	0	0
17:00	0	161	4	0	165	0	6	0	0	6	0	0	0	0	0	0
17:15	0	174	4	0	178	0	9	0	0	9	0	0	0	0	0	0
17:30	0	185	6	0	191	0	4	0	0	4	0	0	0	0	0	0
17:45	0	178	1	0	179	0	7	0	0	7	0	0	0	0	0	0
18:00	0	155	6	0	161	0	3	0	0	3	0	0	0	0	0	0
18:15	0	162	3	0	165	0	2	0	0	2	0	0	0	0	0	0
18:30	0	129	4	0	133	0	7	0	0	7	0	0	0	0	0	0
18:45	0	121	3	0	124	0	3	0	0	3	0	0	0	0	0	0
SUBTOTAL	0	1974	48	0	2022	0	75	1	0	76	0	0	0	0	0	0
GRAND TOTAL	**0**	**4246**	**104**	**0**	**4350**	**0**	**257**	**4**	**0**	**261**	**0**	**0**	**0**	**0**	**0**	**0**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Trafalgar Rd & Hwy 407 South Ramp Terminal
Site Code: 2409900002
Municipality: Oakville
Count Date: Mar 07, 2024

South Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	0	108	30	0	138	0	13	2	0	15	0	0	0	0	0	0
07:15	0	155	27	0	182	0	15	3	0	18	0	0	0	0	0	0
07:30	0	145	27	0	172	0	17	4	0	21	0	0	0	0	0	0
07:45	0	180	28	0	208	0	17	2	0	19	0	0	0	0	0	0
08:00	0	171	51	0	222	0	12	3	0	15	0	0	0	0	0	0
08:15	0	170	48	0	218	0	13	4	0	17	0	0	0	0	0	0
08:30	0	205	63	0	268	0	32	1	0	33	0	0	0	0	0	0
08:45	0	162	38	0	200	0	12	2	0	14	0	0	0	0	0	0
09:00	0	115	37	0	152	0	20	2	0	22	0	0	0	0	0	0
09:15	0	109	26	0	135	0	22	1	0	23	0	0	0	0	0	0
09:30	0	121	25	0	146	0	19	2	0	21	0	0	0	0	0	0
09:45	0	110	18	0	128	0	23	3	0	26	0	0	0	0	0	0
SUBTOTAL	0	1751	418	0	2169	0	215	29	0	244	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Trafalgar Rd & Hwy 407 South Ramp Terminal
Site Code: 2409900002
Municipality: Oakville
Count Date: Mar 07, 2024

South Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	0	311	41	0	352	0	15	6	0	21	0	0	0	0	0	0
16:15	0	357	46	0	403	0	14	4	0	18	0	0	0	0	0	0
16:30	0	373	39	0	412	0	7	1	0	8	0	0	0	0	0	0
16:45	0	324	40	0	364	0	8	3	0	11	0	0	0	0	0	0
17:00	0	366	30	0	396	0	10	5	0	15	0	0	0	0	0	0
17:15	0	385	48	0	433	0	9	5	0	14	0	0	0	0	0	0
17:30	0	380	42	0	422	0	6	5	0	11	0	0	0	0	0	0
17:45	0	299	26	0	325	0	12	3	0	15	0	0	0	0	0	0
18:00	0	249	27	0	276	0	5	3	0	8	0	0	0	0	0	0
18:15	0	265	30	0	295	0	6	4	0	10	0	0	0	0	0	0
18:30	0	197	23	0	220	0	9	4	0	13	0	0	0	0	0	0
18:45	0	182	25	0	207	0	4	2	0	6	0	0	0	0	0	0
SUBTOTAL	0	3688	417	0	4105	0	105	45	0	150	0	0	0	0	0	0
GRAND TOTAL	0	5439	835	0	6274	0	320	74	0	394	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Trafalgar Rd & Hwy 407 South Ramp Terminal
Site Code: 2409900002
Municipality: Oakville
Count Date: Mar 07, 2024

East Approach - Hwy 407 South Ramp Terminal

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Trafalgar Rd & Hwy 407 South Ramp Terminal
Site Code: 2409900002
Municipality: Oakville
Count Date: Mar 07, 2024

East Approach - Hwy 407 South Ramp Terminal

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GRAND TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Trafalgar Rd & Hwy 407 South Ramp Terminal
Site Code: 2409900002
Municipality: Oakville
Count Date: Mar 07, 2024

West Approach - Hwy 407 South Ramp Terminal

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	6	0	8	0	14	0	0	3	0	3	0	0	0	0	0	0
07:15	3	0	10	0	13	0	0	3	0	3	0	0	0	0	0	0
07:30	8	0	14	0	22	0	0	1	0	1	0	0	0	0	0	0
07:45	12	0	18	0	30	1	0	2	0	3	0	0	0	0	0	0
08:00	10	0	13	0	23	1	0	2	0	3	0	0	0	0	0	0
08:15	11	0	19	0	30	0	0	4	0	4	0	0	0	0	0	0
08:30	10	0	12	0	22	0	0	2	0	2	0	0	0	0	0	0
08:45	3	0	13	0	16	0	0	3	0	3	0	0	0	0	0	0
09:00	3	0	17	0	20	2	0	0	0	2	0	0	0	0	0	0
09:15	5	0	7	0	12	0	0	1	0	1	0	0	0	0	0	0
09:30	6	0	9	0	15	1	0	1	0	2	0	0	0	0	0	0
09:45	8	0	8	0	16	0	0	2	0	2	0	0	0	0	0	0
SUBTOTAL	85	0	148	0	233	5	0	24	0	29	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Trafalgar Rd & Hwy 407 South Ramp Terminal
Site Code: 2409900002
Municipality: Oakville
Count Date: Mar 07, 2024

West Approach - Hwy 407 South Ramp Terminal

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	
16:00	5	0	9	0	14	0	0	3	0	3	0	0	0	0	0	0
16:15	3	0	4	0	7	0	0	3	0	3	0	0	0	0	0	0
16:30	4	0	4	0	8	0	0	1	0	1	0	0	0	0	0	0
16:45	8	0	6	0	14	0	0	4	0	4	0	0	0	0	0	0
17:00	8	0	9	0	17	0	0	2	0	2	0	0	0	0	0	0
17:15	9	0	4	0	13	0	0	4	0	4	0	0	0	0	0	0
17:30	8	0	17	0	25	0	0	2	0	2	0	0	0	0	0	0
17:45	7	0	6	0	13	0	0	2	0	2	0	0	0	0	0	0
18:00	4	0	3	0	7	0	0	2	0	2	0	0	0	0	0	0
18:15	8	0	6	0	14	0	0	3	0	3	0	0	0	0	0	0
18:30	3	0	2	0	5	2	0	3	0	5	0	0	0	0	0	0
18:45	3	0	1	0	4	0	0	1	0	1	0	0	0	0	0	0
SUBTOTAL	70	0	71	0	141	2	0	30	0	32	0	0	0	0	0	0
GRAND TOTAL	155	0	219	0	374	7	0	54	0	61	0	0	0	0	0	0

Peak Hour Diagram

Specified Period
From: 07:00:00
To: 10:00:00

One Hour Peak
From: 07:45:00
To: 08:45:00

Intersection: Trafalgar Rd & Hwy 407 South Ramp Terminal
Site Code: 2409900002
Count Date: Mar 07, 2024

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

North Approach

	Out	In	Total
Cars	875	769	1644
Trucks	76	76	152
Bicycles	0	0	0
	951	**845**	**1796**

Trafalgar Rd

Bicycles	0	0	0	0
Trucks	2	74	0	0
Cars	21	854	0	0
Totals	**23**	**928**	**0**	**0**

Peds: 0

East Approach

	Out	In	Total
Cars	0	190	190
Trucks	0	10	10
Bicycles	0	0	0
	0	**200**	**200**

Hwy 407 South Ramp Terminal

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	2	43	**45**
0	0	0	**0**
0	10	62	**72**

Peds: 0



Peds: 0

Hwy 407 South Ramp Terminal

Totals	Cars	Trucks	Bicycles

Peds: 0

West Approach

	Out	In	Total
Cars	105	21	126
Trucks	12	2	14
Bicycles	0	0	0
	117	**23**	**140**

Totals	**0**	**800**	**200**	**0**
Cars	0	726	190	0
Trucks	0	74	10	0
Bicycles	0	0	0	0

Trafalgar Rd

South Approach

	Out	In	Total
Cars	916	916	1832
Trucks	84	84	168
Bicycles	0	0	0
	1000	**1000**	**2000**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Trafalgar Rd & Hwy 407 South Ramp Terminal
Site Code: 2409900002
Count Date: Mar 07, 2024
Period: 07:00 - 10:00

Peak Hour Data (07:45 - 08:45)

Start Time	North Approach Trafalgar Rd						South Approach Trafalgar Rd						East Approach Hwy 407 South Ramp Terminal						West Approach Hwy 407 South Ramp Terminal						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
07:45	0	222	3	0	0	225	0	197	30	0	0	227					0	0	13	0	20	0	0	33	485
08:00	0	239	4	0	0	243	0	183	54	0	0	237					0	0	11	0	15	0	0	26	506
08:15	0	226	11	0	0	237	0	183	52	0	0	235					0	0	11	0	23	0	0	34	506
08:30	0	241	5	0	0	246	0	237	64	0	0	301					0	0	10	0	14	0	0	24	571
Grand Total	**0**	**928**	**23**	**0**	**0**	**951**	**0**	**800**	**200**	**0**	**0**	**1000**					**0**	**0**	**45**	**0**	**72**	**0**	**0**	**117**	**2068**
Approach %	0	97.6	2.4	0		-	0	80	20	0		-						-	38.5	0	61.5	0		-	
Totals %	0	44.9	1.1	0		46	0	38.7	9.7	0		48.4						0	2.2	0	3.5	0		5.7	
PHF	**0**	**0.96**	**0.52**	**0**		**0.97**	**0**	**0.84**	**0.78**	**0**		**0.83**						**0**	**0.87**	**0**	**0.78**	**0**		**0.86**	**0.91**
Cars	0	854	21	0		875	0	726	190	0		916						0	43	0	62	0		105	1896
% Cars	0	92	91.3	0		92	0	90.8	95	0		91.6						0	95.6	0	86.1	0		89.7	91.7
Trucks	0	74	2	0		76	0	74	10	0		84						0	2	0	10	0		12	172
% Trucks	0	8	8.7	0		8	0	9.3	5	0		8.4						0	4.4	0	13.9	0		10.3	8.3
Bicycles	0	0	0	0		0	0	0	0	0		0						0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0						0	0	0	0	0		0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Peak Hour Diagram

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

One Hour Peak
From: 16:45:00
To: 17:45:00

Intersection: Trafalgar Rd & Hwy 407 South Ramp Terminal
Site Code: 2409900002
Count Date: Mar 07, 2024

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

North Approach

	Out	In	Total
Cars	696	1488	2184
Trucks	24	33	57
Bicycles	0	0	0
	720	**1521**	**2241**

Trafalgar Rd

Bicycles	0	0	0	0
Trucks	0	24	0	0
Cars	18	678	0	0
Totals	**18**	**702**	**0**	**0**

Peds: 0

East Approach

	Out	In	Total
Cars	0	160	160
Trucks	0	18	18
Bicycles	0	0	0
	0	**178**	**178**

Hwy 407 South Ramp Terminal

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	0	33	**33**
0	0	0	**0**
0	12	36	**48**

Peds: 0



Peds: 0

Peds: 0

Hwy 407 South Ramp Terminal

Totals	Cars	Trucks	Bicycles

West Approach

	Out	In	Total
Cars	69	18	87
Trucks	12	0	12
Bicycles	0	0	0
	81	**18**	**99**

Trafalgar Rd

Totals	**0**	**1488**	**178**	**0**
Cars	0	1455	160	0
Trucks	0	33	18	0
Bicycles	0	0	0	0

South Approach

	Out	In	Total
Cars	1615	714	2329
Trucks	51	36	87
Bicycles	0	0	0
	1666	**750**	**2416**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Trafalgar Rd & Hwy 407 South Ramp Terminal
Site Code: 2409900002
Count Date: Mar 07, 2024
Period: 16:00 - 19:00

Peak Hour Data (16:45 - 17:45)

Start Time	North Approach Trafalgar Rd						South Approach Trafalgar Rd						East Approach Hwy 407 South Ramp Terminal						West Approach Hwy 407 South Ramp Terminal						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
16:45	0	163	4	0	0	167	0	332	43	0	0	375					0	0	8	0	10	0	0	18	560
17:00	0	167	4	0	0	171	0	376	35	0	0	411					0	0	8	0	11	0	0	19	601
17:15	0	183	4	0	0	187	0	394	53	0	0	447					0	0	9	0	8	0	0	17	651
17:30	0	189	6	0	0	195	0	386	47	0	0	433					0	0	8	0	19	0	0	27	655
Grand Total	**0**	**702**	**18**	**0**	**0**	**720**	**0**	**1488**	**178**	**0**	**0**	**1666**					**0**	**0**	**33**	**0**	**48**	**0**	**0**	**81**	**2467**
Approach %	0	97.5	2.5	0		-	0	89.3	10.7	0		-						-	40.7	0	59.3	0		-	
Totals %	0	28.5	0.7	0		29.2	0	60.3	7.2	0		67.5						0	1.3	0	1.9	0		3.3	
PHF	**0**	**0.93**	**0.75**	**0**		**0.92**	**0**	**0.94**	**0.84**	**0**		**0.93**						**0**	**0.92**	**0**	**0.63**	**0**		**0.75**	**0.94**
Cars	0	678	18	0		696	0	1455	160	0		1615						0	33	0	36	0		69	2380
% Cars	0	96.6	100	0		96.7	0	97.8	89.9	0		96.9						0	100	0	75	0		85.2	96.5
Trucks	0	24	0	0		24	0	33	18	0		51						0	0	0	12	0		12	87
% Trucks	0	3.4	0	0		3.3	0	2.2	10.1	0		3.1						0	0	0	25	0		14.8	3.5
Bicycles	0	0	0	0		0	0	0	0	0		0						0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0						0	0	0	0	0		0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Project #24-099 - CGH Transportation

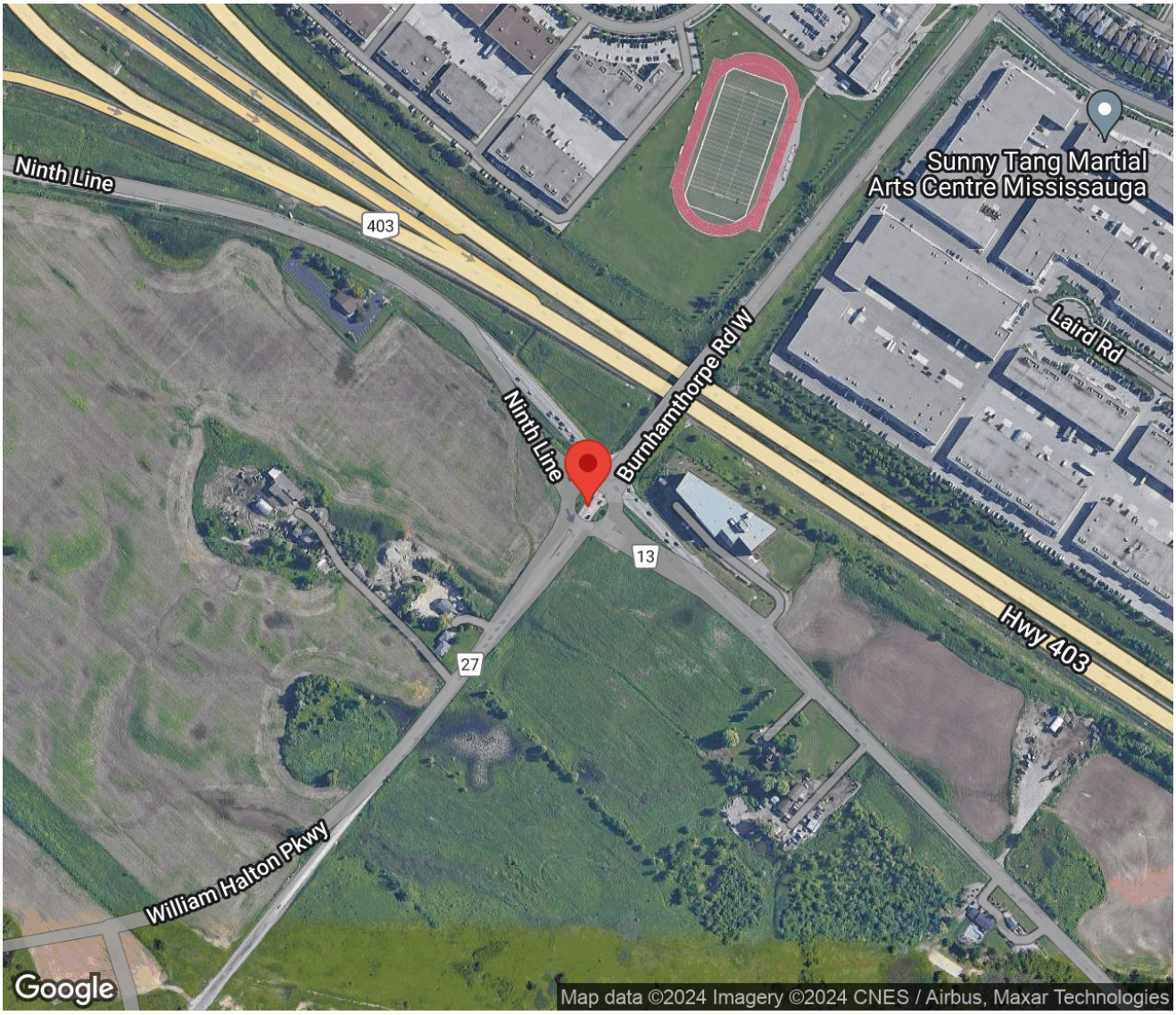
Intersection Count Report

Intersection:	Ninth Line & Burnhamthorpe Rd W - William Halton Pkwy
Municipality:	Oakville
Count Date:	Thursday, Mar 07, 2024
Site Code:	2409900003
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-10:00, 16:00-19:00
Weather:	Clear
Comments:	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Map

Intersection:	Ninth Line & Burnhamthorpe Rd W - William Halton Pkwy
Site Code:	2409900003
Municipality:	Oakville
Count Date:	Mar 07, 2024



Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	Ninth Line & Burnhamthorpe Rd W - William Halton Pkwy
Site Code:	2409900003
Municipality:	Oakville
Count Date:	Mar 07, 2024

Ninth Line - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	136	476	26	0	638	0	93	231	61	0	385	0	1023
08:00 - 09:00	173	547	63	0	783	0	100	304	86	0	490	0	1273
09:00 - 10:00	130	398	43	0	571	0	116	246	67	0	429	0	1000
BREAK													
16:00 - 17:00	103	298	86	0	487	0	287	558	182	0	1027	0	1514
17:00 - 18:00	86	308	61	0	455	0	250	622	229	0	1101	0	1556
18:00 - 19:00	125	288	48	0	461	0	151	443	163	0	757	0	1218
GRAND TOTAL	**753**	**2315**	**327**	**0**	**3395**	**0**	**997**	**2404**	**788**	**0**	**4189**	**0**	**7584**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	Ninth Line & Burnhamthorpe Rd W - William Halton Pkwy
Site Code:	2409900003
Municipality:	Oakville
Count Date:	Mar 07, 2024

Burnhamthorpe Rd W - Traffic Summary

	East Approach Totals						West Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	80	189	60	0	329	0	33	427	200	0	660	0	989
08:00 - 09:00	90	287	83	2	462	0	74	550	258	0	882	0	1344
09:00 - 10:00	59	184	60	0	303	0	56	422	162	0	640	0	943
BREAK													
16:00 - 17:00	121	639	132	1	893	0	25	465	116	0	606	0	1499
17:00 - 18:00	104	599	82	0	785	0	34	462	103	0	599	0	1384
18:00 - 19:00	114	489	117	0	720	0	34	396	97	0	527	0	1247
GRAND TOTAL	**568**	**2387**	**534**	**3**	**3492**	**0**	**256**	**2722**	**936**	**0**	**3914**	**0**	**7406**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Ninth Line & Burnhamthorpe Rd W - William Halton Pkwy
Site Code: 2409900003
Municipality: Oakville
Count Date: Mar 07, 2024

North Approach - Ninth Line

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
07:00	32	72	2	0	106	0	2	0	0	2	0	0	0	0	0	0
07:15	34	102	10	0	146	0	1	0	0	1	0	0	0	0	0	0
07:30	33	136	7	0	176	0	1	0	0	1	0	0	0	0	0	0
07:45	37	160	7	0	204	0	2	0	0	2	0	0	0	0	0	0
08:00	33	148	5	0	186	0	2	0	0	2	0	0	0	0	0	0
08:15	37	105	10	0	152	1	2	0	0	3	0	0	0	0	0	0
08:30	42	139	19	0	200	1	5	0	0	6	0	0	0	0	0	0
08:45	59	146	28	0	233	0	0	1	0	1	0	0	0	0	0	0
09:00	38	97	14	0	149	0	3	0	0	3	0	0	0	0	0	0
09:15	34	96	8	0	138	2	2	0	0	4	0	0	0	0	0	0
09:30	36	95	10	0	141	2	4	0	0	6	0	0	0	0	0	0
09:45	18	98	11	0	127	0	3	0	0	3	0	0	0	0	0	0
SUBTOTAL	433	1394	131	0	1958	6	27	1	0	34	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Ninth Line & Burnhamthorpe Rd W - William Halton Pkwy
Site Code: 2409900003
Municipality: Oakville
Count Date: Mar 07, 2024

North Approach - Ninth Line

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	20	67	27	0	114	2	2	0	0	4	0	0	0	0	0	0
16:15	25	81	27	0	133	0	1	0	0	1	0	0	0	0	0	0
16:30	23	77	13	0	113	1	0	0	0	1	0	0	0	0	0	0
16:45	32	70	19	0	121	0	0	0	0	0	0	0	0	0	0	0
17:00	20	72	20	0	112	1	1	0	0	2	0	0	0	0	0	0
17:15	24	70	13	0	107	0	0	0	0	0	0	0	0	0	0	0
17:30	23	88	19	0	130	0	1	0	0	1	0	0	0	0	0	0
17:45	18	76	9	0	103	0	0	0	0	0	0	0	0	0	0	0
18:00	30	66	12	0	108	0	2	0	0	2	0	0	0	0	0	0
18:15	32	75	16	0	123	0	0	0	0	0	0	0	0	0	0	0
18:30	33	67	10	0	110	2	0	0	0	2	0	0	0	0	0	0
18:45	26	78	10	0	114	2	0	0	0	2	0	0	0	0	0	0
SUBTOTAL	306	887	195	0	1388	8	7	0	0	15	0	0	0	0	0	0
GRAND TOTAL	739	2281	326	0	3346	14	34	1	0	49	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Ninth Line & Burnhamthorpe Rd W - William Halton Pkwy
Site Code: 2409900003
Municipality: Oakville
Count Date: Mar 07, 2024

South Approach - Ninth Line

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
07:00	17	40	13	0	70	9	1	0	0	10	0	0	0	0	0	0
07:15	18	49	14	0	81	9	1	0	0	10	0	0	0	0	0	0
07:30	11	65	12	0	88	8	3	0	0	11	0	0	0	0	0	0
07:45	16	70	22	0	108	5	2	0	0	7	0	0	0	0	0	0
08:00	13	65	14	0	92	1	1	0	0	2	0	0	0	0	0	0
08:15	19	71	21	0	111	9	0	0	0	9	0	0	0	0	0	0
08:30	20	73	21	0	114	6	1	0	0	7	0	0	0	0	0	0
08:45	25	92	27	0	144	7	1	3	0	11	0	0	0	0	0	0
09:00	23	66	25	0	114	6	6	0	0	12	0	0	0	0	0	0
09:15	22	54	16	0	92	10	3	3	0	16	0	0	0	0	0	0
09:30	25	59	11	0	95	10	6	0	0	16	0	0	0	0	0	0
09:45	11	46	12	0	69	9	6	0	0	15	0	0	0	0	0	0
SUBTOTAL	220	750	208	0	1178	89	31	6	0	126	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Ninth Line & Burnhamthorpe Rd W - William Halton Pkwy
Site Code: 2409900003
Municipality: Oakville
Count Date: Mar 07, 2024

South Approach - Ninth Line

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	69	140	46	0	255	6	2	1	0	9	0	0	0	0	0	0
16:15	81	134	38	0	253	3	3	0	0	6	0	0	0	0	0	0
16:30	63	135	47	0	245	3	0	0	0	3	0	0	0	0	0	0
16:45	60	142	49	0	251	2	2	1	0	5	0	0	0	0	0	0
17:00	69	169	72	0	310	1	1	2	0	4	0	0	0	0	0	0
17:15	68	156	52	0	276	4	1	0	0	5	0	0	0	0	0	0
17:30	66	148	41	0	255	1	1	1	0	3	0	0	0	0	0	0
17:45	40	145	61	0	246	1	1	0	0	2	0	0	0	0	0	0
18:00	35	114	46	0	195	2	0	2	0	4	0	0	0	0	0	0
18:15	46	134	54	0	234	1	0	0	0	1	0	0	0	0	0	0
18:30	33	96	27	0	156	2	0	0	0	2	0	0	0	0	0	0
18:45	31	98	33	0	162	1	1	1	0	3	0	0	0	0	0	0
SUBTOTAL	661	1611	566	0	2838	27	12	8	0	47	0	0	0	0	0	0
GRAND TOTAL	881	2361	774	0	4016	116	43	14	0	173	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Ninth Line & Burnhamthorpe Rd W - William Halton Pkwy
Site Code: 2409900003
Municipality: Oakville
Count Date: Mar 07, 2024

East Approach - Burnhamthorpe Rd W

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	15	27	9	0	51	1	0	0	0	1	0	0	0	0	0	0
07:15	12	46	15	0	73	0	3	0	0	3	0	0	0	0	0	0
07:30	25	54	15	0	94	0	0	1	0	1	0	0	0	0	0	0
07:45	27	59	18	0	104	0	0	2	0	2	0	0	0	0	0	0
08:00	26	60	19	2	107	1	2	0	0	3	0	0	0	0	0	0
08:15	23	72	16	0	111	0	1	0	0	1	0	0	0	0	0	0
08:30	19	87	29	0	135	0	4	1	0	5	0	0	0	0	0	0
08:45	21	60	16	0	97	0	1	2	0	3	0	0	0	0	0	0
09:00	14	50	17	0	81	3	2	2	0	7	0	0	0	0	0	0
09:15	12	46	14	0	72	1	1	0	0	2	0	0	0	0	0	0
09:30	12	43	15	0	70	4	1	1	0	6	0	1	0	0	1	0
09:45	11	37	11	0	59	2	3	0	0	5	0	0	0	0	0	0
SUBTOTAL	217	641	194	2	1054	12	18	9	0	39	0	1	0	0	1	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Ninth Line & Burnhamthorpe Rd W - William Halton Pkwy
Site Code: 2409900003
Municipality: Oakville
Count Date: Mar 07, 2024

East Approach - Burnhamthorpe Rd W

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	
16:00	29	175	32	0	236	0	5	1	0	6	0	0	0	0	0	0
16:15	29	148	43	1	221	0	1	0	0	1	0	0	0	0	0	0
16:30	34	161	31	0	226	0	0	0	0	0	0	0	0	0	0	0
16:45	29	148	25	0	202	0	1	0	0	1	0	0	0	0	0	0
17:00	35	161	18	0	214	0	2	2	0	4	0	0	0	0	0	0
17:15	24	175	17	0	216	0	0	1	0	1	0	0	0	0	0	0
17:30	20	145	21	0	186	0	1	0	0	1	0	0	0	0	0	0
17:45	25	114	23	0	162	0	1	0	0	1	0	0	0	0	0	0
18:00	24	137	22	0	183	0	1	1	0	2	0	0	0	0	0	0
18:15	28	141	31	0	200	0	1	0	0	1	0	0	0	0	0	0
18:30	31	106	28	0	165	0	1	0	0	1	0	0	0	0	0	0
18:45	31	102	35	0	168	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	339	1713	326	1	2379	0	14	5	0	19	0	0	0	0	0	0
GRAND TOTAL	556	2354	520	3	3433	12	32	14	0	58	0	1	0	0	1	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Ninth Line & Burnhamthorpe Rd W - William Halton Pkwy
Site Code: 2409900003
Municipality: Oakville
Count Date: Mar 07, 2024

West Approach - William Halton Pkwy

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	2	76	27	0	105	0	2	1	0	3	0	0	0	0	0	0
07:15	9	93	34	0	136	0	1	1	0	2	0	0	0	0	0	0
07:30	8	106	56	0	170	1	0	1	0	2	0	0	0	0	0	0
07:45	13	148	71	0	232	0	1	9	0	10	0	0	0	0	0	0
08:00	15	136	59	0	210	2	1	10	0	13	0	0	0	0	0	0
08:15	18	136	62	0	216	1	2	6	0	9	0	0	0	0	0	0
08:30	16	117	50	0	183	0	3	5	0	8	0	0	0	0	0	0
08:45	22	154	55	0	231	0	1	11	0	12	0	0	0	0	0	0
09:00	15	137	43	0	195	0	2	3	0	5	0	0	0	0	0	0
09:15	18	106	36	0	160	0	1	13	0	14	0	0	0	0	0	0
09:30	9	88	31	0	128	0	0	3	0	3	0	0	0	0	0	0
09:45	14	87	24	0	125	0	1	9	0	10	0	0	0	0	0	0
SUBTOTAL	159	1384	548	0	2091	4	15	72	0	91	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Ninth Line & Burnhamthorpe Rd W - William Halton Pkwy
Site Code: 2409900003
Municipality: Oakville
Count Date: Mar 07, 2024

West Approach - William Halton Pkwy

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	10	104	21	0	135	0	2	2	0	4	0	0	0	0	0	0
16:15	6	104	29	0	139	0	4	2	0	6	0	1	0	0	1	0
16:30	5	124	24	0	153	0	1	4	0	5	0	0	0	0	0	0
16:45	3	122	30	0	155	1	3	4	0	8	0	0	0	0	0	0
17:00	9	100	29	0	138	0	0	3	0	3	0	1	0	0	1	0
17:15	6	111	22	0	139	0	0	1	0	1	0	0	0	0	0	0
17:30	8	142	20	0	170	0	1	5	0	6	0	1	0	0	1	0
17:45	11	105	20	0	136	0	1	3	0	4	0	0	0	0	0	0
18:00	6	97	24	0	127	0	3	1	0	4	0	0	0	0	0	0
18:15	9	112	21	0	142	0	1	2	0	3	0	0	0	0	0	0
18:30	12	90	33	0	135	0	1	2	0	3	0	0	0	0	0	0
18:45	7	90	13	0	110	0	2	1	0	3	0	0	0	0	0	0
SUBTOTAL	92	1301	286	0	1679	1	19	30	0	50	0	3	0	0	3	0
GRAND TOTAL	251	2685	834	0	3770	5	34	102	0	141	0	3	0	0	3	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period		One Hour Peak	
From:	07:00:00	From:	08:00:00
To:	10:00:00	To:	09:00:00

Intersection: Ninth Line & Burnhamthorpe Rd W - William Halton Pkwy
Site Code: 2409900003
Count Date: Mar 07, 2024

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Ninth Line runs N/S

North Approach

	Out	In	Total
Cars	771	452	1223
Trucks	12	9	21
Bicycles	0	0	0
	783	**461**	**1244**

Ninth Line

Bicycles	0	0	0	0
Trucks	1	9	2	0
Cars	62	538	171	0
Totals	**63**	**547**	**173**	**0**

Peds: 0

East Approach

	Out	In	Total
Cars	450	799	1249
Trucks	12	12	24
Bicycles	0	0	0
	462	**811**	**1273**

William Halton Pkwy

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	3	71	**74**
0	7	543	**550**
0	32	226	**258**

Peds: 0



Peds: 0

Burnhamthorpe Rd W

Totals	Cars	Trucks	Bicycles
2	2	0	0
83	80	3	0
287	279	8	0
90	89	1	0

Peds: 0

West Approach

	Out	In	Total
Cars	840	418	1258
Trucks	42	32	74
Bicycles	0	0	0
	882	**450**	**1332**

Totals	**100**	**304**	**86**	**0**
Cars	77	301	83	0
Trucks	23	3	3	0
Bicycles	0	0	0	0

Ninth Line

South Approach

	Out	In	Total
Cars	461	853	1314
Trucks	29	42	71
Bicycles	0	0	0
	490	**895**	**1385**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Ninth Line & Burnhamthorpe Rd W - William Halton Pkwy
Site Code: 2409900003
Count Date: Mar 07, 2024
Period: 07:00 - 10:00

Peak Hour Data (08:00 - 09:00)

Start Time	North Approach Ninth Line						South Approach Ninth Line						East Approach Burnhamthorpe Rd W						West Approach William Halton Pkwy						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
08:00	33	150	5	0	0	188	14	66	14	0	0	94	27	62	19	2	0	110	17	137	69	0	0	223	615
08:15	38	107	10	0	0	155	28	71	21	0	0	120	23	73	16	0	0	112	19	138	68	0	0	225	612
08:30	43	144	19	0	0	206	26	74	21	0	0	121	19	91	30	0	0	140	16	120	55	0	0	191	658
08:45	59	146	29	0	0	234	32	93	30	0	0	155	21	61	18	0	0	100	22	155	66	0	0	243	732
Grand Total	**173**	**547**	**63**	**0**	**0**	**783**	**100**	**304**	**86**	**0**	**0**	**490**	**90**	**287**	**83**	**2**	**0**	**462**	**74**	**550**	**258**	**0**	**0**	**882**	**2617**
Approach %	22.1	69.9	8	0		-	20.4	62	17.6	0		-	19.5	62.1	18	0.4		-	8.4	62.4	29.3	0		-	
Totals %	6.6	20.9	2.4	0		29.9	3.8	11.6	3.3	0		18.7	3.4	11	3.2	0.1		17.7	2.8	21	9.9	0		33.7	
PHF	**0.73**	**0.91**	**0.54**	**0**		**0.84**	**0.78**	**0.82**	**0.72**	**0**		**0.79**	**0.83**	**0.79**	**0.69**	**0.25**		**0.83**	**0.84**	**0.89**	**0.93**	**0**		**0.91**	**0.89**
Cars	171	538	62	0		771	77	301	83	0		461	89	279	80	2		450	71	543	226	0		840	2522
% Cars	98.8	98.4	98.4	0		98.5	77	99	96.5	0		94.1	98.9	97.2	96.4	100		97.4	95.9	98.7	87.6	0		95.2	96.4
Trucks	2	9	1	0		12	23	3	3	0		29	1	8	3	0		12	3	7	32	0		42	95
% Trucks	1.2	1.6	1.6	0		1.5	23	1	3.5	0		5.9	1.1	2.8	3.6	0		2.6	4.1	1.3	12.4	0		4.8	3.6
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Peak Hour Diagram

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Specified Period		One Hour Peak	
From:	16:00:00	From:	16:15:00
To:	19:00:00	To:	17:15:00

Intersection: Ninth Line & Burnhamthorpe Rd W - William Halton Pkwy
Site Code: 2409900003
Count Date: Mar 07, 2024

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Ninth Line runs N/S

North Approach

	Out	In	Total
Cars	479	720	1199
Trucks	4	9	13
Bicycles	0	0	0
	483	**729**	**1212**

Ninth Line

Bicycles	0	0	0	0
Trucks	0	2	2	0
Cars	79	300	100	0
Totals	**79**	**302**	**102**	**0**

Peds: 0

East Approach

	Out	In	Total
Cars	863	757	1620
Trucks	6	13	19
Bicycles	0	2	2
	869	**772**	**1641**

William Halton Pkwy

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	1	23	**24**
2	8	450	**460**
0	13	112	**125**

Peds: 0

Peds: 0

Burnhamthorpe Rd W

Totals	Cars	Trucks	Bicycles
1	1	0	0
119	117	2	0
622	618	4	0
127	127	0	0

Peds: 0

West Approach

	Out	In	Total
Cars	585	970	1555
Trucks	22	13	35
Bicycles	2	0	2
	609	**983**	**1592**

Totals	**282**	**586**	**209**	**0**
Cars	273	580	206	0
Trucks	9	6	3	0
Bicycles	0	0	0	0

Ninth Line

South Approach

	Out	In	Total
Cars	1059	539	1598
Trucks	18	15	33
Bicycles	0	0	0
	1077	**554**	**1631**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Ninth Line & Burnhamthorpe Rd W - William Halton Pkwy
Site Code: 2409900003
Count Date: Mar 07, 2024
Period: 16:00 - 19:00

Peak Hour Data (16:15 - 17:15)

Start Time	North Approach Ninth Line						South Approach Ninth Line						East Approach Burnhamthorpe Rd W						West Approach William Halton Pkwy						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
16:15	25	82	27	0	0	134	84	137	38	0	0	259	29	149	43	1	0	222	6	109	31	0	0	146	761
16:30	24	77	13	0	0	114	66	135	47	0	0	248	34	161	31	0	0	226	5	125	28	0	0	158	746
16:45	32	70	19	0	0	121	62	144	50	0	0	256	29	149	25	0	0	203	4	125	34	0	0	163	743
17:00	21	73	20	0	0	114	70	170	74	0	0	314	35	163	20	0	0	218	9	101	32	0	0	142	788
Grand Total	**102**	**302**	**79**	**0**	**0**	**483**	**282**	**586**	**209**	**0**	**0**	**1077**	**127**	**622**	**119**	**1**	**0**	**869**	**24**	**460**	**125**	**0**	**0**	**609**	**3038**
Approach %	21.1	62.5	16.4	0		-	26.2	54.4	19.4	0		-	14.6	71.6	13.7	0.1		-	3.9	75.5	20.5	0		-	
Totals %	3.4	9.9	2.6	0		15.9	9.3	19.3	6.9	0		35.5	4.2	20.5	3.9	0		28.6	0.8	15.1	4.1	0		20	
PHF	**0.8**	**0.92**	**0.73**	**0**		**0.9**	**0.84**	**0.86**	**0.71**	**0**		**0.86**	**0.91**	**0.95**	**0.69**	**0.25**		**0.96**	**0.67**	**0.92**	**0.92**	**0**		**0.93**	**0.96**
Cars	100	300	79	0		479	273	580	206	0		1059	127	618	117	1		863	23	450	112	0		585	2986
% Cars	98	99.3	100	0		99.2	96.8	99	98.6	0		98.3	100	99.4	98.3	100		99.3	95.8	97.8	89.6	0		96.1	98.3
Trucks	2	2	0	0		4	9	6	3	0		18	0	4	2	0		6	1	8	13	0		22	50
% Trucks	2	0.7	0	0		0.8	3.2	1	1.4	0		1.7	0	0.6	1.7	0		0.7	4.2	1.7	10.4	0		3.6	1.6
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	2	0	0		2	2
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0.4	0	0		0.3	0.1
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Project #24-140 - CGH Transportation

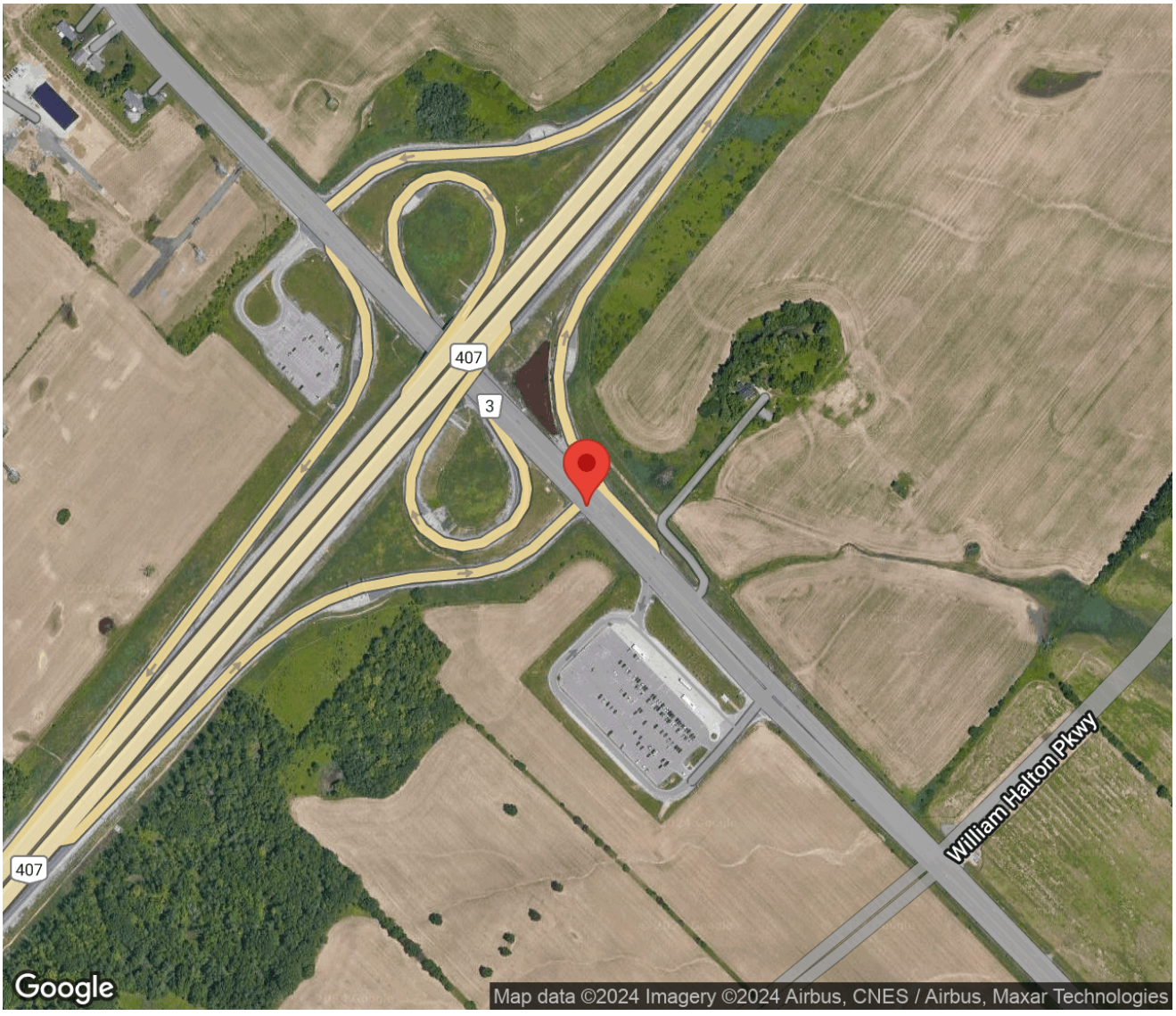
Intersection Count Report

Intersection:	Trafalgar Rd & Hwy 407 South Ramp Terminal
Municipality:	Oakville
Count Date:	Saturday, Apr 13, 2024
Site Code:	2414000003
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	10:00-15:00
Weather:	Clear
Comments:	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Map

Intersection:	Trafalgar Rd & Hwy 407 South Ramp Terminal
Site Code:	2414000003
Municipality:	Oakville
Count Date:	Apr 13, 2024



Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	Trafalgar Rd & Hwy 407 South Ramp Terminal
Site Code:	2414000003
Municipality:	Oakville
Count Date:	Apr 13, 2024

Trafalgar Rd - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
10:00 - 11:00	0	622	12	0	634	0	0	513	57	0	570	0	1204
11:00 - 12:00	0	677	21	0	698	0	0	626	84	1	711	0	1409
12:00 - 13:00	0	741	14	0	755	0	0	750	90	1	841	0	1596
13:00 - 14:00	0	772	20	0	792	0	0	809	85	0	894	0	1686
14:00 - 15:00	0	843	12	0	855	0	0	796	86	0	882	0	1737
GRAND TOTAL	**0**	**3655**	**79**	**0**	**3734**	**0**	**0**	**3494**	**402**	**2**	**3898**	**0**	**7632**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	Trafalgar Rd & Hwy 407 South Ramp Terminal
Site Code:	2414000003
Municipality:	Oakville
Count Date:	Apr 13, 2024

Hwy 407 South Ramp Terminal - Traffic Summary

	East Approach Totals						West Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
10:00 - 11:00	0	0	0	0	0	0	22	0	13	0	35	0	35
11:00 - 12:00	0	0	0	0	0	0	26	0	25	0	51	0	51
12:00 - 13:00	0	0	0	0	0	0	29	0	20	0	49	0	49
13:00 - 14:00	0	0	0	0	0	0	31	0	22	0	53	0	53
14:00 - 15:00	0	0	0	0	0	0	31	0	34	0	65	0	65
GRAND TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**139**	**0**	**114**	**0**	**253**	**0**	**253**

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Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Trafalgar Rd & Hwy 407 South Ramp Terminal
Site Code: 2414000003
Municipality: Oakville
Count Date: Apr 13, 2024

North Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
10:00	0	133	0	0	133	0	3	0	0	3	0	0	0	0	0	0
10:15	0	155	5	0	160	0	2	0	0	2	0	0	0	0	0	0
10:30	0	172	4	0	176	0	7	0	0	7	0	0	0	0	0	0
10:45	0	148	3	0	151	0	2	0	0	2	0	0	0	0	0	0
11:00	0	144	5	0	149	0	4	0	0	4	0	0	0	0	0	0
11:15	0	163	6	0	169	0	3	0	0	3	0	0	0	0	0	0
11:30	0	179	2	0	181	0	4	0	0	4	0	0	0	0	0	0
11:45	0	173	8	0	181	0	7	0	0	7	0	0	0	0	0	0
12:00	0	156	1	0	157	0	6	0	0	6	0	0	0	0	0	0
12:15	0	190	6	0	196	0	5	0	0	5	0	0	0	0	0	0
12:30	0	192	6	0	198	0	3	0	0	3	0	0	0	0	0	0
12:45	0	183	1	0	184	0	5	0	0	5	0	1	0	0	1	0
13:00	0	195	8	0	203	0	2	0	0	2	0	0	0	0	0	0
13:15	0	195	5	0	200	0	3	0	0	3	0	0	0	0	0	0
13:30	0	181	3	0	184	0	2	0	0	2	0	0	0	0	0	0
13:45	0	190	4	0	194	0	4	0	0	4	0	0	0	0	0	0
14:00	0	210	5	0	215	0	3	0	0	3	0	0	0	0	0	0
14:15	0	226	3	0	229	0	1	0	0	1	0	0	0	0	0	0
14:30	0	196	1	0	197	0	4	0	0	4	0	0	0	0	0	0
14:45	0	200	3	0	203	0	3	0	0	3	0	0	0	0	0	0
SUBTOTAL	0	3581	79	0	3660	0	73	0	0	73	0	1	0	0	1	0

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
GRAND TOTAL	0	3581	79	0	3660	0	73	0	0	73	0	1	0	0	1	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

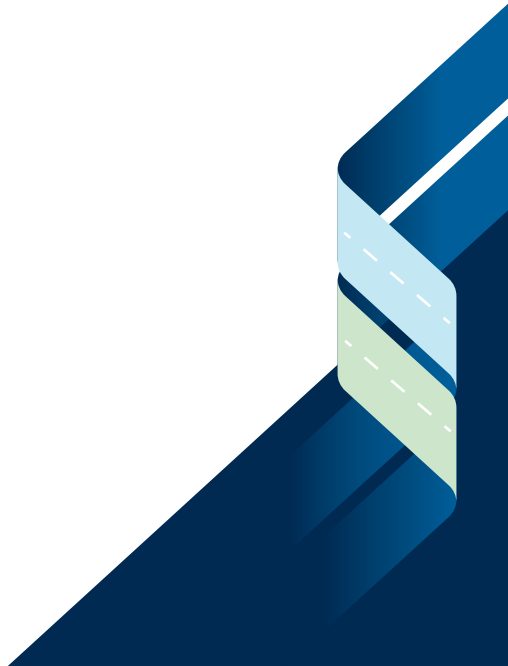
Traffic Count Data

Intersection: Trafalgar Rd & Hwy 407 South Ramp Terminal
Site Code: 2414000003
Municipality: Oakville
Count Date: Apr 13, 2024

South Approach - Trafalgar Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	
10:00	0	109	14	0	123	0	2	2	0	4	0	0	0	0	0	0
10:15	0	117	10	0	127	0	4	1	0	5	0	0	0	0	0	0
10:30	0	133	12	0	145	0	2	0	0	2	0	0	0	0	0	0
10:45	0	143	16	0	159	0	3	2	0	5	0	0	0	0	0	0
11:00	0	119	20	0	139	0	7	0	0	7	0	0	0	0	0	0
11:15	0	148	17	1	166	0	2	2	0	4	0	1	0	0	1	0
11:30	0	150	21	0	171	0	6	0	0	6	0	0	0	0	0	0
11:45	0	189	22	0	211	0	4	2	0	6	0	0	0	0	0	0
12:00	0	178	20	0	198	0	4	0	0	4	0	0	0	0	0	0
12:15	0	163	18	1	182	0	1	1	0	2	0	0	0	0	0	0
12:30	0	190	20	0	210	0	4	1	0	5	0	0	0	0	0	0
12:45	0	205	28	0	233	0	5	2	0	7	0	0	0	0	0	0
13:00	0	193	24	0	217	0	5	0	0	5	0	0	0	0	0	0
13:15	0	192	16	0	208	0	5	3	0	8	0	0	0	0	0	0
13:30	0	194	17	0	211	0	1	0	0	1	0	0	0	0	0	0
13:45	0	216	22	0	238	0	3	3	0	6	0	0	0	0	0	0
14:00	0	192	19	0	211	0	5	0	0	5	0	0	0	0	0	0
14:15	0	217	19	0	236	0	4	2	0	6	0	0	0	0	0	0
14:30	0	184	25	0	209	0	5	0	0	5	0	0	0	0	0	0
14:45	0	181	19	0	200	0	8	2	0	10	0	0	0	0	0	0
SUBTOTAL	0	3413	379	2	3794	0	80	23	0	103	0	1	0	0	1	0

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
GRAND TOTAL	0	3413	379	2	3794	0	80	23	0	103	0	1	0	0	1	0



Ontario Traffic Inc.
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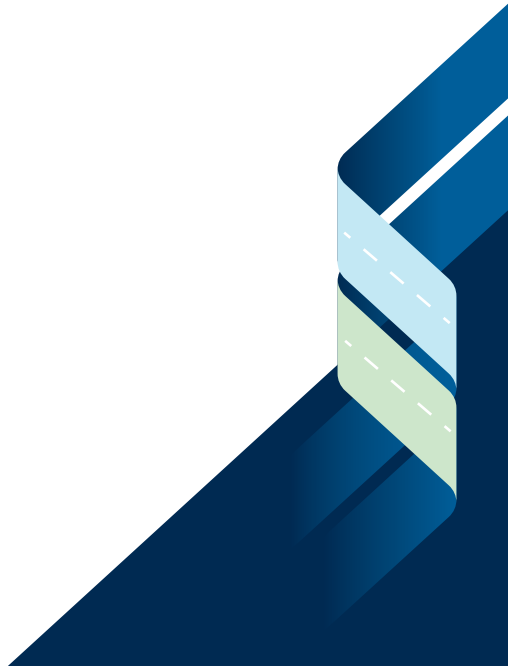
Traffic Count Data

Intersection: Trafalgar Rd & Hwy 407 South Ramp Terminal
Site Code: 2414000003
Municipality: Oakville
Count Date: Apr 13, 2024

East Approach - Hwy 407 South Ramp Terminal

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
GRAND TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Trafalgar Rd & Hwy 407 South Ramp Terminal
Site Code: 2414000003
Municipality: Oakville
Count Date: Apr 13, 2024

West Approach - Hwy 407 South Ramp Terminal

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	
10:00	6	0	0	0	6	0	0	2	0	2	0	0	0	0	0	0
10:15	2	0	2	0	4	0	0	1	0	1	0	0	0	0	0	0
10:30	6	0	1	0	7	0	0	0	0	0	0	0	0	0	0	0
10:45	8	0	5	0	13	0	0	2	0	2	0	0	0	0	0	0
11:00	6	0	4	0	10	0	0	0	0	0	0	0	0	0	0	0
11:15	7	0	2	0	9	0	0	2	0	2	0	0	0	0	0	0
11:30	7	0	6	0	13	0	0	0	0	0	0	0	0	0	0	0
11:45	6	0	9	0	15	0	0	2	0	2	0	0	0	0	0	0
12:00	8	0	6	0	14	0	0	1	0	1	0	0	0	0	0	0
12:15	10	0	2	0	12	0	0	0	0	0	0	0	0	0	0	0
12:30	7	0	3	0	10	0	0	1	0	1	0	0	0	0	0	0
12:45	4	0	5	0	9	0	0	2	0	2	0	0	0	0	0	0
13:00	8	0	8	0	16	0	0	0	0	0	0	0	0	0	0	0
13:15	1	0	2	0	3	0	0	2	0	2	0	0	0	0	0	0
13:30	11	0	3	0	14	0	0	0	0	0	0	0	0	0	0	0
13:45	11	0	5	0	16	0	0	2	0	2	0	0	0	0	0	0
14:00	7	0	6	0	13	0	0	0	0	0	0	0	0	0	0	0
14:15	6	0	9	0	15	0	0	3	0	3	0	0	0	0	0	0
14:30	10	0	6	0	16	0	0	0	0	0	0	0	0	0	0	0
14:45	8	0	8	0	16	0	0	2	0	2	0	0	0	0	0	0
SUBTOTAL	139	0	92	0	231	0	0	22	0	22	0	0	0	0	0	0

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
GRAND TOTAL	139	0	92	0	231	0	0	22	0	22	0	0	0	0	0	0

Peak Hour Diagram

Specified Period
From: 10:00:00
To: 15:00:00

One Hour Peak
From: 13:45:00
To: 14:45:00

Intersection: Trafalgar Rd & Hwy 407 South Ramp Terminal
Site Code: 2414000003
Count Date: Apr 13, 2024

Weather conditions: Clear

**** Signalized Intersection ****

Major Road: Trafalgar Rd runs N/S

North Approach

	Out	In	Total
Cars	835	843	1678
Trucks	12	17	29
Bicycles	0	0	0
	847	**860**	**1707**

Trafalgar Rd

Bicycles	0	0	0	0
Trucks	0	12	0	0
Cars	13	822	0	0
Totals	**13**	**834**	**0**	**0**

East Approach

	Out	In	Total
Cars	0	85	85
Trucks	0	5	5
Bicycles	0	0	0
	0	**90**	**90**

Hwy 407 South Ramp Terminal

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	0	34	**34**
0	0	0	**0**
0	5	26	**31**

Peds: 0

Peds: 0

Peds: 0

Hwy 407 South Ramp Terminal

Totals	Cars	Trucks	Bicycles
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

West Approach

	Out	In	Total
Cars	60	13	73
Trucks	5	0	5
Bicycles	0	0	0
	65	**13**	**78**

Totals	**0**	**826**	**90**	**0**
Cars	0	809	85	0
Trucks	0	17	5	0
Bicycles	0	0	0	0

Trafalgar Rd

South Approach

	Out	In	Total
Cars	894	848	1742
Trucks	22	17	39
Bicycles	0	0	0
	916	**865**	**1781**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Trafalgar Rd & Hwy 407 South Ramp Terminal
Site Code: 2414000003
Count Date: Apr 13, 2024
Period: 10:00 - 15:00

Peak Hour Data (13:45 - 14:45)

Start Time	North Approach Trafalgar Rd						South Approach Trafalgar Rd						East Approach Hwy 407 South Ramp Terminal						West Approach Hwy 407 South Ramp Terminal						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
13:45	0	194	4	0	0	198	0	219	25	0	0	244	0	0	0	0	0	0	11	0	7	0	0	18	460
14:00	0	213	5	0	0	218	0	197	19	0	0	216	0	0	0	0	0	0	7	0	6	0	0	13	447
14:15	0	227	3	0	0	230	0	221	21	0	0	242	0	0	0	0	0	0	6	0	12	0	0	18	490
14:30	0	200	1	0	0	201	0	189	25	0	0	214	0	0	0	0	0	0	10	0	6	0	0	16	431
Grand Total	**0**	**834**	**13**	**0**	**0**	**847**	**0**	**826**	**90**	**0**	**0**	**916**	**0**	**0**	**0**	**0**	**0**	**0**	**34**	**0**	**31**	**0**	**0**	**65**	**1828**
Approach %	0	98.5	1.5	0		-	0	90.2	9.8	0		-	0	0	0	0		-	52.3	0	47.7	0		-	
Totals %	0	45.6	0.7	0		46.3	0	45.2	4.9	0		50.1	0	0	0	0		0	1.9	0	1.7	0		3.6	
PHF	**0**	**0.92**	**0.65**	**0**		**0.92**	**0**	**0.93**	**0.9**	**0**		**0.94**	**0**	**0**	**0**	**0**		**0**	**0.77**	**0**	**0.65**	**0**		**0.9**	**0.93**
Cars	0	822	13	0		835	0	809	85	0		894	0	0	0	0		0	34	0	26	0		60	1789
% Cars	0	98.6	100	0		98.6	0	97.9	94.4	0		97.6	0	0	0	0		0	100	0	83.9	0		92.3	97.9
Trucks	0	12	0	0		12	0	17	5	0		22	0	0	0	0		0	0	0	5	0		5	39
% Trucks	0	1.4	0	0		1.4	0	2.1	5.6	0		2.4	0	0	0	0		0	0	0	16.1	0		7.7	2.1
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Appendix C

Signal Timing Plans

Town of Oakville

ECONOLITE

MOVING TRAFFIC FORWARD

REG5107 - Trafalgar Rd @ William Halton Pkwy - Econolite Type - Cobalt

Configuration Controller Sequence

Phase Ring Sequence and Assignment (MM) 1-1-1

Hardware Alternate Sequence Enable: No

Phase Ring Sequence.....(Note: Sequences identical to the prior one are not printed)

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
	B		B		B		B		B							
Sequence 1																
Ring 1	1	2	3	4	9	10	11	12	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	13	14	15	16	.	.	.	.	.	.	.	.
Sequence 2																
Ring 1	2	1	3	4	10	9	11	12	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	13	14	15	16	.	.	.	.	.	.	.	.
Sequence 3																
Ring 1	1	2	3	4	9	10	11	12	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	13	14	15	16	.	.	.	.	.	.	.	.

Phases In Use/Exclusive Ped (MM) 1-2

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Phases In Use	X	X	X	X	X	X	X	X								
Exclusive Ped																

Phase Compatibility (MM) 1-1-2

Phase	
n/a	Barrier Mode

Phase and Overlap Descriptions

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Approach	S	N	W	E	N	S	E	W	N	N	N	N	N	N	N	N
Movement	L	TR	L	TR	L	TR	L	TR								
Associated PED		X		X		X		X								
Overlap	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**
Approach	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Movement																

Administration (MM) 1-7-1

Enable Controller/Cabinet Interlock CRC	No
CRC (16 bit)	8C50
Enable Automatic Backup to Datakey	No

Backup Prevent (MM) 1-1-3

	Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Timing	1		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Phases	2	X		.	.	.	.	.	.	.	.	.	.	.	.	.	.
	3	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.
	4	.	.	X		.	.	.	.	.	.	.	.	.	.	.	.
	5	.	.	.	.		.	.	.	.	.	.	.	.	.	.	.
	6	.	.	.	.	X		.	.	.	.	.	.	.	.	.	.
	7	.	.	.	.	.	.		.	.	.	.	.	.	.	.	.
	8	.	.	.	.	.	.	X		.	.	.	.	.	.	.	.
	9	.	.	.	.	.	.	.	.		.	.	.	.	.	.	.
	10	.	.	.	.	.	.	.	.	.		.	.	.	.	.	.
	11	.	.	.	.	.	.	.	.	.	.		.	.	.	.	.
	12	.	.	.	.	.	.	.	.	.	.	.		.	.	.	.
	13	.	.	.	.	.	.	.	.	.	.	.	.		.	.	.
	14	.	.	.	.	.	.	.	.	.	.	.	.	.		.	.
	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.		.
	16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	

Simultaneous Gap (MM) 1-1-4

	Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	1		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	2	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.
	3	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.
	4	.	.	.		.	.	.	.	.	.	.	.	.	.	.	.
	5	.	.	.	.		.	.	.	.	.	.	.	.	.	.	.
Phase	6	.	.	.	.	.		.	.	.	.	.	.	.	.	.	.
Must	7	.	.	.	.	.	.		.	.	.	.	.	.	.	.	.
Gap	8	.	.	.	.	.	.	.		.	.	.	.	.	.	.	.
With	9	.	.	.	.	.	.	.	.		.	.	.	.	.	.	.
Phase	10	.	.	.	.	.	.	.	.	.		.	.	.	.	.	.
	11	.	.	.	.	.	.	.	.	.	.		.	.	.	.	.
	12	.	.	.	.	.	.	.	.	.	.	.		.	.	.	.
	13	.	.	.	.	.	.	.	.	.	.	.	.		.	.	.
	14	.	.	.	.	.	.	.	.	.	.	.	.	.		.	.
	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.		.
	16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
	Disable	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Load Switch Assignments (MM) 1-3

	Phase / Overlap	Type	Dimming				Power Up	Auto		Flash Together
			Red	Yellow	Green	Dark		Red	Yellow	
1	1	V				-	Auto	X		
2	2	V				-	Auto	X		X
3	3	V				-	Auto	X		
4	4	V				-	Auto	X		X
5	5	V				+	Auto	X		
6	6	V				+	Auto	X		X
7	7	V				+	Auto	X		
8	8	V				+	Auto	X		X
9	2	P				-	Auto			
10	4	P				-	Auto			
11	6	P				+	Auto			
12	8	P				+	Auto			
13	0	O				-	Auto	X		

14	0	O				+	Auto	X		X
15	0	O				-	Auto	X		
16	0	O				+	Auto	X		X

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MOVING TRAFFIC FORWARD

REG5107 - Trafalgar Rd @ William Halton Pkwy - Econolite Type - Cobalt

Configuration Port 1 (SDLC)

Port 1 SDLC (MM) 1-4-1

BIU	1	2	3	4	5	6	7	8
Term & Facility	X	X						
Detector Rack		X						

Enable TS2/MMU Type Cabinet: No
Enable MMU Extended Status: Yes
Enable SDLC Stop Time: No
Enable 3 Critical RFE's Lockup: Yes

MMU Program (MM) 1-4-2

Channel Can Serve With Channel	
Channel 1	**Channel 2**

Color Check Enable (MM) 1-4-3

Enable Color Check: No

MMU/LS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Green																
Yellow																
Red																

Secondary Stations/Tests (MM) 1-4-4

ID	1	2	3	4	5	6	7	8	MMU
Term & Facility									

ID	1	2	3	4	5	6	7	8	Diag
Detector Rack									

Enable SDLC Diagnostic Test: No

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Configuration Logging / Display

Event Logging (MM) 1-6-1

Critical RFE's (MMU/TF)	Yes	3 Critical Errors Within 24 Hours	Yes
MMU Flash Faults	Yes	Local Flash Fault	Yes
Non-Critical RFE's (Det/Test)	Yes	Detector Errors	Yes
Coordination Errors	No	Controller Download	Yes
Preemption Events	Yes	TSP Events	Yes
Power On/Off	Yes	Low Battery	Yes
Access	Yes	Data Change	Yes
Online / Offline	Yes		

Alarm Event	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Enable Logging	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Display Options (MM) 1-7-2

Key Click Enable:	No
Switch to Graphics Mode:	No
LED Mode:	Auto
Display Mode:	Basic
Trans Mode Pop-Up Disable:	No

Sign On (MM) 8-5

Sign On Message Line 1: Dual Walk Term & Call Next Thru
Sign On Message Line 2:

Software Modules (MM) 8-7

Application Version: 32.67.20
OS (Boot) Version: 06.12.00

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Logic Processor Page 1

Logic Statement Control (MM) 1-8-1

Logic #	Statement Control

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REG5107 - Trafalgar Rd @ William Halton Pkwy - Econolite Type - Cobalt

Controller Timing Plan (MM) 2-1

Plan 1 - ""

Phase	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Direction	**S-L**	**N-TR**	**W-L**	**E-TR**	**N-L**	**S-TR**	**E-L**	**W-TR**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Min Green	7	20	7	20	7	20	7	20	5	5	5	5	5	5	5	5
Bk Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	7	0	7	0	7	0	7	0	10	0	10	0	10	0	10
Walk2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear	0	29	0	24	0	29	0	24	0	16	0	16	0	16	0	16
Ped Clear 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Ext	3.0	5.0	3.0	5.0	3.0	5.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Ext 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max1	15	60	12	40	15	60	12	40	35	35	35	35	35	35	35	35
Max2	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Max3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dym Step	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	3.0	4.6	3.0	3.7	3.0	4.6	3.0	3.7	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clear	0.0	2.3	0.0	3.3	0.0	2.3	0.0	3.3	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Red Max	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Act B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sec/Act	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPTDuc	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TTReduc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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MOVING TRAFFIC FORWARD

REG5107 - Trafalgar Rd @ William Halton Pkwy - Econolite Type - Cobalt

Controller Overlaps

Vehicle Overlaps (MM) 2-2

Overlap	Type	Lag Green	Yellow	Red	Adv. Green

Phases

Overlap	Phase	Included	Protect	Ped Protect	Not Overlap	Modifier	Lag X Phases	Lag 2 Phases	Flash Green

PPLT FYA

Overlap	Protected Phase (Left Turn)	Permissive Phase (Opposing Thru)	Flashing Arrow Output	Flashing Arrow Output CH	Delay Start of FYA	Delay Start of Clearance	Action Plan SF Bit Disable	Ped Protected Enable

Guaranteed Minimum Time Data (MM) 2-4

Phase	Min Green	Walk	Ped Clear	Yellow	Red Clear	Overlap Green
A01	5	0	7	3.0	0.0	5
B02	5	0	7	3.0	0.0	5
C03	5	0	7	3.0	0.0	5
D04	5	0	7	3.0	0.0	5
E05	5	0	7	3.0	0.0	5
F06	5	0	7	3.0	0.0	5
G07	5	0	7	3.0	0.0	5
H08	5	0	7	3.0	0.0	5
I09	5	0	7	3.0	0.0	5
J10	5	0	7	3.0	0.0	5
K11	5	0	7	3.0	0.0	5
L12	5	0	7	3.0	0.0	5
M13	5	0	7	3.0	0.0	5
N14	5	0	7	3.0	0.0	5
O15	5	0	7	3.0	0.0	5
P16	5	0	7	3.0	0.0	5

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Controller Start / Flash Data (MM) 2-5

Start Up

Phase	Phase Setting
1	.
2	Y
3	.
4	.
5	.
6	Y
7	.
8	.
9	.
10	.
11	.
12	.
13	.
14	.
15	.
16	.

Overlap

Flash Thru Mon: No
Flash Time: 0
All Red: 3
Power Start Seq: 1
MUTCD Enabled: No
Y->G: n/a

Automatic Flash

Entry
2
6

Exit
2
6

Overlap Exit

Flash Thru Mon: No
Exit Flash: W
Minimum Flash: 8
Mimimum Recall: No
Cycle Through Phase: No

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Controller Options

Controller Options (MM) 2-6-1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Flashing Grn Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Guar Passage																
Non-Act I		X				X										
Non-Act II				X				X								
Dual Entry		X		X		X		X								
Cond Service																
Cond Reservice																
Ped Re-Service		X				X										
Rest In Walk																
Flashing Walk																
Ped Clr-Yel																
Ped Clr-Red																
IGRN + Veh Ext																

Ped Clear Protect: On Unit Red Revert: 2.0 MUTCD 3 Seconds Don't Walk: No

Pre-Timed Mode (MM) 2-7

Enable Pre-Timed Mode: No Free Input Disables Pre-Timed: No

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Pre-Timed																

Phase Recall Options (MM) 2-8

Plan # 1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Lock Detector																
Vehicle Recall		X				X										
Ped Recall																
Max Recall																
Soft Recall																
No Rest																
AI Calc																

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Coordination Options

Options (MM) 3-1

Manual Pattern	Auto	ECPI Coord	Yes
System Source	TBC	System Format	STD
Splits In	Percent	Offsets In	Seconds
Transition	Smooth	Max Select	MAXINH
Dwell / Add Time	0		
Delay Coord Wk-LZ	No	Force Off	Float
Offset Reference	Lead	Use Ped Time	Yes
Ped Recall	Yes	Ped Reservice	Yes
Local Zero Override	No	FO Added Ini Green	No
Re-sync Count	3	Multisync	No

Auto Perm Minimum Green (Seconds) (MM) 3-4

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

Split Demand (MM) 3-5

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

Demand	1	2
Detector	0	0
Call Time (Sec)	0	0
Cycle Count	0	0

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REG5107 - Trafalgar Rd @ William Halton Pkwy - Econolite Type - Cobalt

Coordination Pattern Data
Coordinator Pattern Data (MM) 3-2

Coordinator Pattern # 1

Split Pattern	1	TS2 (Pat-Off)	0-1	Splits In	Percent
Cycle	140	Std (COS)	9	Offsets In	Seconds
Offset Value	0s	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	1		
Actuated Walk Rest	No	Sequence	1		
Phase Reservice	No	Action Plan	1		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	S-L	N-TR	W-L	E-TR	N-L	S-TR	E-L	W-TR	N	N	N	N	N	N	N	N
Splits (Split Pat 1)	10	50	9	31	10	50	9	31	0	0	0	0	0	0	0	0
Pref 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pref 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Displacement	-	0	0	0
Split Sum	100%	100%	0%	0%

Misc. Data

Veh Perm 1	0	Veh Perm 2	0	Veh Perm 2 Disp	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall																
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X
Special Funciton Outputs																

Coordinator Pattern # 2

Split Pattern	2	TS2 (Pat-Off)	0-2	Splits In	Percent
Cycle	120	Std (COS)	17	Offsets In	Seconds
Offset Value	0s	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	1		
Actuated Walk Rest	No	Sequence	1		
Phase Reservice	No	Action Plan	2		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	S-L	N-TR	W-L	E-TR	N-L	S-TR	E-L	W-TR	N	N	N	N	N	N	N	N
Splits (Split Pat 2)	10	48	10	32	10	48	10	32	0	0	0	0	0	0	0	0
Pref 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pref 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Displacement	-	0	0	0
Split Sum	100%	100%	0%	0%

Misc. Data

Veh Perm 1	0	Veh Perm 2	0	Veh Perm 2 Disp	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall																
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X
Special Funciton Outputs																

Coordinator Pattern # 3

Split Pattern	3	TS2 (Pat-Off)	0-3	Splits In	Percent
Cycle	140	Std (COS)	25	Offsets In	Seconds
Offset Value	0s	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	1		
Actuated Walk Rest	No	Sequence	1		
Phase Reservice	No	Action Plan	3		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	S-L	N-TR	W-L	E-TR	N-L	S-TR	E-L	W-TR	N	N	N	N	N	N	N	N
Splits (Split Pat 3)	12	48	9	31	12	48	9	31	0	0	0	0	0	0	0	0
Pref 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pref 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Displacement	-	0	0	0
Split Sum	100%	100%	0%	0%

Misc. Data

Veh Perm 1	0	Veh Perm 2	0	Veh Perm 2 Disp	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall		X				X										
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X

Special Funciton Outputs								

Coordinator Pattern # 4

Split Pattern	4	TS2 (Pat-Off)	1-1	Splits In	Percent
Cycle	120	Std (COS)	33	Offsets In	Seconds
Offset Value	0s	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	1		
Actuated Walk Rest	No	Sequence	1		
Phase Reservice	No	Action Plan	4		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	S-L	N-TR	W-L	E-TR	N-L	S-TR	E-L	W-TR	N	N	N	N	N	N	N	N
Splits (Split Pat 4)	10	45	10	35	10	45	10	35	0	0	0	0	0	0	0	0
Pref 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pref 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Displacement	-	0	0	0
Split Sum	100%	100%	0%	0%

Misc. Data

Veh Perm 1	0	Veh Perm 2	0	Veh Perm 2 Disp	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall																
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X
Special Funciton Outputs																

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REG5107 - Trafalgar Rd @ William Halton Pkwy - Econolite Type - Cobalt

Coordination Split Pattern
Split Pattern Data (MM) 3-3

Split Pattern # 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	S-L	N-TR	W-L	E-TR	N-L	S-TR	E-L	W-TR	N	N	N	N	N	N	N	N
Split (percent)	10	50	9	31	10	50	9	31	0	0	0	0	0	0	0	0
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall																
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X

Ring	1	2	3	4
Split Sum	100%	100%	0%	0%

Split Pattern # 2

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	S-L	N-TR	W-L	E-TR	N-L	S-TR	E-L	W-TR	N	N	N	N	N	N	N	N
Split (percent)	10	48	10	32	10	48	10	32	0	0	0	0	0	0	0	0
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall																
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X

Ring	1	2	3	4
Split Sum	100%	100%	0%	0%

Split Pattern # 3

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	S-L	N-TR	W-L	E-TR	N-L	S-TR	E-L	W-TR	N	N	N	N	N	N	N	N
Split (percent)	12	48	9	31	12	48	9	31	0	0	0	0	0	0	0	0
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall		X				X										
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X

Ring	1	2	3	4
Split Sum	100%	100%	0%	0%

Split Pattern # 4

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	S-L	N-TR	W-L	E-TR	N-L	S-TR	E-L	W-TR	N	N	N	N	N	N	N	N

Split (percent)	10	45	10	35	10	45	10	35	0	0	0	0	0	0	0	0
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall																
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X

Ring	**1**	**2**	**3**	**4**
Split Sum	100%	100%	0%	0%

Town of Oakville

ECONOLITE

MOVING TRAFFIC FORWARD

REG5107 - Trafalgar Rd @ William Halton Pkwy - Econolite Type - Cobalt

Preempt Plan

Preempt Plan (MM) 4-1

Preempt Plan 3

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Trk Clr Veh	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Trk Clr Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Enable Trailing	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Dwell Veh	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.
Dwell Ped																
Dwell Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cycling Veh	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cycling Ped																
Cycling Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Exit Phases																
Exit Calls																
Special Function																

Enable	Yes	Preempt Override	Yes	Interlock Enable	No
Det Lock	Yes	Delay	0	Inhibit	0
Override Flash	No	Duration	10	CLR > GRN	No
Term Ovlp Asap	No	PC Through Yel	Yes	Terminate Phase	No
Ped Dark	No	Track Clear Rsrv	No	Dwell Flash	Off
Linked Pmt	0	FL Exit Color	Grn	Exit Options	Off
Exit Timing Plan	0	Reservice	0	Fault Type	Hard

Ring	1	2	3	4
Free During Pmt	No	No	No	No

Timing	Walk	Ped Clr	Min Grn	Yellow	Red
Entrance	0	7	5	4.0	2.0
	Min Grn	Ext Grn	Max Grn	Yellow	Red
Track Clear	0	0	0	4.0	1.0
	Min Dwell	Pmt Ext	Max Time	Yellow	Red
Dwell / Cycle-Exit	0	0.0	0	4.0	1.0

Preemption Active Out	On	Preempt Act Dwell	No
Other - Priority Preempt	Off	Non-Priority Pmt	Off
Inhibit Extension Time	0.0	Ped Priority Return	Off
Veh Priority Return	Off	Queue Delay	Off
Conditional Delay	Off		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Veh Pri Return %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Preempt Plan 4

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Trk Clr Veh	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Trk Clr Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Enable Trailing	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Dwell Veh	.	.	.	X	.	.	.	X	.	.	.	.	.	.	.	.
Dwell Ped																
Dwell Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cycling Veh	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cycling Ped																
Cycling Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Exit Phases		X				X										
Exit Calls																
Special Function																

Enable	Yes	Preempt Override	Yes	Interlock Enable	No
Det Lock	Yes	Delay	0	Inhibit	0
Override Flash	No	Duration	10	CLR > GRN	No
Term Ovlp Asap	No	PC Through Yel	Yes	Terminate Phase	No
Ped Dark	No	Track Clear Rsrv	No	Dwell Flash	Off
Linked Pmt	0	FL Exit Color	Grn	Exit Options	Off
Exit Timing Plan	0	Reservice	0	Fault Type	Hard

Ring	1	2	3	4
Free During Pmt	No	No	No	No

Timing	Walk	Ped Clr	Min Grn	Yellow	Red
Entrance	0	7	5	4.0	2.0
	Min Grn	Ext Grn	Max Grn	Yellow	Red
Track Clear	0	0	0	4.0	1.0
	Min Dwell	Pmt Ext	Max Time	Yellow	Red
Dwell / Cycle-Exit	0	0.0	0	4.0	1.0

Preemption Active Out	On	Preempt Act Dwell	No
Other - Priority Preempt	Off	Non-Priority Pmt	Off
Inhibit Extension Time	0.0	Ped Priority Return	Off
Veh Priority Return	Off	Queue Delay	Off
Conditional Delay	Off		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Veh Pri Return %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Town of Oakville

ECONOLITE

MOVING TRAFFIC FORWARD

REG5107 - Trafalgar Rd @ William Halton Pkwy - Econolite Type - Cobalt

Time Base Clock/Calendar
Clock/Calendar Data (MM) 5-1

Manual Action Plan:	0
SYNC Reference Time:	00:00
SYNC Reference:	Reference Time
Day Light Savings:	USDLS
Time Reset Input Set Time:	3:30:00
Standard Time From GMT:	-5

Town of Oakville

ECONOLITE

MOVING TRAFFIC FORWARD

REG5107 - Trafalgar Rd @ William Halton Pkwy - Econolite Type - Cobalt

Time Base Action Plan
Action Plan (MM) 5-2

Action Plan - 1 - "1"

Pattern	1	Override Sys	No
Timing Plan	1	Sequence	1
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall																
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																

Spec Func (1-8)								
Aux Func (1-3)								

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

Action Plan - 2 - "2"

Pattern	2	Override Sys	No
Timing Plan	1	Sequence	1
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall																
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																
Spec Func (1-8)																
Aux Func (1-3)																

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

Action Plan - 3 - "3"

Pattern	3	Override Sys	No
Timing Plan	1	Sequence	1
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall																
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																
Spec Func (1-8)																
Aux Func (1-3)																

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

Action Plan - 4 - "4"

Pattern	4	Override Sys	No
Timing Plan	1	Sequence	1
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall																
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																

Spec Func (1-8)								

Aux Func (1-3)			

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

Town of Oakville

ECONOLITE

MOVING TRAFFIC FORWARD

REG5107 - Trafalgar Rd @ William Halton Pkwy - Econolite Type - Cobalt

Time Base Day Plan/Schedule
Day Plan (MM) 5-3

Day Plan #1 - "1"

Event	Action Plan	Start Time
1	1	06:00
2	2	10:00
3	3	15:15
4	4	20:00
5	5	22:00

Day Plan #2 - "2"

Event	Action Plan	Start Time
1	99	00:00
2	2	09:00
3	3	15:00
4	99	19:00

Schedule (MM) 5-4

Schedule Number - 1

Day Plan No.: 1

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	X	X	X	X	X	X	X	X	X	X	X	X

Day (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT
		X	X	X	X	X	

Day (DOM)	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**
	X	X	X	X	X	X	X	X	X	X	X
	23	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**		
	X	X	X	X	X	X	X	X	X		

Schedule Number - 2

Day Plan No.: 2

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC

Day (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT

Day (DOM)	1	2	3	4	5	6	7	8	9	10	11
	12	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**
	23	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**		

Town of Oakville

ECONOLITE

MOVING TRAFFIC FORWARD

REG5107 - Trafalgar Rd @ William Halton Pkwy - Econolite Type - Cobalt

Detectors

Detectors - Pg 1

Veh Det Phase Assignment (MM) 6-1

Vehicle Detector Plan Number - 1

Veh Detector	Assigned Phase	Called Phase	Type
17	1		N
18	2		N
19	3		N
20	4	8	N
21	5		N
22	6		N
23	7		N
24	8	4	N
26	2		N
27	8	4	N
28	4	8	N
30	6		N
31	4	8	N
32	8	4	N

Vehicle Detector Plan Number - 2

Veh Detector	Assigned Phase	Called Phase	Type
1	1		N
2	2		N
3	3		N
4	4		N
5	5		N
6	6		N
7	7		N
8	8		N
9	9		N
10	10		N
11	11		N
12	12		N
13	13		N
14	14		N
15	15		N
16	16		N

Vehicle Detector Setup (MM) 6-2

Veh Detector	Type	TS2 Detector	Description
1	N-NTCIP	Yes	
2	N-NTCIP	Yes	
3	N-NTCIP	Yes	
4	N-NTCIP	Yes	
5	N-NTCIP	Yes	

6	N-NTCIP	Yes	
7	N-NTCIP	Yes	
8	N-NTCIP	Yes	
9	N-NTCIP	Yes	
10	N-NTCIP	Yes	
11	N-NTCIP	Yes	
12	N-NTCIP	Yes	
13	N-NTCIP	Yes	
14	N-NTCIP	Yes	
15	N-NTCIP	Yes	
16	N-NTCIP	Yes	
17	N-NTCIP	Yes	
18	N-NTCIP	Yes	
19	N-NTCIP	Yes	
20	N-NTCIP	Yes	
21	N-NTCIP	Yes	
22	N-NTCIP	Yes	
23	N-NTCIP	Yes	
24	N-NTCIP	Yes	
25	N-NTCIP	Yes	
26	N-NTCIP	Yes	
27	N-NTCIP	Yes	
28	N-NTCIP	Yes	
29	N-NTCIP	Yes	
30	N-NTCIP	Yes	
31	N-NTCIP	Yes	
32	N-NTCIP	Yes	
33	N-NTCIP	Yes	
34	N-NTCIP	Yes	
35	N-NTCIP	Yes	
36	N-NTCIP	Yes	
37	N-NTCIP	Yes	
38	N-NTCIP	Yes	
39	N-NTCIP	Yes	
40	N-NTCIP	Yes	
41	N-NTCIP	Yes	
42	N-NTCIP	Yes	
43	N-NTCIP	Yes	
44	N-NTCIP	Yes	
45	N-NTCIP	Yes	
46	N-NTCIP	Yes	
47	N-NTCIP	Yes	
48	N-NTCIP	Yes	
49	N-NTCIP	Yes	
50	N-NTCIP	Yes	
51	N-NTCIP	Yes	
52	N-NTCIP	Yes	
53	N-NTCIP	Yes	
54	N-NTCIP	Yes	
55	N-NTCIP	Yes	
56	N-NTCIP	Yes	
57	N-NTCIP	Yes	
58	N-NTCIP	Yes	
59	N-NTCIP	Yes	
60	N-NTCIP	Yes	
61	N-NTCIP	Yes	

62	N-NTCIP	Yes	
63	N-NTCIP	Yes	
64	N-NTCIP	Yes	

Vehicle Detector Plan Number - 1

Veh Detector	Phase	ECPI Log	Call Option	Delay Time	Ext Option	Extend Time / Passage Time	Queue Lim. / Discon. Time	Use Added Initial	Cross Switch Ph	Lock In	NTCIP Vol.	NTCIP Occ.	Pmt Queue Delay
1	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
2	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
3	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
4	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
5	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
6	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
7	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
8	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
9	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
10	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
11	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
12	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
13	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
14	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
15	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
16	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
17	1	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
18	2	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
19	3	No	Yes	0.0	Passage	0.0	0	No	8	Red	No	No	No
20	4	No	Yes	0.0	Passage	0.0	0	No	0	Red	No	No	No
21	5	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
22	6	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
23	7	No	Yes	0.0	Passage	0.0	0	No	4	Red	No	No	No
24	8	No	Yes	0.0	Passage	0.0	0	No	0	Red	No	No	No
25	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
26	2	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
27	8	No	Yes	15.0	Passage	0.0	0	No	0	None	No	No	No
28	4	No	Yes	0.0	Passage	0.0	0	No	0	Red	No	No	No
29	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
30	6	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
31	4	No	Yes	15.0	Passage	0.0	0	No	0	None	No	No	No
32	8	No	Yes	0.0	Passage	0.0	0	No	0	Red	No	No	No

Vehicle Detector Plan Number - 2

Veh Detector	Phase	ECPI Log	Call Option	Delay Time	Ext Option	Extend Time / Passage Time	Queue Lim. / Discon. Time	Use Added Initial	Cross Switch Ph	Lock In	NTCIP Vol.	NTCIP Occ.	Pmt Queue Delay
1	1	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
2	2	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
3	3	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
4	4	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
5	5	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
6	6	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
7	7	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
8	8	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No

9	9	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
10	10	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
11	11	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
12	12	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
13	13	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
14	14	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
15	15	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
16	16	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No

Ped Detector Phase Assignment
(MM) 6-3

Mode: NTCIP

Called Phase	Detector
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16

Town of Oakville, ON

ECONOLITE

MOVING TRAFFIC FORWARD

REG1105 - Dundas St @ Trafalgar Rd - Econolite Type - ASC/3

Configuration Controller Sequence

Phase Ring Sequence and Assignment (MM) 1-1-1

Hardware Alternate Sequence Enable: No

Phase Ring Sequence.....(Note: Sequences identical to the prior one are not printed)

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
	B		B		B		B		B							
Sequence 1																
Ring 1	1	2	3	4	9	10	13	14	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	11	12	15	16	.	.	.	.	.	.	.	.
Sequence 2																
Ring 1	2	1	3	4	10	9	13	14	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	11	12	15	16	.	.	.	.	.	.	.	.
Sequence 3																
Ring 1	1	2	4	3	9	10	14	13	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	11	12	15	16	.	.	.	.	.	.	.	.
Sequence 4																
Ring 1	2	1	4	3	10	9	14	13	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	11	12	15	16	.	.	.	.	.	.	.	.
Sequence 5																
Ring 1	1	2	3	4	9	10	13	14	.	.	.	.	.	.	.	.
Ring 2	6	5	7	8	12	11	15	16	.	.	.	.	.	.	.	.
Sequence 6																
Ring 1	2	1	3	4	10	9	13	14	.	.	.	.	.	.	.	.
Ring 2	6	5	7	8	12	11	15	16	.	.	.	.	.	.	.	.
Sequence 7																
Ring 1	1	2	4	3	9	10	14	13	.	.	.	.	.	.	.	.
Ring 2	6	5	7	8	12	11	15	16	.	.	.	.	.	.	.	.
Sequence 8																
Ring 1	2	1	4	3	10	9	14	13	.	.	.	.	.	.	.	.
Ring 2	6	5	7	8	12	11	15	16	.	.	.	.	.	.	.	.
Sequence 9																
Ring 1	1	2	3	4	9	10	13	14	.	.	.	.	.	.	.	.
Ring 2	5	6	8	7	11	12	16	15	.	.	.	.	.	.	.	.
Sequence 10																
Ring 1	2	1	3	4	10	9	13	14	.	.	.	.	.	.	.	.
Ring 2	5	6	8	7	11	12	16	15	.	.	.	.	.	.	.	.
Sequence 11																
Ring 1	1	2	4	3	9	10	14	13	.	.	.	.	.	.	.	.
Ring 2	5	6	8	7	11	12	16	15	.	.	.	.	.	.	.	.
Sequence 12																
Ring 1	2	1	4	3	10	9	14	13	.	.	.	.	.	.	.	.
Ring 2	5	6	8	7	11	12	16	15	.	.	.	.	.	.	.	.
Sequence 13																
Ring 1	1	2	3	4	9	10	13	14	.	.	.	.	.	.	.	.
Ring 2	6	5	8	7	12	11	16	15	.	.	.	.	.	.	.	.
Sequence 14																
Ring 1	2	1	3	4	10	9	13	14	.	.	.	.	.	.	.	.
Ring 2	6	5	8	7	12	11	16	15	.	.	.	.	.	.	.	.
Sequence 15																
Ring 1	1	2	4	3	9	10	14	13	.	.	.	.	.	.	.	.
Ring 2	6	5	8	7	12	11	16	15	.	.	.	.	.	.	.	.
Sequence 16																
Ring 1	2	1	4	3	10	9	14	13	.	.	.	.	.	.	.	.
Ring 2	6	5	8	7	12	11	16	15	.	.	.	.	.	.	.	.

Phases In Use/Exclusive Ped (MM) 1-2

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Phases In Use	X	X	X	X	X	X	X	X								
Exclusive Ped																

Phase Compatibility (MM) 1-1-2

Phase	
n/a	Barrier Mode

Phase and Overlap Descriptions

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description																
Overlap	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**
Description																

Administration (MM) 1-7-1

Enable Controller/Cabinet Interlock CRC	No
CRC (16 bit)	D6E9
Enable Automatic Backup to Datakey	No

Backup Prevent (MM) 1-1-3

	Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Timing	**1**		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Phases	**2**	X		.	.	.	.	.	.	.	.	.	.	.	.	.	.
	3	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.
	4	.	.	X		.	.	.	.	.	.	.	.	.	.	.	.
	5	.	.	.	.		.	.	.	.	.	.	.	.	.	.	.
	6	.	.	.	.	X		.	.	.	.	.	.	.	.	.	.
	7	.	.	.	.	.	.		.	.	.	.	.	.	.	.	.
	8	.	.	.	.	.	.	X		.	.	.	.	.	.	.	.
	9	.	.	.	.	.	.	.	.		.	.	.	.	.	.	.
	10	.	.	.	.	.	.	.	.	.		.	.	.	.	.	.
	11	.	.	.	.	.	.	.	.	.	.		.	.	.	.	.
	12	.	.	.	.	.	.	.	.	.	.	.		.	.	.	.
	13	.	.	.	.	.	.	.	.	.	.	.	.		.	.	.
	14	.	.	.	.	.	.	.	.	.	.	.	.	.		.	.
	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.		.
	16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	

Simultaneous Gap (MM) 1-1-4

	Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	1		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	2	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.
	3	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.
	4	.	.	.		.	.	.	.	.	.	.	.	.	.	.	.
	5	.	.	.	.		.	.	.	.	.	.	.	.	.	.	.
Phase	**6**	.	.	.	.	.		.	.	.	.	.	.	.	.	.	.
Must	**7**	.	.	.	.	.	.		.	.	.	.	.	.	.	.	.
Gap	**8**	.	.	.	.	.	.	.		.	.	.	.	.	.	.	.
With	**9**	.	.	.	.	.	.	.	.		.	.	.	.	.	.	.
Phase	**10**	.	.	.	.	.	.	.	.	.		.	.	.	.	.	.
	11	.	.	.	.	.	.	.	.	.	.		.	.	.	.	.
	12	.	.	.	.	.	.	.	.	.	.	.		.	.	.	.
	13	.	.	.	.	.	.	.	.	.	.	.	.		.	.	.
	14	.	.	.	.	.	.	.	.	.	.	.	.	.		.	.
	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.		.
	16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
	Disable	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Load Switch Assignments (MM) 1-3

	Phase / Overlap	Type	Dimming				Power Up	Auto		Flash Together
			Red	Yellow	Green	Dark		Red	Yellow	
1	1	V				-	Auto	X		
2	2	V				-	Auto	X		X
3	3	V				-	Auto	X		
4	4	V				-	Auto	X		X
5	5	V				+	Auto	X		
6	6	V				+	Auto	X		X
7	7	V				+	Auto	X		
8	8	V				+	Auto	X		X
9	2	P				-	Auto			
10	4	P				-	Auto			
11	6	P				+	Auto			
12	8	P				+	Auto			
13	13	.				-	Auto	X		
14	14	.				+	Auto	X		X
15	15	.				-	Auto	X		
16	16	.				+	Auto	X		X

Town of Oakville, ON

ECONOLITE

MOVING TRAFFIC FORWARD

REG1105 - Dundas St @ Trafalgar Rd - Econolite Type - ASC/3

Configuration Port 1 (SDLC)

Port 1 SDLC (MM) 1-4-1

BIU	1	2	3	4	5	6	7	8
Term & Facility	X	X						
Detector Rack	X							

Enable TS2/MMU Type Cabinet: No
Enable MMU Extended Status: Yes
Enable SDLC Stop Time: No
Enable 3 Critical RFE's Lockup: Yes

MMU Program (MM) 1-4-2

Channel Can Serve With Channel	
Channel 1	**Channel 2**
1	5
1	6
1	11
1	15
2	5
2	6
2	9
2	11
2	13
2	15
3	7
3	8
3	12
3	16
4	7
4	8
4	10
4	12
4	14
4	16
5	9
5	13
6	9
6	11
6	13
6	15
7	10
7	14
8	10
8	12
8	14
8	16
9	11
9	13
9	15
10	12
10	14
10	16
11	13
11	15

12	14
12	16
13	15
14	16

Color Check Enable (MM) 1-4-3
Enable Color Check: No

MMU/LS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Green													X	X	X	X
Yellow													X	X	X	X
Red	X		X		X		X						X	X	X	X

Secondary Stations/Tests (MM) 1-4-4

ID	1	2	3	4	5	6	7	8	MMU
Term & Facility									

ID	1	2	3	4	5	6	7	8	Diag
Detector Rack									

Enable SDLC Diagnostic Test: No

Town of Oakville, ON

ECONOLITE

MOVING TRAFFIC FORWARD

REG1105 - Dundas St @ Trafalgar Rd - Econolite Type - ASC/3

Configuration Communications 1 (SDLC)

Ethernet Port Configuration (MM) 1-5-1

DHCP Enable:	No
Controller IP:	172.16.2.114
Subnet Mask:	255.255.0.0
Default Gateway IP:	10.104.0.1
Server IP:	172.16.0.254

NTCIP (MM) 1-5-5

NTCIP Backup Time (Sec):	0
NTCIP UDP Port:	501
Ethernet Priority:	2
Port 2 Priority (Port C50S for 2070):	4
Port 3A Priority (Port C21S for 2070):	1
Port 3B Priority (Port C22S for 2070):	3

Port Configuration (MM) 1-5-2 to 1-5-4

Port	2 (C50S)	3A (C21S)	3B (C22S)
Protocol	GPS NMEA	NTCIP	ECPIP
Enable	No	Yes	No
Data Rate (BPS)	4800	9600	1200
Data, Parity, Stop	8 N 1	8 N 1	8 O 1
Address	0	1	5
Telemetry Response Delay	0.0	1.0	1.0
Duplex - Half or Full	Half	Full	Full
Flow Control	No	No	Yes
Group Address	0	0	0
Single Flag Enable	Yes	No	Yes
RTS to CTS Delay	n/a	n/a	3.0
RTS Turn Off Delay	n/a	n/a	2.0
Dropout Time	10	10	300
Early RTS	n/a	n/a	No
Telemetry Mode	n/a	n/a	FSK
ATCS Railroad	0	n/a	n/a
ATCS Railroad Line	0	n/a	n/a
ATCS Group	0	n/a	n/a
Wayside Device	0	n/a	n/a
ATC Device	0	n/a	n/a
Wayside Subnode	0	n/a	n/a
ATC Subnode	0	n/a	n/a

ECPIP (MM) 1-5-6

Controller Address:	5
Expanded System Detector Address:	0

System Detector Assignment

System Detector	Local Detector

Town of Oakville, ON

ECONOLITE

MOVING TRAFFIC FORWARD

REG1105 - Dundas St @ Trafalgar Rd - Econolite Type - ASC/3

Configuration Logging / Display

Event Logging (MM) 1-6-1

Critical RFE's (MMU/TF)	Yes	3 Critical Errors Within 24 Hours	Yes
MMU Flash Faults	Yes	Local Flash Fault	Yes
Non-Critical RFE's (Det/Test)	No	Detector Errors	No
Coordination Errors	No	Controller Download	No
Preemption Events	Yes	TSP Events	Yes
Power On/Off	Yes	Low Battery	Yes
Access	Yes	Data Change	Yes
Online / Offline	Yes		

Alarm Event	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Enable Logging	X	X														

Display Options (MM) 1-7-2

Key Click Enable:	No
Backlight Enable:	Yes
LED Mode:	Auto
Display Mode:	Basic
Screen Format:	Basic
Trans Mode Pop-Up Disable:	No

Sign On (MM) 8-5

Sign On Message Line 1: Solutions that Move the World
Sign On Message Line 2:

Software Modules (MM) 8-7

Application Version: 02.66.10
OS (Boot) Version: 01.14.03

Town of Oakville, ON

ECONOLITE

MOVING TRAFFIC FORWARD

REG1105 - Dundas St @ Trafalgar Rd - Econolite Type - ASC/3

Logic Processor Page 1

Logic Statement Control (MM) 1-8-1

Logic #	Statement Control

Town of Oakville, ON

ECONOLITE

MOVING TRAFFIC FORWARD

REG1105 - Dundas St @ Trafalgar Rd - Econolite Type - ASC/3

Logic Processor Page 2

Logic Statements (MM) 1-8-2

Town of Oakville, ON

ECONOLITE

MOVING TRAFFIC FORWARD

REG1105 - Dundas St @ Trafalgar Rd - Econolite Type - ASC/3

Controller Timing Plan (MM) 2-1

Plan 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Direction																
Min Green	7	20	7	10	7	20	7	10	5	5	5	5	0	0	0	0
Bk Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	7	0	7	0	7	0	7	0	10	0	10	0	0	0	0
Walk2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear	0	27	0	27	0	27	0	27	0	16	0	16	0	16	0	16
Ped Clear 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Ext	3.5	5.5	3.5	3.5	3.5	5.5	3.5	3.5	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Ext 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max1	20	55	20	35	20	55	20	35	35	35	35	35	35	35	35	35
Max2	20	60	20	40	20	60	20	40	40	40	40	40	40	40	40	40
Max3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dym Step	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	3.0	3.7	3.0	3.7	3.0	3.7	3.0	3.7	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clear	1.0	2.7	1.0	2.8	2.0	2.7	1.0	2.8	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Red Max	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red Revert	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Act B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sec/Act	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPTDuc	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TTReduc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Plan 2

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Direction																
Min Green	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Bk Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10
Walk2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear	0	16	0	16	0	16	0	16	0	16	0	16	0	16	0	16
Ped Clear 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Ext	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Ext 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max1	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
Max2	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Max3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dym Step	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clear	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Red Max	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Act B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sec/Act	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPTDuc	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TTReduc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Plan 3

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Direction																
Min Green	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Bk Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10
Walk2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear	0	16	0	16	0	16	0	16	0	16	0	16	0	16	0	16
Ped Clear 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Ext	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Ext 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max1	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
Max2	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Max3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dym Step	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clear	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Red Max	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Act B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sec/Act	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPTDuc	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TTReduc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Plan 4

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Direction																
Min Green	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Bk Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10
Walk2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear	0	16	0	16	0	16	0	16	0	16	0	16	0	16	0	16
Ped Clear 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Ext	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Ext 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max1	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
Max2	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Max3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dym Step	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clear	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Red Max	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Act B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sec/Act	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPTDuc	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TTReduc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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MOVING TRAFFIC FORWARD

REG1105 - Dundas St @ Trafalgar Rd - Econolite Type - ASC/3

Controller Overlaps

Vehicle Overlaps (MM) 2-2

Overlap	Type	Lag Green	Yellow	Red	Adv. Green

Phases

Overlap	Phase	Included	Protect	Ped Protect	Not Overlap	Modifier	Lag X Phases	Lag 2 Phases	Flash Green
A	2	Yes	No	No	No		No	No	.
B	4	Yes	No	No	No		No	No	.
C	6	Yes	No	No	No		No	No	.
D	8	Yes	No	No	No		No	No	.

PPLT FYA

Overlap	Protected Phase (Left Turn)	Permissive Phase (Opposing Thru)	Flashing Arrow Output	Flashing Arrow Output CH	Delay Start of FYA	Delay Start of Clearance	Action Plan SF Bit Disable	Ped Protected Enable

Guaranteed Minimum Time Data (MM) 2-4

Phase	Min Green	Walk	Ped Clear	Yellow	Red Clear	Overlap Green
A01	5	0	7	3.0	0.0	5
B02	5	0	7	3.0	0.0	5
C03	5	0	7	3.0	0.0	5
D04	5	0	7	3.0	0.0	5
E05	5	0	7	3.0	0.0	5
F06	5	0	7	3.0	0.0	5
G07	5	0	7	3.0	0.0	5
H08	5	0	7	3.0	0.0	5
I09	5	0	7	3.0	0.0	5
J10	5	0	7	3.0	0.0	5
K11	5	0	7	3.0	0.0	5
L12	5	0	7	3.0	0.0	5
M13	5	0	7	3.0	0.0	5
N14	5	0	7	3.0	0.0	5
O15	5	0	7	3.0	0.0	5
P16	5	0	7	3.0	0.0	5

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Controller Pedestrian Overlaps
Vehicle / Pedestrian Overlaps (MM) 2-3

Included	Pedestrian Overlaps

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Controller Start / Flash Data (MM) 2-5

Start Up

Phase	Phase Setting
1	.
2	Y
3	.
4	.
5	.
6	Y
7	.
8	.
9	.
10	.
11	.
12	.
13	.
14	.
15	.
16	.

Overlap
A
B
C
D

Flash Thru Mon: No
Flash Time: 3
All Red: 9
Power Start Seq: 1
MUTCD Enabled: No
Y->G: n/a

Automatic Flash

Entry
2
6

Exit
2
6

Overlap Exit
A
B
C
D

Flash Thru Mon: No
Exit Flash: .
Minimum Flash: 8
Mimimum Recall: No
Cycle Through Phase: No

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Controller Options

Controller Options (MM) 2-6-1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Flashing Grn Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Guar Passage																
Non-Act I		X				X										
Non-Act II				X				X								
Dual Entry		X		X		X		X								
Cond Service																
Cond Reservice																
Ped Re-Service		X				X										
Rest In Walk																
Flashing Walk																
Ped Clr-Yel																
Ped Clr-Red																
IGRN + Veh Ext																

Ped Clear Protect: Off Unit Red Revert: 2.0 MUTCD 3 Seconds Don't Walk: No

Pre-Timed Mode (MM) 2-7

Enable Pre-Timed Mode: No Free Input Disables Pre-Timed: No

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Pre-Timed																

Phase Recall Options (MM) 2-8

Plan # 1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Lock Detector																
Vehicle Recall			X													
Ped Recall																
Max Recall																
Soft Recall																
No Rest																
AI Calc																

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Coordination Options

Options (MM) 3-1

Manual Pattern	Auto	ECPI Coord	Yes
System Source	TBC	System Format	STD
Splits In	Percent	Offsets In	Percent
Transition	Smooth	Max Select	MAXINH
Dwell / Add Time	0		
Delay Coord Wk-LZ	No	Force Off	Float
Offset Reference	Lead	Use Ped Time	No
Ped Recall	No	Ped Reservice	Yes
Local Zero Override	Yes	FO Added Ini Green	No
Re-sync Count	0	Multisync	No

Auto Perm Minimum Green (Seconds) (MM) 3-4

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

Split Demand (MM) 3-5

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

Demand	1	2
Detector	0	0
Call Time (Sec)	0	0
Cycle Count	0	0

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MOVING TRAFFIC FORWARD

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Coordination Pattern Data
Coordinator Pattern Data (MM) 3-2

Coordinator Pattern # 1

Split Pattern	1	TS2 (Pat-Off)	0-1	Splits In	Percent
Cycle	130	Std (COS)	9	Offsets In	Percent
Offset Value	14%	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	0		
Actuated Walk Rest	No	Sequence	0		
Phase Reservice	Yes	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description																
Splits (Split Pat 1)	11	39	14	36	17	33	10	40	0	0	0	0	0	0	0	0
Pref 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pref 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Displacement	-	0	0	0
Split Sum	100%	100%	0%	0%

Misc. Data

Veh Perm 1	0	Veh Perm 2	0	Veh Perm 2 Disp	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall																
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X
Special Funciton Outputs																

Coordinator Pattern # 2

Split Pattern	2	TS2 (Pat-Off)	0-2	Splits In	Percent
Cycle	120	Std (COS)	17	Offsets In	Percent
Offset Value	6%	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	0		
Actuated Walk Rest	No	Sequence	0		
Phase Reservice	Yes	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description																
Splits (Split Pat 2)	14	36	12	38	12	38	15	35	0	0	0	0	0	0	0	0
Pref 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pref 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Displacement	-	0	0	0
Split Sum	100%	100%	0%	0%

Misc. Data

Veh Perm 1	0	Veh Perm 2	0	Veh Perm 2 Disp	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall																
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X
Special Funciton Outputs																

Coordinator Pattern # 3

Split Pattern	3	TS2 (Pat-Off)	0-3	Splits In	Percent
Cycle	130	Std (COS)	25	Offsets In	Percent
Offset Value	31%	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	0		
Actuated Walk Rest	No	Sequence	0		
Phase Reservice	Yes	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description																
Splits (Split Pat 3)	16	36	12	36	16	36	12	36	0	0	0	0	0	0	0	0
Pref 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pref 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Displacement	-	0	0	0
Split Sum	100%	100%	0%	0%

Misc. Data

Veh Perm 1	0	Veh Perm 2	0	Veh Perm 2 Disp	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall																
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X
Special Funciton Outputs																

Coordinator Pattern # 4

Split Pattern	4	TS2 (Pat-Off)	1-1	Splits In	Percent
Cycle	120	Std (COS)	33	Offsets In	Percent
Offset Value	14%	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	0		
Actuated Walk Rest	No	Sequence	0		
Phase Reservice	Yes	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description																
Splits (Split Pat 4)	13	38	12	37	13	38	12	37	0	0	0	0	0	0	0	0
Pref 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pref 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Displacement	-	0	0	0
Split Sum	100%	100%	0%	0%

Misc. Data

Veh Perm 1	0	Veh Perm 2	0	Veh Perm 2 Disp	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall																
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X
Special Funciton Outputs																

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Coordination Split Pattern
Split Pattern Data (MM) 3-3

Split Pattern # 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description																
Split (percent)	11	39	14	36	17	33	10	40	0	0	0	0	0	0	0	0
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall																
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X

Ring	1	2	3	4
Split Sum	100%	100%	0%	0%

Split Pattern # 2

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description																
Split (percent)	14	36	12	38	12	38	15	35	0	0	0	0	0	0	0	0
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall																
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X

Ring	1	2	3	4
Split Sum	100%	100%	0%	0%

Split Pattern # 3

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description																
Split (percent)	16	36	12	36	16	36	12	36	0	0	0	0	0	0	0	0
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall																
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X

Ring	1	2	3	4
Split Sum	100%	100%	0%	0%

Split Pattern # 4

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description																
Split (percent)	13	38	12	37	13	38	12	37	0	0	0	0	0	0	0	0
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall																
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X

Ring	1	2	3	4
Split Sum	100%	100%	0%	0%

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Preempt Plan

Preempt Plan (MM) 4-1

Preempt Plan 3

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Trk Clr Veh	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Trk Clr Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Enable Trailing	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Dwell Veh	.	.	X	.	.	.	.	X	.	.	.	.	.	.	.	.
Dwell Ped																
Dwell Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cycling Veh	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cycling Ped																
Cycling Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Exit Phases				X				X								
Exit Calls																
Special Function																

Enable	Yes	Preempt Override	Yes	Interlock Enable	No
Det Lock	Yes	Delay	0	Inhibit	0
Override Flash	No	Duration	10	CLR > GRN	No
Term Ovlp Asap	No	PC Through Yel	Yes	Terminate Phase	No
Ped Dark	No	Track Clear Rsrv	No	Dwell Flash	Off
Linked Pmt	0	FL Exit Color	Grn	Exit Options	Off
Exit Timing Plan	0	Reservice	0	Fault Type	Hard

Ring	1	2	3	4
Free During Pmt	No	No	No	No

Timing	Walk	Ped Clr	Min Grn	Yellow	Red
Entrance	0	7	5	4.0	1.0
	Min Grn	Ext Grn	Max Grn	Yellow	Red
Track Clear	0	0	0	4.0	1.0
	Min Dwell	Pmt Ext	Max Time	Yellow	Red
Dwell / Cycle-Exit	0	0.0	0	4.0	1.0

Preemption Active Out	On	Preempt Act Dwell	No
Other - Priority Preempt	Off	Non-Priority Pmt	Off
Inhibit Extension Time	0.0	Ped Priority Return	Off
Veh Priority Return	Off	Queue Delay	Off
Conditional Delay	Off		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Veh Pri Return %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Preempt Plan 4

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Trk Clr Veh	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Trk Clr Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Enable Trailing	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Dwell Veh	.	.	.	X	.	.	X	.	.	.	.	.	.	.	.	.
Dwell Ped																
Dwell Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cycling Veh	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cycling Ped																

Cycling Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Exit Phases				X				X								
Exit Calls																
Special Function																

Enable	Yes	Preempt Override	Yes	Interlock Enable	No
Det Lock	Yes	Delay	0	Inhibit	0
Override Flash	No	Duration	10	CLR > GRN	No
Term Ovlp Asap	No	PC Through Yel	Yes	Terminate Phase	No
Ped Dark	No	Track Clear Rsrv	No	Dwell Flash	Off
Linked Pmt	0	FL Exit Color	Grn	Exit Options	Off
Exit Timing Plan	0	Reservice	0	Fault Type	Hard

Ring	1	2	3	4
Free During Pmt	No	No	No	No

Timing	Walk	Ped Clr	Min Grn	Yellow	Red
Entrance	0	7	5	4.0	1.0
	Min Grn	**Ext Grn**	**Max Grn**	**Yellow**	**Red**
Track Clear	0	0	0	4.0	1.0
	Min Dwell	**Pmt Ext**	**Max Time**	**Yellow**	**Red**
Dwell / Cycle-Exit	0	0.0	0	4.0	1.0

Preemption Active Out	On	Preempt Act Dwell	No
Other - Priority Preempt	Off	Non-Priority Pmt	Off
Inhibit Extension Time	0.0	Ped Priority Return	Off
Veh Priority Return	Off	Queue Delay	Off
Conditional Delay	Off		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Veh Pri Return %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Preempt Plan 5

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Trk Clr Veh	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Trk Clr Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Enable Trailing	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Dwell Veh	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.
Dwell Ped																
Dwell Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cycling Veh	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cycling Ped																
Cycling Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Exit Phases		X				X										
Exit Calls																
Special Function																

Enable	Yes	Preempt Override	Yes	Interlock Enable	No
Det Lock	Yes	Delay	0	Inhibit	0
Override Flash	No	Duration	10	CLR > GRN	No
Term Ovlp Asap	No	PC Through Yel	Yes	Terminate Phase	No
Ped Dark	No	Track Clear Rsrv	No	Dwell Flash	Off
Linked Pmt	0	FL Exit Color	Grn	Exit Options	Off
Exit Timing Plan	0	Reservice	0	Fault Type	Hard

Ring	1	2	3	4
Free During Pmt	No	No	No	No

Timing	Walk	Ped Clr	Min Grn	Yellow	Red
Entrance	0	7	5	4.0	1.0
	Min Grn	**Ext Grn**	**Max Grn**	**Yellow**	**Red**
Track Clear	0	0	0	4.0	1.0
	Min Dwell	**Pmt Ext**	**Max Time**	**Yellow**	**Red**
Dwell / Cycle-Exit	0	0.0	0	4.0	1.0

Preemption Active Out	On	Preempt Act Dwell	No
Other - Priority Preempt	Off	Non-Priority Pmt	Off
Inhibit Extension Time	0.0	Ped Priority Return	Off
Veh Priority Return	Off	Queue Delay	Off
Conditional Delay	Off		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Veh Pri Return %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Preempt Plan 6

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Trk Clr Veh	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Trk Clr Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Enable Trailing	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Dwell Veh	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.
Dwell Ped																
Dwell Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cycling Veh	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cycling Ped																
Cycling Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Exit Phases		X				X										
Exit Calls																
Special Function																

Enable	Yes	Preempt Override	Yes	Interlock Enable	No
Det Lock	Yes	Delay	0	Inhibit	0
Override Flash	No	Duration	10	CLR > GRN	No
Term Ovlp Asap	No	PC Through Yel	Yes	Terminate Phase	No
Ped Dark	No	Track Clear Rsrv	No	Dwell Flash	Off
Linked Pmt	0	FL Exit Color	Grn	Exit Options	Off
Exit Timing Plan	0	Reservice	0	Fault Type	Hard

Ring	1	2	3	4
Free During Pmt	No	No	No	No

Timing	Walk	Ped Clr	Min Grn	Yellow	Red
Entrance	0	7	5	4.0	1.0
	Min Grn	**Ext Grn**	**Max Grn**	**Yellow**	**Red**
Track Clear	0	0	0	4.0	1.0
	Min Dwell	**Pmt Ext**	**Max Time**	**Yellow**	**Red**
Dwell / Cycle-Exit	0	0.0	0	4.0	1.0

Preemption Active Out	On	Preempt Act Dwell	No
Other - Priority Preempt	Off	Non-Priority Pmt	Off
Inhibit Extension Time	0.0	Ped Priority Return	Off
Veh Priority Return	Off	Queue Delay	Off
Conditional Delay	Off		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Veh Pri Return %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Town of Oakville, ON

ECONOLITE

MOVING TRAFFIC FORWARD

REG1105 - Dundas St @ Trafalgar Rd - Econolite Type - ASC/3

Preempt Preempt Filtering
Enable Preempt Filtering & TSP/SCP (MM) 4-2

Input	Solid	Pulsing
1	...BYPASSED...	...BYPASSED...
2	...BYPASSED...	...BYPASSED...
3	PREEMPTION 3	PREEMPTION 7
4	PREEMPTION 4	PREEMPTION 8
5	PREEMPTION 5	PREEMPTION 9
6	PREEMPTION 6	PREEMPTION 10
7	...BYPASSED...	...BYPASSED...
8	...BYPASSED...	...BYPASSED...
9	...BYPASSED...	...BYPASSED...
10	...BYPASSED...	...BYPASSED...

Town of Oakville, ON

ECONOLITE

MOVING TRAFFIC FORWARD

REG1105 - Dundas St @ Trafalgar Rd - Econolite Type - ASC/3

Preempt TSP/SCP Plan and Split

TSP / SCP Plan (MM) 4-3

TSP/SCP Plan	Enable Option	Signal Type	Det Lock	Delay Time	Max Presence	PMT Enables Reservice	No Delay in TSP	Action SF Inhibit	Reservice Cycles	Bus Heading
1	No	Solid	No	0	0	No	False	0	0	NB
2	No	Solid	No	0	0	No	False	0	0	SB
3	No	Solid	No	0	0	No	False	0	0	EB
4	No	Solid	No	0	0	No	False	0	0	WB
5	No	Solid	No	0	0	No	False	0	0	.
6	No	Solid	No	0	0	No	False	0	0	.

Mode: TSP
Free Default Pattern: 120
Headway Allowance: 0

TSP/SCP Plan	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

TSP / SCP Split Pattern (MM) 4-4

TSP/SCP Split Pattern	Max Type	Phase															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
4	Max Reduction	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255

Town of Oakville, ON

ECONOLITE

MOVING TRAFFIC FORWARD

REG1105 - Dundas St @ Trafalgar Rd - Econolite Type - ASC/3

Time Base Clock/Calendar
Clock/Calendar Data (MM) 5-1

Manual Action Plan:	0
SYNC Reference Time:	03:15
SYNC Reference:	Reference Time
Day Light Savings:	No
Time Reset Input Set Time:	3:30:00
Standard Time From GMT:	0

Town of Oakville, ON

ECONOLITE

MOVING TRAFFIC FORWARD

REG1105 - Dundas St @ Trafalgar Rd - Econolite Type - ASC/3

Time Base Action Plan
Action Plan (MM) 5-2

Action Plan - 1

Pattern	1	Override Sys	No
Timing Plan	0	Sequence	0
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall																
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																
Spec Func (1-8)																
Aux Func (1-3)																

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

Action Plan - 2

Pattern	2	Override Sys	No
Timing Plan	0	Sequence	0
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall																
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																
Spec Func (1-8)																
Aux Func (1-3)																

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

Action Plan - 3

Pattern	3	Override Sys	No
Timing Plan	0	Sequence	0
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall																
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																
Spec Func (1-8)																
Aux Func (1-3)																

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

Action Plan - 4

Pattern	4	Override Sys	No
Timing Plan	0	Sequence	0
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall																
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																
Spec Func (1-8)																
Aux Func (1-3)																

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

Action Plan - 5

Pattern	5	Override Sys	No
Timing Plan	0	Sequence	0
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall																
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																
Spec Func (1-8)																
Aux Func (1-3)																

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

Town of Oakville, ON

ECONOLITE

MOVING TRAFFIC FORWARD

REG1105 - Dundas St @ Trafalgar Rd - Econolite Type - ASC/3

Time Base Day Plan/Schedule
Day Plan (MM) 5-3

Day Plan #1

Event	Action Plan	Start Time
1	1	06:00
2	2	10:00
3	3	15:15
4	4	19:00
5	5	22:00

Schedule (MM) 5-4

Schedule Number - 1

Day Plan No.: 1

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	X	X	X	X	X	X	X	X	X	X	X	X

Day (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT
	X	X	X	X	X	X	X

Day (DOM)	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		

Town of Oakville, ON

ECONOLITE

MOVING TRAFFIC FORWARD

REG1105 - Dundas St @ Trafalgar Rd - Econolite Type - ASC/3

Time Base Exceptions
Exception Day Program (MM) 5-5

Excep Day	Float/Fixed	Mon/Mon	DOW/DOM	WOM/Year	Day Plan

Town of Oakville, ON

ECONOLITE

MOVING TRAFFIC FORWARD

REG1105 - Dundas St @ Trafalgar Rd - Econolite Type - ASC/3

Detectors

Detectors - Pg 1

Veh Det Phase Assignment (MM) 6-1

Vehicle Detector Plan Number - 1

Veh Detector	Assigned Phase	Called Phase	Type
1	1		N
2	2		N
3	3		N
4	4	8	N
5	5		N
6	6		N
7	7		N
8	8	4	N
9	9		N
10	10		N
11	11		N
12	12		N
13	5		N
14	14		N
15	15		N
16	16		N

Vehicle Detector Plan Number - 2

Veh Detector	Assigned Phase	Called Phase	Type
1	1		N
2	2		N
3	3		N
4	4		N
5	5		N
6	6		N
7	7		N
8	8		N
9	9		N
10	10		N
11	11		N
12	12		N
13	13		N
14	14		N
15	15		N
16	16		N

Vehicle Detector Plan Number - 3

Veh Detector	Assigned Phase	Called Phase	Type
1	1		N
2	2		N
3	3		N
4	4		N
5	5		N
6	6		N
7	7		N
8	8		N
9	9		N
10	10		N
11	11		N
12	12		N

13	13		N
14	14		N
15	15		N
16	16		N

Vehicle Detector Plan Number - 4

Veh Detector	Assigned Phase	Called Phase	Type
1	1		N
2	2		N
3	3		N
4	4		N
5	5		N
6	6		N
7	7		N
8	8		N
9	9		N
10	10		N
11	11		N
12	12		N
13	13		N
14	14		N
15	15		N
16	16		N

Vehicle Detector Setup (MM) 6-2

Veh Detector	Type	TS2 Detector	Description
1	N-NTCIP	No	
2	N-NTCIP	No	
3	N-NTCIP	No	
4	N-NTCIP	No	
5	N-NTCIP	No	
6	N-NTCIP	No	
7	N-NTCIP	No	
8	N-NTCIP	No	
9	N-NTCIP	No	
10	N-NTCIP	No	
11	N-NTCIP	No	
12	N-NTCIP	No	
13	N-NTCIP	No	
14	N-NTCIP	No	
15	N-NTCIP	No	
16	N-NTCIP	No	
17	N-NTCIP	Yes	
18	N-NTCIP	Yes	
19	N-NTCIP	Yes	
20	N-NTCIP	Yes	
21	N-NTCIP	Yes	
22	N-NTCIP	Yes	
23	N-NTCIP	Yes	
24	N-NTCIP	Yes	
25	N-NTCIP	Yes	
26	N-NTCIP	Yes	
27	N-NTCIP	Yes	
28	N-NTCIP	Yes	
29	N-NTCIP	Yes	
30	N-NTCIP	Yes	
31	N-NTCIP	Yes	
32	N-NTCIP	Yes	
33	N-NTCIP	Yes	
34	N-NTCIP	Yes	
35	N-NTCIP	Yes	
36	N-NTCIP	Yes	
37	N-NTCIP	Yes	
38	N-NTCIP	Yes	
39	N-NTCIP	Yes	

40	N-NTCIP	Yes	
41	N-NTCIP	Yes	
42	N-NTCIP	Yes	
43	N-NTCIP	Yes	
44	N-NTCIP	Yes	
45	N-NTCIP	Yes	
46	N-NTCIP	Yes	
47	N-NTCIP	Yes	
48	N-NTCIP	Yes	
49	N-NTCIP	Yes	
50	N-NTCIP	Yes	
51	N-NTCIP	Yes	
52	N-NTCIP	Yes	
53	N-NTCIP	Yes	
54	N-NTCIP	Yes	
55	N-NTCIP	Yes	
56	N-NTCIP	Yes	
57	N-NTCIP	Yes	
58	N-NTCIP	Yes	
59	N-NTCIP	Yes	
60	N-NTCIP	Yes	
61	N-NTCIP	Yes	
62	N-NTCIP	Yes	
63	N-NTCIP	Yes	
64	N-NTCIP	Yes	

Vehicle Detector Plan Number - 1

Veh Detector	Phase	ECPI Log	Call Option	Delay Time	Ext Option	Extend Time / Passage Time	Queue Lim. / Discon. Time	Use Added Initial	Cross Switch Ph	Lock In	NTCIP Vol.	NTCIP Occ.	Pmt Queue Delay
1	1	No	Yes	0.0	Passage	0.0	0	No	6	None	No	No	No
2	2	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
3	3	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
4	4	No	Yes	10.0	Passage	0.0	0	No	0	Red	No	No	No
5	5	No	Yes	0.0	Passage	0.0	0	No	0	Red	No	No	No
6	6	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
7	7	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
8	8	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
9	9	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
10	10	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
11	11	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
12	12	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
13	5	No	Yes	0.0	Passage	0.0	0	No	0	Red	No	No	No
14	14	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
15	15	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
16	16	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No

Vehicle Detector Plan Number - 2

Veh Detector	Phase	ECPI Log	Call Option	Delay Time	Ext Option	Extend Time / Passage Time	Queue Lim. / Discon. Time	Use Added Initial	Cross Switch Ph	Lock In	NTCIP Vol.	NTCIP Occ.	Pmt Queue Delay
1	1	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
2	2	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
3	3	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
4	4	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
5	5	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
6	6	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
7	7	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
8	8	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
9	9	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
10	10	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
11	11	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
12	12	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No

13	13	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
14	14	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
15	15	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
16	16	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No

Vehicle Detector Plan Number - 3

Veh Detector	Phase	ECPI Log	Call Option	Delay Time	Ext Option	Extend Time / Passage Time	Queue Lim. / Discon. Time	Use Added Initial	Cross Switch Ph	Lock In	NTCIP Vol.	NTCIP Occ.	Pmt Queue Delay
1	1	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
2	2	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
3	3	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
4	4	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
5	5	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
6	6	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
7	7	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
8	8	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
9	9	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
10	10	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
11	11	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
12	12	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
13	13	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
14	14	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
15	15	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
16	16	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No

Vehicle Detector Plan Number - 4

Veh Detector	Phase	ECPI Log	Call Option	Delay Time	Ext Option	Extend Time / Passage Time	Queue Lim. / Discon. Time	Use Added Initial	Cross Switch Ph	Lock In	NTCIP Vol.	NTCIP Occ.	Pmt Queue Delay
1	1	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
2	2	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
3	3	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
4	4	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
5	5	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
6	6	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
7	7	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
8	8	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
9	9	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
10	10	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
11	11	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
12	12	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
13	13	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
14	14	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
15	15	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
16	16	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No

Ped Detector Phase Assignment (MM) 6-3

Mode: NTCIP

Called Phase	Detector
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13

Called Phase	Detector
14	14
15	15
16	16

Town of Oakville, ON

ECONOLITE

MOVING TRAFFIC FORWARD

REG1105 - Dundas St @ Trafalgar Rd - Econolite Type - ASC/3

Detectors

Detectors - Pg 2

Log - Speed Detector Setup (MM) 6-4

NTCIP Log Period: 60 ECPI Log Period: 0 Length Unit: Inches

Speed Detector	Local Detector	One/Two Detector	Vehicle Length	Trap length	Enable Log
1	0	1	0	0	No
2	0	1	0	0	No
3	0	1	0	0	No
4	0	1	0	0	No
5	0	1	0	0	No
6	0	1	0	0	No
7	0	1	0	0	No
8	0	1	0	0	No
9	0	1	0	0	No
10	0	1	0	0	No
11	0	1	0	0	No
12	0	1	0	0	No
13	0	1	0	0	No
14	0	1	0	0	No
15	0	1	0	0	No
16	0	1	0	0	No

Vehicle Detector Diagnostics (MM) 6-5

Veh Diagnostic Plan Number - 1

Det	Counts	Act	Pres	Multiplier	Failed Time	Failed Call Delay

Veh Diagnostic Plan Number - 2

Det	Counts	Act	Pres	Multiplier	Failed Time	Failed Call Delay

Veh Diagnostic Plan Number - 3

Det	Counts	Act	Pres	Multiplier	Failed Time	Failed Call Delay

Veh Diagnostic Plan Number - 4

Det	Counts	Act	Pres	Multiplier	Failed Time	Failed Call Delay

Pedestrian Detector Diagnostics (MM) 6-6

Ped Diagnostic Plan Number - 1

Det	Counts	Act	Pres	Multiplier

Ped Diagnostic Plan Number - 2

Det	Counts	Act	Pres	Multiplier

Ped Diagnostic Plan Number - 3

Det	Counts	Act	Pres	Multiplier

Ped Diagnostic Plan Number - 4

Det	Counts	Act	Pres	Multiplier

Town of Oakville

ECONOLITE

MOVING TRAFFIC FORWARD

REG5101 - Trafalgar Rd @ Burnhamthorpe Rd - Econolite Type - ASC/3

Configuration Controller Sequence

Phase Ring Sequence and Assignment (MM) 1-1-1

Hardware Alternate Sequence Enable: No

Phase Ring Sequence.....(Note: Sequences identical to the prior one are not printed)

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
	B		B		B		B		B							
Sequence 1																
Ring 1	1	2	3	4	9	10	13	14	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	11	12	15	16	.	.	.	.	.	.	.	.
Sequence 2																
Ring 1	2	1	3	4	10	9	13	14	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	11	12	15	16	.	.	.	.	.	.	.	.
Sequence 3																
Ring 1	1	2	4	3	9	10	14	13	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	11	12	15	16	.	.	.	.	.	.	.	.
Sequence 4																
Ring 1	2	1	4	3	10	9	14	13	.	.	.	.	.	.	.	.
Ring 2	5	6	7	8	11	12	15	16	.	.	.	.	.	.	.	.
Sequence 5																
Ring 1	1	2	3	4	9	10	13	14	.	.	.	.	.	.	.	.
Ring 2	6	5	7	8	12	11	15	16	.	.	.	.	.	.	.	.
Sequence 6																
Ring 1	2	1	3	4	10	9	13	14	.	.	.	.	.	.	.	.
Ring 2	6	5	7	8	12	11	15	16	.	.	.	.	.	.	.	.
Sequence 7																
Ring 1	1	2	4	3	9	10	14	13	.	.	.	.	.	.	.	.
Ring 2	6	5	7	8	12	11	15	16	.	.	.	.	.	.	.	.
Sequence 8																
Ring 1	2	1	4	3	10	9	14	13	.	.	.	.	.	.	.	.
Ring 2	6	5	7	8	12	11	15	16	.	.	.	.	.	.	.	.
Sequence 9																
Ring 1	1	2	3	4	9	10	13	14	.	.	.	.	.	.	.	.
Ring 2	5	6	8	7	11	12	16	15	.	.	.	.	.	.	.	.
Sequence 10																
Ring 1	2	1	3	4	10	9	13	14	.	.	.	.	.	.	.	.
Ring 2	5	6	8	7	11	12	16	15	.	.	.	.	.	.	.	.
Sequence 11																
Ring 1	1	2	4	3	9	10	14	13	.	.	.	.	.	.	.	.
Ring 2	5	6	8	7	11	12	16	15	.	.	.	.	.	.	.	.
Sequence 12																
Ring 1	2	1	4	3	10	9	14	13	.	.	.	.	.	.	.	.
Ring 2	5	6	8	7	11	12	16	15	.	.	.	.	.	.	.	.
Sequence 13																
Ring 1	1	2	3	4	9	10	13	14	.	.	.	.	.	.	.	.
Ring 2	6	5	8	7	12	11	16	15	.	.	.	.	.	.	.	.
Sequence 14																
Ring 1	2	1	3	4	10	9	13	14	.	.	.	.	.	.	.	.

Ring 2	6	5	8	7	12	11	16	15	.	.	.	.	.	.	.	.
Sequence 15																
Ring 1	1	2	4	3	9	10	14	13	.	.	.	.	.	.	.	.
Ring 2	6	5	8	7	12	11	16	15	.	.	.	.	.	.	.	.
Sequence 16																
Ring 1	2	1	4	3	10	9	14	13	.	.	.	.	.	.	.	.
Ring 2	6	5	8	7	12	11	16	15	.	.	.	.	.	.	.	.

Phases In Use/Exclusive Ped (MM) 1-2

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Phases In Use	X	X	X	X		X		X								
Exclusive Ped																

Phase Compatibility (MM) 1-1-2

Phase	
n/a	Barrier Mode

Phase and Overlap Descriptions

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	SBLT	NB	WBLT	EB		SB		WB								
Overlap	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**
Description																

Administration (MM) 1-7-1

Enable Controller/Cabinet Interlock CRC	No
CRC (16 bit)	F0D6
Enable Automatic Backup to Datakey	No

Backup Prevent (MM) 1-1-3

	Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Timing	**1**		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Phases	**2**	X		.	.	.	.	.	.	.	.	.	.	.	.	.	.
	3	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.
	4	.	.	X		.	.	.	.	.	.	.	.	.	.	.	.
	5	.	.	.	.		.	.	.	.	.	.	.	.	.	.	.
	6	.	.	.	.	X		.	.	.	.	.	.	.	.	.	.
	7	.	.	.	.	.	.		.	.	.	.	.	.	.	.	.
	8	.	.	.	.	.	.	X		.	.	.	.	.	.	.	.
	9	.	.	.	.	.	.	.	.		.	.	.	.	.	.	.
	10	.	.	.	.	.	.	.	.	.		.	.	.	.	.	.
	11	.	.	.	.	.	.	.	.	.	.		.	.	.	.	.
	12	.	.	.	.	.	.	.	.	.	.	.		.	.	.	.
	13	.	.	.	.	.	.	.	.	.	.	.	.		.	.	.
	14	.	.	.	.	.	.	.	.	.	.	.	.	.		.	.
	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.		.
	16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	

Simultaneous Gap (MM) 1-1-4

	Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	1		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	2	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.
	3	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.
	4	.	.	.		.	.	.	.	.	.	.	.	.	.	.	.
	5	.	.	.	.		.	.	.	.	.	.	.	.	.	.	.
Phase	**6**	.	.	.	.	.		.	.	.	.	.	.	.	.	.	.
Must	**7**	.	.	.	.	.	.		.	.	.	.	.	.	.	.	.
Gap	**8**	.	.	.	.	.	.	.		.	.	.	.	.	.	.	.
With	**9**	.	.	.	.	.	.	.	.		.	.	.	.	.	.	.
Phase	**10**	.	.	.	.	.	.	.	.	.		.	.	.	.	.	.
	11	.	.	.	.	.	.	.	.	.	.		.	.	.	.	.
	12	.	.	.	.	.	.	.	.	.	.	.		.	.	.	.
	13	.	.	.	.	.	.	.	.	.	.	.	.		.	.	.
	14	.	.	.	.	.	.	.	.	.	.	.	.	.		.	.
	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.		.
	16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
	Disable	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Load Switch Assignments (MM) 1-3

	Phase / Overlap	Type	Dimming				Power Up	Auto		Flash Together
			Red	Yellow	Green	Dark		Red	Yellow	
1	1	V				-	Auto	X		
2	2	V				-	Auto	X		X
3	3	V				-	Auto	X		
4	4	V				-	Auto	X		X
5	5	.				+	Auto	X		
6	6	V				+	Auto	X		X
7	7	.				+	Auto	X		
8	8	V				+	Auto	X		X
9	2	.				-	Auto			
10	4	.				-	Auto			
11	6	.				+	Auto			
12	8	.				+	Auto			
13	1	O				-	Auto	X		

14	2	O				+	Auto	X		X
15	3	O				-	Auto	X		
16	4	O				+	Auto	X		X

Town of Oakville

ECONOLITE

MOVING TRAFFIC FORWARD

REG5101 - Trafalgar Rd @ Burnhamthorpe Rd - Econolite Type - ASC/3

Configuration Port 1 (SDLC)

Port 1 SDLC (MM) 1-4-1

BIU	1	2	3	4	5	6	7	8
Term & Facility	X	X						
Detector Rack	X							

Enable TS2/MMU Type Cabinet: No
Enable MMU Extended Status: Yes
Enable SDLC Stop Time: No
Enable 3 Critical RFE's Lockup: Yes

MMU Program (MM) 1-4-2

Channel Can Serve With Channel	
Channel 1	**Channel 2**
1	5
1	6
1	11
2	5
2	6
2	9
2	11
3	7
3	8
3	12
4	7
4	8
4	10
4	12
5	9
6	9
6	11
7	10
8	10
8	12
9	11
10	12

Color Check Enable (MM) 1-4-3

Enable Color Check: No

MMU/LS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Green			X		X		X		X	X	X	X	X	X	X	X
Yellow			X		X		X		X	X	X	X	X	X	X	X
Red			X		X		X		X	X	X	X	X	X	X	X

Secondary Stations/Tests (MM) 1-4-4

ID	1	2	3	4	5	6	7	8	MMU
Term & Facility									

ID	1	2	3	4	5	6	7	8	Diag
Detector Rack									

Enable SDLC Diagnostic Test: No

Town of Oakville

ECONOLITE

MOVING TRAFFIC FORWARD

REG5101 - Trafalgar Rd @ Burnhamthorpe Rd - Econolite Type - ASC/3

Configuration Logging / Display

Event Logging (MM) 1-6-1

Critical RFE's (MMU/TF)	Yes	3 Critical Errors Within 24 Hours	Yes
MMU Flash Faults	Yes	Local Flash Fault	Yes
Non-Critical RFE's (Det/Test)	Yes	Detector Errors	Yes
Coordination Errors	No	Controller Download	Yes
Preemption Events	Yes	TSP Events	Yes
Power On/Off	Yes	Low Battery	Yes
Access	Yes	Data Change	Yes
Online / Offline	Yes		

Alarm Event	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Enable Logging	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Display Options (MM) 1-7-2

Key Click Enable:	No
Backlight Enable:	Yes
LED Mode:	Auto
Display Mode:	Basic
Screen Format:	Advanced
Trans Mode Pop-Up Disable:	No

Sign On (MM) 8-5

Sign On Message Line 1: Solutions that Move the World
Sign On Message Line 2:

Software Modules (MM) 8-7

Application Version: 02.49.00
OS (Boot) Version: 01.12.05

Town of Oakville

ECONOLITE

MOVING TRAFFIC FORWARD

REG5101 - Trafalgar Rd @ Burnhamthorpe Rd - Econolite Type - ASC/3

Logic Processor Page 1

Logic Statement Control (MM) 1-8-1

Logic #	Statement Control

Town of Oakville

ECONOLITE

MOVING TRAFFIC FORWARD

REG5101 - Trafalgar Rd @ Burnhamthorpe Rd - Econolite Type - ASC/3

Controller Timing Plan (MM) 2-1

Plan 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Direction	SBLT	NB	WBLT	EB		SB		WB								
Min Green	7	20	7	10	0	20	0	10	5	5	5	5	5	5	5	5
Bk Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	0	0	0	0	0	0	0	0	10	0	10	0	10	0	10
Walk2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear	0	7	0	7	0	7	0	7	0	16	0	16	0	16	0	16
Ped Clear 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Ext	3.0	5.0	3.0	3.0	0.0	5.0	0.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Ext 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max1	15	45	0	30	0	60	0	30	35	35	35	35	35	35	35	35
Max2	15	45	15	35	0	60	0	50	40	40	40	40	40	40	40	40
Max3	15	45	0	55	0	60	0	55	0	0	0	0	0	0	0	0
DYM Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dym Step	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	3.0	4.6	3.0	3.7	3.0	4.6	3.0	3.7	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clear	1.0	1.4	1.0	2.3	1.0	1.4	1.0	2.3	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Red Max	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Act B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sec/Act	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPTDuc	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TTReduc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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MOVING TRAFFIC FORWARD

REG5101 - Trafalgar Rd @ Burnhamthorpe Rd - Econolite Type - ASC/3

Controller Overlaps

Vehicle Overlaps (MM) 2-2

Overlap	Type	Lag Green	Yellow	Red	Adv. Green

Phases

Overlap	Phase	Included	Protect	Ped Protect	Not Overlap	Modifier	Lag X Phases	Lag 2 Phases	Flash Green

PPLT FYA

Overlap	Protected Phase (Left Turn)	Permissive Phase (Opposing Thru)	Flashing Arrow Output	Flashing Arrow Output CH	Delay Start of FYA	Delay Start of Clearance	Action Plan SF Bit Disable	Ped Protected Enable

Guaranteed Minimum Time Data (MM) 2-4

Phase	Min Green	Walk	Ped Clear	Yellow	Red Clear	Overlap Green
A01	5	0	7	3.0	0.0	5
B02	5	0	7	3.0	0.0	5
C03	5	0	7	3.0	0.0	5
D04	5	0	7	3.0	0.0	5
E05	5	0	7	3.0	0.0	5
F06	5	0	7	3.0	0.0	5
G07	5	0	7	3.0	0.0	5
H08	5	0	7	3.0	0.0	5
I09	5	0	7	3.0	0.0	5
J10	5	0	7	3.0	0.0	5
K11	5	0	7	3.0	0.0	5
L12	5	0	7	3.0	0.0	5
M13	5	0	7	3.0	0.0	5
N14	5	0	7	3.0	0.0	5
O15	5	0	7	3.0	0.0	5
P16	5	0	7	3.0	0.0	5

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REG5101 - Trafalgar Rd @ Burnhamthorpe Rd - Econolite Type - ASC/3

Controller Start / Flash Data (MM) 2-5

Start Up

Phase	Phase Setting
1	.
2	.
3	.
4	Y
5	.
6	.
7	.
8	Y
9	.
10	.
11	.
12	.
13	.
14	.
15	.
16	.

Overlap

Flash Thru Mon: Yes
Flash Time: 0
All Red: 0
Power Start Seq: 1
MUTCD Enabled: No
Y->G: n/a

Automatic Flash

Entry
2
6

Exit
2
6

Overlap Exit
A
B
C
D

Flash Thru Mon: Yes
Exit Flash: W
Minimum Flash: 8

Mimimum Recall: No
Cycle Through Phase: No

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MOVING TRAFFIC FORWARD

REG5101 - Trafalgar Rd @ Burnhamthorpe Rd - Econolite Type - ASC/3

Controller Options

Controller Options (MM) 2-6-1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Flashing Grn Ph	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Guar Passage																
Non-Act I		X				X										
Non-Act II				X				X								
Dual Entry		X		X		X		X								
Cond Service																
Cond Reservice																
Ped Re-Service																
Rest In Walk																
Flashing Walk																
Ped Clr-Yel																
Ped Clr-Red																
IGRN + Veh Ext																

Ped Clear Protect: Off Unit Red Revert: 2.0 MUTCD 3 Seconds Don't Walk: No

Pre-Timed Mode (MM) 2-7

Enable Pre-Timed Mode: No Free Input Disables Pre-Timed: No

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Pre-Timed																

Phase Recall Options (MM) 2-8

Plan # 1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Lock Detector																
Vehicle Recall		X				X										
Ped Recall																
Max Recall																
Soft Recall																
No Rest																
AI Calc																

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MOVING TRAFFIC FORWARD

REG5101 - Trafalgar Rd @ Burnhamthorpe Rd - Econolite Type - ASC/3

Coordination Options

Options (MM) 3-1

Manual Pattern	Auto	ECPI Coord	Yes
System Source	TBC	System Format	STD
Splits In	Percent	Offsets In	Percent
Transition	Smooth	Max Select	MAXINH
Dwell / Add Time	0		
Delay Coord Wk-LZ	No	Force Off	Float
Offset Reference	Lead	Use Ped Time	No
Ped Recall	No	Ped Reservice	No
Local Zero Override	No	FO Added Ini Green	No
Re-sync Count	0	Multisync	No

Auto Perm Minimum Green (Seconds) (MM) 3-4

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

Split Demand (MM) 3-5

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

Demand	1	2
Detector	0	0
Call Time (Sec)	0	0
Cycle Count	0	0

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MOVING TRAFFIC FORWARD

REG5101 - Trafalgar Rd @ Burnhamthorpe Rd - Econolite Type - ASC/3

Coordination Pattern Data
Coordinator Pattern Data (MM) 3-2

Coordinator Pattern # 1

Split Pattern	1	TS2 (Pat-Off)	0-1	Splits In	Percent
Cycle	120	Std (COS)	9	Offsets In	Percent
Offset Value	0%	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	0		
Actuated Walk Rest	No	Sequence	0		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	SBLT	NB	WBLT	EB		SB		WB								
Splits (Split Pat 1)	17	41	0	42	0	58	0	42	0	0	0	0	0	0	0	0
Pref 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pref 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Displacement	-	0	0	0
Split Sum	100%	100%	0%	0%

Misc. Data

Veh Perm 1	0	Veh Perm 2	0	Veh Perm 2 Disp	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord Phase		X				X										
Vehicle Recall		X				X										
Pedestrian Recall																
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X
Special Funciton Outputs																

Coordinator Pattern # 2

Split Pattern	2	TS2 (Pat-Off)	0-2	Splits In	Percent
Cycle	110	Std (COS)	17	Offsets In	Percent
Offset Value	0%	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	0		
Actuated Walk Rest	No	Sequence	0		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	SBLT	NB	WBLT	EB		SB		WB								
Splits (Split Pat 2)	10	60	0	30	0	70	0	30	0	0	0	0	0	0	0	0
Pref 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pref 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Displacement	-	0	0	0
Split Sum	100%	100%	0%	0%

Misc. Data

Veh Perm 1	0	Veh Perm 2	0	Veh Perm 2 Disp	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord Phase		X				X										
Vehicle Recall		X				X										
Pedestrian Recall																
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X
Special Funciton Outputs																

Coordinator Pattern # 3

Split Pattern	3	TS2 (Pat-Off)	0-3	Splits In	Percent
Cycle	120	Std (COS)	25	Offsets In	Percent
Offset Value	0%	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	0		
Actuated Walk Rest	No	Sequence	0		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	SBLT	NB	WBLT	EB		SB		WB								
Splits (Split Pat 3)	13	55	0	32	0	68	0	32	0	0	0	0	0	0	0	0
Pref 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pref 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Displacement	-	0	0	0
Split Sum	100%	100%	0%	0%

Misc. Data

Veh Perm 1	0	Veh Perm 2	0	Veh Perm 2 Disp	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord Phase		X				X										
Vehicle Recall		X				X										
Pedestrian Recall																
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X

Special Funciton Outputs								

Coordinator Pattern # 4

Split Pattern	4	TS2 (Pat-Off)	1-1	Splits In	Percent
Cycle	110	Std (COS)	33	Offsets In	Percent
Offset Value	0%	Dwell/Add Time	0		
Actuated Coord	Yes	Timing Plan	0		
Actuated Walk Rest	No	Sequence	0		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	SBLT	NB	WBLT	EB		SB		WB								
Splits (Split Pat 4)	13	42	13	32	0	55	0	45	0	0	0	0	0	0	0	0
Pref 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pref 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Displacement	-	0	0	0
Split Sum	100%	100%	0%	0%

Misc. Data

Veh Perm 1	0	Veh Perm 2	0	Veh Perm 2 Disp	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord Phase		X				X										
Vehicle Recall		X				X										
Pedestrian Recall																
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X
Special Funciton Outputs																

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MOVING TRAFFIC FORWARD

REG5101 - Trafalgar Rd @ Burnhamthorpe Rd - Econolite Type - ASC/3

Coordination Split Pattern
Split Pattern Data (MM) 3-3

Split Pattern # 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	SBLT	NB	WBLT	EB		SB		WB								
Split (percent)	17	41	0	42	0	58	0	42	0	0	0	0	0	0	0	0
Coord Phase		X				X										
Vehicle Recall		X				X										
Pedestrian Recall																
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X

Ring	1	2	3	4
Split Sum	100%	100%	0%	0%

Split Pattern # 2

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	SBLT	NB	WBLT	EB		SB		WB								
Split (percent)	10	60	0	30	0	70	0	30	0	0	0	0	0	0	0	0
Coord Phase		X				X										
Vehicle Recall		X				X										
Pedestrian Recall																
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X

Ring	1	2	3	4
Split Sum	100%	100%	0%	0%

Split Pattern # 3

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	SBLT	NB	WBLT	EB		SB		WB								
Split (percent)	13	55	0	32	0	68	0	32	0	0	0	0	0	0	0	0
Coord Phase		X				X										
Vehicle Recall		X				X										
Pedestrian Recall																
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X

Ring	1	2	3	4
Split Sum	100%	100%	0%	0%

Split Pattern # 4

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	SBLT	NB	WBLT	EB		SB		WB								

Split (percent)	13	42	13	32	0	55	0	45	0	0	0	0	0	0	0	0
Coord Phase		X				X										
Vehicle Recall		X				X										
Pedestrian Recall																
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X

Ring	**1**	**2**	**3**	**4**
Split Sum	100%	100%	0%	0%

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REG5101 - Trafalgar Rd @ Burnhamthorpe Rd - Econolite Type - ASC/3

Preempt Plan

Preempt Plan (MM) 4-1

Preempt Plan 3

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Trk Clr Veh	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Trk Clr Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Enable Trailing	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Dwell Veh	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.
Dwell Ped																
Dwell Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cycling Veh	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cycling Ped																
Cycling Overlap	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Exit Phases		X				X										
Exit Calls																
Special Function																

Enable	Yes	Preempt Override	Yes	Interlock Enable	No
Det Lock	Yes	Delay	0	Inhibit	0
Override Flash	Yes	Duration	10	CLR > GRN	No
Term Ovlp Asap	No	PC Through Yel	Yes	Terminate Phase	No
Ped Dark	No	Track Clear Rsrv	No	Dwell Flash	Off
Linked Pmt	0	FL Exit Color	Grn	Exit Options	Off
Exit Timing Plan	0	Reservice	0	Fault Type	Hard

Ring	1	2	3	4
Free During Pmt	No	No	No	No

Timing	Walk	Ped Clr	Min Grn	Yellow	Red
Entrance	0	0	3	4.0	1.0
	Min Grn	Ext Grn	Max Grn	Yellow	Red
Track Clear	0	0	0	4.0	1.0
	Min Dwell	Pmt Ext	Max Time	Yellow	Red
Dwell / Cycle-Exit	0	0.0	0	4.0	1.0

Preemption Active Out	On	Preempt Act Dwell	No
Other - Priority Preempt	Off	Non-Priority Pmt	Off
Inhibit Extension Time	0.0	Ped Priority Return	Off
Veh Priority Return	Off	Queue Delay	Off
Conditional Delay	Off		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Veh Pri Return %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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MOVING TRAFFIC FORWARD

REG5101 - Trafalgar Rd @ Burnhamthorpe Rd - Econolite Type - ASC/3

Time Base Clock/Calendar
Clock/Calendar Data (MM) 5-1

Manual Action Plan:	0
SYNC Reference Time:	03:15
SYNC Reference:	Reference Time
Day Light Savings:	USDLS
Time Reset Input Set Time:	3:30:00
Standard Time From GMT:	-5

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MOVING TRAFFIC FORWARD

REG5101 - Trafalgar Rd @ Burnhamthorpe Rd - Econolite Type - ASC/3

Time Base Action Plan
Action Plan (MM) 5-2

Action Plan - 1

Pattern	1	Override Sys	Yes
Timing Plan	0	Sequence	0
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall																
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit			X													
Spec Func (1-8)																
Aux Func (1-3)																

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

Action Plan - 2

Pattern	2	Override Sys	Yes
Timing Plan	0	Sequence	0
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall																
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit			X													
Spec Func (1-8)																
Aux Func (1-3)																

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

Action Plan - 3

Pattern	3	Override Sys	Yes
Timing Plan	0	Sequence	0
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall																
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit			X													
Spec Func (1-8)																
Aux Func (1-3)																

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

Action Plan - 4

Pattern	4	Override Sys	Yes
Timing Plan	0	Sequence	0
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall																
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																
Spec Func (1-8)																
Aux Func (1-3)																

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

Action Plan - 5

Pattern	Free	Override Sys	Yes
Timing Plan	0	Sequence	0
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	0	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall																
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit			X													
Spec Func (1-8)																
Aux Func (1-3)																

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

Town of Oakville

ECONOLITE

MOVING TRAFFIC FORWARD

REG5101 - Trafalgar Rd @ Burnhamthorpe Rd - Econolite Type - ASC/3

Time Base Day Plan/Schedule
Day Plan (MM) 5-3

Day Plan #1

Event	Action Plan	Start Time
1	1	06:00
2	2	10:00
3	3	15:00
5	5	22:00

Day Plan #2

Event	Action Plan	Start Time
1	1	06:00
2	2	10:00
3	4	13:00
4	3	15:45
5	5	22:00

Day Plan #3

Event	Action Plan	Start Time
1	3	06:00
2	5	22:00

Schedule (MM) 5-4

Schedule Number - 1

Day Plan No.: 1

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	X	X	X	X	X	X	X	X	X	X	X	X

Day (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT
		X	X	X	X		

Day (DOM)	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		

Schedule Number - 2

Day Plan No.: 2

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	X	X	X	X	X	X	X	X	X	X	X	X

Day (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT
						X	

Day (DOM)	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		

Schedule Number - 3

Day Plan No.: 3

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	X	X	X	X	X	X	X	X	X	X	X	X

Day (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT
	X						X

Day (DOM)	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22

	X	X	X	X	X	X	X	X	X	X	X
	23	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**		
	X	X	X	X	X	X	X	X	X		

Town of Oakville

ECONOLITE

MOVING TRAFFIC FORWARD

REG5101 - Trafalgar Rd @ Burnhamthorpe Rd - Econolite Type - ASC/3

Detectors

Detectors - Pg 1

Veh Det Phase Assignment (MM) 6-1

Vehicle Detector Plan Number - 1

Veh Detector	Assigned Phase	Called Phase	Type
1	1		S
2	2		S
3	3	8	S
4	4	8	S
5	2		S
6	6		S
7	4	8	S
8	8	4	S
9	9		S
10	10		S
11	11		S
12	12		S
13	13		S
14	14		S
15	15		S
16	16		S

Vehicle Detector Plan Number - 2

Veh Detector	Assigned Phase	Called Phase	Type
1	1		S
2	2		S
3	3		S
4	4		S
5	5		S
6	6		S
7	7		S
8	8		S
9	9		S
10	10		S
11	11		S
12	12		S
13	13		S
14	14		S
15	15		S
16	16		S

Vehicle Detector Setup (MM) 6-2

Veh Detector	Type	TS2 Detector	Description
1	S-STANDARD	Yes	
2	S-STANDARD	Yes	
3	S-STANDARD	Yes	

4	S-STANDARD	Yes	
5	S-STANDARD	Yes	
6	S-STANDARD	Yes	
7	S-STANDARD	Yes	
8	S-STANDARD	Yes	
9	S-STANDARD	Yes	
10	S-STANDARD	Yes	
11	S-STANDARD	Yes	
12	S-STANDARD	Yes	
13	S-STANDARD	Yes	
14	S-STANDARD	Yes	
15	S-STANDARD	Yes	
16	S-STANDARD	Yes	
17	S-STANDARD	Yes	
18	S-STANDARD	Yes	
19	S-STANDARD	Yes	
20	S-STANDARD	Yes	
21	C-CALLING	Yes	
22	S-STANDARD	Yes	
23	S-STANDARD	Yes	
24	S-STANDARD	Yes	
25	S-STANDARD	Yes	
26	S-STANDARD	Yes	
27	S-STANDARD	Yes	
28	S-STANDARD	Yes	
29	S-STANDARD	Yes	
30	S-STANDARD	Yes	
31	S-STANDARD	Yes	
32	S-STANDARD	Yes	
33	S-STANDARD	Yes	
34	S-STANDARD	Yes	
35	S-STANDARD	Yes	
36	S-STANDARD	Yes	
37	S-STANDARD	Yes	
38	S-STANDARD	Yes	
39	S-STANDARD	Yes	
40	S-STANDARD	Yes	
41	S-STANDARD	Yes	
42	S-STANDARD	Yes	
43	S-STANDARD	Yes	
44	S-STANDARD	Yes	
45	S-STANDARD	Yes	
46	S-STANDARD	Yes	
47	S-STANDARD	Yes	
48	S-STANDARD	Yes	
49	S-STANDARD	Yes	
50	S-STANDARD	Yes	
51	S-STANDARD	Yes	
52	S-STANDARD	Yes	
53	S-STANDARD	Yes	
54	S-STANDARD	Yes	
55	S-STANDARD	Yes	
56	S-STANDARD	Yes	
57	S-STANDARD	Yes	
58	S-STANDARD	Yes	
59	S-STANDARD	Yes	

60	S-STANDARD	Yes	
61	S-STANDARD	Yes	
62	S-STANDARD	Yes	
63	S-STANDARD	Yes	
64	S-STANDARD	Yes	

Vehicle Detector Plan Number - 1

Veh Detector	Phase	ECPI Log	Call Option	Delay Time	Ext Option	Extend Time / Passage Time	Queue Lim. / Discon. Time	Use Added Initial	Cross Switch Ph	Lock In	NTCIP Vol.	NTCIP Occ.	Pmt Queue Delay
1	1	No	Yes	0.0	Passage	0.0	0	No	6	None	No	No	No
2	2	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
3	3	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
4	4	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
5	2	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
6	6	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
7	4	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
8	8	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
9	9	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
10	10	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
11	11	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
12	12	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
13	13	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
14	14	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
15	15	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
16	16	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
17	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
21	0	No	Yes	0.0	None	0.0	0	No	0	None	No	No	No

Vehicle Detector Plan Number - 2

Veh Detector	Phase	ECPI Log	Call Option	Delay Time	Ext Option	Extend Time / Passage Time	Queue Lim. / Discon. Time	Use Added Initial	Cross Switch Ph	Lock In	NTCIP Vol.	NTCIP Occ.	Pmt Queue Delay
1	1	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
2	2	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
3	3	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
4	4	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
5	5	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
6	6	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
7	7	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
8	8	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
9	9	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
10	10	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
11	11	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
12	12	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
13	13	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
14	14	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
15	15	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
16	16	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
17	0	No	Yes	0.0	Passage	0.0	0	No	0	None	No	No	No
21	0	No	Yes	0.0	None	0.0	0	No	0	None	No	No	No

Ped Detector Phase Assignment
(MM) 6-3

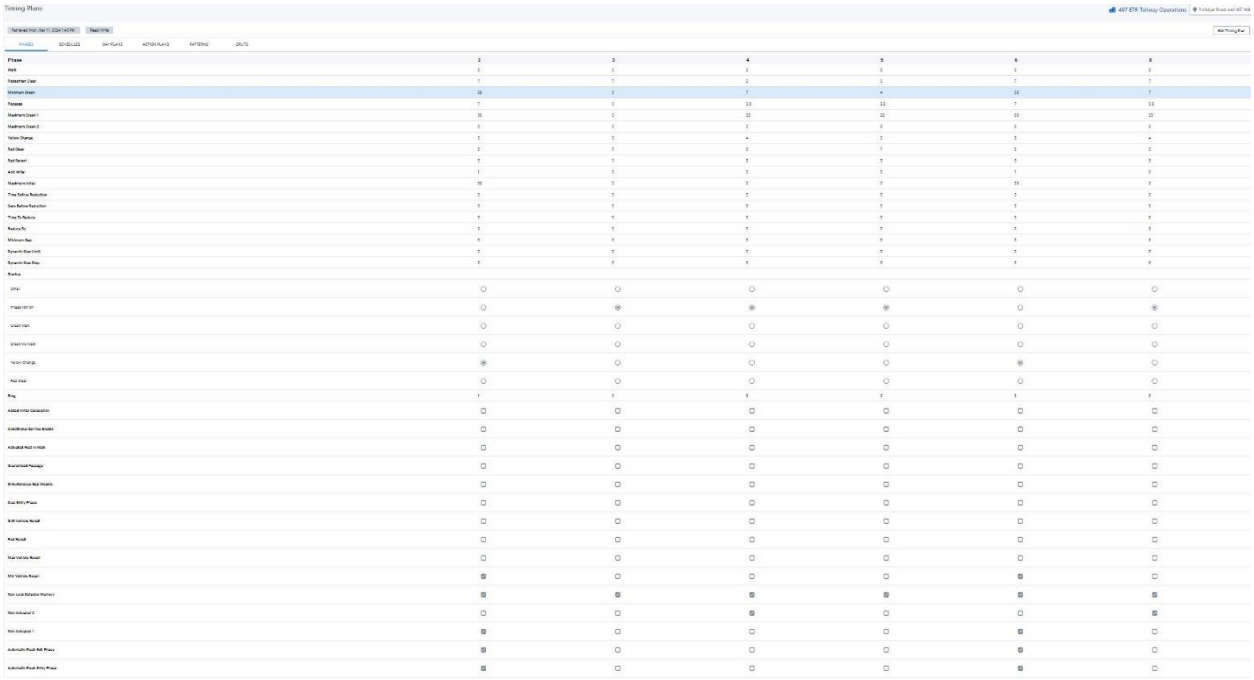
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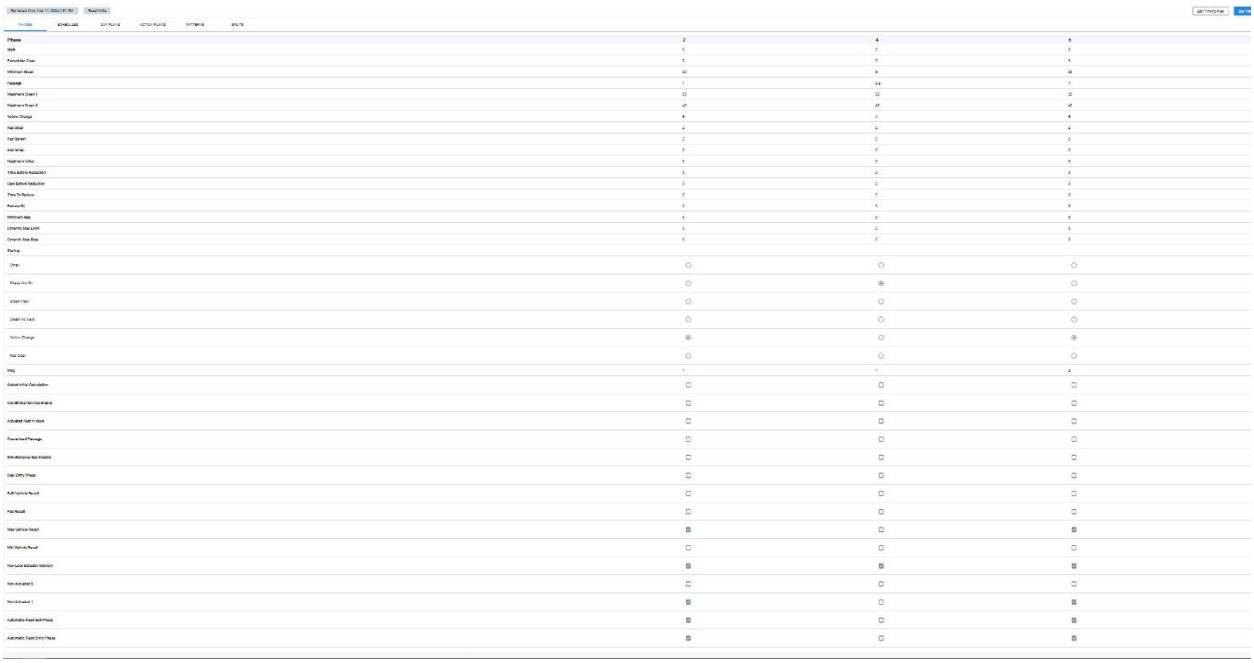
Called Phase	Detector
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16

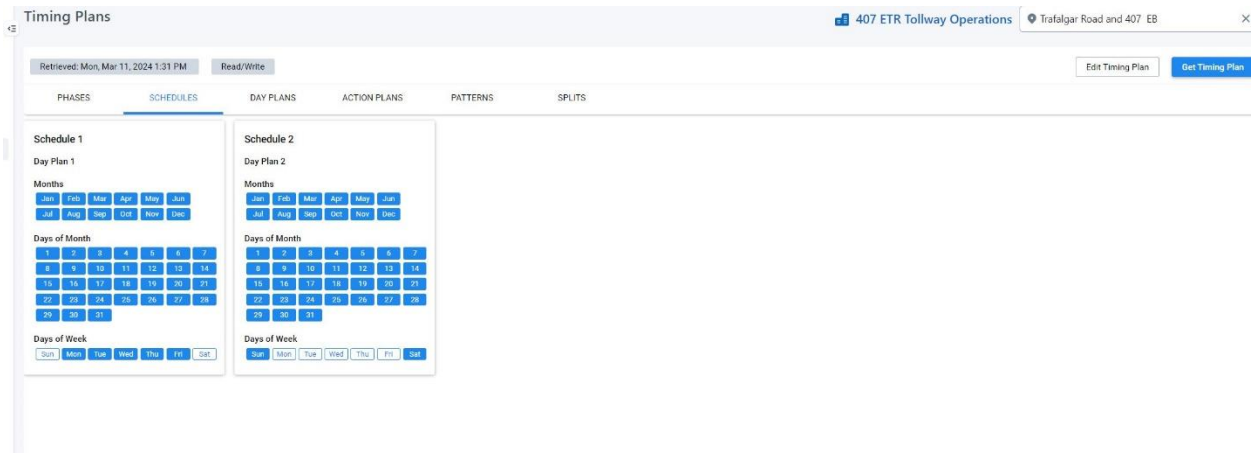
Retrieved: Mon, Mar 11, 2024 1:31 PM | Read/Write | Edit Timing Plan | Get Tim

PHASES | SCHEDULES | DAY PLANS | ACTION PLANS | PATTERNS | SPLITS

Action Plan	Pattern	Auxiliary Functions	Special Functions
1	1	No Auxiliary Functions	No Special Functions
2	2	No Auxiliary Functions	No Special Functions
3	3	No Auxiliary Functions	No Special Functions
98	254	No Auxiliary Functions	No Special Functions
99	254	No Auxiliary Functions	No Special Functions

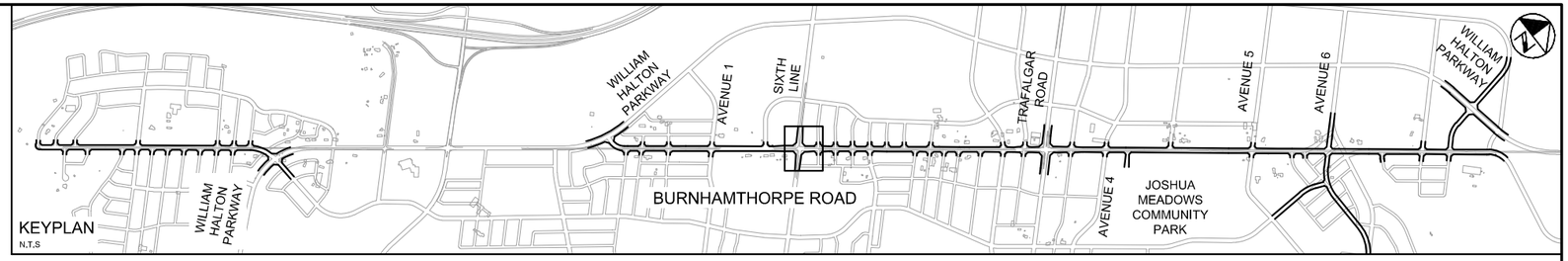


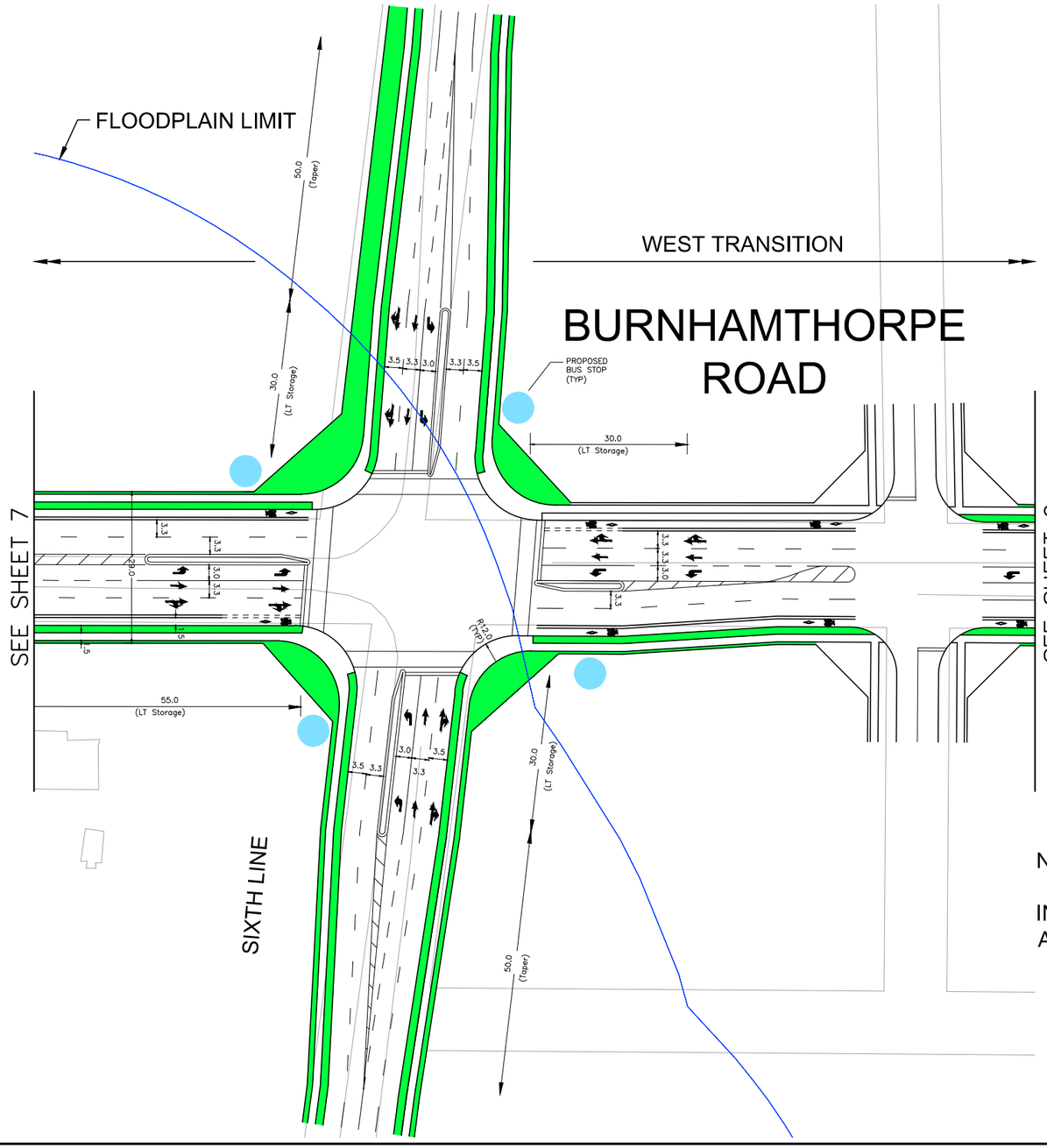



Timing Plans
407 ETR Tollway Operations
Trafalgar Road and 407 EB
Retrieved: Mon, Mar 11, 2024 1:31 PM
Read/Write
Edit Timing Plan
Get Timing Plan
PHASES
SCHEDULES
DAY PLANS
ACTION PLANS
PATTERNS
SPLITS
Schedule 1
Day Plan 1
Months
Jan Feb Mar Apr May Jun
Jul Aug Sep Oct Nov Dec
Days of Month
1 2 3 4 5 6 7
8 9 10 11 12 13 14
15 16 17 18 19 20 21
22 23 24 25 26 27 28
29 30 31
Days of Week
Sun Mon Tue Wed Thu Fri Sat
Schedule 2
Day Plan 2
Months
Jan Feb Mar Apr May Jun
Jul Aug Sep Oct Nov Dec
Days of Month
1 2 3 4 5 6 7
8 9 10 11 12 13 14
15 16 17 18 19 20 21
22 23 24 25 26 27 28
29 30 31
Days of Week
Sun Mon Tue Wed Thu Fri Sat

Appendix D

Preliminary Design Drawings





NOTE:

INTERSECTIONS ARE BASED ON NORTH OAKVILLE EAST SECONDARY PLAN AND WILL BE CONFIRMED AS PART OF DEVELOPMENT APPLICATIONS.

MMM GROUP

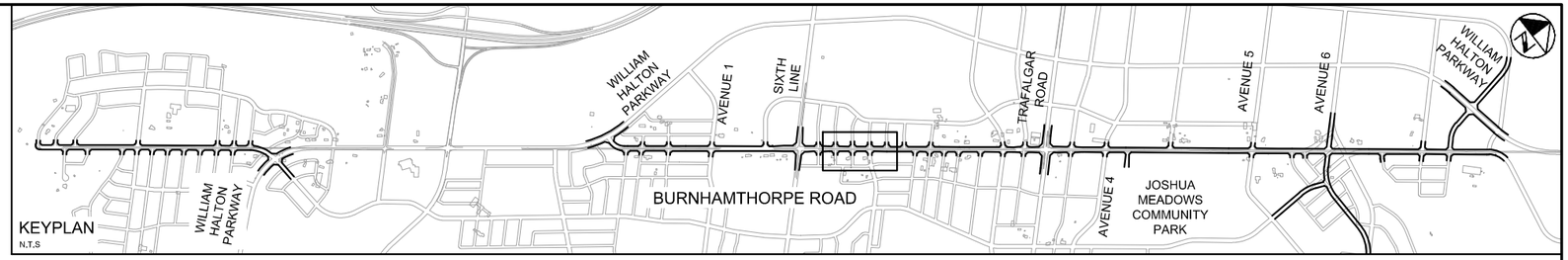
OAKVILLE

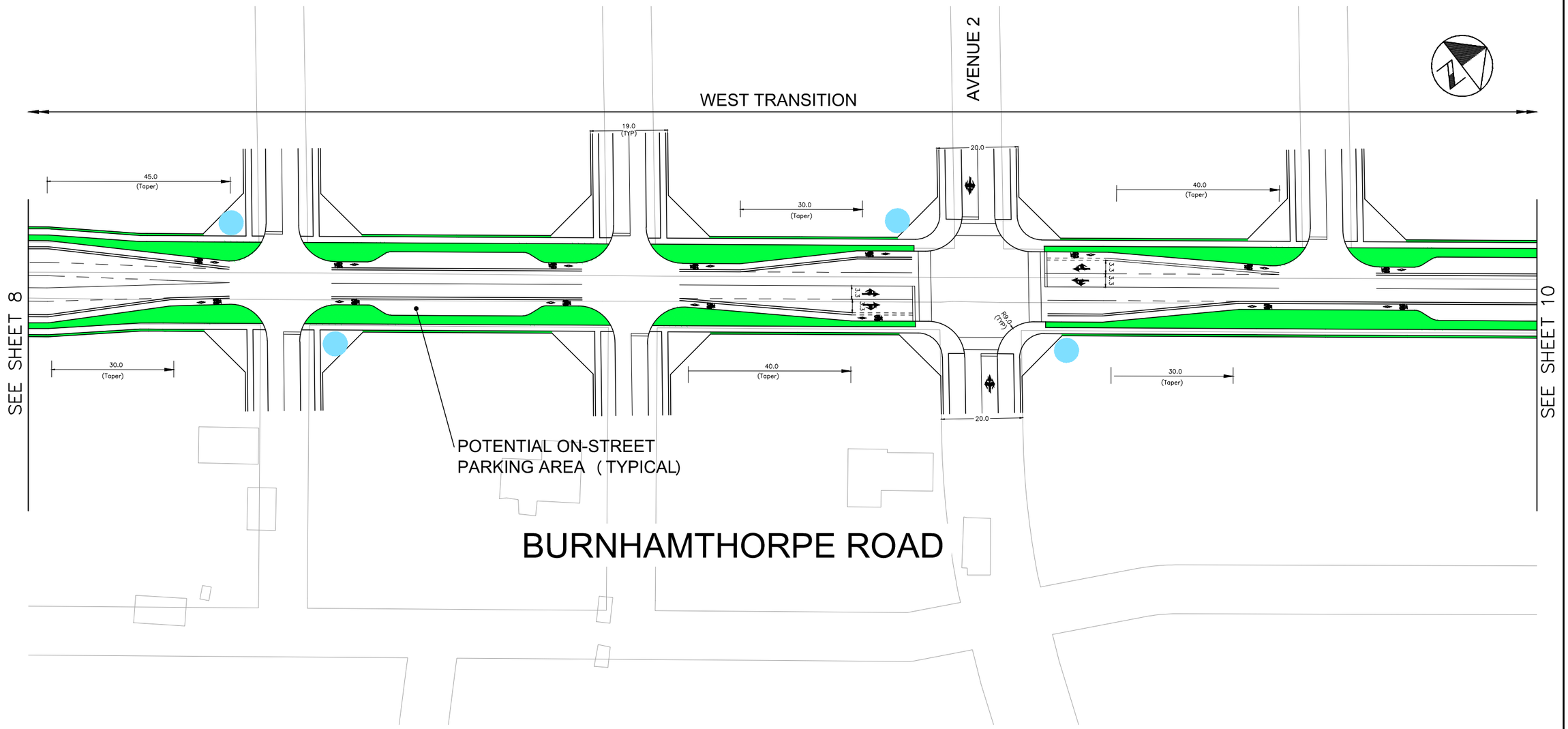
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LAYOUT PLAN

BURNHAMTHORPE ROAD
CHARACTER STUDY

Consultant File № 16-13055	SCALE 1 : 1000
CONTRACT № R-2369B-14	Drawing № SHEET 8 OF 20





NOTE:

INTERSECTIONS ARE BASED ON NORTH OAKVILLE EAST SECONDARY PLAN AND WILL BE CONFIRMED AS PART OF DEVELOPMENT APPLICATIONS.

MMM GROUP

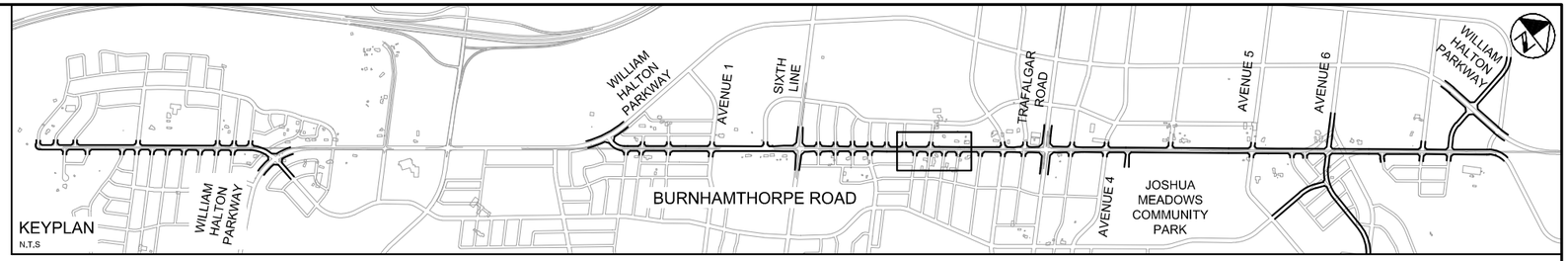
OAKVILLE

TITLE

LAYOUT PLAN

BURNHAMTHORPE ROAD
CHARACTER STUDY

Consultant File № 16–13055	SCALE 1 : 1000
CONTRACT № R–2369B–14	Drawing № SHEET 9 OF 20



WEST TRANSITION

CORE

POTENTIAL ON-STREET PARKING AREA (TYPICAL)

SEE SHEET 9

SEE SHEET 11

4.0 (TYP.)

4.0 (TYP.)

R9.0

R9.0

24.0

3.3

3.3

R9.0 (TYP.)

4.0

4.0

50.0 (Taper)

BURNHAMTHORPE ROAD

NOTES:

1. INTERSECTIONS ARE BASED ON NORTH OAKVILLE EAST SECONDARY PLAN AND WILL BE CONFIRMED AS PART OF DEVELOPMENT APPLICATIONS.

2. PARKING PERMITTED ON BOTH SIDES OF BURNHAMTHORPE ROAD IN CORE AREA DURING OFF-PEAK PERIODS.

MMM GROUP

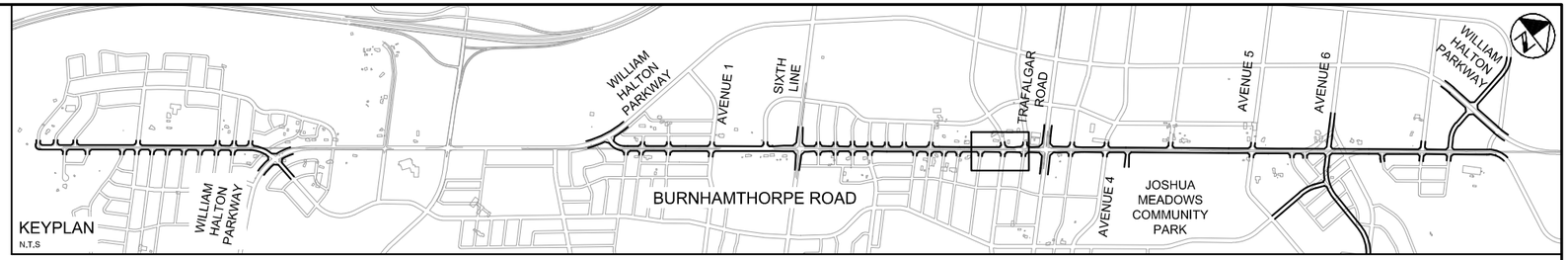
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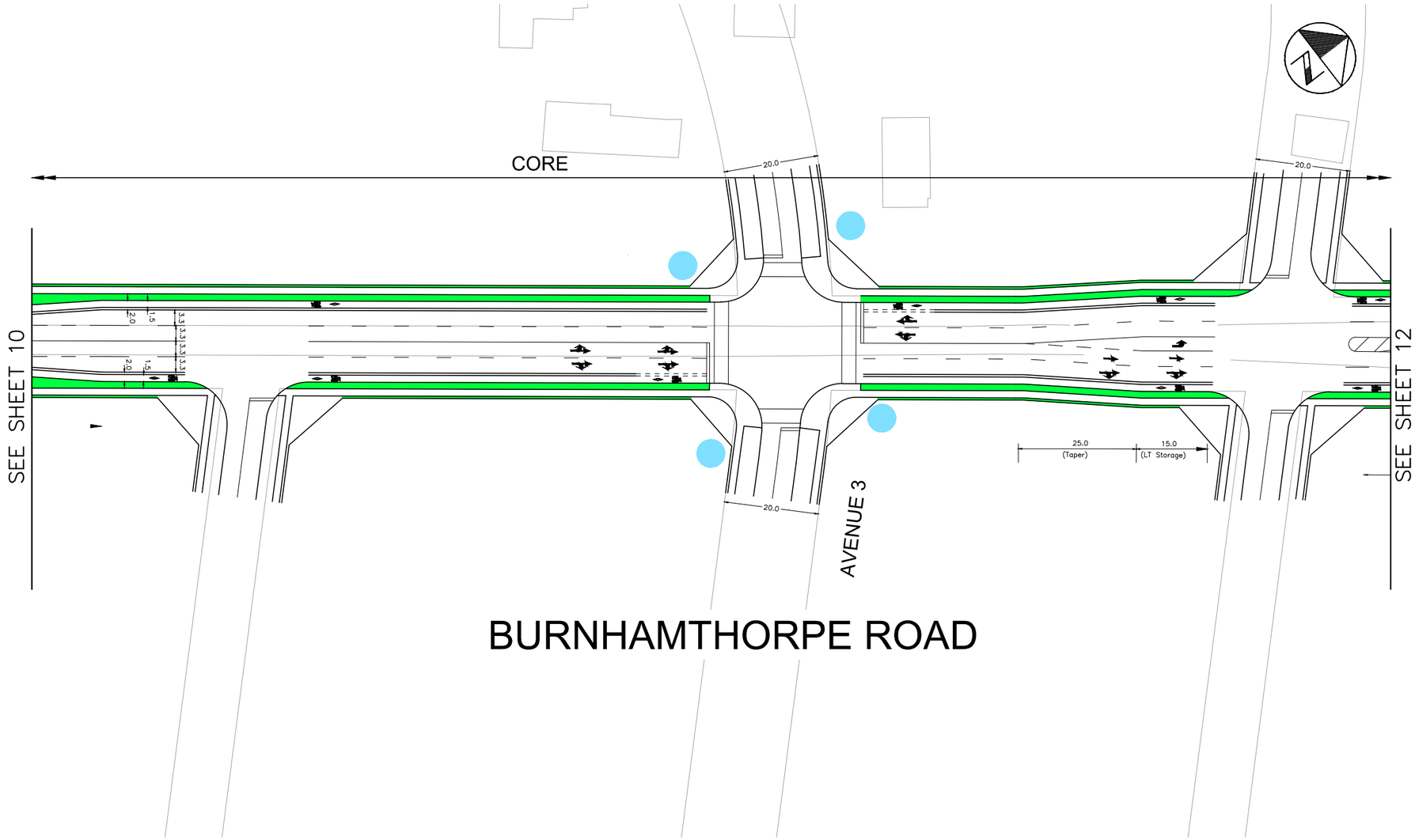
TITLE

LAYOUT PLAN

BURNHAMTHORPE ROAD CHARACTER STUDY

Consultant File № 16–13055	SCALE 1 : 1000
CONTRACT № R–2369B–14	Drawing № SHEET 10 OF 20





BURNHAMTHORPE ROAD

NOTES:

1. INTERSECTIONS ARE BASED ON NORTH OAKVILLE EAST SECONDARY PLAN AND WILL BE CONFIRMED AS PART OF DEVELOPMENT APPLICATIONS.

2. PARKING PERMITTED ON BOTH SIDES OF BURNHAMTHORPE ROAD IN CORE AREA DURING OFF-PEAK PERIODS.

MMM GROUP

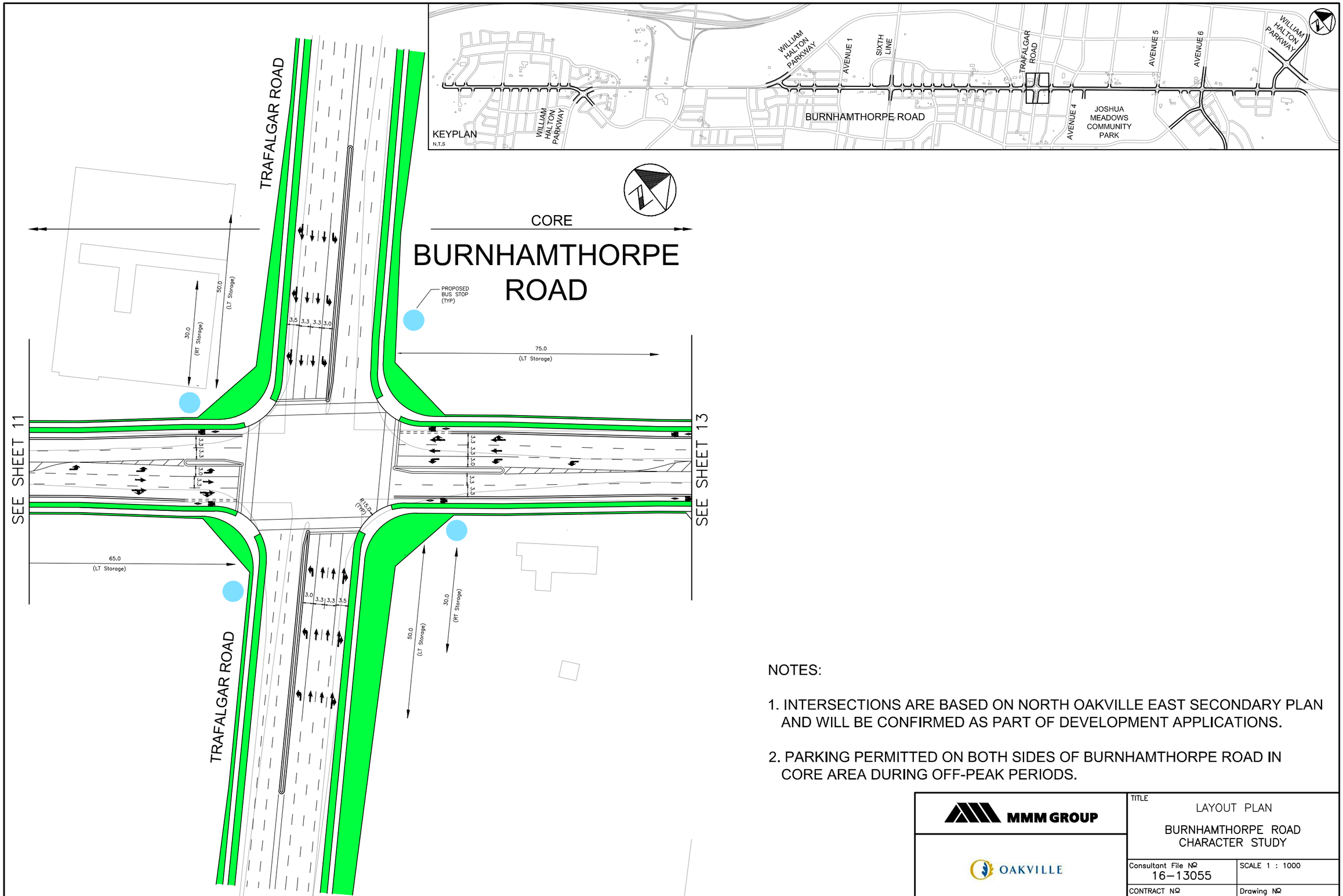
OAKVILLE

TITLE

LAYOUT PLAN

BURNHAMTHORPE ROAD
CHARACTER STUDY

Consultant File № 16–13055	SCALE 1 : 1000
CONTRACT № R–2369B–14	Drawing № SHEET 11 OF 20



NOTES:

1. INTERSECTIONS ARE BASED ON NORTH OAKVILLE EAST SECONDARY PLAN AND WILL BE CONFIRMED AS PART OF DEVELOPMENT APPLICATIONS.

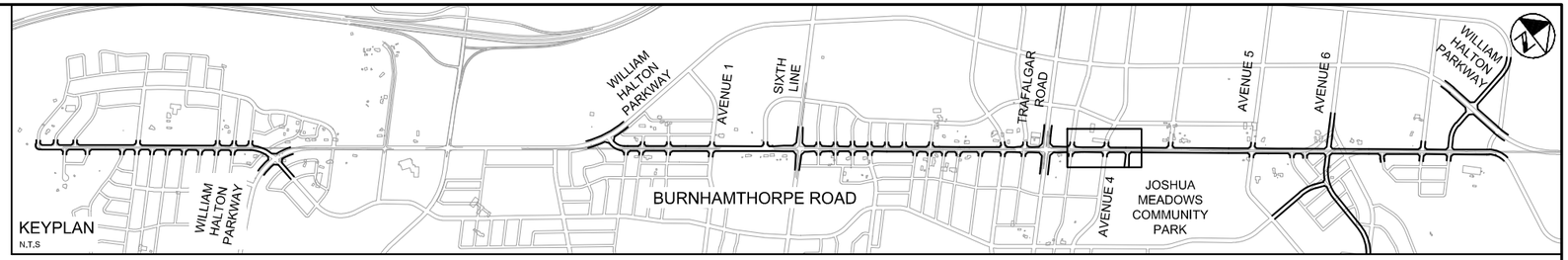
2. PARKING PERMITTED ON BOTH SIDES OF BURNHAMTHORPE ROAD IN CORE AREA DURING OFF-PEAK PERIODS.

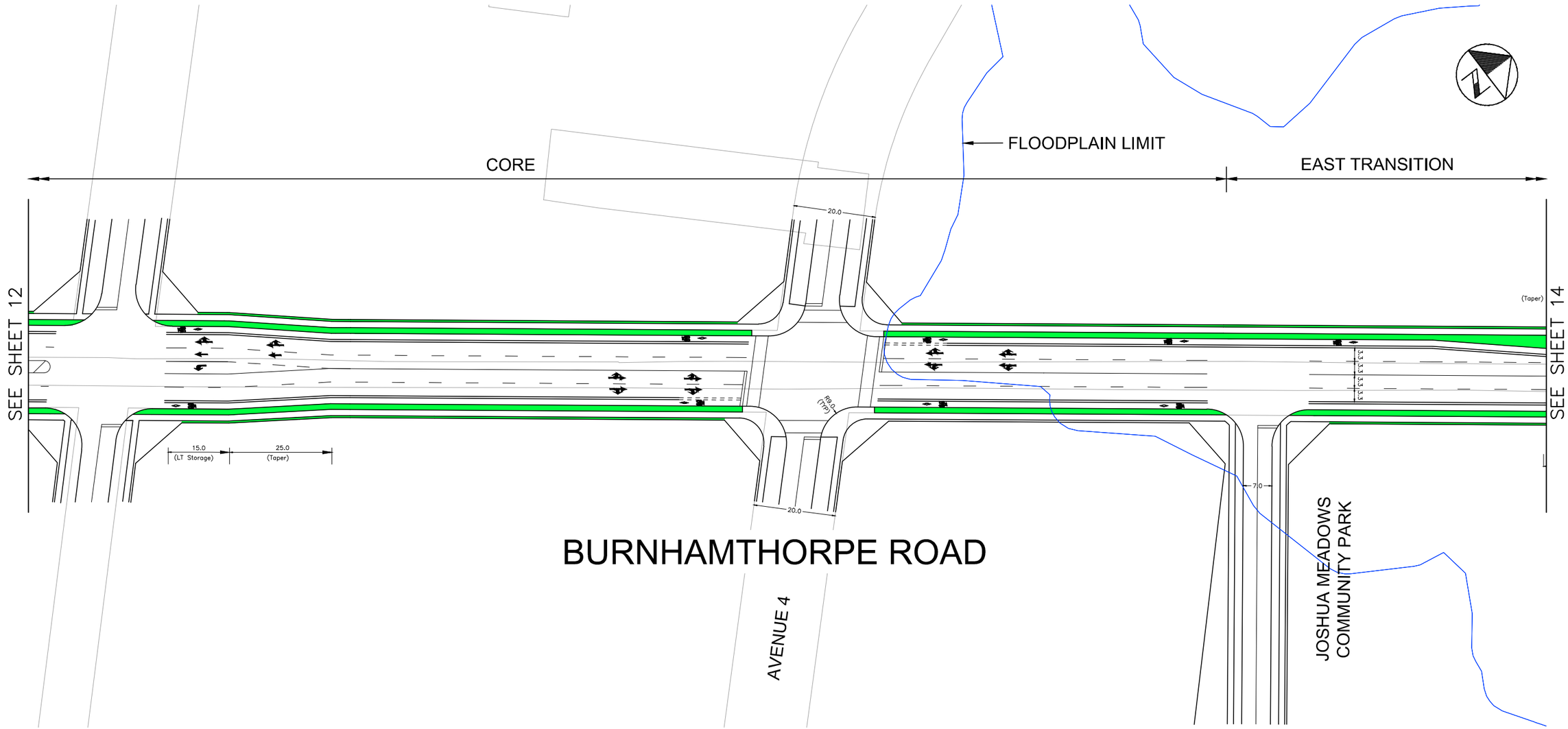
MMM GROUP

OAKVILLE

TITLE
LAYOUT PLAN
BURNHAMTHORPE ROAD
CHARACTER STUDY

Consultant File № 16–13055	SCALE 1 : 1000
CONTRACT № R–2369B–14	Drawing № SHEET 12 OF 20





NOTES:

1. INTERSECTIONS ARE BASED ON NORTH OAKVILLE EAST SECONDARY PLAN AND WILL BE CONFIRMED AS PART OF DEVELOPMENT APPLICATIONS.

2. PARKING PERMITTED ON BOTH SIDES OF BURNHAMTHORPE ROAD IN CORE AREA DURING OFF-PEAK PERIODS.

MMM GROUP

OAKVILLE

TITLE

LAYOUT PLAN

BURNHAMTHORPE ROAD
CHARACTER STUDY

Consultant File № 16–13055	SCALE 1 : 1000
CONTRACT № R–2369B–14	Drawing № SHEET 13 OF 20

Project Management Initials: Designer: ZM Checked: JN Approved: _____ TABLOID 279mm x 432mm

SHOULD THE HERITAGE PROPERTIES ON THE WEST SIDE OF TRAFALGAR ROAD REDEVELOP, HALTON REGION WILL WORK TOWARDS ULTIMATE PLAN INCLUDING DUAL LEFT TURN LANES ON ALL APPROACHES.

SHOULD THE HERITAGE PROPERTIES BE REDEVELOPED IN THE FUTURE, THE SOUTHBOUND RIGHT TURN LANE COULD BE EXTENDED AS SHOWN

DUNDAS STREET – REGIONAL ROAD NO. 5

FUTURE PROPERTY LINE

278

305

3024

3030

3040

3048

3064

320

325

15+300

15+400

15+500

15+600

15+7

PASSENGER PLATFORM

BUS BAY

C6, ME–T1
03–1182530CU02

DUNDAS STREET – REGIONAL ROAD NO. 5

CLIENT: Halton REGION

AECOM

LEGEND:

- PROPOSED PAVEMENT
- PROPOSED BUS BAY/PLATFORM
- PROPOSED MEDIAN
- PROPOSED SIDEWALK / MULTI-USE PATH
- PROPOSED RETAINING WALL
- EXISTING PROPERTY LINE
- PROPOSED PROPERTY LINE
- NEWLY UPGRADED NOISE WALL
- EXISTING NOISE WALLS TO BE UPGRADED UP TO MAXIMUM OF 3.5m
- PROPOSED CULVERT
- HERITAGE PROPERTY

0 20 40

SCALE: 1:1000

This drawing has been prepared for the use of AECOM's client and may not be used, reproduced or relied upon by third parties, except as agreed by AECOM and its client, as required by law or for use by governmental reviewing agencies. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that modifies this drawing without AECOM's express written consent.

Do not scale this document. All measurements must be obtained from stated dimensions.

PROJECT:
HALTON REGION
TRAFALGAR ROAD
ENVIRONMENTAL ASSESSEMENT STUDY

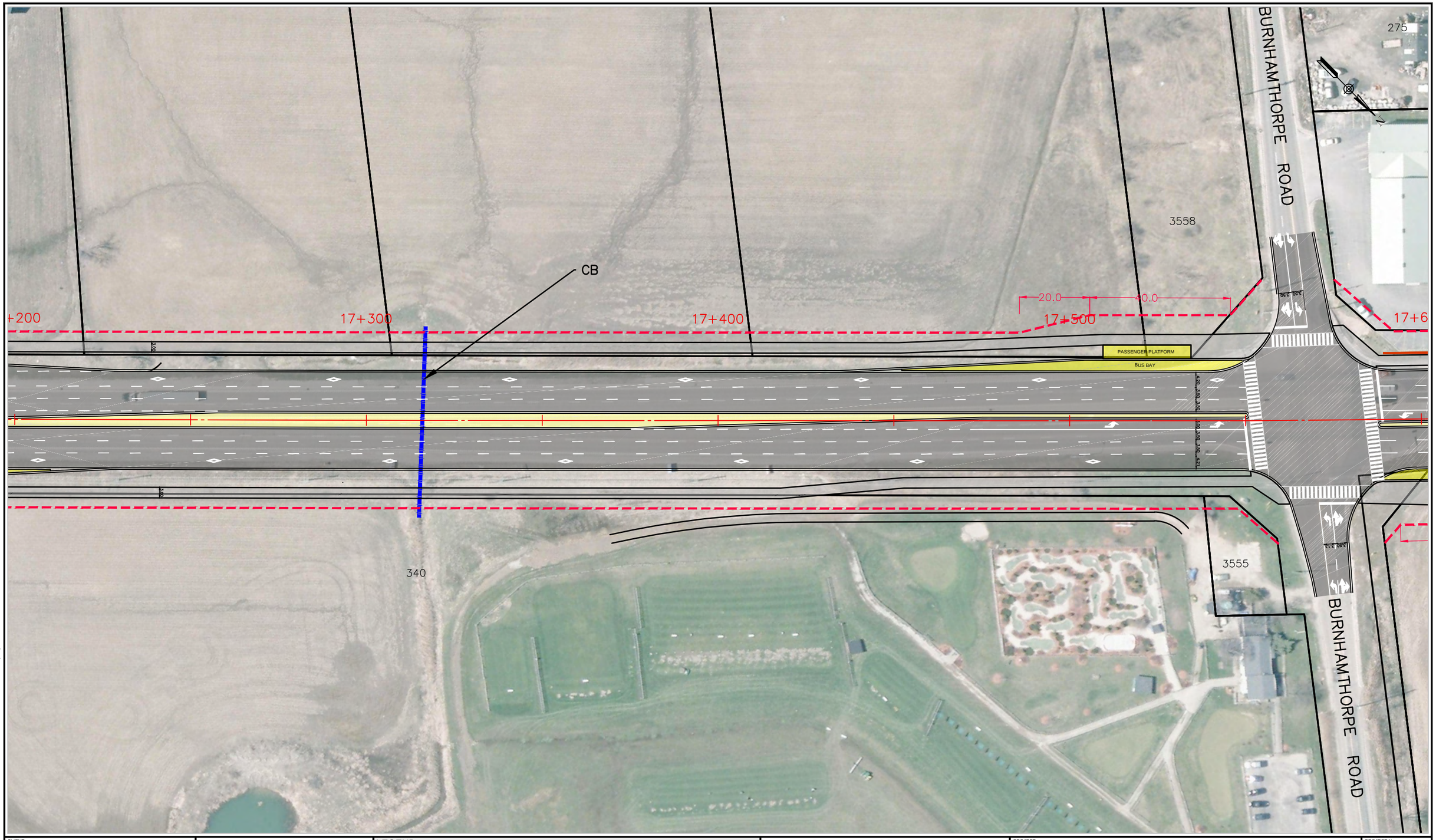
DRAWING:
RECOMMENDED PLAN - EXTENDED SOUTHBOUND RIGHT
STA: 15+310 TO 15+690

PROJECT No. : 60119993

DRAWING No. 14A

Last saved by: MUACEVICZ (2015-04-13) Last Plotted: 2015-04-13
Filename: P:\60119993\000-CAD\000-CADD-BIM WIP\SHEETS\11 BY 17\PLATE- (14A).DWG

Project Management Initials: Designer: ZM Checked: JN Approved: _____ TABLOID 279mm x 432mm



CLIENT:

Halton REGION

AECOM

LEGEND:

- PROPOSED PAVEMENT
- PROPOSED BUS BAY/PLATFORM
- PROPOSED MEDIAN
- PROPOSED SIDEWALK / MULTI-USE PATH
- PROPOSED RETAINING WALL
- EXISTING PROPERTY LINE
- PROPOSED PROPERTY LINE
- NEWLY UPGRADED NOISE WALL
- EXISTING NOISE WALLS TO BE UPGRADED UP TO MAXIMUM OF 3.5m
- PROPOSED CULVERT
- HERITAGE PROPERTY

0 20 40

SCALE: 1:1000

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PROJECT:

HALTON REGION
TRAFALGAR ROAD
ENVIRONMENTAL ASSESSEMENT STUDY

DRAWING:

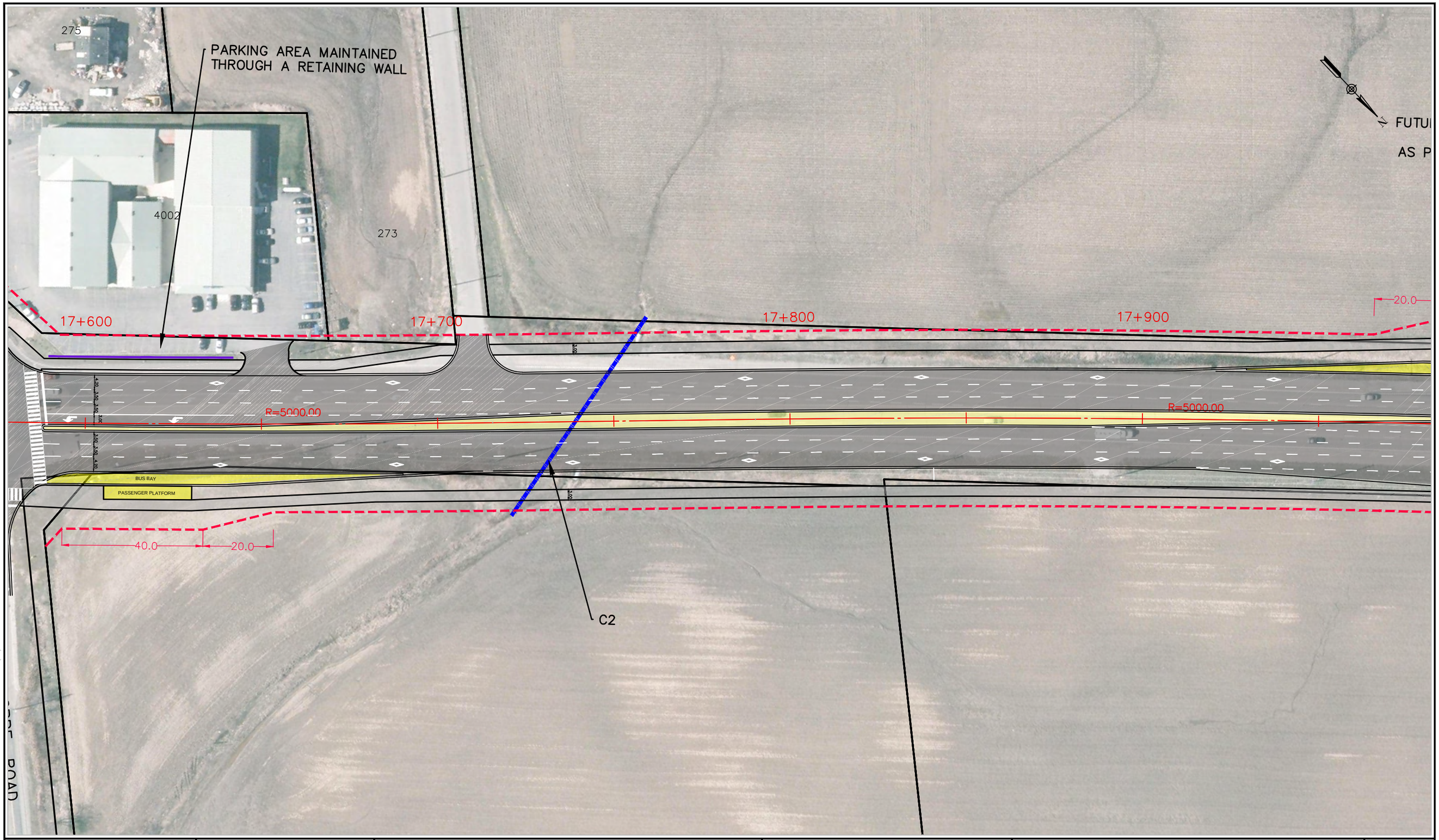
RECOMMENDED PLAN
STA: 17+210 TO 17+5908

PROJECT No. :
60119993

DRAWING No.
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Last saved by: MIJACEVICZ (2015-04-06) Last Plotted: 2015-04-13
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Project Management Initials: Designer: ZM Checked: JN Approved: _____ TABLOID 279mm x 432mm



CLIENT: Halton REGION

AECOM

LEGEND:

- PROPOSED PAVEMENT
- PROPOSED BUS BAY/PLATFORM
- PROPOSED MEDIAN
- PROPOSED SIDEWALK / MULTI-USE PATH
- PROPOSED RETAINING WALL
- EXISTING PROPERTY LINE
- PROPOSED PROPERTY LINE
- NEWLY UPGRADED NOISE WALL
- EXISTING NOISE WALLS TO BE UPGRADED UP TO MAXIMUM OF 3.5m
- PROPOSED CULVERT
- HERITAGE PROPERTY

0 20 40

SCALE: 1:1000

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PROJECT:

HALTON REGION
TRAFALGAR ROAD
ENVIRONMENTAL ASSESSEMENT STUDY

DRAWING:

RECOMMENDED PLAN
STA: 17+590 TO 17+970

PROJECT No. : 60119993

DRAWING No. 20

Last saved by: MIJACEVICZ (2015-04-06) Last Plotted: 2015-04-13
File name: P:\60119993\000-CAD\040-CADD-BIM WIP\SHEETS\11 BY 17\PLATE- (20).DWG

Project Management Initials: Designer: ZM Checked: JN Approved: _____ TABLOID 279mm x 432mm

FUTURE SIGNALIZED INTERSECTION
UNDERGOING DETAIL DESIGN
AS PART OF A SEPARATE STUDY

WILLIAM HALTON PARKWAY

CA

PEDESTRIAN LINKAGE WITHIN THE GO TRANSIT
FACILITY TO BE DEFINED AT DETAILED DESIGN.

20.0
40.0
18+000
18+100
18+200
18+300

PASSENGER PLATFORM
BUS BAY
BUS BAY
PASSENGER PLATFORM

40.0
20.0

WILLIAM HALTON PARKWAY

LIMITS OF THE MULTI-USE PATH
TO BE CONFIRMED AT DETAIL DESIGN

CLIENT:

Halton REGION

AECOM

LEGEND:

- PROPOSED PAVEMENT
- PROPOSED BUS BAY/PLATFORM
- PROPOSED MEDIAN
- PROPOSED SIDEWALK / MULTI-USE PATH
- PROPOSED RETAINING WALL
- EXISTING PROPERTY LINE
- PROPOSED PROPERTY LINE
- NEWLY UPGRADED NOISE WALL
- EXISTING NOISE WALLS TO BE UPGRADED UP TO MAXIMUM OF 3.5m
- PROPOSED CULVERT
- HERITAGE PROPERTY

0 20 40

SCALE:
1:1000

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PROJECT:

HALTON REGION
TRAFALGAR ROAD
ENVIRONMENTAL ASSESSEMENT STUDY

DRAWING:

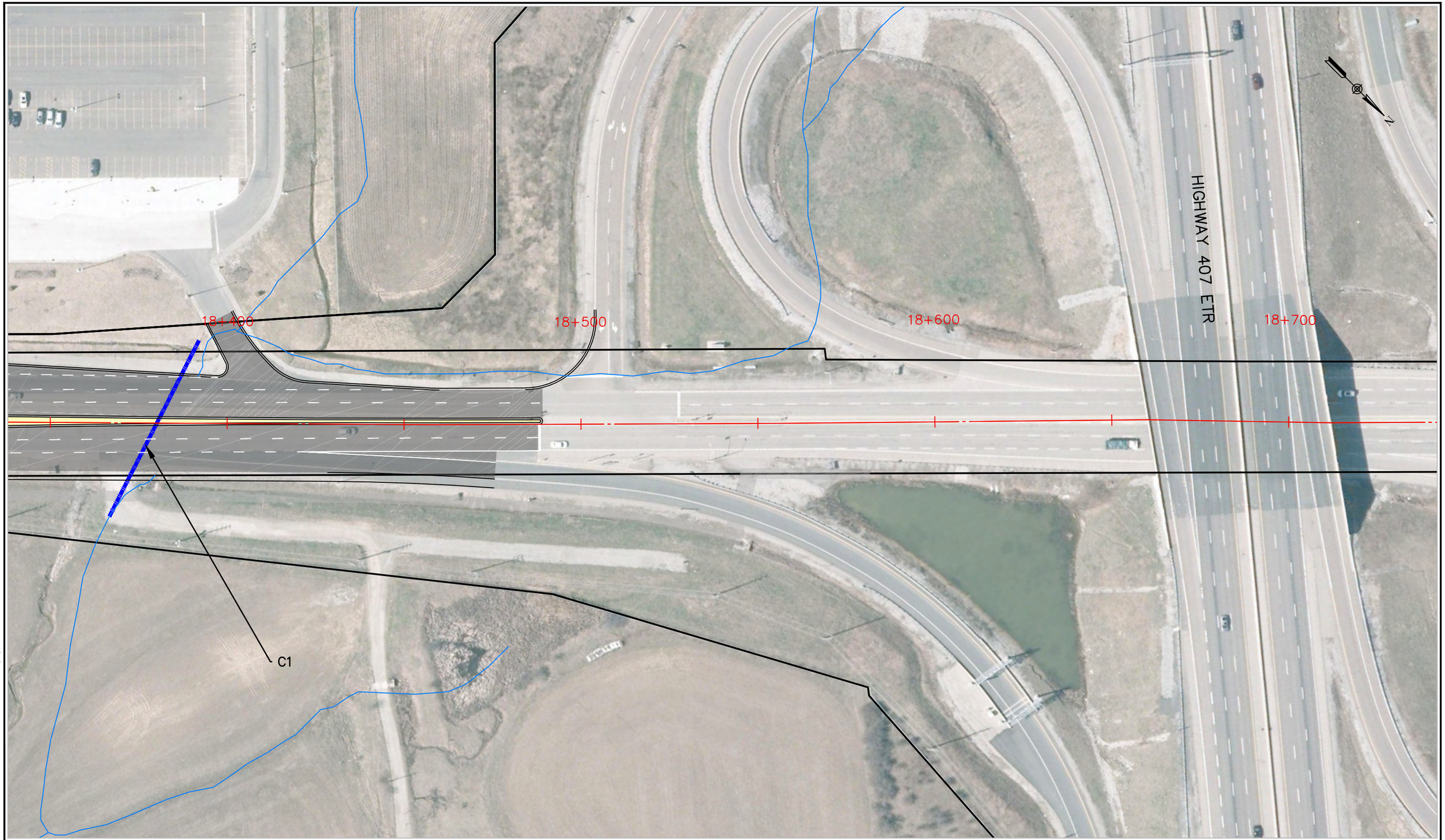
RECOMMENDED PLAN
STA: 17+970 TO 18+350

PROJECT No. :
60119993

DRAWING No.
21

Last saved by: MIJACEVICZ (2015-04-06) Last Plotted: 2015-04-13
File name: P:\60119993\000\CAD\040 CAD\BIM WIP\SHEETS\11 BY 17\PLATE - (21).DWG

Project Management Initials: Designer: ZM Checked: JN Approved: _____ TABLOID 279mm x 432mm
Last saved by: M1ACEVICZ (2015-04-06) Last Plotted: 2015-04-13
Filename: P:\60119993\000\CAD\040 CADD-BIM MVP\SHEETS\11 BY 17\PLATE - (22).DWG



CLIENT: Halton Region

AECOM

LEGEND:

- PROPOSED PAVEMENT
- PROPOSED BUS BAY/PLATFORM
- PROPOSED MEDIAN
- PROPOSED SIDEWALK / MULTI-USE PATH
- PROPOSED RETAINING WALL
- EXISTING PROPERTY LINE
- PROPOSED PROPERTY LINE
- NEWLY UPGRADED NOISE WALL
- EXISTING NOISE WALLS TO BE UPGRADED UP TO MAXIMUM OF 3.5m
- PROPOSED CULVERT
- HERITAGE PROPERTY

0 20 40

SCALE: 1:1000

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Do not scale this document. All measurements must be obtained from stated dimensions.

PROJECT:

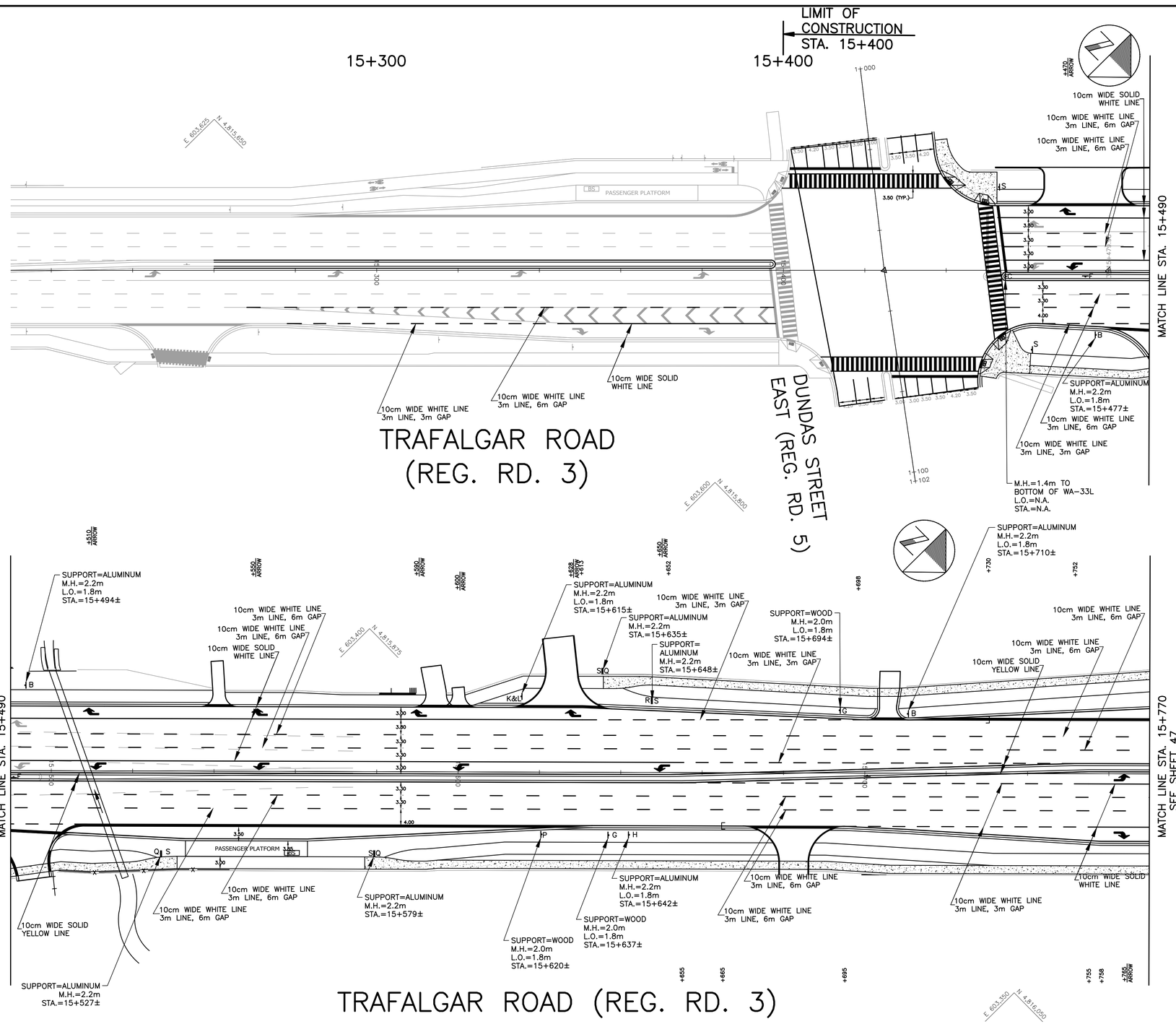
HALTON REGION
TRAFALGAR ROAD
ENVIRONMENTAL ASSESSEMENT STUDY

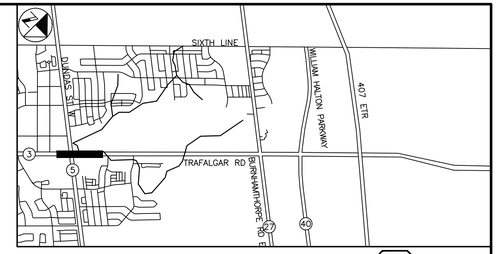
DRAWING:

RECOMMENDED PLAN
STA: 18+350 TO 18+730

PROJECT No. : 60119993

DRAWING No. 22





STOP
RA-1

MAXIMUM 60 km/h
RB-1A

RB-21

STOP FOR SCHOOL BUS WHEN SIGNALS FLASHING
RB-37

BOTH DIRECTIONS
RB-37T

RB-42

RB-55

RB-25

WA-33L

WA-13A

BUSES EXCEPTED
WB-10T

NEW
WB-3

WB-2

SIGN LEGEND:

A-STOP SIGN (Ra-1)
B-MAXIMUM SPEED WITH KM/H (Rb-1A) 60km/hr
C-KEEP RIGHT (Rb-25) AND OBJECT MARKER (Wa-33L)
D-RIGHT TURN ONLY (Rb-42)
E-INTERSECTION CONTROLLED (Wa-13A)
F-ONE WAY SIGN (Rb-21)
G-ADVANCE ST. NAME SIGN (UTS 999.010)
H-HALTON ROUTE MARKER (UTS 999.025)
I-BUSES EXCEPTED TAB (Rb-10t)
J-STREET NAME SIGN (G-216)
K-TO 403 SIGN (M102) AND ARROW TAB (M301)
L-TO QEW SIGN (M103) AND ARROW TAB (M301)
M-CAR POOL SIGN (M507), GO LOT SIGN, AND ARROW TABS (M301)
N-TO 407 ETR SIGN AND ARROW TAB (M301)
O-TRAFFIC SIGNAL AHEAD (Wb-2) AND NEW SIGN (Wb-3)
P-STOP FOR SCHOOL BUS (Rb-37) AND TAB (Rb-37t)
Q-SHARED PATHWAY SIGN (Rb-71)
R-PATHWAY ORGANIZATION SIGN (Rb-72)
S-YIELD TO PEDESTRIANS SIGN (Ra-16)

NOTES:
1. ALL SIGNS TO CONFORM TO THE ONTARIO TRAFFIC MANUAL UNLESS OTHERWISE NOTED.
2. ALL SIGNS TO BE ALUMINUM, UNLESS OTHERWISE NOTED.
3. ALL WOOD POSTS TO BE PRESSURE TREATED UNLESS OTHERWISE SPECIFIED.
4. ALL 15x15cm WOOD POSTS ARE PRE-DRILLED. PRE-DRILL TWO 51mmø HOLES AT THE DISTANCE OF 350mm ABOVE FINISHED GRADE AND A SEPARATION OF 360mm BETWEEN HOLES.
5. MINIMUM POST BURIED DEPTH IS TO BE 1.0m.
6. L.O. = LATERAL OFFSET FROM EDGE OF TRAVELED LANE.
7. M.H. = MOUNTING HEIGHT FROM EDGE OF TRAVELED LANE TO BOTTOM FACE OF SIGN.
8. ALL PAVEMENT MARKINGS TO BE PERMANENT UNLESS OTHERWISE SPECIFIED.
9. Rb-55 STOPPING CONTROL SIGNS TO BE SET AT 45° TO TRAFFIC FLOW AND MOUNTED AT 2.3m HEIGHT. ON HYDRO OR STREET LIGHT POLES AS DIRECTED BY CONTRACT ADMINISTRATOR.
10. CONTACT CONTRACT ADMINISTRATOR FOR SIGN LAYOUT DRAWING PRIOR TO MANUFACTURING SIGN.
11. PRIVATE BUSINESS SIGNS NOT TO BE INSTALLED ON RIGHT-OF-WAY. EXISTING PRIVATE BUSINESS SIGNS TO BE SALVAGED AND RETURNED TO BUSINESS OWNER.
12. REMOVE ANY CONFLICTING SPEED LIMIT SIGNS WITHIN PROJECT LIMITS.
13. USE T-BAR OR PLACE ON BRACKETS FOR SIGNS INSTALLED ON HYDRO POLES AS DIRECTED BY CONTRACT ADMINISTRATOR.

NO.	DATE	BY	REVISIONS	MANU	CAD
3	27/08/25	P.S.Y.C.	ISSUED FOR 60% REVIEW		X
2	08/11/21	P.S.Y.C.	ISSUED FOR 60% REVIEW		X
1	24/04/20	P.S.Y.C.	ISSUED FOR 30% REVIEW		X

DESIGN	M.L.	CH'KD	
DRAWN	K.J.P.	CH'KD	
SCALE 1:500 (0 5 10 20)			DATE AUGUST, 2020
			REFERENCES

FIELD NOTES

STAMP

REGIONAL

SEE COVER SHEET FOR REGIONAL ACCEPTANCE

R.V. ANDERSON ASSOCIATES LIMITED
Innovative solutions for complex challenges

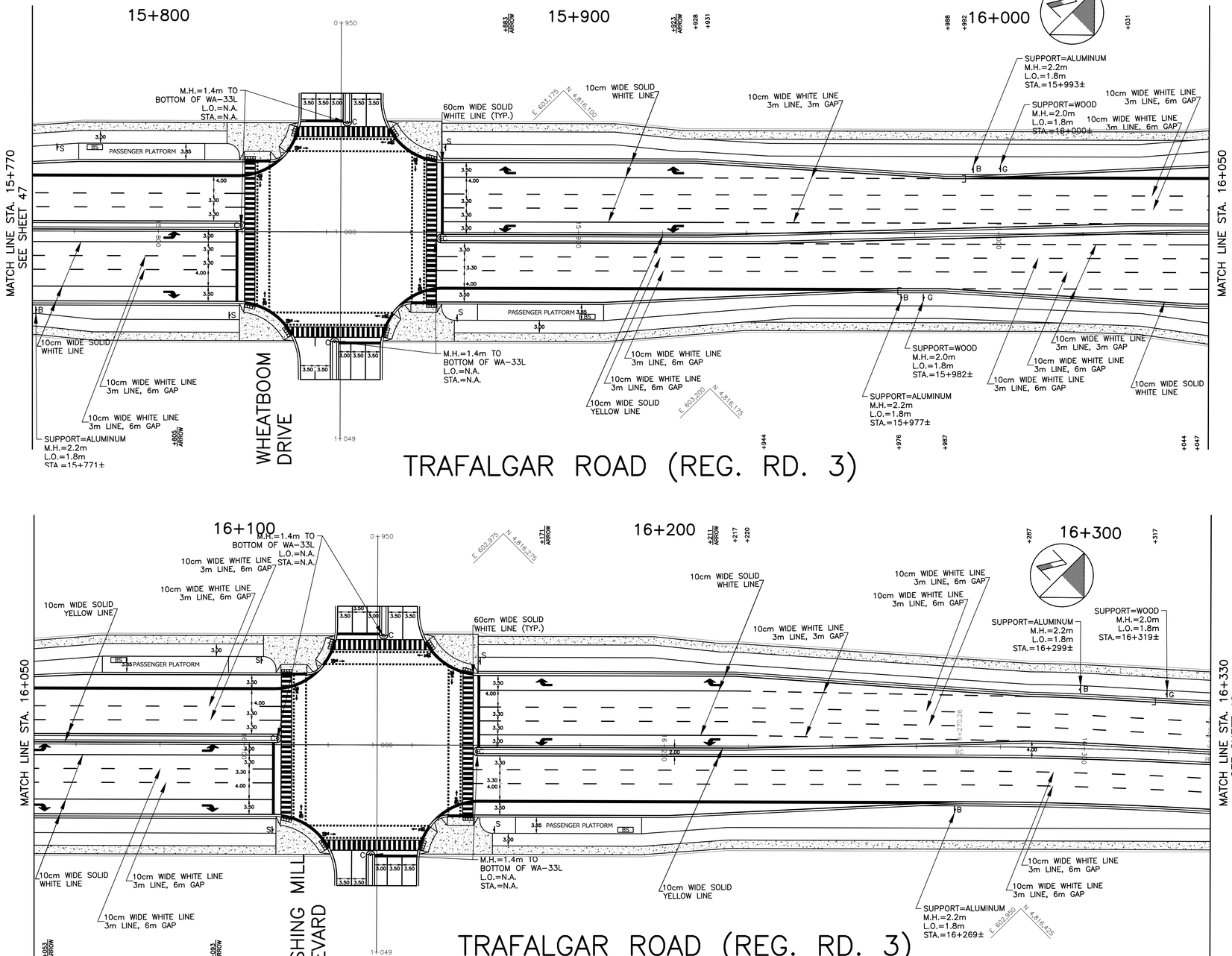
Halton REGION

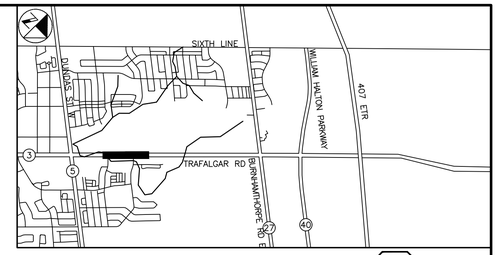
PAVEMENT MARKINGS & TRAFFIC CONTROL SIGNS
TRAFALGAR ROAD (REG. RD. 3)
FROM DUNDAS STREET EAST TO 82m SOUTH OF WHEAT BOOM DR
STA. 15+408 TO STA. 15+770
IN THE TOWN OF OAKVILLE

CONSULTANT FILE NO.	REGIONAL DRAWING NO.
163269	
CONTRACT NO.	DRAWING NO.
R-2079D2-26	SHEET 46 OF 81

R-2079D2-26 46 OF 81

Drawing: R:\2016\163269 - TRAFALGAR ROAD WIDENING\CADDWGS\TRANS\DWG\SHEETS\PHASE 2\PAVEMENT MARKINGS\163269-PM-PH-2B.DWG
Layout Tab: 46 PM 1
Date: 08/20/2025 Time: 08:43:33 AM





KEY PLAN
N.T.S.

STOP
RA–1

MAXIMUM
60
km/h
RB–1A

RB–21

STOP FOR
SCHOOL BUS
WHEN SIGNALS
FLASHING
RB–37

BOTH DIRECTIONS
RB–37T

RB–42

RB–55

RB–25

WA–33L

WA–13A

BUSES
EXCEPTED
WB–10T

NEW
WB–3

WB–2

SIGN LEGEND:

A–STOP SIGN (Ra–1)
B–MAXIMUM SPEED WITH KM/H (Rb–1A) 60km/hr
C–KEEP RIGHT (Rb–25) AND OBJECT MARKER (Wa–33L)
D–RIGHT TURN ONLY (Rb–42)
E–INTERSECTION CONTROLLED (Wa–13A)
F–ONE WAY SIGN (Rb–21)
G–ADVANCE ST. NAME SIGN (UTS 999.010)
H–HALTON ROUTE MARKER (UTS 999.025)
I–BUSES EXCEPTED TAB (Rb–10t)
J–STREET NAME SIGN (G–216)
K–TO 403 SIGN (M102) AND ARROW TAB (M301)
L–TO QEW SIGN (M103) AND ARROW TAB (M301)
M–CAR POOL SIGN (M507), GO LOT SIGN, AND ARROW TABS (M301)
N–TO 407 ETR SIGN AND ARROW TAB (M301)
O–TRAFFIC SIGNAL AHEAD (Wb–2) AND NEW SIGN (Wb–3)
P–STOP FOR SCHOOL BUS (Rb–37) AND TAB (Rb–37t)
Q–SHARED PATHWAY SIGN (Rb–71)
R–PATHWAY ORGANIZATION SIGN (Rb–72)
S–YIELD TO PEDESTRIANS SIGN (Ra–16)

NOTES:
1. ALL SIGNS TO CONFORM TO THE ONTARIO TRAFFIC MANUAL UNLESS OTHERWISE NOTED.
2. ALL SIGNS TO BE ALUMINUM, UNLESS OTHERWISE NOTED.
3. ALL WOOD POSTS TO BE PRESSURE TREATED UNLESS OTHERWISE SPECIFIED.
4. ALL 15x15cm WOOD POSTS ARE PRE–DRILLED. PRE–DRILL TWO 51mmø HOLES AT THE DISTANCE OF 350mm ABOVE FINISHED GRADE AND A SEPARATION OF 360mm BETWEEN HOLES.
5. MINIMUM POST BURIED DEPTH IS TO BE 1.0m.
6. L.O. = LATERAL OFFSET FROM EDGE OF TRAVELED LANE.
7. M.H. = MOUNTING HEIGHT FROM EDGE OF TRAVELED LANE TO BOTTOM FACE OF SIGN.
8. ALL PAVEMENT MARKINGS TO BE PERMANENT UNLESS OTHERWISE SPECIFIED.
9. Rb–55 STOPPING CONTROL SIGNS TO BE SET AT 45° TO TRAFFIC FLOW AND MOUNTED AT 2.3m HEIGHT. ON HYDRO OR STREET LIGHT POLES AS DIRECTED BY CONTRACT ADMINISTRATOR.
10. CONTACT CONTRACT ADMINISTRATOR FOR SIGN LAYOUT DRAWING PRIOR TO MANUFACTURING SIGN.
11. PRIVATE BUSINESS SIGNS NOT TO BE INSTALLED ON RIGHT–OF–WAY. EXISTING PRIVATE BUSINESS SIGNS TO BE SALVAGED AND RETURNED TO BUSINESS OWNER.
12. REMOVE ANY CONFLICTING SPEED LIMIT SIGNS WITHIN PROJECT LIMITS.
13. USE T–BAR OR PLACE ON BRACKETS FOR SIGNS INSTALLED ON HYDRO POLES AS DIRECTED BY CONTRACT ADMINISTRATOR.

NO.	DATE	BY	REVISIONS	MANU	CAD
3	27/08/25	P.S.Y.C.	ISSUED FOR 60% REVIEW		X
2	08/11/21	P.S.Y.C.	ISSUED FOR 60% REVIEW		X
1	24/04/20	P.S.Y.C.	ISSUED FOR 30% REVIEW		X

DESIGN M.L. CH'KD
DRAWN K.J.P. CH'KD
DATE AUGUST, 2020
SCALE 1:500 (0 5 10 20)
REFERENCES

FIELD NOTES

STAMP

REGIONAL

SEE COVER SHEET FOR REGIONAL ACCEPTANCE

R.V. ANDERSON ASSOCIATES LIMITED
Innovative solutions for complex challenges

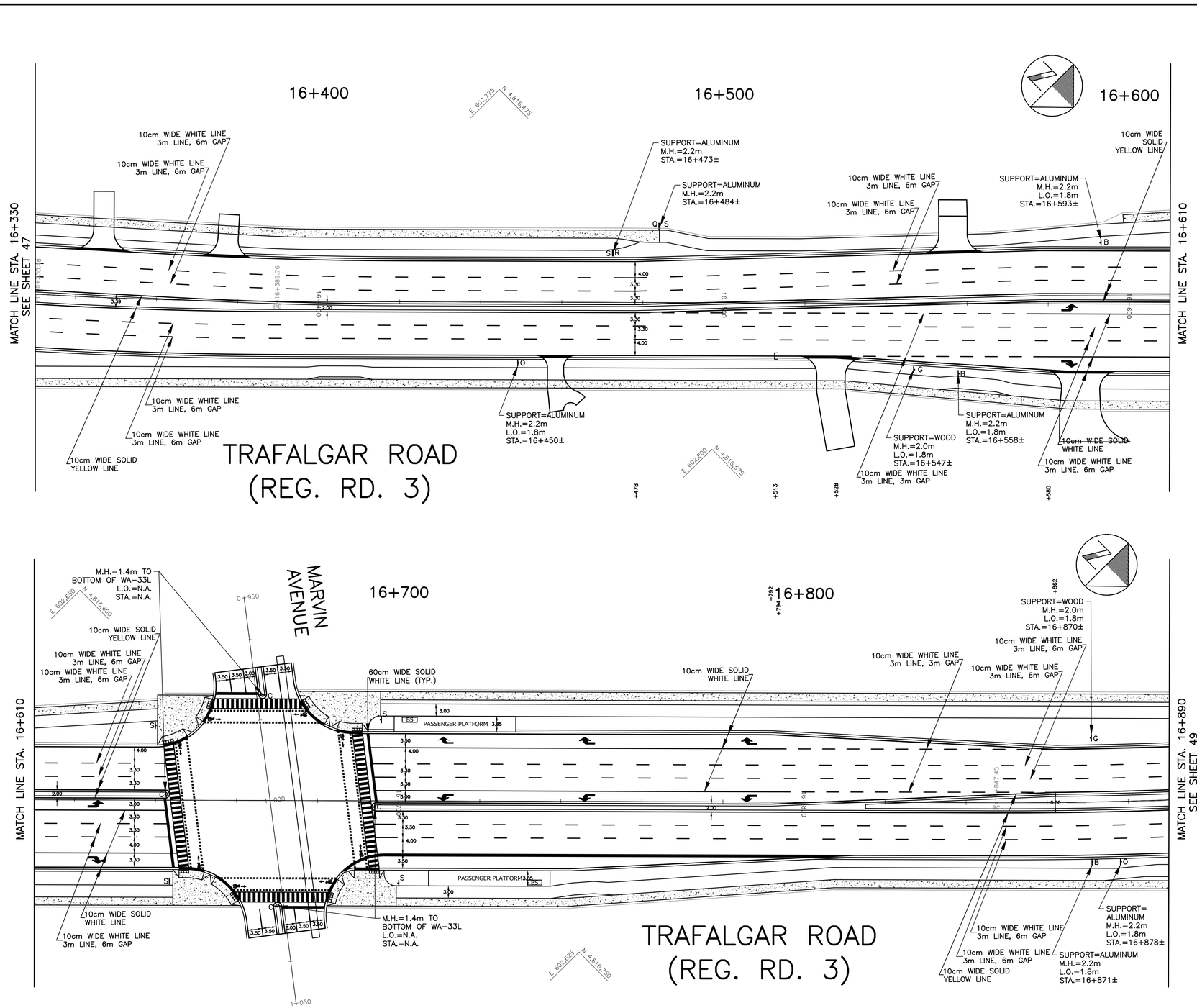
Halton REGION

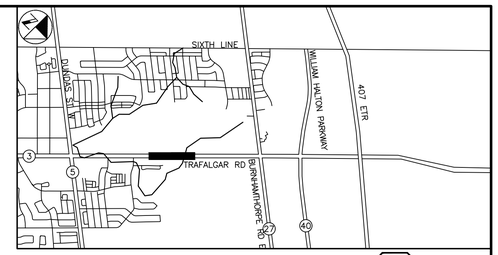
PAVEMENT MARKINGS & TRAFFIC CONTROL SIGNS
TRAFALGAR ROAD (REG. RD. 3)
FROM 82m SOUTH OF WHEAT BOOM DR
TO 198m NORTH OF THRESHING MILL BLVD
STA. 15+770 TO STA. 16+330
IN THE TOWN OF OAKVILLE

CONSULTANT FILE NO. 163269
REGIONAL DRAWING NO.
CONTRACT NO. R–2079D2–26
DRAWING NO. SHEET 47 OF 81

R–2079D2–26 47 OF 81

Drawing: R:\2016\163269 – TRAFALGAR ROAD WIDENING\CADDWGS\TRANS\DWG\SHEETS\PHASE 2\PAVEMENT MARKINGS\163269–PM–PH–2B.DWG
Layout Tab: 47 PM 2
Date: 08/20/2025 Time: 08:43:40 AM





KEY PLAN
N.T.S.

STOP
RA-1

MAXIMUM 60 km/h
RB-1A

RB-21

STOP FOR SCHOOL BUS WHEN SIGNALS FLASHING
RB-37

BOTH DIRECTIONS
RB-37T

RB-42

RB-55

RB-25

WA-33L

WA-13A

BUSES EXCEPTED
WB-10T

NEW
WB-3

WB-2

SIGN LEGEND:

A-STOP SIGN (Ra-1)
B-MAXIMUM SPEED WITH KM/H (Rb-1A) 60km/hr
C-KEEP RIGHT (Rb-25) AND OBJECT MARKER (Wa-33L)
D-RIGHT TURN ONLY (Rb-42)
E-INTERSECTION CONTROLLED (Wa-13A)
F-ONE WAY SIGN (Rb-21)
G-ADVANCE ST. NAME SIGN (UTS 999.010)
H-HALTON ROUTE MARKER (UTS 999.025)
I-BUSES EXCEPTED TAB (Rb-10t)
J-STREET NAME SIGN (G-216)
K-TO 403 SIGN (M102) AND ARROW TAB (M301)
L-TO QEW SIGN (M103) AND ARROW TAB (M301)
M-CAR POOL SIGN (M507), GO LOT SIGN, AND ARROW TABS (M301)
N-TO 407 ETR SIGN AND ARROW TAB (M301)
O-TRAFFIC SIGNAL AHEAD (Wb-2) AND NEW SIGN (Wb-3)
P-STOP FOR SCHOOL BUS (Rb-37) AND TAB (Rb-37t)
Q-SHARED PATHWAY SIGN (Rb-71)
R-PATHWAY ORGANIZATION SIGN (Rb-72)
S-YIELD TO PEDESTRIANS SIGN (Ra-16)

NOTES:
1. ALL SIGNS TO CONFORM TO THE ONTARIO TRAFFIC MANUAL UNLESS OTHERWISE NOTED.
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NO.	DATE	BY	REVISIONS	MANU	CAD
3	27/08/25	P.S.Y.C.	ISSUED FOR 60% REVIEW		X
2	08/11/21	P.S.Y.C.	ISSUED FOR 60% REVIEW		X
1	24/04/20	P.S.Y.C.	ISSUED FOR 30% REVIEW		X

DESIGN	M.L.	CH'KD	
DRAWN	K.J.P.	CH'KD	
SCALE 1:500 (0 5 10 20)			DATE AUGUST, 2020
			REFERENCES

FIELD NOTES

STAMP

REGIONAL

SEE COVER SHEET FOR REGIONAL ACCEPTANCE

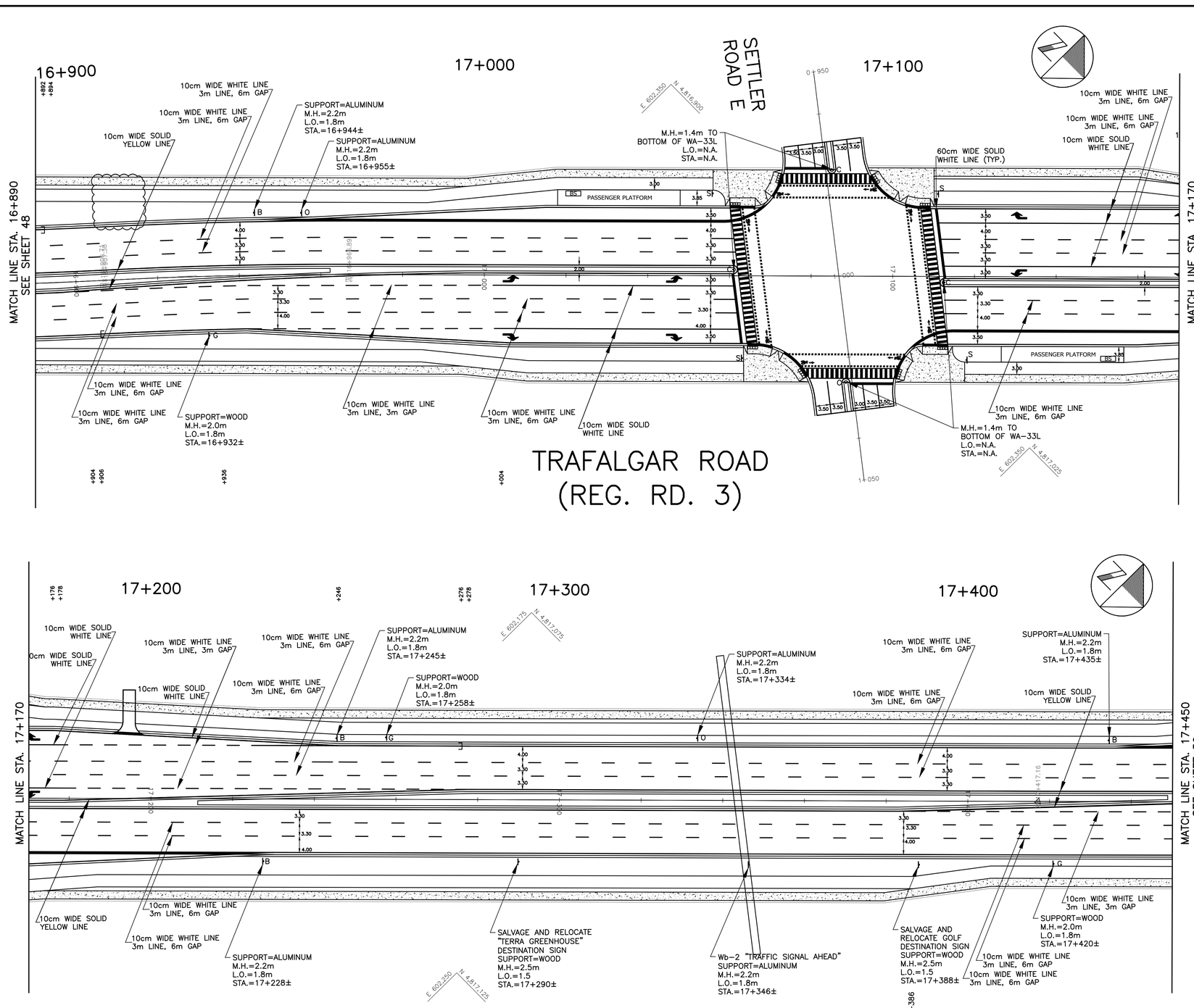
R.V. ANDERSON ASSOCIATES LIMITED
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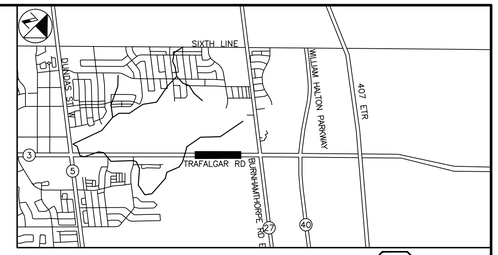
Halton REGION

PAVEMENT MARKINGS & TRAFFIC CONTROL SIGNS
TRAFALGAR ROAD (REG. RD. 3)
FROM 198m NORTH OF THRESHING MILL BLVD
TO 197m SOUTH OF SETTLERS RD E
STA. 16+330 TO STA. 16+890
IN THE TOWN OF OAKVILLE

CONSULTANT FILE NO.	REGIONAL DRAWING NO.
163269	
CONTRACT NO.	DRAWING NO.
R-2079D2-26	SHEET 48 OF 81

Drawing: R:\2016\163269 - TRAFALGAR ROAD WIDENING\CADDWGS\TRANS\DWG\SHEETS\PHASE 2\PAVEMENT MARKINGS\163269-PM-PH-2B.DWG
Layout Tab: 48 PM 3
Date: 08/20/2025 Time: 08:43:47 AM





KEY PLAN
N.T.S.

STOP
RA-1

MAXIMUM 60 km/h
RB-1A

RB-21

STOP FOR SCHOOL BUS WHEN SIGNALS FLASHING
RB-37

BOTH DIRECTIONS
RB-37T

RB-42

RB-55

RB-25

WA-33L

WA-13A

BUSES EXCEPTED
WB-10T

NEW
WB-3

WB-2

SIGN LEGEND:

A-STOP SIGN (Ra-1)
B-MAXIMUM SPEED WITH KM/H (Rb-1A) 60km/hr
C-KEEP RIGHT (Rb-25) AND OBJECT MARKER (Wa-33L)
D-RIGHT TURN ONLY (Rb-42)
E-INTERSECTION CONTROLLED (Wa-13A)
F-ONE WAY SIGN (Rb-21)
G-ADVANCE ST. NAME SIGN (UTS 999.010)
H-HALTON ROUTE MARKER (UTS 999.025)
I-BUSES EXCEPTED TAB (Rb-10t)
J-STREET NAME SIGN (G-216)
K-TO 403 SIGN (M102) AND ARROW TAB (M301)
L-TO QEW SIGN (M103) AND ARROW TAB (M301)
M-CAR POOL SIGN (M507), GO LOT SIGN, AND ARROW TABS (M301)
N-TO 407 ETR SIGN AND ARROW TAB (M301)
O-TRAFFIC SIGNAL AHEAD (Wb-2) AND NEW SIGN (Wb-3)
P-STOP FOR SCHOOL BUS (Rb-37) AND TAB (Rb-37t)
Q-SHARED PATHWAY SIGN (Rb-71)
R-PATHWAY ORGANIZATION SIGN (Rb-72)
S-YIELD TO PEDESTRIANS SIGN (Ra-16)

NOTES:
1. ALL SIGNS TO CONFORM TO THE ONTARIO TRAFFIC MANUAL UNLESS OTHERWISE NOTED.
2. ALL SIGNS TO BE ALUMINUM, UNLESS OTHERWISE NOTED.
3. ALL WOOD POSTS TO BE PRESSURE TREATED UNLESS OTHERWISE SPECIFIED.
4. ALL 15x15cm WOOD POSTS ARE PRE-DRILLED. PRE-DRILL TWO 51mmø HOLES AT THE DISTANCE OF 350mm ABOVE FINISHED GRADE AND A SEPARATION OF 360mm BETWEEN HOLES.
5. MINIMUM POST BURIED DEPTH IS TO BE 1.0m.
6. L.O. = LATERAL OFFSET FROM EDGE OF TRAVELED LANE.
7. M.H. = MOUNTING HEIGHT FROM EDGE OF TRAVELED LANE TO BOTTOM FACE OF SIGN.
8. ALL PAVEMENT MARKINGS TO BE PERMANENT UNLESS OTHERWISE SPECIFIED.
9. Rb-55 STOPPING CONTROL SIGNS TO BE SET AT 45° TO TRAFFIC FLOW AND MOUNTED AT 2.3m HEIGHT. ON HYDRO OR STREET LIGHT POLES AS DIRECTED BY CONTRACT ADMINISTRATOR.
10. CONTACT CONTRACT ADMINISTRATOR FOR SIGN LAYOUT DRAWING PRIOR TO MANUFACTURING SIGN.
11. PRIVATE BUSINESS SIGNS NOT TO BE INSTALLED ON RIGHT-OF-WAY. EXISTING PRIVATE BUSINESS SIGNS TO BE SALVAGED AND RETURNED TO BUSINESS OWNER.
12. REMOVE ANY CONFLICTING SPEED LIMIT SIGNS WITHIN PROJECT LIMITS.
13. USE T-BAR OR PLACE ON BRACKETS FOR SIGNS INSTALLED ON HYDRO POLES AS DIRECTED BY CONTRACT ADMINISTRATOR.

NO.	DATE	BY	REVISIONS	MANU	CAD
3	27/08/25	P.S.Y.C.	ISSUED FOR 60% REVIEW		X
2	08/11/21	P.S.Y.C.	ISSUED FOR 60% REVIEW		X
1	24/04/20	P.S.Y.C.	ISSUED FOR 30% REVIEW		X

DESIGN	M.L.	CH'KD		DATE AUGUST, 2020
DRAWN	K.J.P.	CH'KD		
SCALE 1:500 (0 5 10 20)				REFERENCES

FIELD NOTES

STAMP

REGIONAL

SEE COVER SHEET FOR REGIONAL ACCEPTANCE

R.V. ANDERSON ASSOCIATES LIMITED
Innovative solutions for complex challenges

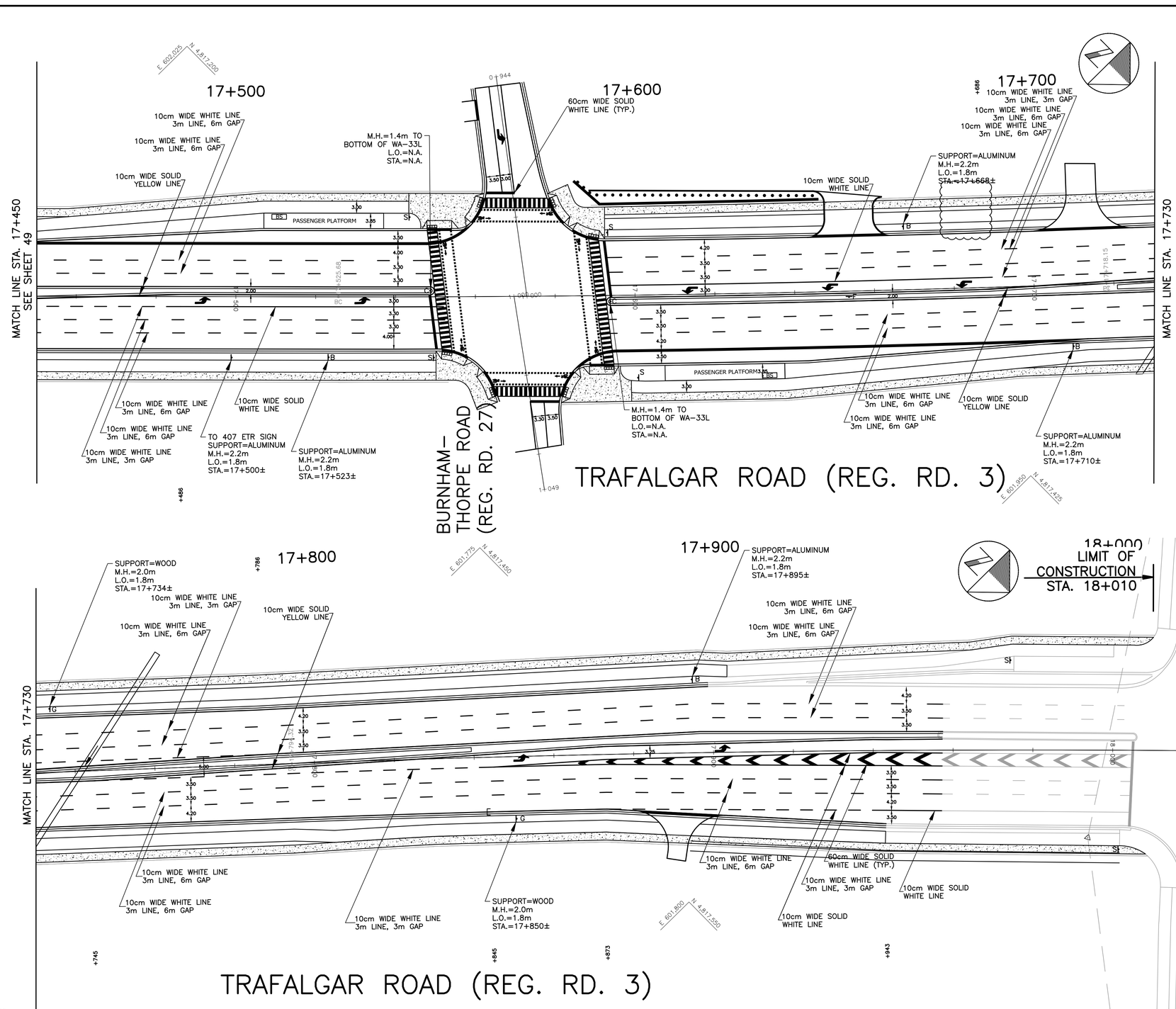
Halton REGION

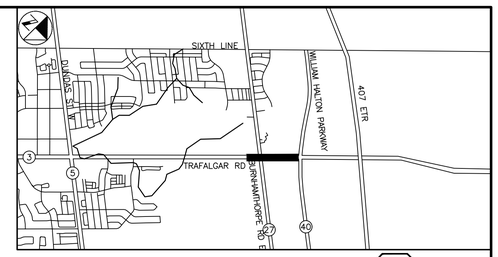
PAVEMENT MARKINGS & TRAFFIC CONTROL SIGNS
TRAFALGAR ROAD (REG. RD. 3)
FROM 197m SOUTH OF SETTLERS RD E TO 121m SOUTH OF BURNHAMTHORPE RD (REG. RD. 27)
STA. 16+890 TO STA. 17+450
IN THE TOWN OF OAKVILLE

CONSULTANT FILE NO.	REGIONAL DRAWING NO.
163269	
CONTRACT NO.	DRAWING NO.
R-2079D2-26	SHEET 49 OF 81

R-2079D2-26 49 OF 81

Drawing: R:\2016\163269 - TRAFALGAR ROAD WIDENING\CAD\DWGS\TRANS\DWG\SHEETS\PHASE 2\PAVEMENT MARKINGS\163269-PM-PH-2B.DWG
Layout Tab: 49 PM 4
Date: 08/20/2025 Time: 08:43:54 AM





KEY PLAN
N.T.S.

A–STOP SIGN (Ra–1)
B–MAXIMUM SPEED WITH KM/H (Rb–1A) 60km/hr
C–KEEP RIGHT (Rb–25) AND OBJECT MARKER (Wa–33L)
D–RIGHT TURN ONLY (Rb–42)
E–INTERSECTION CONTROLLED (Wa–13A)
F–ONE WAY SIGN (Rb–21)
G–ADVANCE ST. NAME SIGN (UTS 999.010)
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NO.	DATE	BY	REVISIONS	MANU	CAD
3	27/08/25	P.S.Y.C.	ISSUED FOR 60% REVIEW		X
2	08/11/21	P.S.Y.C.	ISSUED FOR 60% REVIEW		X
1	24/04/20	P.S.Y.C.	ISSUED FOR 30% REVIEW		X

DESIGN	M.L.	CH'KD	
DRAWN	K.J.P.	CH'KD	
SCALE 1:500 (0 5 10 20)			DATE AUGUST, 2020
			REFERENCES

FIELD NOTES

STAMP

REGIONAL

SEE COVER SHEET FOR REGIONAL ACCEPTANCE

R.V. ANDERSON ASSOCIATES LIMITED
Innovative solutions for complex challenges

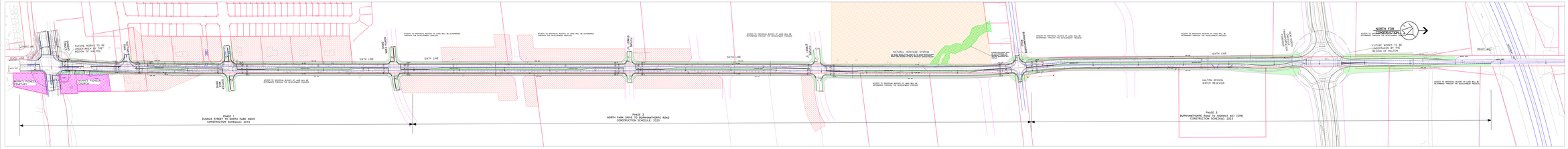
Halton REGION

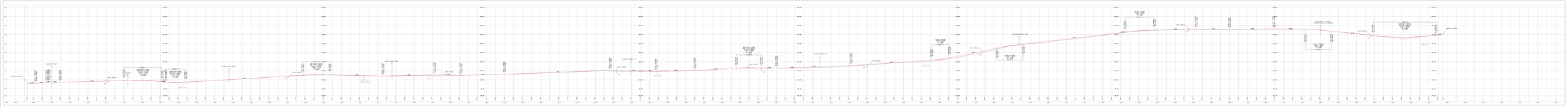
PAVEMENT MARKINGS & TRAFFIC CONTROL SIGNS
TRAFALGAR ROAD (REG. RD. 3)
FROM 121m SOUTH OF BURNHAMTHORPE RD (REG. RD. 27) TO WILLIAM HALTON PARKWAY (REG. RD. 40) STA. 17+450 TO STA. 18+010
IN THE TOWN OF OAKVILLE

CONSULTANT FILE NO.	REGIONAL DRAWING NO.
163269	
CONTRACT NO.	DRAWING NO.
R–2079D2–26	SHEET 50 OF 81

R–2079D2–26 50 OF 81

Drawing: R:\2016\163269 – TRAFALGAR ROAD WIDENING\CADDWGS\TRANS\DWG\SHEETS\PHASE 2\PAVEMENT MARKINGS\163269–PM–PH–2B.DWG
Layout Tab: 50 PM 5
Date: 08/20/2025 Time: 08:44:00 AM





LEGEND

- EXISTING EDGE OF PAVEMENT
- EXISTING R.O.W.
- PROPOSED R.O.W.
- PROPOSED ALIGNMENT
- LANDSCAPED MEDIAN
- NEIGHBOURHOOD CENTRE AREA
- CULTURAL HERITAGE RESOURCE
- NATURAL HERITAGE SYSTEM
- PROVINCIALLY SIGNIFICANT WETLANDS

SIXTH LINE ENVIRONMENTAL ASSESSMENT (DUNDAS STREET TO HIGHWAY 407) – PRELIMINARY RECOMMENDED PLAN AND PLAN AND PROFILE DESIGN

MORRISON HERSHFIELD

OAKVILLE

SCALE: 1:5m 0 5m 10m 00

DATE: APRIL 30 2014

Appendix E

EMME Model Projection Correspondence with Halton Region

From: Khan, Ayesha <Ayesha.Khan@halton.ca>
Sent: February 28, 2023 9:15 AM
To: May Lai
Cc: Mark Crockford; ebayley@ptsl.com; Krusto, Matt
Subject: RE: ARGMark Crockford <mark.crockford@cghtransportation.com>O Trafalgar (OPA1212.01) - TIS Comments

Good morning May,

Apologies for the delay on our end. We have now received the volume projections from our Modeler; these came from a thorough internal study conducted to support the Region's new road project. Using the Halton EMME Model at the time (which included all 2031 TMP recommendations), the Study determined the 2031 future year traffic forecast along William Halton Parkway and major intersecting roads based on screen-line growth rate and diversion factors derived from the study. You will note that these are significantly lower than the 2100 vehicles per hour in each direction (4200 total) that was previously used for the last iteration of the traffic impact study.

Therefore, here are the volume projection from the internal study along William Halton Parkway:

- 2031 PM peak hour volume west of Trafalgar: 2100 (800 east and 1300 west)
- 2031 PM Peak hour volume east of Trafalgar: 2400 (800 east and 1600 west)

With regards to the model's assumptions for the population and employment in the development area to help calculate the difference and avoid double-counting trips, our Modeler noted "that the model's traffic zone is much larger than the subject site and we do not have information from the model on how many trips are generated from the site. The consultant will need to make some assumption/engineering judgement."

Please let me know if you require any further clarifications.

Thanks,
Ayesha

From: May Lai <may.lai@cghtransportation.com>
Sent: Friday, February 17, 2023 3:38 PM
To: Khan, Ayesha <Ayesha.Khan@halton.ca>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>
Subject: RE: ARGMark Crockford <mark.crockford@cghtransportation.com>O Trafalgar (OPA1212.01) - TIS Comments

CAUTION: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe. If you are unsure or need assistance please contact the IT Service Desk.

Hi Ayesha,

Regarding the discussion we had last week, we just wonder whether you have received updated volume projections for the section of William Haton Parkway between Sixth Line and Ninth Line from the

modelling group. This information would help us proceed with the TIS revision. Can you provide us with the volumes when it is convenient for you?

Best regards,

May Lai, E.I.T.
CGH Transportation Inc.
P:289-834-0646
E:May.Lai@CGHTransportation.com

From: Mark Crockford <mark.crockford@cghtransportation.com>
Sent: February 3, 2023 1:26 PM
To: Khan, Ayesha <Ayesha.Khan@halton.ca>; May Lai <may.lai@cghtransportation.com>
Subject: RE: ARGO Trafalgar (OPA1212.01) - TIS Comments

Thanks perfect. Thanks for being so accommodating Ayesha!

Mark

Mark Crockford, P.Eng.
CGH Transportation Inc.
P:905-251-4070
E:Mark.Crockford@CGHTransportation.com

From: Khan, Ayesha <Ayesha.Khan@halton.ca>
Sent: February 3, 2023 1:25 PM
To: Mark Crockford <mark.crockford@cghtransportation.com>; May Lai <may.lai@cghtransportation.com>
Subject: RE: ARGO Trafalgar (OPA1212.01) - TIS Comments

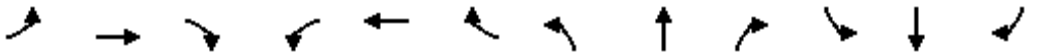
No worries! Moved it to 1:30pm – hope that works better?

Ayesha Khan
Transportation Planning Coordination PM1
Infrastructure Planning & Policy
Public Works
Halton Region
905-825-6000, ext. | 1-866-442-5866

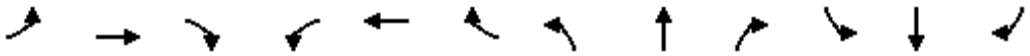


Appendix F

2024 Existing Conditions Synchro and Sidra Worksheets



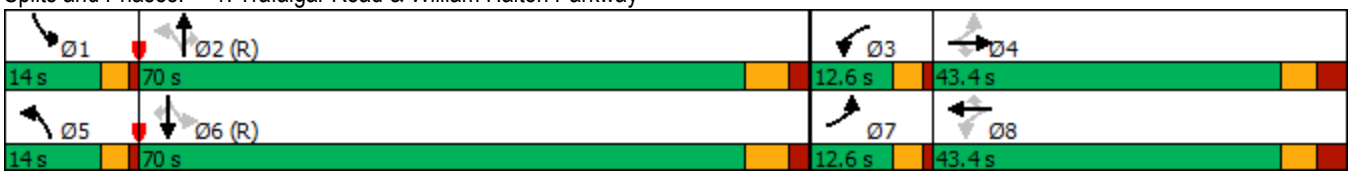
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	131	531	163	15	145	93	55	801	14	230	801	80
Future Volume (vph)	131	531	163	15	145	93	55	801	14	230	801	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	210.0		60.0	160.0		150.0	180.0		60.0	0.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	50.0			50.0			100.0			15.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3500	1566	1750	3500	1452	1750	5029	1493	1733	4980	1566
Flt Permitted	0.571			0.300			0.304			0.262		
Satd. Flow (perm)	1052	3500	1566	553	3500	1452	560	5029	1493	478	4980	1566
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			177			101			94			94
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		1235.4			397.7			276.7			224.9	
Travel Time (s)		74.1			23.9			12.5			10.1	
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%	10%	2%	2%	7%	3%	3%	2%
Adj. Flow (vph)	142	577	177	16	158	101	60	871	15	250	871	87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	142	577	177	16	158	101	60	871	15	250	871	87
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	

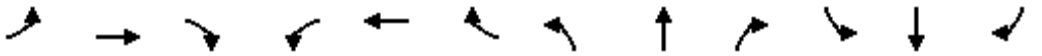


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	7.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	11.0	38.0	38.0	11.0	38.0	38.0	11.0	42.9	42.9	11.0	42.9	42.9
Total Split (s)	12.6	43.4	43.4	12.6	43.4	43.4	14.0	70.0	70.0	14.0	70.0	70.0
Total Split (%)	9.0%	31.0%	31.0%	9.0%	31.0%	31.0%	10.0%	50.0%	50.0%	10.0%	50.0%	50.0%
Maximum Green (s)	8.6	36.4	36.4	8.6	36.4	36.4	10.0	63.1	63.1	10.0	63.1	63.1
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	1.0	3.3	3.3	1.0	3.3	3.3	1.0	2.3	2.3	1.0	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	6.9	6.9	4.0	6.9	6.9
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		24.0	24.0		24.0	24.0		29.0	29.0		29.0	29.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	40.6	34.1	34.1	36.2	26.1	26.1	82.8	72.2	72.2	89.6	77.9	77.9
Actuated g/C Ratio	0.29	0.24	0.24	0.26	0.19	0.19	0.59	0.52	0.52	0.64	0.56	0.56
v/c Ratio	0.41	0.68	0.34	0.08	0.24	0.29	0.15	0.34	0.02	0.62	0.31	0.10
Control Delay	40.3	52.2	7.3	32.1	47.9	9.4	11.9	21.3	0.1	20.2	18.6	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.3	52.2	7.3	32.1	47.9	9.4	11.9	21.3	0.1	20.2	18.6	3.7
LOS	D	D	A	C	D	A	B	C	A	C	B	A
Approach Delay		41.5			32.9			20.4			17.9	
Approach LOS		D			C			C			B	
Queue Length 50th (m)	32.1	77.8	0.0	3.4	20.9	0.0	5.0	46.7	0.0	23.2	42.0	0.0
Queue Length 95th (m)	42.9	93.7	17.6	7.8	27.5	14.3	13.8	68.9	0.0	49.0	68.6	8.5
Internal Link Dist (m)		1211.4			373.7			252.7			200.9	
Turn Bay Length (m)	210.0		60.0	160.0		150.0	180.0		60.0			
Base Capacity (vph)	347	915	540	222	910	452	425	2593	815	407	2770	913
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.63	0.33	0.07	0.17	0.22	0.14	0.34	0.02	0.61	0.31	0.10

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 105			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 26.2		Intersection LOS: C	
Intersection Capacity Utilization 71.6%		ICU Level of Service C	
Analysis Period (min) 15			

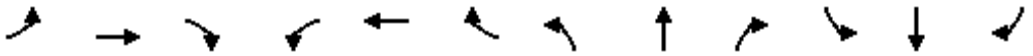
Splits and Phases: 1: Trafalgar Road & William Halton Parkway



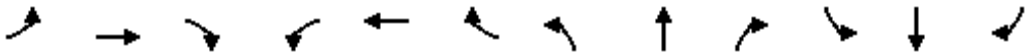


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	131	531	163	15	145	93	55	801	14	230	801	80
Future Volume (vph)	131	531	163	15	145	93	55	801	14	230	801	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	6.9	6.9	4.0	6.9	6.9
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1750	3500	1566	1750	3500	1452	1750	5029	1493	1733	4980	1566
Flt Permitted	0.57	1.00	1.00	0.30	1.00	1.00	0.30	1.00	1.00	0.26	1.00	1.00
Satd. Flow (perm)	1053	3500	1566	553	3500	1452	559	5029	1493	478	4980	1566
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)	142	577	177	16	158	101	60	871	15	250	871	87
RTOR Reduction (vph)	0	0	134	0	0	81	0	0	8	0	0	41
Lane Group Flow (vph)	142	577	43	16	158	20	60	871	7	250	871	46
Heavy Vehicles (%)	2%	2%	2%	2%	2%	10%	2%	2%	7%	3%	3%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	41.0	34.1	34.1	31.3	28.4	28.4	76.2	69.9	69.9	85.1	74.8	74.8
Effective Green, g (s)	41.0	34.1	34.1	31.3	28.4	28.4	76.2	69.9	69.9	85.1	74.8	74.8
Actuated g/C Ratio	0.29	0.24	0.24	0.22	0.20	0.20	0.54	0.50	0.50	0.61	0.53	0.53
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	6.9	6.9	4.0	6.9	6.9
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	351	852	381	148	710	294	357	2510	745	390	2660	836
v/s Ratio Prot	c0.02	c0.16		0.00	0.05		0.01	0.17		c0.05	0.17	
v/s Ratio Perm	0.09		0.03	0.02		0.01	0.08		0.01	c0.34		0.03
v/c Ratio	0.40	0.68	0.11	0.11	0.22	0.07	0.17	0.35	0.01	0.64	0.33	0.06
Uniform Delay, d1	38.2	48.0	41.2	42.9	46.6	45.1	15.1	21.2	17.6	13.5	18.4	15.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	2.8	0.3	0.3	0.3	0.2	0.2	0.4	0.0	3.6	0.3	0.1
Delay (s)	39.0	50.8	41.5	43.2	46.9	45.3	15.3	21.6	17.7	17.1	18.7	15.8
Level of Service	D	D	D	D	D	D	B	C	B	B	B	B
Approach Delay (s)		47.1			46.1			21.1			18.2	
Approach LOS		D			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	29.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.9
Intersection Capacity Utilization	71.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



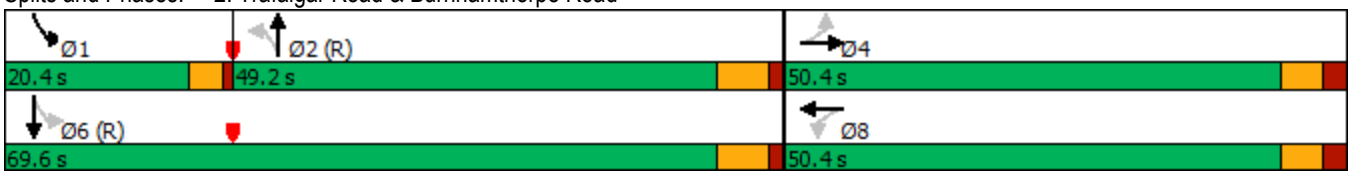
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	114	75	68	65	29	59	729	90	56	916	28
Future Volume (vph)	71	114	75	68	65	29	59	729	90	56	916	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	30.0		0.0	130.0		0.0	170.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			30.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99		1.00								
Frt		0.941			0.954			0.984			0.996	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	1725	0	1750	1711	0	1700	3437	0	1750	3446	0
Flt Permitted	0.681			0.370			0.273			0.267		
Satd. Flow (perm)	1254	1725	0	681	1711	0	489	3437	0	492	3446	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31			21			12			4	
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		1234.4			2091.4			2139.5			186.3	
Travel Time (s)		74.1			125.5			96.3			8.4	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	6%	2%	5%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Adj. Flow (vph)	79	127	83	76	72	32	66	810	100	62	1018	31
Shared Lane Traffic (%)												
Lane Group Flow (vph)	79	210	0	76	104	0	66	910	0	62	1049	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.02	1.01	1.01	1.02	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		20.0	20.0		7.0	20.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		26.0	26.0		11.5	26.0	
Total Split (s)	50.4	50.4		50.4	50.4		49.2	49.2		20.4	69.6	
Total Split (%)	42.0%	42.0%		42.0%	42.0%		41.0%	41.0%		17.0%	58.0%	
Maximum Green (s)	44.4	44.4		44.4	44.4		43.2	43.2		16.4	63.6	
Yellow Time (s)	3.7	3.7		3.7	3.7		4.6	4.6		3.0	4.6	
All-Red Time (s)	2.3	2.3		2.3	2.3		1.4	1.4		1.0	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		4.0	6.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		5.0	5.0		3.0	5.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Act Effct Green (s)	18.2	18.2		18.2	18.2		80.8	80.8		91.8	89.8	
Actuated g/C Ratio	0.15	0.15		0.15	0.15		0.67	0.67		0.76	0.75	
v/c Ratio	0.42	0.73		0.74	0.38		0.20	0.39		0.14	0.41	
Control Delay	51.2	55.4		85.4	38.6		11.7	10.4		5.0	6.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	51.2	55.4		85.4	38.6		11.7	10.4		5.0	6.5	
LOS	D	E		F	D		B	B		A	A	
Approach Delay		54.3			58.4			10.5			6.4	
Approach LOS		D			E			B			A	
Queue Length 50th (m)	17.1	40.8		17.3	17.6		5.7	47.7		3.0	40.3	
Queue Length 95th (m)	30.1	62.2		32.9	31.9		15.5	73.6		8.1	65.1	
Internal Link Dist (m)		1210.4			2067.4			2115.5			162.3	
Turn Bay Length (m)	40.0			30.0			130.0			170.0		
Base Capacity (vph)	463	657		251	646		329	2318		548	2580	
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	0.17	0.32		0.30	0.16		0.20	0.39		0.11	0.41	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 17.0		Intersection LOS: B	
Intersection Capacity Utilization 81.8%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 2: Trafalgar Road & Burnhamthorpe Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	114	75	68	65	29	59	729	90	56	916	28
Future Volume (vph)	71	114	75	68	65	29	59	729	90	56	916	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.95		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)	1750	1723		1748	1711		1700	3435		1750	3445	
Flt Permitted	0.68	1.00		0.37	1.00		0.27	1.00		0.27	1.00	
Satd. Flow (perm)	1254	1723		681	1711		488	3435		491	3445	
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)	79	127	83	76	72	32	66	810	100	62	1018	31
RTOR Reduction (vph)	0	26	0	0	18	0	0	4	0	0	1	0
Lane Group Flow (vph)	79	184	0	76	86	0	66	906	0	62	1048	0
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	2%	2%	2%	2%	6%	2%	5%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	18.2	18.2		18.2	18.2		80.0	80.0		89.8	89.8	
Effective Green, g (s)	18.2	18.2		18.2	18.2		80.0	80.0		89.8	89.8	
Actuated g/C Ratio	0.15	0.15		0.15	0.15		0.67	0.67		0.75	0.75	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		5.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	190	261		103	259		325	2290		428	2578	
v/s Ratio Prot		0.11			0.05			0.26		0.01	c0.30	
v/s Ratio Perm	0.06			c0.11			0.14			0.10		
v/c Ratio	0.42	0.70		0.74	0.33		0.20	0.40		0.14	0.41	
Uniform Delay, d1	46.1	48.3		48.6	45.5		7.7	9.1		4.7	5.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.5	8.3		23.8	0.8		1.4	0.5		0.2	0.5	
Delay (s)	47.6	56.7		72.4	46.2		9.1	9.6		4.8	5.9	
Level of Service	D	E		E	D		A	A		A	A	
Approach Delay (s)		54.2			57.3			9.5			5.9	
Approach LOS		D			E			A			A	

Intersection Summary			
HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	81.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	752	1	124	277	0	198
Future Volume (vph)	752	1	124	277	0	198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected				0.985		
Satd. Flow (prot)	1842	0	0	1791	1593	0
Flt Permitted				0.985		
Satd. Flow (perm)	1842	0	0	1791	1593	0
Link Speed (k/h)	60			60	60	
Link Distance (m)	657.5			396.1	222.0	
Travel Time (s)	39.5			23.8	13.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	4%	3%	2%	2%
Adj. Flow (vph)	817	1	135	301	0	215
Shared Lane Traffic (%)						
Lane Group Flow (vph)	818	0	0	436	215	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

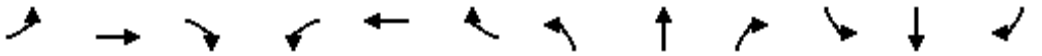
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 83.3%		ICU Level of Service E	
Analysis Period (min) 15			



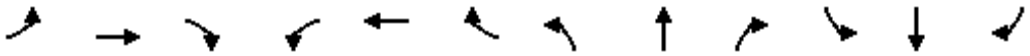
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	752	1	124	277	0	198
Future Volume (Veh/h)	752	1	124	277	0	198
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	817	1	135	301	0	215
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			818		1388	818
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			818		1388	818
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			83		100	43
cM capacity (veh/h)			802		131	376

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	818	436	215
Volume Left	0	135	0
Volume Right	1	0	215
cSH	1700	802	376
Volume to Capacity	0.48	0.17	0.57
Queue Length 95th (m)	0.0	4.6	26.0
Control Delay (s)	0.0	4.7	26.6
Lane LOS		A	D
Approach Delay (s)	0.0	4.7	26.6
Approach LOS			D

Intersection Summary			
Average Delay	5.3		
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	262	1678	203	155	732	134	163	486	93	176	739	145
Future Volume (vph)	262	1678	203	155	732	134	163	486	93	176	739	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		85.0	165.0		85.0	120.0		0.0	45.0		55.0
Storage Lanes	2		1	1		1	1		0	1		1
Taper Length (m)	45.0			65.0			100.0			75.0		
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor	1.00		0.99	1.00		0.98	1.00	1.00		1.00		0.98
Frt			0.850			0.850		0.976				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	5029	1551	1700	4794	1536	1716	3380	0	1716	3466	1551
Flt Permitted	0.950			0.085			0.177			0.205		
Satd. Flow (perm)	3386	5029	1528	152	4794	1510	319	3380	0	370	3466	1521
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			169			172		18				138
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		560.5			603.0			601.7			2139.5	
Travel Time (s)		28.8			31.0			36.1			128.4	
Confl. Peds. (#/hr)	4		2	2		4	6		3	3		6
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	3%	5%	7%	4%	4%	3%	2%	4%	3%	3%
Adj. Flow (vph)	273	1748	211	161	763	140	170	506	97	183	770	151
Shared Lane Traffic (%)												
Lane Group Flow (vph)	273	1748	211	161	763	140	170	603	0	183	770	151
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6	4			8		8
Detector Phase	5	2	2	1	6	6	7	4		3	8	8
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	7.0	10.0		7.0	10.0	10.0
Minimum Split (s)	12.0	40.4	40.4	11.5	40.4	40.4	11.5	40.5		11.5	40.5	40.5
Total Split (s)	22.1	50.7	50.7	14.3	42.9	42.9	13.0	46.8		18.2	52.0	52.0
Total Split (%)	17.0%	39.0%	39.0%	11.0%	33.0%	33.0%	10.0%	36.0%		14.0%	40.0%	40.0%
Maximum Green (s)	17.1	44.3	44.3	10.3	36.5	36.5	9.0	40.3		14.2	45.5	45.5
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7		3.0	3.7	3.7
All-Red Time (s)	2.0	2.7	2.7	1.0	2.7	2.7	1.0	2.8		1.0	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5		4.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5		3.5	3.5	3.5
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		27.0	27.0		27.0	27.0		27.0			27.0	27.0
Pedestrian Calls (#/hr)		2	2		4	4		3			6	6
Act Effct Green (s)	15.8	50.8	50.8	62.3	46.9	46.9	43.4	31.9		51.5	36.4	36.4
Actuated g/C Ratio	0.12	0.39	0.39	0.48	0.36	0.36	0.33	0.25		0.40	0.28	0.28
v/c Ratio	0.66	0.89	0.30	0.71	0.44	0.21	0.84	0.72		0.64	0.79	0.29
Control Delay	62.5	44.6	8.7	45.6	34.0	3.2	60.8	48.3		36.0	49.5	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	62.5	44.6	8.7	45.6	34.0	3.2	60.8	48.3		36.0	49.5	7.9
LOS	E	D	A	D	C	A	E	D		D	D	A
Approach Delay		43.4			31.7			51.0			41.6	
Approach LOS		D			C			D			D	
Queue Length 50th (m)	34.8	155.6	6.9	23.7	54.3	0.0	28.7	73.3		31.2	96.3	2.4
Queue Length 95th (m)	48.1	#203.1	25.4	#64.6	75.1	8.8	#49.2	86.3		43.6	109.5	16.7
Internal Link Dist (m)		536.5			579.0			577.7			2115.5	
Turn Bay Length (m)	110.0		85.0	165.0		85.0	120.0			45.0		55.0
Base Capacity (vph)	457	1963	699	228	1731	655	203	1060		294	1213	622
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.60	0.89	0.30	0.71	0.44	0.21	0.84	0.57		0.62	0.63	0.24

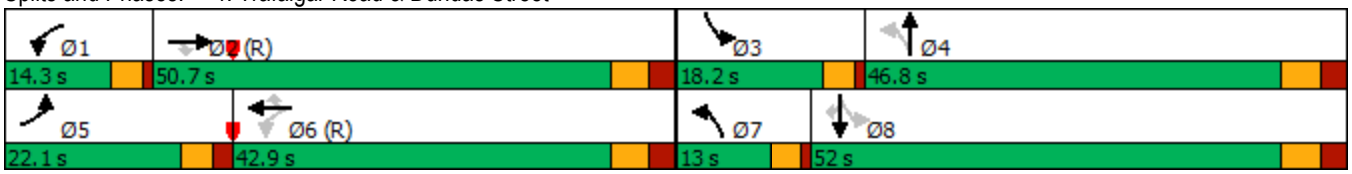
Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 18.2 (14%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 105			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 41.7		Intersection LOS: D	

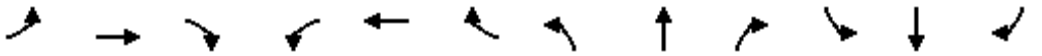
Intersection Capacity Utilization 89.3% ICU Level of Service E

Analysis Period (min) 15

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

Splits and Phases: 4: Trafalgar Road & Dundas Street

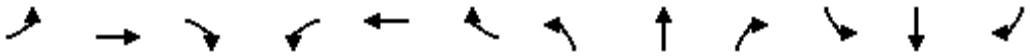




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	262	1678	203	155	732	134	163	486	93	176	739	145
Future Volume (vph)	262	1678	203	155	732	134	163	486	93	176	739	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5		4.0	6.5	6.5
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3395	5029	1528	1700	4794	1510	1716	3379		1716	3466	1521
Flt Permitted	0.95	1.00	1.00	0.09	1.00	1.00	0.18	1.00		0.21	1.00	1.00
Satd. Flow (perm)	3395	5029	1528	153	4794	1510	320	3379		371	3466	1521
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	273	1748	211	161	762	140	170	506	97	183	770	151
RTOR Reduction (vph)	0	0	103	0	0	89	0	14	0	0	0	99
Lane Group Flow (vph)	273	1748	108	161	763	51	170	589	0	183	770	52
Confl. Peds. (#/hr)	4		2	2		4	6		3	3		6
Heavy Vehicles (%)	2%	2%	3%	5%	7%	4%	4%	3%	2%	4%	3%	3%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6	4			8		8
Actuated Green, G (s)	15.8	50.7	50.7	59.9	46.9	46.9	40.9	31.9		49.4	36.4	36.4
Effective Green, g (s)	15.8	50.7	50.7	59.9	46.9	46.9	40.9	31.9		49.4	36.4	36.4
Actuated g/C Ratio	0.12	0.39	0.39	0.46	0.36	0.36	0.31	0.25		0.38	0.28	0.28
Clearance Time (s)	5.0	6.4	6.4	4.0	6.4	6.4	4.0	6.5		4.0	6.5	6.5
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5		3.5	3.5	3.5
Lane Grp Cap (vph)	412	1961	595	225	1729	544	197	829		280	970	425
v/s Ratio Prot	c0.08	c0.35		0.07	0.16		c0.06	0.17		c0.07	0.22	
v/s Ratio Perm			0.07	0.26		0.03	c0.21			0.18		0.03
v/c Ratio	0.66	0.89	0.18	0.72	0.44	0.09	0.86	0.71		0.65	0.79	0.12
Uniform Delay, d1	54.6	37.1	26.0	28.5	31.6	27.5	36.5	44.8		29.7	43.3	34.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	4.1	6.6	0.7	10.7	0.8	0.3	30.6	3.0		5.6	4.7	0.2
Delay (s)	58.7	43.7	26.7	39.2	32.4	27.8	67.1	47.8		35.3	48.0	35.0
Level of Service	E	D	C	D	C	C	E	D		D	D	D
Approach Delay (s)		43.9			32.8			52.1			44.1	
Approach LOS		D			C			D			D	

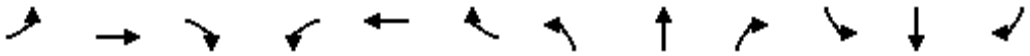
Intersection Summary			
HCM 2000 Control Delay	42.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	21.9
Intersection Capacity Utilization	89.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



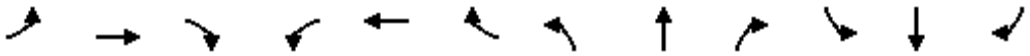
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	146	191	6	16	169	101	6	142	49	558	138	227
Future Volume (vph)	146	191	6	16	169	101	6	142	49	558	138	227
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.997			0.949			0.963			0.961	
Flt Protected		0.979			0.997			0.998			0.971	
Satd. Flow (prot)	0	3416	0	0	3311	0	0	3364	0	0	3266	0
Flt Permitted		0.979			0.997			0.998			0.971	
Satd. Flow (perm)	0	3416	0	0	3311	0	0	3364	0	0	3266	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		481.1			1235.4			238.8			171.1	
Travel Time (s)		28.9			74.1			14.3			10.3	
Peak Hour Factor	0.90	0.90	0.90	0.96	0.90	0.96	0.90	0.96	0.96	0.96	0.96	0.90
Adj. Flow (vph)	162	212	7	17	188	105	7	148	51	581	144	252
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	381	0	0	310	0	0	206	0	0	977	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 68.0%		ICU Level of Service C	
Analysis Period (min) 15			



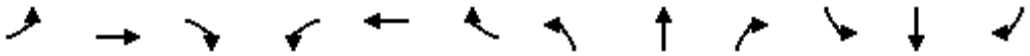
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	146	191	6	16	169	101	6	142	49	558	138	227
Future Volume (veh/h)	146	191	6	16	169	101	6	142	49	558	138	227
Peak Hour Factor	0.90	0.90	0.90	0.96	0.90	0.96	0.90	0.96	0.96	0.96	0.96	0.90
Hourly flow rate (vph)	162	212	7	17	188	105	7	148	51	581	144	252
Approach Volume (veh/h)		381			310			206			977	
Crossing Volume (veh/h)		742			317			955			212	
High Capacity (veh/h)		768			1080			646			1173	
High v/c (veh/h)		0.50			0.29			0.32			0.83	
Low Capacity (veh/h)		609			885			503			969	
Low v/c (veh/h)		0.63			0.35			0.41			1.01	

Intersection Summary				
Maximum v/c High	0.83			
Maximum v/c Low	1.01			
Intersection Capacity Utilization	68.0%	ICU Level of Service	C	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	32	12	48	54	9	15	203	70	20	160	3
Future Volume (vph)	2	32	12	48	54	9	15	203	70	20	160	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.966			0.989			0.967			0.998	
Flt Protected		0.998			0.979			0.997			0.995	
Satd. Flow (prot)	0	1776	0	0	1726	0	0	1759	0	0	1808	0
Flt Permitted		0.998			0.979			0.997			0.995	
Satd. Flow (perm)	0	1776	0	0	1726	0	0	1759	0	0	1808	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		241.5			1234.4			328.3			432.7	
Travel Time (s)		14.5			74.1			19.7			26.0	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	2%	6%	4%	11%	2%	2%	6%	5%	3%	2%
Adj. Flow (vph)	2	36	13	54	61	10	17	228	79	22	180	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	51	0	0	125	0	0	324	0	0	205	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

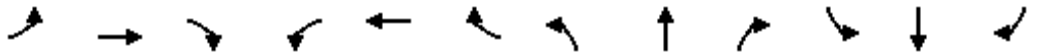
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 37.4%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	2	32	12	48	54	9	15	203	70	20	160	3
Future Volume (vph)	2	32	12	48	54	9	15	203	70	20	160	3
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	2	36	13	54	61	10	17	228	79	22	180	3

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	51	125	324	205
Volume Left (vph)	2	54	17	22
Volume Right (vph)	13	10	79	3
Hadj (s)	-0.11	0.13	-0.09	0.07
Departure Headway (s)	5.3	5.4	4.6	4.8
Degree Utilization, x	0.07	0.19	0.41	0.28
Capacity (veh/h)	601	606	758	703
Control Delay (s)	8.7	9.6	10.7	9.7
Approach Delay (s)	8.7	9.6	10.7	9.7
Approach LOS	A	A	B	A

Intersection Summary				
Delay	10.1			
Level of Service	B			
Intersection Capacity Utilization	37.4%	ICU Level of Service	A	
Analysis Period (min)	15			

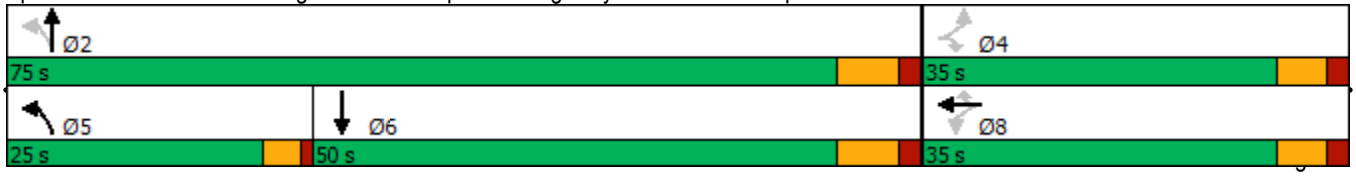


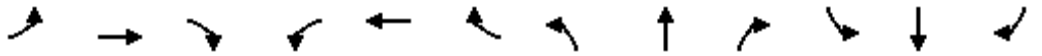
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	2	106	0	3	2	814	0	0	950	0
Future Volume (vph)	3	0	2	106	0	3	2	814	0	0	950	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		5.0	0.0		60.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		1	1		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt			0.850			0.850						
Flt Protected	0.950			0.950	0.950		0.950					
Satd. Flow (prot)	1069	0	1566	1449	1388	1487	1190	3305	0	0	4749	0
Flt Permitted	0.714			0.950	0.950		0.232					
Satd. Flow (perm)	803	0	1566	1449	1388	1487	291	3305	0	0	4749	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79			79						
Link Speed (k/h)		20			60			80			80	
Link Distance (m)		81.5			394.8			34.5			189.8	
Travel Time (s)		14.7			23.7			1.6			8.5	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	67%	2%	2%	17%	2%	2%	50%	8%	2%	2%	8%	2%
Adj. Flow (vph)	3	0	2	119	0	3	2	915	0	0	1067	0
Shared Lane Traffic (%)				50%		10%						
Lane Group Flow (vph)	3	0	2	59	60	3	2	915	0	0	1067	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1		1	1	2	1	1	2			2	
Detector Template	Left		Right	Left	Thru	Right	Left	Thru			Thru	
Leading Detector (m)	2.0		2.0	2.0	10.0	2.0	2.0	10.0			10.0	
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Size(m)	2.0		2.0	2.0	0.6	2.0	2.0	0.6			0.6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 2 Position(m)					9.4			9.4			9.4	
Detector 2 Size(m)					0.6			0.6			0.6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8		8	2					
Detector Phase	4		4	8	8	8	5	2			6	
Switch Phase												
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	4.0	35.0			35.0	
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5	9.5	42.0			42.0	
Total Split (s)	35.0		35.0	35.0	35.0	35.0	25.0	75.0			50.0	
Total Split (%)	31.8%		31.8%	31.8%	31.8%	31.8%	22.7%	68.2%			45.5%	
Maximum Green (s)	29.0		29.0	29.0	29.0	29.0	21.0	68.0			43.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0	3.0	5.0			5.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0	1.0	2.0			2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Recall Mode	None		None	None	None	None	None	Min			Min	
Act Effct Green (s)	8.2		8.2	8.2	8.2	8.2	43.0	41.4			39.7	
Actuated g/C Ratio	0.14		0.14	0.14	0.14	0.14	0.73	0.71			0.68	
v/c Ratio	0.03		0.01	0.29	0.31	0.01	0.01	0.39			0.33	
Control Delay	23.7		0.0	27.3	27.9	0.0	3.0	5.5			6.3	
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	23.7		0.0	27.3	27.9	0.0	3.0	5.5			6.3	
LOS	C		A	C	C	A	A	A			A	
Approach Delay		14.2			26.9			5.5			6.3	
Approach LOS		B			C			A			A	
Queue Length 50th (m)	0.3		0.0	5.7	6.1	0.0	0.1	20.6			15.6	
Queue Length 95th (m)	2.4		0.0	17.0	18.0	0.0	0.6	34.6			38.3	
Internal Link Dist (m)		57.5			370.8			10.5			165.8	
Turn Bay Length (m)			5.0			60.0						
Base Capacity (vph)	399		819	721	691	780	537	3297			3739	
Starvation Cap Reductn	0		0	0	0	0	0	0			0	
Spillback Cap Reductn	0		0	0	0	0	0	0			0	
Storage Cap Reductn	0		0	0	0	0	0	0			0	
Reduced v/c Ratio	0.01		0.00	0.08	0.09	0.00	0.00	0.28			0.29	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 58.6			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.39			
Intersection Signal Delay: 7.2		Intersection LOS: A	
Intersection Capacity Utilization 56.7%		ICU Level of Service B	
Analysis Period (min) 15			

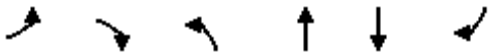
Splits and Phases: 7: Trafalgar Road & Carpool Lot/Highway 407 WB Off-Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	2	106	0	3	2	814	0	0	950	0
Future Volume (vph)	3	0	2	106	0	3	2	814	0	0	950	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	6.0	4.0	7.0			7.0	
Lane Util. Factor	1.00		1.00	0.95	0.91	0.95	1.00	0.95			0.91	
Frt	1.00		0.85	1.00	1.00	0.85	1.00	1.00			1.00	
Flt Protected	0.95		1.00	0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1069		1566	1449	1388	1487	1190	3305			4749	
Flt Permitted	0.71		1.00	0.95	0.95	1.00	0.23	1.00			1.00	
Satd. Flow (perm)	803		1566	1449	1388	1487	290	3305			4749	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	3	0	2	119	0	3	2	915	0	0	1067	0
RTOR Reduction (vph)	0	0	2	0	0	3	0	0	0	0	0	0
Lane Group Flow (vph)	3	0	0	59	60	0	2	915	0	0	1067	0
Heavy Vehicles (%)	67%	2%	2%	17%	2%	2%	50%	8%	2%	2%	8%	2%
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	
Permitted Phases	4		4	8		8	2					
Actuated Green, G (s)	6.8		6.8	6.8	6.8	6.8	43.3	43.3			38.3	
Effective Green, g (s)	6.8		6.8	6.8	6.8	6.8	43.3	43.3			38.3	
Actuated g/C Ratio	0.11		0.11	0.11	0.11	0.11	0.69	0.69			0.61	
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)	86		168	156	149	160	213	2267			2882	
v/s Ratio Prot							0.00	c0.28			0.22	
v/s Ratio Perm	0.00		0.00	0.04	0.04	0.00	0.01					
v/c Ratio	0.03		0.00	0.38	0.40	0.00	0.01	0.40			0.37	
Uniform Delay, d1	25.2		25.1	26.2	26.3	25.1	3.2	4.3			6.3	
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.2		0.0	1.5	1.8	0.0	0.0	0.1			0.1	
Delay (s)	25.4		25.1	27.7	28.0	25.1	3.3	4.4			6.4	
Level of Service	C		C	C	C	C	A	A			A	
Approach Delay (s)		25.3			27.8			4.4			6.4	
Approach LOS		C			C			A			A	

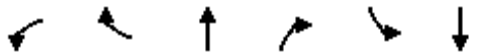
Intersection Summary			
HCM 2000 Control Delay	6.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	63.1	Sum of lost time (s)	17.0
Intersection Capacity Utilization	56.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	816	1058	26
Future Volume (vph)	0	0	0	816	1058	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.95	1.00
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	4749	3275	1536
Flt Permitted						
Satd. Flow (perm)	0	0	0	4749	3275	1536
Link Speed (k/h)	60			80	80	
Link Distance (m)	161.4			55.2	34.5	
Travel Time (s)	9.7			2.5	1.6	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	2%	8%	9%	4%
Adj. Flow (vph)	0	0	0	917	1189	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	917	1189	29
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.6%		ICU Level of Service A	
Analysis Period (min) 15			

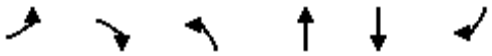
Intersection Sign configuration not allowed in HCM analysis.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	816	33	0	1058
Future Volume (vph)	0	0	816	33	0	1058
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt				0.850		
Flt Protected						
Satd. Flow (prot)	0	0	3305	1229	0	3275
Flt Permitted						
Satd. Flow (perm)	0	0	3305	1229	0	3275
Link Speed (k/h)	30		80			80
Link Distance (m)	192.3		37.4			100.8
Travel Time (s)	23.1		1.7			4.5
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	8%	30%	2%	9%
Adj. Flow (vph)	0	0	917	37	0	1189
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	917	37	0	1189
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Free		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection Sign configuration not allowed in HCM analysis.

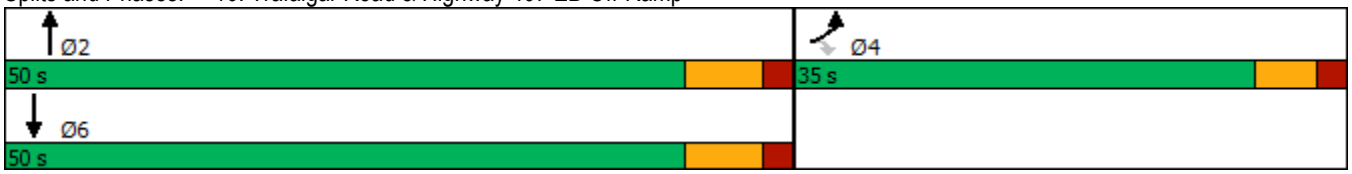


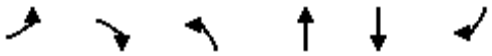
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	45	72	0	800	928	0
Future Volume (vph)	45	72	0	800	928	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1716	1401	0	3275	3305	0
Flt Permitted	0.950					
Satd. Flow (perm)	1716	1401	0	3275	3305	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		74				
Link Speed (k/h)	60			80	80	
Link Distance (m)	417.0			117.5	129.7	
Travel Time (s)	25.0			5.3	5.8	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	14%	2%	9%	8%	2%
Adj. Flow (vph)	49	79	0	879	1020	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	49	79	0	879	1020	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (m)	2.0	2.0		10.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	2.0		0.6	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Initial (s)	6.0	6.0		20.0	20.0	
Minimum Split (s)	24.0	24.0		27.0	27.0	
Total Split (s)	35.0	35.0		50.0	50.0	
Total Split (%)	41.2%	41.2%		58.8%	58.8%	
Maximum Green (s)	29.0	29.0		43.0	43.0	
Yellow Time (s)	4.0	4.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		7.0	7.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		Max	Max	
Act Effct Green (s)	7.4	7.4		47.4	47.4	
Actuated g/C Ratio	0.12	0.12		0.74	0.74	
v/c Ratio	0.25	0.35		0.36	0.42	
Control Delay	28.6	12.8		4.7	5.0	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	28.6	12.8		4.7	5.0	
LOS	C	B		A	A	
Approach Delay	18.9			4.7	5.0	
Approach LOS	B			A	A	
Queue Length 50th (m)	5.3	0.5		19.0	23.3	
Queue Length 95th (m)	13.8	10.8		30.8	37.3	
Internal Link Dist (m)	393.0			93.5	105.7	
Turn Bay Length (m)						
Base Capacity (vph)	778	675		2424	2446	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.06	0.12		0.36	0.42	

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 64			
Natural Cycle: 55			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.42			
Intersection Signal Delay: 5.7		Intersection LOS: A	
Intersection Capacity Utilization 41.5%		ICU Level of Service A	
Analysis Period (min) 15			

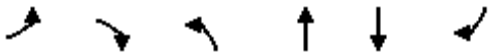
Splits and Phases: 10: Trafalgar Road & Highway 407 EB Off-Ramp





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	45	72	0	800	928	0
Future Volume (vph)	45	72	0	800	928	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1716	1401		3275	3305	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1716	1401		3275	3305	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	49	79	0	879	1020	0
RTOR Reduction (vph)	0	67	0	0	0	0
Lane Group Flow (vph)	49	12	0	879	1020	0
Heavy Vehicles (%)	4%	14%	2%	9%	8%	2%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	6.2	6.2		46.0	46.0	
Effective Green, g (s)	6.2	6.2		46.0	46.0	
Actuated g/C Ratio	0.10	0.10		0.71	0.71	
Clearance Time (s)	6.0	6.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	163	133		2310	2331	
v/s Ratio Prot	c0.03			0.27	c0.31	
v/s Ratio Perm		0.01				
v/c Ratio	0.30	0.09		0.38	0.44	
Uniform Delay, d1	27.5	26.9		3.9	4.1	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	0.3		0.5	0.6	
Delay (s)	28.5	27.2		4.3	4.7	
Level of Service	C	C		A	A	
Approach Delay (s)	27.7			4.3	4.7	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	6.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	65.2	Sum of lost time (s)	13.0
Intersection Capacity Utilization	41.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	845	928	23
Future Volume (vph)	0	0	0	845	928	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	3275	3305	1465
Flt Permitted						
Satd. Flow (perm)	0	0	0	3275	3305	1465
Link Speed (k/h)	30			80	80	
Link Distance (m)	110.1			129.7	37.4	
Travel Time (s)	13.2			5.8	1.7	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	2%	2%	2%	9%	8%	9%
Adj. Flow (vph)	0	0	0	929	1020	25
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	929	1020	25
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	41.5%	ICU Level of Service	A
Analysis Period (min)	15		

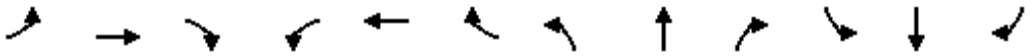
Intersection Sign configuration not allowed in HCM analysis.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	800	200	0	1000
Future Volume (vph)	0	0	800	200	0	1000
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.91
Frt				0.850		
Flt Protected						
Satd. Flow (prot)	0	0	3275	1521	0	4749
Flt Permitted						
Satd. Flow (perm)	0	0	3275	1521	0	4749
Link Speed (k/h)	50		80			80
Link Distance (m)	247.7		145.5			117.5
Travel Time (s)	17.8		6.5			5.3
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	2%	2%	9%	5%	2%	8%
Adj. Flow (vph)	0	0	879	220	0	1099
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	879	220	0	1099
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Free		Free			Free

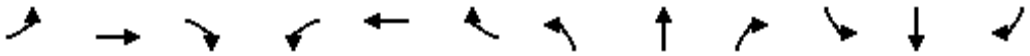
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 25.4%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection Sign configuration not allowed in HCM analysis.



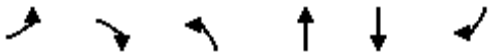
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	550	258	92	287	83	100	304	86	173	547	63
Future Volume (vph)	74	550	258	92	287	83	100	304	86	173	547	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.956			0.973			0.974			0.988	
Flt Protected		0.996			0.990			0.990			0.989	
Satd. Flow (prot)	0	3234	0	0	3339	0	0	3234	0	0	3420	0
Flt Permitted		0.996			0.990			0.990			0.989	
Satd. Flow (perm)	0	3234	0	0	3339	0	0	3234	0	0	3420	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		234.8			101.3			174.1			169.6	
Travel Time (s)		14.1			6.1			10.4			10.2	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	4%	2%	12%	2%	3%	4%	23%	2%	3%	2%	2%	2%
Adj. Flow (vph)	83	618	290	103	322	93	112	342	97	194	615	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	991	0	0	518	0	0	551	0	0	880	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 88.4%		ICU Level of Service E	
Analysis Period (min) 15			

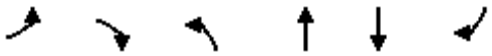


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	74	550	258	92	287	83	100	304	86	173	547	63
Future Volume (veh/h)	74	550	258	92	287	83	100	304	86	173	547	63
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	83	618	290	103	322	93	112	342	97	194	615	71
Approach Volume (veh/h)		991			518			551			880	
Crossing Volume (veh/h)		912			537			895			537	
High Capacity (veh/h)		669			906			678			906	
High v/c (veh/h)		1.48			0.57			0.81			0.97	
Low Capacity (veh/h)		523			730			531			730	
Low v/c (veh/h)		1.90			0.71			1.04			1.21	

Intersection Summary				
Maximum v/c High	1.48			
Maximum v/c Low	1.90			
Intersection Capacity Utilization	88.4%	ICU Level of Service	E	



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	29	29	39	948	1074	20
Future Volume (vph)	29	29	39	948	1074	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	110.0			40.0
Storage Lanes	1	1	1			1
Taper Length (m)	15.0		100.0			
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1075	1401	1653	4885	4980	1566
Flt Permitted	0.950		0.207			
Satd. Flow (perm)	1075	1401	360	4885	4980	1566
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		32				22
Link Speed (k/h)	25			80	80	
Link Distance (m)	112.4			224.9	145.5	
Travel Time (s)	16.2			10.1	6.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	66%	14%	8%	5%	3%	2%
Adj. Flow (vph)	32	32	42	1030	1167	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	32	32	42	1030	1167	22
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (m)	2.0	2.0	2.0	10.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	2.0	2.0	0.6	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	

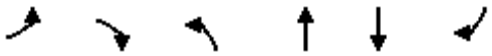


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	7.0	45.0	45.0	45.0
Minimum Split (s)	45.1	45.1	11.0	51.4	51.4	51.4
Total Split (s)	25.0	25.0	11.0	66.0	55.0	55.0
Total Split (%)	27.5%	27.5%	12.1%	72.5%	60.4%	60.4%
Maximum Green (s)	17.9	17.9	7.0	59.6	48.6	48.6
Yellow Time (s)	3.0	3.0	3.0	4.6	4.6	4.6
All-Red Time (s)	4.1	4.1	1.0	1.8	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.1	7.1	4.0	6.4	6.4	6.4
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.2	3.2	3.0	4.0	4.0	4.0
Recall Mode	None	None	None	Max	Max	Max
Walk Time (s)	7.0	7.0				
Flash Dont Walk (s)	31.0	31.0				
Pedestrian Calls (#/hr)	0	0				
Act Effct Green (s)	10.4	10.4	65.5	65.9	59.6	59.6
Actuated g/C Ratio	0.13	0.13	0.82	0.83	0.75	0.75
v/c Ratio	0.23	0.15	0.10	0.25	0.31	0.02
Control Delay	37.0	14.2	3.3	3.2	6.9	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.0	14.2	3.3	3.2	6.9	3.4
LOS	D	B	A	A	A	A
Approach Delay	25.6			3.2	6.9	
Approach LOS	C			A	A	
Queue Length 50th (m)	4.7	0.0	1.4	17.6	33.6	0.0
Queue Length 95th (m)	12.9	7.7	3.8	24.5	44.4	2.8
Internal Link Dist (m)	88.4			200.9	121.5	
Turn Bay Length (m)			110.0			40.0
Base Capacity (vph)	243	342	410	4043	3728	1177
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	0.09	0.10	0.25	0.31	0.02

Intersection Summary			
Area Type:	Other		
Cycle Length: 91			
Actuated Cycle Length: 79.6			
Natural Cycle: 110			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.31			
Intersection Signal Delay: 5.7		Intersection LOS: A	
Intersection Capacity Utilization 57.1%		ICU Level of Service B	
Analysis Period (min) 15			

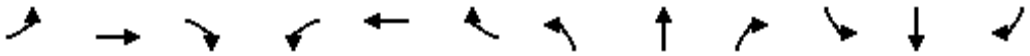
Splits and Phases: 14: Trafalgar Road & GO Parking Lot





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	29	29	39	948	1074	20
Future Volume (vph)	29	29	39	948	1074	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.1	7.1	4.0	6.4	6.4	6.4
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1075	1401	1653	4885	4980	1566
Flt Permitted	0.95	1.00	0.21	1.00	1.00	1.00
Satd. Flow (perm)	1075	1401	360	4885	4980	1566
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	32	42	1030	1167	22
RTOR Reduction (vph)	0	30	0	0	0	7
Lane Group Flow (vph)	32	2	42	1030	1167	15
Heavy Vehicles (%)	66%	14%	8%	5%	3%	2%
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	6.0	6.0	64.8	64.8	56.8	56.8
Effective Green, g (s)	6.0	6.0	64.8	64.8	56.8	56.8
Actuated g/C Ratio	0.07	0.07	0.77	0.77	0.67	0.67
Clearance Time (s)	7.1	7.1	4.0	6.4	6.4	6.4
Vehicle Extension (s)	3.2	3.2	3.0	4.0	4.0	4.0
Lane Grp Cap (vph)	76	99	338	3755	3355	1055
v/s Ratio Prot	c0.03		0.01	c0.21	c0.23	
v/s Ratio Perm		0.00	0.09			0.01
v/c Ratio	0.42	0.02	0.12	0.27	0.35	0.01
Uniform Delay, d1	37.5	36.4	2.6	2.9	5.9	4.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.0	0.1	0.2	0.2	0.3	0.0
Delay (s)	41.5	36.5	2.7	3.0	6.1	4.6
Level of Service	D	D	A	A	A	A
Approach Delay (s)	39.0			3.0	6.1	
Approach LOS	D			A	A	

Intersection Summary			
HCM 2000 Control Delay	5.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	84.3	Sum of lost time (s)	17.5
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	32	12	48	54	9	15	203	70	20	160	3
Future Volume (vph)	2	32	12	48	54	9	15	203	70	20	160	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.966			0.989			0.967			0.998	
Flt Protected		0.998			0.979			0.997			0.995	
Satd. Flow (prot)	0	1776	0	0	1726	0	0	1759	0	0	1808	0
Flt Permitted		0.998			0.979			0.997			0.995	
Satd. Flow (perm)	0	1776	0	0	1726	0	0	1759	0	0	1808	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		241.5			1234.4			328.3			432.7	
Travel Time (s)		14.5			74.1			19.7			26.0	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	2%	6%	4%	11%	2%	2%	6%	5%	3%	2%
Adj. Flow (vph)	2	36	13	54	61	10	17	228	79	22	180	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	51	0	0	125	0	0	324	0	0	205	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

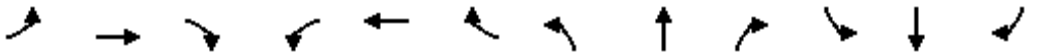
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 37.4%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	10
Intersection LOS	A

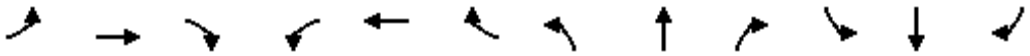
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	32	12	48	54	9	15	203	70	20	160	3
Future Vol, veh/h	2	32	12	48	54	9	15	203	70	20	160	3
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	6	4	11	2	2	6	5	3	2
Mvmt Flow	2	36	13	54	61	10	17	228	79	22	180	3
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.7	9.6	10.6	9.7
HCM LOS	A	A	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	4%	43%	11%
Vol Thru, %	70%	70%	49%	87%
Vol Right, %	24%	26%	8%	2%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	288	46	111	183
LT Vol	15	2	48	20
Through Vol	203	32	54	160
RT Vol	70	12	9	3
Lane Flow Rate	324	52	125	206
Geometry Grp	1	1	1	1
Degree of Util (X)	0.405	0.074	0.184	0.276
Departure Headway (Hd)	4.51	5.188	5.32	4.826
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	796	684	670	740
Service Time	2.559	3.27	3.391	2.882
HCM Lane V/C Ratio	0.407	0.076	0.187	0.278
HCM Control Delay	10.6	8.7	9.6	9.7
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	2	0.2	0.7	1.1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	205	68	46	410	440	89	1016	23	130	715	147
Future Volume (vph)	88	205	68	46	410	440	89	1016	23	130	715	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	210.0		60.0	160.0		150.0	180.0		60.0	0.0		0.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	50.0			50.0			100.0			15.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Ped Bike Factor							1.00					0.99
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3500	1566	1716	3500	1566	1750	5029	1536	1684	5029	1566
Flt Permitted	0.336			0.614			0.323			0.194		
Satd. Flow (perm)	619	3500	1566	1109	3500	1566	595	5029	1536	344	5029	1545
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			93			251			94			158
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		1234.7			397.9			276.7			224.9	
Travel Time (s)		74.1			23.9			12.5			10.1	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	4%	2%	2%	2%	2%	4%	6%	2%	2%
Adj. Flow (vph)	95	220	73	49	441	473	96	1092	25	140	769	158
Shared Lane Traffic (%)												
Lane Group Flow (vph)	95	220	73	49	441	473	96	1092	25	140	769	158
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

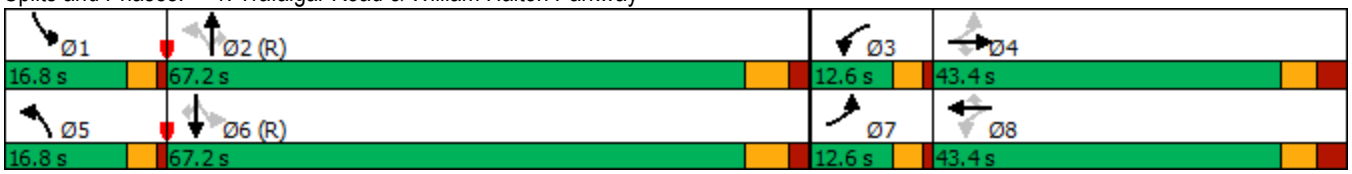


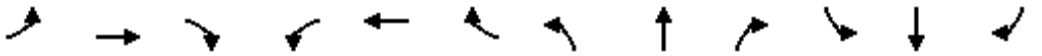
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	7.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	11.0	38.0	38.0	11.0	38.0	38.0	11.0	42.9	42.9	11.0	42.9	42.9
Total Split (s)	12.6	43.4	43.4	12.6	43.4	43.4	16.8	67.2	67.2	16.8	67.2	67.2
Total Split (%)	9.0%	31.0%	31.0%	9.0%	31.0%	31.0%	12.0%	48.0%	48.0%	12.0%	48.0%	48.0%
Maximum Green (s)	8.6	36.4	36.4	8.6	36.4	36.4	12.8	60.3	60.3	12.8	60.3	60.3
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	4.6	4.6	3.0	4.6	4.6
All-Red Time (s)	1.0	3.3	3.3	1.0	3.3	3.3	1.0	2.3	2.3	1.0	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	6.9	6.9	4.0	6.9	6.9
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		24.0	24.0		24.0	24.0		29.0	29.0		29.0	29.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	43.6	33.7	33.7	41.9	31.0	31.0	80.2	68.3	68.3	83.0	69.7	69.7
Actuated g/C Ratio	0.31	0.24	0.24	0.30	0.22	0.22	0.57	0.49	0.49	0.59	0.50	0.50
v/c Ratio	0.37	0.26	0.16	0.13	0.57	0.87	0.23	0.44	0.03	0.46	0.31	0.19
Control Delay	35.6	43.6	5.0	30.8	50.8	41.2	14.0	25.3	0.1	17.9	22.3	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.6	43.6	5.0	30.8	50.8	41.2	14.0	25.3	0.1	17.9	22.3	3.8
LOS	D	D	A	C	D	D	B	C	A	B	C	A
Approach Delay		34.4			45.1			23.9			19.0	
Approach LOS		C			D			C			B	
Queue Length 50th (m)	17.9	26.0	0.0	9.0	56.1	62.7	11.1	74.6	0.0	16.6	47.1	0.0
Queue Length 95th (m)	30.1	36.8	7.8	17.6	71.3	106.6	20.1	92.9	0.0	28.1	61.3	12.7
Internal Link Dist (m)		1210.7			373.9			252.7			200.9	
Turn Bay Length (m)	210.0		60.0	160.0		150.0	180.0		60.0			
Base Capacity (vph)	262	910	475	374	910	592	461	2454	797	331	2504	848
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.24	0.15	0.13	0.48	0.80	0.21	0.44	0.03	0.42	0.31	0.19

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 105			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 29.2		Intersection LOS: C	

Intersection Capacity Utilization 76.6% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 1: Trafalgar Road & William Halton Parkway

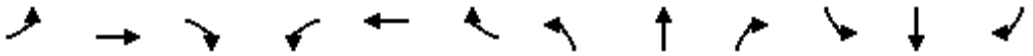




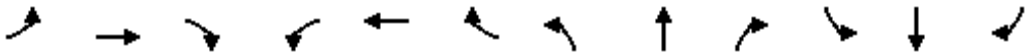
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	205	68	46	410	440	89	1016	23	130	715	147
Future Volume (vph)	88	205	68	46	410	440	89	1016	23	130	715	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	6.9	6.9	4.0	6.9	6.9
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1750	3500	1566	1716	3500	1566	1750	5029	1536	1684	5029	1545
Flt Permitted	0.34	1.00	1.00	0.61	1.00	1.00	0.32	1.00	1.00	0.19	1.00	1.00
Satd. Flow (perm)	618	3500	1566	1110	3500	1566	595	5029	1536	344	5029	1545
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)	95	220	73	49	441	473	96	1092	25	140	769	158
RTOR Reduction (vph)	0	0	55	0	0	194	0	0	13	0	0	80
Lane Group Flow (vph)	95	220	18	49	441	279	96	1092	12	140	769	78
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	2%	2%	2%	4%	2%	2%	2%	2%	4%	6%	2%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	42.1	33.7	33.7	38.3	31.8	31.8	76.5	67.5	67.5	79.3	68.9	68.9
Effective Green, g (s)	42.1	33.7	33.7	38.3	31.8	31.8	76.5	67.5	67.5	79.3	68.9	68.9
Actuated g/C Ratio	0.30	0.24	0.24	0.27	0.23	0.23	0.55	0.48	0.48	0.57	0.49	0.49
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0	4.0	6.9	6.9	4.0	6.9	6.9
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	253	842	376	331	795	355	399	2424	740	294	2474	760
v/s Ratio Prot	c0.02	0.06		0.01	0.13		0.02	0.22		c0.04	0.15	
v/s Ratio Perm	0.09		0.01	0.03		c0.18	0.12		0.01	c0.23		0.05
v/c Ratio	0.38	0.26	0.05	0.15	0.55	0.79	0.24	0.45	0.02	0.48	0.31	0.10
Uniform Delay, d1	36.7	43.1	40.8	38.0	47.8	50.9	15.3	24.0	18.9	15.6	21.3	19.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	0.3	0.1	0.2	1.4	12.5	0.3	0.6	0.0	1.2	0.3	0.3
Delay (s)	37.6	43.4	40.9	38.2	49.3	63.4	15.7	24.6	19.0	16.8	21.6	19.3
Level of Service	D	D	D	D	D	E	B	C	B	B	C	B
Approach Delay (s)		41.5			55.7			23.8			20.7	
Approach LOS		D			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	33.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.9
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	85	46	66	83	9	77	1077	85	12	726	57
Future Volume (vph)	44	85	46	66	83	9	77	1077	85	12	726	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	30.0		0.0	130.0		0.0	170.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			30.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.947			0.986			0.989			0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1668	1744	0	1750	1816	0	1750	3454	0	1750	3423	0
Flt Permitted	0.695			0.536			0.341			0.189		
Satd. Flow (perm)	1220	1744	0	987	1816	0	628	3454	0	348	3423	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			4			10			13	
Link Speed (k/h)		60			60			80			80	
Link Distance (m)		1234.4			2091.5			95.4			186.3	
Travel Time (s)		74.1			125.5			4.3			8.4	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Adj. Flow (vph)	46	89	48	69	87	9	81	1134	89	13	764	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	137	0	69	96	0	81	1223	0	13	824	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.02	1.01	1.01	1.02	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	

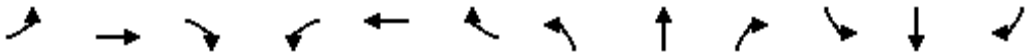


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		20.0	20.0		7.0	20.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		26.0	26.0		11.5	26.0	
Total Split (s)	38.4	38.4		38.4	38.4		66.0	66.0		15.6	81.6	
Total Split (%)	32.0%	32.0%		32.0%	32.0%		55.0%	55.0%		13.0%	68.0%	
Maximum Green (s)	32.4	32.4		32.4	32.4		60.0	60.0		11.6	75.6	
Yellow Time (s)	3.7	3.7		3.7	3.7		4.6	4.6		3.0	4.6	
All-Red Time (s)	2.3	2.3		2.3	2.3		1.4	1.4		1.0	1.4	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		4.0	6.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		5.0	5.0		3.0	5.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Act Effct Green (s)	13.8	13.8		13.8	13.8		89.8	89.8		96.2	94.2	
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.75	0.75		0.80	0.78	
v/c Ratio	0.33	0.62		0.61	0.45		0.17	0.47		0.04	0.31	
Control Delay	53.8	54.2		71.8	53.3		7.2	7.7		3.2	4.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	53.8	54.2		71.8	53.3		7.2	7.7		3.2	4.2	
LOS	D	D		E	D		A	A		A	A	
Approach Delay		54.1			61.1			7.7			4.2	
Approach LOS		D			E			A			A	
Queue Length 50th (m)	10.2	26.2		15.8	20.6		3.8	40.5		0.5	22.9	
Queue Length 95th (m)	20.9	44.6		30.0	35.7		14.5	92.0		2.1	37.5	
Internal Link Dist (m)		1210.4			2067.5			71.4			162.3	
Turn Bay Length (m)	40.0			30.0			130.0			170.0		
Base Capacity (vph)	329	486		266	493		469	2586		414	2688	
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	0.14	0.28		0.26	0.19		0.17	0.47		0.03	0.31	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.62			
Intersection Signal Delay: 13.4		Intersection LOS: B	
Intersection Capacity Utilization 75.2%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 2: Trafalgar Road & Burnhamthorpe Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	85	46	66	83	9	77	1077	85	12	726	57
Future Volume (vph)	44	85	46	66	83	9	77	1077	85	12	726	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.95		1.00	0.99		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)	1668	1745		1750	1816		1750	3455		1750	3424	
Flt Permitted	0.69	1.00		0.54	1.00		0.34	1.00		0.19	1.00	
Satd. Flow (perm)	1220	1745		988	1816		628	3455		348	3424	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	46	89	48	69	87	9	81	1134	89	13	764	60
RTOR Reduction (vph)	0	19	0	0	4	0	0	3	0	0	3	0
Lane Group Flow (vph)	46	118	0	69	92	0	81	1220	0	13	821	0
Heavy Vehicles (%)	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	13.8	13.8		13.8	13.8		87.4	87.4		94.2	94.2	
Effective Green, g (s)	13.8	13.8		13.8	13.8		87.4	87.4		94.2	94.2	
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.73	0.73		0.79	0.79	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		4.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		5.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	140	200		113	208		457	2516		305	2687	
v/s Ratio Prot		0.07			0.05			c0.35		0.00	c0.24	
v/s Ratio Perm	0.04			c0.07			0.13			0.03		
v/c Ratio	0.33	0.59		0.61	0.44		0.18	0.49		0.04	0.31	
Uniform Delay, d1	48.8	50.4		50.5	49.5		5.1	6.8		3.9	3.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.4	4.4		9.4	1.5		0.8	0.7		0.1	0.3	
Delay (s)	50.2	54.8		59.9	51.0		5.9	7.5		4.0	3.9	
Level of Service	D	D		E	D		A	A		A	A	
Approach Delay (s)		53.6			54.8			7.4			3.9	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	355	1	134	889	0	169
Future Volume (vph)	355	1	134	889	0	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected				0.993		
Satd. Flow (prot)	1807	0	0	1829	1593	0
Flt Permitted				0.993		
Satd. Flow (perm)	1807	0	0	1829	1593	0
Link Speed (k/h)	60			60	60	
Link Distance (m)	657.5			390.6	221.9	
Travel Time (s)	39.5			23.4	13.3	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%
Adj. Flow (vph)	370	1	140	926	0	176
Shared Lane Traffic (%)						
Lane Group Flow (vph)	371	0	0	1066	176	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

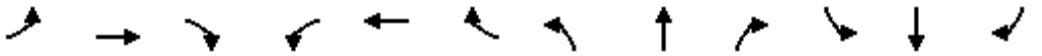
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 93.4%		ICU Level of Service F	
Analysis Period (min) 15			



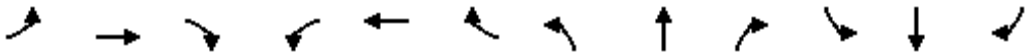
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	355	1	134	889	0	169
Future Volume (Veh/h)	355	1	134	889	0	169
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	370	1	140	926	0	176
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			371		1576	370
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			371		1576	370
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			88		100	74
cM capacity (veh/h)			1188		106	675

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	371	1066	176
Volume Left	0	140	0
Volume Right	1	0	176
cSH	1700	1188	675
Volume to Capacity	0.22	0.12	0.26
Queue Length 95th (m)	0.0	3.0	7.9
Control Delay (s)	0.0	3.0	12.2
Lane LOS		A	B
Approach Delay (s)	0.0	3.0	12.2
Approach LOS			B

Intersection Summary			
Average Delay		3.3	
Intersection Capacity Utilization		93.4%	ICU Level of Service F
Analysis Period (min)		15	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	248	1076	164	211	1323	189	268	793	145	144	482	176
Future Volume (vph)	248	1076	164	211	1323	189	268	793	145	144	482	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		85.0	165.0		85.0	120.0		0.0	45.0		55.0
Storage Lanes	2		1	1		1	1		0	1		1
Taper Length (m)	45.0			65.0			100.0			75.0		
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Ped Bike Factor	1.00		0.97	1.00		0.98	1.00	1.00				0.98
Frt			0.850			0.850		0.977				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	4980	1566	1750	5029	1566	1750	3410	0	1733	3500	1566
Flt Permitted	0.950			0.131			0.363			0.101		
Satd. Flow (perm)	3389	4980	1512	241	5029	1535	666	3410	0	184	3500	1533
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			169			191		17				181
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		592.0			816.3			644.9			1927.8	
Travel Time (s)		30.4			42.0			38.7			115.7	
Confl. Peds. (#/hr)	5		15	15		5	6		4	4		6
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%
Adj. Flow (vph)	256	1109	169	218	1364	195	276	818	149	148	497	181
Shared Lane Traffic (%)												
Lane Group Flow (vph)	256	1109	169	218	1364	195	276	967	0	148	497	181
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2		1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6	4			8		8
Detector Phase	5	2	2	1	6	6	7	4		3	8	8
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	7.0	10.0		7.0	10.0	10.0
Minimum Split (s)	12.0	32.4	32.4	12.0	32.4	32.4	11.0	32.5		11.0	32.5	32.5
Total Split (s)	20.8	46.8	46.8	20.8	46.8	46.8	15.6	46.8		15.6	46.8	46.8
Total Split (%)	16.0%	36.0%	36.0%	16.0%	36.0%	36.0%	12.0%	36.0%		12.0%	36.0%	36.0%
Maximum Green (s)	15.8	40.4	40.4	15.8	40.4	40.4	11.6	40.3		11.6	40.3	40.3
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7		3.0	3.7	3.7
All-Red Time (s)	2.0	2.7	2.7	2.0	2.7	2.7	1.0	2.8		1.0	2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.0	6.4	6.4	5.0	6.4	6.4	4.0	6.5		4.0	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	None
Walk Time (s)		10.0	10.0		10.0	10.0		10.0			10.0	10.0
Flash Dont Walk (s)		16.0	16.0		16.0	16.0		16.0			16.0	16.0
Pedestrian Calls (#/hr)		15	15		5	5		4			6	6
Act Effct Green (s)	15.1	41.6	41.6	58.2	41.6	41.6	54.0	39.9		53.7	39.7	39.7
Actuated g/C Ratio	0.12	0.32	0.32	0.45	0.32	0.32	0.42	0.31		0.41	0.31	0.31
v/c Ratio	0.65	0.70	0.28	0.77	0.85	0.31	0.74	0.91		0.70	0.46	0.30
Control Delay	63.1	41.8	6.0	43.7	47.5	6.2	38.9	56.2		43.7	38.1	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	63.1	41.8	6.0	43.7	47.5	6.2	38.9	56.2		43.7	38.1	6.0
LOS	E	D	A	D	D	A	D	E		D	D	A
Approach Delay		41.4			42.5			52.4			32.1	
Approach LOS		D			D			D			C	
Queue Length 50th (m)	32.6	92.2	0.0	32.5	121.0	0.7	45.4	123.2		22.4	53.8	0.0
Queue Length 95th (m)	46.8	108.7	15.9	#67.2	140.2	17.5	#67.6	#160.2		#47.6	70.2	16.1
Internal Link Dist (m)		568.0			792.3			620.9			1903.8	
Turn Bay Length (m)	110.0		85.0	165.0		85.0	120.0			45.0		55.0
Base Capacity (vph)	412	1592	598	292	1610	621	373	1068		214	1085	600
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.62	0.70	0.28	0.75	0.85	0.31	0.74	0.91		0.69	0.46	0.30

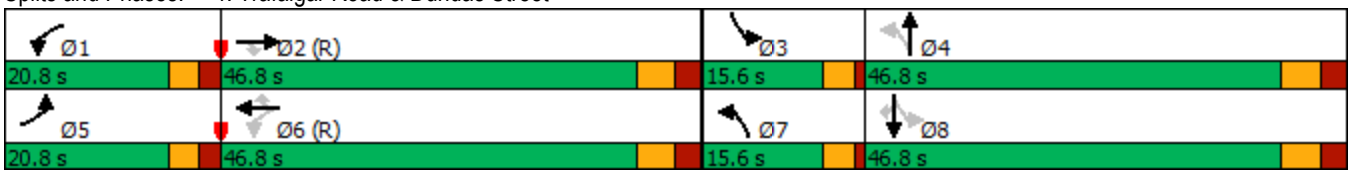
Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 40.3 (31%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 42.9	Intersection LOS: D

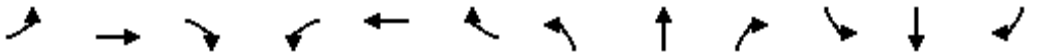
Intersection Capacity Utilization 86.2% ICU Level of Service E

Analysis Period (min) 15

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

Splits and Phases: 4: Trafalgar Road & Dundas Street

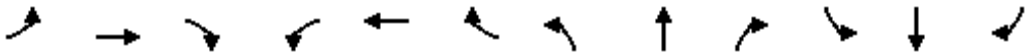




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	248	1076	164	211	1323	189	268	793	145	144	482	176
Future Volume (vph)	248	1076	164	211	1323	189	268	793	145	144	482	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.4	6.4	5.0	6.4	6.4	4.0	6.5		4.0	6.5	6.5
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3395	4980	1512	1749	5029	1535	1748	3410		1733	3500	1533
Flt Permitted	0.95	1.00	1.00	0.13	1.00	1.00	0.36	1.00		0.10	1.00	1.00
Satd. Flow (perm)	3395	4980	1512	240	5029	1535	669	3410		184	3500	1533
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	256	1109	169	218	1364	195	276	818	149	148	497	181
RTOR Reduction (vph)	0	0	115	0	0	130	0	12	0	0	0	126
Lane Group Flow (vph)	256	1109	54	218	1364	65	276	955	0	148	497	55
Confl. Peds. (#/hr)	5		15	15		5	6		4	4		6
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6	4			8		8
Actuated Green, G (s)	15.1	41.6	41.6	56.9	41.7	41.7	51.5	39.9		51.1	39.7	39.7
Effective Green, g (s)	15.1	41.6	41.6	56.9	41.7	41.7	51.5	39.9		51.1	39.7	39.7
Actuated g/C Ratio	0.12	0.32	0.32	0.44	0.32	0.32	0.40	0.31		0.39	0.31	0.31
Clearance Time (s)	5.0	6.4	6.4	5.0	6.4	6.4	4.0	6.5		4.0	6.5	6.5
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Lane Grp Cap (vph)	394	1593	483	281	1613	492	361	1046		208	1068	468
v/s Ratio Prot	0.08	0.22		c0.09	c0.27		c0.07	c0.28		0.06	0.14	
v/s Ratio Perm			0.04	0.25		0.04	0.23			0.22		0.04
v/c Ratio	0.65	0.70	0.11	0.78	0.85	0.13	0.76	0.91		0.71	0.47	0.12
Uniform Delay, d1	54.9	38.7	31.2	26.3	41.2	31.3	30.6	43.4		30.3	36.6	32.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.0	2.5	0.5	14.5	5.7	0.6	10.9	12.5		13.4	0.7	0.2
Delay (s)	59.9	41.2	31.6	40.8	46.8	31.9	41.5	55.9		43.6	37.2	32.8
Level of Service	E	D	C	D	D	C	D	E		D	D	C
Approach Delay (s)		43.3			44.4			52.7			37.4	
Approach LOS		D			D			D			D	

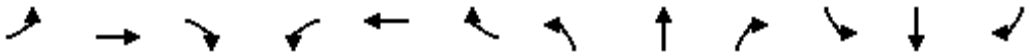
Intersection Summary			
HCM 2000 Control Delay	44.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	21.9
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



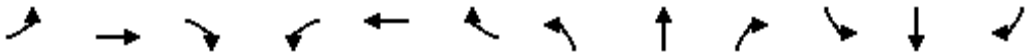
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	138	6	59	227	343	5	152	50	172	173	166
Future Volume (vph)	128	138	6	59	227	343	5	152	50	172	173	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Frt		0.997			0.918			0.964			0.951	
Flt Protected		0.977			0.995			0.999			0.983	
Satd. Flow (prot)	0	3409	0	0	3197	0	0	3371	0	0	3272	0
Flt Permitted		0.977			0.995			0.999			0.983	
Satd. Flow (perm)	0	3409	0	0	3197	0	0	3371	0	0	3272	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		476.6			1234.7			238.8			171.3	
Travel Time (s)		28.6			74.1			14.3			10.3	
Confl. Bikes (#/hr)						1			1			
Peak Hour Factor	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)	131	141	6	60	232	350	5	155	51	176	177	169
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	278	0	0	642	0	0	211	0	0	522	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		



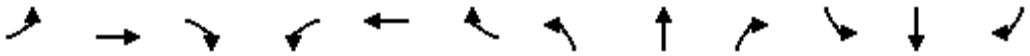
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	128	138	6	59	227	343	5	152	50	172	173	166
Future Volume (veh/h)	128	138	6	59	227	343	5	152	50	172	173	166
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	131	141	6	60	232	350	5	155	51	176	177	169
Approach Volume (veh/h)		278			642			211			522	
Crossing Volume (veh/h)		413			291			448			297	
High Capacity (veh/h)		1000			1102			973			1097	
High v/c (veh/h)		0.28			0.58			0.22			0.48	
Low Capacity (veh/h)		814			905			790			900	
Low v/c (veh/h)		0.34			0.71			0.27			0.58	

Intersection Summary				
Maximum v/c High	0.58			
Maximum v/c Low	0.71			
Intersection Capacity Utilization	61.1%	ICU Level of Service	B	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	17	8	54	42	27	8	178	73	15	204	10
Future Volume (vph)	7	17	8	54	42	27	8	178	73	15	204	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.964			0.970			0.962			0.994	
Flt Protected		0.990			0.979			0.998			0.997	
Satd. Flow (prot)	0	1758	0	0	1716	0	0	1764	0	0	1826	0
Flt Permitted		0.990			0.979			0.998			0.997	
Satd. Flow (perm)	0	1758	0	0	1716	0	0	1764	0	0	1826	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		241.5			1234.4			218.8			432.8	
Travel Time (s)		14.5			74.1			13.1			26.0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	2%	2%	11%	2%	2%	3%	2%	2%	2%
Adj. Flow (vph)	7	18	9	57	45	29	9	189	78	16	217	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	34	0	0	131	0	0	276	0	0	244	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

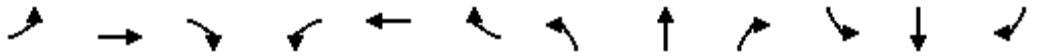
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 37.4%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	7	17	8	54	42	27	8	178	73	15	204	10
Future Volume (vph)	7	17	8	54	42	27	8	178	73	15	204	10
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	7	18	9	57	45	29	9	189	78	16	217	11

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	34	131	276	244
Volume Left (vph)	7	57	9	16
Volume Right (vph)	9	29	78	11
Hadj (s)	-0.08	0.02	-0.12	0.02
Departure Headway (s)	5.2	5.2	4.5	4.7
Degree Utilization, x	0.05	0.19	0.35	0.32
Capacity (veh/h)	601	628	763	730
Control Delay (s)	8.5	9.4	9.9	9.9
Approach Delay (s)	8.5	9.4	9.9	9.9
Approach LOS	A	A	A	A

Intersection Summary				
Delay	9.7			
Level of Service	A			
Intersection Capacity Utilization	37.4%	ICU Level of Service	A	
Analysis Period (min)	15			



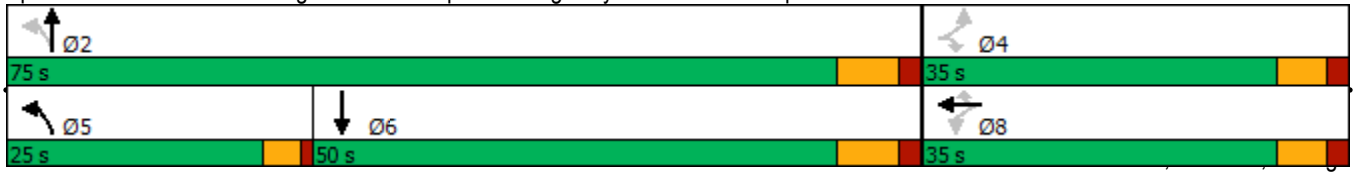
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	0	5	201	2	16	6	1388	0	0	847	0
Future Volume (vph)	6	0	5	201	2	16	6	1388	0	0	847	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		5.0	0.0		60.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		1	1		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt			0.850		0.997	0.850						
Flt Protected	0.950			0.950	0.954		0.950					
Satd. Flow (prot)	1526	0	1331	1615	1523	1431	1750	3500	0	0	4980	0
Flt Permitted	0.682			0.950	0.954		0.278					
Satd. Flow (perm)	1095	0	1331	1615	1523	1431	512	3500	0	0	4980	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79		1	79						
Link Speed (k/h)		20			60			80			80	
Link Distance (m)		81.5			393.0			34.5			195.6	
Travel Time (s)		14.7			23.6			1.6			8.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	17%	2%	20%	5%	100%	6%	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	6	0	5	209	2	17	6	1446	0	0	882	0
Shared Lane Traffic (%)				49%		10%						
Lane Group Flow (vph)	6	0	5	107	106	15	6	1446	0	0	882	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1		1	1	2	1	1	2			2	
Detector Template	Left		Right	Left	Thru	Right	Left	Thru			Thru	
Leading Detector (m)	2.0		2.0	2.0	10.0	2.0	2.0	10.0			10.0	
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Size(m)	2.0		2.0	2.0	0.6	2.0	2.0	0.6			0.6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 2 Position(m)					9.4			9.4			9.4	
Detector 2 Size(m)					0.6			0.6			0.6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	

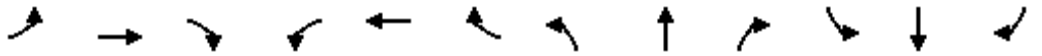
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8		8	2					
Detector Phase	4		4	8	8	8	5	2			6	
Switch Phase												
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	4.0	35.0			7.0	
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5	11.0	42.0			22.5	
Total Split (s)	35.0		35.0	35.0	35.0	35.0	25.0	75.0			50.0	
Total Split (%)	31.8%		31.8%	31.8%	31.8%	31.8%	22.7%	68.2%			45.5%	
Maximum Green (s)	29.0		29.0	29.0	29.0	29.0	21.0	68.0			43.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0	3.0	5.0			5.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0	1.0	2.0			2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Recall Mode	None		None	None	None	None	None	Min			Min	
Act Effct Green (s)	10.0		10.0	10.0	10.0	10.0	39.6	36.6			34.9	
Actuated g/C Ratio	0.17		0.17	0.17	0.17	0.17	0.66	0.61			0.58	
v/c Ratio	0.03		0.02	0.39	0.41	0.05	0.01	0.67			0.30	
Control Delay	21.7		0.2	27.1	27.6	0.3	4.2	10.0			7.6	
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	21.7		0.2	27.1	27.6	0.3	4.2	10.0			7.6	
LOS	C		A	C	C	A	A	B			A	
Approach Delay		11.9			25.5			10.0			7.6	
Approach LOS		B			C			A			A	
Queue Length 50th (m)	0.5		0.0	10.7	10.9	0.0	0.2	45.5			13.7	
Queue Length 95th (m)	3.5		0.0	26.1	27.0	0.0	1.3	80.9			35.1	
Internal Link Dist (m)		57.5			369.0			10.5			171.6	
Turn Bay Length (m)			5.0			60.0						
Base Capacity (vph)	535		691	790	745	740	778	3474			3613	
Starvation Cap Reductn	0		0	0	0	0	0	0			0	
Spillback Cap Reductn	0		0	0	0	0	0	0			0	
Storage Cap Reductn	0		0	0	0	0	0	0			0	
Reduced v/c Ratio	0.01		0.01	0.14	0.14	0.02	0.01	0.42			0.24	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 59.7
Natural Cycle: 65
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 10.6 Intersection LOS: B
Intersection Capacity Utilization 61.7% ICU Level of Service B
Analysis Period (min) 15

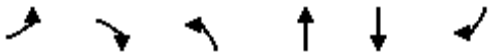
Splits and Phases: 7: Trafalgar Road & Carpool Lot/Highway 407 WB Off-Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	0	5	201	2	16	6	1388	0	0	847	0
Future Volume (vph)	6	0	5	201	2	16	6	1388	0	0	847	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	6.0	4.0	7.0			7.0	
Lane Util. Factor	1.00		1.00	0.95	0.91	0.95	1.00	0.95			0.91	
Frt	1.00		0.85	1.00	1.00	0.85	1.00	1.00			1.00	
Flt Protected	0.95		1.00	0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1526		1331	1615	1523	1431	1750	3500			4980	
Flt Permitted	0.68		1.00	0.95	0.95	1.00	0.28	1.00			1.00	
Satd. Flow (perm)	1095		1331	1615	1523	1431	512	3500			4980	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	6	0	5	209	2	17	6	1446	0	0	882	0
RTOR Reduction (vph)	0	0	4	0	1	13	0	0	0	0	0	0
Lane Group Flow (vph)	6	0	1	107	105	2	6	1446	0	0	882	0
Heavy Vehicles (%)	17%	2%	20%	5%	100%	6%	2%	2%	2%	2%	3%	2%
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	
Permitted Phases	4		4	8		8	2					
Actuated Green, G (s)	10.1		10.1	10.1	10.1	10.1	39.9	39.9			34.9	
Effective Green, g (s)	10.1		10.1	10.1	10.1	10.1	39.9	39.9			34.9	
Actuated g/C Ratio	0.16		0.16	0.16	0.16	0.16	0.63	0.63			0.55	
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)	175		213	258	244	229	343	2216			2758	
v/s Ratio Prot							0.00	c0.41			0.18	
v/s Ratio Perm	0.01		0.00	0.07	0.07	0.00	0.01					
v/c Ratio	0.03		0.00	0.41	0.43	0.01	0.02	0.65			0.32	
Uniform Delay, d1	22.3		22.2	23.8	23.9	22.2	4.4	7.2			7.6	
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.1		0.0	1.1	1.2	0.0	0.0	0.7			0.1	
Delay (s)	22.4		22.2	24.9	25.1	22.3	4.4	7.9			7.7	
Level of Service	C		C	C	C	C	A	A			A	
Approach Delay (s)		22.3			24.8			7.9			7.7	
Approach LOS		C			C			A			A	

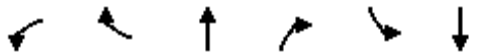
Intersection Summary			
HCM 2000 Control Delay	9.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	63.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	1394	1098	39
Future Volume (vph)	0	0	0	1394	1098	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.95	1.00
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	5029	3433	1521
Flt Permitted						
Satd. Flow (perm)	0	0	0	5029	3433	1521
Link Speed (k/h)	60			80	80	
Link Distance (m)	166.7			156.0	34.5	
Travel Time (s)	10.0			7.0	1.6	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	4%	5%
Adj. Flow (vph)	0	0	0	1452	1144	41
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1452	1144	41
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	41.9%	ICU Level of Service	A
Analysis Period (min)	15		

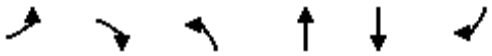
Intersection Sign configuration not allowed in HCM analysis.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	1394	130	0	1098
Future Volume (vph)	0	0	1394	130	0	1098
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt				0.850		
Flt Protected						
Satd. Flow (prot)	0	0	3500	1521	0	3433
Flt Permitted						
Satd. Flow (perm)	0	0	3500	1521	0	3433
Link Speed (k/h)	30		80			80
Link Distance (m)	189.2		37.4			156.0
Travel Time (s)	22.7		1.7			7.0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	5%	2%	4%
Adj. Flow (vph)	0	0	1452	135	0	1144
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	1452	135	0	1144
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Free		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	41.9%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection Sign configuration not allowed in HCM analysis.

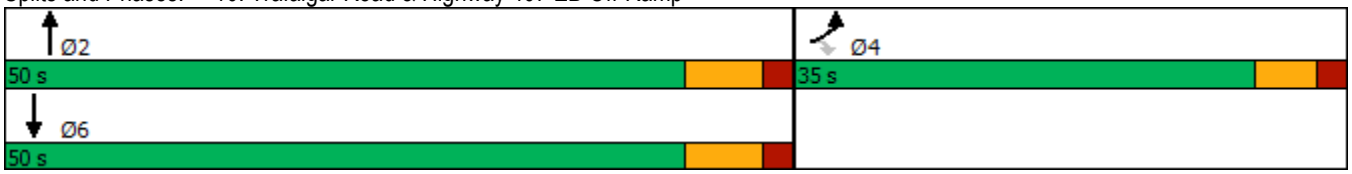


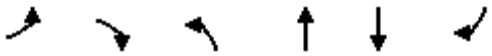
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	33	63	0	1488	922	0
Future Volume (vph)	33	63	0	1488	922	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1750	1278	0	3500	3466	0
Flt Permitted	0.950					
Satd. Flow (perm)	1750	1278	0	3500	3466	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		67				
Link Speed (k/h)	60			80	80	
Link Distance (m)	415.1			117.5	129.7	
Travel Time (s)	24.9			5.3	5.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	25%	2%	2%	3%	2%
Adj. Flow (vph)	35	67	0	1583	981	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	35	67	0	1583	981	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (m)	2.0	2.0		10.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	2.0		0.6	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Initial (s)	6.0	6.0		20.0	20.0	
Minimum Split (s)	24.0	24.0		27.0	27.0	
Total Split (s)	35.0	35.0		50.0	50.0	
Total Split (%)	41.2%	41.2%		58.8%	58.8%	
Maximum Green (s)	29.0	29.0		43.0	43.0	
Yellow Time (s)	4.0	4.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		7.0	7.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		Max	Max	
Act Effct Green (s)	7.0	7.0		47.3	47.3	
Actuated g/C Ratio	0.11	0.11		0.74	0.74	
v/c Ratio	0.18	0.34		0.61	0.38	
Control Delay	27.6	12.7		6.6	4.6	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	27.6	12.7		6.6	4.6	
LOS	C	B		A	A	
Approach Delay	17.8			6.6	4.6	
Approach LOS	B			A	A	
Queue Length 50th (m)	3.8	0.0		43.7	20.7	
Queue Length 95th (m)	10.8	9.4		70.6	33.7	
Internal Link Dist (m)	391.1			93.5	105.7	
Turn Bay Length (m)						
Base Capacity (vph)	798	619		2605	2580	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.04	0.11		0.61	0.38	

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 63.6			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 6.3		Intersection LOS: A	
Intersection Capacity Utilization 57.0%		ICU Level of Service B	
Analysis Period (min) 15			

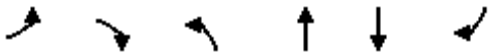
Splits and Phases: 10: Trafalgar Road & Highway 407 EB Off-Ramp





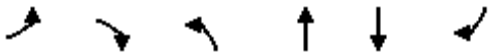
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	33	63	0	1488	922	0
Future Volume (vph)	33	63	0	1488	922	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1750	1278		3500	3466	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1750	1278		3500	3466	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	35	67	0	1583	981	0
RTOR Reduction (vph)	0	61	0	0	0	0
Lane Group Flow (vph)	35	6	0	1583	981	0
Heavy Vehicles (%)	2%	25%	2%	2%	3%	2%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	5.8	5.8		45.9	45.9	
Effective Green, g (s)	5.8	5.8		45.9	45.9	
Actuated g/C Ratio	0.09	0.09		0.71	0.71	
Clearance Time (s)	6.0	6.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	156	114		2482	2458	
v/s Ratio Prot	c0.02			c0.45	0.28	
v/s Ratio Perm		0.00				
v/c Ratio	0.22	0.05		0.64	0.40	
Uniform Delay, d1	27.4	26.9		5.0	3.8	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.2		1.3	0.5	
Delay (s)	28.1	27.1		6.3	4.3	
Level of Service	C	C		A	A	
Approach Delay (s)	27.5			6.3	4.3	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	6.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	64.7	Sum of lost time (s)	13.0
Intersection Capacity Utilization	57.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	1521	922	18
Future Volume (vph)	0	0	0	1521	922	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	3500	3466	1566
Flt Permitted						
Satd. Flow (perm)	0	0	0	3500	3466	1566
Link Speed (k/h)	30			80	80	
Link Distance (m)	113.6			129.7	37.4	
Travel Time (s)	13.6			5.8	1.7	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	0	0	0	1618	981	19
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1618	981	19
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 57.0%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	1521	922	18
Future Volume (Veh/h)	0	0	0	1521	922	18
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	0	1618	981	19
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				130	228	
pX, platoon unblocked	0.79	0.90	0.90			
vC, conflicting volume	1790	490	1000			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	888	205	772			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	224	720	753			

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	809	809	490	490	19
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	19
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.48	0.48	0.29	0.29	0.01
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					
Approach Delay (s)	0.0		0.0		
Approach LOS					

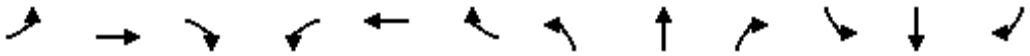
Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	57.0%	ICU Level of Service	B	
Analysis Period (min)	15			



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	1488	178	0	985
Future Volume (vph)	0	0	1488	178	0	985
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.91
Frt				0.850		
Flt Protected						
Satd. Flow (prot)	0	0	3500	1452	0	4885
Flt Permitted						
Satd. Flow (perm)	0	0	3500	1452	0	4885
Link Speed (k/h)	50		80			80
Link Distance (m)	246.0		145.5			117.5
Travel Time (s)	17.7		6.5			5.3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	10%	2%	5%
Adj. Flow (vph)	0	0	1583	189	0	1048
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	1583	189	0	1048
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Free		Free			Free

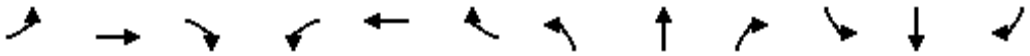
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 44.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection Sign configuration not allowed in HCM analysis.



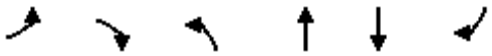
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	458	125	128	622	119	282	586	209	102	302	79
Future Volume (vph)	24	458	125	128	622	119	282	586	209	102	302	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.969			0.979			0.971			0.976	
Flt Protected		0.998			0.993			0.987			0.990	
Satd. Flow (prot)	0	3328	0	0	3402	0	0	3346	0	0	3382	0
Flt Permitted		0.998			0.993			0.987			0.990	
Satd. Flow (perm)	0	3328	0	0	3402	0	0	3346	0	0	3382	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		234.8			101.3			174.1			169.6	
Travel Time (s)		14.1			6.1			10.4			10.2	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	4%	2%	10%	2%	2%	2%	3%	2%	2%	2%	2%	2%
Adj. Flow (vph)	25	477	130	133	648	124	294	610	218	106	315	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	632	0	0	905	0	0	1122	0	0	503	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 100.3%		ICU Level of Service G	
Analysis Period (min) 15			

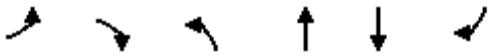


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	24	458	125	128	622	119	282	586	209	102	302	79
Future Volume (veh/h)	24	458	125	128	622	119	282	586	209	102	302	79
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	25	477	130	133	648	124	294	610	218	106	315	82
Approach Volume (veh/h)		632			905			1122			503	
Crossing Volume (veh/h)		554			929			608			1075	
High Capacity (veh/h)		894			660			856			585	
High v/c (veh/h)		0.71			1.37			1.31			0.86	
Low Capacity (veh/h)		719			515			686			451	
Low v/c (veh/h)		0.88			1.76			1.64			1.12	

Intersection Summary				
Maximum v/c High	1.37			
Maximum v/c Low	1.76			
Intersection Capacity Utilization	100.3%	ICU Level of Service	G	



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	43	44	37	1550	1050	25
Future Volume (vph)	43	44	37	1550	1050	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	110.0			40.0
Storage Lanes	1	1	1			1
Taper Length (m)	15.0		100.0			
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1257	1465	1608	5029	5029	1566
Flt Permitted	0.950		0.220			
Satd. Flow (perm)	1257	1465	372	5029	5029	1566
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		46				26
Link Speed (k/h)	25			80	60	
Link Distance (m)	112.4			224.9	145.5	
Travel Time (s)	16.2			10.1	8.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	42%	9%	11%	2%	2%	2%
Adj. Flow (vph)	45	46	39	1632	1105	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	45	46	39	1632	1105	26
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (m)	2.0	2.0	2.0	10.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	2.0	2.0	0.6	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	

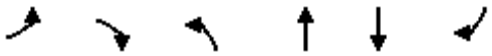


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	7.0	45.0	45.0	45.0
Minimum Split (s)	45.1	45.1	11.0	51.4	51.4	51.4
Total Split (s)	25.0	25.0	11.0	66.0	55.0	55.0
Total Split (%)	27.5%	27.5%	12.1%	72.5%	60.4%	60.4%
Maximum Green (s)	17.9	17.9	7.0	59.6	48.6	48.6
Yellow Time (s)	3.0	3.0	3.0	4.6	4.6	4.6
All-Red Time (s)	4.1	4.1	1.0	1.8	1.8	1.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.1	7.1	4.0	6.4	6.4	6.4
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	Max
Walk Time (s)	7.0	7.0				
Flash Dont Walk (s)	31.0	31.0				
Pedestrian Calls (#/hr)	0	0				
Act Effct Green (s)	10.4	10.4	65.1	64.0	57.5	57.5
Actuated g/C Ratio	0.13	0.13	0.78	0.77	0.69	0.69
v/c Ratio	0.29	0.21	0.10	0.42	0.32	0.02
Control Delay	38.4	13.0	3.5	4.8	7.6	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.4	13.0	3.5	4.8	7.6	3.3
LOS	D	B	A	A	A	A
Approach Delay	25.5			4.8	7.5	
Approach LOS	C			A	A	
Queue Length 50th (m)	6.6	0.0	1.3	32.7	31.2	0.0
Queue Length 95th (m)	16.3	9.0	3.6	44.3	41.8	3.1
Internal Link Dist (m)	88.4			200.9	121.5	
Turn Bay Length (m)			110.0			40.0
Base Capacity (vph)	270	351	395	3875	3478	1091
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	0.13	0.10	0.42	0.32	0.02

Intersection Summary			
Area Type:	Other		
Cycle Length: 91			
Actuated Cycle Length: 83.1			
Natural Cycle: 110			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.42			
Intersection Signal Delay: 6.5		Intersection LOS: A	
Intersection Capacity Utilization 57.1%		ICU Level of Service B	
Analysis Period (min) 15			

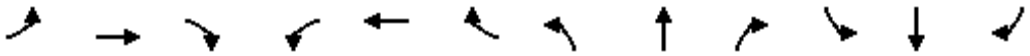
Splits and Phases: 14: Trafalgar Road & GO Parking Lot





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	43	44	37	1550	1050	25
Future Volume (vph)	43	44	37	1550	1050	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.1	7.1	4.0	6.4	6.4	6.4
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1257	1465	1608	5029	5029	1566
Flt Permitted	0.95	1.00	0.22	1.00	1.00	1.00
Satd. Flow (perm)	1257	1465	373	5029	5029	1566
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	45	46	39	1632	1105	26
RTOR Reduction (vph)	0	42	0	0	0	9
Lane Group Flow (vph)	45	4	39	1632	1105	17
Heavy Vehicles (%)	42%	9%	11%	2%	2%	2%
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	8.3	8.3	64.3	64.3	56.1	56.1
Effective Green, g (s)	8.3	8.3	64.3	64.3	56.1	56.1
Actuated g/C Ratio	0.10	0.10	0.75	0.75	0.65	0.65
Clearance Time (s)	7.1	7.1	4.0	6.4	6.4	6.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	121	141	338	3755	3276	1020
v/s Ratio Prot	c0.04		0.01	c0.32	0.22	
v/s Ratio Perm		0.00	0.08			0.01
v/c Ratio	0.37	0.03	0.12	0.43	0.34	0.02
Uniform Delay, d1	36.5	35.3	3.1	4.1	6.7	5.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.9	0.1	0.2	0.4	0.3	0.0
Delay (s)	38.4	35.3	3.2	4.5	7.0	5.3
Level of Service	D	D	A	A	A	A
Approach Delay (s)	36.8			4.4	6.9	
Approach LOS	D			A	A	

Intersection Summary			
HCM 2000 Control Delay	6.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	86.1	Sum of lost time (s)	17.5
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	17	8	54	42	27	8	178	73	15	204	10
Future Volume (vph)	7	17	8	54	42	27	8	178	73	15	204	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.964			0.970			0.962			0.994	
Flt Protected		0.990			0.979			0.998			0.997	
Satd. Flow (prot)	0	1758	0	0	1716	0	0	1764	0	0	1826	0
Flt Permitted		0.990			0.979			0.998			0.997	
Satd. Flow (perm)	0	1758	0	0	1716	0	0	1764	0	0	1826	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		241.5			1234.4			218.8			432.8	
Travel Time (s)		14.5			74.1			13.1			26.0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	2%	2%	11%	2%	2%	3%	2%	2%	2%
Adj. Flow (vph)	7	18	9	57	45	29	9	189	78	16	217	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	34	0	0	131	0	0	276	0	0	244	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

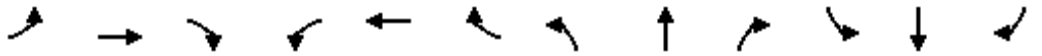
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 37.4%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	9.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	17	8	54	42	27	8	178	73	15	204	10
Future Vol, veh/h	7	17	8	54	42	27	8	178	73	15	204	10
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	11	2	2	3	2	2	2
Mvmt Flow	7	18	9	57	45	29	9	189	78	16	217	11
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.5	9.3	9.9	9.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	22%	44%	7%
Vol Thru, %	69%	53%	34%	89%
Vol Right, %	28%	25%	22%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	259	32	123	229
LT Vol	8	7	54	15
Through Vol	178	17	42	204
RT Vol	73	8	27	10
Lane Flow Rate	276	34	131	244
Geometry Grp	1	1	1	1
Degree of Util (X)	0.343	0.049	0.185	0.315
Departure Headway (Hd)	4.476	5.191	5.101	4.651
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	802	684	699	770
Service Time	2.52	3.268	3.165	2.697
HCM Lane V/C Ratio	0.344	0.05	0.187	0.317
HCM Control Delay	9.9	8.5	9.3	9.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1.5	0.2	0.7	1.4



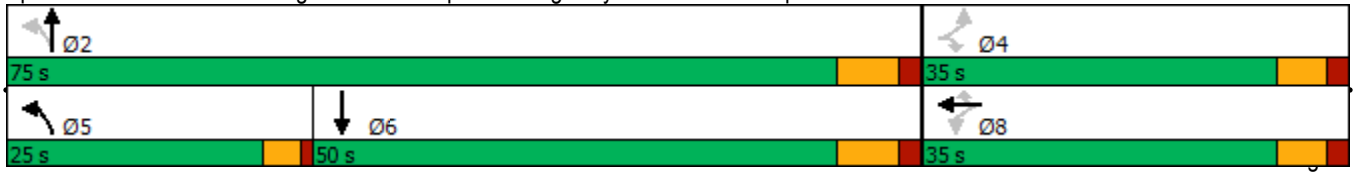
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	3	113	0	19	1	828	0	0	722	0
Future Volume (vph)	1	0	3	113	0	19	1	828	0	0	722	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		5.0	0.0		60.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		1	1		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt			0.850		0.995	0.850						
Flt Protected	0.950			0.950	0.954		0.950					
Satd. Flow (prot)	892	0	1566	1630	1562	1487	1750	3500	0	0	5029	0
Flt Permitted	0.713			0.950	0.954		0.310					
Satd. Flow (perm)	670	0	1566	1630	1562	1487	571	3500	0	0	5029	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79		79	79						
Link Speed (k/h)		20			60			80			80	
Link Distance (m)		81.5			394.8			34.5			189.8	
Travel Time (s)		14.7			23.7			1.6			8.5	
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 (%)	100%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	1	0	3	123	0	21	1	900	0	0	785	0
Shared Lane Traffic (%)				49%		10%						
Lane Group Flow (vph)	1	0	3	63	62	19	1	900	0	0	785	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1		1	1	2	1	1	2			2	
Detector Template	Left		Right	Left	Thru	Right	Left	Thru			Thru	
Leading Detector (m)	2.0		2.0	2.0	10.0	2.0	2.0	10.0			10.0	
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Size(m)	2.0		2.0	2.0	0.6	2.0	2.0	0.6			0.6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 2 Position(m)					9.4			9.4			9.4	
Detector 2 Size(m)					0.6			0.6			0.6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	

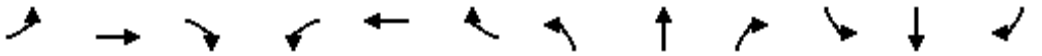
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8		8	2					
Detector Phase	4		4	8	8	8	5	2			6	
Switch Phase												
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	4.0	35.0			35.0	
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5	9.5	42.0			42.0	
Total Split (s)	35.0		35.0	35.0	35.0	35.0	25.0	75.0			50.0	
Total Split (%)	31.8%		31.8%	31.8%	31.8%	31.8%	22.7%	68.2%			45.5%	
Maximum Green (s)	29.0		29.0	29.0	29.0	29.0	21.0	68.0			43.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0	3.0	5.0			5.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0	1.0	2.0			2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Recall Mode	None		None	None	None	None	None	Min			Min	
Act Effct Green (s)	8.0		8.0	8.0	8.0	8.0	42.9	41.3			39.7	
Actuated g/C Ratio	0.14		0.14	0.14	0.14	0.14	0.74	0.71			0.68	
v/c Ratio	0.01		0.01	0.28	0.22	0.07	0.00	0.36			0.23	
Control Delay	23.0		0.0	26.9	7.3	0.5	3.0	5.1			5.6	
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	23.0		0.0	26.9	7.3	0.5	3.0	5.1			5.6	
LOS	C		A	C	A	A	A	A			A	
Approach Delay		5.8			15.0			5.1			5.6	
Approach LOS		A			B			A			A	
Queue Length 50th (m)	0.1		0.0	6.1	0.0	0.0	0.0	19.5			10.4	
Queue Length 95th (m)	1.3		0.0	17.7	7.5	0.0	0.4	32.3			26.2	
Internal Link Dist (m)		57.5			370.8			10.5			165.8	
Turn Bay Length (m)			5.0			60.0						
Base Capacity (vph)	335		822	815	820	783	847	3500			3976	
Starvation Cap Reductn	0		0	0	0	0	0	0			0	
Spillback Cap Reductn	0		0	0	0	0	0	0			0	
Storage Cap Reductn	0		0	0	0	0	0	0			0	
Reduced v/c Ratio	0.00		0.00	0.08	0.08	0.02	0.00	0.26			0.20	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 58.3
Natural Cycle: 75
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.36
Intersection Signal Delay: 6.1 Intersection LOS: A
Intersection Capacity Utilization 56.7% ICU Level of Service B
Analysis Period (min) 15

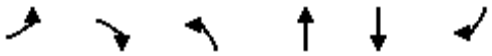
Splits and Phases: 7: Trafalgar Road & Carpool Lot/Highway 407 WB Off-Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	3	113	0	19	1	828	0	0	722	0
Future Volume (vph)	1	0	3	113	0	19	1	828	0	0	722	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	6.0	4.0	7.0			7.0	
Lane Util. Factor	1.00		1.00	0.95	0.91	0.95	1.00	0.95			0.91	
Frt	1.00		0.85	1.00	1.00	0.85	1.00	1.00			1.00	
Flt Protected	0.95		1.00	0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	892		1566	1630	1562	1487	1750	3500			5029	
Flt Permitted	0.71		1.00	0.95	0.95	1.00	0.31	1.00			1.00	
Satd. Flow (perm)	669		1566	1630	1562	1487	572	3500			5029	
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)	1	0	3	123	0	21	1	900	0	0	785	0
RTOR Reduction (vph)	0	0	3	0	55	17	0	0	0	0	0	0
Lane Group Flow (vph)	1	0	0	63	7	2	1	900	0	0	785	0
Heavy Vehicles (%)	100%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	
Permitted Phases	4		4	8		8	2					
Actuated Green, G (s)	6.6		6.6	6.6	6.6	6.6	43.3	43.3			38.3	
Effective Green, g (s)	6.6		6.6	6.6	6.6	6.6	43.3	43.3			38.3	
Actuated g/C Ratio	0.10		0.10	0.10	0.10	0.10	0.69	0.69			0.61	
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)	70		164	171	163	156	412	2409			3062	
v/s Ratio Prot							0.00	c0.26			0.16	
v/s Ratio Perm	0.00		0.00	c0.04	0.00	0.00	0.00					
v/c Ratio	0.01		0.00	0.37	0.04	0.01	0.00	0.37			0.26	
Uniform Delay, d1	25.2		25.2	26.2	25.3	25.2	3.2	4.1			5.7	
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.1		0.0	1.3	0.1	0.0	0.0	0.1			0.0	
Delay (s)	25.3		25.2	27.6	25.4	25.3	3.2	4.2			5.7	
Level of Service	C		C	C	C	C	A	A			A	
Approach Delay (s)		25.2			26.3			4.2			5.7	
Approach LOS		C			C			A			A	

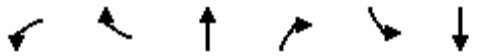
Intersection Summary			
HCM 2000 Control Delay	6.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	62.9	Sum of lost time (s)	17.0
Intersection Capacity Utilization	56.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	829	838	34
Future Volume (vph)	0	0	0	829	838	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.95	1.00
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	5029	3500	1566
Flt Permitted						
Satd. Flow (perm)	0	0	0	5029	3500	1566
Link Speed (k/h)	60			80	80	
Link Distance (m)	161.4			55.2	34.5	
Travel Time (s)	9.7			2.5	1.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	901	911	37
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	901	911	37
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 26.5%		ICU Level of Service A	
Analysis Period (min) 15			

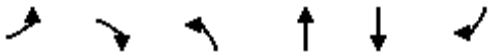
Intersection Sign configuration not allowed in HCM analysis.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	829	43	0	838
Future Volume (vph)	0	0	829	43	0	838
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt				0.850		
Flt Protected						
Satd. Flow (prot)	0	0	3500	1465	0	3500
Flt Permitted						
Satd. Flow (perm)	0	0	3500	1465	0	3500
Link Speed (k/h)	30		80			80
Link Distance (m)	192.3		37.4			100.8
Travel Time (s)	23.1		1.7			4.5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	9%	2%	2%
Adj. Flow (vph)	0	0	901	47	0	911
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	901	47	0	911
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Free		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 26.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection Sign configuration not allowed in HCM analysis.

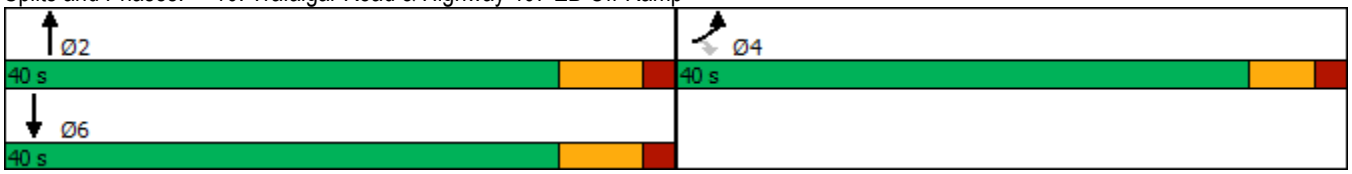


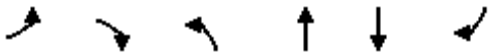
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	34	31	0	826	834	0
Future Volume (vph)	34	31	0	826	834	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1750	1377	0	3500	3500	0
Flt Permitted	0.950					
Satd. Flow (perm)	1750	1377	0	3500	3500	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		33				
Link Speed (k/h)	60			80	80	
Link Distance (m)	417.0			117.5	129.7	
Travel Time (s)	25.0			5.3	5.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	16%	2%	2%	2%	2%
Adj. Flow (vph)	37	33	0	888	897	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	37	33	0	888	897	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (m)	2.0	2.0		10.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	2.0		0.6	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Initial (s)	6.0	6.0		20.0	20.0	
Minimum Split (s)	24.0	24.0		27.0	27.0	
Total Split (s)	40.0	40.0		40.0	40.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	34.0	34.0		33.0	33.0	
Yellow Time (s)	4.0	4.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		7.0	7.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		Max	Max	
Act Effct Green (s)	6.7	6.7		41.6	41.6	
Actuated g/C Ratio	0.12	0.12		0.77	0.77	
v/c Ratio	0.17	0.17		0.33	0.33	
Control Delay	22.5	10.8		4.2	4.2	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	22.5	10.8		4.2	4.2	
LOS	C	B		A	A	
Approach Delay	17.0			4.2	4.2	
Approach LOS	B			A	A	
Queue Length 50th (m)	3.2	0.0		17.8	18.1	
Queue Length 95th (m)	9.6	5.9		28.8	29.3	
Internal Link Dist (m)	393.0			93.5	105.7	
Turn Bay Length (m)						
Base Capacity (vph)	1103	880		2703	2703	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.03	0.04		0.33	0.33	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 53.9			
Natural Cycle: 55			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.33			
Intersection Signal Delay: 4.7		Intersection LOS: A	
Intersection Capacity Utilization 38.9%		ICU Level of Service A	
Analysis Period (min) 15			

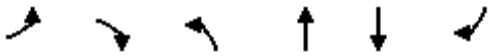
Splits and Phases: 10: Trafalgar Road & Highway 407 EB Off-Ramp





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	34	31	0	826	834	0
Future Volume (vph)	34	31	0	826	834	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1750	1377		3500	3500	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1750	1377		3500	3500	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	37	33	0	888	897	0
RTOR Reduction (vph)	0	30	0	0	0	0
Lane Group Flow (vph)	37	3	0	888	897	0
Heavy Vehicles (%)	2%	16%	2%	2%	2%	2%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	4.4	4.4		38.9	38.9	
Effective Green, g (s)	4.4	4.4		38.9	38.9	
Actuated g/C Ratio	0.08	0.08		0.69	0.69	
Clearance Time (s)	6.0	6.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	136	107		2418	2418	
v/s Ratio Prot	c0.02			0.25	c0.26	
v/s Ratio Perm		0.00				
v/c Ratio	0.27	0.02		0.37	0.37	
Uniform Delay, d1	24.4	24.0		3.6	3.6	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.1	0.1		0.4	0.4	
Delay (s)	25.5	24.1		4.0	4.1	
Level of Service	C	C		A	A	
Approach Delay (s)	24.8			4.0	4.1	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	4.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	56.3	Sum of lost time (s)	13.0
Intersection Capacity Utilization	38.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	860	834	13
Future Volume (vph)	0	0	0	860	834	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	3500	3500	1566
Flt Permitted						
Satd. Flow (perm)	0	0	0	3500	3500	1566
Link Speed (k/h)	30			80	80	
Link Distance (m)	110.1			129.7	37.4	
Travel Time (s)	13.2			5.8	1.7	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	925	897	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	925	897	14
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.9%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection Sign configuration not allowed in HCM analysis.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	826	90	0	865
Future Volume (vph)	0	0	826	90	0	865
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.91
Frt				0.850		
Flt Protected						
Satd. Flow (prot)	0	0	3500	1507	0	5029
Flt Permitted						
Satd. Flow (perm)	0	0	3500	1507	0	5029
Link Speed (k/h)	50		80			80
Link Distance (m)	247.7		145.5			117.5
Travel Time (s)	17.8		6.5			5.3
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	6%	2%	2%
Adj. Flow (vph)	0	0	888	97	0	930
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	888	97	0	930
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Free		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 26.2%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection Sign configuration not allowed in HCM analysis.

MOVEMENT SUMMARY

Site: 101 [Sixth Line & William Halton Parkway (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Existing AM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Sixth Line															
1	L2	All MCs	7	2.0	7	2.0	0.211	9.4	LOS A	0.6	4.0	0.56	0.56	0.56	49.0
2	T1	All MCs	158	2.0	158	2.0	0.211	10.4	LOS B	0.6	4.0	0.57	0.57	0.57	49.8
3	R2	All MCs	54	2.0	54	2.0	0.199	9.6	LOS A	0.5	3.9	0.58	0.58	0.58	49.3
Approach			219	2.0	219	2.0	0.211	10.2	LOS B	0.6	4.0	0.57	0.57	0.57	49.6
East: William Halton Parkway															
4	L2	All MCs	18	2.0	18	2.0	0.182	6.0	LOS A	0.5	3.8	0.34	0.26	0.34	51.0
5	T1	All MCs	188	2.0	188	2.0	0.182	5.9	LOS A	0.5	3.8	0.34	0.25	0.34	52.0
6	R2	All MCs	112	2.0	112	2.0	0.182	9.0	LOS A	0.5	3.6	0.32	0.24	0.32	51.7
Approach			318	2.0	318	2.0	0.182	7.0	LOS A	0.5	3.8	0.33	0.25	0.33	51.8
North: Sixth Line															
7	L2	All MCs	620	2.0	620	2.0	0.649	13.3	LOS B	6.6	46.8	0.50	0.45	0.78	43.7
8	T1	All MCs	153	2.0	153	2.0	0.429	11.2	LOS B	1.7	12.1	0.37	0.23	0.37	50.2
9	R2	All MCs	252	2.0	252	2.0	0.429	8.7	LOS A	1.7	12.1	0.37	0.23	0.37	49.9
Approach			1026	2.0	1026	2.0	0.649	11.9	LOS B	6.6	46.8	0.45	0.37	0.62	45.9
West: William Halton Parkway															
10	L2	All MCs	162	2.0	162	2.0	0.307	10.0	LOS B	1.0	7.1	0.55	0.57	0.63	45.8
11	T1	All MCs	212	2.0	212	2.0	0.307	9.7	LOS A	1.0	7.1	0.53	0.55	0.61	49.4
12	R2	All MCs	7	2.0	7	2.0	0.307	12.3	LOS B	1.0	6.9	0.53	0.54	0.61	49.5
Approach			381	2.0	381	2.0	0.307	9.9	LOS A	1.0	7.1	0.54	0.56	0.62	47.8
All Vehicles			1943	2.0	1943	2.0	0.649	10.5	LOS B	6.6	46.8	0.46	0.41	0.57	47.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 101 [Sixth Line & William Halton Parkway (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2024 Existing PM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Sixth Line															
1	L2	All MCs	5	2.0	5	2.0	0.136	5.8	LOS A	0.4	2.6	0.36	0.30	0.36	51.4
2	T1	All MCs	155	2.0	155	2.0	0.136	7.2	LOS A	0.4	2.6	0.37	0.31	0.37	52.3
3	R2	All MCs	51	2.0	51	2.0	0.128	5.8	LOS A	0.4	2.5	0.38	0.32	0.38	51.9
Approach			211	2.0	211	2.0	0.136	6.9	LOS A	0.4	2.6	0.37	0.31	0.37	52.2
East: William Halton Parkway															
4	L2	All MCs	60	2.0	60	2.0	0.328	7.6	LOS A	1.1	8.0	0.38	0.27	0.38	49.5
5	T1	All MCs	232	2.0	232	2.0	0.328	7.6	LOS A	1.1	8.0	0.38	0.27	0.38	50.4
6	R2	All MCs	350	2.0	350	2.0	0.387	12.7	LOS B	1.3	9.5	0.38	0.27	0.38	49.9
Approach			642	2.0	642	2.0	0.387	10.4	LOS B	1.3	9.5	0.38	0.27	0.38	50.0
North: Sixth Line															
7	L2	All MCs	176	2.0	176	2.0	0.292	7.1	LOS A	1.0	6.8	0.37	0.26	0.37	48.0
8	T1	All MCs	177	2.0	177	2.0	0.292	8.5	LOS A	1.0	6.8	0.36	0.25	0.36	50.1
9	R2	All MCs	169	2.0	169	2.0	0.292	7.1	LOS A	0.9	6.4	0.35	0.25	0.35	50.9
Approach			521	2.0	521	2.0	0.292	7.6	LOS A	1.0	6.8	0.36	0.26	0.36	49.6
West: William Halton Parkway															
10	L2	All MCs	131	2.0	131	2.0	0.169	6.2	LOS A	0.5	3.5	0.38	0.31	0.38	47.6
11	T1	All MCs	141	2.0	141	2.0	0.169	6.1	LOS A	0.5	3.5	0.36	0.29	0.36	52.1
12	R2	All MCs	6	2.0	6	2.0	0.169	8.7	LOS A	0.5	3.3	0.36	0.29	0.36	52.0
Approach			278	2.0	278	2.0	0.169	6.2	LOS A	0.5	3.5	0.37	0.30	0.37	49.9
All Vehicles			1652	2.0	1652	2.0	0.387	8.3	LOS A	1.3	9.5	0.37	0.27	0.37	50.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 101 [Ninth Line & William Halton Parkway (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing 2024 AM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Ninth Line															
1	L2	All MCs	112	23.0	112	23.0	0.571	19.6	LOS C	2.6	19.7	0.66	0.80	1.12	43.2
2	T1	All MCs	342	2.0	342	2.0	0.571	16.2	LOS C	2.6	19.7	0.64	0.75	1.01	45.5
3	R2	All MCs	97	3.0	97	3.0	0.407	17.0	LOS C	1.5	11.0	0.61	0.68	0.84	47.4
Approach			551	6.5	551	6.5	0.571	17.0	LOS C	2.6	19.7	0.64	0.75	1.00	45.3
East: William Halton Parkway															
4	L2	All MCs	103	2.0	103	2.0	0.352	9.2	LOS A	1.3	9.1	0.50	0.47	0.58	47.6
5	T1	All MCs	322	3.0	322	3.0	0.352	11.1	LOS B	1.3	9.1	0.49	0.46	0.56	49.2
6	R2	All MCs	93	4.0	93	4.0	0.352	12.8	LOS B	1.2	8.7	0.48	0.45	0.55	49.5
Approach			519	3.0	519	3.0	0.352	11.0	LOS B	1.3	9.1	0.49	0.46	0.56	48.9
North: Ninth Line															
7	L2	All MCs	194	2.0	194	2.0	0.682	17.6	LOS C	5.7	40.9	0.68	0.84	1.37	43.3
8	T1	All MCs	615	2.0	615	2.0	0.682	18.3	LOS C	5.7	40.9	0.63	0.73	1.15	45.8
9	R2	All MCs	71	2.0	71	2.0	0.504	15.9	LOS C	2.7	19.4	0.58	0.62	0.90	47.7
Approach			880	2.0	880	2.0	0.682	18.0	LOS C	5.7	40.9	0.64	0.75	1.18	45.3
West: William Halton Parkway															
10	L2	All MCs	83	4.0	83	4.0	1.051	76.9	LOS F	23.7	169.0	1.00	2.28	5.39	26.2
11	T1	All MCs	618	2.0	618	2.0	1.051	69.8	LOS F	23.7	169.0	0.97	2.09	4.83	27.8
12	R2	All MCs	290	12.0	290	12.0	0.748	35.7	LOS E	4.8	36.5	0.80	1.07	1.71	39.2
Approach			991	5.1	991	5.1	1.051	60.4	LOS F	23.7	169.0	0.92	1.81	3.97	30.2
All Vehicles			2940	4.1	2940	4.1	1.051	30.9	LOS D	23.7	169.0	0.71	1.05	1.98	39.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 101 [Ninth Line & William Halton Parkway (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Existing 2024 PM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Ninth Line															
1	L2	All MCs	294	3.0	294	3.0	0.923	40.2	LOS E	16.5	118.2	0.96	1.57	3.06	34.5
2	T1	All MCs	610	2.0	610	2.0	0.923	33.0	LOS D	16.5	118.2	0.85	1.28	2.38	38.2
3	R2	All MCs	218	2.0	218	2.0	0.657	22.3	LOS C	4.9	35.0	0.69	0.84	1.33	44.6
Approach			1122	2.3	1122	2.3	0.923	32.8	LOS D	16.5	118.2	0.85	1.27	2.35	38.1
East: William Halton Parkway															
4	L2	All MCs	133	2.0	133	2.0	0.809	32.4	LOS D	6.3	44.9	0.84	1.16	1.92	37.3
5	T1	All MCs	648	2.0	648	2.0	0.809	34.9	LOS D	6.3	45.1	0.84	1.15	1.92	38.2
6	R2	All MCs	124	2.0	124	2.0	0.809	35.9	LOS E	6.3	45.1	0.83	1.14	1.92	38.4
Approach			905	2.0	905	2.0	0.809	34.7	LOS D	6.3	45.1	0.84	1.15	1.92	38.1
North: Ninth Line															
7	L2	All MCs	106	2.0	106	2.0	0.575	18.7	LOS C	2.5	18.1	0.73	0.86	1.19	42.8
8	T1	All MCs	315	2.0	315	2.0	0.575	18.7	LOS C	2.5	18.1	0.71	0.82	1.10	44.6
9	R2	All MCs	82	2.0	82	2.0	0.424	20.7	LOS C	1.5	11.0	0.69	0.76	0.95	46.1
Approach			503	2.0	503	2.0	0.575	19.0	LOS C	2.5	18.1	0.71	0.82	1.09	44.4
West: William Halton Parkway															
10	L2	All MCs	25	4.0	25	4.0	0.506	12.3	LOS B	2.7	19.0	0.56	0.60	0.88	47.2
11	T1	All MCs	477	2.0	477	2.0	0.506	12.6	LOS B	2.7	19.0	0.54	0.57	0.81	48.4
12	R2	All MCs	130	10.0	130	10.0	0.360	14.0	LOS B	1.3	9.6	0.51	0.48	0.61	49.0
Approach			632	3.7	632	3.7	0.506	12.9	LOS B	2.7	19.0	0.54	0.56	0.77	48.4
All Vehicles			3163	2.4	3163	2.4	0.923	27.2	LOS D	16.5	118.2	0.76	1.02	1.71	40.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Appendix G

Traffic Control Warrant Sheets

Burnhamthorpe at Collector 1
2031 Future Total

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	744	83%	83%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	152	89%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	593	66%	66%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	75	99%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

Burnhamthorpe at Collector 1
2031 Future Total

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	744	83%	83%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	152	89%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	593	66%	66%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	75	99%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

Burnhamthorpe at Collector 1
2036 Future Total

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	773	86%	86%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	152	89%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	622	69%	69%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	75	99%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

Burnhamthorpe at Collector 1
2041 Future Total

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	962	107%	107%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	278	164%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	683	76%	76%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	138	184%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

Burnhamthorpe at Sixth Line
2031 Future Total

Justification #7

Justification	Description	Minimum Requirement		Minimum Requirement		Compliance			Signal
		1 Lane Highway		2 or More Lanes		Sectional		Entire %	
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	1095	122%	122%	Yes
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	319	188%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	776	86%	86%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	210	280%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

Burnhamthorpe Road at Collector 5
2031 Future Total

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	1013	141%	130%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	221	130%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	792	110%	99%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	74	99%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

Burnhamthorpe Road at Collector 5
2036 Future Total

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	1044	145%	130%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	221	130%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	823	114%	99%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	74	99%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

Burnhamthorpe Road at Collector 5
2041 Future Total

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	1135	158%	130%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	221	130%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	913	127%	99%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	74	99%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

Collector 3 at Collector 5
2031 Future Total

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	255	35%	35%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	77	45%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	179	25%	25%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	57	76%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

Local 6 at Trafalgar Road
2031 Future Total

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	2299	255%	76%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	130	76%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	2169	241%	132%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	99	132%		

Notes

1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

Marvin Avenue at Trafalgar Road
2036 Future Total

Justification #7

Justification	Description	Minimum Requirement		Minimum Requirement		Compliance			Signal
		1 Lane Highway		2 or More Lanes		Sectional		Entire %	
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	2454	273%	76%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	130	76%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	2324	258%	132%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	99	132%		

Notes

1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

Marvin Avenue at Trafalgar Road
2041 Future Total

Justification #7

Justification	Description	Minimum Requirement		Minimum Requirement		Compliance			Signal
		1 Lane Highway		2 or More Lanes		Sectional		Entire %	
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	2796	311%	76%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	130	76%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	2667	296%	132%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	99	132%		

Notes

1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

Marvin Avenue at Trafalgar Road
2031 Future Total

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	2835	315%	199%	Yes
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	338	199%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	2497	277%	277%	Yes
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	219	292%		

Notes

1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

Marvin Avenue at Collector 1
2031 Future Total

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	378	53%	53%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	223	131%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	156	22%	22%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	82	109%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

Marvin Avenue at Collector 4
2031 Future Total

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	543	75%	75%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	244	144%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	299	41%	41%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	155	206%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

Settlers Road at Collector 1
2031 Future Total

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	421	58%	58%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	227	134%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	194	27%	27%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	132	175%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

Settlers Road at Collector 4
2031 Future Total

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	589	82%	82%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	239	140%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	351	49%	49%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	98	131%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

Settlers Road at Collector 6
2031 Future Total

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	454	63%	63%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	185	109%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	269	37%	37%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	84	111%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

Settlers Road at Trafalgar Road
2031 Future Total

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	2666	296%	244%	Yes
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	415	244%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	2251	250%	250%	Yes
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	288	384%		

Notes

1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

Sixth Line at Burnhamthorpe Road
2031 Future Background

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	919	102%	102%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	286	168%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	632	70%	70%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	195	259%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

Sixth Line at Burnhamthorpe Road
2036 Future Background

Justification #7

Justification	Description	Minimum Requirement		Minimum Requirement		Compliance			Signal
		1 Lane Highway		2 or More Lanes		Sectional		Entire %	
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	987	110%	110%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	307	181%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	680	76%	76%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	208	277%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

Sixth Line at Burnhamthorpe Road
2041 Future Background

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	1093	121%	121%	Yes
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	350	206%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	744	83%	83%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	241	322%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

William Halton Parkway at Burnhamthorpe Road
2031 Future Background

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	1441	160%	160%	Yes
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	302	177%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	1240	138%	114%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	85	114%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

William Halton Parkway at Burnhamthorpe Road
2036 Future Background

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	1452	161%	161%	Yes
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	336	198%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	1228	136%	118%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	89	118%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

William Halton Parkway at Burnhamthorpe Road
2041 Future Background

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	1661	185%	185%	Yes
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	409	240%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	1388	154%	145%	Yes
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	109	145%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

William Halton Parkway at Burnhamthorpe Road
2031 Future Total

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	2156	240%	240%	Yes
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	737	434%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	1665	185%	185%	Yes
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	208	277%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

William Halton Parkway at Collector 1
2031 Future Background

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	1141	127%	5%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	8	5%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	1133	126%	11%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	8	11%		

Notes

1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

William Halton Parkway at Collector 1
2036 Future Background

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	1119	124%	5%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	8	5%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	1111	123%	11%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	8	11%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

William Halton Parkway at Collector 1
2041 Future Background

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	1533	170%	80%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	136	80%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	1397	155%	155%	Yes
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	179	239%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

William Halton Parkway at Collector 1
2031 Future Total

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	1432	159%	59%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	101	59%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	1332	148%	148%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	111	148%		

Notes

1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

William Halton Parkway at Collector 1
2036 Future Total

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	1473	164%	59%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	101	59%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	1373	153%	148%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	111	148%		

Notes

1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

William Halton Parkway at Collector 1
2041 Future Total

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	1833	204%	134%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	229	134%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	1604	178%	178%	Yes
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	262	349%		

Notes

1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

William Halton Parkway at Collector 2
2031 Future Background

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	1289	143%	55%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	93	55%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	1195	133%	0%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	0	0%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

William Halton Parkway at Collector 2
2036 Future Background

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	1267	141%	55%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	93	55%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	1174	130%	0%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	0	0%		

Notes

1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

William Halton Parkway at Collector 2
2041 Future Background

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	1763	196%	133%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	226	133%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	1536	171%	0%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	0	0%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

William Halton Parkway at Collector 2
2031 Future Total

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	1558	173%	68%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	116	68%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	1442	160%	0%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	0	0%		

Notes

1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

William Halton Parkway at Collector 2
2036 Future Total

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	1599	178%	68%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	116	68%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	1483	165%	0%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	0	0%		

Notes

1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

William Halton Parkway at Collector 2
2041 Future Total

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	2040	227%	146%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	249	146%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	1792	199%	0%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	0	0%		

Notes

1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

William Halton Parkway at Collector 5
2031 Future Background

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	1072	119%	50%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	84	50%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	1016	113%	75%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	56	75%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

William Halton Parkway at Collector 5
2036 Future Background

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	1053	117%	50%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	84	50%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	996	111%	75%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	56	75%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

William Halton Parkway at Collector 5
2041 Future Background

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	1330	148%	91%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	155	91%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	1226	136%	136%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	138	183%		

Notes

1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

William Halton Parkway at Collector 5
2031 Future Total

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	1394	155%	117%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	199	117%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	1196	133%	133%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	151	202%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

William Halton Parkway at Collector 5
2036 Future Total

Justification #7

Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	1437	160%	117%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	199	117%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	1239	138%	138%	No
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	151	202%		

Notes
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

William Halton Parkway at Collector 5
2041 Future Total

Justification #7

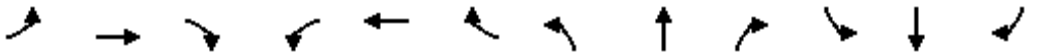
Justification	Description	Minimum Requirement 1 Lane Highway		Minimum Requirement 2 or More Lanes		Compliance Sectional		Compliance Entire %	Signal
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%		
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	1661	185%	144%	No
	B. Vehicle volume, along minor streets (average hour)	120	170	120	170	246	144%		
2. Delay to Cross Traffic	A. Vehicle volumes, major street (average hour)	480	720	600	900	1415	157%	157%	Yes
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	50	75	237	316%		

Notes

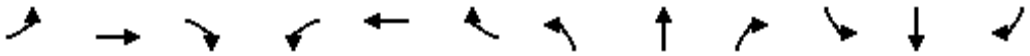
1. Refer to OTM Book 12, pg 92, Mar 2012
2. Lowest section percentage governs justification
3. Average hourly volumes estimated from peak hour volumes, AHV = PM/2 or (AM + PM) / 4, including amplifcation factors
4. T-intersection factor corrected, applies only to 1B
5. Correction to 2B, as per MTO and City of Ottawa, for '2 or More Lanes' has been applied

Appendix H

2031 Future Background Conditions Synchro and Sidra Worksheets



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	259	993	236	144	432	332	74	1185	186	532	989	134
Future Volume (vph)	259	993	236	144	432	332	74	1185	186	532	989	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	190.0		60.0	160.0		150.0	60.0		55.0	45.0		55.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	15.0			50.0			100.0			90.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3500	1566	1750	3500	1452	1750	4421	1493	1733	4378	1566
Flt Permitted	0.385			0.101			0.217			0.096		
Satd. Flow (perm)	709	3500	1566	186	3500	1452	400	4421	1493	175	4378	1566
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			156			361			129			130
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		207.8			228.3			142.6			224.9	
Travel Time (s)		12.5			13.7			8.6			13.5	
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%	10%	2%	2%	7%	3%	3%	2%
Adj. Flow (vph)	282	1079	257	157	470	361	80	1288	202	578	1075	146
Shared Lane Traffic (%)												
Lane Group Flow (vph)	282	1079	257	157	470	361	80	1288	202	578	1075	146
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	

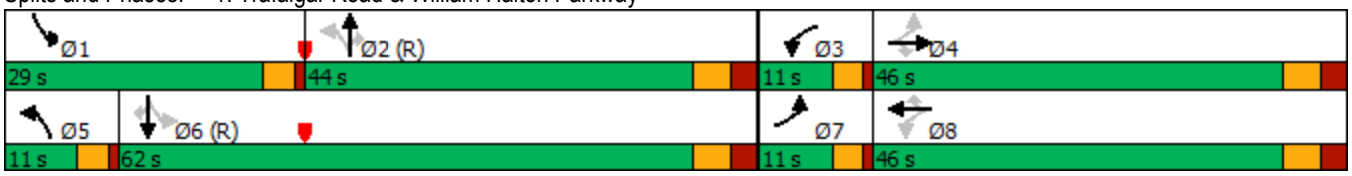


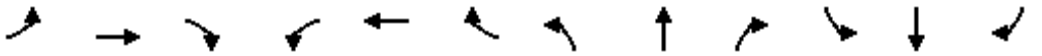
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	45.4	45.4	11.0	45.4	45.4	11.0	43.4	43.4	11.0	43.4	43.4
Total Split (s)	11.0	46.0	46.0	11.0	46.0	46.0	11.0	44.0	44.0	29.0	62.0	62.0
Total Split (%)	8.5%	35.4%	35.4%	8.5%	35.4%	35.4%	8.5%	33.8%	33.8%	22.3%	47.7%	47.7%
Maximum Green (s)	7.0	39.6	39.6	7.0	39.6	39.6	7.0	37.6	37.6	25.0	55.6	55.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0		30.0	30.0		30.0	30.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	49.0	39.6	39.6	49.0	39.6	39.6	47.0	37.6	37.6	69.0	57.8	57.8
Actuated g/C Ratio	0.38	0.30	0.30	0.38	0.30	0.30	0.36	0.29	0.29	0.53	0.44	0.44
v/c Ratio	0.87	1.01	0.44	1.02	0.44	0.52	0.37	1.01	0.39	1.47	0.55	0.19
Control Delay	60.3	75.4	16.5	108.6	37.9	6.3	22.5	72.9	16.0	257.5	28.4	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.3	75.4	16.5	108.6	37.9	6.3	22.5	72.9	16.0	257.5	28.4	5.6
LOS	E	E	B	F	D	A	C	E	B	F	C	A
Approach Delay		63.4			37.6			63.1			100.2	
Approach LOS		E			D			E			F	
Queue Length 50th (m)	50.4	~148.9	19.3	~26.6	50.9	0.0	9.7	~139.6	14.0	~188.5	85.8	2.4
Queue Length 95th (m)	#93.5	#194.3	43.6	#70.4	66.8	22.8	17.8	#177.3	35.2	#258.2	102.1	14.8
Internal Link Dist (m)		183.8			204.3			118.6			200.9	
Turn Bay Length (m)	190.0		60.0	160.0		150.0	60.0		55.0	45.0		55.0
Base Capacity (vph)	323	1066	585	154	1066	693	217	1278	523	392	1946	768
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	1.01	0.44	1.02	0.44	0.52	0.37	1.01	0.39	1.47	0.55	0.19

Intersection Summary			
Area Type:	Other		
Cycle Length: 130			
Actuated Cycle Length: 130			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 135			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.47			
Intersection Signal Delay: 70.1		Intersection LOS: E	
Intersection Capacity Utilization 105.1%		ICU Level of Service G	
Analysis Period (min) 15			

* User Entered Value
~ 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.

Splits and Phases: 1: Trafalgar Road & William Halton Parkway

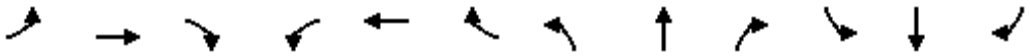




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	259	993	236	144	432	332	74	1185	186	532	989	134
Future Volume (vph)	259	993	236	144	432	332	74	1185	186	532	989	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1750	3500	1566	1750	3500	1452	1750	4421	1493	1733	4378	1566
Flt Permitted	0.38	1.00	1.00	0.10	1.00	1.00	0.22	1.00	1.00	0.10	1.00	1.00
Satd. Flow (perm)	709	3500	1566	186	3500	1452	400	4421	1493	175	4378	1566
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)	282	1079	257	157	470	361	80	1288	202	578	1075	146
RTOR Reduction (vph)	0	0	108	0	0	251	0	0	92	0	0	73
Lane Group Flow (vph)	282	1079	149	157	470	110	80	1288	110	578	1075	73
Heavy Vehicles (%)	2%	2%	2%	2%	2%	10%	2%	2%	7%	3%	3%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	46.6	39.6	39.6	46.6	39.6	39.6	43.2	37.6	37.6	66.6	57.0	57.0
Effective Green, g (s)	46.6	39.6	39.6	46.6	39.6	39.6	43.2	37.6	37.6	66.6	57.0	57.0
Actuated g/C Ratio	0.36	0.30	0.30	0.36	0.30	0.30	0.33	0.29	0.29	0.51	0.44	0.44
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	310	1066	477	150	1066	442	191	1278	431	389	1919	686
v/s Ratio Prot	0.05	0.31		c0.06	0.13		0.02	0.29		c0.29	0.25	
v/s Ratio Perm	0.28		0.09	c0.32		0.08	0.12		0.07	c0.47		0.05
v/c Ratio	0.91	1.01	0.31	1.05	0.44	0.25	0.42	1.01	0.26	1.49	0.56	0.11
Uniform Delay, d1	38.8	45.2	34.7	37.1	36.3	34.0	30.4	46.2	35.5	41.2	27.2	21.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	28.8	30.6	0.8	86.4	0.6	0.6	1.5	27.1	1.4	232.0	1.2	0.3
Delay (s)	67.6	75.8	35.5	123.5	36.9	34.6	31.9	73.3	36.9	273.2	28.4	21.8
Level of Service	E	E	D	F	D	C	C	E	D	F	C	C
Approach Delay (s)		68.0			49.8			66.5			106.5	
Approach LOS		E			D			E			F	

Intersection Summary			
HCM 2000 Control Delay	76.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.33		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	105.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	121	241	107	81	144	58	109	1208	119	89	1206	49
Future Volume (vph)	121	241	107	81	144	58	109	1208	119	89	1206	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	120.0		0.0	130.0		0.0	170.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	*0.80	0.91	1.00	*0.80	0.91
Ped Bike Factor		1.00		1.00								
Frt		0.954			0.957			0.987			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3326	0	1750	3258	0	1700	4358	0	1750	4348	0
Flt Permitted	0.594			0.358			0.148			0.099		
Satd. Flow (perm)	1094	3326	0	659	3258	0	265	4358	0	182	4348	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		54			51			14			8	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		387.6			810.8			2139.5			320.3	
Travel Time (s)		27.9			58.4			128.4			19.2	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	6%	2%	5%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Adj. Flow (vph)	134	268	119	90	160	64	121	1342	132	99	1340	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	134	387	0	90	224	0	121	1474	0	99	1394	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.02	1.01	1.01	1.02	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		7.0	10.0	
Minimum Split (s)	41.4	41.4		41.4	41.4		37.3	37.3		22.0	37.3	
Total Split (s)	42.0	42.0		42.0	42.0		56.0	56.0		22.0	78.0	
Total Split (%)	35.0%	35.0%		35.0%	35.0%		46.7%	46.7%		18.3%	65.0%	
Maximum Green (s)	35.6	35.6		35.6	35.6		49.7	49.7		18.0	71.7	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.7	3.7		3.0	3.7	
All-Red Time (s)	2.7	2.7		2.7	2.7		2.6	2.6		1.0	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.3	6.3		4.0	6.3	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		5.0	5.0		3.0	5.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	28.0	28.0		28.0	28.0		24.0	24.0			24.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	20.1	20.1		20.1	20.1		75.0	75.0		89.5	87.2	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.62	0.62		0.75	0.73	
v/c Ratio	0.73	0.64		0.82	0.38		0.73	0.54		0.41	0.44	
Control Delay	69.1	44.2		94.2	34.6		47.7	14.6		10.2	7.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	69.1	44.2		94.2	34.6		47.7	14.6		10.2	7.7	
LOS	E	D		F	C		D	B		B	A	
Approach Delay		50.6			51.7			17.1			7.9	
Approach LOS		D			D			B			A	
Queue Length 50th (m)	30.4	39.0		20.8	19.1		17.7	73.1		5.4	47.4	
Queue Length 95th (m)	47.8	50.1		37.3	28.1		#62.9	116.3		13.3	75.7	
Internal Link Dist (m)		363.6			786.8			2115.5			296.3	
Turn Bay Length (m)	100.0			120.0			130.0			170.0		
Base Capacity (vph)	324	1024		195	1002		165	2730		371	3161	
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	0.41	0.38		0.46	0.22		0.73	0.54		0.27	0.44	

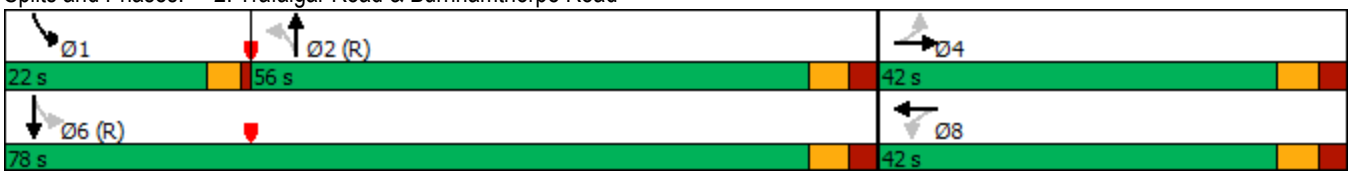
Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 125	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	

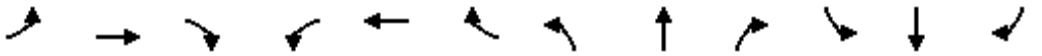
Intersection Signal Delay: 20.8	Intersection LOS: C
Intersection Capacity Utilization 73.0%	ICU Level of Service C
Analysis Period (min) 15	

* User Entered Value

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

Splits and Phases: 2: Trafalgar Road & Burnhamthorpe Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	121	241	107	81	144	58	109	1208	119	89	1206	49
Future Volume (vph)	121	241	107	81	144	58	109	1208	119	89	1206	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4		6.3	6.3		4.0	6.3	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	*0.80		1.00	*0.80	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	0.96		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)	1750	3325		1749	3259		1700	4356		1750	4348	
Flt Permitted	0.59	1.00		0.36	1.00		0.15	1.00		0.10	1.00	
Satd. Flow (perm)	1093	3325		659	3259		265	4356		182	4348	
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)	134	268	119	90	160	64	121	1342	132	99	1340	54
RTOR Reduction (vph)	0	45	0	0	42	0	0	5	0	0	2	0
Lane Group Flow (vph)	134	342	0	90	182	0	121	1469	0	99	1392	0
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	2%	2%	2%	2%	6%	2%	5%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	20.1	20.1		20.1	20.1		75.0	75.0		87.2	87.2	
Effective Green, g (s)	20.1	20.1		20.1	20.1		75.0	75.0		87.2	87.2	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.62	0.62		0.73	0.73	
Clearance Time (s)	6.4	6.4		6.4	6.4		6.3	6.3		4.0	6.3	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		5.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	183	556		110	545		165	2722		239	3159	
v/s Ratio Prot		0.10			0.06			0.34		0.03	c0.32	
v/s Ratio Perm	0.12			c0.14			c0.46			0.27		
v/c Ratio	0.73	0.62		0.82	0.33		0.73	0.54		0.41	0.44	
Uniform Delay, d1	47.4	46.4		48.2	44.0		15.6	12.7		7.8	6.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	14.0	2.0		35.7	0.4		24.9	0.8		1.2	0.4	
Delay (s)	61.4	48.4		83.9	44.4		40.4	13.5		9.0	7.0	
Level of Service	E	D		F	D		D	B		A	A	
Approach Delay (s)		51.7			55.7			15.5			7.2	
Approach LOS		D			E			B			A	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.7
Intersection Capacity Utilization	73.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1252	1	234	589	0	386
Future Volume (vph)	1252	1	234	589	0	386
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	50.0		30.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			60.0		50.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected			0.950			
Satd. Flow (prot)	3500	0	1716	3466	1842	1566
Flt Permitted			0.094			
Satd. Flow (perm)	3500	0	170	3466	1842	1566
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						236
Link Speed (k/h)	60			60	50	
Link Distance (m)	657.5			396.1	222.0	
Travel Time (s)	39.5			23.8	16.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	4%	3%	2%	2%
Adj. Flow (vph)	1361	1	254	640	0	420
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1362	0	254	640	0	420
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	10.0		2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6		2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	3	



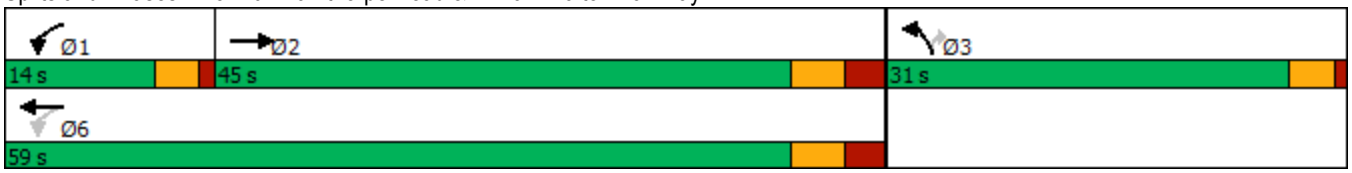
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases			6			3
Detector Phase	2		1	6	3	3
Switch Phase						
Minimum Initial (s)	10.0		7.0	10.0	7.0	7.0
Minimum Split (s)	28.4		11.5	28.4	31.0	31.0
Total Split (s)	45.0		14.0	59.0	31.0	31.0
Total Split (%)	50.0%		15.6%	65.6%	34.4%	34.4%
Maximum Green (s)	38.6		10.0	52.6	27.0	27.0
Yellow Time (s)	3.7		3.0	3.7	3.0	3.0
All-Red Time (s)	2.7		1.0	2.7	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4		4.0	6.4	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	Max		None	None	Max	Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	15.0			15.0	20.0	20.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	38.6		55.0	52.6		27.0
Actuated g/C Ratio	0.43		0.61	0.58		0.30
v/c Ratio	0.91		0.92	0.32		0.66
Control Delay	34.4		59.7	10.1		17.4
Queue Delay	0.0		0.0	0.0		0.0
Total Delay	34.4		59.7	10.1		17.4
LOS	C		E	B		B
Approach Delay	34.4			24.2	17.4	
Approach LOS	C			C	B	
Queue Length 50th (m)	112.5		27.6	27.4		26.2
Queue Length 95th (m)	#156.8		#72.0	37.1		58.6
Internal Link Dist (m)	633.5			372.1	198.0	
Turn Bay Length (m)			50.0			
Base Capacity (vph)	1501		275	2025		635
Starvation Cap Reductn	0		0	0		0
Spillback Cap Reductn	0		0	0		0
Storage Cap Reductn	0		0	0		0
Reduced v/c Ratio	0.91		0.92	0.32		0.66

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 28.3		Intersection LOS: C	
Intersection Capacity Utilization 67.2%		ICU Level of Service C	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

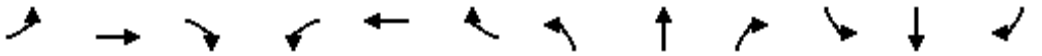
Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway



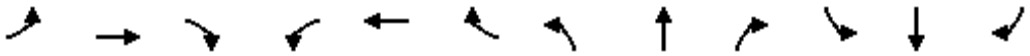


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1252	1	234	589	0	386
Future Volume (vph)	1252	1	234	589	0	386
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4		4.0	6.4		4.0
Lane Util. Factor	0.95		1.00	0.95		1.00
Frt	1.00		1.00	1.00		0.85
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	3500		1716	3466		1566
Flt Permitted	1.00		0.09	1.00		1.00
Satd. Flow (perm)	3500		170	3466		1566
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1361	1	254	640	0	420
RTOR Reduction (vph)	0	0	0	0	0	165
Lane Group Flow (vph)	1362	0	254	640	0	255
Heavy Vehicles (%)	2%	2%	4%	3%	2%	2%
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	3	
Permitted Phases			6			3
Actuated Green, G (s)	38.6		52.6	52.6		27.0
Effective Green, g (s)	38.6		52.6	52.6		27.0
Actuated g/C Ratio	0.43		0.58	0.58		0.30
Clearance Time (s)	6.4		4.0	6.4		4.0
Vehicle Extension (s)	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	1501		271	2025		469
v/s Ratio Prot	0.39		c0.10	0.18		
v/s Ratio Perm			c0.44			c0.16
v/c Ratio	0.91		0.94	0.32		0.54
Uniform Delay, d1	24.0		24.6	9.5		26.3
Progression Factor	1.00		1.00	1.00		1.00
Incremental Delay, d2	9.6		37.7	0.1		4.5
Delay (s)	33.6		62.3	9.6		30.8
Level of Service	C		E	A		C
Approach Delay (s)	33.6			24.6	30.8	
Approach LOS	C			C	C	

Intersection Summary			
HCM 2000 Control Delay	30.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.4
Intersection Capacity Utilization	67.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	356	2085	233	257	1206	247	187	789	120	297	1149	184
Future Volume (vph)	356	2085	233	257	1206	247	187	789	120	297	1149	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		85.0	165.0		85.0	120.0		50.0	50.0		65.0
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (m)	45.0			65.0			100.0			100.0		
Lane Util. Factor	0.97	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00
Ped Bike Factor	1.00		0.99			0.98	1.00		0.99	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	4421	1551	1700	4214	1536	1716	4378	1566	1716	4378	1551
Flt Permitted	0.950			0.088			0.097			0.190		
Satd. Flow (perm)	3393	4421	1529	157	4214	1512	175	4378	1543	343	4378	1523
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			146			173			114			151
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		560.5			603.0			601.7			2139.5	
Travel Time (s)		28.8			31.0			36.1			128.4	
Confl. Peds. (#/hr)	4		2	2		4	6		3	3		6
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	3%	5%	7%	4%	4%	3%	2%	4%	3%	3%
Adj. Flow (vph)	371	2172	243	268	1256	257	195	822	125	309	1197	192
Shared Lane Traffic (%)												
Lane Group Flow (vph)	371	2172	243	268	1256	257	195	822	125	309	1197	192
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



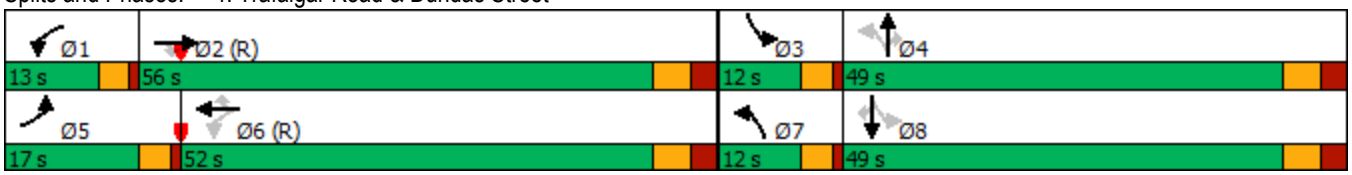
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	12.0	49.4	49.4	11.5	49.4	49.4	11.5	48.4	48.4	11.5	48.4	48.4
Total Split (s)	17.0	56.0	56.0	13.0	52.0	52.0	12.0	49.0	49.0	12.0	49.0	49.0
Total Split (%)	13.1%	43.1%	43.1%	10.0%	40.0%	40.0%	9.2%	37.7%	37.7%	9.2%	37.7%	37.7%
Maximum Green (s)	13.0	49.6	49.6	9.0	45.6	45.6	8.0	42.6	42.6	8.0	42.6	42.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		36.0	36.0		36.0	36.0		35.0	35.0		35.0	35.0
Pedestrian Calls (#/hr)		2	2		4	4		3	3		6	6
Act Effct Green (s)	14.5	49.6	49.6	58.5	45.6	45.6	51.5	41.1	41.1	51.5	41.1	41.1
Actuated g/C Ratio	0.11	0.38	0.38	0.45	0.35	0.35	0.40	0.32	0.32	0.40	0.32	0.32
v/c Ratio	0.98	1.29	0.36	1.37	0.85	0.40	1.19	0.59	0.22	1.40	0.87	0.33
Control Delay	99.1	168.9	12.8	227.3	45.7	12.4	157.6	39.3	7.8	234.0	49.3	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	99.1	168.9	12.8	227.3	45.7	12.4	157.6	39.3	7.8	234.0	49.3	10.0
LOS	F	F	B	F	D	B	F	D	A	F	D	A
Approach Delay		146.0			68.2			56.0			78.5	
Approach LOS		F			E			E			E	
Queue Length 50th (m)	~55.2	~294.6	16.3	~80.8	123.4	14.7	~43.2	72.5	1.9	~79.4	118.0	7.2
Queue Length 95th (m)	#86.2	#327.0	36.8	#135.4	145.7	36.8	#91.3	88.4	15.7	#140.9	139.1	25.1
Internal Link Dist (m)		536.5			579.0			577.7			2115.5	
Turn Bay Length (m)	110.0		85.0	165.0		85.0	120.0		50.0	50.0		65.0
Base Capacity (vph)	378	1686	673	195	1478	642	164	1434	582	220	1434	600
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.98	1.29	0.36	1.37	0.85	0.40	1.19	0.57	0.21	1.40	0.83	0.32

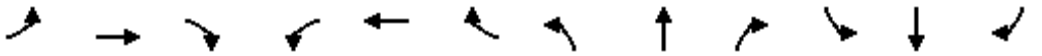
Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.40	
Intersection Signal Delay: 98.0	Intersection LOS: F

Intersection Capacity Utilization 106.7%	ICU Level of Service G
Analysis Period (min) 15	

* User Entered Value
~ 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.

Splits and Phases: 4: Trafalgar Road & Dundas Street

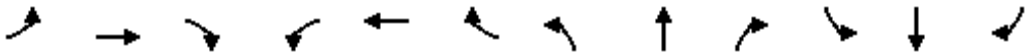




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	356	2085	233	257	1206	247	187	789	120	297	1149	184
Future Volume (vph)	356	2085	233	257	1206	247	187	789	120	297	1149	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	0.97	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	4421	1529	1700	4214	1512	1716	4378	1543	1716	4378	1523
Flt Permitted	0.95	1.00	1.00	0.09	1.00	1.00	0.10	1.00	1.00	0.19	1.00	1.00
Satd. Flow (perm)	3395	4421	1529	157	4214	1512	176	4378	1543	343	4378	1523
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	371	2172	243	268	1256	257	195	822	125	309	1197	192
RTOR Reduction (vph)	0	0	90	0	0	112	0	0	78	0	0	103
Lane Group Flow (vph)	371	2172	153	268	1256	145	195	822	47	309	1197	89
Confl. Peds. (#/hr)	4		2	2		4	6		3	3		6
Heavy Vehicles (%)	2%	2%	3%	5%	7%	4%	4%	3%	2%	4%	3%	3%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6	4		4	8		8
Actuated Green, G (s)	14.5	49.6	49.6	56.1	45.6	45.6	49.1	41.1	41.1	49.1	41.1	41.1
Effective Green, g (s)	14.5	49.6	49.6	56.1	45.6	45.6	49.1	41.1	41.1	49.1	41.1	41.1
Actuated g/C Ratio	0.11	0.38	0.38	0.43	0.35	0.35	0.38	0.32	0.32	0.38	0.32	0.32
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Lane Grp Cap (vph)	378	1686	583	192	1478	530	161	1384	487	214	1384	481
v/s Ratio Prot	0.11	c0.49		c0.11	0.30		0.07	0.19		c0.09	0.27	
v/s Ratio Perm			0.10	c0.49		0.10	0.38		0.03	c0.46		0.06
v/c Ratio	0.98	1.29	0.26	1.40	0.85	0.27	1.21	0.59	0.10	1.44	0.86	0.18
Uniform Delay, d1	57.6	40.2	27.6	36.5	39.0	30.3	33.1	37.4	31.4	36.0	41.8	32.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	41.2	134.3	1.1	206.6	6.3	1.3	138.9	0.7	0.1	224.1	6.0	0.2
Delay (s)	98.9	174.5	28.7	243.1	45.3	31.6	172.0	38.2	31.5	260.1	47.9	32.5
Level of Service	F	F	C	F	D	C	F	D	C	F	D	C
Approach Delay (s)		151.7			73.1			60.3			84.8	
Approach LOS		F			E			E			F	

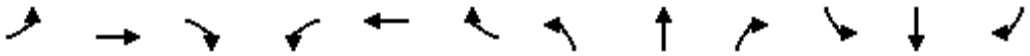
Intersection Summary			
HCM 2000 Control Delay	103.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.38		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	106.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



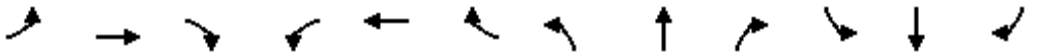
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	261	557	95	68	461	126	43	179	202	697	174	318
Future Volume (vph)	261	557	95	68	461	126	43	179	202	697	174	318
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.984			0.972			0.929			0.958	
Flt Protected		0.986			0.995			0.995			0.972	
Satd. Flow (prot)	0	3396	0	0	3385	0	0	3235	0	0	3259	0
Flt Permitted		0.986			0.995			0.995			0.972	
Satd. Flow (perm)	0	3396	0	0	3385	0	0	3235	0	0	3259	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		481.1			844.9			671.5			229.3	
Travel Time (s)		28.9			50.7			40.3			13.8	
Peak Hour Factor	0.90	0.90	0.90	0.96	0.90	0.96	0.90	0.96	0.96	0.96	0.96	0.90
Adj. Flow (vph)	290	619	106	71	512	131	48	186	210	726	181	353
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1015	0	0	714	0	0	444	0	0	1260	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 109.4%		ICU Level of Service H	
Analysis Period (min) 15			

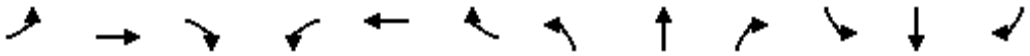


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	261	557	95	68	461	126	43	179	202	697	174	318
Future Volume (veh/h)	261	557	95	68	461	126	43	179	202	697	174	318
Peak Hour Factor	0.90	0.90	0.90	0.96	0.90	0.96	0.90	0.96	0.96	0.96	0.96	0.90
Hourly flow rate (vph)	290	619	106	71	512	131	48	186	210	726	181	353
Approach Volume (veh/h)		1015			714			444			1260	
Crossing Volume (veh/h)		978			524			1635#			631	
High Capacity (veh/h)		634			916			367			840	
High v/c (veh/h)		1.60			0.78			1.21			1.50	
Low Capacity (veh/h)		492			739			268			672	
Low v/c (veh/h)		2.06			0.97			1.66			1.87	

Intersection Summary					
Maximum v/c High	1.60				
Maximum v/c Low	2.06				
Intersection Capacity Utilization	109.4%	ICU Level of Service		H	
# Crossing flow exceeds 1200, method is not applicable					



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	123	47	113	172	19	181	528	106	73	440	10
Future Volume (vph)	58	123	47	113	172	19	181	528	106	73	440	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	30.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			15.0			50.0			50.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.958			0.985			0.975			0.997	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3353	0	1684	3359	0	1750	3390	0	1700	3456	0
Flt Permitted	0.618			0.632			0.466			0.375		
Satd. Flow (perm)	1138	3353	0	1120	3359	0	858	3390	0	671	3456	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		53			13			40			4	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		241.5			345.8			328.3			671.5	
Travel Time (s)		17.4			24.9			19.7			40.3	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	2%	6%	4%	11%	2%	2%	6%	5%	3%	2%
Adj. Flow (vph)	65	138	53	127	193	21	203	593	119	82	494	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	191	0	127	214	0	203	712	0	82	505	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	

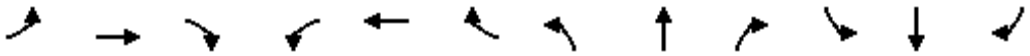


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	34.5	34.5		34.5	34.5		50.4	50.4		50.4	50.4	
Total Split (s)	35.0	35.0		35.0	35.0		55.0	55.0		55.0	55.0	
Total Split (%)	38.9%	38.9%		38.9%	38.9%		61.1%	61.1%		61.1%	61.1%	
Maximum Green (s)	28.5	28.5		28.5	28.5		48.6	48.6		48.6	48.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.2	3.2		3.2	3.2		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		19.0	19.0		19.0	19.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	14.2	14.2		14.2	14.2		48.7	48.7		48.7	48.7	
Actuated g/C Ratio	0.19	0.19		0.19	0.19		0.64	0.64		0.64	0.64	
v/c Ratio	0.31	0.28		0.61	0.33		0.37	0.32		0.19	0.23	
Control Delay	30.0	19.5		40.8	26.1		9.7	6.7		8.0	6.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	30.0	19.5		40.8	26.1		9.7	6.7		8.0	6.5	
LOS	C	B		D	C		A	A		A	A	
Approach Delay		22.2			31.6			7.4			6.7	
Approach LOS		C			C			A			A	
Queue Length 50th (m)	8.1	8.8		16.8	13.2		11.6	19.1		4.0	13.3	
Queue Length 95th (m)	18.1	16.6		32.6	21.7		29.9	35.4		12.3	25.3	
Internal Link Dist (m)		217.5			321.8			304.3			647.5	
Turn Bay Length (m)	55.0			30.0			30.0			30.0		
Base Capacity (vph)	428	1295		421	1273		551	2191		430	2220	
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	0.15		0.30	0.17		0.37	0.32		0.19	0.23	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 75.9			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 12.9		Intersection LOS: B	
Intersection Capacity Utilization 64.5%		ICU Level of Service C	
Analysis Period (min) 15			

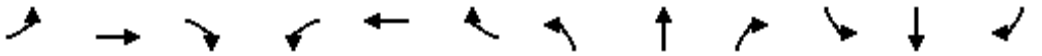
Splits and Phases: 6: Sixth Line & Burnhamthorpe Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	123	47	113	172	19	181	528	106	73	440	10
Future Volume (vph)	58	123	47	113	172	19	181	528	106	73	440	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.99		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)	1750	3354		1684	3360		1750	3390		1700	3455	
Flt Permitted	0.62	1.00		0.63	1.00		0.47	1.00		0.38	1.00	
Satd. Flow (perm)	1138	3354		1120	3360		859	3390		672	3455	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	65	138	53	127	193	21	203	593	119	82	494	11
RTOR Reduction (vph)	0	43	0	0	11	0	0	14	0	0	1	0
Lane Group Flow (vph)	65	148	0	127	203	0	203	698	0	82	504	0
Heavy Vehicles (%)	2%	2%	2%	6%	4%	11%	2%	2%	6%	5%	3%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	14.2	14.2		14.2	14.2		48.7	48.7		48.7	48.7	
Effective Green, g (s)	14.2	14.2		14.2	14.2		48.7	48.7		48.7	48.7	
Actuated g/C Ratio	0.19	0.19		0.19	0.19		0.64	0.64		0.64	0.64	
Clearance Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	213	628		209	629		551	2178		431	2219	
v/s Ratio Prot		0.04			0.06			0.21			0.15	
v/s Ratio Perm	0.06			c0.11			c0.24			0.12		
v/c Ratio	0.31	0.24		0.61	0.32		0.37	0.32		0.19	0.23	
Uniform Delay, d1	26.5	26.2		28.2	26.6		6.3	6.1		5.5	5.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.2		4.9	0.3		1.9	0.4		1.0	0.2	
Delay (s)	27.4	26.4		33.2	26.9		8.2	6.5		6.5	5.9	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		26.6			29.3			6.9			6.0	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	75.8	Sum of lost time (s)	12.9
Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



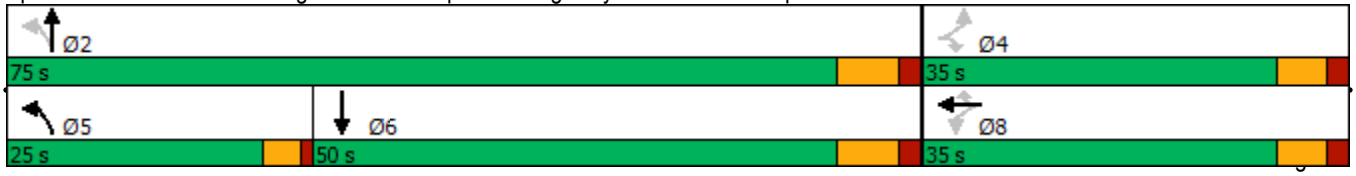
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	2	174	0	3	2	1456	0	0	1360	0
Future Volume (vph)	3	0	2	174	0	3	2	1456	0	0	1360	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		5.0	0.0		60.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		1	1		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt			0.850			0.850						
Flt Protected	0.950			0.950	0.950		0.950					
Satd. Flow (prot)	1069	0	1566	1449	1388	1487	1190	3305	0	0	4749	0
Flt Permitted	0.688			0.950	0.950		0.123					
Satd. Flow (perm)	774	0	1566	1449	1388	1487	154	3305	0	0	4749	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79			79						
Link Speed (k/h)		20			60			80			80	
Link Distance (m)		81.5			394.8			34.5			189.8	
Travel Time (s)		14.7			23.7			1.6			8.5	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	67%	2%	2%	17%	2%	2%	50%	8%	2%	2%	8%	2%
Adj. Flow (vph)	3	0	2	196	0	3	2	1636	0	0	1528	0
Shared Lane Traffic (%)				50%		10%						
Lane Group Flow (vph)	3	0	2	98	98	3	2	1636	0	0	1528	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1		1	1	2	1	1	2			2	
Detector Template	Left		Right	Left	Thru	Right	Left	Thru			Thru	
Leading Detector (m)	2.0		2.0	2.0	10.0	2.0	2.0	10.0			10.0	
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Size(m)	2.0		2.0	2.0	0.6	2.0	2.0	0.6			0.6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 2 Position(m)					9.4			9.4			9.4	
Detector 2 Size(m)					0.6			0.6			0.6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	

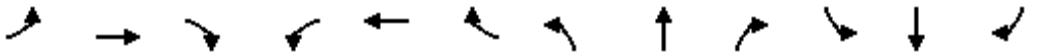
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8		8	2					
Detector Phase	4		4	8	8	8	5	2			6	
Switch Phase												
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	4.0	35.0			35.0	
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5	9.5	42.0			42.0	
Total Split (s)	35.0		35.0	35.0	35.0	35.0	25.0	75.0			50.0	
Total Split (%)	31.8%		31.8%	31.8%	31.8%	31.8%	22.7%	68.2%			45.5%	
Maximum Green (s)	29.0		29.0	29.0	29.0	29.0	21.0	68.0			43.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0	3.0	5.0			5.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0	1.0	2.0			2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Recall Mode	None		None	None	None	None	None	Min			Min	
Act Effct Green (s)	11.2		11.2	11.2	11.2	11.2	46.7	43.6			42.1	
Actuated g/C Ratio	0.16		0.16	0.16	0.16	0.16	0.69	0.64			0.62	
v/c Ratio	0.02		0.01	0.41	0.43	0.01	0.01	0.77			0.52	
Control Delay	27.0		0.0	32.4	33.2	0.0	4.0	12.2			9.0	
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	27.0		0.0	32.4	33.2	0.0	4.0	12.2			9.0	
LOS	C		A	C	C	A	A	B			A	
Approach Delay		16.2			32.3			12.2			9.0	
Approach LOS		B			C			B			A	
Queue Length 50th (m)	0.3		0.0	10.3	10.7	0.0	0.1	63.8			30.9	
Queue Length 95th (m)	2.7		0.0	30.0	31.4	0.0	0.7	110.8			71.3	
Internal Link Dist (m)		57.5			370.8			10.5			165.8	
Turn Bay Length (m)			5.0			60.0						
Base Capacity (vph)	337		727	632	605	693	432	3122			3160	
Starvation Cap Reductn	0		0	0	0	0	0	0			0	
Spillback Cap Reductn	0		0	0	0	0	0	0			0	
Storage Cap Reductn	0		0	0	0	0	0	0			0	
Reduced v/c Ratio	0.01		0.00	0.16	0.16	0.00	0.00	0.52			0.48	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 68.1
Natural Cycle: 75
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 11.9 Intersection LOS: B
Intersection Capacity Utilization 63.6% ICU Level of Service B
Analysis Period (min) 15

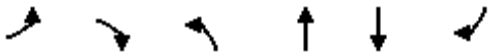
Splits and Phases: 7: Trafalgar Road & Carpool Lot/Highway 407 WB Off-Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	2	174	0	3	2	1456	0	0	1360	0
Future Volume (vph)	3	0	2	174	0	3	2	1456	0	0	1360	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	6.0	4.0	7.0			7.0	
Lane Util. Factor	1.00		1.00	0.95	0.91	0.95	1.00	0.95			0.91	
Frt	1.00		0.85	1.00	1.00	0.85	1.00	1.00			1.00	
Flt Protected	0.95		1.00	0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1069		1566	1449	1388	1487	1190	3305			4749	
Flt Permitted	0.69		1.00	0.95	0.95	1.00	0.12	1.00			1.00	
Satd. Flow (perm)	774		1566	1449	1388	1487	154	3305			4749	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	3	0	2	196	0	3	2	1636	0	0	1528	0
RTOR Reduction (vph)	0	0	2	0	0	3	0	0	0	0	0	0
Lane Group Flow (vph)	3	0	0	98	98	0	2	1636	0	0	1528	0
Heavy Vehicles (%)	67%	2%	2%	17%	2%	2%	50%	8%	2%	2%	8%	2%
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	
Permitted Phases	4		4	8		8	2					
Actuated Green, G (s)	11.2		11.2	11.2	11.2	11.2	47.0	47.0			42.1	
Effective Green, g (s)	11.2		11.2	11.2	11.2	11.2	47.0	47.0			42.1	
Actuated g/C Ratio	0.16		0.16	0.16	0.16	0.16	0.66	0.66			0.59	
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)	121		246	227	218	233	114	2181			2808	
v/s Ratio Prot							0.00	c0.49			0.32	
v/s Ratio Perm	0.00		0.00	0.07	0.07	0.00	0.01					
v/c Ratio	0.02		0.00	0.43	0.45	0.00	0.02	0.75			0.54	
Uniform Delay, d1	25.4		25.3	27.1	27.2	25.3	4.8	8.1			8.8	
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.1		0.0	1.3	1.5	0.0	0.1	1.5			0.2	
Delay (s)	25.5		25.3	28.4	28.7	25.3	4.9	9.6			9.0	
Level of Service	C		C	C	C	C	A	A			A	
Approach Delay (s)		25.4			28.5			9.6			9.0	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	10.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	71.2	Sum of lost time (s)	17.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	1474	1536	30
Future Volume (vph)	0	0	0	1474	1536	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.95	1.00
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	4749	3275	1536
Flt Permitted						
Satd. Flow (perm)	0	0	0	4749	3275	1536
Link Speed (k/h)	60			80	80	
Link Distance (m)	161.4			55.2	34.5	
Travel Time (s)	9.7			2.5	1.6	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	2%	8%	9%	4%
Adj. Flow (vph)	0	0	0	1656	1726	34
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1656	1726	34
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

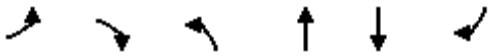
Intersection Sign configuration not allowed in HCM analysis.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	1474	38	0	1536
Future Volume (vph)	0	0	1474	38	0	1536
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt				0.850		
Flt Protected						
Satd. Flow (prot)	0	0	3305	1229	0	3275
Flt Permitted						
Satd. Flow (perm)	0	0	3305	1229	0	3275
Link Speed (k/h)	30		80			80
Link Distance (m)	192.3		37.4			100.8
Travel Time (s)	23.1		1.7			4.5
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	8%	30%	2%	9%
Adj. Flow (vph)	0	0	1656	43	0	1726
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	1656	43	0	1726
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Free		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection Sign configuration not allowed in HCM analysis.

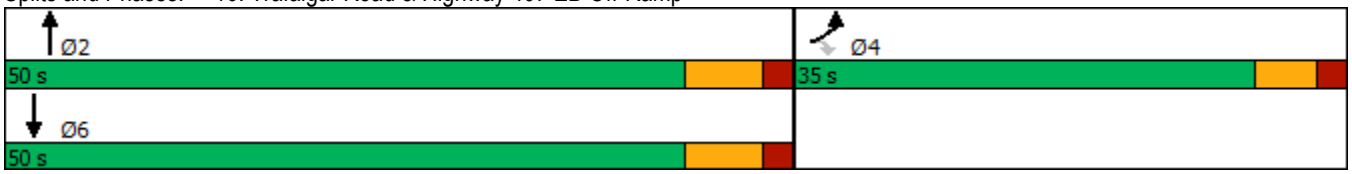


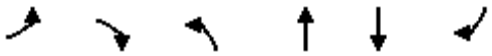
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	52	141	0	1456	1387	0
Future Volume (vph)	52	141	0	1456	1387	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1716	1401	0	3275	3305	0
Flt Permitted	0.950					
Satd. Flow (perm)	1716	1401	0	3275	3305	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		18				
Link Speed (k/h)	60			80	80	
Link Distance (m)	417.0			117.5	129.7	
Travel Time (s)	25.0			5.3	5.8	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	14%	2%	9%	8%	2%
Adj. Flow (vph)	57	155	0	1600	1524	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	57	155	0	1600	1524	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (m)	2.0	2.0		10.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	2.0		0.6	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Initial (s)	6.0	6.0		20.0	20.0	
Minimum Split (s)	24.0	24.0		27.0	27.0	
Total Split (s)	35.0	35.0		50.0	50.0	
Total Split (%)	41.2%	41.2%		58.8%	58.8%	
Maximum Green (s)	29.0	29.0		43.0	43.0	
Yellow Time (s)	4.0	4.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		7.0	7.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		Max	Max	
Act Effct Green (s)	11.9	11.9		43.1	43.1	
Actuated g/C Ratio	0.17	0.17		0.63	0.63	
v/c Ratio	0.19	0.60		0.77	0.73	
Control Delay	24.8	32.4		13.2	11.9	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	24.8	32.4		13.2	11.9	
LOS	C	C		B	B	
Approach Delay	30.4			13.2	11.9	
Approach LOS	C			B	B	
Queue Length 50th (m)	6.2	16.0		65.6	59.5	
Queue Length 95th (m)	14.9	32.4		117.9	105.8	
Internal Link Dist (m)	393.0			93.5	105.7	
Turn Bay Length (m)						
Base Capacity (vph)	732	608		2074	2093	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.08	0.25		0.77	0.73	

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 68.1			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 13.7		Intersection LOS: B	
Intersection Capacity Utilization 57.9%		ICU Level of Service B	
Analysis Period (min) 15			

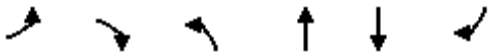
Splits and Phases: 10: Trafalgar Road & Highway 407 EB Off-Ramp





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	52	141	0	1456	1387	0
Future Volume (vph)	52	141	0	1456	1387	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1716	1401		3275	3305	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1716	1401		3275	3305	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	57	155	0	1600	1524	0
RTOR Reduction (vph)	0	15	0	0	0	0
Lane Group Flow (vph)	57	140	0	1600	1524	0
Heavy Vehicles (%)	4%	14%	2%	9%	8%	2%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	11.9	11.9		43.1	43.1	
Effective Green, g (s)	11.9	11.9		43.1	43.1	
Actuated g/C Ratio	0.18	0.18		0.63	0.63	
Clearance Time (s)	6.0	6.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	300	245		2075	2094	
v/s Ratio Prot	0.03			c0.49	0.46	
v/s Ratio Perm		c0.10				
v/c Ratio	0.19	0.57		0.77	0.73	
Uniform Delay, d1	23.9	25.7		8.9	8.5	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	3.2		2.8	2.3	
Delay (s)	24.2	28.9		11.8	10.7	
Level of Service	C	C		B	B	
Approach Delay (s)	27.7			11.8	10.7	
Approach LOS	C			B	B	

Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	68.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	57.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	1508	1387	26
Future Volume (vph)	0	0	0	1508	1387	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	3275	3305	1465
Flt Permitted						
Satd. Flow (perm)	0	0	0	3275	3305	1465
Link Speed (k/h)	30			80	80	
Link Distance (m)	110.1			129.7	37.4	
Travel Time (s)	13.2			5.8	1.7	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	2%	2%	2%	9%	8%	9%
Adj. Flow (vph)	0	0	0	1657	1524	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	1657	1524	29
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 57.9%		ICU Level of Service B	
Analysis Period (min) 15			

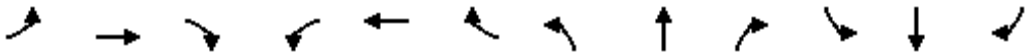
Intersection Sign configuration not allowed in HCM analysis.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	1456	230	0	1528
Future Volume (vph)	0	0	1456	230	0	1528
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.91
Frt				0.850		
Flt Protected						
Satd. Flow (prot)	0	0	3275	1521	0	4749
Flt Permitted						
Satd. Flow (perm)	0	0	3275	1521	0	4749
Link Speed (k/h)	50		80			80
Link Distance (m)	247.7		145.5			117.5
Travel Time (s)	17.8		6.5			5.3
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	2%	2%	9%	5%	2%	8%
Adj. Flow (vph)	0	0	1600	253	0	1679
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	1600	253	0	1679
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Free		Free			Free

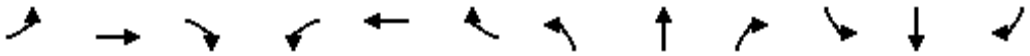
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 43.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection Sign configuration not allowed in HCM analysis.



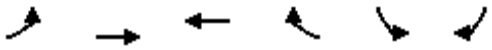
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	1111	336	106	670	95	129	349	99	199	628	81
Future Volume (vph)	96	1111	336	106	670	95	129	349	99	199	628	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.967			0.984			0.974			0.987	
Flt Protected		0.997			0.994			0.989			0.989	
Satd. Flow (prot)	0	3300	0	0	3390	0	0	3218	0	0	3416	0
Flt Permitted		0.997			0.994			0.989			0.989	
Satd. Flow (perm)	0	3300	0	0	3390	0	0	3218	0	0	3416	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		234.8			101.3			357.8			260.8	
Travel Time (s)		14.1			6.1			21.5			15.6	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	4%	2%	12%	2%	3%	4%	23%	2%	3%	2%	2%	2%
Adj. Flow (vph)	108	1248	378	119	753	107	145	392	111	224	706	91
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1734	0	0	979	0	0	648	0	0	1021	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 124.5%		ICU Level of Service H	
Analysis Period (min) 15			



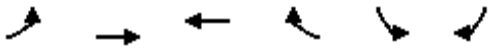
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	96	1111	336	106	670	95	129	349	99	199	628	81
Future Volume (veh/h)	96	1111	336	106	670	95	129	349	99	199	628	81
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	108	1248	378	119	753	107	145	392	111	224	706	91
Approach Volume (veh/h)		1734			979			648			1021	
Crossing Volume (veh/h)		1049			645			1580#			1017	
High Capacity (veh/h)		598			831			384			614	
High v/c (veh/h)		2.90			1.18			1.69			1.66	
Low Capacity (veh/h)		462			664			282			475	
Low v/c (veh/h)		3.76			1.47			2.30			2.15	

Intersection Summary				
Maximum v/c High	2.90			
Maximum v/c Low	3.76			
Intersection Capacity Utilization	124.5%	ICU Level of Service	H	
# Crossing flow exceeds 1200, method is not applicable				



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Volume (vph)	0	1711	667	6	0	241
Future Volume (vph)	0	1711	667	6	0	241
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0			30.0	0.0	0.0
Storage Lanes	0			1	0	1
Taper Length (m)	15.0				15.0	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor						
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	3500	3500	1566	0	1593
Flt Permitted						
Satd. Flow (perm)	0	3500	3500	1566	0	1593
Link Speed (k/h)		60	60		50	
Link Distance (m)		228.3	173.6		144.7	
Travel Time (s)		13.7	10.4		10.4	
Confl. Peds. (#/hr)	5			5	5	5
Confl. Bikes (#/hr)				5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1901	741	7	0	268
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1901	741	7	0	268
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

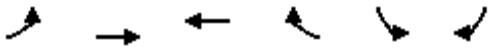
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.8%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Volume (veh/h)	0	1711	667	6	0	241
Future Volume (Veh/h)	0	1711	667	6	0	241
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1901	741	7	0	268
Pedestrians		5	5		5	
Lane Width (m)		3.5	3.5		3.5	
Walking Speed (m/s)		1.0	1.0		1.0	
Percent Blockage		0	0		0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		228				
pX, platoon unblocked					0.70	
vC, conflicting volume	753				1702	380
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	753				1156	380
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	56
cM capacity (veh/h)	849				132	611

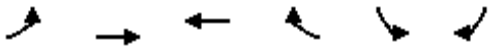
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	950	950	370	370	7	268
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	7	268
cSH	1700	1700	1700	1700	1700	611
Volume to Capacity	0.56	0.56	0.22	0.22	0.00	0.44
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	16.9
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	15.4
Lane LOS						C
Approach Delay (s)	0.0		0.0			15.4
Approach LOS						C

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	58.8%	ICU Level of Service	B
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	482	1229	548	14	49	125
Future Volume (vph)	482	1229	548	14	49	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0			0.0	30.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	15.0				15.0	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.996			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1750	3500	3486	0	1750	1566
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1750	3500	3486	0	1750	1566
Link Speed (k/h)		60	60		50	
Link Distance (m)		173.6	1244.3		120.8	
Travel Time (s)		10.4	74.7		8.7	
Confl. Peds. (#/hr)	5			5	5	5
Confl. Bikes (#/hr)				5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	536	1366	609	16	54	139
Shared Lane Traffic (%)						
Lane Group Flow (vph)	536	1366	625	0	54	139
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		3.5	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 57.2%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	482	1229	548	14	49	125
Future Volume (Veh/h)	482	1229	548	14	49	125
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	536	1366	609	16	54	139
Pedestrians		5	5		5	
Lane Width (m)		3.5	3.5		3.5	
Walking Speed (m/s)		1.0	1.0		1.0	
Percent Blockage		0	0		0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		402				
pX, platoon unblocked					0.76	
vC, conflicting volume	630				2382	322
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	630				2190	322
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	43				0	79
cM capacity (veh/h)	944				13	667

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	536	683	683	406	219	54	139
Volume Left	536	0	0	0	0	54	0
Volume Right	0	0	0	0	16	0	139
cSH	944	1700	1700	1700	1700	13	667
Volume to Capacity	0.57	0.40	0.40	0.24	0.13	4.28	0.21
Queue Length 95th (m)	28.0	0.0	0.0	0.0	0.0	Err	5.9
Control Delay (s)	13.7	0.0	0.0	0.0	0.0	Err	11.8
Lane LOS	B					F	B
Approach Delay (s)	3.9			0.0		2806.2	
Approach LOS						F	

Intersection Summary			
Average Delay	201.8		
Intersection Capacity Utilization	57.2%	ICU Level of Service	B
Analysis Period (min)	15		

MOVEMENT SUMMARY

Site: [101] Sixth Line & William Halton Parkway (General)

Output produced by SIDRA INTERSECTION Version: 10.0.8.241

2031 Future Background AM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Sixth Line															
1	L2	All MCs	48	2.0	48	2.0	0.703	37.0	LOS E	2.9	20.9	0.89	1.06	1.58	35.9
2	T1	All MCs	199	2.0	199	2.0	0.703	36.7	LOS E	2.9	20.9	0.89	1.06	1.57	36.4
3	R2	All MCs	224	2.0	224	2.0	0.703	34.5	LOS D	2.9	20.9	0.88	1.05	1.57	36.9
Approach			471	2.0	471	2.0	0.703	35.7	LOS E	2.9	20.9	0.88	1.05	1.57	36.6
East: William Halton Parkway															
4	L2	All MCs	76	2.0	76	2.0	0.486	11.8	LOS B	2.5	18.0	0.56	0.59	0.85	47.0
5	T1	All MCs	512	2.0	512	2.0	0.486	11.6	LOS B	2.5	18.0	0.55	0.58	0.84	48.1
6	R2	All MCs	140	2.0	140	2.0	0.486	11.5	LOS B	2.5	17.5	0.54	0.57	0.83	48.2
Approach			728	2.0	728	2.0	0.486	11.6	LOS B	2.5	18.0	0.55	0.58	0.84	48.0
North: Sixth Line															
7	L2	All MCs	774	2.0	774	2.0	1.096	84.0	LOS F	38.6	274.7	1.00	2.71	6.23	24.8
8	T1	All MCs	193	2.0	193	2.0	0.799	26.3	LOS D	8.6	61.2	0.82	1.12	1.94	40.6
9	R2	All MCs	353	2.0	353	2.0	0.799	26.3	LOS D	8.6	61.2	0.82	1.12	1.94	40.3
Approach			1321	2.0	1321	2.0	1.096	60.1	LOS F	38.6	274.7	0.92	2.05	4.45	29.3
West: William Halton Parkway															
10	L2	All MCs	290	2.0	290	2.0	0.938	52.0	LOS F	11.1	78.8	0.95	1.54	3.03	31.1
11	T1	All MCs	619	2.0	619	2.0	0.938	51.0	LOS F	11.3	80.1	0.94	1.54	3.05	32.1
12	R2	All MCs	106	2.0	106	2.0	0.938	50.5	LOS F	11.3	80.1	0.94	1.54	3.05	32.3
Approach			1014	2.0	1014	2.0	0.938	51.2	LOS F	11.3	80.1	0.94	1.54	3.04	31.8
All Vehicles			3534	2.0	3534	2.0	1.096	44.3	LOS E	38.6	274.7	0.85	1.47	2.92	33.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [101] Ninth Line & William Halton Parkway (General)

Output produced by SIDRA INTERSECTION Version: 10.0.8.241

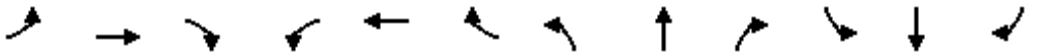
Future Background 2031 AM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

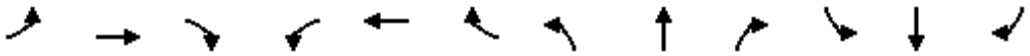
Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Ninth Line															
1	L2	All MCs	145	23.0	145	23.0	0.623	24.1	LOS C	2.8	22.0	0.74	0.90	1.28	40.8
2	T1	All MCs	392	2.0	392	2.0	0.623	19.7	LOS C	3.1	22.4	0.73	0.88	1.26	43.0
3	R2	All MCs	111	3.0	111	3.0	0.623	24.9	LOS C	3.1	22.4	0.72	0.87	1.25	43.7
Approach			648	6.9	648	6.9	0.623	21.5	LOS C	3.1	22.4	0.73	0.88	1.26	42.6
East: William Halton Parkway															
4	L2	All MCs	119	2.0	119	2.0	0.693	19.1	LOS C	5.6	40.0	0.72	0.89	1.43	42.9
5	T1	All MCs	753	3.0	753	3.0	0.693	19.0	LOS C	5.6	40.0	0.71	0.88	1.42	43.9
6	R2	All MCs	107	4.0	107	4.0	0.693	18.9	LOS C	5.5	39.6	0.70	0.87	1.41	44.0
Approach			979	3.0	979	3.0	0.693	19.0	LOS C	5.6	40.0	0.71	0.88	1.42	43.8
North: Ninth Line															
7	L2	All MCs	224	2.0	224	2.0	0.986	63.9	LOS F	14.3	101.7	0.99	1.80	3.88	28.4
8	T1	All MCs	706	2.0	706	2.0	0.986	62.8	LOS F	14.6	104.3	0.99	1.81	3.92	29.1
9	R2	All MCs	91	2.0	91	2.0	0.986	62.2	LOS F	14.6	104.3	0.99	1.82	3.95	29.3
Approach			1020	2.0	1020	2.0	0.986	63.0	LOS F	14.6	104.3	0.99	1.81	3.92	29.0
West: William Halton Parkway															
10	L2	All MCs	108	4.0	108	4.0	2.022	483.6	LOS F	172.2	1228.3	1.00	7.08	22.83	12.9
11	T1	All MCs	1248	2.0	1248	2.0	2.022	424.7	LOS F	172.2	1228.3	1.00	6.51	20.70	13.8
12	R2	All MCs	378	12.0	378	12.0	1.439	232.2	LOS F	69.8	520.3	1.00	4.64	13.80	17.0
Approach			1734	4.3	1734	4.3	2.022	386.4	LOS F	172.2	1228.3	1.00	6.14	19.33	14.3
All Vehicles			4381	3.9	4381	3.9	2.022	175.0	LOS F	172.2	1228.3	0.89	3.18	9.06	22.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
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Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	169	540	91	253	895	849	137	1285	207	468	1052	268
Future Volume (vph)	169	540	91	253	895	849	137	1285	207	468	1052	268
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	190.0		60.0	160.0		150.0	60.0		55.0	45.0		55.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	15.0			50.0			100.0			90.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00
Ped Bike Factor							1.00					0.99
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3500	1566	1716	3500	1566	1750	4421	1536	1684	4421	1566
Flt Permitted	0.131			0.259			0.134			0.086		
Satd. Flow (perm)	241	3500	1566	468	3500	1566	247	4421	1536	152	4421	1545
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			151			316			151			203
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		207.8			228.3			142.6			224.9	
Travel Time (s)		12.5			13.7			8.6			13.5	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	4%	2%	2%	2%	2%	4%	6%	2%	2%
Adj. Flow (vph)	182	581	98	272	962	913	147	1382	223	503	1131	288
Shared Lane Traffic (%)												
Lane Group Flow (vph)	182	581	98	272	962	913	147	1382	223	503	1131	288
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



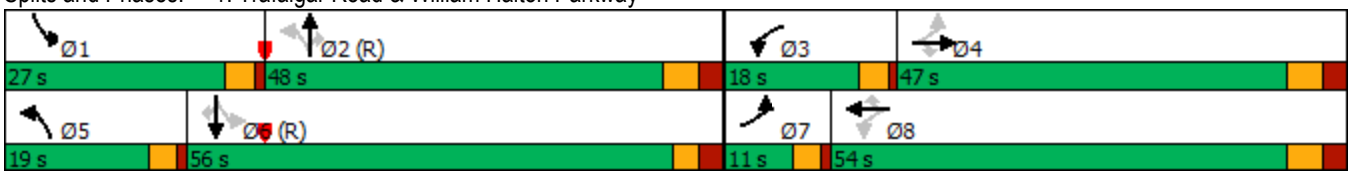
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	45.4	45.4	11.0	45.4	45.4	11.0	43.4	43.4	11.0	42.9	42.9
Total Split (s)	11.0	47.0	47.0	18.0	54.0	54.0	19.0	48.0	48.0	27.0	56.0	56.0
Total Split (%)	7.9%	33.6%	33.6%	12.9%	38.6%	38.6%	13.6%	34.3%	34.3%	19.3%	40.0%	40.0%
Maximum Green (s)	7.0	40.6	40.6	14.0	47.6	47.6	15.0	41.6	41.6	23.0	50.6	50.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	2.7	2.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	5.4	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		32.0	32.0		32.0	32.0		30.0	30.0		30.0	30.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	50.0	40.6	40.6	61.0	47.6	47.6	55.9	41.6	41.6	71.0	53.7	53.7
Actuated g/C Ratio	0.36	0.29	0.29	0.44	0.34	0.34	0.40	0.30	0.30	0.51	0.38	0.38
v/c Ratio	1.13	0.57	0.17	0.83	0.81	1.23	0.65	1.05	0.40	1.53	0.67	0.40
Control Delay	140.6	45.0	1.5	50.0	48.5	142.7	36.3	87.0	15.2	286.4	38.5	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	140.6	45.0	1.5	50.0	48.5	142.7	36.3	87.0	15.2	286.4	38.5	11.4
LOS	F	D	A	D	D	F	D	F	B	F	D	B
Approach Delay		60.2			88.7			73.6			99.3	
Approach LOS		E			F			E			F	
Queue Length 50th (m)	~36.2	72.2	0.0	49.9	127.4	~251.4	21.4	~173.5	14.7	~180.6	107.2	15.3
Queue Length 95th (m)	#85.4	91.4	2.4	#86.6	153.7	#330.7	37.6	#207.3	37.3	#249.3	130.8	39.8
Internal Link Dist (m)		183.8			204.3			118.6			200.9	
Turn Bay Length (m)	190.0		60.0	160.0		150.0	60.0		55.0	45.0		55.0
Base Capacity (vph)	161	1015	561	328	1190	741	265	1313	562	328	1695	717
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.13	0.57	0.17	0.83	0.81	1.23	0.55	1.05	0.40	1.53	0.67	0.40

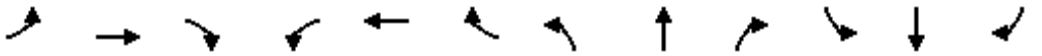
Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.53	
Intersection Signal Delay: 84.1	Intersection LOS: F

Intersection Capacity Utilization 102.2%	ICU Level of Service G
Analysis Period (min) 15	

* User Entered Value
~ 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.

Splits and Phases: 1: Trafalgar Road & William Halton Parkway

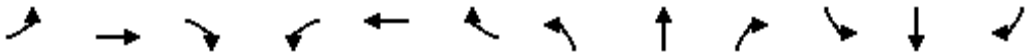




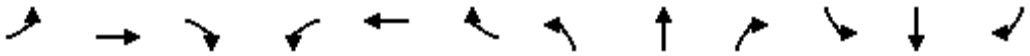
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	169	540	91	253	895	849	137	1285	207	468	1052	268
Future Volume (vph)	169	540	91	253	895	849	137	1285	207	468	1052	268
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	5.4	5.4
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1750	3500	1566	1716	3500	1566	1750	4421	1536	1684	4421	1545
Flt Permitted	0.13	1.00	1.00	0.26	1.00	1.00	0.13	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	241	3500	1566	468	3500	1566	247	4421	1536	152	4421	1545
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)	182	581	98	272	962	913	147	1382	223	503	1131	288
RTOR Reduction (vph)	0	0	70	0	0	209	0	0	106	0	0	125
Lane Group Flow (vph)	182	581	28	272	962	704	147	1382	117	503	1131	163
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	2%	2%	2%	4%	2%	2%	2%	2%	4%	6%	2%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	47.6	40.6	40.6	58.6	47.6	47.6	53.5	41.6	41.6	69.6	53.7	53.7
Effective Green, g (s)	47.6	40.6	40.6	58.6	47.6	47.6	53.5	41.6	41.6	69.6	53.7	53.7
Actuated g/C Ratio	0.34	0.29	0.29	0.42	0.34	0.34	0.38	0.30	0.30	0.50	0.38	0.38
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	5.4	5.4
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	157	1015	454	320	1190	532	222	1313	456	327	1695	592
v/s Ratio Prot	c0.06	0.17		0.08	0.27		0.06	0.31		c0.25	0.26	
v/s Ratio Perm	0.34		0.02	0.27		c0.45	0.20		0.08	c0.51		0.11
v/c Ratio	1.16	0.57	0.06	0.85	0.81	1.32	0.66	1.05	0.26	1.54	0.67	0.28
Uniform Delay, d1	41.5	42.3	35.9	31.3	42.0	46.2	30.3	49.2	37.4	45.5	35.7	29.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	121.1	1.3	0.1	18.6	4.7	158.6	7.2	39.9	1.4	257.0	2.1	1.1
Delay (s)	162.5	43.6	36.1	49.9	46.8	204.8	37.6	89.1	38.8	302.5	37.8	30.9
Level of Service	F	D	D	D	D	F	D	F	D	F	D	C
Approach Delay (s)		67.9			114.4			78.4			106.1	
Approach LOS		E			F			E			F	

Intersection Summary			
HCM 2000 Control Delay	96.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.48		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	102.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	179	73	85	212	39	102	1483	102	52	1185	108
Future Volume (vph)	75	179	73	85	212	39	102	1483	102	52	1185	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	120.0		0.0	130.0		0.0	170.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	*0.80	0.91	1.00	*0.80	0.91
Frt		0.956			0.977			0.990			0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1668	3346	0	1750	3419	0	1750	4371	0	1750	4319	0
Flt Permitted	0.502			0.501			0.154			0.079		
Satd. Flow (perm)	881	3346	0	923	3419	0	284	4371	0	146	4319	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		53			18			11			19	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		468.0			810.8			2139.5			320.3	
Travel Time (s)		33.7			58.4			128.4			19.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Adj. Flow (vph)	79	188	77	89	223	41	107	1561	107	55	1247	114
Shared Lane Traffic (%)												
Lane Group Flow (vph)	79	265	0	89	264	0	107	1668	0	55	1361	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.02	1.01	1.01	1.02	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		7.0	10.0	
Minimum Split (s)	41.4	41.4		41.4	41.4		37.3	37.3		11.0	37.3	
Total Split (s)	42.0	42.0		42.0	42.0		67.0	67.0		11.0	78.0	
Total Split (%)	35.0%	35.0%		35.0%	35.0%		55.8%	55.8%		9.2%	65.0%	
Maximum Green (s)	35.6	35.6		35.6	35.6		60.7	60.7		7.0	71.7	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.7	3.7		3.0	3.7	
All-Red Time (s)	2.7	2.7		2.7	2.7		2.6	2.6		1.0	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.3	6.3		4.0	6.3	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		5.0	5.0		3.0	5.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	28.0	28.0		28.0	28.0		24.0	24.0			24.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	15.8	15.8		15.8	15.8		82.5	82.5		93.8	91.5	
Actuated g/C Ratio	0.13	0.13		0.13	0.13		0.69	0.69		0.78	0.76	
v/c Ratio	0.68	0.54		0.74	0.57		0.55	0.55		0.26	0.41	
Control Delay	76.5	42.1		81.3	49.4		26.2	11.4		6.8	5.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	76.5	42.1		81.3	49.4		26.2	11.4		6.8	5.7	
LOS	E	D		F	D		C	B		A	A	
Approach Delay		50.0			57.5			12.3			5.8	
Approach LOS		D			E			B			A	
Queue Length 50th (m)	18.1	24.8		20.5	29.0		12.0	77.9		2.4	38.0	
Queue Length 95th (m)	32.9	35.8		36.4	39.6		#46.1	114.2		6.8	60.4	
Internal Link Dist (m)		444.0			786.8			2115.5			296.3	
Turn Bay Length (m)	100.0			120.0			130.0			170.0		
Base Capacity (vph)	261	1029		273	1026		195	3008		209	3296	
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	0.26		0.33	0.26		0.55	0.55		0.26	0.41	

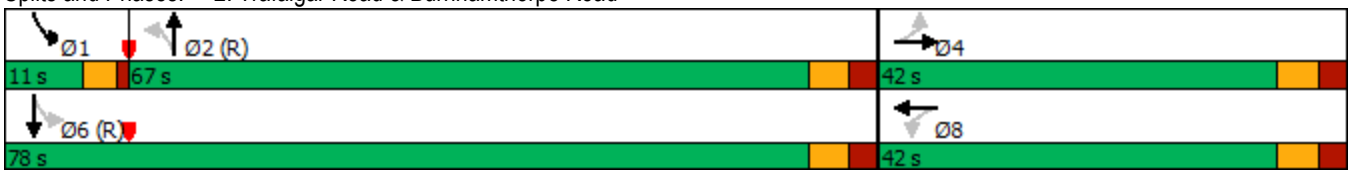
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 17.4		Intersection LOS: B	
Intersection Capacity Utilization 72.7%		ICU Level of Service C	

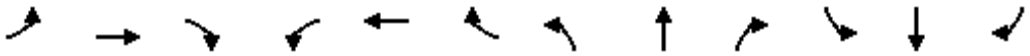
Analysis Period (min) 15

* User Entered Value

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

Splits and Phases: 2: Trafalgar Road & Burnhamthorpe Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	179	73	85	212	39	102	1483	102	52	1185	108
Future Volume (vph)	75	179	73	85	212	39	102	1483	102	52	1185	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4		6.3	6.3		4.0	6.3	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	*0.80		1.00	*0.80	
Frt	1.00	0.96		1.00	0.98		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)	1668	3347		1750	3418		1750	4373		1750	4321	
Flt Permitted	0.50	1.00		0.50	1.00		0.15	1.00		0.08	1.00	
Satd. Flow (perm)	882	3347		922	3418		284	4373		145	4321	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	79	188	77	89	223	41	107	1561	107	55	1247	114
RTOR Reduction (vph)	0	46	0	0	16	0	0	4	0	0	5	0
Lane Group Flow (vph)	79	219	0	89	248	0	107	1664	0	55	1356	0
Heavy Vehicles (%)	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	15.8	15.8		15.8	15.8		81.7	81.7		91.5	91.5	
Effective Green, g (s)	15.8	15.8		15.8	15.8		81.7	81.7		91.5	91.5	
Actuated g/C Ratio	0.13	0.13		0.13	0.13		0.68	0.68		0.76	0.76	
Clearance Time (s)	6.4	6.4		6.4	6.4		6.3	6.3		4.0	6.3	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		5.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	116	440		121	450		193	2977		188	3294	
v/s Ratio Prot		0.07			0.07			c0.38		0.01	c0.31	
v/s Ratio Perm	0.09			c0.10			0.38			0.21		
v/c Ratio	0.68	0.50		0.74	0.55		0.55	0.56		0.29	0.41	
Uniform Delay, d1	49.7	48.4		50.1	48.8		9.8	9.9		6.2	4.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	15.2	0.9		20.5	1.5		11.0	0.8		0.9	0.4	
Delay (s)	64.9	49.3		70.6	50.3		20.8	10.6		7.1	5.3	
Level of Service	E	D		E	D		C	B		A	A	
Approach Delay (s)		52.9			55.4			11.2			5.4	
Approach LOS		D			E			B			A	

Intersection Summary			
HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.7
Intersection Capacity Utilization	72.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



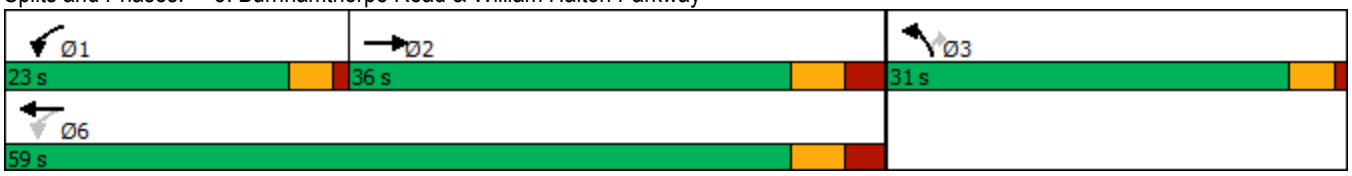
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	757	1	302	1447	0	324
Future Volume (vph)	757	1	302	1447	0	324
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	50.0		30.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			60.0		50.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected			0.950			
Satd. Flow (prot)	3433	0	1750	3500	1842	1566
Flt Permitted			0.205			
Satd. Flow (perm)	3433	0	378	3500	1842	1566
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						453
Link Speed (k/h)	60			60	50	
Link Distance (m)	657.5			390.6	221.9	
Travel Time (s)	39.5			23.4	16.0	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%
Adj. Flow (vph)	789	1	315	1507	0	338
Shared Lane Traffic (%)						
Lane Group Flow (vph)	790	0	315	1507	0	338
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	10.0		2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6		2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	3	



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases			6			3
Detector Phase	2		1	6	3	3
Switch Phase						
Minimum Initial (s)	10.0		7.0	10.0	7.0	7.0
Minimum Split (s)	28.4		11.5	28.4	31.0	31.0
Total Split (s)	36.0		23.0	59.0	31.0	31.0
Total Split (%)	40.0%		25.6%	65.6%	34.4%	34.4%
Maximum Green (s)	29.6		19.0	52.6	27.0	27.0
Yellow Time (s)	3.7		3.0	3.7	3.0	3.0
All-Red Time (s)	2.7		1.0	2.7	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4		4.0	6.4	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	Max		None	None	Max	Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	15.0			15.0	20.0	20.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	29.7		49.6	47.2		27.0
Actuated g/C Ratio	0.35		0.59	0.56		0.32
v/c Ratio	0.66		0.71	0.77		0.42
Control Delay	26.9		19.8	17.8		2.1
Queue Delay	0.0		0.0	0.0		0.0
Total Delay	26.9		19.8	17.8		2.1
LOS	C		B	B		A
Approach Delay	26.9			18.1	2.1	
Approach LOS	C			B	A	
Queue Length 50th (m)	55.2		23.5	92.3		0.0
Queue Length 95th (m)	82.3		44.5	118.0		2.8
Internal Link Dist (m)	633.5			366.6	197.9	
Turn Bay Length (m)			50.0			
Base Capacity (vph)	1202		529	2177		808
Starvation Cap Reductn	0		0	0		0
Spillback Cap Reductn	0		0	0		0
Storage Cap Reductn	0		0	0		0
Reduced v/c Ratio	0.66		0.60	0.69		0.42

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 84.7			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 18.7		Intersection LOS: B	
Intersection Capacity Utilization 49.7%		ICU Level of Service A	
Analysis Period (min) 15			

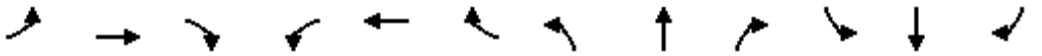
Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway



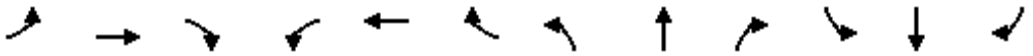


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	757	1	302	1447	0	324
Future Volume (vph)	757	1	302	1447	0	324
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4		4.0	6.4		4.0
Lane Util. Factor	0.95		1.00	0.95		1.00
Frt	1.00		1.00	1.00		0.85
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	3432		1750	3500		1566
Flt Permitted	1.00		0.20	1.00		1.00
Satd. Flow (perm)	3432		377	3500		1566
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	789	1	315	1507	0	338
RTOR Reduction (vph)	0	0	0	0	0	230
Lane Group Flow (vph)	790	0	315	1507	0	108
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	3	
Permitted Phases			6			3
Actuated Green, G (s)	29.6		47.2	47.2		27.0
Effective Green, g (s)	29.6		47.2	47.2		27.0
Actuated g/C Ratio	0.35		0.56	0.56		0.32
Clearance Time (s)	6.4		4.0	6.4		4.0
Vehicle Extension (s)	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	1200		431	1952		499
v/s Ratio Prot	0.23		0.12	c0.43		
v/s Ratio Perm			0.29			c0.07
v/c Ratio	0.66		0.73	0.77		0.22
Uniform Delay, d1	23.2		12.4	14.5		21.1
Progression Factor	1.00		1.00	1.00		1.00
Incremental Delay, d2	2.8		6.3	2.0		1.0
Delay (s)	26.1		18.6	16.5		22.1
Level of Service	C		B	B		C
Approach Delay (s)	26.1			16.9	22.1	
Approach LOS	C			B	C	

Intersection Summary			
HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	84.6	Sum of lost time (s)	14.4
Intersection Capacity Utilization	49.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	320	1647	188	286	1770	277	308	1193	223	274	834	243
Future Volume (vph)	320	1647	188	286	1770	277	308	1193	223	274	834	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		85.0	165.0		85.0	120.0		50.0	50.0		65.0
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (m)	45.0			65.0			100.0			100.0		
Lane Util. Factor	0.97	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00
Ped Bike Factor	1.00		0.97			0.98	1.00		0.98	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	4378	1566	1750	4421	1566	1750	4421	1566	1733	4421	1566
Flt Permitted	0.950			0.084			0.178			0.095		
Satd. Flow (perm)	3394	4378	1526	155	4421	1540	327	4421	1541	173	4421	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			146			164			140			170
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		592.0			816.3			644.9			2139.5	
Travel Time (s)		30.4			42.0			38.7			128.4	
Confl. Peds. (#/hr)	5		15	15		5	6		4	4		6
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%
Adj. Flow (vph)	330	1698	194	295	1825	286	318	1230	230	282	860	251
Shared Lane Traffic (%)												
Lane Group Flow (vph)	330	1698	194	295	1825	286	318	1230	230	282	860	251
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	12.0	49.4	49.4	12.0	49.4	49.4	11.0	48.4	48.4	11.0	48.4	48.4
Total Split (s)	14.0	54.0	54.0	14.0	54.0	54.0	13.0	49.0	49.0	13.0	49.0	49.0
Total Split (%)	10.8%	41.5%	41.5%	10.8%	41.5%	41.5%	10.0%	37.7%	37.7%	10.0%	37.7%	37.7%
Maximum Green (s)	10.0	47.6	47.6	10.0	47.6	47.6	9.0	42.6	42.6	9.0	42.6	42.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		36.0	36.0		36.0	36.0		35.0	35.0		35.0	35.0
Pedestrian Calls (#/hr)		15	15		5	5		4	4		6	6
Act Effct Green (s)	10.3	47.6	47.6	60.3	47.6	47.6	53.7	42.3	42.3	53.7	42.3	42.3
Actuated g/C Ratio	0.08	0.37	0.37	0.46	0.37	0.37	0.41	0.33	0.33	0.41	0.33	0.33
v/c Ratio	1.23	1.06	0.30	1.49	1.13	0.43	1.36	0.85	0.39	1.58	0.60	0.41
Control Delay	180.4	79.9	9.5	273.1	104.5	14.8	214.9	47.9	15.0	310.5	38.7	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	180.4	79.9	9.5	273.1	104.5	14.8	214.9	47.9	15.0	310.5	38.7	13.2
LOS	F	E	A	F	F	B	F	D	B	F	D	B
Approach Delay		88.7			114.5			73.5			89.2	
Approach LOS		F			F			E			F	
Queue Length 50th (m)	~54.6	~198.7	8.0	~89.8	~225.2	21.6	~75.3	122.0	16.5	~86.6	76.5	14.7
Queue Length 95th (m)	#84.3	#232.5	25.1	#146.6	#258.7	45.8	#134.4	143.8	38.0	#141.8	92.9	37.1
Internal Link Dist (m)		568.0			792.3			620.9			2115.5	
Turn Bay Length (m)	110.0		85.0	165.0		85.0	120.0		50.0	50.0		65.0
Base Capacity (vph)	268	1603	651	198	1618	667	233	1448	599	179	1448	618
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.23	1.06	0.30	1.49	1.13	0.43	1.36	0.85	0.38	1.58	0.59	0.41

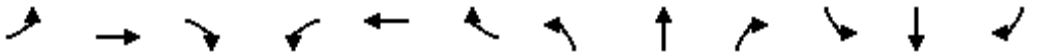
Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.58	
Intersection Signal Delay: 93.3	Intersection LOS: F

Intersection Capacity Utilization 108.7%	ICU Level of Service G
Analysis Period (min) 15	

* User Entered Value
~ 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.

Splits and Phases: 4: Trafalgar Road & Dundas Street

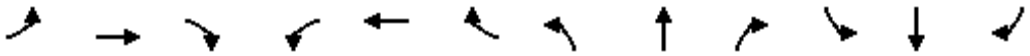




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	320	1647	188	286	1770	277	308	1193	223	274	834	243
Future Volume (vph)	320	1647	188	286	1770	277	308	1193	223	274	834	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	0.97	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	4378	1526	1750	4421	1540	1750	4421	1541	1733	4421	1538
Flt Permitted	0.95	1.00	1.00	0.08	1.00	1.00	0.18	1.00	1.00	0.09	1.00	1.00
Satd. Flow (perm)	3395	4378	1526	155	4421	1540	329	4421	1541	172	4421	1538
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	330	1698	194	295	1825	286	318	1230	230	282	860	251
RTOR Reduction (vph)	0	0	93	0	0	104	0	0	94	0	0	115
Lane Group Flow (vph)	330	1698	101	295	1825	182	318	1230	136	282	860	136
Confl. Peds. (#/hr)	5		15	15		5	6		4	4		6
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2	6		6	4		4	8		8
Actuated Green, G (s)	10.3	47.6	47.6	57.9	47.6	47.6	51.3	42.3	42.3	51.3	42.3	42.3
Effective Green, g (s)	10.3	47.6	47.6	57.9	47.6	47.6	51.3	42.3	42.3	51.3	42.3	42.3
Actuated g/C Ratio	0.08	0.37	0.37	0.45	0.37	0.37	0.39	0.33	0.33	0.39	0.33	0.33
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	268	1603	558	195	1618	563	228	1438	501	175	1438	500
v/s Ratio Prot	0.10	0.39		c0.12	0.41		0.10	0.28		c0.11	0.19	
v/s Ratio Perm			0.07	c0.55		0.12	0.45		0.09	c0.52		0.09
v/c Ratio	1.23	1.06	0.18	1.51	1.13	0.32	1.39	0.86	0.27	1.61	0.60	0.27
Uniform Delay, d1	59.9	41.2	28.0	36.8	41.2	29.6	33.8	41.0	32.4	31.6	36.7	32.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	132.2	40.0	0.7	255.4	66.1	1.5	202.1	5.7	0.6	300.0	1.0	0.6
Delay (s)	192.1	81.2	28.7	292.2	107.3	31.1	236.0	46.7	33.0	331.6	37.7	33.1
Level of Service	F	F	C	F	F	C	F	D	C	F	D	C
Approach Delay (s)		93.1			120.9			78.8			96.4	
Approach LOS		F			F			E			F	

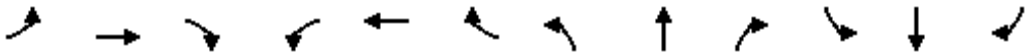
Intersection Summary			
HCM 2000 Control Delay	99.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.55		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	108.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



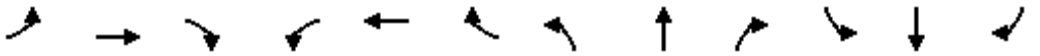
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	231	395	65	217	669	425	11	189	138	234	215	272
Future Volume (vph)	231	395	65	217	669	425	11	189	138	234	215	272
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Frt		0.986			0.951			0.939			0.943	
Flt Protected		0.984			0.992			0.998			0.984	
Satd. Flow (prot)	0	3396	0	0	3302	0	0	3280	0	0	3248	0
Flt Permitted		0.984			0.992			0.998			0.984	
Satd. Flow (perm)	0	3396	0	0	3302	0	0	3280	0	0	3248	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		476.6			839.5			671.6			229.3	
Travel Time (s)		28.6			50.4			40.3			13.8	
Confl. Bikes (#/hr)						1			1			
Peak Hour Factor	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)	236	403	66	221	683	434	11	193	141	239	219	278
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	705	0	0	1338	0	0	345	0	0	736	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 102.9%		ICU Level of Service G	
Analysis Period (min) 15			

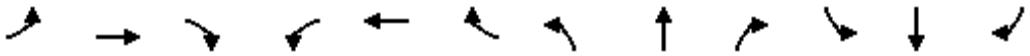


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	231	395	65	217	669	425	11	189	138	234	215	272
Future Volume (veh/h)	231	395	65	217	669	425	11	189	138	234	215	272
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	236	403	66	221	683	434	11	193	141	239	219	278
Approach Volume (veh/h)		705			1338			345			736	
Crossing Volume (veh/h)		679			440			878			915	
High Capacity (veh/h)		808			979			688			667	
High v/c (veh/h)		0.87			1.37			0.50			1.10	
Low Capacity (veh/h)		644			795			539			521	
Low v/c (veh/h)		1.09			1.68			0.64			1.41	

Intersection Summary				
Maximum v/c High	1.37			
Maximum v/c Low	1.68			
Intersection Capacity Utilization	102.9%	ICU Level of Service	G	



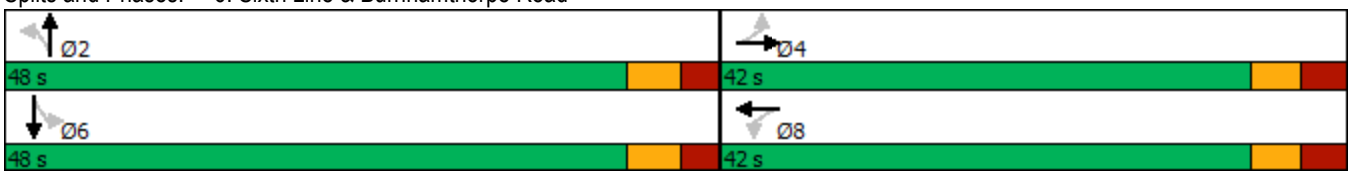
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	86	46	111	185	37	93	323	109	57	543	31
Future Volume (vph)	33	86	46	111	185	37	93	323	109	57	543	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	30.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			15.0			50.0			50.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.947			0.975			0.962			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3314	0	1750	3363	0	1750	3359	0	1750	3472	0
Flt Permitted	0.605			0.663			0.421			0.487		
Satd. Flow (perm)	1114	3314	0	1221	3363	0	776	3359	0	897	3472	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		49			30			68			8	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		241.5			345.8			218.8			671.6	
Travel Time (s)		17.4			24.9			13.1			40.3	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	2%	2%	11%	2%	2%	3%	2%	2%	2%
Adj. Flow (vph)	35	91	49	118	197	39	99	344	116	61	578	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	35	140	0	118	236	0	99	460	0	61	611	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	

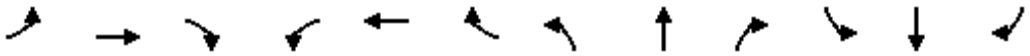


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	34.5	34.5		34.5	34.5		32.4	32.4		32.4	32.4	
Total Split (s)	42.0	42.0		42.0	42.0		48.0	48.0		48.0	48.0	
Total Split (%)	46.7%	46.7%		46.7%	46.7%		53.3%	53.3%		53.3%	53.3%	
Maximum Green (s)	35.5	35.5		35.5	35.5		41.6	41.6		41.6	41.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.2	3.2		3.2	3.2		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		19.0	19.0		19.0	19.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	12.3	12.3		12.3	12.3		41.6	41.6		41.6	41.6	
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.62	0.62		0.62	0.62	
v/c Ratio	0.17	0.22		0.52	0.37		0.20	0.22		0.11	0.28	
Control Delay	24.6	16.1		33.5	22.2		7.5	5.3		6.5	6.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	24.6	16.1		33.5	22.2		7.5	5.3		6.5	6.5	
LOS	C	B		C	C		A	A		A	A	
Approach Delay		17.8			25.9			5.7			6.5	
Approach LOS		B			C			A			A	
Queue Length 50th (m)	3.7	5.0		13.4	11.8		4.4	9.1		2.6	14.8	
Queue Length 95th (m)	10.5	11.5		27.6	20.6		13.0	18.2		8.2	27.7	
Internal Link Dist (m)		217.5			321.8			194.8			647.6	
Turn Bay Length (m)	55.0			30.0			30.0			30.0		
Base Capacity (vph)	591	1783		648	1800		483	2116		558	2164	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.06	0.08		0.18	0.13		0.20	0.22		0.11	0.28	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 66.9			
Natural Cycle: 70			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.52			
Intersection Signal Delay: 11.3		Intersection LOS: B	
Intersection Capacity Utilization 62.5%		ICU Level of Service B	
Analysis Period (min) 15			

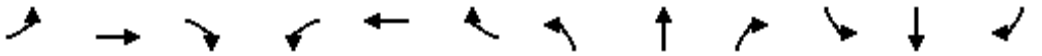
Splits and Phases: 6: Sixth Line & Burnhamthorpe Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	86	46	111	185	37	93	323	109	57	543	31
Future Volume (vph)	33	86	46	111	185	37	93	323	109	57	543	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.95		1.00	0.98		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)	1750	3316		1750	3364		1750	3359		1750	3472	
Flt Permitted	0.60	1.00		0.66	1.00		0.42	1.00		0.49	1.00	
Satd. Flow (perm)	1114	3316		1222	3364		775	3359		897	3472	
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)	35	91	49	118	197	39	99	344	116	61	578	33
RTOR Reduction (vph)	0	40	0	0	24	0	0	26	0	0	3	0
Lane Group Flow (vph)	35	100	0	118	212	0	99	434	0	61	608	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	11%	2%	2%	3%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	12.4	12.4		12.4	12.4		41.7	41.7		41.7	41.7	
Effective Green, g (s)	12.4	12.4		12.4	12.4		41.7	41.7		41.7	41.7	
Actuated g/C Ratio	0.19	0.19		0.19	0.19		0.62	0.62		0.62	0.62	
Clearance Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	206	613		226	622		482	2090		558	2160	
v/s Ratio Prot		0.03			0.06			0.13			c0.18	
v/s Ratio Perm	0.03			c0.10			0.13			0.07		
v/c Ratio	0.17	0.16		0.52	0.34		0.21	0.21		0.11	0.28	
Uniform Delay, d1	23.0	22.9		24.6	23.7		5.5	5.5		5.1	5.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.1		2.2	0.3		1.0	0.2		0.4	0.3	
Delay (s)	23.4	23.1		26.8	24.1		6.4	5.7		5.5	6.1	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		23.1			25.0			5.8			6.1	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	11.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	67.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



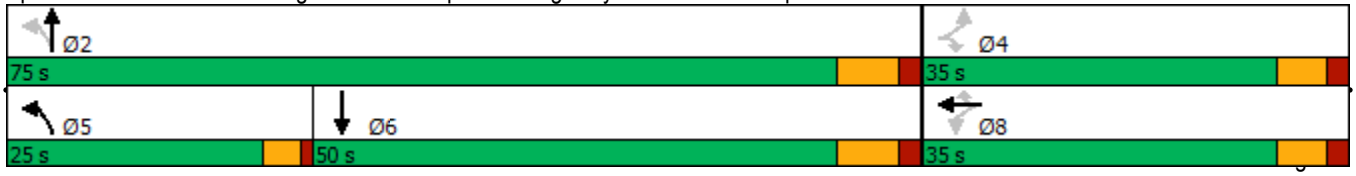
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	0	6	289	2	18	7	2004	0	0	1500	0
Future Volume (vph)	7	0	6	289	2	18	7	2004	0	0	1500	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		5.0	0.0		60.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		1	1		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt			0.850		0.998	0.850						
Flt Protected	0.950			0.950	0.954		0.950					
Satd. Flow (prot)	1526	0	1331	1615	1532	1431	1750	3500	0	0	4980	0
Flt Permitted	0.571			0.950	0.954		0.122					
Satd. Flow (perm)	917	0	1331	1615	1532	1431	225	3500	0	0	4980	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79		1	79						
Link Speed (k/h)		20			60			80			80	
Link Distance (m)		81.5			393.0			34.5			195.6	
Travel Time (s)		14.7			23.6			1.6			8.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	17%	2%	20%	5%	100%	6%	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	7	0	6	301	2	19	7	2088	0	0	1563	0
Shared Lane Traffic (%)				49%		10%						
Lane Group Flow (vph)	7	0	6	154	151	17	7	2088	0	0	1563	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1		1	1	2	1	1	2			2	
Detector Template	Left		Right	Left	Thru	Right	Left	Thru			Thru	
Leading Detector (m)	2.0		2.0	2.0	10.0	2.0	2.0	10.0			10.0	
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Size(m)	2.0		2.0	2.0	0.6	2.0	2.0	0.6			0.6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 2 Position(m)					9.4			9.4			9.4	
Detector 2 Size(m)					0.6			0.6			0.6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	

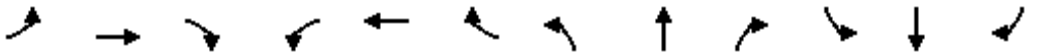
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8		8	2					
Detector Phase	4		4	8	8	8	5	2			6	
Switch Phase												
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	4.0	35.0			7.0	
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5	11.0	42.0			22.5	
Total Split (s)	35.0		35.0	35.0	35.0	35.0	25.0	75.0			50.0	
Total Split (%)	31.8%		31.8%	31.8%	31.8%	31.8%	22.7%	68.2%			45.5%	
Maximum Green (s)	29.0		29.0	29.0	29.0	29.0	21.0	68.0			43.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0	3.0	5.0			5.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0	1.0	2.0			2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Recall Mode	None		None	None	None	None	None	Min			Min	
Act Effct Green (s)	14.4		14.4	14.4	14.4	14.4	63.6	60.5			58.8	
Actuated g/C Ratio	0.16		0.16	0.16	0.16	0.16	0.72	0.69			0.67	
v/c Ratio	0.05		0.02	0.59	0.60	0.06	0.03	0.87			0.47	
Control Delay	34.1		0.2	45.5	46.6	0.4	4.4	16.5			8.5	
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	34.1		0.2	45.5	46.6	0.4	4.4	16.5			8.5	
LOS	C		A	D	D	A	A	B			A	
Approach Delay		18.5			43.6			16.5			8.5	
Approach LOS		B			D			B			A	
Queue Length 50th (m)	1.1		0.0	28.1	28.6	0.0	0.4	124.0			37.9	
Queue Length 95th (m)	4.9		0.0	48.8	50.3	0.0	1.6	204.5			79.4	
Internal Link Dist (m)		57.5			369.0			10.5			171.6	
Turn Bay Length (m)			5.0			60.0						
Base Capacity (vph)	309		501	545	517	535	534	2741			3317	
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	0.02		0.01	0.28	0.29	0.03	0.01	0.76			0.47	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 88.3
Natural Cycle: 80
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 15.6 Intersection LOS: B
Intersection Capacity Utilization 81.1% ICU Level of Service D
Analysis Period (min) 15

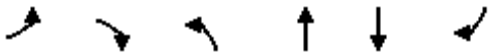
Splits and Phases: 7: Trafalgar Road & Carpool Lot/Highway 407 WB Off-Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	0	6	289	2	18	7	2004	0	0	1500	0
Future Volume (vph)	7	0	6	289	2	18	7	2004	0	0	1500	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	6.0	4.0	7.0			7.0	
Lane Util. Factor	1.00		1.00	0.95	0.91	0.95	1.00	0.95			0.91	
Frt	1.00		0.85	1.00	1.00	0.85	1.00	1.00			1.00	
Flt Protected	0.95		1.00	0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1526		1331	1615	1531	1431	1750	3500			4980	
Flt Permitted	0.57		1.00	0.95	0.95	1.00	0.12	1.00			1.00	
Satd. Flow (perm)	916		1331	1615	1531	1431	225	3500			4980	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	7	0	6	301	2	19	7	2088	0	0	1562	0
RTOR Reduction (vph)	0	0	5	0	1	14	0	0	0	0	0	0
Lane Group Flow (vph)	7	0	1	154	150	3	7	2088	0	0	1563	0
Heavy Vehicles (%)	17%	2%	20%	5%	100%	6%	2%	2%	2%	2%	3%	2%
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	
Permitted Phases	4		4	8		8	2					
Actuated Green, G (s)	14.4		14.4	14.4	14.4	14.4	63.8	63.8			58.8	
Effective Green, g (s)	14.4		14.4	14.4	14.4	14.4	63.8	63.8			58.8	
Actuated g/C Ratio	0.16		0.16	0.16	0.16	0.16	0.70	0.70			0.64	
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)	144		210	255	241	225	174	2448			3210	
v/s Ratio Prot							0.00	c0.60			0.31	
v/s Ratio Perm	0.01		0.00	0.10	0.10	0.00	0.03					
v/c Ratio	0.05		0.00	0.60	0.62	0.01	0.04	0.85			0.49	
Uniform Delay, d1	32.6		32.4	35.7	35.9	32.4	5.0	10.2			8.4	
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.1		0.0	4.0	4.9	0.0	0.1	3.1			0.1	
Delay (s)	32.7		32.4	39.7	40.8	32.4	5.1	13.3			8.5	
Level of Service	C		C	D	D	C	A	B			A	
Approach Delay (s)		32.6			39.9			13.3			8.5	
Approach LOS		C			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	91.2	Sum of lost time (s)	17.0
Intersection Capacity Utilization	81.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	2036	1846	45
Future Volume (vph)	0	0	0	2036	1846	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.95	1.00
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	5029	3433	1521
Flt Permitted						
Satd. Flow (perm)	0	0	0	5029	3433	1521
Link Speed (k/h)	60			80	80	
Link Distance (m)	166.7			156.0	34.5	
Travel Time (s)	10.0			7.0	1.6	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	4%	5%
Adj. Flow (vph)	0	0	0	2121	1923	47
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2121	1923	47
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 59.6%		ICU Level of Service B	
Analysis Period (min) 15			

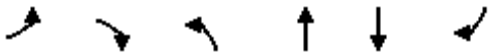
Intersection Sign configuration not allowed in HCM analysis.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↑↑	↱		↑↑
Traffic Volume (vph)	0	0	2036	149	0	1846
Future Volume (vph)	0	0	2036	149	0	1846
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt				0.850		
Flt Protected						
Satd. Flow (prot)	0	0	3500	1521	0	3433
Flt Permitted						
Satd. Flow (perm)	0	0	3500	1521	0	3433
Link Speed (k/h)	30		80			80
Link Distance (m)	189.2		37.4			156.0
Travel Time (s)	22.7		1.7			7.0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	5%	2%	4%
Adj. Flow (vph)	0	0	2121	155	0	1923
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	2121	155	0	1923
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Free		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 59.6%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection Sign configuration not allowed in HCM analysis.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	38	136	0	2144	1644	0
Future Volume (vph)	38	136	0	2144	1644	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1750	1278	0	3500	3466	0
Flt Permitted	0.950					
Satd. Flow (perm)	1750	1278	0	3500	3466	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		9				
Link Speed (k/h)	60			80	80	
Link Distance (m)	415.1			117.5	129.7	
Travel Time (s)	24.9			5.3	5.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	25%	2%	2%	3%	2%
Adj. Flow (vph)	40	145	0	2281	1749	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	40	145	0	2281	1749	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (m)	2.0	2.0		10.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	2.0		0.6	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						

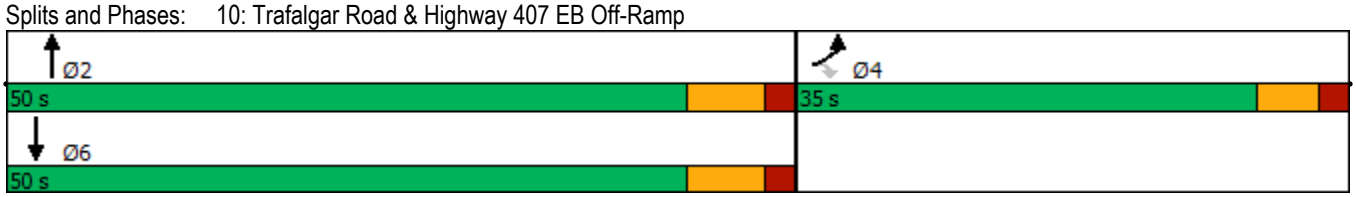
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Initial (s)	6.0	6.0		20.0	20.0	
Minimum Split (s)	24.0	24.0		27.0	27.0	
Total Split (s)	35.0	35.0		50.0	50.0	
Total Split (%)	41.2%	41.2%		58.8%	58.8%	
Maximum Green (s)	29.0	29.0		43.0	43.0	
Yellow Time (s)	4.0	4.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		7.0	7.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		Max	Max	
Act Effct Green (s)	12.6	12.6		44.3	44.3	
Actuated g/C Ratio	0.18	0.18		0.63	0.63	
v/c Ratio	0.13	0.61		1.03	0.80	
Control Delay	23.6	35.4		43.2	14.3	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	23.6	35.4		43.2	14.3	
LOS	C	D		D	B	
Approach Delay	32.8			43.2	14.3	
Approach LOS	C			D	B	
Queue Length 50th (m)	4.3	16.1		~169.6	76.4	
Queue Length 95th (m)	11.3	32.1		#242.0	#137.9	
Internal Link Dist (m)	391.1			93.5	105.7	
Turn Bay Length (m)						
Base Capacity (vph)	726	535		2216	2194	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.06	0.27		1.03	0.80	

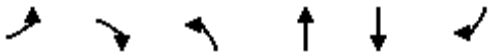
Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 70			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay: 30.8		Intersection LOS: C	
Intersection Capacity Utilization 75.1%		ICU Level of Service D	
Analysis Period (min) 15			

~ 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.

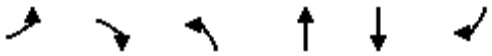
Splits and Phases: 10: Trafalgar Road & Highway 407 EB Off-Ramp





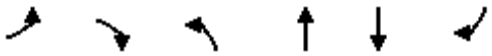
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	38	136	0	2144	1644	0
Future Volume (vph)	38	136	0	2144	1644	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1750	1278		3500	3466	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1750	1278		3500	3466	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	40	145	0	2281	1749	0
RTOR Reduction (vph)	0	7	0	0	0	0
Lane Group Flow (vph)	40	138	0	2281	1749	0
Heavy Vehicles (%)	2%	25%	2%	2%	3%	2%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	12.6	12.6		44.3	44.3	
Effective Green, g (s)	12.6	12.6		44.3	44.3	
Actuated g/C Ratio	0.18	0.18		0.63	0.63	
Clearance Time (s)	6.0	6.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	315	230		2218	2196	
v/s Ratio Prot	0.02			c0.65	0.50	
v/s Ratio Perm		c0.11				
v/c Ratio	0.13	0.60		1.03	0.80	
Uniform Delay, d1	24.0	26.3		12.8	9.5	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	4.1		26.8	3.1	
Delay (s)	24.2	30.5		39.6	12.6	
Level of Service	C	C		D	B	
Approach Delay (s)	29.1			39.6	12.6	
Approach LOS	C			D	B	

Intersection Summary			
HCM 2000 Control Delay	27.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	69.9	Sum of lost time (s)	13.0
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	2182	1644	21
Future Volume (vph)	0	0	0	2182	1644	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	3500	3466	1566
Flt Permitted						
Satd. Flow (perm)	0	0	0	3500	3466	1566
Link Speed (k/h)	30			80	80	
Link Distance (m)	113.6			129.7	37.4	
Travel Time (s)	13.6			5.8	1.7	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	0	0	0	2321	1749	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2321	1749	22
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 75.1%		ICU Level of Service D	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	2182	1644	21
Future Volume (Veh/h)	0	0	0	2182	1644	21
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	0	2321	1749	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)				130	228	
pX, platoon unblocked	0.47	0.80	0.80			
vC, conflicting volume	2910	874	1771			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	938	355	1471			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	124	515	365			

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	1160	1160	874	874	22
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	22
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.68	0.68	0.51	0.51	0.01
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					
Approach Delay (s)	0.0		0.0		
Approach LOS					

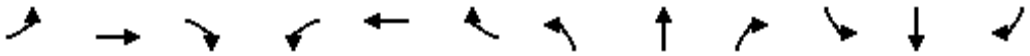
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	2144	204	0	1780
Future Volume (vph)	0	0	2144	204	0	1780
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.91
Frt				0.850		
Flt Protected						
Satd. Flow (prot)	0	0	3500	1452	0	4885
Flt Permitted						
Satd. Flow (perm)	0	0	3500	1452	0	4885
Link Speed (k/h)	50		80			80
Link Distance (m)	246.0		145.5			117.5
Travel Time (s)	17.7		6.5			5.3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	10%	2%	5%
Adj. Flow (vph)	0	0	2281	217	0	1894
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	2281	217	0	1894
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Free		Free			Free

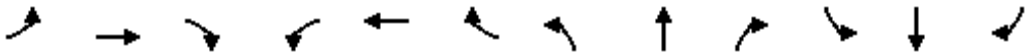
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 62.6%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection Sign configuration not allowed in HCM analysis.



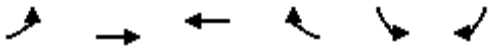
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	947	181	147	1247	137	356	673	240	117	347	100
Future Volume (vph)	36	947	181	147	1247	137	356	673	240	117	347	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.977			0.987			0.972			0.973	
Flt Protected		0.998			0.995			0.986			0.990	
Satd. Flow (prot)	0	3369	0	0	3437	0	0	3345	0	0	3371	0
Flt Permitted		0.998			0.995			0.986			0.990	
Satd. Flow (perm)	0	3369	0	0	3437	0	0	3345	0	0	3371	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		234.8			101.3			359.6			262.5	
Travel Time (s)		14.1			6.1			21.6			15.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	4%	2%	10%	2%	2%	2%	3%	2%	2%	2%	2%	2%
Adj. Flow (vph)	38	986	189	153	1299	143	371	701	250	122	361	104
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1213	0	0	1595	0	0	1322	0	0	587	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 142.2%		ICU Level of Service H	
Analysis Period (min) 15			



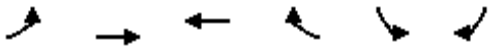
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	36	947	181	147	1247	137	356	673	240	117	347	100
Future Volume (veh/h)	36	947	181	147	1247	137	356	673	240	117	347	100
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	38	986	189	153	1299	143	371	701	250	122	361	104
Approach Volume (veh/h)		1213			1595			1322			587	
Crossing Volume (veh/h)		636			1110			1146			1823#	
High Capacity (veh/h)		837			569			552			312	
High v/c (veh/h)		1.45			2.81			2.40			1.88	
Low Capacity (veh/h)		669			437			422			224	
Low v/c (veh/h)		1.81			3.65			3.13			2.62	

Intersection Summary				
Maximum v/c High	2.81			
Maximum v/c Low	3.65			
Intersection Capacity Utilization	142.2%	ICU Level of Service	H	
# Crossing flow exceeds 1200, method is not applicable				



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Volume (vph)	0	1215	1626	13	0	371
Future Volume (vph)	0	1215	1626	13	0	371
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0			30.0	0.0	0.0
Storage Lanes	0			1	0	1
Taper Length (m)	15.0				15.0	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor						
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	3500	3500	1566	0	1593
Flt Permitted						
Satd. Flow (perm)	0	3500	3500	1566	0	1593
Link Speed (k/h)		60	60		50	
Link Distance (m)		228.3	173.6		144.7	
Travel Time (s)		13.7	10.4		10.4	
Confl. Peds. (#/hr)	5			5	5	5
Confl. Bikes (#/hr)				5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1350	1807	14	0	412
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1350	1807	14	0	412
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

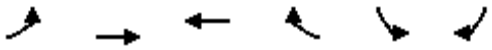
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 75.1%		ICU Level of Service D	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Volume (veh/h)	0	1215	1626	13	0	371
Future Volume (Veh/h)	0	1215	1626	13	0	371
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1350	1807	14	0	412
Pedestrians		5	5		5	
Lane Width (m)		3.5	3.5		3.5	
Walking Speed (m/s)		1.0	1.0		1.0	
Percent Blockage		0	0		0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		228				
pX, platoon unblocked					0.86	
vC, conflicting volume	1826				2492	914
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1826				2411	914
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	0
cM capacity (veh/h)	329				23	273

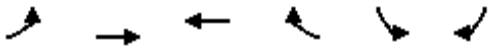
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	675	675	904	904	14	412
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	14	412
cSH	1700	1700	1700	1700	1700	273
Volume to Capacity	0.40	0.40	0.53	0.53	0.01	1.51
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	181.2
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	281.1
Lane LOS						F
Approach Delay (s)	0.0		0.0			281.1
Approach LOS						F

Intersection Summary			
Average Delay	32.3		
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	533	682	1446	9	77	193
Future Volume (vph)	533	682	1446	9	77	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0			0.0	30.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	15.0				15.0	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.999			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1750	3500	3496	0	1750	1566
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1750	3500	3496	0	1750	1566
Link Speed (k/h)		60	60		50	
Link Distance (m)		173.6	1244.3		120.8	
Travel Time (s)		10.4	74.7		8.7	
Confl. Peds. (#/hr)	5			5	5	5
Confl. Bikes (#/hr)				5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	592	758	1607	10	86	214
Shared Lane Traffic (%)						
Lane Group Flow (vph)	592	758	1617	0	86	214
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		3.5	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 85.4%		ICU Level of Service E	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	533	682	1446	9	77	193
Future Volume (Veh/h)	533	682	1446	9	77	193
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	592	758	1607	10	86	214
Pedestrians		5	5		5	
Lane Width (m)		3.5	3.5		3.5	
Walking Speed (m/s)		1.0	1.0		1.0	
Percent Blockage		0	0		0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		402				
pX, platoon unblocked						
vC, conflicting volume	1622				3185	818
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1622				3185	818
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	0				0	32
cM capacity (veh/h)	395				0	316

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	592	379	379	1071	546	86	214
Volume Left	592	0	0	0	0	86	0
Volume Right	0	0	0	0	10	0	214
cSH	395	1700	1700	1700	1700	0	316
Volume to Capacity	1.50	0.22	0.22	0.63	0.32	Err	0.68
Queue Length 95th (m)	240.2	0.0	0.0	0.0	0.0	Err	35.2
Control Delay (s)	262.6	0.0	0.0	0.0	0.0	Err	37.4
Lane LOS	F					F	E
Approach Delay (s)	115.2			0.0		Err	
Approach LOS						F	

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	85.4%	ICU Level of Service	E
Analysis Period (min)	15		

MOVEMENT SUMMARY

Site: [101] Sixth Line & William Halton Parkway (General)

Output produced by SIDRA INTERSECTION Version: 10.0.8.241

2031 Future Background PM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Sixth Line															
1	L2	All MCs	12	2.0	12	2.0	0.342	11.8	LOS B	1.2	8.2	0.62	0.66	0.78	47.5
2	T1	All MCs	210	2.0	210	2.0	0.342	11.7	LOS B	1.2	8.2	0.61	0.66	0.78	48.3
3	R2	All MCs	153	2.0	153	2.0	0.342	11.4	LOS B	1.1	8.0	0.59	0.64	0.76	48.0
Approach			376	2.0	376	2.0	0.342	11.6	LOS B	1.2	8.2	0.61	0.65	0.77	48.1
East: William Halton Parkway															
4	L2	All MCs	241	2.0	241	2.0	0.933	39.7	LOS E	21.0	149.5	1.00	1.62	3.10	34.8
5	T1	All MCs	743	2.0	743	2.0	0.933	39.5	LOS E	21.1	150.6	1.00	1.62	3.11	35.4
6	R2	All MCs	472	2.0	472	2.0	0.933	39.1	LOS E	21.1	150.6	1.00	1.62	3.12	35.4
Approach			1457	2.0	1457	2.0	0.933	39.4	LOS E	21.1	150.6	1.00	1.62	3.11	35.3
North: Sixth Line															
7	L2	All MCs	260	2.0	260	2.0	0.752	28.5	LOS D	4.7	33.6	0.82	1.05	1.62	38.1
8	T1	All MCs	239	2.0	239	2.0	0.752	28.0	LOS D	4.7	33.6	0.81	1.04	1.62	39.2
9	R2	All MCs	302	2.0	302	2.0	0.752	27.4	LOS D	4.7	33.5	0.81	1.03	1.61	39.8
Approach			801	2.0	801	2.0	0.752	27.9	LOS D	4.7	33.6	0.81	1.04	1.62	39.0
West: William Halton Parkway															
10	L2	All MCs	257	2.0	257	2.0	0.596	16.6	LOS C	3.4	24.5	0.67	0.81	1.18	43.0
11	T1	All MCs	439	2.0	439	2.0	0.596	16.2	LOS C	3.4	24.5	0.66	0.79	1.17	45.2
12	R2	All MCs	72	2.0	72	2.0	0.596	16.1	LOS C	3.4	24.1	0.65	0.79	1.16	45.6
Approach			768	2.0	768	2.0	0.596	16.3	LOS C	3.4	24.5	0.66	0.80	1.17	44.5
All Vehicles			3401	2.0	3401	2.0	0.933	28.4	LOS D	21.1	150.6	0.84	1.19	2.06	39.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [101] Ninth Line & William Halton Parkway (General)
Output produced by SIDRA INTERSECTION Version: 10.0.8.241

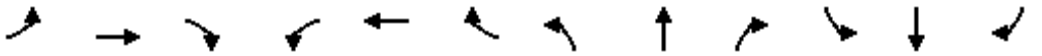
Future Background 2031 PM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Ninth Line															
1	L2	All MCs	400	23.0	400	23.0	1.639	324.0	LOS F	81.7	646.6	1.00	5.48	16.84	14.9
2	T1	All MCs	756	2.0	756	2.0	1.639	316.9	LOS F	101.0	721.1	1.00	5.52	17.48	15.1
3	R2	All MCs	270	3.0	270	3.0	1.639	324.2	LOS F	101.0	721.1	1.00	5.54	17.78	15.0
Approach			1426	8.1	1426	8.1	1.639	320.2	LOS F	101.0	721.1	1.00	5.52	17.36	15.0
East: William Halton Parkway															
4	L2	All MCs	165	2.0	165	2.0	1.372	195.2	LOS F	80.2	574.7	1.00	4.52	12.42	18.4
5	T1	All MCs	1401	3.0	1401	3.0	1.372	195.0	LOS F	82.8	595.5	1.00	4.59	12.64	18.5
6	R2	All MCs	154	4.0	154	4.0	1.372	194.7	LOS F	82.8	595.5	1.00	4.66	12.85	18.4
Approach			1720	3.0	1720	3.0	1.372	195.0	LOS F	82.8	595.5	1.00	4.59	12.64	18.5
North: Ninth Line															
7	L2	All MCs	131	2.0	131	2.0	0.806	42.5	LOS E	4.3	30.7	0.91	1.15	1.84	33.7
8	T1	All MCs	390	2.0	390	2.0	0.806	41.3	LOS E	4.3	30.9	0.90	1.14	1.83	34.8
9	R2	All MCs	112	2.0	112	2.0	0.806	40.3	LOS E	4.3	30.9	0.90	1.14	1.83	35.2
Approach			634	2.0	634	2.0	0.806	41.4	LOS E	4.3	30.9	0.90	1.14	1.83	34.6
West: William Halton Parkway															
10	L2	All MCs	40	4.0	40	4.0	1.112	90.0	LOS F	41.0	292.4	1.00	2.82	6.58	24.6
11	T1	All MCs	1064	2.0	1064	2.0	1.112	72.9	LOS F	41.0	292.4	0.94	2.30	5.17	28.1
12	R2	All MCs	203	12.0	203	12.0	0.792	27.2	LOS D	7.9	57.9	0.81	1.10	1.87	40.2
Approach			1308	3.6	1308	3.6	1.112	66.4	LOS F	41.0	292.4	0.92	2.13	4.70	29.3
All Vehicles			5088	4.5	5088	4.5	1.639	177.9	LOS F	101.0	721.1	0.97	3.79	10.57	20.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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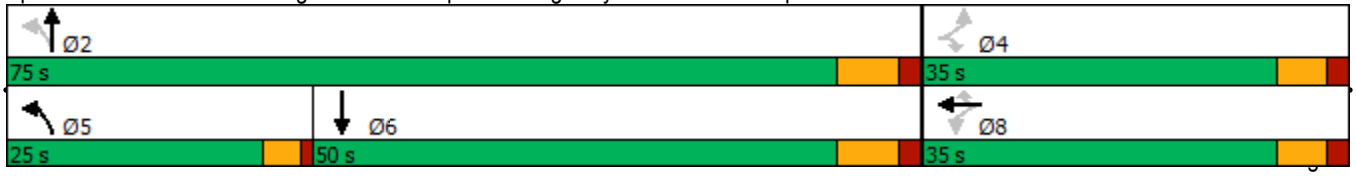
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	3	188	0	22	1	1361	0	0	1356	0
Future Volume (vph)	1	0	3	188	0	22	1	1361	0	0	1356	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		5.0	0.0		60.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		1	1		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt			0.850		0.997	0.850						
Flt Protected	0.950			0.950	0.953		0.950					
Satd. Flow (prot)	892	0	1566	1630	1563	1487	1750	3500	0	0	5029	0
Flt Permitted	0.685			0.950	0.953		0.130					
Satd. Flow (perm)	644	0	1566	1630	1563	1487	239	3500	0	0	5029	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79		79	79						
Link Speed (k/h)		20			60			80			80	
Link Distance (m)		81.5			394.8			34.5			189.8	
Travel Time (s)		14.7			23.7			1.6			8.5	
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 (%)	100%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	1	0	3	204	0	24	1	1479	0	0	1474	0
Shared Lane Traffic (%)				49%		10%						
Lane Group Flow (vph)	1	0	3	104	102	22	1	1479	0	0	1474	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1		1	1	2	1	1	2			2	
Detector Template	Left		Right	Left	Thru	Right	Left	Thru			Thru	
Leading Detector (m)	2.0		2.0	2.0	10.0	2.0	2.0	10.0			10.0	
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Size(m)	2.0		2.0	2.0	0.6	2.0	2.0	0.6			0.6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 2 Position(m)					9.4			9.4			9.4	
Detector 2 Size(m)					0.6			0.6			0.6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8		8	2					
Detector Phase	4		4	8	8	8	5	2			6	
Switch Phase												
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	4.0	35.0			35.0	
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5	9.5	42.0			42.0	
Total Split (s)	35.0		35.0	35.0	35.0	35.0	25.0	75.0			50.0	
Total Split (%)	31.8%		31.8%	31.8%	31.8%	31.8%	22.7%	68.2%			45.5%	
Maximum Green (s)	29.0		29.0	29.0	29.0	29.0	21.0	68.0			43.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0	3.0	5.0			5.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0	1.0	2.0			2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Recall Mode	None		None	None	None	None	None	Min			Min	
Act Effct Green (s)	9.8		9.8	9.8	9.8	9.8	40.4	37.4			35.7	
Actuated g/C Ratio	0.16		0.16	0.16	0.16	0.16	0.67	0.62			0.59	
v/c Ratio	0.01		0.01	0.39	0.32	0.07	0.00	0.68			0.49	
Control Delay	22.0		0.0	27.6	11.9	0.5	4.0	9.9			8.8	
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	22.0		0.0	27.6	11.9	0.5	4.0	9.9			8.8	
LOS	C		A	C	B	A	A	A			A	
Approach Delay		5.5			17.9			9.9			8.8	
Approach LOS		A			B			A			A	
Queue Length 50th (m)	0.1		0.0	10.3	2.3	0.0	0.0	46.7			26.5	
Queue Length 95th (m)	1.3		0.0	26.3	15.3	0.0	0.5	81.5			63.0	
Internal Link Dist (m)		57.5			370.8			10.5			165.8	
Turn Bay Length (m)			5.0			60.0						
Base Capacity (vph)	312		799	790	798	761	690	3462			3615	
Starvation Cap Reductn	0		0	0	0	0	0	0			0	
Spillback Cap Reductn	0		0	0	0	0	0	0			0	
Storage Cap Reductn	0		0	0	0	0	0	0			0	
Reduced v/c Ratio	0.00		0.00	0.13	0.13	0.03	0.00	0.43			0.41	

Intersection Summary

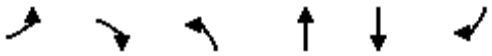
Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 60.3
Natural Cycle: 75
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 9.9 Intersection LOS: A
Intersection Capacity Utilization 61.0% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 7: Trafalgar Road & Carpool Lot/Highway 407 WB Off-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	3	188	0	22	1	1361	0	0	1356	0
Future Volume (vph)	1	0	3	188	0	22	1	1361	0	0	1356	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	6.0	4.0	7.0			7.0	
Lane Util. Factor	1.00		1.00	0.95	0.91	0.95	1.00	0.95			0.91	
Frt	1.00		0.85	1.00	1.00	0.85	1.00	1.00			1.00	
Flt Protected	0.95		1.00	0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	892		1566	1630	1563	1487	1750	3500			5029	
Flt Permitted	0.68		1.00	0.95	0.95	1.00	0.13	1.00			1.00	
Satd. Flow (perm)	643		1566	1630	1563	1487	239	3500			5029	
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)	1	0	3	204	0	24	1	1479	0	0	1474	0
RTOR Reduction (vph)	0	0	3	0	67	19	0	0	0	0	0	0
Lane Group Flow (vph)	1	0	0	104	35	3	1	1479	0	0	1474	0
Heavy Vehicles (%)	100%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	
Permitted Phases	4		4	8		8	2					
Actuated Green, G (s)	9.8		9.8	9.8	9.8	9.8	40.7	40.7			35.8	
Effective Green, g (s)	9.8		9.8	9.8	9.8	9.8	40.7	40.7			35.8	
Actuated g/C Ratio	0.15		0.15	0.15	0.15	0.15	0.64	0.64			0.56	
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)	99		241	251	241	229	174	2243			2835	
v/s Ratio Prot							0.00	c0.42			0.29	
v/s Ratio Perm	0.00		0.00	c0.06	0.02	0.00	0.00					
v/c Ratio	0.01		0.00	0.41	0.15	0.01	0.01	0.66			0.52	
Uniform Delay, d1	22.7		22.7	24.3	23.2	22.8	4.7	7.1			8.5	
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.0		0.0	1.1	0.3	0.0	0.0	0.7			0.2	
Delay (s)	22.8		22.7	25.4	23.5	22.8	4.7	7.8			8.7	
Level of Service	C		C	C	C	C	A	A			A	
Approach Delay (s)		22.7			24.3			7.8			8.7	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	63.5	Sum of lost time (s)	17.0
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

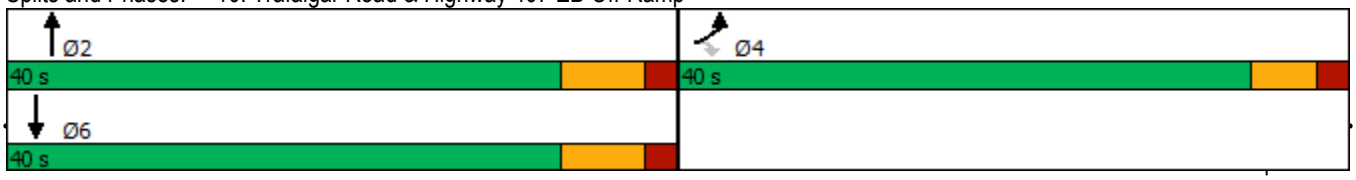


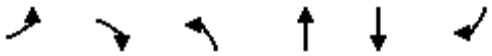
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	39	100	0	1384	1543	0
Future Volume (vph)	39	100	0	1384	1543	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1750	1377	0	3500	3500	0
Flt Permitted	0.950					
Satd. Flow (perm)	1750	1377	0	3500	3500	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		4				
Link Speed (k/h)	60			80	80	
Link Distance (m)	417.0			117.5	129.7	
Travel Time (s)	25.0			5.3	5.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	16%	2%	2%	2%	2%
Adj. Flow (vph)	42	108	0	1488	1659	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	42	108	0	1488	1659	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (m)	2.0	2.0		10.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	2.0		0.6	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Initial (s)	6.0	6.0		20.0	20.0	
Minimum Split (s)	24.0	24.0		27.0	27.0	
Total Split (s)	40.0	40.0		40.0	40.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	34.0	34.0		33.0	33.0	
Yellow Time (s)	4.0	4.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		7.0	7.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		Max	Max	
Act Effct Green (s)	9.5	9.5		37.5	37.5	
Actuated g/C Ratio	0.17	0.17		0.67	0.67	
v/c Ratio	0.14	0.46		0.64	0.71	
Control Delay	20.2	26.5		9.4	11.1	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	20.2	26.5		9.4	11.1	
LOS	C	C		A	B	
Approach Delay	24.8			9.4	11.1	
Approach LOS	C			A	B	
Queue Length 50th (m)	3.6	9.5		47.2	57.4	
Queue Length 95th (m)	10.2	21.3		82.5	#103.7	
Internal Link Dist (m)	393.0			93.5	105.7	
Turn Bay Length (m)						
Base Capacity (vph)	1060	836		2339	2339	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.04	0.13		0.64	0.71	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 56.1			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 11.0		Intersection LOS: B	
Intersection Capacity Utilization 59.7%		ICU Level of Service B	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

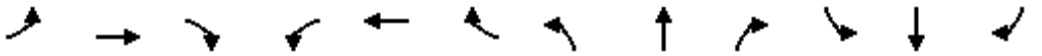
Splits and Phases: 10: Trafalgar Road & Highway 407 EB Off-Ramp



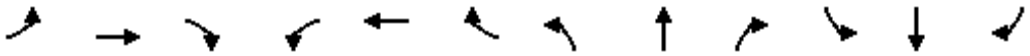


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	39	100	0	1384	1543	0
Future Volume (vph)	39	100	0	1384	1543	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1750	1377		3500	3500	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1750	1377		3500	3500	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	42	108	0	1488	1659	0
RTOR Reduction (vph)	0	3	0	0	0	0
Lane Group Flow (vph)	42	105	0	1488	1659	0
Heavy Vehicles (%)	2%	16%	2%	2%	2%	2%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	8.3	8.3		36.1	36.1	
Effective Green, g (s)	8.3	8.3		36.1	36.1	
Actuated g/C Ratio	0.14	0.14		0.63	0.63	
Clearance Time (s)	6.0	6.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	253	199		2201	2201	
v/s Ratio Prot	0.02			0.43	c0.47	
v/s Ratio Perm		c0.08				
v/c Ratio	0.17	0.53		0.68	0.75	
Uniform Delay, d1	21.5	22.7		6.9	7.5	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	2.5		1.7	2.4	
Delay (s)	21.8	25.2		8.6	10.0	
Level of Service	C	C		A	A	
Approach Delay (s)	24.3			8.6	10.0	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	10.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	57.4	Sum of lost time (s)	13.0
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	259	993	236	144	432	332	74	1185	186	532	989	134
Future Volume (vph)	259	993	236	144	432	332	74	1185	186	532	989	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		60.0	60.0		205.0	90.0		55.0	140.0		55.0
Storage Lanes	2		1	2		1	1		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	*0.80	1.00	0.97	*0.80	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	3500	1566	3395	3500	1452	1750	4421	1493	3362	4378	1566
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3395	3500	1566	3395	3500	1452	1750	4421	1493	3362	4378	1566
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			157			305			151			120
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		207.8			228.3			142.6			224.9	
Travel Time (s)		12.5			13.7			8.6			13.5	
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%	10%	2%	2%	7%	3%	3%	2%
Adj. Flow (vph)	282	1079	257	157	470	361	80	1288	202	578	1075	146
Shared Lane Traffic (%)												
Lane Group Flow (vph)	282	1079	257	157	470	361	80	1288	202	578	1075	146
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	

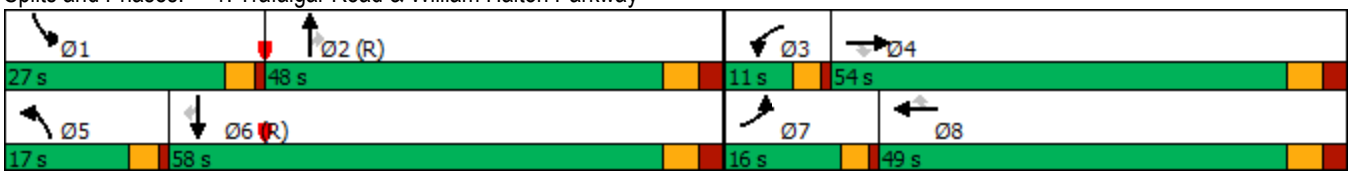


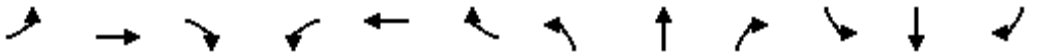
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	48.4	48.4	11.0	48.4	48.4	11.0	45.4	45.4	11.0	45.4	45.4
Total Split (s)	16.0	54.0	54.0	11.0	49.0	49.0	17.0	48.0	48.0	27.0	58.0	58.0
Total Split (%)	11.4%	38.6%	38.6%	7.9%	35.0%	35.0%	12.1%	34.3%	34.3%	19.3%	41.4%	41.4%
Maximum Green (s)	12.0	47.6	47.6	7.0	42.6	42.6	13.0	41.6	41.6	23.0	51.6	51.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		35.0	35.0		35.0	35.0		32.0	32.0		32.0	32.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	12.0	47.3	47.3	7.0	42.3	42.3	10.9	41.6	41.6	23.3	54.0	54.0
Actuated g/C Ratio	0.09	0.34	0.34	0.05	0.30	0.30	0.08	0.30	0.30	0.17	0.39	0.39
v/c Ratio	0.97	0.91	0.41	0.93	0.45	0.55	0.59	0.98	0.37	1.03	0.64	0.22
Control Delay	108.5	56.8	15.3	118.0	41.0	10.8	79.2	69.3	12.9	102.5	37.5	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	108.5	56.8	15.3	118.0	41.0	10.8	79.2	69.3	12.9	102.5	37.5	8.3
LOS	F	E	B	F	D	B	E	E	B	F	D	A
Approach Delay		59.2			42.2			62.5			56.0	
Approach LOS		E			D			E			E	
Queue Length 50th (m)	40.8	149.7	19.5	22.7	55.1	11.3	21.6	147.7	10.3	~89.3	101.7	4.5
Queue Length 95th (m)	#69.4	#188.3	43.4	#44.7	71.4	40.5	38.9	#184.5	31.0	#125.8	121.7	19.0
Internal Link Dist (m)		183.8			204.3			118.6			200.9	
Turn Bay Length (m)	80.0		60.0	60.0		205.0	90.0		55.0	140.0		55.0
Base Capacity (vph)	291	1190	636	169	1065	654	162	1313	549	560	1688	677
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.97	0.91	0.40	0.93	0.44	0.55	0.49	0.98	0.37	1.03	0.64	0.22

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 140			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay: 56.3		Intersection LOS: E	
Intersection Capacity Utilization 88.7%		ICU Level of Service E	
Analysis Period (min) 15			

* User Entered Value
~ 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.

Splits and Phases: 1: Trafalgar Road & William Halton Parkway





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	259	993	236	144	432	332	74	1185	186	532	989	134
Future Volume (vph)	259	993	236	144	432	332	74	1185	186	532	989	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	*0.80	1.00	0.97	*0.80	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	3500	1566	3395	3500	1452	1750	4421	1493	3362	4378	1566
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	3500	1566	3395	3500	1452	1750	4421	1493	3362	4378	1566
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)	282	1079	257	157	470	361	80	1288	202	578	1075	146
RTOR Reduction (vph)	0	0	104	0	0	213	0	0	106	0	0	74
Lane Group Flow (vph)	282	1079	153	157	470	148	80	1288	96	578	1075	72
Heavy Vehicles (%)	2%	2%	2%	2%	2%	10%	2%	2%	7%	3%	3%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	12.0	47.3	47.3	7.0	42.3	42.3	10.9	41.6	41.6	23.3	54.0	54.0
Effective Green, g (s)	12.0	47.3	47.3	7.0	42.3	42.3	10.9	41.6	41.6	23.3	54.0	54.0
Actuated g/C Ratio	0.09	0.34	0.34	0.05	0.30	0.30	0.08	0.30	0.30	0.17	0.39	0.39
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	291	1182	529	169	1057	438	136	1313	443	559	1688	604
v/s Ratio Prot	c0.08	c0.31		0.05	0.13		0.05	c0.29		c0.17	0.25	
v/s Ratio Perm			0.10			0.10			0.06			0.05
v/c Ratio	0.97	0.91	0.29	0.93	0.44	0.34	0.59	0.98	0.22	1.03	0.64	0.12
Uniform Delay, d1	63.8	44.4	34.0	66.3	39.4	38.0	62.4	48.8	37.0	58.4	35.0	27.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	43.8	11.3	0.6	48.4	0.6	1.0	6.4	20.7	1.1	47.1	1.8	0.4
Delay (s)	107.6	55.7	34.7	114.6	40.0	38.9	68.7	69.5	38.1	105.5	36.9	28.1
Level of Service	F	E	C	F	D	D	E	E	D	F	D	C
Approach Delay (s)		61.4			51.5			65.4			58.2	
Approach LOS		E			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	59.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.8
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 Configurations						
Traffic Volume (vph)	1252	1	234	589	0	386
Future Volume (vph)	1252	1	234	589	0	386
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	100.0		30.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			15.0		50.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected			0.950			
Satd. Flow (prot)	3500	0	1716	3466	1842	1566
Flt Permitted			0.094			
Satd. Flow (perm)	3500	0	170	3466	1842	1566
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						236
Link Speed (k/h)	60			60	50	
Link Distance (m)	657.5			396.1	222.0	
Travel Time (s)	39.5			23.8	16.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	4%	3%	2%	2%
Adj. Flow (vph)	1361	1	254	640	0	420
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1362	0	254	640	0	420
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	10.0		2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6		2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	3	



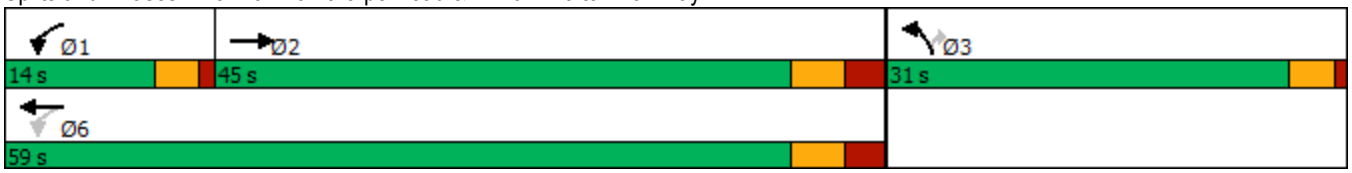
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases			6			3
Detector Phase	2		1	6	3	3
Switch Phase						
Minimum Initial (s)	10.0		7.0	10.0	7.0	7.0
Minimum Split (s)	28.4		11.5	28.4	31.0	31.0
Total Split (s)	45.0		14.0	59.0	31.0	31.0
Total Split (%)	50.0%		15.6%	65.6%	34.4%	34.4%
Maximum Green (s)	38.6		10.0	52.6	27.0	27.0
Yellow Time (s)	3.7		3.0	3.7	3.0	3.0
All-Red Time (s)	2.7		1.0	2.7	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4		4.0	6.4	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	Max		None	None	Max	Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	15.0			15.0	20.0	20.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	38.6		55.0	52.6		27.0
Actuated g/C Ratio	0.43		0.61	0.58		0.30
v/c Ratio	0.91		0.92	0.32		0.66
Control Delay	34.4		59.7	10.1		17.4
Queue Delay	0.0		0.0	0.0		0.0
Total Delay	34.4		59.7	10.1		17.4
LOS	C		E	B		B
Approach Delay	34.4			24.2	17.4	
Approach LOS	C			C	B	
Queue Length 50th (m)	112.5		27.6	27.4		26.2
Queue Length 95th (m)	#156.8		#72.0	37.1		58.6
Internal Link Dist (m)	633.5			372.1	198.0	
Turn Bay Length (m)			100.0			
Base Capacity (vph)	1501		275	2025		635
Starvation Cap Reductn	0		0	0		0
Spillback Cap Reductn	0		0	0		0
Storage Cap Reductn	0		0	0		0
Reduced v/c Ratio	0.91		0.92	0.32		0.66

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 28.3		Intersection LOS: C	
Intersection Capacity Utilization 67.2%		ICU Level of Service C	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

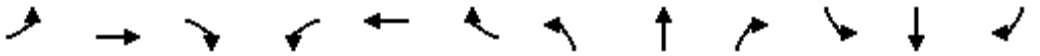
Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway



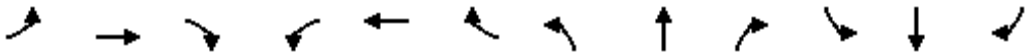


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1252	1	234	589	0	386
Future Volume (vph)	1252	1	234	589	0	386
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4		4.0	6.4		4.0
Lane Util. Factor	0.95		1.00	0.95		1.00
Frt	1.00		1.00	1.00		0.85
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	3500		1716	3466		1566
Flt Permitted	1.00		0.09	1.00		1.00
Satd. Flow (perm)	3500		170	3466		1566
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1361	1	254	640	0	420
RTOR Reduction (vph)	0	0	0	0	0	165
Lane Group Flow (vph)	1362	0	254	640	0	255
Heavy Vehicles (%)	2%	2%	4%	3%	2%	2%
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	3	
Permitted Phases			6			3
Actuated Green, G (s)	38.6		52.6	52.6		27.0
Effective Green, g (s)	38.6		52.6	52.6		27.0
Actuated g/C Ratio	0.43		0.58	0.58		0.30
Clearance Time (s)	6.4		4.0	6.4		4.0
Vehicle Extension (s)	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	1501		271	2025		469
v/s Ratio Prot	0.39		c0.10	0.18		
v/s Ratio Perm			c0.44			c0.16
v/c Ratio	0.91		0.94	0.32		0.54
Uniform Delay, d1	24.0		24.6	9.5		26.3
Progression Factor	1.00		1.00	1.00		1.00
Incremental Delay, d2	9.6		37.7	0.1		4.5
Delay (s)	33.6		62.3	9.6		30.8
Level of Service	C		E	A		C
Approach Delay (s)	33.6			24.6	30.8	
Approach LOS	C			C	C	

Intersection Summary			
HCM 2000 Control Delay	30.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.4
Intersection Capacity Utilization	67.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	356	2085	233	257	1206	247	187	789	120	297	1149	184
Future Volume (vph)	356	2085	233	257	1206	247	187	789	120	297	1149	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		85.0	90.0		85.0	90.0		50.0	100.0		65.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Ped Bike Factor	1.00		0.99	1.00		0.98	1.00		0.99	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	4421	1551	3298	4214	1536	3330	4378	1566	3330	4378	1551
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3393	4421	1529	3298	4214	1512	3326	4378	1543	3327	4378	1523
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			148			175			114			145
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		560.5			603.0			601.7			2139.5	
Travel Time (s)		28.8			31.0			36.1			128.4	
Confl. Peds. (#/hr)	4		2	2		4	6		3	3		6
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	3%	5%	7%	4%	4%	3%	2%	4%	3%	3%
Adj. Flow (vph)	371	2172	243	268	1256	257	195	822	125	309	1197	192
Shared Lane Traffic (%)												
Lane Group Flow (vph)	371	2172	243	268	1256	257	195	822	125	309	1197	192
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	50.4	50.4	11.0	50.4	50.4	11.0	48.4	48.4	11.0	48.4	48.4
Total Split (s)	14.0	57.0	57.0	12.0	55.0	55.0	12.0	49.0	49.0	12.0	49.0	49.0
Total Split (%)	10.8%	43.8%	43.8%	9.2%	42.3%	42.3%	9.2%	37.7%	37.7%	9.2%	37.7%	37.7%
Maximum Green (s)	10.0	50.6	50.6	8.0	48.6	48.6	8.0	42.6	42.6	8.0	42.6	42.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		37.0	37.0		37.0	37.0		35.0	35.0		35.0	35.0
Pedestrian Calls (#/hr)		2	2		4	4		3	3		6	6
Act Effct Green (s)	11.5	50.6	50.6	9.5	48.6	48.6	8.0	41.1	41.1	8.0	41.1	41.1
Actuated g/C Ratio	0.09	0.39	0.39	0.07	0.37	0.37	0.06	0.32	0.32	0.06	0.32	0.32
v/c Ratio	1.24	1.26	0.35	1.12	0.80	0.38	0.96	0.59	0.22	1.51	0.87	0.33
Control Delay	179.6	157.9	12.3	146.2	41.0	11.3	112.9	39.3	7.8	295.2	49.3	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	179.6	157.9	12.3	146.2	41.0	11.3	112.9	39.3	7.8	295.2	49.3	10.8
LOS	F	F	B	F	D	B	F	D	A	F	D	B
Approach Delay		148.0			52.5			48.4			89.7	
Approach LOS		F			D			D			F	
Queue Length 50th (m)	~65.9	~290.8	15.7	~45.6	118.7	13.8	26.1	72.5	1.9	~56.6	118.0	8.3
Queue Length 95th (m)	#96.9	#323.2	35.9	#73.4	140.1	34.8	#49.7	88.4	15.7	#85.7	139.1	26.4
Internal Link Dist (m)		536.5			579.0			577.7			2115.5	
Turn Bay Length (m)	110.0		85.0	90.0		85.0	90.0		50.0	100.0		65.0
Base Capacity (vph)	300	1720	685	240	1575	674	204	1434	582	204	1434	596
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.24	1.26	0.35	1.12	0.80	0.38	0.96	0.57	0.21	1.51	0.83	0.32

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.51	
Intersection Signal Delay: 96.3	Intersection LOS: F

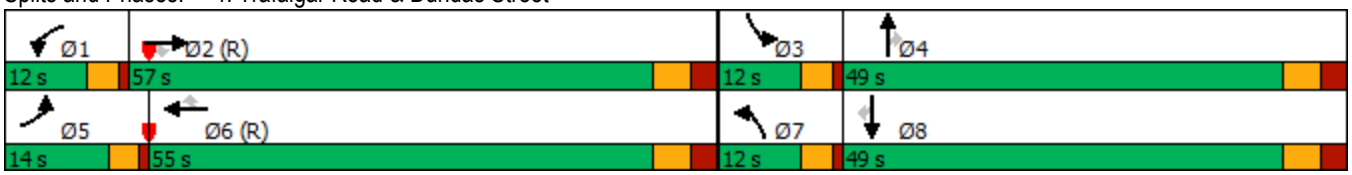
Intersection Capacity Utilization 95.3%	ICU Level of Service F
Analysis Period (min) 15	

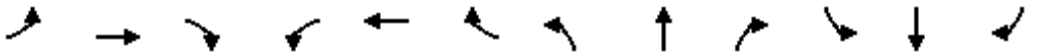
* User Entered Value

~ 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.

Splits and Phases: 4: Trafalgar Road & Dundas Street

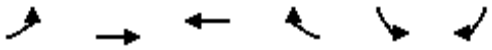




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	356	2085	233	257	1206	247	187	789	120	297	1149	184
Future Volume (vph)	356	2085	233	257	1206	247	187	789	120	297	1149	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	4421	1529	3298	4214	1512	3330	4378	1543	3330	4378	1523
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	4421	1529	3298	4214	1512	3330	4378	1543	3330	4378	1523
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	371	2172	243	268	1256	257	195	822	125	309	1197	192
RTOR Reduction (vph)	0	0	90	0	0	110	0	0	78	0	0	99
Lane Group Flow (vph)	371	2172	153	268	1256	147	195	822	47	309	1197	93
Confl. Peds. (#/hr)	4		2	2		4	6		3	3		6
Heavy Vehicles (%)	2%	2%	3%	5%	7%	4%	4%	3%	2%	4%	3%	3%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	11.5	50.6	50.6	9.5	48.6	48.6	8.0	41.1	41.1	8.0	41.1	41.1
Effective Green, g (s)	11.5	50.6	50.6	9.5	48.6	48.6	8.0	41.1	41.1	8.0	41.1	41.1
Actuated g/C Ratio	0.09	0.39	0.39	0.07	0.37	0.37	0.06	0.32	0.32	0.06	0.32	0.32
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Lane Grp Cap (vph)	300	1720	595	241	1575	565	204	1384	487	204	1384	481
v/s Ratio Prot	c0.11	c0.49		0.08	0.30		0.06	0.19		c0.09	c0.27	
v/s Ratio Perm			0.10			0.10			0.03			0.06
v/c Ratio	1.24	1.26	0.26	1.11	0.80	0.26	0.96	0.59	0.10	1.51	0.86	0.19
Uniform Delay, d1	59.2	39.7	26.9	60.2	36.3	28.2	60.8	37.4	31.4	61.0	41.8	32.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	131.8	123.1	1.0	91.3	4.3	1.1	50.3	0.7	0.1	255.2	6.0	0.2
Delay (s)	191.1	162.8	28.0	151.6	40.6	29.4	111.1	38.2	31.5	316.2	47.9	32.6
Level of Service	F	F	C	F	D	C	F	D	C	F	D	C
Approach Delay (s)		154.8			55.7			49.9			95.0	
Approach LOS		F			E			D			F	

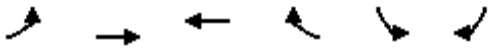
Intersection Summary			
HCM 2000 Control Delay	101.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	95.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Volume (vph)	0	1711	667	6	0	241
Future Volume (vph)	0	1711	667	6	0	241
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0			30.0	0.0	0.0
Storage Lanes	0			1	0	1
Taper Length (m)	15.0				15.0	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor						
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	3500	3500	1566	0	1593
Flt Permitted						
Satd. Flow (perm)	0	3500	3500	1566	0	1593
Link Speed (k/h)		60	60		50	
Link Distance (m)		228.3	173.6		144.7	
Travel Time (s)		13.7	10.4		10.4	
Confl. Peds. (#/hr)	5			5	5	5
Confl. Bikes (#/hr)				5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1901	741	7	0	268
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1901	741	7	0	268
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		7.0	7.0		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

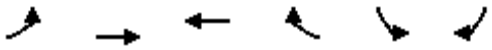
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.8%		ICU Level of Service B	
Analysis Period (min) 15			



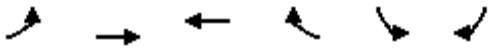
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Volume (veh/h)	0	1711	667	6	0	241
Future Volume (Veh/h)	0	1711	667	6	0	241
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1901	741	7	0	268
Pedestrians		5	5		5	
Lane Width (m)		3.5	3.5		3.5	
Walking Speed (m/s)		1.0	1.0		1.0	
Percent Blockage		0	0		0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		228	174			
pX, platoon unblocked	0.97				0.72	0.97
vC, conflicting volume	753				1702	380
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	685				1003	301
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	60
cM capacity (veh/h)	873				169	668

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	950	950	370	370	7	268
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	7	268
cSH	1700	1700	1700	1700	1700	668
Volume to Capacity	0.56	0.56	0.22	0.22	0.00	0.40
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	14.7
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	14.0
Lane LOS						B
Approach Delay (s)	0.0		0.0			14.0
Approach LOS						B

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	58.8%	ICU Level of Service	B
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	482	1229	548	14	49	125
Future Volume (vph)	482	1229	548	14	49	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0			0.0	40.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	15.0				15.0	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00		0.99	0.98
Frt			0.996			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1750	3500	3483	0	1750	1566
Flt Permitted	0.415				0.950	
Satd. Flow (perm)	762	3500	3483	0	1740	1532
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			4			139
Link Speed (k/h)		60	60		50	
Link Distance (m)		173.6	1244.3		120.8	
Travel Time (s)		10.4	74.7		8.7	
Confl. Peds. (#/hr)	5			5	5	5
Confl. Bikes (#/hr)				5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	536	1366	609	16	54	139
Shared Lane Traffic (%)						
Lane Group Flow (vph)	536	1366	625	0	54	139
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		3.5	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (m)	2.0	10.0	10.0		2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6		2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Detector Phase	2	2	6		4	4
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0		7.0	7.0
Minimum Split (s)	37.5	37.5	37.5		36.0	36.0
Total Split (s)	84.0	84.0	84.0		36.0	36.0
Total Split (%)	70.0%	70.0%	70.0%		30.0%	30.0%
Maximum Green (s)	78.5	78.5	78.5		32.0	32.0
Yellow Time (s)	3.7	3.7	3.7		3.0	3.0
All-Red Time (s)	1.8	1.8	1.8		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5		4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	None
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	25.0	25.0	25.0		25.0	25.0
Pedestrian Calls (#/hr)	5	5	5		5	5
Act Effct Green (s)	82.7	82.7	82.7		12.3	12.3
Actuated g/C Ratio	0.79	0.79	0.79		0.12	0.12
v/c Ratio	0.89	0.49	0.23		0.26	0.46
Control Delay	30.3	5.8	4.0		42.0	11.3
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	30.3	5.8	4.0		42.0	11.3
LOS	C	A	A		D	B
Approach Delay		12.7	4.0		19.9	
Approach LOS		B	A		B	
Queue Length 50th (m)	45.1	29.3	9.8		9.7	0.0
Queue Length 95th (m)	#206.7	107.1	38.4		19.9	15.0
Internal Link Dist (m)		149.6	1220.3		96.8	
Turn Bay Length (m)	85.0				40.0	
Base Capacity (vph)	602	2768	2755		539	568
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	0.89	0.49	0.23		0.10	0.24

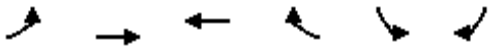
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 104.6			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 11.2		Intersection LOS: B	
Intersection Capacity Utilization 74.9%		ICU Level of Service D	

Analysis Period (min) 15

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

Splits and Phases: 24: William Halton Parkway & Collector 5





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	482	1229	548	14	49	125
Future Volume (vph)	482	1229	548	14	49	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1744	3500	3484		1750	1525
Flt Permitted	0.41	1.00	1.00		0.95	1.00
Satd. Flow (perm)	762	3500	3484		1750	1525
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	536	1366	609	16	54	139
RTOR Reduction (vph)	0	0	1	0	0	123
Lane Group Flow (vph)	536	1366	624	0	54	16
Confl. Peds. (#/hr)	5			5	5	5
Confl. Bikes (#/hr)				5		5
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Actuated Green, G (s)	82.7	82.7	82.7		12.3	12.3
Effective Green, g (s)	82.7	82.7	82.7		12.3	12.3
Actuated g/C Ratio	0.79	0.79	0.79		0.12	0.12
Clearance Time (s)	5.5	5.5	5.5		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	603	2769	2757		205	179
v/s Ratio Prot		0.39	0.18		c0.03	
v/s Ratio Perm	c0.70					0.01
v/c Ratio	0.89	0.49	0.23		0.26	0.09
Uniform Delay, d1	7.7	3.7	2.8		42.0	41.1
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	14.9	0.1	0.2		0.7	0.2
Delay (s)	22.5	3.9	3.0		42.7	41.3
Level of Service	C	A	A		D	D
Approach Delay (s)		9.1	3.0		41.7	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	10.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	104.5	Sum of lost time (s)	9.5
Intersection Capacity Utilization	74.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

MOVEMENT SUMMARY

Site: [102] Sixth Line & William Halton Parkway - Mitigation

(General)

Output produced by SIDRA INTERSECTION Version: 10.0.8.241

2031 Future Background AM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Sixth Line															
1	L2	All MCs	48	2.0	48	2.0	0.703	37.0	LOS E	3.0	21.1	0.89	1.06	1.59	35.9
2	T1	All MCs	199	2.0	199	2.0	0.703	36.7	LOS E	3.0	21.1	0.89	1.06	1.59	36.4
3	R2	All MCs	224	2.0	224	2.0	0.703	34.5	LOS D	3.0	21.1	0.88	1.05	1.59	36.9
Approach			471	2.0	471	2.0	0.703	35.7	LOS E	3.0	21.1	0.88	1.06	1.59	36.6
East: William Halton Parkway															
4	L2	All MCs	76	2.0	76	2.0	0.486	11.8	LOS B	2.5	18.0	0.56	0.59	0.85	47.0
5	T1	All MCs	512	2.0	512	2.0	0.486	11.6	LOS B	2.5	18.0	0.55	0.58	0.84	48.1
6	R2	All MCs	140	2.0	140	2.0	0.486	11.5	LOS B	2.5	17.5	0.54	0.57	0.83	48.2
Approach			728	2.0	728	2.0	0.486	11.6	LOS B	2.5	18.0	0.55	0.58	0.84	48.0
North: Sixth Line															
7	L2	All MCs	774	2.0	774	2.0	1.096	84.0	LOS F	38.6	274.7	1.00	2.71	6.23	24.8
8	T1	All MCs	193	2.0	193	2.0	0.283	8.7	LOS A	0.9	6.2	0.50	0.46	0.50	50.5
9	R2	All MCs	353	2.0	353	2.0	0.186	4.1	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			1321	2.0	1321	2.0	1.096	51.6	LOS F	38.6	274.7	0.66	1.65	3.72	31.6
West: William Halton Parkway															
10	L2	All MCs	290	2.0	290	2.0	0.840	36.7	LOS E	6.9	49.1	0.87	1.23	2.11	35.3
11	T1	All MCs	619	2.0	619	2.0	0.840	35.7	LOS E	6.9	49.4	0.86	1.22	2.11	36.9
12	R2	All MCs	106	2.0	106	2.0	0.056	2.7	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			1014	2.0	1014	2.0	0.840	32.6	LOS D	6.9	49.4	0.78	1.09	1.89	37.7
All Vehicles			3534	2.0	3534	2.0	1.096	35.8	LOS E	38.6	274.7	0.70	1.19	2.32	36.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [102] Ninth Line & William Halton Parkway - Mitigation

(General)

Output produced by SIDRA INTERSECTION Version: 10.0.8.241

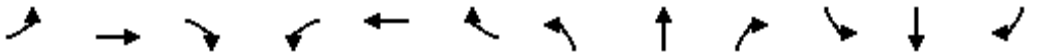
Future Background 2031 AM - Mitigation
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

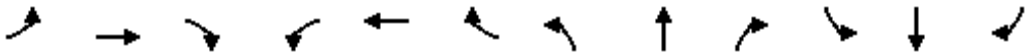
Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Ninth Line															
1	L2	All MCs	145	23.0	145	23.0	0.855	56.9	LOS F	4.5	35.3	0.93	1.24	2.11	30.6
2	T1	All MCs	392	2.0	392	2.0	0.855	47.3	LOS E	5.3	38.1	0.92	1.23	2.11	32.6
3	R2	All MCs	111	3.0	111	3.0	0.855	56.0	LOS F	5.3	38.1	0.92	1.23	2.11	33.4
Approach			648	6.9	648	6.9	0.855	50.9	LOS F	5.3	38.1	0.92	1.23	2.11	32.3
East: William Halton Parkway															
4	L2	All MCs	119	2.0	119	2.0	0.707	20.2	LOS C	5.7	40.8	0.73	0.92	1.47	42.4
5	T1	All MCs	753	3.0	753	3.0	0.707	20.0	LOS C	5.7	40.8	0.72	0.91	1.46	43.4
6	R2	All MCs	107	4.0	107	4.0	0.707	19.9	LOS C	5.6	40.5	0.71	0.90	1.45	43.5
Approach			979	3.0	979	3.0	0.707	20.1	LOS C	5.7	40.8	0.72	0.91	1.46	43.3
North: Ninth Line															
7	L2	All MCs	224	2.0	224	2.0	0.444	14.9	LOS B	1.7	12.0	0.68	0.76	0.97	42.9
8	T1	All MCs	706	2.0	706	2.0	1.329	181.3	LOS F	61.6	438.4	1.00	4.13	12.20	19.3
9	R2	All MCs	91	2.0	91	2.0	0.048	3.0	LOS A	0.0	0.0	0.00	0.00	0.00	56.4
Approach			1020	2.0	1020	2.0	1.329	128.9	LOS F	61.6	438.4	0.84	3.03	8.65	23.6
West: William Halton Parkway															
10	L2	All MCs	108	4.0	108	4.0	1.357	190.6	LOS F	74.2	529.2	1.00	4.47	12.78	18.9
11	T1	All MCs	1248	2.0	1248	2.0	1.357	135.2	LOS F	74.2	529.2	0.98	3.26	8.70	22.9
12	R2	All MCs	378	12.0	378	12.0	0.213	5.8	LOS A	0.0	0.0	0.00	0.00	0.00	56.2
Approach			1734	4.3	1734	4.3	1.357	110.5	LOS F	74.2	529.2	0.77	2.62	7.06	25.8
All Vehicles			4381	3.9	4381	3.9	1.357	85.8	LOS F	74.2	529.2	0.80	2.13	5.45	28.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	169	540	91	253	895	849	137	1285	207	468	1052	268
Future Volume (vph)	169	540	91	253	895	849	137	1285	207	468	1052	268
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		60.0	60.0		205.0	90.0		55.0	140.0		55.0
Storage Lanes	2		1	2		1	1		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	*0.80	1.00	0.97	*0.80	1.00
Ped Bike Factor							1.00					0.99
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	3500	1566	3330	3500	1566	1750	4421	1536	3267	4421	1566
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3395	3500	1566	3330	3500	1566	1750	4421	1536	3267	4421	1545
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			120			229			120			161
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		207.8			228.3			142.6			224.9	
Travel Time (s)		12.5			13.7			8.6			13.5	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	4%	2%	2%	2%	2%	4%	6%	2%	2%
Adj. Flow (vph)	182	581	98	272	962	913	147	1382	223	503	1131	288
Shared Lane Traffic (%)												
Lane Group Flow (vph)	182	581	98	272	962	913	147	1382	223	503	1131	288
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

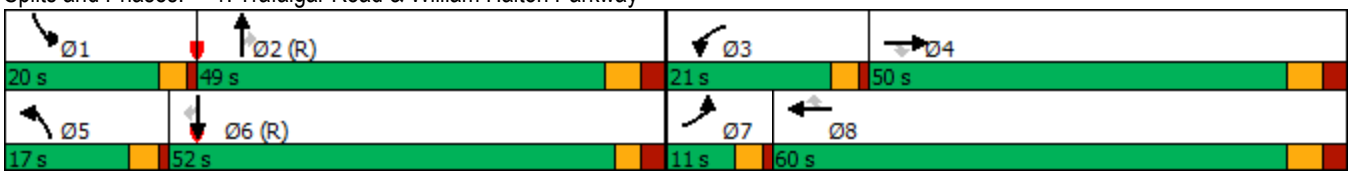


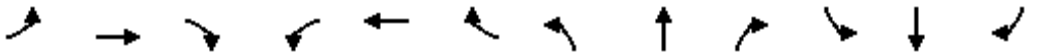
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	48.4	48.4	11.0	48.4	48.4	11.0	45.4	45.4	11.0	44.4	44.4
Total Split (s)	11.0	50.0	50.0	21.0	60.0	60.0	17.0	49.0	49.0	20.0	52.0	52.0
Total Split (%)	7.9%	35.7%	35.7%	15.0%	42.9%	42.9%	12.1%	35.0%	35.0%	14.3%	37.1%	37.1%
Maximum Green (s)	7.0	43.6	43.6	17.0	53.6	53.6	13.0	42.6	42.6	16.0	46.6	46.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	2.7	2.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	5.4	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		35.0	35.0		35.0	35.0		32.0	32.0		32.0	32.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	7.0	45.1	45.1	15.5	53.6	53.6	13.0	42.6	42.6	16.0	46.6	46.6
Actuated g/C Ratio	0.05	0.32	0.32	0.11	0.38	0.38	0.09	0.30	0.30	0.11	0.33	0.33
v/c Ratio	1.08	0.52	0.17	0.74	0.72	1.23	0.91	1.03	0.41	1.35	0.77	0.46
Control Delay	151.6	40.9	3.8	72.5	40.5	145.5	112.0	79.3	19.7	219.2	46.1	18.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	151.6	40.9	3.8	72.5	40.5	145.5	112.0	79.3	19.7	219.2	46.1	18.2
LOS	F	D	A	E	D	F	F	E	B	F	D	B
Approach Delay		60.1			89.2			74.4			87.2	
Approach LOS		E			F			E			F	
Queue Length 50th (m)	~28.7	69.6	0.0	37.8	118.5	~271.3	41.0	~169.7	21.5	~93.6	116.9	26.3
Queue Length 95th (m)	#53.6	88.5	8.4	52.8	143.1	#350.6	#81.4	#203.5	44.9	#128.6	137.1	52.9
Internal Link Dist (m)		183.8			204.3			118.6			200.9	
Turn Bay Length (m)	80.0		60.0	60.0		205.0	90.0		55.0	140.0		55.0
Base Capacity (vph)	169	1126	585	404	1340	740	162	1345	550	373	1471	621
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.08	0.52	0.17	0.67	0.72	1.23	0.91	1.03	0.41	1.35	0.77	0.46

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.35	
Intersection Signal Delay: 81.0	Intersection LOS: F

Intersection Capacity Utilization 97.2%	ICU Level of Service F
Analysis Period (min) 15	
* User Entered Value	
~ 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.	

Splits and Phases: 1: Trafalgar Road & William Halton Parkway





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	169	540	91	253	895	849	137	1285	207	468	1052	268
Future Volume (vph)	169	540	91	253	895	849	137	1285	207	468	1052	268
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	5.4	5.4
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	*0.80	1.00	0.97	*0.80	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	3500	1566	3330	3500	1566	1750	4421	1536	3267	4421	1545
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	3500	1566	3330	3500	1566	1750	4421	1536	3267	4421	1545
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)	182	581	98	272	962	913	147	1382	223	503	1131	288
RTOR Reduction (vph)	0	0	66	0	0	141	0	0	83	0	0	107
Lane Group Flow (vph)	182	581	32	272	962	772	147	1382	140	503	1131	181
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	2%	2%	2%	4%	2%	2%	2%	2%	4%	6%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	7.0	45.1	45.1	15.5	53.6	53.6	13.0	42.6	42.6	16.0	46.6	46.6
Effective Green, g (s)	7.0	45.1	45.1	15.5	53.6	53.6	13.0	42.6	42.6	16.0	46.6	46.6
Actuated g/C Ratio	0.05	0.32	0.32	0.11	0.38	0.38	0.09	0.30	0.30	0.11	0.33	0.33
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	5.4	5.4
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	169	1127	504	368	1340	599	162	1345	467	373	1471	514
v/s Ratio Prot	c0.05	0.17		0.08	0.27		0.08	c0.31		c0.15	c0.26	
v/s Ratio Perm			0.02			c0.49			0.09			0.12
v/c Ratio	1.08	0.52	0.06	0.74	0.72	1.29	0.91	1.03	0.30	1.35	0.77	0.35
Uniform Delay, d1	66.5	38.6	32.8	60.3	36.8	43.2	62.9	48.7	37.3	62.0	41.9	35.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	91.2	0.8	0.1	7.6	2.3	142.0	44.3	31.8	1.6	173.7	3.9	1.9
Delay (s)	157.7	39.4	32.9	67.9	39.1	185.2	107.2	80.5	38.9	235.7	45.8	37.2
Level of Service	F	D	C	E	D	F	F	F	D	F	D	D
Approach Delay (s)		63.6			104.9			77.5			94.2	
Approach LOS		E			F			E			F	

Intersection Summary			
HCM 2000 Control Delay	89.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	97.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

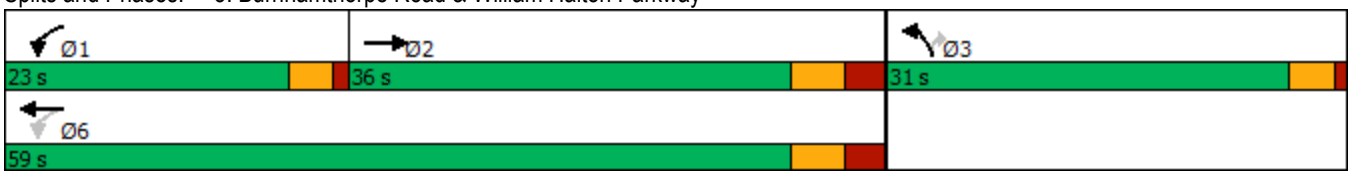
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	757	1	302	1447	0	324
Future Volume (vph)	757	1	302	1447	0	324
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	100.0		30.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			15.0		50.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected			0.950			
Satd. Flow (prot)	3433	0	1750	3500	1842	1566
Flt Permitted			0.205			
Satd. Flow (perm)	3433	0	378	3500	1842	1566
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						453
Link Speed (k/h)	60			60	50	
Link Distance (m)	657.5			390.6	221.9	
Travel Time (s)	39.5			23.4	16.0	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%
Adj. Flow (vph)	789	1	315	1507	0	338
Shared Lane Traffic (%)						
Lane Group Flow (vph)	790	0	315	1507	0	338
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	10.0		2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6		2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	3	



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases			6			3
Detector Phase	2		1	6	3	3
Switch Phase						
Minimum Initial (s)	10.0		7.0	10.0	7.0	7.0
Minimum Split (s)	28.4		11.5	28.4	31.0	31.0
Total Split (s)	36.0		23.0	59.0	31.0	31.0
Total Split (%)	40.0%		25.6%	65.6%	34.4%	34.4%
Maximum Green (s)	29.6		19.0	52.6	27.0	27.0
Yellow Time (s)	3.7		3.0	3.7	3.0	3.0
All-Red Time (s)	2.7		1.0	2.7	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4		4.0	6.4	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	Max		None	None	Max	Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	15.0			15.0	20.0	20.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	29.7		49.6	47.2		27.0
Actuated g/C Ratio	0.35		0.59	0.56		0.32
v/c Ratio	0.66		0.71	0.77		0.42
Control Delay	26.9		19.8	17.8		2.1
Queue Delay	0.0		0.0	0.0		0.0
Total Delay	26.9		19.8	17.8		2.1
LOS	C		B	B		A
Approach Delay	26.9			18.1	2.1	
Approach LOS	C			B	A	
Queue Length 50th (m)	55.2		23.5	92.3		0.0
Queue Length 95th (m)	82.3		44.5	118.0		2.8
Internal Link Dist (m)	633.5			366.6	197.9	
Turn Bay Length (m)			100.0			
Base Capacity (vph)	1202		529	2177		808
Starvation Cap Reductn	0		0	0		0
Spillback Cap Reductn	0		0	0		0
Storage Cap Reductn	0		0	0		0
Reduced v/c Ratio	0.66		0.60	0.69		0.42

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 84.7			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 18.7		Intersection LOS: B	
Intersection Capacity Utilization 49.7%		ICU Level of Service A	
Analysis Period (min) 15			

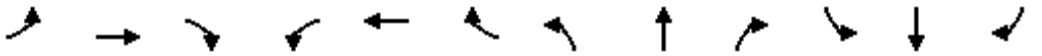
Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway



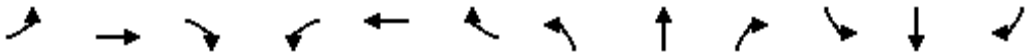


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	757	1	302	1447	0	324
Future Volume (vph)	757	1	302	1447	0	324
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4		4.0	6.4		4.0
Lane Util. Factor	0.95		1.00	0.95		1.00
Frt	1.00		1.00	1.00		0.85
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	3432		1750	3500		1566
Flt Permitted	1.00		0.20	1.00		1.00
Satd. Flow (perm)	3432		377	3500		1566
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	789	1	315	1507	0	338
RTOR Reduction (vph)	0	0	0	0	0	230
Lane Group Flow (vph)	790	0	315	1507	0	108
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	3	
Permitted Phases			6			3
Actuated Green, G (s)	29.6		47.2	47.2		27.0
Effective Green, g (s)	29.6		47.2	47.2		27.0
Actuated g/C Ratio	0.35		0.56	0.56		0.32
Clearance Time (s)	6.4		4.0	6.4		4.0
Vehicle Extension (s)	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	1200		431	1952		499
v/s Ratio Prot	0.23		0.12	c0.43		
v/s Ratio Perm			0.29			c0.07
v/c Ratio	0.66		0.73	0.77		0.22
Uniform Delay, d1	23.2		12.4	14.5		21.1
Progression Factor	1.00		1.00	1.00		1.00
Incremental Delay, d2	2.8		6.3	2.0		1.0
Delay (s)	26.1		18.6	16.5		22.1
Level of Service	C		B	B		C
Approach Delay (s)	26.1			16.9	22.1	
Approach LOS	C			B	C	

Intersection Summary			
HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	84.6	Sum of lost time (s)	14.4
Intersection Capacity Utilization	49.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	320	1647	188	286	1770	277	308	1193	223	274	834	243
Future Volume (vph)	320	1647	188	286	1770	277	308	1193	223	274	834	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		85.0	90.0		85.0	90.0		50.0	100.0		65.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Ped Bike Factor	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	4378	1566	3395	4421	1566	3395	4421	1566	3362	4421	1566
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3394	4378	1527	3391	4421	1540	3389	4421	1541	3360	4421	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			148			167			140			151
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		592.0			816.3			644.9			2139.5	
Travel Time (s)		30.4			42.0			38.7			128.4	
Confl. Peds. (#/hr)	5		15	15		5	6		4	4		6
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%
Adj. Flow (vph)	330	1698	194	295	1825	286	318	1230	230	282	860	251
Shared Lane Traffic (%)												
Lane Group Flow (vph)	330	1698	194	295	1825	286	318	1230	230	282	860	251
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	12.0	50.4	50.4	12.0	50.4	50.4	11.0	48.4	48.4	11.0	48.4	48.4
Total Split (s)	14.0	55.0	55.0	13.0	54.0	54.0	13.0	49.0	49.0	13.0	49.0	49.0
Total Split (%)	10.8%	42.3%	42.3%	10.0%	41.5%	41.5%	10.0%	37.7%	37.7%	10.0%	37.7%	37.7%
Maximum Green (s)	10.0	48.6	48.6	9.0	47.6	47.6	9.0	42.6	42.6	9.0	42.6	42.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		37.0	37.0		37.0	37.0		35.0	35.0		35.0	35.0
Pedestrian Calls (#/hr)		15	15		5	5		4	4		6	6
Act Effct Green (s)	10.3	48.6	48.6	9.3	47.6	47.6	9.0	42.3	42.3	9.0	42.3	42.3
Actuated g/C Ratio	0.08	0.37	0.37	0.07	0.37	0.37	0.07	0.33	0.33	0.07	0.33	0.33
v/c Ratio	1.23	1.04	0.29	1.22	1.13	0.43	1.35	0.85	0.39	1.22	0.60	0.42
Control Delay	180.4	72.6	9.0	178.8	104.5	14.4	228.8	47.9	15.0	179.2	38.7	15.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	180.4	72.6	9.0	178.8	104.5	14.4	228.8	47.9	15.0	179.2	38.7	15.5
LOS	F	E	A	F	F	B	F	D	B	F	D	B
Approach Delay		83.0			102.9			76.0			63.0	
Approach LOS		F			F			E			E	
Queue Length 50th (m)	~54.6	~195.0	7.6	~48.7	~225.2	21.0	~55.0	122.0	16.5	~45.4	76.5	18.4
Queue Length 95th (m)	#84.3	#228.7	24.4	#77.4	#258.7	45.1	#84.3	143.8	38.0	#73.4	92.9	41.5
Internal Link Dist (m)		568.0			792.3			620.9			2115.5	
Turn Bay Length (m)	110.0		85.0	90.0		85.0	90.0		50.0	100.0		65.0
Base Capacity (vph)	268	1636	663	242	1618	669	235	1448	599	232	1448	605
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.23	1.04	0.29	1.22	1.13	0.43	1.35	0.85	0.38	1.22	0.59	0.41

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.35	
Intersection Signal Delay: 84.0	Intersection LOS: F

Intersection Capacity Utilization 95.5%	ICU Level of Service F
Analysis Period (min) 15	

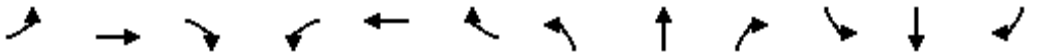
* User Entered Value

~ 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.

Splits and Phases: 4: Trafalgar Road & Dundas Street

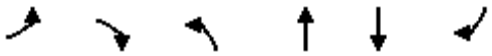




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	320	1647	188	286	1770	277	308	1193	223	274	834	243
Future Volume (vph)	320	1647	188	286	1770	277	308	1193	223	274	834	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	4378	1527	3395	4421	1540	3395	4421	1541	3362	4421	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	4378	1527	3395	4421	1540	3395	4421	1541	3362	4421	1538
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	330	1698	194	295	1825	286	318	1230	230	282	860	251
RTOR Reduction (vph)	0	0	93	0	0	106	0	0	94	0	0	102
Lane Group Flow (vph)	330	1698	101	295	1825	180	318	1230	136	282	860	149
Confl. Peds. (#/hr)	5		15	15		5	6		4	4		6
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	10.3	48.6	48.6	9.3	47.6	47.6	9.0	42.3	42.3	9.0	42.3	42.3
Effective Green, g (s)	10.3	48.6	48.6	9.3	47.6	47.6	9.0	42.3	42.3	9.0	42.3	42.3
Actuated g/C Ratio	0.08	0.37	0.37	0.07	0.37	0.37	0.07	0.33	0.33	0.07	0.33	0.33
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	268	1636	570	242	1618	563	235	1438	501	232	1438	500
v/s Ratio Prot	c0.10	0.39		0.09	c0.41		c0.09	c0.28		0.08	0.19	
v/s Ratio Perm			0.07			0.12			0.09			0.10
v/c Ratio	1.23	1.04	0.18	1.22	1.13	0.32	1.35	0.86	0.27	1.22	0.60	0.30
Uniform Delay, d1	59.9	40.7	27.3	60.4	41.2	29.6	60.5	41.0	32.4	60.5	36.7	32.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	132.2	32.7	0.7	130.0	66.1	1.5	184.3	5.7	0.6	129.7	1.0	0.7
Delay (s)	192.1	73.4	28.0	190.3	107.3	31.1	244.8	46.7	33.0	190.2	37.7	33.5
Level of Service	F	E	C	F	F	C	F	D	C	F	D	C
Approach Delay (s)		87.1			108.4			80.4			67.8	
Approach LOS		F			F			F			E	

Intersection Summary			
HCM 2000 Control Delay	88.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	95.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

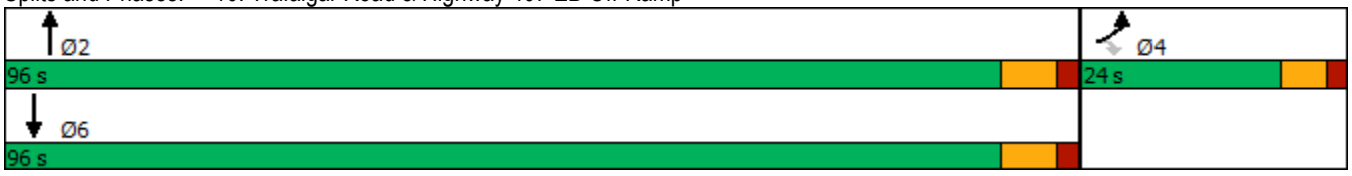


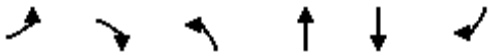
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	38	136	0	2144	1644	0
Future Volume (vph)	38	136	0	2144	1644	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1750	1278	0	3500	3466	0
Flt Permitted	0.950					
Satd. Flow (perm)	1750	1278	0	3500	3466	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		46				
Link Speed (k/h)	60			80	80	
Link Distance (m)	415.1			117.5	129.7	
Travel Time (s)	24.9			5.3	5.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	25%	2%	2%	3%	2%
Adj. Flow (vph)	40	145	0	2281	1749	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	40	145	0	2281	1749	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (m)	2.0	2.0		10.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	2.0		0.6	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Initial (s)	6.0	6.0		20.0	20.0	
Minimum Split (s)	24.0	24.0		27.0	27.0	
Total Split (s)	24.0	24.0		96.0	96.0	
Total Split (%)	20.0%	20.0%		80.0%	80.0%	
Maximum Green (s)	18.0	18.0		89.0	89.0	
Yellow Time (s)	4.0	4.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		7.0	7.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		Max	Max	
Act Effct Green (s)	13.6	13.6		89.1	89.1	
Actuated g/C Ratio	0.12	0.12		0.77	0.77	
v/c Ratio	0.20	0.76		0.85	0.66	
Control Delay	47.6	58.6		13.7	8.1	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	47.6	58.6		13.7	8.1	
LOS	D	E		B	A	
Approach Delay	56.2			13.7	8.1	
Approach LOS	E			B	A	
Queue Length 50th (m)	8.3	22.0		157.5	84.8	
Queue Length 95th (m)	18.6	44.2		224.1	118.7	
Internal Link Dist (m)	391.1			93.5	105.7	
Turn Bay Length (m)						
Base Capacity (vph)	272	237		2695	2669	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.15	0.61		0.85	0.66	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 115.7			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 13.3		Intersection LOS: B	
Intersection Capacity Utilization 75.1%		ICU Level of Service D	
Analysis Period (min) 15			

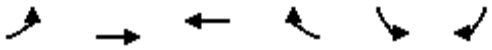
Splits and Phases: 10: Trafalgar Road & Highway 407 EB Off-Ramp





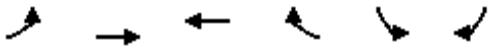
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	38	136	0	2144	1644	0
Future Volume (vph)	38	136	0	2144	1644	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1750	1278		3500	3466	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1750	1278		3500	3466	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	40	145	0	2281	1749	0
RTOR Reduction (vph)	0	41	0	0	0	0
Lane Group Flow (vph)	40	104	0	2281	1749	0
Heavy Vehicles (%)	2%	25%	2%	2%	3%	2%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	13.6	13.6		89.1	89.1	
Effective Green, g (s)	13.6	13.6		89.1	89.1	
Actuated g/C Ratio	0.12	0.12		0.77	0.77	
Clearance Time (s)	6.0	6.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	205	150		2695	2669	
v/s Ratio Prot	0.02			c0.65	0.50	
v/s Ratio Perm		c0.08				
v/c Ratio	0.20	0.70		0.85	0.66	
Uniform Delay, d1	46.1	49.1		8.8	6.2	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	13.1		3.5	1.3	
Delay (s)	46.6	62.2		12.3	7.4	
Level of Service	D	E		B	A	
Approach Delay (s)	58.8			12.3	7.4	
Approach LOS	E			B	A	

Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	115.7	Sum of lost time (s)	13.0
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Volume (vph)	0	1215	1626	13	0	371
Future Volume (vph)	0	1215	1626	13	0	371
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0			30.0	0.0	0.0
Storage Lanes	0			1	0	1
Taper Length (m)	15.0				15.0	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor						
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	3500	3500	1566	0	1593
Flt Permitted						
Satd. Flow (perm)	0	3500	3500	1566	0	1593
Link Speed (k/h)		60	60		50	
Link Distance (m)		228.3	173.6		144.7	
Travel Time (s)		13.7	10.4		10.4	
Confl. Peds. (#/hr)	5			5	5	5
Confl. Bikes (#/hr)				5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1350	1807	14	0	412
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1350	1807	14	0	412
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		7.0	7.0		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

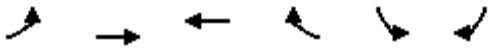
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 75.1%		ICU Level of Service D	
Analysis Period (min) 15			



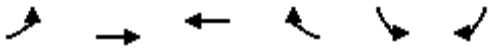
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Volume (veh/h)	0	1215	1626	13	0	371
Future Volume (Veh/h)	0	1215	1626	13	0	371
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1350	1807	14	0	412
Pedestrians		5	5		5	
Lane Width (m)		3.5	3.5		3.5	
Walking Speed (m/s)		1.0	1.0		1.0	
Percent Blockage		0	0		0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		228	174			
pX, platoon unblocked	0.54				0.61	0.54
vC, conflicting volume	1826				2492	914
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	839				1197	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	29
cM capacity (veh/h)	428				108	583

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	675	675	904	904	14	412
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	14	412
cSH	1700	1700	1700	1700	1700	583
Volume to Capacity	0.40	0.40	0.53	0.53	0.01	0.71
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	43.3
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	24.6
Lane LOS						C
Approach Delay (s)	0.0		0.0			24.6
Approach LOS						C

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	533	682	1446	9	77	193
Future Volume (vph)	533	682	1446	9	77	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0			0.0	40.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	15.0				15.0	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor			1.00		0.99	0.98
Frt			0.999			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1750	3500	3496	0	1750	1566
Flt Permitted	0.076				0.950	
Satd. Flow (perm)	140	3500	3496	0	1740	1532
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			1			214
Link Speed (k/h)		60	60		50	
Link Distance (m)		173.6	1244.3		120.8	
Travel Time (s)		10.4	74.7		8.7	
Confl. Peds. (#/hr)	5			5	5	5
Confl. Bikes (#/hr)				5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	592	758	1607	10	86	214
Shared Lane Traffic (%)						
Lane Group Flow (vph)	592	758	1617	0	86	214
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		3.5	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (m)	2.0	10.0	10.0		2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6		2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2					4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	7.0	10.0	10.0		7.0	7.0
Minimum Split (s)	11.0	37.5	37.5		36.0	36.0
Total Split (s)	30.0	84.0	54.0		36.0	36.0
Total Split (%)	25.0%	70.0%	45.0%		30.0%	30.0%
Maximum Green (s)	26.0	78.5	48.5		32.0	32.0
Yellow Time (s)	3.0	3.7	3.7		3.0	3.0
All-Red Time (s)	1.0	1.8	1.8		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.0	5.5	5.5		4.0	4.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	Max	None		None	None
Walk Time (s)		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		25.0	25.0		25.0	25.0
Pedestrian Calls (#/hr)		5	5		5	5
Act Effct Green (s)	80.6	79.1	48.9		13.2	13.2
Actuated g/C Ratio	0.79	0.78	0.48		0.13	0.13
v/c Ratio	1.13	0.28	0.96		0.38	0.56
Control Delay	109.5	4.5	42.1		44.0	10.9
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	109.5	4.5	42.1		44.0	10.9
LOS	F	A	D		D	B
Approach Delay		50.6	42.1		20.4	
Approach LOS		D	D		C	
Queue Length 50th (m)	~112.3	14.6	145.7		15.7	0.0
Queue Length 95th (m)	#235.8	48.2	#278.5		29.0	17.9
Internal Link Dist (m)		149.6	1220.3		96.8	
Turn Bay Length (m)	85.0				40.0	
Base Capacity (vph)	524	2716	1676		553	630
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	1.13	0.28	0.96		0.16	0.34

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 101.9			
Natural Cycle: 145			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.13			
Intersection Signal Delay: 43.6		Intersection LOS: D	
Intersection Capacity Utilization 90.1%		ICU Level of Service E	

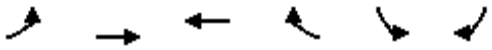
Analysis Period (min) 15

~ 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.

Splits and Phases: 24: William Halton Parkway & Collector 5





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	533	682	1446	9	77	193
Future Volume (vph)	533	682	1446	9	77	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5	5.5		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1750	3500	3496		1750	1526
Flt Permitted	0.08	1.00	1.00		0.95	1.00
Satd. Flow (perm)	139	3500	3496		1750	1526
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	592	758	1607	10	86	214
RTOR Reduction (vph)	0	0	1	0	0	186
Lane Group Flow (vph)	592	758	1616	0	86	28
Confl. Peds. (#/hr)	5			5	5	5
Confl. Bikes (#/hr)				5		5
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2					4
Actuated Green, G (s)	79.1	79.1	48.9		13.2	13.2
Effective Green, g (s)	79.1	79.1	48.9		13.2	13.2
Actuated g/C Ratio	0.78	0.78	0.48		0.13	0.13
Clearance Time (s)	4.0	5.5	5.5		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	522	2719	1679		226	197
v/s Ratio Prot	c0.29	0.22	0.46		c0.05	
v/s Ratio Perm	c0.59					0.02
v/c Ratio	1.13	0.28	0.96		0.38	0.14
Uniform Delay, d1	32.3	3.2	25.6		40.6	39.3
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	81.8	0.3	14.1		1.1	0.3
Delay (s)	114.2	3.5	39.7		41.6	39.6
Level of Service	F	A	D		D	D
Approach Delay (s)		52.0	39.7		40.2	
Approach LOS		D	D		D	

Intersection Summary			
HCM 2000 Control Delay	44.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	101.8	Sum of lost time (s)	13.5
Intersection Capacity Utilization	90.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

MOVEMENT SUMMARY

Site: [102] Sixth Line & William Halton Parkway - Mitigation

(General)

Output produced by SIDRA INTERSECTION Version: 10.0.8.241

2031 Future Background PM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Sixth Line															
1	L2	All MCs	12	2.0	12	2.0	0.342	11.8	LOS B	1.2	8.2	0.62	0.66	0.78	47.5
2	T1	All MCs	210	2.0	210	2.0	0.342	11.7	LOS B	1.2	8.2	0.61	0.66	0.78	48.3
3	R2	All MCs	153	2.0	153	2.0	0.342	11.4	LOS B	1.1	8.0	0.59	0.64	0.76	48.0
Approach			376	2.0	376	2.0	0.342	11.6	LOS B	1.2	8.2	0.61	0.65	0.77	48.1
East: William Halton Parkway															
4	L2	All MCs	241	2.0	241	2.0	0.933	39.7	LOS E	21.0	149.6	1.00	1.62	3.10	34.8
5	T1	All MCs	743	2.0	743	2.0	0.933	39.5	LOS E	21.2	150.7	1.00	1.62	3.11	35.4
6	R2	All MCs	472	2.0	472	2.0	0.933	39.1	LOS E	21.2	150.7	1.00	1.62	3.12	35.4
Approach			1457	2.0	1457	2.0	0.933	39.4	LOS E	21.2	150.7	1.00	1.62	3.11	35.3
North: Sixth Line															
7	L2	All MCs	260	2.0	260	2.0	0.476	14.7	LOS B	1.8	13.1	0.66	0.75	0.96	43.0
8	T1	All MCs	239	2.0	239	2.0	0.460	14.9	LOS B	1.8	12.7	0.68	0.76	0.96	46.7
9	R2	All MCs	302	2.0	302	2.0	0.159	3.9	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			801	2.0	801	2.0	0.476	10.7	LOS B	1.8	13.1	0.42	0.47	0.60	48.3
West: William Halton Parkway															
10	L2	All MCs	257	2.0	257	2.0	0.540	14.8	LOS B	2.8	20.0	0.64	0.75	1.06	43.7
11	T1	All MCs	439	2.0	439	2.0	0.540	14.4	LOS B	2.8	20.0	0.62	0.73	1.05	46.5
12	R2	All MCs	72	2.0	72	2.0	0.038	2.7	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			768	2.0	768	2.0	0.540	13.4	LOS B	2.8	20.0	0.57	0.67	0.95	46.2
All Vehicles			3401	2.0	3401	2.0	0.933	23.7	LOS C	21.2	150.7	0.72	1.03	1.77	41.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [102] Ninth Line & William Halton Parkway - Mitigation

(General)

Output produced by SIDRA INTERSECTION Version: 10.0.8.241

Future Background 2031 PM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

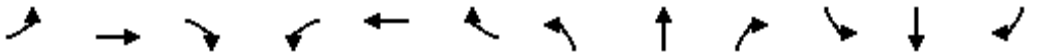
Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Ninth Line															
1	L2	All MCs	400	23.0	400	23.0	1.733	367.2	LOS F	87.5	692.5	1.00	5.69	17.86	14.2
2	T1	All MCs	756	2.0	756	2.0	1.733	359.5	LOS F	109.3	780.5	1.00	5.74	18.60	14.3
3	R2	All MCs	270	3.0	270	3.0	1.733	368.0	LOS F	109.3	780.5	1.00	5.77	18.93	14.3
Approach			1426	8.1	1426	8.1	1.733	363.2	LOS F	109.3	780.5	1.00	5.73	18.46	14.3
East: Burnhamthorpe Road															
4	L2	All MCs	165	2.0	165	2.0	1.340	181.4	LOS F	76.4	547.4	1.00	4.34	11.70	18.8
5	T1	All MCs	1401	3.0	1401	3.0	1.340	181.2	LOS F	78.8	566.3	1.00	4.41	11.90	18.9
6	R2	All MCs	154	4.0	154	4.0	1.340	181.0	LOS F	78.8	566.3	1.00	4.47	12.09	18.8
Approach			1720	3.0	1720	3.0	1.340	181.2	LOS F	78.8	566.3	1.00	4.41	11.90	18.9
North: Ninth Line															
7	L2	All MCs	131	2.0	131	2.0	0.672	30.4	LOS D	2.8	20.2	0.86	1.00	1.40	37.6
8	T1	All MCs	390	2.0	390	2.0	0.672	29.2	LOS D	2.8	20.2	0.85	0.99	1.39	39.3
9	R2	All MCs	112	2.0	112	2.0	0.059	3.5	LOS A	0.0	0.0	0.00	0.00	0.00	56.4
Approach			634	2.0	634	2.0	0.672	24.9	LOS C	2.8	20.2	0.70	0.81	1.15	41.0
West: William Halton Parkway															
10	L2	All MCs	40	4.0	40	4.0	0.931	42.4	LOS E	16.2	115.6	0.96	1.59	3.11	34.4
11	T1	All MCs	1064	2.0	1064	2.0	0.931	35.8	LOS E	16.2	115.6	0.85	1.28	2.36	38.4
12	R2	All MCs	203	12.0	203	12.0	0.115	3.6	LOS A	0.0	0.0	0.00	0.00	0.00	56.2
Approach			1308	3.6	1308	3.6	0.931	31.0	LOS D	16.2	115.6	0.72	1.09	2.01	40.2
All Vehicles			5088	4.5	5088	4.5	1.733	174.1	LOS F	109.3	780.5	0.89	3.48	9.86	21.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

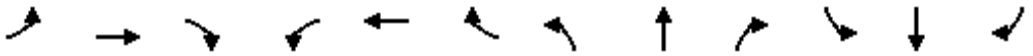
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Appendix I

2036 Future Background Conditions Synchro and Sidra Worksheets



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	634	1107	292	156	316	337	120	1478	216	545	1294	237
Future Volume (vph)	634	1107	292	156	316	337	120	1478	216	545	1294	237
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		60.0	60.0		205.0	90.0		55.0	140.0		55.0
Storage Lanes	2		1	2		1	1		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	*0.80	1.00	0.97	*0.80	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	3500	1566	3395	3500	1452	1750	4421	1493	3362	4378	1566
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3395	3500	1566	3395	3500	1452	1750	4421	1493	3362	4378	1566
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			181			176			120			143
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		207.8			228.3			142.6			224.9	
Travel Time (s)		12.5			13.7			8.6			13.5	
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%	10%	2%	2%	7%	3%	3%	2%
Adj. Flow (vph)	689	1203	317	170	343	366	130	1607	235	592	1407	258
Shared Lane Traffic (%)												
Lane Group Flow (vph)	689	1203	317	170	343	366	130	1607	235	592	1407	258
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	

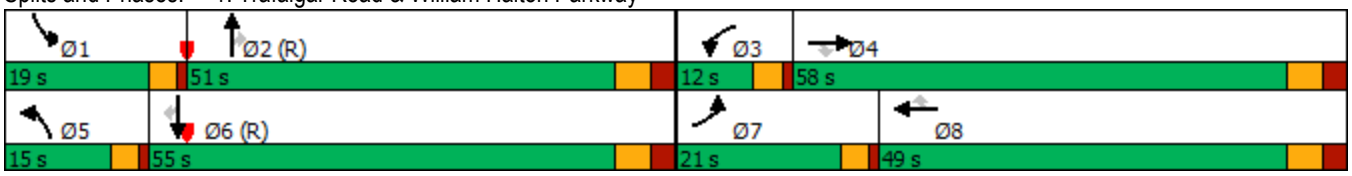


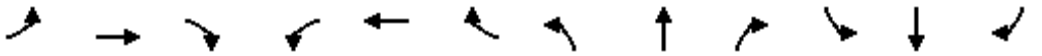
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	48.4	48.4	11.0	48.4	48.4	11.0	45.4	45.4	11.0	45.4	45.4
Total Split (s)	21.0	58.0	58.0	12.0	49.0	49.0	15.0	51.0	51.0	19.0	55.0	55.0
Total Split (%)	15.0%	41.4%	41.4%	8.6%	35.0%	35.0%	10.7%	36.4%	36.4%	13.6%	39.3%	39.3%
Maximum Green (s)	17.0	51.6	51.6	8.0	42.6	42.6	11.0	44.6	44.6	15.0	48.6	48.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		35.0	35.0		35.0	35.0		32.0	32.0		32.0	32.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	17.0	51.6	51.6	8.0	42.6	42.6	11.0	44.6	44.6	15.0	48.6	48.6
Actuated g/C Ratio	0.12	0.37	0.37	0.06	0.30	0.30	0.08	0.32	0.32	0.11	0.35	0.35
v/c Ratio	1.67	0.93	0.46	0.88	0.32	0.65	0.95	1.14	0.42	1.64	0.93	0.41
Control Delay	349.4	56.1	16.0	103.7	38.6	27.2	127.6	115.7	20.3	339.6	55.3	16.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	349.4	56.1	16.0	103.7	38.6	27.2	127.6	115.7	20.3	339.6	55.3	16.9
LOS	F	E	B	F	D	C	F	F	C	F	E	B
Approach Delay		141.9			46.5			105.1			125.5	
Approach LOS		F			D			F			F	
Queue Length 50th (m)	~142.9	167.8	26.8	24.5	38.6	46.1	36.5	~216.0	24.0	~121.9	155.7	22.7
Queue Length 95th (m)	#180.8	#211.0	53.4	#45.6	52.0	81.7	#77.1	#249.5	48.1	#158.6	#188.6	46.6
Internal Link Dist (m)		183.8			204.3			118.6			200.9	
Turn Bay Length (m)	80.0		60.0	60.0		205.0	90.0		55.0	140.0		55.0
Base Capacity (vph)	412	1290	691	194	1065	564	137	1408	557	360	1519	636
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.67	0.93	0.46	0.88	0.32	0.65	0.95	1.14	0.42	1.64	0.93	0.41

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.67			
Intersection Signal Delay: 115.4		Intersection LOS: F	
Intersection Capacity Utilization 97.9%		ICU Level of Service F	
Analysis Period (min) 15			

* User Entered Value
~ 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.

Splits and Phases: 1: Trafalgar Road & William Halton Parkway

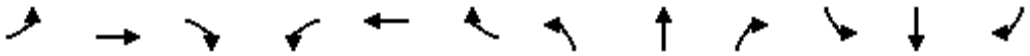




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	634	1107	292	156	316	337	120	1478	216	545	1294	237
Future Volume (vph)	634	1107	292	156	316	337	120	1478	216	545	1294	237
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	*0.80	1.00	0.97	*0.80	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	3500	1566	3395	3500	1452	1750	4421	1493	3362	4378	1566
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	3500	1566	3395	3500	1452	1750	4421	1493	3362	4378	1566
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)	689	1203	317	170	343	366	130	1607	235	592	1407	258
RTOR Reduction (vph)	0	0	114	0	0	122	0	0	82	0	0	93
Lane Group Flow (vph)	689	1203	203	170	343	244	130	1607	153	592	1407	165
Heavy Vehicles (%)	2%	2%	2%	2%	2%	10%	2%	2%	7%	3%	3%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	17.0	51.6	51.6	8.0	42.6	42.6	11.0	44.6	44.6	15.0	48.6	48.6
Effective Green, g (s)	17.0	51.6	51.6	8.0	42.6	42.6	11.0	44.6	44.6	15.0	48.6	48.6
Actuated g/C Ratio	0.12	0.37	0.37	0.06	0.30	0.30	0.08	0.32	0.32	0.11	0.35	0.35
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	412	1290	577	194	1065	441	137	1408	475	360	1519	543
v/s Ratio Prot	c0.20	c0.34		0.05	0.10		0.07	c0.36		c0.18	c0.32	
v/s Ratio Perm			0.13			0.17			0.10			0.11
v/c Ratio	1.67	0.93	0.35	0.88	0.32	0.55	0.95	1.14	0.32	1.64	0.93	0.30
Uniform Delay, d1	61.5	42.5	32.1	65.5	37.6	40.7	64.2	47.7	36.2	62.5	44.0	33.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	313.1	12.7	0.8	32.8	0.4	2.5	60.6	72.6	1.8	302.2	11.1	1.4
Delay (s)	374.6	55.2	32.8	98.3	37.9	43.3	124.9	120.3	38.0	364.7	55.1	34.8
Level of Service	F	E	C	F	D	D	F	F	D	F	E	C
Approach Delay (s)		151.6			51.8			110.8			134.0	
Approach LOS		F			D			F			F	

Intersection Summary			
HCM 2000 Control Delay	123.2	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)	20.8
Intersection Capacity Utilization	97.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	294	266	114	87	184	65	251	1395	139	145	1499	51
Future Volume (vph)	294	266	114	87	184	65	251	1395	139	145	1499	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	120.0		0.0	130.0		0.0	170.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	*0.80	0.91	1.00	*0.80	0.91
Ped Bike Factor		1.00		1.00								
Frt		0.955			0.961			0.986			0.995	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3329	0	1750	3269	0	1700	4353	0	1750	4352	0
Flt Permitted	0.566			0.427			0.081			0.067		
Satd. Flow (perm)	1043	3329	0	786	3269	0	145	4353	0	123	4352	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25			42			14			6	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		245.2			810.8			2139.5			320.3	
Travel Time (s)		17.7			58.4			128.4			19.2	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	6%	2%	5%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Adj. Flow (vph)	327	296	127	97	204	72	279	1550	154	161	1666	57
Shared Lane Traffic (%)												
Lane Group Flow (vph)	327	423	0	97	276	0	279	1704	0	161	1723	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.02	1.01	1.01	1.02	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		7.0	10.0	
Minimum Split (s)	41.4	41.4		41.4	41.4		37.3	37.3		22.0	37.3	
Total Split (s)	42.0	42.0		42.0	42.0		56.0	56.0		22.0	78.0	
Total Split (%)	35.0%	35.0%		35.0%	35.0%		46.7%	46.7%		18.3%	65.0%	
Maximum Green (s)	35.6	35.6		35.6	35.6		49.7	49.7		18.0	71.7	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.7	3.7		3.0	3.7	
All-Red Time (s)	2.7	2.7		2.7	2.7		2.6	2.6		1.0	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.3	6.3		4.0	6.3	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		5.0	5.0		3.0	5.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	28.0	28.0		28.0	28.0		24.0	24.0			24.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	35.6	35.6		35.6	35.6		55.9	55.9		74.0	71.7	
Actuated g/C Ratio	0.30	0.30		0.30	0.30		0.47	0.47		0.62	0.60	
v/c Ratio	1.06	0.42		0.42	0.28		4.16	0.84		0.69	0.66	
Control Delay	108.7	33.3		40.5	28.1		1471.2	33.1		37.2	17.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	108.7	33.3		40.5	28.1		1471.2	33.1		37.2	17.6	
LOS	F	C		D	C		F	C		D	B	
Approach Delay		66.2			31.3			235.4			19.3	
Approach LOS		E			C			F			B	
Queue Length 50th (m)	~84.4	39.5		18.3	21.9		~105.6	140.2		20.5	105.7	
Queue Length 95th (m)	#140.3	54.2		35.1	33.3		#162.9	#194.3		41.7	123.6	
Internal Link Dist (m)		221.2			786.8			2115.5			296.3	
Turn Bay Length (m)	100.0			120.0			130.0			170.0		
Base Capacity (vph)	309	1005		233	999		67	2035		319	2602	
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	1.06	0.42		0.42	0.28		4.16	0.84		0.50	0.66	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 4.16	

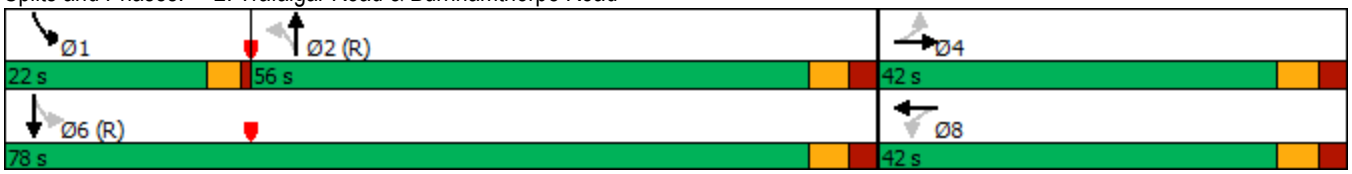
Intersection Signal Delay: 113.1	Intersection LOS: F
Intersection Capacity Utilization 89.8%	ICU Level of Service E
Analysis Period (min) 15	

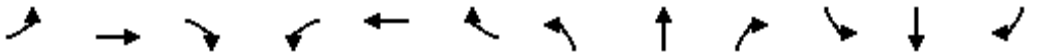
* User Entered Value

~ 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.

Splits and Phases: 2: Trafalgar Road & Burnhamthorpe Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	294	266	114	87	184	65	251	1395	139	145	1499	51
Future Volume (vph)	294	266	114	87	184	65	251	1395	139	145	1499	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4		6.3	6.3		4.0	6.3	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	*0.80		1.00	*0.80	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	0.96		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)	1750	3329		1749	3268		1700	4355		1750	4352	
Flt Permitted	0.57	1.00		0.43	1.00		0.08	1.00		0.07	1.00	
Satd. Flow (perm)	1042	3329		786	3268		146	4355		123	4352	
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)	327	296	127	97	204	72	279	1550	154	161	1666	57
RTOR Reduction (vph)	0	18	0	0	30	0	0	7	0	0	2	0
Lane Group Flow (vph)	327	405	0	97	246	0	279	1697	0	161	1721	0
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	2%	2%	2%	2%	6%	2%	5%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	35.6	35.6		35.6	35.6		55.9	55.9		71.7	71.7	
Effective Green, g (s)	35.6	35.6		35.6	35.6		55.9	55.9		71.7	71.7	
Actuated g/C Ratio	0.30	0.30		0.30	0.30		0.47	0.47		0.60	0.60	
Clearance Time (s)	6.4	6.4		6.4	6.4		6.3	6.3		4.0	6.3	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		5.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	309	987		233	969		68	2028		233	2600	
v/s Ratio Prot		0.12			0.08			0.39		0.07	c0.40	
v/s Ratio Perm	c0.31			0.12			c1.92			0.34		
v/c Ratio	1.06	0.41		0.42	0.25		4.10	0.84		0.69	0.66	
Uniform Delay, d1	42.2	33.8		33.9	32.1		32.0	28.1		28.1	16.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	67.4	0.3		1.2	0.1		1430.5	4.3		8.5	1.3	
Delay (s)	109.6	34.1		35.1	32.2		1462.5	32.3		36.6	17.4	
Level of Service	F	C		D	C		F	C		D	B	
Approach Delay (s)		67.0			33.0			233.6			19.1	
Approach LOS		E			C			F			B	

Intersection Summary			
HCM 2000 Control Delay	112.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.67		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.7
Intersection Capacity Utilization	89.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1408	1	275	491	0	496
Future Volume (vph)	1408	1	275	491	0	496
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	100.0		30.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			15.0		50.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected			0.950			
Satd. Flow (prot)	3500	0	1716	3466	1842	1566
Flt Permitted			0.095			
Satd. Flow (perm)	3500	0	172	3466	1842	1566
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						244
Link Speed (k/h)	60			60	50	
Link Distance (m)	657.5			396.1	222.0	
Travel Time (s)	39.5			23.8	16.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	4%	3%	2%	2%
Adj. Flow (vph)	1530	1	299	534	0	539
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1531	0	299	534	0	539
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	10.0		2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6		2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	3	



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases			6			3
Detector Phase	2		1	6	3	3
Switch Phase						
Minimum Initial (s)	10.0		7.0	10.0	7.0	7.0
Minimum Split (s)	28.4		11.5	28.4	31.0	31.0
Total Split (s)	44.4		14.6	59.0	31.0	31.0
Total Split (%)	49.3%		16.2%	65.6%	34.4%	34.4%
Maximum Green (s)	38.0		10.6	52.6	27.0	27.0
Yellow Time (s)	3.7		3.0	3.7	3.0	3.0
All-Red Time (s)	2.7		1.0	2.7	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4		4.0	6.4	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	Max		None	None	Max	Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	15.0			15.0	20.0	20.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	38.0		55.0	52.6		27.0
Actuated g/C Ratio	0.42		0.61	0.58		0.30
v/c Ratio	1.04		1.05	0.26		0.84
Control Delay	60.5		89.7	9.6		29.7
Queue Delay	0.0		0.0	0.0		0.0
Total Delay	60.5		89.7	9.6		29.7
LOS	E		F	A		C
Approach Delay	60.5			38.3	29.7	
Approach LOS	E			D	C	
Queue Length 50th (m)	~151.4		~40.5	22.0		49.4
Queue Length 95th (m)	#192.2		#89.5	30.4		#107.1
Internal Link Dist (m)	633.5			372.1	198.0	
Turn Bay Length (m)			100.0			
Base Capacity (vph)	1477		286	2025		640
Starvation Cap Reductn	0		0	0		0
Spillback Cap Reductn	0		0	0		0
Storage Cap Reductn	0		0	0		0
Reduced v/c Ratio	1.04		1.05	0.26		0.84

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.05			
Intersection Signal Delay: 48.4		Intersection LOS: D	
Intersection Capacity Utilization 78.3%		ICU Level of Service D	
Analysis Period (min) 15			

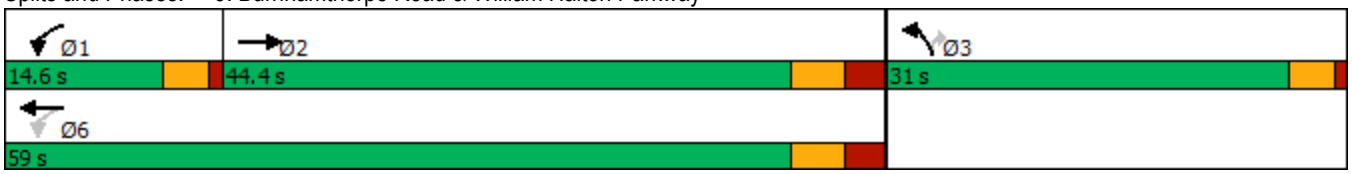
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

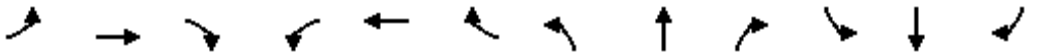
Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway



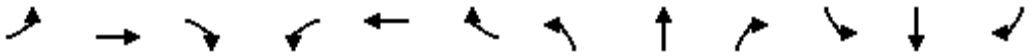


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1408	1	275	491	0	496
Future Volume (vph)	1408	1	275	491	0	496
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4		4.0	6.4		4.0
Lane Util. Factor	0.95		1.00	0.95		1.00
Frt	1.00		1.00	1.00		0.85
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	3500		1716	3466		1566
Flt Permitted	1.00		0.10	1.00		1.00
Satd. Flow (perm)	3500		172	3466		1566
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1530	1	299	534	0	539
RTOR Reduction (vph)	0	0	0	0	0	171
Lane Group Flow (vph)	1531	0	299	534	0	368
Heavy Vehicles (%)	2%	2%	4%	3%	2%	2%
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	3	
Permitted Phases			6			3
Actuated Green, G (s)	38.0		52.6	52.6		27.0
Effective Green, g (s)	38.0		52.6	52.6		27.0
Actuated g/C Ratio	0.42		0.58	0.58		0.30
Clearance Time (s)	6.4		4.0	6.4		4.0
Vehicle Extension (s)	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	1477		282	2025		469
v/s Ratio Prot	0.44		c0.12	0.15		
v/s Ratio Perm			c0.49			c0.24
v/c Ratio	1.04		1.06	0.26		0.79
Uniform Delay, d1	26.0		27.0	9.2		28.8
Progression Factor	1.00		1.00	1.00		1.00
Incremental Delay, d2	33.4		70.4	0.1		12.4
Delay (s)	59.4		97.4	9.3		41.3
Level of Service	E		F	A		D
Approach Delay (s)	59.4			40.9	41.3	
Approach LOS	E			D	D	

Intersection Summary			
HCM 2000 Control Delay	50.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.4
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	461	2183	245	266	1249	279	197	1000	125	416	1577	302
Future Volume (vph)	461	2183	245	266	1249	279	197	1000	125	416	1577	302
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		85.0	90.0		85.0	90.0		50.0	100.0		65.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Ped Bike Factor	1.00		0.99	1.00		0.98	1.00		0.99	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	4421	1551	3298	4214	1536	3330	4378	1566	3330	4378	1551
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3393	4421	1529	3298	4214	1512	3328	4378	1543	3327	4378	1523
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			136			145			96			131
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		560.5			603.0			601.7			2139.5	
Travel Time (s)		28.8			31.0			36.1			128.4	
Confl. Peds. (#/hr)	4		2	2		4	6		3	3		6
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	3%	5%	7%	4%	4%	3%	2%	4%	3%	3%
Adj. Flow (vph)	480	2274	255	277	1301	291	205	1042	130	433	1643	315
Shared Lane Traffic (%)												
Lane Group Flow (vph)	480	2274	255	277	1301	291	205	1042	130	433	1643	315
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	50.4	50.4	11.0	50.4	50.4	11.0	48.4	48.4	11.0	48.4	48.4
Total Split (s)	14.0	57.0	57.0	11.0	54.0	54.0	11.0	49.0	49.0	13.0	51.0	51.0
Total Split (%)	10.8%	43.8%	43.8%	8.5%	41.5%	41.5%	8.5%	37.7%	37.7%	10.0%	39.2%	39.2%
Maximum Green (s)	10.0	50.6	50.6	7.0	47.6	47.6	7.0	42.6	42.6	9.0	44.6	44.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		37.0	37.0		37.0	37.0		35.0	35.0		35.0	35.0
Pedestrian Calls (#/hr)		2	2		4	4		3	3		6	6
Act Effct Green (s)	10.0	50.6	50.6	7.0	47.6	47.6	7.0	42.6	42.6	9.0	44.6	44.6
Actuated g/C Ratio	0.08	0.39	0.39	0.05	0.37	0.37	0.05	0.33	0.33	0.07	0.34	0.34
v/c Ratio	1.84	1.32	0.38	1.56	0.84	0.45	1.15	0.73	0.23	1.88	1.09	0.52
Control Delay	424.8	182.9	14.4	318.7	44.0	17.5	165.0	42.1	11.1	445.2	93.9	22.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	424.8	182.9	14.4	318.7	44.0	17.5	165.0	42.1	11.1	445.2	93.9	22.7
LOS	F	F	B	F	D	B	F	D	B	F	F	C
Approach Delay		207.2			80.6			57.5			148.1	
Approach LOS		F			F			E			F	
Queue Length 50th (m)	~95.8	~313.5	20.1	~51.6	126.5	26.9	~31.6	97.9	6.0	~87.1	~197.7	36.9
Queue Length 95th (m)	#129.5	#345.4	41.7	#79.6	149.0	52.1	#56.5	116.8	20.4	#119.7	#231.5	65.2
Internal Link Dist (m)		536.5			579.0			577.7			2115.5	
Turn Bay Length (m)	110.0		85.0	90.0		85.0	90.0		50.0	100.0		65.0
Base Capacity (vph)	261	1720	678	177	1542	645	179	1434	570	230	1501	608
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.84	1.32	0.38	1.56	0.84	0.45	1.15	0.73	0.23	1.88	1.09	0.52

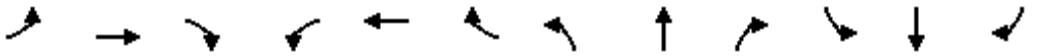
Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.88	
Intersection Signal Delay: 139.6	Intersection LOS: F

Intersection Capacity Utilization 104.3%	ICU Level of Service G
Analysis Period (min) 15	

* User Entered Value
~ 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.

Splits and Phases: 4: Trafalgar Road & Dundas Street

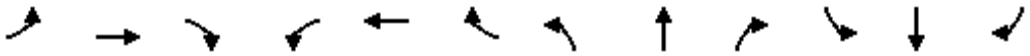




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	461	2183	245	266	1249	279	197	1000	125	416	1577	302
Future Volume (vph)	461	2183	245	266	1249	279	197	1000	125	416	1577	302
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	4421	1529	3298	4214	1512	3330	4378	1543	3330	4378	1523
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	4421	1529	3298	4214	1512	3330	4378	1543	3330	4378	1523
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	480	2274	255	277	1301	291	205	1042	130	433	1643	315
RTOR Reduction (vph)	0	0	83	0	0	92	0	0	65	0	0	86
Lane Group Flow (vph)	480	2274	172	277	1301	199	205	1042	65	433	1643	229
Confl. Peds. (#/hr)	4		2	2		4	6		3	3		6
Heavy Vehicles (%)	2%	2%	3%	5%	7%	4%	4%	3%	2%	4%	3%	3%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	10.0	50.6	50.6	7.0	47.6	47.6	7.0	42.6	42.6	9.0	44.6	44.6
Effective Green, g (s)	10.0	50.6	50.6	7.0	47.6	47.6	7.0	42.6	42.6	9.0	44.6	44.6
Actuated g/C Ratio	0.08	0.39	0.39	0.05	0.37	0.37	0.05	0.33	0.33	0.07	0.34	0.34
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Lane Grp Cap (vph)	261	1720	595	177	1542	553	179	1434	505	230	1501	522
v/s Ratio Prot	c0.14	c0.51		0.08	0.31		0.06	0.24		c0.13	c0.38	
v/s Ratio Perm			0.11			0.13			0.04			0.15
v/c Ratio	1.84	1.32	0.29	1.56	0.84	0.36	1.15	0.73	0.13	1.88	1.09	0.44
Uniform Delay, d1	60.0	39.7	27.3	61.5	37.8	30.1	61.5	38.6	30.7	60.5	42.7	33.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	392.1	149.1	1.2	279.8	5.8	1.8	111.7	1.9	0.1	413.2	53.6	0.7
Delay (s)	452.1	188.8	28.5	341.3	43.6	31.9	173.2	40.5	30.8	473.7	96.3	33.7
Level of Service	F	F	C	F	D	C	F	D	C	F	F	C
Approach Delay (s)		217.2			85.9			59.3			156.4	
Approach LOS		F			F			E			F	

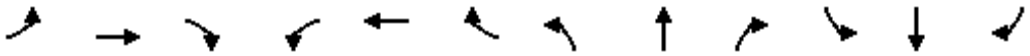
Intersection Summary			
HCM 2000 Control Delay	146.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.35		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	104.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



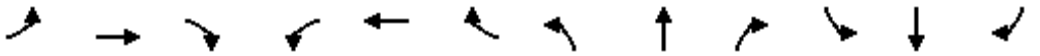
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	270	586	95	72	361	149	43	207	209	782	201	331
Future Volume (vph)	270	586	95	72	361	149	43	207	209	782	201	331
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.985			0.963			0.932			0.960	
Flt Protected		0.986			0.994			0.995			0.972	
Satd. Flow (prot)	0	3399	0	0	3350	0	0	3246	0	0	3266	0
Flt Permitted		0.986			0.994			0.995			0.972	
Satd. Flow (perm)	0	3399	0	0	3350	0	0	3246	0	0	3266	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		481.1			844.9			671.5			229.3	
Travel Time (s)		28.9			50.7			40.3			13.8	
Peak Hour Factor	0.90	0.90	0.90	0.96	0.90	0.96	0.90	0.96	0.96	0.96	0.96	0.90
Adj. Flow (vph)	300	651	106	75	401	155	48	216	218	815	209	368
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1057	0	0	631	0	0	482	0	0	1392	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 114.2%		ICU Level of Service H	
Analysis Period (min) 15			

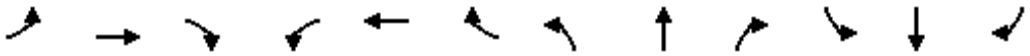


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	270	586	95	72	361	149	43	207	209	782	201	331
Future Volume (veh/h)	270	586	95	72	361	149	43	207	209	782	201	331
Peak Hour Factor	0.90	0.90	0.90	0.96	0.90	0.96	0.90	0.96	0.96	0.96	0.96	0.90
Hourly flow rate (vph)	300	651	106	75	401	155	48	216	218	815	209	368
Approach Volume (veh/h)		1057			631			482			1392	
Crossing Volume (veh/h)		1099			564			1766#			524	
High Capacity (veh/h)		574			887			328			916	
High v/c (veh/h)		1.84			0.71			1.47			1.52	
Low Capacity (veh/h)		441			713			237			739	
Low v/c (veh/h)		2.40			0.88			2.04			1.88	

Intersection Summary					
Maximum v/c High	1.84				
Maximum v/c Low	2.40				
Intersection Capacity Utilization	114.2%	ICU Level of Service		H	
# Crossing flow exceeds 1200, method is not applicable					



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	136	49	129	200	22	184	568	128	79	471	11
Future Volume (vph)	58	136	49	129	200	22	184	568	128	79	471	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	40.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			15.0			50.0			50.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.960			0.985			0.972			0.997	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3360	0	1684	3358	0	1750	3378	0	1700	3456	0
Flt Permitted	0.597			0.621			0.450			0.341		
Satd. Flow (perm)	1100	3360	0	1101	3358	0	829	3378	0	610	3456	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		55			14			47			4	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		241.5			345.8			328.3			671.5	
Travel Time (s)		17.4			24.9			19.7			40.3	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	2%	6%	4%	11%	2%	2%	6%	5%	3%	2%
Adj. Flow (vph)	65	153	55	145	225	25	207	638	144	89	529	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	208	0	145	250	0	207	782	0	89	541	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	

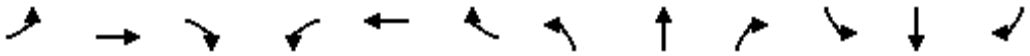


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	34.5	34.5		34.5	34.5		50.4	50.4		50.4	50.4	
Total Split (s)	35.0	35.0		35.0	35.0		55.0	55.0		55.0	55.0	
Total Split (%)	38.9%	38.9%		38.9%	38.9%		61.1%	61.1%		61.1%	61.1%	
Maximum Green (s)	28.5	28.5		28.5	28.5		48.6	48.6		48.6	48.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.2	3.2		3.2	3.2		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		19.0	19.0		19.0	19.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	15.7	15.7		15.7	15.7		48.8	48.8		48.8	48.8	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.63	0.63		0.63	0.63	
v/c Ratio	0.29	0.29		0.65	0.36		0.40	0.36		0.23	0.25	
Control Delay	29.1	19.4		42.4	26.0		11.1	7.6		9.5	7.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	29.1	19.4		42.4	26.0		11.1	7.6		9.5	7.2	
LOS	C	B		D	C		B	A		A	A	
Approach Delay		21.7			32.0			8.3			7.6	
Approach LOS		C			C			A			A	
Queue Length 50th (m)	8.1	9.8		19.6	15.6		12.9	23.1		4.9	15.6	
Queue Length 95th (m)	17.9	17.8		36.8	24.7		33.8	42.9		15.0	29.7	
Internal Link Dist (m)		217.5			321.8			304.3			647.5	
Turn Bay Length (m)	55.0			40.0			30.0			30.0		
Base Capacity (vph)	406	1276		406	1250		522	2147		384	2180	
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	0.16	0.16		0.36	0.20		0.40	0.36		0.23	0.25	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 77.4			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.65			
Intersection Signal Delay: 13.8		Intersection LOS: B	
Intersection Capacity Utilization 66.3%		ICU Level of Service C	
Analysis Period (min) 15			

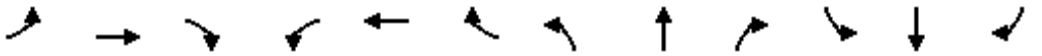
Splits and Phases: 6: Sixth Line & Burnhamthorpe Road



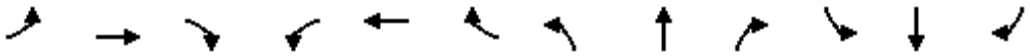


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	136	49	129	200	22	184	568	128	79	471	11
Future Volume (vph)	58	136	49	129	200	22	184	568	128	79	471	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.98		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)	1750	3361		1684	3358		1750	3379		1700	3455	
Flt Permitted	0.60	1.00		0.62	1.00		0.45	1.00		0.34	1.00	
Satd. Flow (perm)	1099	3361		1101	3358		829	3379		610	3455	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	65	153	55	145	225	25	207	638	144	89	529	12
RTOR Reduction (vph)	0	44	0	0	11	0	0	17	0	0	1	0
Lane Group Flow (vph)	65	164	0	145	239	0	207	765	0	89	540	0
Heavy Vehicles (%)	2%	2%	2%	6%	4%	11%	2%	2%	6%	5%	3%	2%
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)	15.6	15.6		15.6	15.6		48.8	48.8		48.8	48.8	
Effective Green, g (s)	15.6	15.6		15.6	15.6		48.8	48.8		48.8	48.8	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.63	0.63		0.63	0.63	
Clearance Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	221	678		222	677		523	2133		385	2181	
v/s Ratio Prot		0.05			0.07			0.23			0.16	
v/s Ratio Perm	0.06			c0.13			c0.25			0.15		
v/c Ratio	0.29	0.24		0.65	0.35		0.40	0.36		0.23	0.25	
Uniform Delay, d1	26.2	25.9		28.4	26.5		7.0	6.8		6.2	6.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.2		6.7	0.3		2.2	0.5		1.4	0.3	
Delay (s)	26.9	26.1		35.1	26.8		9.2	7.3		7.6	6.5	
Level of Service	C	C		D	C		A	A		A	A	
Approach Delay (s)		26.3			29.9			7.7			6.6	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	13.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	77.3	Sum of lost time (s)	12.9
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	2	241	0	3	2	1938	0	0	1637	0
Future Volume (vph)	3	0	2	241	0	3	2	1938	0	0	1637	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		5.0	0.0		60.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		1	1		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt			0.850			0.850						
Flt Protected	0.950			0.950	0.950		0.950					
Satd. Flow (prot)	1069	0	1566	1449	1388	1487	1190	3305	0	0	4749	0
Flt Permitted	0.581			0.950	0.950		0.087					
Satd. Flow (perm)	654	0	1566	1449	1388	1487	109	3305	0	0	4749	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79			79						
Link Speed (k/h)		20			60			80			80	
Link Distance (m)		81.5			394.8			34.5			189.8	
Travel Time (s)		14.7			23.7			1.6			8.5	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	67%	2%	2%	17%	2%	2%	50%	8%	2%	2%	8%	2%
Adj. Flow (vph)	3	0	2	271	0	3	2	2178	0	0	1839	0
Shared Lane Traffic (%)				50%		10%						
Lane Group Flow (vph)	3	0	2	135	136	3	2	2178	0	0	1839	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1		1	1	2	1	1	2			2	
Detector Template	Left		Right	Left	Thru	Right	Left	Thru			Thru	
Leading Detector (m)	2.0		2.0	2.0	10.0	2.0	2.0	10.0			10.0	
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Size(m)	2.0		2.0	2.0	0.6	2.0	2.0	0.6			0.6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 2 Position(m)					9.4			9.4			9.4	
Detector 2 Size(m)					0.6			0.6			0.6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	

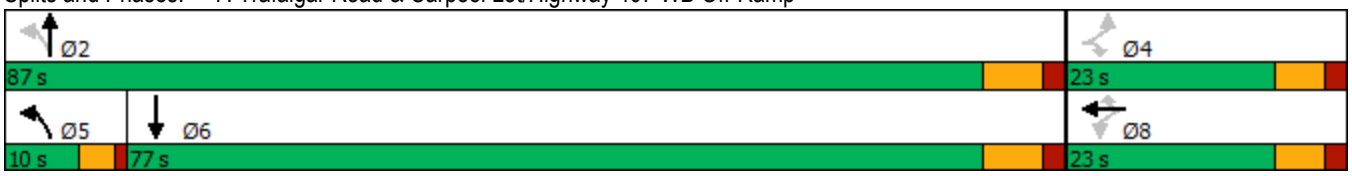


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8		8	2					
Detector Phase	4		4	8	8	8	5	2			6	
Switch Phase												
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	4.0	35.0			35.0	
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5	9.5	42.0			42.0	
Total Split (s)	23.0		23.0	23.0	23.0	23.0	10.0	87.0			77.0	
Total Split (%)	20.9%		20.9%	20.9%	20.9%	20.9%	9.1%	79.1%			70.0%	
Maximum Green (s)	17.0		17.0	17.0	17.0	17.0	6.0	80.0			70.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0	3.0	5.0			5.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0	1.0	2.0			2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Recall Mode	None		None	None	None	None	None	Min			Min	
Act Effct Green (s)	13.9		13.9	13.9	13.9	13.9	71.9	68.8			67.1	
Actuated g/C Ratio	0.14		0.14	0.14	0.14	0.14	0.75	0.72			0.70	
v/c Ratio	0.03		0.01	0.65	0.68	0.01	0.01	0.92			0.56	
Control Delay	40.7		0.0	57.2	60.1	0.0	3.5	19.6			8.4	
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	40.7		0.0	57.2	60.1	0.0	3.5	19.6			8.4	
LOS	D		A	E	E	A	A	B			A	
Approach Delay		24.4			58.0			19.6			8.4	
Approach LOS		C			E			B			A	
Queue Length 50th (m)	0.6		0.0	28.5	30.2	0.0	0.1	163.7			53.5	
Queue Length 95th (m)	3.2		0.0	49.3	#53.8	0.0	0.6	210.5			89.7	
Internal Link Dist (m)		57.5			370.8			10.5			165.8	
Turn Bay Length (m)			5.0			60.0						
Base Capacity (vph)	120		352	266	255	338	151	2717			3705	
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		0.01	0.51	0.53	0.01	0.01	0.80			0.50	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 96.2			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 17.2		Intersection LOS: B	
Intersection Capacity Utilization 77.8%		ICU Level of Service D	
Analysis Period (min) 15			

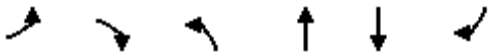
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Trafalgar Road & Carpool Lot/Highway 407 WB Off-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	2	241	0	3	2	1938	0	0	1637	0
Future Volume (vph)	3	0	2	241	0	3	2	1938	0	0	1637	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	6.0	4.0	7.0			7.0	
Lane Util. Factor	1.00		1.00	0.95	0.91	0.95	1.00	0.95			0.91	
Frt	1.00		0.85	1.00	1.00	0.85	1.00	1.00			1.00	
Flt Protected	0.95		1.00	0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1069		1566	1449	1388	1487	1190	3305			4749	
Flt Permitted	0.58		1.00	0.95	0.95	1.00	0.09	1.00			1.00	
Satd. Flow (perm)	653		1566	1449	1388	1487	109	3305			4749	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	3	0	2	271	0	3	2	2178	0	0	1839	0
RTOR Reduction (vph)	0	0	2	0	0	3	0	0	0	0	0	0
Lane Group Flow (vph)	3	0	0	135	136	0	2	2178	0	0	1839	0
Heavy Vehicles (%)	67%	2%	2%	17%	2%	2%	50%	8%	2%	2%	8%	2%
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	
Permitted Phases	4		4	8		8	2					
Actuated Green, G (s)	13.9		13.9	13.9	13.9	13.9	72.1	72.1			67.1	
Effective Green, g (s)	13.9		13.9	13.9	13.9	13.9	72.1	72.1			67.1	
Actuated g/C Ratio	0.14		0.14	0.14	0.14	0.14	0.73	0.73			0.68	
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)	91		219	203	194	208	90	2406			3218	
v/s Ratio Prot							0.00	c0.66			0.39	
v/s Ratio Perm	0.00		0.00	0.09	0.10	0.00	0.02					
v/c Ratio	0.03		0.00	0.67	0.70	0.00	0.02	0.91			0.57	
Uniform Delay, d1	36.7		36.6	40.3	40.6	36.6	5.0	10.7			8.4	
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.1		0.0	8.0	10.9	0.0	0.1	5.3			0.2	
Delay (s)	36.9		36.6	48.3	51.4	36.6	5.1	16.1			8.6	
Level of Service	D		D	D	D	D	A	B			A	
Approach Delay (s)		36.8			49.7			16.1			8.6	
Approach LOS		D			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	99.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	1994	1880	32
Future Volume (vph)	0	0	0	1994	1880	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.95	1.00
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	4749	3275	1536
Flt Permitted						
Satd. Flow (perm)	0	0	0	4749	3275	1536
Link Speed (k/h)	60			80	80	
Link Distance (m)	161.4			55.2	34.5	
Travel Time (s)	9.7			2.5	1.6	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	2%	8%	9%	4%
Adj. Flow (vph)	0	0	0	2240	2112	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2240	2112	36
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.5%		ICU Level of Service B	
Analysis Period (min) 15			

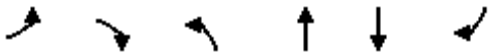
Intersection Sign configuration not allowed in HCM analysis.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	1994	40	0	1880
Future Volume (vph)	0	0	1994	40	0	1880
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt				0.850		
Flt Protected						
Satd. Flow (prot)	0	0	3305	1229	0	3275
Flt Permitted						
Satd. Flow (perm)	0	0	3305	1229	0	3275
Link Speed (k/h)	30		80			80
Link Distance (m)	192.3		37.4			100.8
Travel Time (s)	23.1		1.7			4.5
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	8%	30%	2%	9%
Adj. Flow (vph)	0	0	2240	45	0	2112
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	2240	45	0	2112
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Free		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.5%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection Sign configuration not allowed in HCM analysis.



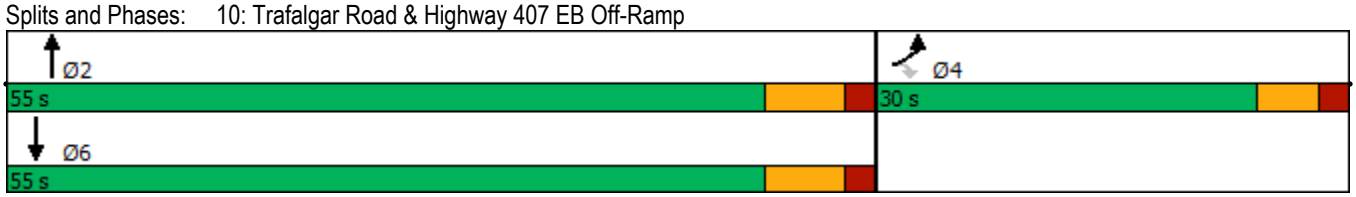
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	55	219	0	1975	1723	0
Future Volume (vph)	55	219	0	1975	1723	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1716	1401	0	3275	3305	0
Flt Permitted	0.950					
Satd. Flow (perm)	1716	1401	0	3275	3305	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		11				
Link Speed (k/h)	60			80	80	
Link Distance (m)	417.0			117.5	129.7	
Travel Time (s)	25.0			5.3	5.8	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	14%	2%	9%	8%	2%
Adj. Flow (vph)	60	241	0	2170	1893	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	60	241	0	2170	1893	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (m)	2.0	2.0		10.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	2.0		0.6	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						

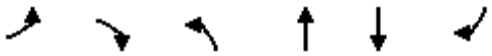
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Initial (s)	6.0	6.0		20.0	20.0	
Minimum Split (s)	24.0	24.0		27.0	27.0	
Total Split (s)	30.0	30.0		55.0	55.0	
Total Split (%)	35.3%	35.3%		64.7%	64.7%	
Maximum Green (s)	24.0	24.0		48.0	48.0	
Yellow Time (s)	4.0	4.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		7.0	7.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		Max	Max	
Act Effct Green (s)	17.5	17.5		48.2	48.2	
Actuated g/C Ratio	0.22	0.22		0.61	0.61	
v/c Ratio	0.16	0.75		1.08	0.94	
Control Delay	24.8	42.4		65.5	26.2	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	24.8	42.4		65.5	26.2	
LOS	C	D		E	C	
Approach Delay	38.9			65.5	26.2	
Approach LOS	D			E	C	
Queue Length 50th (m)	7.2	32.1		~196.0	123.1	
Queue Length 95th (m)	16.2	55.7		#266.0	#214.3	
Internal Link Dist (m)	393.0			93.5	105.7	
Turn Bay Length (m)						
Base Capacity (vph)	524	436		2003	2022	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.11	0.55		1.08	0.94	

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 78.8			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.08			
Intersection Signal Delay: 46.6		Intersection LOS: D	
Intersection Capacity Utilization 72.0%		ICU Level of Service C	
Analysis Period (min) 15			

~ 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.

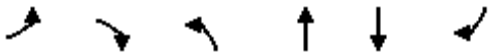
Splits and Phases: 10: Trafalgar Road & Highway 407 EB Off-Ramp





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	55	219	0	1975	1723	0
Future Volume (vph)	55	219	0	1975	1723	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1716	1401		3275	3305	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1716	1401		3275	3305	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	60	241	0	2170	1893	0
RTOR Reduction (vph)	0	9	0	0	0	0
Lane Group Flow (vph)	60	232	0	2170	1893	0
Heavy Vehicles (%)	4%	14%	2%	9%	8%	2%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	17.5	17.5		48.2	48.2	
Effective Green, g (s)	17.5	17.5		48.2	48.2	
Actuated g/C Ratio	0.22	0.22		0.61	0.61	
Clearance Time (s)	6.0	6.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	381	311		2005	2024	
v/s Ratio Prot	0.03			c0.66	0.57	
v/s Ratio Perm		c0.17				
v/c Ratio	0.16	0.75		1.08	0.94	
Uniform Delay, d1	24.7	28.5		15.2	13.8	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	9.4		46.4	9.7	
Delay (s)	24.9	38.0		61.7	23.5	
Level of Service	C	D		E	C	
Approach Delay (s)	35.4			61.7	23.5	
Approach LOS	D			E	C	

Intersection Summary			
HCM 2000 Control Delay	43.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	78.7	Sum of lost time (s)	13.0
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	2030	1723	27
Future Volume (vph)	0	0	0	2030	1723	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	3275	3305	1465
Flt Permitted						
Satd. Flow (perm)	0	0	0	3275	3305	1465
Link Speed (k/h)	30			80	80	
Link Distance (m)	110.1			129.7	37.4	
Travel Time (s)	13.2			5.8	1.7	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	2%	2%	2%	9%	8%	9%
Adj. Flow (vph)	0	0	0	2231	1893	30
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2231	1893	30
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 72.0%		ICU Level of Service C	
Analysis Period (min) 15			

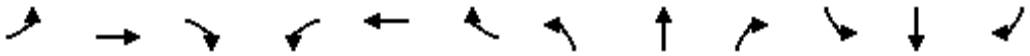
Intersection Sign configuration not allowed in HCM analysis.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	1975	242	0	1943
Future Volume (vph)	0	0	1975	242	0	1943
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.91
Frt				0.850		
Flt Protected						
Satd. Flow (prot)	0	0	3275	1521	0	4749
Flt Permitted						
Satd. Flow (perm)	0	0	3275	1521	0	4749
Link Speed (k/h)	50		80			80
Link Distance (m)	247.7		145.5			117.5
Travel Time (s)	17.8		6.5			5.3
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	2%	2%	9%	5%	2%	8%
Adj. Flow (vph)	0	0	2170	266	0	2135
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	2170	266	0	2135
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Free		Free			Free

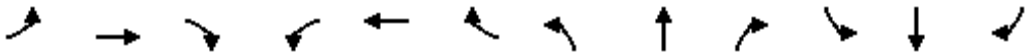
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 57.9%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection Sign configuration not allowed in HCM analysis.



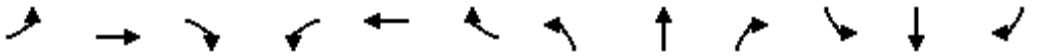
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	1263	400	111	586	100	147	367	104	209	660	93
Future Volume (vph)	114	1263	400	111	586	100	147	367	104	209	660	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.966			0.981			0.975			0.986	
Flt Protected		0.997			0.993			0.988			0.989	
Satd. Flow (prot)	0	3294	0	0	3377	0	0	3209	0	0	3413	0
Flt Permitted		0.997			0.993			0.988			0.989	
Satd. Flow (perm)	0	3294	0	0	3377	0	0	3209	0	0	3413	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		234.8			101.3			357.8			260.8	
Travel Time (s)		14.1			6.1			21.5			15.6	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	4%	2%	12%	2%	3%	4%	23%	2%	3%	2%	2%	2%
Adj. Flow (vph)	128	1419	449	125	658	112	165	412	117	235	742	104
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1996	0	0	895	0	0	694	0	0	1081	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 132.0%		ICU Level of Service H	
Analysis Period (min) 15			

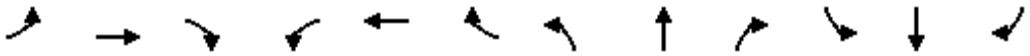


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	114	1263	400	111	586	100	147	367	104	209	660	93
Future Volume (veh/h)	114	1263	400	111	586	100	147	367	104	209	660	93
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	128	1419	449	125	658	112	165	412	117	235	742	104
Approach Volume (veh/h)		1996			895			694			1081	
Crossing Volume (veh/h)		1102			705			1782#			948	
High Capacity (veh/h)		572			792			323			650	
High v/c (veh/h)		3.49			1.13			2.15			1.66	
Low Capacity (veh/h)		440			629			233			506	
Low v/c (veh/h)		4.54			1.42			2.98			2.14	

Intersection Summary					
Maximum v/c High	3.49				
Maximum v/c Low	4.54				
Intersection Capacity Utilization	132.0%	ICU Level of Service		H	
# Crossing flow exceeds 1200, method is not applicable					



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	1555	45	231	531	51	29	31	317	97	3	5
Future Volume (vph)	11	1555	45	231	531	51	29	31	317	97	3	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					0.97				1.00	0.99	
Frt		0.996				0.850		0.863			0.900	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3486	0	1750	3500	1566	1750	1590	0	1750	1634	0
Flt Permitted	0.429			0.071			0.752			0.173		
Satd. Flow (perm)	786	3486	0	131	3500	1512	1385	1590	0	318	1634	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				58		230			6	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		844.9			181.9			563.1			190.6	
Travel Time (s)		50.7			10.9			40.5			13.7	
Confl. Peds. (#/hr)	5					5				5		5
Confl. Bikes (#/hr)						5						5
Peak Hour Factor	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)	12	1728	50	257	590	57	32	34	352	108	3	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	1778	0	257	590	57	32	386	0	108	9	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		2		1	6			8		7	4	
Permitted Phases	2			6		6	8			4		
Detector Phase	2	2		1	6	6	8	8		7	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0	10.0	10.0	10.0		7.0	5.0	
Minimum Split (s)	32.1	32.1		11.0	32.1	32.1	34.4	34.4		11.0	33.5	
Total Split (s)	57.0	57.0		17.0	74.0	74.0	35.0	35.0		11.0	46.0	
Total Split (%)	47.5%	47.5%		14.2%	61.7%	61.7%	29.2%	29.2%		9.2%	38.3%	
Maximum Green (s)	51.9	51.9		13.0	68.9	68.9	29.6	29.6		7.0	41.5	
Yellow Time (s)	3.7	3.7		3.0	3.7	3.7	3.3	3.3		3.0	3.5	
All-Red Time (s)	1.4	1.4		1.0	1.4	1.4	2.1	2.1		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.1	5.1		4.0	5.1	5.1	5.4	5.4		4.0	4.5	
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		None	Max	Max	None	None		None	None	
Walk Time (s)	7.0	7.0			7.0	7.0	7.0	7.0			7.0	
Flash Dont Walk (s)	20.0	20.0			20.0	20.0	22.0	22.0			22.0	
Pedestrian Calls (#/hr)	5	5			5	5	5	5			5	
Act Effct Green (s)	52.1	52.1		70.3	69.2	69.2	18.1	18.1		30.6	30.1	
Actuated g/C Ratio	0.48	0.48		0.65	0.64	0.64	0.17	0.17		0.28	0.28	
v/c Ratio	0.03	1.07		0.92	0.27	0.06	0.14	0.85		0.60	0.02	
Control Delay	18.4	70.7		67.2	9.9	2.9	38.5	34.6		43.5	18.4	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	18.4	70.7		67.2	9.9	2.9	38.5	34.6		43.5	18.4	
LOS	B	E		E	A	A	D	C		D	B	
Approach Delay		70.4			25.8			34.9			41.6	
Approach LOS		E			C			C			D	
Queue Length 50th (m)	1.3	~217.1		38.1	26.0	0.0	5.8	32.9		17.5	0.5	
Queue Length 95th (m)	5.4	#307.8		#100.4	46.0	5.5	14.1	68.2		30.9	4.1	
Internal Link Dist (m)		820.9			157.9			539.1			166.6	
Turn Bay Length (m)	30.0			30.0			30.0			30.0		
Base Capacity (vph)	376	1669		278	2223	981	377	601		181	628	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.03	1.07		0.92	0.27	0.06	0.08	0.64		0.60	0.01	

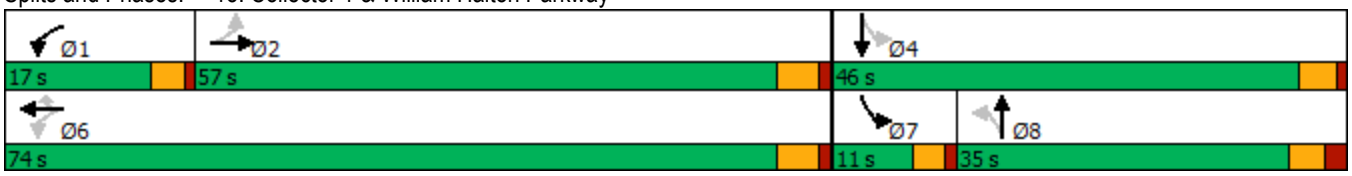
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 108.9			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.07			
Intersection Signal Delay: 52.2		Intersection LOS: D	
Intersection Capacity Utilization 99.7%		ICU Level of Service F	

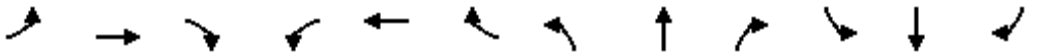
Analysis Period (min) 15

~ 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.

Splits and Phases: 15: Collector 1 & William Halton Parkway

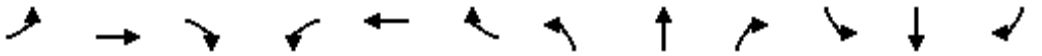




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	1555	45	231	531	51	29	31	317	97	3	5
Future Volume (vph)	11	1555	45	231	531	51	29	31	317	97	3	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1		4.0	5.1	5.1	5.4	5.4		4.0	4.5	
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	0.97	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.86		1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1742	3485		1750	3500	1514	1750	1590		1749	1634	
Flt Permitted	0.43	1.00		0.07	1.00	1.00	0.75	1.00		0.17	1.00	
Satd. Flow (perm)	787	3485		131	3500	1514	1385	1590		319	1634	
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)	12	1728	50	257	590	57	32	34	352	108	3	6
RTOR Reduction (vph)	0	2	0	0	0	21	0	192	0	0	4	0
Lane Group Flow (vph)	12	1776	0	257	590	36	32	194	0	108	5	0
Confl. Peds. (#/hr)	5					5				5		5
Confl. Bikes (#/hr)						5						5
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		2		1	6			8		7	4	
Permitted Phases	2			6		6	8			4		
Actuated Green, G (s)	52.1	52.1		69.2	69.2	69.2	18.2	18.2		30.1	30.1	
Effective Green, g (s)	52.1	52.1		69.2	69.2	69.2	18.2	18.2		30.1	30.1	
Actuated g/C Ratio	0.48	0.48		0.64	0.64	0.64	0.17	0.17		0.28	0.28	
Clearance Time (s)	5.1	5.1		4.0	5.1	5.1	5.4	5.4		4.0	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	376	1667		277	2224	962	231	265		180	451	
v/s Ratio Prot		c0.51		c0.11	0.17			c0.12		c0.04	0.00	
v/s Ratio Perm	0.02			0.48		0.02	0.02			0.13		
v/c Ratio	0.03	1.07		0.93	0.27	0.04	0.14	0.73		0.60	0.01	
Uniform Delay, d1	15.0	28.4		34.7	8.7	7.4	38.7	43.0		32.2	28.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	41.9		35.0	0.3	0.1	0.3	10.1		5.3	0.0	
Delay (s)	15.2	70.3		69.8	9.0	7.5	38.9	53.1		37.5	28.6	
Level of Service	B	E		E	A	A	D	D		D	C	
Approach Delay (s)		69.9			26.2			52.0			36.8	
Approach LOS		E			C			D			D	

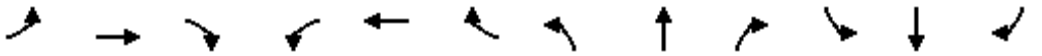
Intersection Summary			
HCM 2000 Control Delay	54.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	108.9	Sum of lost time (s)	18.5
Intersection Capacity Utilization	99.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1951	18	0	575	98	0	0	82	0	0	238
Future Volume (vph)	0	1951	18	0	575	98	0	0	82	0	0	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		30.0	30.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		1	0		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999				0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3496	0	0	3500	1566	0	0	1593	0	0	1593
Flt Permitted												
Satd. Flow (perm)	0	3496	0	0	3500	1566	0	0	1593	0	0	1593
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		181.9			207.8			147.0			169.4	
Travel Time (s)		10.9			12.5			10.6			12.2	
Confl. Peds. (#/hr)			5	5			5		5			
Confl. Bikes (#/hr)			5						5			
Peak Hour Factor	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)	0	2168	20	0	639	109	0	0	91	0	0	264
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2188	0	0	639	109	0	0	91	0	0	264
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

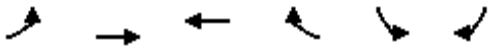
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 68.0%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1951	18	0	575	98	0	0	82	0	0	238
Future Volume (Veh/h)	0	1951	18	0	575	98	0	0	82	0	0	238
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	2168	20	0	639	109	0	0	91	0	0	264
Pedestrians		5			5			5				
Lane Width (m)		3.5			3.5			3.5				
Walking Speed (m/s)		1.0			1.0			1.0				
Percent Blockage		0			0			0				
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		182			208							
pX, platoon unblocked	0.94			0.53			0.56	0.56	0.53	0.56	0.56	0.94
vC, conflicting volume	748			2193			2772	2931	1104	1819	2832	324
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	613			1479			2135	2421	0	431	2244	164
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	84	100	100	67
cM capacity (veh/h)	908			238			10	18	570	237	23	800

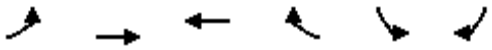
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	1445	743	320	320	109	91	264
Volume Left	0	0	0	0	0	0	0
Volume Right	0	20	0	0	109	91	264
cSH	1700	1700	1700	1700	1700	570	800
Volume to Capacity	0.85	0.44	0.19	0.19	0.06	0.16	0.33
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	4.3	11.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	12.5	11.7
Lane LOS						B	B
Approach Delay (s)	0.0		0.0			12.5	11.7
Approach LOS						B	B

Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	68.0%	ICU Level of Service		C
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	12	506	329	157	171	16
Future Volume (vph)	12	506	329	157	171	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0			0.0	30.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	15.0				15.0	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.952			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1750	3500	3332	0	1750	1566
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1750	3500	3332	0	1750	1566
Link Speed (k/h)		50	50		50	
Link Distance (m)		142.4	245.2		563.1	
Travel Time (s)		10.3	17.7		40.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	13	562	366	174	190	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	562	540	0	190	18
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		3.5	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

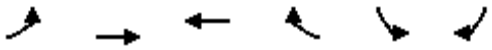
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 30.3%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	506	329	157	171	16
Future Volume (Veh/h)	12	506	329	157	171	16
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	13	562	366	174	190	18
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			245			
pX, platoon unblocked						
vC, conflicting volume	540				760	270
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	540				760	270
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				44	98
cM capacity (veh/h)	1025				338	728

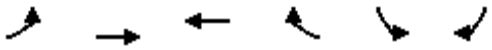
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	13	281	281	244	296	190	18
Volume Left	13	0	0	0	0	190	0
Volume Right	0	0	0	0	174	0	18
cSH	1025	1700	1700	1700	1700	338	728
Volume to Capacity	0.01	0.17	0.17	0.14	0.17	0.56	0.02
Queue Length 95th (m)	0.3	0.0	0.0	0.0	0.0	24.9	0.6
Control Delay (s)	8.6	0.0	0.0	0.0	0.0	28.5	10.1
Lane LOS	A					D	B
Approach Delay (s)	0.2			0.0		26.9	
Approach LOS						D	

Intersection Summary			
Average Delay	4.3		
Intersection Capacity Utilization	30.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Volume (vph)	0	1868	568	6	0	241
Future Volume (vph)	0	1868	568	6	0	241
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0			30.0	0.0	0.0
Storage Lanes	0			1	0	1
Taper Length (m)	15.0				15.0	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor						
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	3500	3500	1566	0	1593
Flt Permitted						
Satd. Flow (perm)	0	3500	3500	1566	0	1593
Link Speed (k/h)		60	60		50	
Link Distance (m)		228.3	173.6		144.7	
Travel Time (s)		13.7	10.4		10.4	
Confl. Peds. (#/hr)	5			5	5	5
Confl. Bikes (#/hr)				5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	2076	631	7	0	268
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2076	631	7	0	268
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		7.0	7.0		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

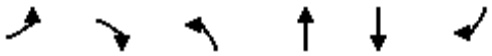
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 63.2%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Volume (veh/h)	0	1868	568	6	0	241
Future Volume (Veh/h)	0	1868	568	6	0	241
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	2076	631	7	0	268
Pedestrians		5	5		5	
Lane Width (m)		3.5	3.5		3.5	
Walking Speed (m/s)		1.0	1.0		1.0	
Percent Blockage		0	0		0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		228	174			
pX, platoon unblocked	0.99				0.67	0.99
vC, conflicting volume	643				1679	326
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	609				933	286
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	61
cM capacity (veh/h)	947				176	693

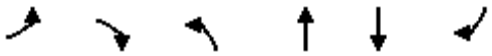
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	1038	1038	316	316	7	268
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	7	268
cSH	1700	1700	1700	1700	1700	693
Volume to Capacity	0.61	0.61	0.19	0.19	0.00	0.39
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	13.9
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	13.4
Lane LOS						B
Approach Delay (s)	0.0		0.0			13.4
Approach LOS						B

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	210	0	1803	1460	233
Future Volume (vph)	0	210	0	1803	1460	233
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	0.0			30.0
Storage Lanes	0	1	0			0
Taper Length (m)	15.0		15.0			
Lane Util. Factor	1.00	1.00	1.00	*0.80	*0.80	0.91
Ped Bike Factor						
Frt		0.865			0.979	
Flt Protected						
Satd. Flow (prot)	0	1593	0	4421	4328	0
Flt Permitted						
Satd. Flow (perm)	0	1593	0	4421	4328	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	168.4			320.3	142.6	
Travel Time (s)	12.1			19.2	8.6	
Confl. Peds. (#/hr)	5	5	5			5
Confl. Bikes (#/hr)		5				5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	233	0	2003	1622	259
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	233	0	2003	1881	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

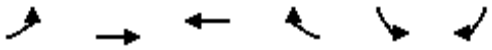
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.7%		ICU Level of Service A	
Analysis Period (min) 15			
* User Entered Value			



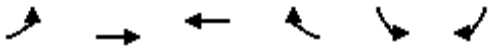
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	210	0	1803	1460	233
Future Volume (Veh/h)	0	210	0	1803	1460	233
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	233	0	2003	1622	259
Pedestrians	5			5	5	
Lane Width (m)	3.5			3.5	3.5	
Walking Speed (m/s)	1.0			1.0	1.0	
Percent Blockage	0			0	0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				320	143	
pX, platoon unblocked	0.85	0.70	0.70			
vC, conflicting volume	2429	680	1886			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0	774			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	69	100			
cM capacity (veh/h)	858	753	584			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	233	668	668	668	649	649	583
Volume Left	0	0	0	0	0	0	0
Volume Right	233	0	0	0	0	0	259
cSH	753	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.31	0.39	0.39	0.39	0.38	0.38	0.34
Queue Length 95th (m)	10.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	11.9	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B						
Approach Delay (s)	11.9	0.0			0.0		
Approach LOS	B						

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	482	1386	449	14	49	125
Future Volume (vph)	482	1386	449	14	49	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0			0.0	40.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	15.0				15.0	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00		0.99	0.98
Frt			0.995			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1750	3500	3479	0	1750	1566
Flt Permitted	0.462				0.950	
Satd. Flow (perm)	847	3500	3479	0	1740	1532
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			5			139
Link Speed (k/h)		60	60		50	
Link Distance (m)		173.6	1244.3		120.8	
Travel Time (s)		10.4	74.7		8.7	
Confl. Peds. (#/hr)	5			5	5	5
Confl. Bikes (#/hr)				5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	536	1540	499	16	54	139
Shared Lane Traffic (%)						
Lane Group Flow (vph)	536	1540	515	0	54	139
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		3.5	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (m)	2.0	10.0	10.0		2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6		2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Detector Phase	2	2	6		4	4
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0		7.0	7.0
Minimum Split (s)	37.5	37.5	37.5		36.0	36.0
Total Split (s)	84.0	84.0	84.0		36.0	36.0
Total Split (%)	70.0%	70.0%	70.0%		30.0%	30.0%
Maximum Green (s)	78.5	78.5	78.5		32.0	32.0
Yellow Time (s)	3.7	3.7	3.7		3.0	3.0
All-Red Time (s)	1.8	1.8	1.8		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5		4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	None
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	25.0	25.0	25.0		25.0	25.0
Pedestrian Calls (#/hr)	5	5	5		5	5
Act Effct Green (s)	82.7	82.7	82.7		12.3	12.3
Actuated g/C Ratio	0.79	0.79	0.79		0.12	0.12
v/c Ratio	0.80	0.56	0.19		0.26	0.46
Control Delay	20.5	6.4	3.8		42.0	11.3
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	20.5	6.4	3.8		42.0	11.3
LOS	C	A	A		D	B
Approach Delay		10.1	3.8		19.9	
Approach LOS		B	A		B	
Queue Length 50th (m)	36.4	36.0	7.8		9.7	0.0
Queue Length 95th (m)	#193.0	131.2	31.1		19.9	15.0
Internal Link Dist (m)		149.6	1220.3		96.8	
Turn Bay Length (m)	120.0				40.0	
Base Capacity (vph)	669	2768	2752		539	568
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	0.80	0.56	0.19		0.10	0.24

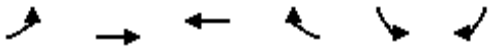
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 104.6			
Natural Cycle: 120			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay: 9.6		Intersection LOS: A	
Intersection Capacity Utilization 74.9%		ICU Level of Service D	

Analysis Period (min) 15

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

Splits and Phases: 24: William Halton Parkway & Collector 5





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	482	1386	449	14	49	125
Future Volume (vph)	482	1386	449	14	49	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1743	3500	3480		1750	1525
Flt Permitted	0.46	1.00	1.00		0.95	1.00
Satd. Flow (perm)	847	3500	3480		1750	1525
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	536	1540	499	16	54	139
RTOR Reduction (vph)	0	0	1	0	0	123
Lane Group Flow (vph)	536	1540	514	0	54	16
Confl. Peds. (#/hr)	5			5	5	5
Confl. Bikes (#/hr)				5		5
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Actuated Green, G (s)	82.7	82.7	82.7		12.3	12.3
Effective Green, g (s)	82.7	82.7	82.7		12.3	12.3
Actuated g/C Ratio	0.79	0.79	0.79		0.12	0.12
Clearance Time (s)	5.5	5.5	5.5		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	670	2769	2754		205	179
v/s Ratio Prot		0.44	0.15		c0.03	
v/s Ratio Perm	c0.63					0.01
v/c Ratio	0.80	0.56	0.19		0.26	0.09
Uniform Delay, d1	6.2	4.1	2.7		42.0	41.1
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	6.8	0.2	0.1		0.7	0.2
Delay (s)	13.0	4.3	2.8		42.7	41.3
Level of Service	B	A	A		D	D
Approach Delay (s)		6.5	2.8		41.7	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	8.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	104.5	Sum of lost time (s)	9.5
Intersection Capacity Utilization	74.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

MOVEMENT SUMMARY

Site: [101] Sixth Line & William Halton Parkway (General)

Output produced by SIDRA INTERSECTION Version: 10.0.8.241

2036 Future Background AM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Sixth Line															
1	L2	All MCs	48	2.0	48	2.0	0.814	51.8	LOS F	4.0	28.2	0.93	1.19	1.98	31.6
2	T1	All MCs	230	2.0	230	2.0	0.814	51.3	LOS F	4.0	28.5	0.93	1.19	1.98	32.0
3	R2	All MCs	232	2.0	232	2.0	0.814	48.5	LOS E	4.0	28.5	0.93	1.18	1.98	32.4
Approach			510	2.0	510	2.0	0.814	50.1	LOS F	4.0	28.5	0.93	1.19	1.98	32.1
East: William Halton Parkway															
4	L2	All MCs	80	2.0	80	2.0	0.445	11.1	LOS B	2.0	14.6	0.55	0.58	0.79	47.2
5	T1	All MCs	401	2.0	401	2.0	0.445	11.0	LOS B	2.0	14.6	0.54	0.57	0.78	48.3
6	R2	All MCs	166	2.0	166	2.0	0.445	10.9	LOS B	2.0	14.2	0.53	0.56	0.76	48.5
Approach			647	2.0	647	2.0	0.445	11.0	LOS B	2.0	14.6	0.54	0.57	0.78	48.2
North: Sixth Line															
7	L2	All MCs	869	2.0	869	2.0	1.139	96.8	LOS F	51.5	367.0	1.00	3.05	6.89	22.7
8	T1	All MCs	223	2.0	223	2.0	0.301	8.4	LOS A	1.0	6.8	0.47	0.41	0.47	50.7
9	R2	All MCs	368	2.0	368	2.0	0.194	4.0	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			1460	2.0	1460	2.0	1.139	59.9	LOS F	51.5	367.0	0.67	1.88	4.17	29.4
West: William Halton Parkway															
10	L2	All MCs	300	2.0	300	2.0	0.941	54.9	LOS F	10.4	73.8	0.95	1.54	3.06	30.3
11	T1	All MCs	651	2.0	651	2.0	0.941	53.6	LOS F	10.6	75.2	0.95	1.54	3.08	31.5
12	R2	All MCs	106	2.0	106	2.0	0.056	2.8	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			1057	2.0	1057	2.0	0.941	48.9	LOS E	10.6	75.2	0.86	1.39	2.77	32.5
All Vehicles			3673	2.0	3673	2.0	1.139	46.8	LOS E	51.5	367.0	0.74	1.41	2.87	32.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [101] Ninth Line & William Halton Parkway (General)

Output produced by SIDRA INTERSECTION Version: 10.0.8.241

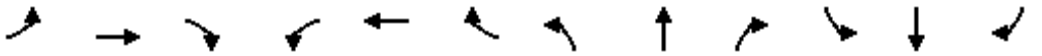
Future Background 2036 AM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

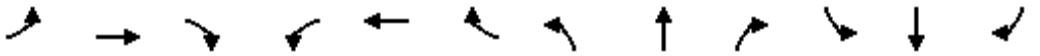
Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Ninth Line															
1	L2	All MCs	165	23.0	165	23.0	0.909	66.1	LOS F	5.8	45.1	0.95	1.38	2.54	28.5
2	T1	All MCs	412	2.0	412	2.0	0.909	56.0	LOS F	6.9	49.3	0.95	1.37	2.55	30.4
3	R2	All MCs	117	3.0	117	3.0	0.909	64.5	LOS F	6.9	49.3	0.95	1.36	2.56	31.1
Approach			694	7.2	694	7.2	0.909	59.7	LOS F	6.9	49.3	0.95	1.37	2.55	30.0
East: William Halton Parkway															
4	L2	All MCs	125	2.0	125	2.0	0.667	18.7	LOS C	4.7	33.4	0.71	0.87	1.34	43.0
5	T1	All MCs	658	3.0	658	3.0	0.667	18.6	LOS C	4.7	33.4	0.70	0.86	1.33	44.1
6	R2	All MCs	112	4.0	112	4.0	0.667	18.5	LOS C	4.6	33.0	0.69	0.85	1.32	44.2
Approach			896	3.0	896	3.0	0.667	18.6	LOS C	4.7	33.4	0.70	0.86	1.33	43.9
North: Ninth Line															
7	L2	All MCs	235	2.0	235	2.0	0.443	14.2	LOS B	1.7	12.3	0.66	0.74	0.95	43.2
8	T1	All MCs	742	2.0	742	2.0	1.330	180.5	LOS F	65.0	462.9	1.00	4.21	12.26	19.4
9	R2	All MCs	104	2.0	104	2.0	0.055	3.0	LOS A	0.0	0.0	0.00	0.00	0.00	56.4
Approach			1081	2.0	1081	2.0	1.330	127.2	LOS F	65.0	462.9	0.83	3.05	8.62	23.8
West: William Halton Parkway															
10	L2	All MCs	128	4.0	128	4.0	1.601	295.6	LOS F	114.1	814.6	1.00	5.75	17.38	15.7
11	T1	All MCs	1419	2.0	1419	2.0	1.601	216.4	LOS F	114.1	814.6	1.00	4.46	12.92	18.6
12	R2	All MCs	449	12.0	449	12.0	0.253	6.7	LOS A	0.0	0.0	0.00	0.00	0.00	56.1
Approach			1997	4.4	1997	4.4	1.601	174.3	LOS F	114.1	814.6	0.77	3.54	10.29	21.5
All Vehicles			4667	4.0	4667	4.0	1.601	116.5	LOS F	114.1	814.6	0.80	2.59	7.03	25.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	573	589	147	281	854	875	258	1495	228	476	1557	482
Future Volume (vph)	573	589	147	281	854	875	258	1495	228	476	1557	482
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		60.0	60.0		205.0	90.0		55.0	140.0		55.0
Storage Lanes	2		1	2		1	1		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	*0.80	1.00	0.97	*0.80	1.00
Ped Bike Factor							1.00					0.99
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	3500	1566	3330	3500	1566	1750	4421	1536	3267	4421	1566
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3395	3500	1566	3330	3500	1566	1750	4421	1536	3267	4421	1545
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			158			189			120			224
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		207.8			228.3			142.6			224.9	
Travel Time (s)		12.5			13.7			8.6			13.5	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	4%	2%	2%	2%	2%	4%	6%	2%	2%
Adj. Flow (vph)	616	633	158	302	918	941	277	1608	245	512	1674	518
Shared Lane Traffic (%)												
Lane Group Flow (vph)	616	633	158	302	918	941	277	1608	245	512	1674	518
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	48.4	48.4	11.0	48.4	48.4	11.0	45.4	45.4	11.0	44.4	44.4
Total Split (s)	17.0	51.0	51.0	22.0	56.0	56.0	16.0	51.0	51.0	16.0	51.0	51.0
Total Split (%)	12.1%	36.4%	36.4%	15.7%	40.0%	40.0%	11.4%	36.4%	36.4%	11.4%	36.4%	36.4%
Maximum Green (s)	13.0	44.6	44.6	18.0	49.6	49.6	12.0	44.6	44.6	12.0	45.6	45.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	2.7	2.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	5.4	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		35.0	35.0		35.0	35.0		32.0	32.0		32.0	32.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	13.0	46.0	46.0	16.6	49.6	49.6	12.0	44.6	44.6	12.0	45.6	45.6
Actuated g/C Ratio	0.09	0.33	0.33	0.12	0.35	0.35	0.09	0.32	0.32	0.09	0.33	0.33
v/c Ratio	1.96	0.55	0.25	0.76	0.74	1.39	1.85	1.14	0.43	1.83	1.16	0.79
Control Delay	473.0	41.1	6.0	73.0	44.0	214.3	439.3	116.0	21.1	420.5	123.6	33.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	473.0	41.1	6.0	73.0	44.0	214.3	439.3	116.0	21.1	420.5	123.6	33.7
LOS	F	D	A	E	D	F	F	F	C	F	F	C
Approach Delay		226.2			122.2			147.1			162.6	
Approach LOS		F			F			F			F	
Queue Length 50th (m)	~135.7	76.6	0.0	41.9	116.7	~312.3	~116.0	~216.3	26.3	~110.1	~228.3	78.3
Queue Length 95th (m)	#172.7	96.2	15.7	57.7	141.4	#391.5	#171.8	#250.0	50.8	#145.4	#261.8	126.4
Internal Link Dist (m)		183.8			204.3			118.6			200.9	
Turn Bay Length (m)	80.0		60.0	60.0		205.0	90.0		55.0	140.0		55.0
Base Capacity (vph)	315	1149	620	428	1240	676	150	1408	571	280	1439	654
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.96	0.55	0.25	0.71	0.74	1.39	1.85	1.14	0.43	1.83	1.16	0.79

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.96	
Intersection Signal Delay: 158.9	Intersection LOS: F

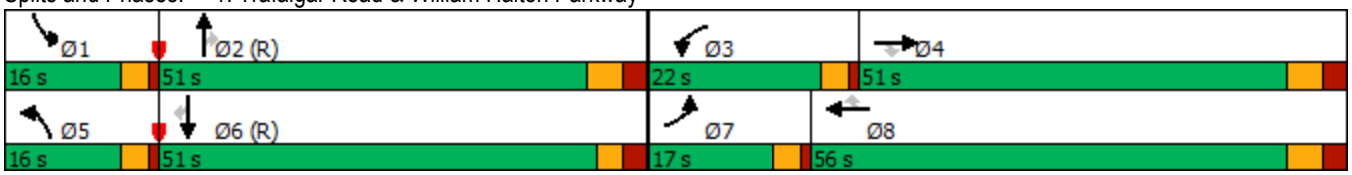
Intersection Capacity Utilization 113.4%	ICU Level of Service H
Analysis Period (min) 15	

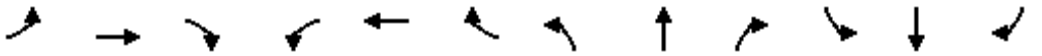
* User Entered Value

~ 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.

Splits and Phases: 1: Trafalgar Road & William Halton Parkway

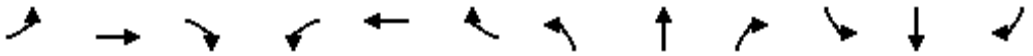




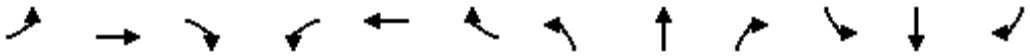
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	573	589	147	281	854	875	258	1495	228	476	1557	482
Future Volume (vph)	573	589	147	281	854	875	258	1495	228	476	1557	482
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	5.4	5.4
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	*0.80	1.00	0.97	*0.80	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	3500	1566	3330	3500	1566	1750	4421	1536	3267	4421	1545
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	3500	1566	3330	3500	1566	1750	4421	1536	3267	4421	1545
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)	616	633	158	302	918	941	277	1608	245	512	1674	518
RTOR Reduction (vph)	0	0	106	0	0	122	0	0	82	0	0	151
Lane Group Flow (vph)	616	633	52	302	918	819	277	1608	163	512	1674	367
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	2%	2%	2%	4%	2%	2%	2%	2%	4%	6%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	13.0	46.0	46.0	16.6	49.6	49.6	12.0	44.6	44.6	12.0	45.6	45.6
Effective Green, g (s)	13.0	46.0	46.0	16.6	49.6	49.6	12.0	44.6	44.6	12.0	45.6	45.6
Actuated g/C Ratio	0.09	0.33	0.33	0.12	0.35	0.35	0.09	0.32	0.32	0.09	0.33	0.33
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	5.4	5.4
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	315	1150	514	394	1240	554	150	1408	489	280	1439	503
v/s Ratio Prot	c0.18	0.18		0.09	0.26		c0.16	0.36		0.16	c0.38	
v/s Ratio Perm			0.03			c0.52			0.11			0.24
v/c Ratio	1.96	0.55	0.10	0.77	0.74	1.48	1.85	1.14	0.33	1.83	1.16	0.73
Uniform Delay, d1	63.5	38.5	32.6	59.8	39.6	45.2	64.0	47.7	36.4	64.0	47.2	41.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	441.4	1.0	0.2	8.6	2.9	224.8	405.6	72.9	1.8	386.5	81.5	9.0
Delay (s)	504.9	39.5	32.8	68.5	42.5	270.0	469.6	120.6	38.2	450.5	128.7	50.7
Level of Service	F	D	C	E	D	F	F	F	D	F	F	D
Approach Delay (s)		242.5			145.2			156.5			174.7	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	173.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.46		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	113.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	204	83	99	268	53	310	1672	112	99	1547	111
Future Volume (vph)	225	204	83	99	268	53	310	1672	112	99	1547	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	120.0		0.0	130.0		0.0	170.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	*0.80	0.91	1.00	*0.80	0.91
Frt		0.957			0.975			0.991			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1668	3349	0	1750	3412	0	1750	4375	0	1750	4331	0
Flt Permitted	0.500			0.536			0.074			0.060		
Satd. Flow (perm)	878	3349	0	987	3412	0	136	4375	0	111	4331	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27			20			11			14	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		245.2			810.8			2139.5			320.3	
Travel Time (s)		17.7			58.4			128.4			19.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Adj. Flow (vph)	237	215	87	104	282	56	326	1760	118	104	1628	117
Shared Lane Traffic (%)												
Lane Group Flow (vph)	237	302	0	104	338	0	326	1878	0	104	1745	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.02	1.01	1.01	1.02	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		7.0	10.0	
Minimum Split (s)	41.4	41.4		41.4	41.4		37.3	37.3		11.0	37.3	
Total Split (s)	42.0	42.0		42.0	42.0		67.0	67.0		11.0	78.0	
Total Split (%)	35.0%	35.0%		35.0%	35.0%		55.8%	55.8%		9.2%	65.0%	
Maximum Green (s)	35.6	35.6		35.6	35.6		60.7	60.7		7.0	71.7	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.7	3.7		3.0	3.7	
All-Red Time (s)	2.7	2.7		2.7	2.7		2.6	2.6		1.0	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.3	6.3		4.0	6.3	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		5.0	5.0		3.0	5.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	28.0	28.0		28.0	28.0		24.0	24.0			24.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	34.1	34.1		34.1	34.1		62.2	62.2		75.5	73.2	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.52	0.52		0.63	0.61	
v/c Ratio	0.95	0.31		0.37	0.34		4.66	0.83		0.63	0.66	
Control Delay	88.7	31.1		38.3	32.7		1695.3	28.6		34.1	16.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	88.7	31.1		38.3	32.7		1695.3	28.6		34.1	16.9	
LOS	F	C		D	C		F	C		C	B	
Approach Delay		56.5			34.0			275.1			17.9	
Approach LOS		E			C			F			B	
Queue Length 50th (m)	53.8	26.1		19.2	30.6		~128.7	153.2		9.3	107.8	
Queue Length 95th (m)	#101.8	38.1		35.5	43.4		#185.5	178.3		#30.5	125.9	
Internal Link Dist (m)		221.2			786.8			2115.5			296.3	
Turn Bay Length (m)	100.0			120.0			130.0			170.0		
Base Capacity (vph)	260	1012		292	1026		70	2273		165	2648	
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	0.91	0.30		0.36	0.33		4.66	0.83		0.63	0.66	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 4.66			
Intersection Signal Delay: 136.0		Intersection LOS: F	
Intersection Capacity Utilization 92.3%		ICU Level of Service F	

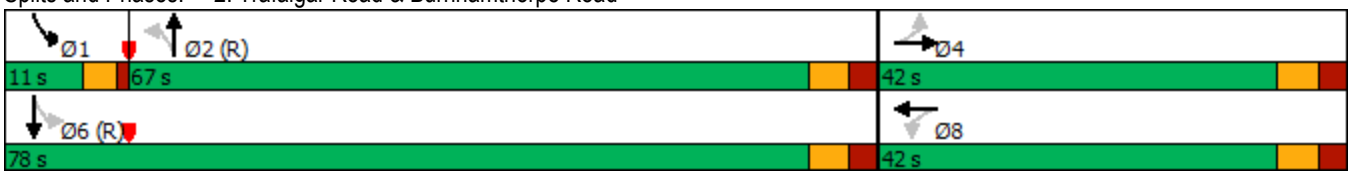
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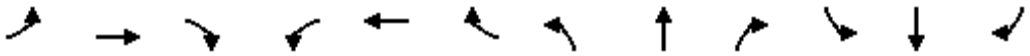
* User Entered Value

~ 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.

Splits and Phases: 2: Trafalgar Road & Burnhamthorpe Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	204	83	99	268	53	310	1672	112	99	1547	111
Future Volume (vph)	225	204	83	99	268	53	310	1672	112	99	1547	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4		6.3	6.3		4.0	6.3	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	*0.80		1.00	*0.80	
Frt	1.00	0.96		1.00	0.98		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)	1668	3349		1750	3413		1750	4373		1750	4331	
Flt Permitted	0.50	1.00		0.54	1.00		0.07	1.00		0.06	1.00	
Satd. Flow (perm)	877	3349		987	3413		136	4373		111	4331	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	237	215	87	104	282	56	326	1760	118	104	1628	117
RTOR Reduction (vph)	0	19	0	0	14	0	0	5	0	0	5	0
Lane Group Flow (vph)	237	283	0	104	324	0	326	1873	0	104	1740	0
Heavy Vehicles (%)	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	34.1	34.1		34.1	34.1		62.2	62.2		73.2	73.2	
Effective Green, g (s)	34.1	34.1		34.1	34.1		62.2	62.2		73.2	73.2	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.52	0.52		0.61	0.61	
Clearance Time (s)	6.4	6.4		6.4	6.4		6.3	6.3		4.0	6.3	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		5.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	249	951		280	969		70	2266		163	2641	
v/s Ratio Prot		0.08			0.09			0.43		0.04	c0.40	
v/s Ratio Perm	c0.27			0.11			c2.39			0.35		
v/c Ratio	0.95	0.30		0.37	0.33		4.66	0.83		0.64	0.66	
Uniform Delay, d1	42.1	33.6		34.4	34.0		28.9	24.4		20.9	15.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	43.6	0.2		0.8	0.2		1677.8	3.6		7.9	1.3	
Delay (s)	85.8	33.8		35.2	34.2		1706.7	28.0		28.9	16.6	
Level of Service	F	C		D	C		F	C		C	B	
Approach Delay (s)		56.6			34.4			276.3			17.3	
Approach LOS		E			C			F			B	

Intersection Summary			
HCM 2000 Control Delay	136.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	3.15		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.7
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	835	1	373	1459	0	416
Future Volume (vph)	835	1	373	1459	0	416
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	100.0		30.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			15.0		50.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected			0.950			
Satd. Flow (prot)	3433	0	1750	3500	1842	1566
Flt Permitted			0.149			
Satd. Flow (perm)	3433	0	274	3500	1842	1566
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						465
Link Speed (k/h)	60			60	50	
Link Distance (m)	657.5			390.6	221.9	
Travel Time (s)	39.5			23.4	16.0	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%
Adj. Flow (vph)	870	1	389	1520	0	433
Shared Lane Traffic (%)						
Lane Group Flow (vph)	871	0	389	1520	0	433
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	10.0		2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6		2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	3	



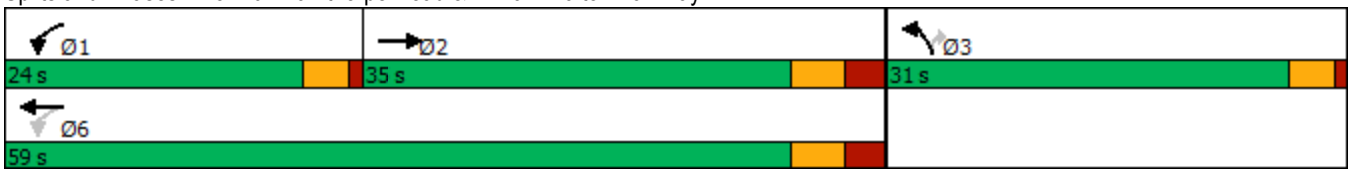
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases			6			3
Detector Phase	2		1	6	3	3
Switch Phase						
Minimum Initial (s)	10.0		7.0	10.0	7.0	7.0
Minimum Split (s)	28.4		11.5	28.4	31.0	31.0
Total Split (s)	35.0		24.0	59.0	31.0	31.0
Total Split (%)	38.9%		26.7%	65.6%	34.4%	34.4%
Maximum Green (s)	28.6		20.0	52.6	27.0	27.0
Yellow Time (s)	3.7		3.0	3.7	3.0	3.0
All-Red Time (s)	2.7		1.0	2.7	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4		4.0	6.4	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	Max		None	None	Max	Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	15.0			15.0	20.0	20.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	28.6		52.5	50.1		27.0
Actuated g/C Ratio	0.33		0.60	0.57		0.31
v/c Ratio	0.78		0.85	0.76		0.54
Control Delay	32.8		35.7	17.2		4.6
Queue Delay	0.0		0.0	0.0		0.0
Total Delay	32.8		35.7	17.2		4.6
LOS	C		D	B		A
Approach Delay	32.8			20.9	4.6	
Approach LOS	C			C	A	
Queue Length 50th (m)	71.8		41.6	93.8		0.0
Queue Length 95th (m)	94.5		#84.5	119.8		15.5
Internal Link Dist (m)	633.5			366.6	197.9	
Turn Bay Length (m)			100.0			
Base Capacity (vph)	1123		502	2106		805
Starvation Cap Reductn	0		0	0		0
Spillback Cap Reductn	0		0	0		0
Storage Cap Reductn	0		0	0		0
Reduced v/c Ratio	0.78		0.77	0.72		0.54

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 87.5			
Natural Cycle: 80			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 21.9		Intersection LOS: C	
Intersection Capacity Utilization 57.5%		ICU Level of Service B	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

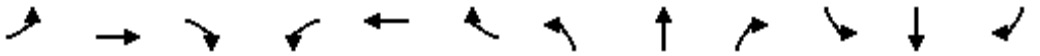
Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway



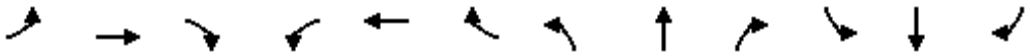


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	835	1	373	1459	0	416
Future Volume (vph)	835	1	373	1459	0	416
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4		4.0	6.4		4.0
Lane Util. Factor	0.95		1.00	0.95		1.00
Frt	1.00		1.00	1.00		0.85
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	3432		1750	3500		1566
Flt Permitted	1.00		0.15	1.00		1.00
Satd. Flow (perm)	3432		275	3500		1566
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	870	1	389	1520	0	433
RTOR Reduction (vph)	0	0	0	0	0	299
Lane Group Flow (vph)	871	0	389	1520	0	134
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	3	
Permitted Phases			6			3
Actuated Green, G (s)	28.7		50.1	50.1		27.0
Effective Green, g (s)	28.7		50.1	50.1		27.0
Actuated g/C Ratio	0.33		0.57	0.57		0.31
Clearance Time (s)	6.4		4.0	6.4		4.0
Vehicle Extension (s)	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	1125		450	2004		483
v/s Ratio Prot	0.25		c0.17	0.43		
v/s Ratio Perm			c0.32			c0.09
v/c Ratio	0.77		0.86	0.76		0.28
Uniform Delay, d1	26.5		19.8	14.1		22.9
Progression Factor	1.00		1.00	1.00		1.00
Incremental Delay, d2	5.2		15.7	1.7		1.4
Delay (s)	31.7		35.5	15.8		24.3
Level of Service	C		D	B		C
Approach Delay (s)	31.7			19.8	24.3	
Approach LOS	C			B	C	

Intersection Summary			
HCM 2000 Control Delay	23.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	87.5	Sum of lost time (s)	14.4
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	459	1710	198	298	1848	329	324	1642	232	345	1151	372
Future Volume (vph)	459	1710	198	298	1848	329	324	1642	232	345	1151	372
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		85.0	90.0		85.0	90.0		50.0	100.0		65.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Ped Bike Factor	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	4378	1566	3395	4421	1566	3395	4421	1566	3362	4421	1566
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3394	4378	1527	3391	4421	1540	3391	4421	1541	3361	4421	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			153			149			106			136
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		592.0			816.3			644.9			2139.5	
Travel Time (s)		30.4			42.0			38.7			128.4	
Confl. Peds. (#/hr)	5		15	15		5	6		4	4		6
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%
Adj. Flow (vph)	473	1763	204	307	1905	339	334	1693	239	356	1187	384
Shared Lane Traffic (%)												
Lane Group Flow (vph)	473	1763	204	307	1905	339	334	1693	239	356	1187	384
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



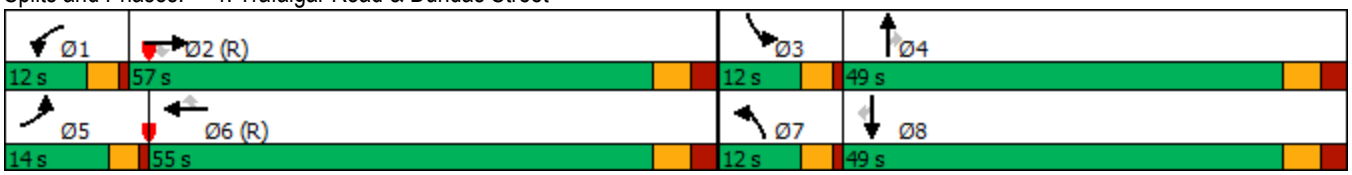
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	12.0	50.4	50.4	12.0	50.4	50.4	11.0	48.4	48.4	11.0	48.4	48.4
Total Split (s)	14.0	57.0	57.0	12.0	55.0	55.0	12.0	49.0	49.0	12.0	49.0	49.0
Total Split (%)	10.8%	43.8%	43.8%	9.2%	42.3%	42.3%	9.2%	37.7%	37.7%	9.2%	37.7%	37.7%
Maximum Green (s)	10.0	50.6	50.6	8.0	48.6	48.6	8.0	42.6	42.6	8.0	42.6	42.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		37.0	37.0		37.0	37.0		35.0	35.0		35.0	35.0
Pedestrian Calls (#/hr)		15	15		5	5		4	4		6	6
Act Effct Green (s)	10.0	50.6	50.6	8.0	48.6	48.6	8.0	42.6	42.6	8.0	42.6	42.6
Actuated g/C Ratio	0.08	0.39	0.39	0.06	0.37	0.37	0.06	0.33	0.33	0.06	0.33	0.33
v/c Ratio	1.81	1.03	0.30	1.48	1.15	0.51	1.61	1.17	0.41	1.73	0.82	0.65
Control Delay	413.4	70.3	8.8	279.4	113.8	19.9	331.6	123.3	20.8	382.3	45.8	29.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	413.4	70.3	8.8	279.4	113.8	19.9	331.6	123.3	20.8	382.3	45.8	29.2
LOS	F	E	A	F	F	B	F	F	C	F	D	C
Approach Delay		131.7			121.2			143.2			104.7	
Approach LOS		F			F			F			F	
Queue Length 50th (m)	~93.9	~202.0	8.2	~55.5	~239.2	36.3	~62.9	~214.7	25.5	~69.2	116.1	54.5
Queue Length 95th (m)	#127.4	#235.2	24.9	#84.6	#272.4	64.5	#92.8	#248.2	48.9	#99.7	137.2	89.8
Internal Link Dist (m)		568.0			792.3			620.9			2115.5	
Turn Bay Length (m)	110.0		85.0	90.0		85.0	90.0		50.0	100.0		65.0
Base Capacity (vph)	261	1704	687	208	1652	669	208	1448	576	206	1448	595
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.81	1.03	0.30	1.48	1.15	0.51	1.61	1.17	0.41	1.73	0.82	0.65

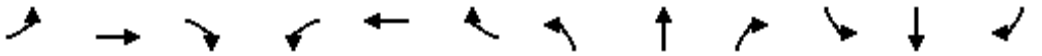
Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.81	
Intersection Signal Delay: 125.9	Intersection LOS: F

Intersection Capacity Utilization 109.1%	ICU Level of Service H
Analysis Period (min) 15	

* User Entered Value
~ 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.

Splits and Phases: 4: Trafalgar Road & Dundas Street

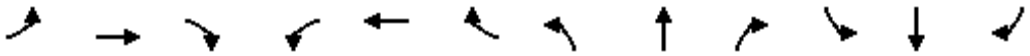




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	459	1710	198	298	1848	329	324	1642	232	345	1151	372
Future Volume (vph)	459	1710	198	298	1848	329	324	1642	232	345	1151	372
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	4378	1527	3395	4421	1540	3395	4421	1541	3362	4421	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	4378	1527	3395	4421	1540	3395	4421	1541	3362	4421	1538
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	473	1763	204	307	1905	339	334	1693	239	356	1187	384
RTOR Reduction (vph)	0	0	93	0	0	93	0	0	71	0	0	91
Lane Group Flow (vph)	473	1763	111	307	1905	246	334	1693	168	356	1187	293
Confl. Peds. (#/hr)	5		15	15		5	6		4	4		6
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	10.0	50.6	50.6	8.0	48.6	48.6	8.0	42.6	42.6	8.0	42.6	42.6
Effective Green, g (s)	10.0	50.6	50.6	8.0	48.6	48.6	8.0	42.6	42.6	8.0	42.6	42.6
Actuated g/C Ratio	0.08	0.39	0.39	0.06	0.37	0.37	0.06	0.33	0.33	0.06	0.33	0.33
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	261	1704	594	208	1652	575	208	1448	504	206	1448	503
v/s Ratio Prot	c0.14	0.40		0.09	c0.43		0.10	c0.38		c0.11	0.27	
v/s Ratio Perm			0.07			0.16			0.11			0.19
v/c Ratio	1.81	1.03	0.19	1.48	1.15	0.43	1.61	1.17	0.33	1.73	0.82	0.58
Uniform Delay, d1	60.0	39.7	26.1	61.0	40.7	30.3	61.0	43.7	33.0	61.0	40.2	36.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	380.3	31.3	0.7	238.3	76.3	2.3	293.9	83.9	0.8	347.2	4.3	2.6
Delay (s)	440.3	71.0	26.8	299.3	117.0	32.6	354.9	127.6	33.8	408.2	44.4	38.9
Level of Service	F	E	C	F	F	C	F	F	C	F	D	D
Approach Delay (s)		138.9			127.7			151.2			110.5	
Approach LOS		F			F			F			F	

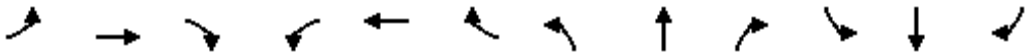
Intersection Summary			
HCM 2000 Control Delay	132.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	109.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



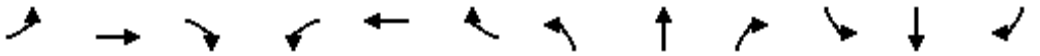
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	238	401	65	224	615	471	11	219	160	307	249	282
Future Volume (vph)	238	401	65	224	615	471	11	219	160	307	249	282
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Frt		0.986			0.946			0.938			0.949	
Flt Protected		0.983			0.992			0.999			0.982	
Satd. Flow (prot)	0	3392	0	0	3284	0	0	3280	0	0	3262	0
Flt Permitted		0.983			0.992			0.999			0.982	
Satd. Flow (perm)	0	3392	0	0	3284	0	0	3280	0	0	3262	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		476.6			839.5			671.6			229.3	
Travel Time (s)		28.6			50.4			40.3			13.8	
Confl. Bikes (#/hr)						1			1			
Peak Hour Factor	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)	243	409	66	229	628	481	11	223	163	313	254	288
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	718	0	0	1338	0	0	397	0	0	855	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 108.4%		ICU Level of Service G	
Analysis Period (min) 15			

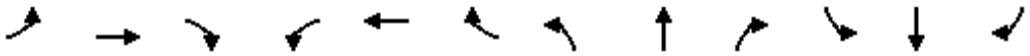


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	238	401	65	224	615	471	11	219	160	307	249	282
Future Volume (veh/h)	238	401	65	224	615	471	11	219	160	307	249	282
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	243	409	66	229	628	481	11	223	163	313	254	288
Approach Volume (veh/h)		718			1338			397			855	
Crossing Volume (veh/h)		796			477			965			868	
High Capacity (veh/h)		735			951			641			693	
High v/c (veh/h)		0.98			1.41			0.62			1.23	
Low Capacity (veh/h)		580			770			498			544	
Low v/c (veh/h)		1.24			1.74			0.80			1.57	

Intersection Summary				
Maximum v/c High	1.41			
Maximum v/c Low	1.74			
Intersection Capacity Utilization	108.4%	ICU Level of Service	G	



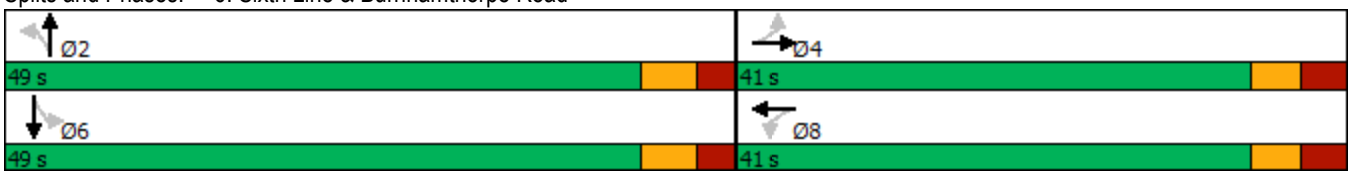
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	99	48	127	201	45	95	358	134	63	583	33
Future Volume (vph)	34	99	48	127	201	45	95	358	134	63	583	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	40.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			15.0			50.0			50.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.951			0.973			0.959			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3328	0	1750	3351	0	1750	3347	0	1750	3472	0
Flt Permitted	0.590			0.653			0.403			0.458		
Satd. Flow (perm)	1087	3328	0	1203	3351	0	742	3347	0	844	3472	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		51			35			82			9	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		241.5			345.8			218.8			671.6	
Travel Time (s)		17.4			24.9			13.1			40.3	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	2%	2%	11%	2%	2%	3%	2%	2%	2%
Adj. Flow (vph)	36	105	51	135	214	48	101	381	143	67	620	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	156	0	135	262	0	101	524	0	67	655	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	34.5	34.5		34.5	34.5		32.4	32.4		32.4	32.4	
Total Split (s)	41.0	41.0		41.0	41.0		49.0	49.0		49.0	49.0	
Total Split (%)	45.6%	45.6%		45.6%	45.6%		54.4%	54.4%		54.4%	54.4%	
Maximum Green (s)	34.5	34.5		34.5	34.5		42.6	42.6		42.6	42.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.2	3.2		3.2	3.2		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		19.0	19.0		19.0	19.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	13.4	13.4		13.4	13.4		42.7	42.7		42.7	42.7	
Actuated g/C Ratio	0.19	0.19		0.19	0.19		0.62	0.62		0.62	0.62	
v/c Ratio	0.17	0.23		0.58	0.39		0.22	0.25		0.13	0.30	
Control Delay	24.6	16.4		35.5	22.2		8.3	5.7		7.2	7.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	24.6	16.4		35.5	22.2		8.3	5.7		7.2	7.0	
LOS	C	B		D	C		A	A		A	A	
Approach Delay		17.9			26.8			6.1			7.0	
Approach LOS		B			C			A			A	
Queue Length 50th (m)	3.9	6.0		15.9	13.3		4.9	11.1		3.0	17.3	
Queue Length 95th (m)	10.9	12.8		31.5	22.6		14.4	22.2		9.6	32.2	
Internal Link Dist (m)		217.5			321.8			194.8			647.6	
Turn Bay Length (m)	55.0			40.0			30.0			30.0		
Base Capacity (vph)	544	1692		602	1695		458	2101		521	2150	
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	0.07	0.09		0.22	0.15		0.22	0.25		0.13	0.30	

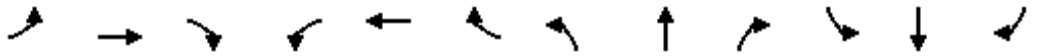
Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 69			
Natural Cycle: 70			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 11.9		Intersection LOS: B	
Intersection Capacity Utilization 63.7%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 6: Sixth Line & Burnhamthorpe Road

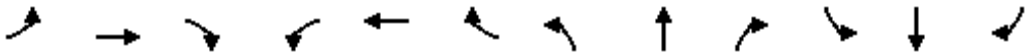


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	99	48	127	201	45	95	358	134	63	583	33
Future Volume (vph)	34	99	48	127	201	45	95	358	134	63	583	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.95		1.00	0.97		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)	1750	3328		1750	3350		1750	3348		1750	3472	
Flt Permitted	0.59	1.00		0.65	1.00		0.40	1.00		0.46	1.00	
Satd. Flow (perm)	1087	3328		1203	3350		742	3348		843	3472	
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)	36	105	51	135	214	48	101	381	143	67	620	35
RTOR Reduction (vph)	0	41	0	0	28	0	0	31	0	0	3	0
Lane Group Flow (vph)	36	115	0	135	234	0	101	493	0	67	652	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	11%	2%	2%	3%	2%	2%	2%
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)	13.4	13.4		13.4	13.4		42.7	42.7		42.7	42.7	
Effective Green, g (s)	13.4	13.4		13.4	13.4		42.7	42.7		42.7	42.7	
Actuated g/C Ratio	0.19	0.19		0.19	0.19		0.62	0.62		0.62	0.62	
Clearance Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	211	646		233	650		459	2071		521	2148	
v/s Ratio Prot		0.03			0.07			0.15			c0.19	
v/s Ratio Perm	0.03			c0.11			0.14			0.08		
v/c Ratio	0.17	0.18		0.58	0.36		0.22	0.24		0.13	0.30	
Uniform Delay, d1	23.2	23.2		25.2	24.1		5.8	5.9		5.4	6.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.1		3.5	0.3		1.1	0.3		0.5	0.4	
Delay (s)	23.6	23.3		28.7	24.4		6.9	6.1		6.0	6.5	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		23.4			25.9			6.3			6.5	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	69.0	Sum of lost time (s)	12.9
Intersection Capacity Utilization	63.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	0	6	408	2	19	7	2458	0	0	1980	0
Future Volume (vph)	7	0	6	408	2	19	7	2458	0	0	1980	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		5.0	0.0		60.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		1	1		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt			0.850		0.999	0.850						
Flt Protected	0.950			0.950	0.953		0.950					
Satd. Flow (prot)	1526	0	1331	1615	1537	1431	1750	3500	0	0	4980	0
Flt Permitted	0.400			0.950	0.953		0.058					
Satd. Flow (perm)	642	0	1331	1615	1537	1431	107	3500	0	0	4980	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79			79						
Link Speed (k/h)		20			60			80			80	
Link Distance (m)		81.5			393.0			34.5			195.6	
Travel Time (s)		14.7			23.6			1.6			8.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	17%	2%	20%	5%	100%	6%	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	7	0	6	425	2	20	7	2560	0	0	2063	0
Shared Lane Traffic (%)				50%		10%						
Lane Group Flow (vph)	7	0	6	212	217	18	7	2560	0	0	2063	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1		1	1	2	1	1	2			2	
Detector Template	Left		Right	Left	Thru	Right	Left	Thru			Thru	
Leading Detector (m)	2.0		2.0	2.0	10.0	2.0	2.0	10.0			10.0	
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Size(m)	2.0		2.0	2.0	0.6	2.0	2.0	0.6			0.6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 2 Position(m)					9.4			9.4			9.4	
Detector 2 Size(m)					0.6			0.6			0.6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	



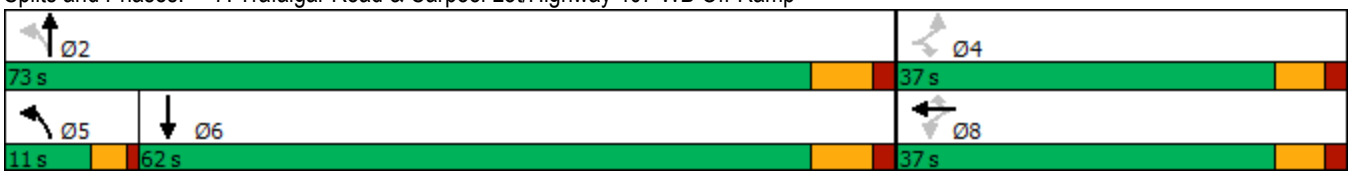
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8		8	2					
Detector Phase	4		4	8	8	8	5	2			6	
Switch Phase												
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	4.0	35.0			7.0	
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5	11.0	42.0			22.5	
Total Split (s)	37.0		37.0	37.0	37.0	37.0	11.0	73.0			62.0	
Total Split (%)	33.6%		33.6%	33.6%	33.6%	33.6%	10.0%	66.4%			56.4%	
Maximum Green (s)	31.0		31.0	31.0	31.0	31.0	7.0	66.0			55.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0	3.0	5.0			5.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0	1.0	2.0			2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Recall Mode	None		None	None	None	None	None	Min			Min	
Act Effct Green (s)	19.1		19.1	19.1	19.1	19.1	69.2	66.2			64.4	
Actuated g/C Ratio	0.19		0.19	0.19	0.19	0.19	0.70	0.67			0.66	
v/c Ratio	0.06		0.02	0.68	0.73	0.05	0.04	1.09			0.63	
Control Delay	31.9		0.2	47.8	51.5	0.3	6.4	65.6			12.7	
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	31.9		0.2	47.8	51.5	0.3	6.4	65.6			12.7	
LOS	C		A	D	D	A	A	E			B	
Approach Delay		17.2			47.7			65.5			12.7	
Approach LOS		B			D			E			B	
Queue Length 50th (m)	1.1		0.0	39.5	42.7	0.0	0.3	~287.6			70.2	
Queue Length 95th (m)	4.7		0.0	63.6	68.6	0.0	2.0	#381.6			143.3	
Internal Link Dist (m)		57.5			369.0			10.5			171.6	
Turn Bay Length (m)			5.0			60.0						
Base Capacity (vph)	202		474	510	486	506	192	2356			3260	
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		0.01	0.42	0.45	0.04	0.04	1.09			0.63	

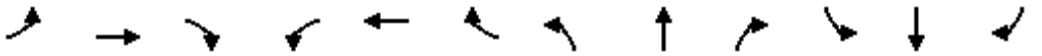
Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 98.3			
Natural Cycle: 110			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.09			
Intersection Signal Delay: 42.4		Intersection LOS: D	
Intersection Capacity Utilization 97.0%		ICU Level of Service F	
Analysis Period (min) 15			

~ 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.

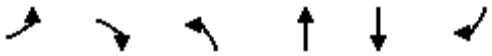
Splits and Phases: 7: Trafalgar Road & Carpool Lot/Highway 407 WB Off-Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	0	6	408	2	19	7	2458	0	0	1980	0
Future Volume (vph)	7	0	6	408	2	19	7	2458	0	0	1980	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	6.0	4.0	7.0			7.0	
Lane Util. Factor	1.00		1.00	0.95	0.91	0.95	1.00	0.95			0.91	
Frt	1.00		0.85	1.00	1.00	0.85	1.00	1.00			1.00	
Flt Protected	0.95		1.00	0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1526		1331	1615	1537	1431	1750	3500			4980	
Flt Permitted	0.40		1.00	0.95	0.95	1.00	0.06	1.00			1.00	
Satd. Flow (perm)	642		1331	1615	1537	1431	108	3500			4980	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	7	0	6	425	2	20	7	2560	0	0	2062	0
RTOR Reduction (vph)	0	0	5	0	0	15	0	0	0	0	0	0
Lane Group Flow (vph)	7	0	1	212	217	3	7	2560	0	0	2063	0
Heavy Vehicles (%)	17%	2%	20%	5%	100%	6%	2%	2%	2%	2%	3%	2%
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	
Permitted Phases	4		4	8		8	2					
Actuated Green, G (s)	19.1		19.1	19.1	19.1	19.1	69.5	69.5			64.4	
Effective Green, g (s)	19.1		19.1	19.1	19.1	19.1	69.5	69.5			64.4	
Actuated g/C Ratio	0.19		0.19	0.19	0.19	0.19	0.68	0.68			0.63	
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)	120		250	303	288	269	91	2394			3156	
v/s Ratio Prot							0.00	c0.73			0.41	
v/s Ratio Perm	0.01		0.00	0.13	0.14	0.00	0.05					
v/c Ratio	0.06		0.00	0.70	0.75	0.01	0.08	1.07			0.65	
Uniform Delay, d1	33.9		33.5	38.6	39.0	33.6	8.0	16.0			11.6	
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.2		0.0	6.9	10.6	0.0	0.4	40.2			0.5	
Delay (s)	34.1		33.5	45.5	49.7	33.6	8.4	56.3			12.1	
Level of Service	C		C	D	D	C	A	E			B	
Approach Delay (s)		33.8			47.0			56.1			12.1	
Approach LOS		C			D			E			B	

Intersection Summary			
HCM 2000 Control Delay	37.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	101.6	Sum of lost time (s)	17.0
Intersection Capacity Utilization	97.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	2528	2447	47
Future Volume (vph)	0	0	0	2528	2447	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.95	1.00
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	5029	3433	1521
Flt Permitted						
Satd. Flow (perm)	0	0	0	5029	3433	1521
Link Speed (k/h)	60			80	80	
Link Distance (m)	166.7			156.0	34.5	
Travel Time (s)	10.0			7.0	1.6	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	4%	5%
Adj. Flow (vph)	0	0	0	2633	2549	49
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2633	2549	49
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 73.2%		ICU Level of Service D	
Analysis Period (min) 15			

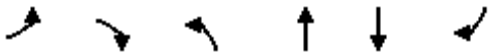
Intersection Sign configuration not allowed in HCM analysis.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	2528	157	0	2447
Future Volume (vph)	0	0	2528	157	0	2447
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt				0.850		
Flt Protected						
Satd. Flow (prot)	0	0	3500	1521	0	3433
Flt Permitted						
Satd. Flow (perm)	0	0	3500	1521	0	3433
Link Speed (k/h)	30		80			80
Link Distance (m)	189.2		37.4			156.0
Travel Time (s)	22.7		1.7			7.0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	5%	2%	4%
Adj. Flow (vph)	0	0	2633	164	0	2549
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	2633	164	0	2549
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Free		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 73.2%		ICU Level of Service D	
Analysis Period (min) 15			

Intersection Sign configuration not allowed in HCM analysis.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	40	271	0	2641	2235	0
Future Volume (vph)	40	271	0	2641	2235	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1750	1278	0	3500	3466	0
Flt Permitted	0.950					
Satd. Flow (perm)	1750	1278	0	3500	3466	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						
Link Speed (k/h)	60			80	80	
Link Distance (m)	415.1			117.5	129.7	
Travel Time (s)	24.9			5.3	5.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	25%	2%	2%	3%	2%
Adj. Flow (vph)	43	288	0	2810	2378	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	43	288	0	2810	2378	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (m)	2.0	2.0		10.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	2.0		0.6	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						

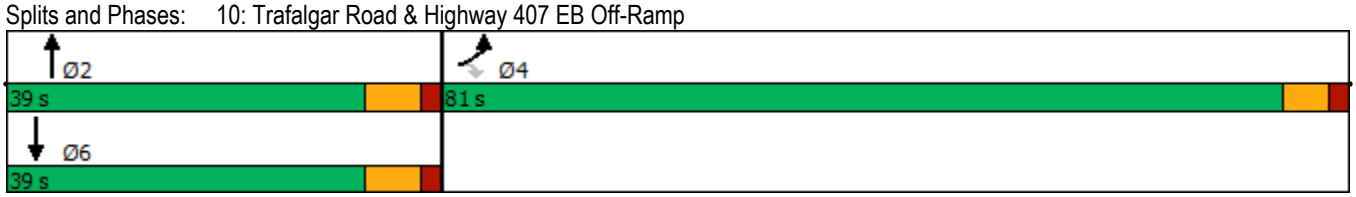
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Initial (s)	6.0	6.0		20.0	20.0	
Minimum Split (s)	24.0	24.0		27.0	27.0	
Total Split (s)	81.0	81.0		39.0	39.0	
Total Split (%)	67.5%	67.5%		32.5%	32.5%	
Maximum Green (s)	75.0	75.0		32.0	32.0	
Yellow Time (s)	4.0	4.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		7.0	7.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		Max	Max	
Act Effct Green (s)	19.4	19.4		32.2	32.2	
Actuated g/C Ratio	0.30	0.30		0.50	0.50	
v/c Ratio	0.08	0.75		1.61	1.38	
Control Delay	15.7	33.3		299.1	194.7	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	15.7	33.3		299.1	194.7	
LOS	B	C		F	F	
Approach Delay	31.0			299.1	194.7	
Approach LOS	C			F	F	
Queue Length 50th (m)	3.6	30.6		~260.0	~203.2	
Queue Length 95th (m)	9.4	54.7		#352.5	#287.5	
Internal Link Dist (m)	391.1			93.5	105.7	
Turn Bay Length (m)						
Base Capacity (vph)	1750	1278		1741	1724	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.02	0.23		1.61	1.38	

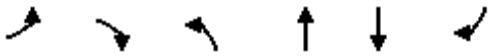
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 64.7			
Natural Cycle: 140			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.61			
Intersection Signal Delay: 238.0		Intersection LOS: F	
Intersection Capacity Utilization 89.4%		ICU Level of Service E	
Analysis Period (min) 15			

~ 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.

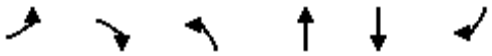
Splits and Phases: 10: Trafalgar Road & Highway 407 EB Off-Ramp





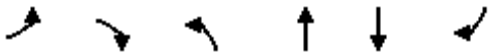
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	40	271	0	2641	2235	0
Future Volume (vph)	40	271	0	2641	2235	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1750	1278		3500	3466	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1750	1278		3500	3466	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	43	288	0	2810	2378	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	43	288	0	2810	2378	0
Heavy Vehicles (%)	2%	25%	2%	2%	3%	2%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	19.4	19.4		32.2	32.2	
Effective Green, g (s)	19.4	19.4		32.2	32.2	
Actuated g/C Ratio	0.30	0.30		0.50	0.50	
Clearance Time (s)	6.0	6.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	525	383		1744	1727	
v/s Ratio Prot	0.02			c0.80	0.69	
v/s Ratio Perm		c0.23				
v/c Ratio	0.08	0.75		1.61	1.38	
Uniform Delay, d1	16.2	20.4		16.2	16.2	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	8.1		277.8	173.4	
Delay (s)	16.3	28.5		294.0	189.6	
Level of Service	B	C		F	F	
Approach Delay (s)	26.9			294.0	189.6	
Approach LOS	C			F	F	

Intersection Summary			
HCM 2000 Control Delay	233.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.29		
Actuated Cycle Length (s)	64.6	Sum of lost time (s)	13.0
Intersection Capacity Utilization	89.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	2681	2235	22
Future Volume (vph)	0	0	0	2681	2235	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	3500	3466	1566
Flt Permitted						
Satd. Flow (perm)	0	0	0	3500	3466	1566
Link Speed (k/h)	30			80	80	
Link Distance (m)	113.6			129.7	37.4	
Travel Time (s)	13.6			5.8	1.7	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	0	0	0	2852	2378	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2852	2378	23
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 89.4%		ICU Level of Service E	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	2681	2235	22
Future Volume (Veh/h)	0	0	0	2681	2235	22
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	0	2852	2378	23
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				130	228	
pX, platoon unblocked	0.68	0.66	0.66			
vC, conflicting volume	3804	1189	2401			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1937	259	2093			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	39	489	172			

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	1426	1426	1189	1189	23
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	23
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.84	0.84	0.70	0.70	0.01
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					
Approach Delay (s)	0.0		0.0		
Approach LOS					

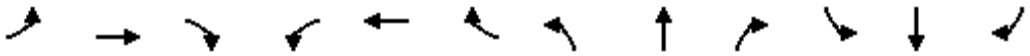
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	89.4%	ICU Level of Service	E
Analysis Period (min)	15		



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	2641	214	0	2506
Future Volume (vph)	0	0	2641	214	0	2506
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.91
Frt				0.850		
Flt Protected						
Satd. Flow (prot)	0	0	3500	1452	0	4885
Flt Permitted						
Satd. Flow (perm)	0	0	3500	1452	0	4885
Link Speed (k/h)	50		80			80
Link Distance (m)	246.0		145.5			117.5
Travel Time (s)	17.7		6.5			5.3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	10%	2%	5%
Adj. Flow (vph)	0	0	2810	228	0	2666
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	2810	228	0	2666
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Free		Free			Free

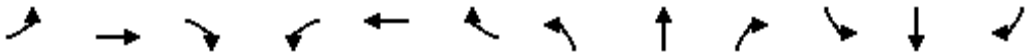
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 76.3%		ICU Level of Service D	
Analysis Period (min) 15			

Intersection Sign configuration not allowed in HCM analysis.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	1050	221	154	1271	144	400	707	252	123	365	113
Future Volume (vph)	43	1050	221	154	1271	144	400	707	252	123	365	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.975			0.986			0.972			0.972	
Flt Protected		0.998			0.995			0.985			0.990	
Satd. Flow (prot)	0	3359	0	0	3434	0	0	3341	0	0	3368	0
Flt Permitted		0.998			0.995			0.985			0.990	
Satd. Flow (perm)	0	3359	0	0	3434	0	0	3341	0	0	3368	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		234.8			101.3			359.6			262.5	
Travel Time (s)		14.1			6.1			21.6			15.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	4%	2%	10%	2%	2%	2%	3%	2%	2%	2%	2%	2%
Adj. Flow (vph)	45	1094	230	160	1324	150	417	736	263	128	380	118
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1369	0	0	1634	0	0	1416	0	0	626	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

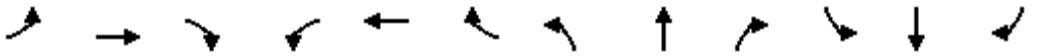
Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 151.3%		ICU Level of Service H	
Analysis Period (min) 15			



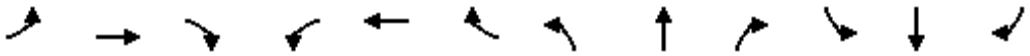
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	43	1050	221	154	1271	144	400	707	252	123	365	113
Future Volume (veh/h)	43	1050	221	154	1271	144	400	707	252	123	365	113
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	45	1094	230	160	1324	150	417	736	262	128	380	118
Approach Volume (veh/h)		1369			1634			1415			626	
Crossing Volume (veh/h)		668			1198			1267#			1901#	
High Capacity (veh/h)		816			529			499			292	
High v/c (veh/h)		1.68			3.09			2.83			2.14	
Low Capacity (veh/h)		650			403			378			208	
Low v/c (veh/h)		2.10			4.06			3.74			3.01	

Intersection Summary				
Maximum v/c High	3.09			
Maximum v/c Low	4.06			
Intersection Capacity Utilization	151.3%	ICU Level of Service	H	

Crossing flow exceeds 1200, method is not applicable



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	797	56	164	1263	71	32	40	352	110	1	6
Future Volume (vph)	16	797	56	164	1263	71	32	40	352	110	1	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		30.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00		0.97	1.00	0.98		1.00	0.98	
Frt		0.990				0.850		0.865			0.869	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3458	0	1750	3500	1566	1750	1565	0	1750	1574	0
Flt Permitted	0.101			0.219			0.752			0.162		
Satd. Flow (perm)	186	3458	0	403	3500	1515	1379	1565	0	298	1574	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10				78		114			7	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		839.5			181.9			562.0			190.6	
Travel Time (s)		50.4			10.9			40.5			13.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	18	886	62	182	1403	79	36	44	391	122	1	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	18	948	0	182	1403	79	36	435	0	122	8	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



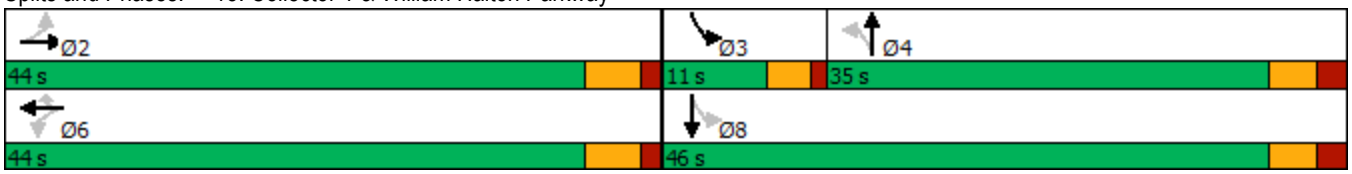
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		2			6			4		3	8	
Permitted Phases	2			6		6	4			8		
Detector Phase	2	2		6	6	6	4	4		3	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		7.0	10.0	
Minimum Split (s)	32.1	32.1		32.1	32.1	32.1	34.4	34.4		11.0	34.4	
Total Split (s)	44.0	44.0		44.0	44.0	44.0	35.0	35.0		11.0	46.0	
Total Split (%)	48.9%	48.9%		48.9%	48.9%	48.9%	38.9%	38.9%		12.2%	51.1%	
Maximum Green (s)	38.9	38.9		38.9	38.9	38.9	29.6	29.6		7.0	40.6	
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7	3.3	3.3		3.0	3.3	
All-Red Time (s)	1.4	1.4		1.4	1.4	1.4	2.1	2.1		1.0	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.1	5.1		5.1	5.1	5.1	5.4	5.4		4.0	5.4	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max	Max	None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0			7.0	
Flash Dont Walk (s)	20.0	20.0		20.0	20.0	20.0	22.0	22.0			22.0	
Pedestrian Calls (#/hr)	5	5		5	5	5	5	5			5	
Act Effct Green (s)	39.6	39.6		39.6	39.6	39.6	21.7	21.7		31.4	30.0	
Actuated g/C Ratio	0.49	0.49		0.49	0.49	0.49	0.27	0.27		0.39	0.37	
v/c Ratio	0.20	0.55		0.92	0.81	0.10	0.10	0.86		0.50	0.01	
Control Delay	22.4	17.6		73.6	24.7	4.3	22.4	38.2		21.8	8.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	22.4	17.6		73.6	24.7	4.3	22.4	38.2		21.8	8.7	
LOS	C	B		E	C	A	C	D		C	A	
Approach Delay		17.7			29.1			37.0			21.0	
Approach LOS		B			C			D			C	
Queue Length 50th (m)	1.6	54.7		26.8	99.3	0.1	4.2	49.1		11.6	0.1	
Queue Length 95th (m)	7.6	84.5		#73.7	#164.0	7.6	10.8	84.7		21.5	2.4	
Internal Link Dist (m)		815.5			157.9			538.0			166.6	
Turn Bay Length (m)	30.0			30.0		30.0	30.0			30.0		
Base Capacity (vph)	91	1710		198	1726	786	517	658		245	813	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.20	0.55		0.92	0.81	0.10	0.07	0.66		0.50	0.01	

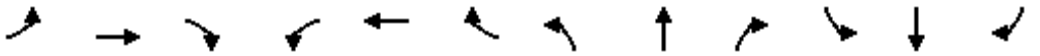
Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 80.3			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 26.5		Intersection LOS: C	
Intersection Capacity Utilization 90.0%		ICU Level of Service E	

Analysis Period (min) 15

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

Splits and Phases: 15: Collector 1 & William Halton Parkway

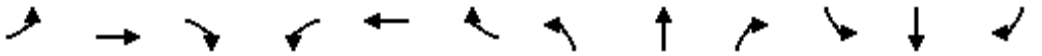




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	797	56	164	1263	71	32	40	352	110	1	6
Future Volume (vph)	16	797	56	164	1263	71	32	40	352	110	1	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1		5.1	5.1	5.1	5.4	5.4		4.0	5.4	
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	0.97	1.00	0.98		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	1.00	0.85	1.00	0.87		1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1749	3459		1747	3500	1517	1743	1565		1750	1574	
Flt Permitted	0.10	1.00		0.22	1.00	1.00	0.75	1.00		0.16	1.00	
Satd. Flow (perm)	186	3459		403	3500	1517	1380	1565		298	1574	
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)	18	886	62	182	1403	79	36	44	391	122	1	7
RTOR Reduction (vph)	0	5	0	0	0	40	0	83	0	0	4	0
Lane Group Flow (vph)	18	943	0	182	1403	39	36	352	0	122	4	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		2			6			4		3	8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	39.6	39.6		39.6	39.6	39.6	21.7	21.7		31.0	31.0	
Effective Green, g (s)	39.6	39.6		39.6	39.6	39.6	21.7	21.7		31.0	31.0	
Actuated g/C Ratio	0.49	0.49		0.49	0.49	0.49	0.27	0.27		0.38	0.38	
Clearance Time (s)	5.1	5.1		5.1	5.1	5.1	5.4	5.4		4.0	5.4	
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)	90	1688		196	1709	740	369	418		208	601	
v/s Ratio Prot		0.27			0.40			c0.22		c0.04	0.00	
v/s Ratio Perm	0.10			c0.45		0.03	0.03			0.18		
v/c Ratio	0.20	0.56		0.93	0.82	0.05	0.10	0.84		0.59	0.01	
Uniform Delay, d1	11.8	14.6		19.4	17.7	10.9	22.3	28.1		18.8	15.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.9	1.3		47.9	4.6	0.1	0.1	14.1		4.2	0.0	
Delay (s)	16.7	15.9		67.4	22.3	11.0	22.5	42.2		23.0	15.5	
Level of Service	B	B		E	C	B	C	D		C	B	
Approach Delay (s)		16.0			26.7			40.7			22.5	
Approach LOS		B			C			D			C	

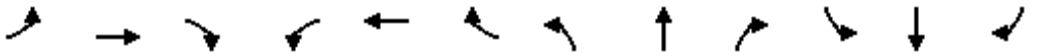
Intersection Summary			
HCM 2000 Control Delay	25.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	81.1	Sum of lost time (s)	14.5
Intersection Capacity Utilization	90.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1200	59	0	1328	266	0	0	78	0	0	170
Future Volume (vph)	0	1200	59	0	1328	266	0	0	78	0	0	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		30.0	30.0		0.0	30.0		0.0
Storage Lanes	0		0	0		1	0		1	0		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.993				0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3475	0	0	3500	1566	0	0	1593	0	0	1593
Flt Permitted												
Satd. Flow (perm)	0	3475	0	0	3500	1566	0	0	1593	0	0	1593
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		181.9			207.8			147.0			169.4	
Travel Time (s)		10.9			12.5			10.6			12.2	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	0	1333	66	0	1476	296	0	0	87	0	0	189
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1399	0	0	1476	296	0	0	87	0	0	189
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

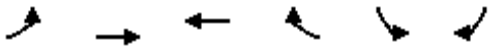
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 54.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1200	59	0	1328	266	0	0	78	0	0	170
Future Volume (Veh/h)	0	1200	59	0	1328	266	0	0	78	0	0	170
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1333	66	0	1476	296	0	0	87	0	0	189
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		182			208							
pX, platoon unblocked	0.79			0.82			0.88	0.88	0.82	0.88	0.88	0.79
vC, conflicting volume	1777			1404			2303	3148	710	2240	2885	748
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1445			1045			1265	2227	194	1192	1927	137
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	87	100	100	73
cM capacity (veh/h)	364			537			79	37	659	107	57	691

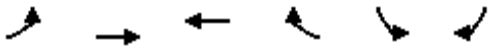
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	889	510	738	738	296	87	189
Volume Left	0	0	0	0	0	0	0
Volume Right	0	66	0	0	296	87	189
cSH	1700	1700	1700	1700	1700	659	691
Volume to Capacity	0.52	0.30	0.43	0.43	0.17	0.13	0.27
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	3.4	8.4
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	11.3	12.2
Lane LOS						B	B
Approach Delay (s)	0.0		0.0			11.3	12.2
Approach LOS						B	B

Intersection Summary				
Average Delay	1.0			
Intersection Capacity Utilization	54.8%	ICU Level of Service		A
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	7	368	448	240	151	12
Future Volume (vph)	7	368	448	240	151	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0			0.0	30.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	15.0				15.0	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.948			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1750	3500	3318	0	1750	1566
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1750	3500	3318	0	1750	1566
Link Speed (k/h)		50	50		50	
Link Distance (m)		222.8	245.2		562.0	
Travel Time (s)		16.0	17.7		40.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	8	409	498	267	168	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	409	765	0	168	13
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		3.5	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

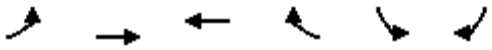
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 35.1%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	368	448	240	151	12
Future Volume (Veh/h)	7	368	448	240	151	12
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	8	409	498	267	168	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)			245			
pX, platoon unblocked	0.96				0.96	0.96
vC, conflicting volume	765				852	382
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	681				771	284
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				48	98
cM capacity (veh/h)	875				321	687

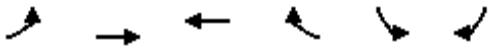
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	8	204	204	332	433	168	13
Volume Left	8	0	0	0	0	168	0
Volume Right	0	0	0	0	267	0	13
cSH	875	1700	1700	1700	1700	321	687
Volume to Capacity	0.01	0.12	0.12	0.20	0.25	0.52	0.02
Queue Length 95th (m)	0.2	0.0	0.0	0.0	0.0	21.7	0.4
Control Delay (s)	9.2	0.0	0.0	0.0	0.0	27.8	10.3
Lane LOS	A					D	B
Approach Delay (s)	0.2			0.0		26.6	
Approach LOS						D	

Intersection Summary			
Average Delay	3.6		
Intersection Capacity Utilization	35.1%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Volume (vph)	0	1293	1639	13	0	371
Future Volume (vph)	0	1293	1639	13	0	371
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0			30.0	0.0	0.0
Storage Lanes	0			1	0	1
Taper Length (m)	15.0				15.0	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor						
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	3500	3500	1566	0	1593
Flt Permitted						
Satd. Flow (perm)	0	3500	3500	1566	0	1593
Link Speed (k/h)		60	60		50	
Link Distance (m)		228.3	173.6		144.7	
Travel Time (s)		13.7	10.4		10.4	
Confl. Peds. (#/hr)	5			5	5	5
Confl. Bikes (#/hr)				5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1437	1821	14	0	412
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1437	1821	14	0	412
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		7.0	7.0		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

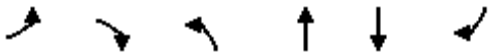
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 75.5%		ICU Level of Service D	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Volume (veh/h)	0	1293	1639	13	0	371
Future Volume (Veh/h)	0	1293	1639	13	0	371
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1437	1821	14	0	412
Pedestrians		5	5		5	
Lane Width (m)		3.5	3.5		3.5	
Walking Speed (m/s)		1.0	1.0		1.0	
Percent Blockage		0	0		0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		228	174			
pX, platoon unblocked	0.54				0.61	0.54
vC, conflicting volume	1840				2550	920
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	855				1202	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	29
cM capacity (veh/h)	420				108	581

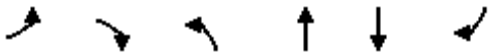
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	718	718	910	910	14	412
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	14	412
cSH	1700	1700	1700	1700	1700	581
Volume to Capacity	0.42	0.42	0.54	0.54	0.01	0.71
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	43.7
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	24.9
Lane LOS						C
Approach Delay (s)	0.0		0.0			24.9
Approach LOS						C

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	198	0	1946	1600	373
Future Volume (vph)	0	198	0	1946	1600	373
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	0.0			30.0
Storage Lanes	0	1	0			0
Taper Length (m)	15.0		15.0			
Lane Util. Factor	1.00	1.00	1.00	*0.80	*0.80	0.91
Ped Bike Factor						
Frt		0.865			0.972	
Flt Protected						
Satd. Flow (prot)	0	1593	0	4421	4297	0
Flt Permitted						
Satd. Flow (perm)	0	1593	0	4421	4297	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	168.4			320.3	142.6	
Travel Time (s)	12.1			19.2	8.6	
Confl. Peds. (#/hr)	5	5	5			5
Confl. Bikes (#/hr)		5				5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	220	0	2162	1778	414
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	220	0	2162	2192	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

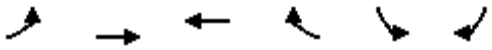
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.9%		ICU Level of Service B	
Analysis Period (min) 15			
* User Entered Value			



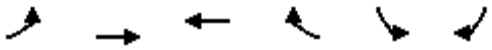
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	198	0	1946	1600	373
Future Volume (Veh/h)	0	198	0	1946	1600	373
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	220	0	2162	1778	414
Pedestrians	5			5	5	
Lane Width (m)	3.5			3.5	3.5	
Walking Speed (m/s)	1.0			1.0	1.0	
Percent Blockage	0			0	0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				320	143	
pX, platoon unblocked	0.82	0.69	0.69			
vC, conflicting volume	2716	810	2197			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0	1156			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	70	100			
cM capacity (veh/h)	835	740	411			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	220	721	721	721	711	711	770
Volume Left	0	0	0	0	0	0	0
Volume Right	220	0	0	0	0	0	414
cSH	740	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.30	0.42	0.42	0.42	0.42	0.42	0.45
Queue Length 95th (m)	9.5	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	11.9	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B						
Approach Delay (s)	11.9	0.0			0.0		
Approach LOS	B						

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	533	760	1459	9	77	193
Future Volume (vph)	533	760	1459	9	77	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0			0.0	40.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	15.0				15.0	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor			1.00		0.99	0.98
Frt			0.999			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1750	3500	3496	0	1750	1566
Flt Permitted	0.076				0.950	
Satd. Flow (perm)	140	3500	3496	0	1740	1532
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			1			214
Link Speed (k/h)		60	60		50	
Link Distance (m)		173.6	1244.3		120.8	
Travel Time (s)		10.4	74.7		8.7	
Confl. Peds. (#/hr)	5			5	5	5
Confl. Bikes (#/hr)				5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	592	844	1621	10	86	214
Shared Lane Traffic (%)						
Lane Group Flow (vph)	592	844	1631	0	86	214
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		3.5	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (m)	2.0	10.0	10.0		2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6		2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2					4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	7.0	10.0	10.0		7.0	7.0
Minimum Split (s)	11.0	37.5	37.5		36.0	36.0
Total Split (s)	30.0	84.0	54.0		36.0	36.0
Total Split (%)	25.0%	70.0%	45.0%		30.0%	30.0%
Maximum Green (s)	26.0	78.5	48.5		32.0	32.0
Yellow Time (s)	3.0	3.7	3.7		3.0	3.0
All-Red Time (s)	1.0	1.8	1.8		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.0	5.5	5.5		4.0	4.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	Max	None		None	None
Walk Time (s)		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		25.0	25.0		25.0	25.0
Pedestrian Calls (#/hr)		5	5		5	5
Act Effct Green (s)	80.6	79.1	48.9		13.2	13.2
Actuated g/C Ratio	0.79	0.78	0.48		0.13	0.13
v/c Ratio	1.13	0.31	0.97		0.38	0.56
Control Delay	109.5	4.7	43.7		44.0	10.9
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	109.5	4.7	43.7		44.0	10.9
LOS	F	A	D		D	B
Approach Delay		47.9	43.7		20.4	
Approach LOS		D	D		C	
Queue Length 50th (m)	~112.3	16.8	148.1		15.7	0.0
Queue Length 95th (m)	#235.8	54.8	#282.5		29.0	17.9
Internal Link Dist (m)		149.6	1220.3		96.8	
Turn Bay Length (m)	120.0				40.0	
Base Capacity (vph)	524	2716	1676		553	630
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	1.13	0.31	0.97		0.16	0.34

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 101.9			
Natural Cycle: 145			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.13			
Intersection Signal Delay: 43.4		Intersection LOS: D	
Intersection Capacity Utilization 90.4%		ICU Level of Service E	

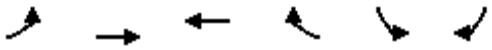
Analysis Period (min) 15

~ 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.

Splits and Phases: 24: William Halton Parkway & Collector 5





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	533	760	1459	9	77	193
Future Volume (vph)	533	760	1459	9	77	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5	5.5		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1750	3500	3496		1750	1526
Flt Permitted	0.08	1.00	1.00		0.95	1.00
Satd. Flow (perm)	139	3500	3496		1750	1526
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	592	844	1621	10	86	214
RTOR Reduction (vph)	0	0	1	0	0	186
Lane Group Flow (vph)	592	844	1630	0	86	28
Confl. Peds. (#/hr)	5			5	5	5
Confl. Bikes (#/hr)				5		5
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2					4
Actuated Green, G (s)	79.1	79.1	48.9		13.2	13.2
Effective Green, g (s)	79.1	79.1	48.9		13.2	13.2
Actuated g/C Ratio	0.78	0.78	0.48		0.13	0.13
Clearance Time (s)	4.0	5.5	5.5		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	522	2719	1679		226	197
v/s Ratio Prot	c0.29	0.24	0.47		c0.05	
v/s Ratio Perm	c0.59					0.02
v/c Ratio	1.13	0.31	0.97		0.38	0.14
Uniform Delay, d1	32.4	3.3	25.8		40.6	39.3
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	81.8	0.3	15.6		1.1	0.3
Delay (s)	114.2	3.6	41.4		41.6	39.6
Level of Service	F	A	D		D	D
Approach Delay (s)		49.2	41.4		40.2	
Approach LOS		D	D		D	

Intersection Summary			
HCM 2000 Control Delay	44.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	101.8	Sum of lost time (s)	13.5
Intersection Capacity Utilization	90.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

MOVEMENT SUMMARY

Site: [101] Sixth Line & William Halton Parkway (General)

Output produced by SIDRA INTERSECTION Version: 10.0.8.241

2036 Future Background PM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Sixth Line															
1	L2	All MCs	12	2.0	12	2.0	0.424	14.5	LOS B	1.6	11.2	0.68	0.76	0.96	46.0
2	T1	All MCs	243	2.0	243	2.0	0.424	14.4	LOS B	1.6	11.2	0.67	0.75	0.95	46.7
3	R2	All MCs	178	2.0	178	2.0	0.424	13.9	LOS B	1.5	10.9	0.66	0.73	0.94	46.5
Approach			433	2.0	433	2.0	0.424	14.2	LOS B	1.6	11.2	0.67	0.75	0.95	46.6
East: William Halton Parkway															
4	L2	All MCs	249	2.0	249	2.0	0.961	45.8	LOS E	22.9	163.3	1.00	1.80	3.49	33.0
5	T1	All MCs	683	2.0	683	2.0	0.961	45.6	LOS E	23.2	165.1	1.00	1.80	3.50	33.5
6	R2	All MCs	523	2.0	523	2.0	0.961	45.1	LOS E	23.2	165.1	1.00	1.80	3.52	33.5
Approach			1456	2.0	1456	2.0	0.961	45.5	LOS E	23.2	165.1	1.00	1.80	3.50	33.4
North: Sixth Line															
7	L2	All MCs	341	2.0	341	2.0	0.601	18.3	LOS C	2.9	20.7	0.70	0.84	1.18	41.4
8	T1	All MCs	277	2.0	277	2.0	0.512	15.9	LOS C	2.2	15.6	0.68	0.78	1.03	46.1
9	R2	All MCs	313	2.0	313	2.0	0.165	3.9	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			931	2.0	931	2.0	0.601	12.7	LOS B	2.9	20.7	0.46	0.54	0.74	46.9
West: William Halton Parkway															
10	L2	All MCs	264	2.0	264	2.0	0.605	18.3	LOS C	3.3	23.2	0.70	0.86	1.24	42.0
11	T1	All MCs	446	2.0	446	2.0	0.605	17.8	LOS C	3.3	23.2	0.69	0.85	1.23	44.7
12	R2	All MCs	72	2.0	72	2.0	0.038	2.7	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			782	2.0	782	2.0	0.605	16.6	LOS C	3.3	23.2	0.63	0.77	1.12	44.5
All Vehicles			3602	2.0	3602	2.0	0.961	27.0	LOS D	23.2	165.1	0.74	1.12	1.96	39.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [101] Ninth Line & William Halton Parkway - Copy

(General)

Output produced by SIDRA INTERSECTION Version: 10.0.8.241

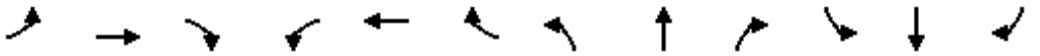
Future Background 2036 PM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Ninth Line															
1	L2	All MCs	449	23.0	449	23.0	2.008	490.3	LOS F	108.1	860.8	1.00	6.31	20.43	12.8
2	T1	All MCs	794	2.0	794	2.0	2.008	482.0	LOS F	138.4	987.9	1.00	6.39	21.40	12.8
3	R2	All MCs	283	3.0	283	3.0	2.008	491.6	LOS F	138.4	987.9	1.00	6.42	21.77	12.7
Approach			1527	8.4	1527	8.4	2.008	486.1	LOS F	138.4	987.9	1.00	6.37	21.18	12.8
East: Burnhamthorpe Road															
4	L2	All MCs	173	2.0	173	2.0	1.328	175.2	LOS F	76.9	551.5	1.00	4.29	11.31	18.8
5	T1	All MCs	1428	3.0	1428	3.0	1.328	175.0	LOS F	79.2	569.2	1.00	4.35	11.49	18.9
6	R2	All MCs	162	4.0	162	4.0	1.328	174.8	LOS F	79.2	569.2	1.00	4.40	11.66	18.9
Approach			1763	3.0	1763	3.0	1.328	175.0	LOS F	79.2	569.2	1.00	4.35	11.49	18.9
North: Ninth Line															
7	L2	All MCs	138	2.0	138	2.0	0.722	34.9	LOS D	3.2	22.9	0.88	1.04	1.52	36.0
8	T1	All MCs	410	2.0	410	2.0	0.722	33.5	LOS D	3.2	22.9	0.87	1.03	1.52	37.6
9	R2	All MCs	127	2.0	127	2.0	0.067	3.6	LOS A	0.0	0.0	0.00	0.00	0.00	56.4
Approach			675	2.0	675	2.0	0.722	28.1	LOS D	3.2	22.9	0.71	0.84	1.23	39.7
West: William Halton Parkway															
10	L2	All MCs	48	4.0	48	4.0	1.061	74.2	LOS F	31.1	222.0	1.00	2.42	5.45	26.7
11	T1	All MCs	1180	2.0	1180	2.0	1.061	56.8	LOS F	31.1	222.0	0.91	1.83	3.85	31.8
12	R2	All MCs	248	12.0	248	12.0	0.140	3.9	LOS A	0.0	0.0	0.00	0.00	0.00	56.2
Approach			1476	3.7	1476	3.7	1.061	48.5	LOS E	31.1	222.0	0.76	1.54	3.26	34.0
All Vehicles			5442	4.6	5442	4.6	2.008	209.8	LOS F	138.4	987.9	0.90	3.72	10.70	19.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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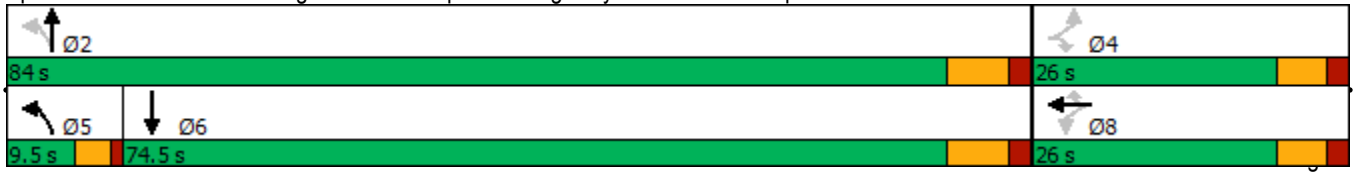
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	3	302	0	23	1	1783	0	0	1828	0
Future Volume (vph)	1	0	3	302	0	23	1	1783	0	0	1828	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		5.0	0.0		60.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		1	1		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt			0.850		0.997	0.850						
Flt Protected	0.950			0.950	0.953		0.950					
Satd. Flow (prot)	892	0	1566	1630	1563	1487	1750	3500	0	0	5029	0
Flt Permitted	0.561			0.950	0.953		0.071					
Satd. Flow (perm)	527	0	1566	1630	1563	1487	131	3500	0	0	5029	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79		79	79						
Link Speed (k/h)		20			60			80			80	
Link Distance (m)		81.5			394.8			34.5			189.8	
Travel Time (s)		14.7			23.7			1.6			8.5	
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 (%)	100%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	1	0	3	328	0	25	1	1938	0	0	1987	0
Shared Lane Traffic (%)				49%		10%						
Lane Group Flow (vph)	1	0	3	167	164	22	1	1938	0	0	1987	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1		1	1	2	1	1	2			2	
Detector Template	Left		Right	Left	Thru	Right	Left	Thru			Thru	
Leading Detector (m)	2.0		2.0	2.0	10.0	2.0	2.0	10.0			10.0	
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Size(m)	2.0		2.0	2.0	0.6	2.0	2.0	0.6			0.6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 2 Position(m)					9.4			9.4			9.4	
Detector 2 Size(m)					0.6			0.6			0.6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	

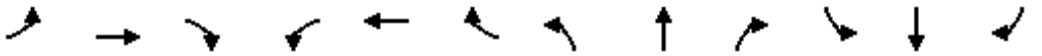
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8		8	2					
Detector Phase	4		4	8	8	8	5	2			6	
Switch Phase												
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	4.0	35.0			35.0	
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5	9.5	42.0			42.0	
Total Split (s)	26.0		26.0	26.0	26.0	26.0	9.5	84.0			74.5	
Total Split (%)	23.6%		23.6%	23.6%	23.6%	23.6%	8.6%	76.4%			67.7%	
Maximum Green (s)	20.0		20.0	20.0	20.0	20.0	5.5	77.0			67.5	
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0	3.0	5.0			5.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0	1.0	2.0			2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Recall Mode	None		None	None	None	None	None	Min			Min	
Act Effct Green (s)	13.8		13.8	13.8	13.8	13.8	56.6	53.5			52.1	
Actuated g/C Ratio	0.17		0.17	0.17	0.17	0.17	0.70	0.66			0.64	
v/c Ratio	0.01		0.01	0.60	0.50	0.07	0.00	0.84			0.61	
Control Delay	35.0		0.0	44.4	24.7	0.4	4.0	14.6			10.0	
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	35.0		0.0	44.4	24.7	0.4	4.0	14.6			10.0	
LOS	C		A	D	C	A	A	B			A	
Approach Delay		8.8			32.5			14.5			10.0	
Approach LOS		A			C			B			A	
Queue Length 50th (m)	0.1		0.0	24.2	12.1	0.0	0.0	100.0			52.6	
Queue Length 95th (m)	1.6		0.0	57.7	40.2	0.0	0.5	161.0			107.3	
Internal Link Dist (m)		57.5			370.8			10.5			165.8	
Turn Bay Length (m)			5.0			60.0						
Base Capacity (vph)	137		468	426	467	447	208	3151			4216	
Starvation Cap Reductn	0		0	0	0	0	0	0			0	
Spillback Cap Reductn	0		0	0	0	0	0	0			0	
Storage Cap Reductn	0		0	0	0	0	0	0			0	
Reduced v/c Ratio	0.01		0.01	0.39	0.35	0.05	0.00	0.62			0.47	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 81
Natural Cycle: 75
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 13.9 — Intersection LOS: B
Intersection Capacity Utilization 75.4% — ICU Level of Service D
Analysis Period (min) 15

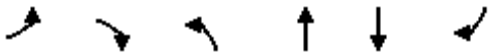
Splits and Phases: 7: Trafalgar Road & Carpool Lot/Highway 407 WB Off-Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	3	302	0	23	1	1783	0	0	1828	0
Future Volume (vph)	1	0	3	302	0	23	1	1783	0	0	1828	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	6.0	4.0	7.0			7.0	
Lane Util. Factor	1.00		1.00	0.95	0.91	0.95	1.00	0.95			0.91	
Frt	1.00		0.85	1.00	1.00	0.85	1.00	1.00			1.00	
Flt Protected	0.95		1.00	0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	892		1566	1630	1563	1487	1750	3500			5029	
Flt Permitted	0.56		1.00	0.95	0.95	1.00	0.07	1.00			1.00	
Satd. Flow (perm)	527		1566	1630	1563	1487	132	3500			5029	
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)	1	0	3	328	0	25	1	1938	0	0	1987	0
RTOR Reduction (vph)	0	0	3	0	66	18	0	0	0	0	0	0
Lane Group Flow (vph)	1	0	0	167	98	4	1	1938	0	0	1987	0
Heavy Vehicles (%)	100%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	
Permitted Phases	4		4	8		8	2					
Actuated Green, G (s)	13.8		13.8	13.8	13.8	13.8	56.8	56.8			52.0	
Effective Green, g (s)	13.8		13.8	13.8	13.8	13.8	56.8	56.8			52.0	
Actuated g/C Ratio	0.17		0.17	0.17	0.17	0.17	0.68	0.68			0.62	
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)	86		258	269	258	245	105	2377			3128	
v/s Ratio Prot							0.00	c0.55			0.40	
v/s Ratio Perm	0.00		0.00	c0.10	0.06	0.00	0.01					
v/c Ratio	0.01		0.00	0.62	0.38	0.01	0.01	0.82			0.64	
Uniform Delay, d1	29.2		29.1	32.5	31.1	29.2	6.3	9.6			9.9	
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.1		0.0	4.4	0.9	0.0	0.0	2.3			0.4	
Delay (s)	29.2		29.2	36.9	32.0	29.2	6.4	11.9			10.3	
Level of Service	C		C	D	C	C	A	B			B	
Approach Delay (s)		29.2			34.1			11.9			10.3	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	83.6	Sum of lost time (s)	17.0
Intersection Capacity Utilization	75.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	41	233	0	1842	2129	0
Future Volume (vph)	41	233	0	1842	2129	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1750	1377	0	3500	3500	0
Flt Permitted	0.950					
Satd. Flow (perm)	1750	1377	0	3500	3500	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		3				
Link Speed (k/h)	60			80	80	
Link Distance (m)	417.0			117.5	129.7	
Travel Time (s)	25.0			5.3	5.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	16%	2%	2%	2%	2%
Adj. Flow (vph)	44	251	0	1981	2289	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	44	251	0	1981	2289	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (m)	2.0	2.0		10.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	2.0		0.6	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						

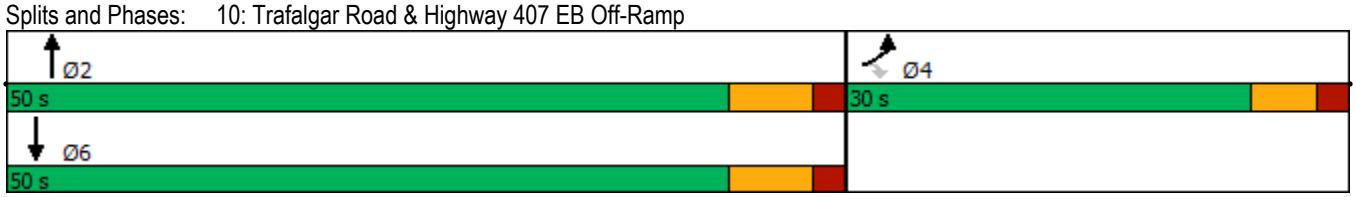
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Initial (s)	6.0	6.0		20.0	20.0	
Minimum Split (s)	24.0	24.0		27.0	27.0	
Total Split (s)	30.0	30.0		50.0	50.0	
Total Split (%)	37.5%	37.5%		62.5%	62.5%	
Maximum Green (s)	24.0	24.0		43.0	43.0	
Yellow Time (s)	4.0	4.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		7.0	7.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		Max	Max	
Act Effct Green (s)	17.8	17.8		43.2	43.2	
Actuated g/C Ratio	0.24	0.24		0.58	0.58	
v/c Ratio	0.10	0.76		0.97	1.12	
Control Delay	21.6	40.6		31.5	80.6	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	21.6	40.6		31.5	80.6	
LOS	C	D		C	F	
Approach Delay	37.8			31.5	80.6	
Approach LOS	D			C	F	
Queue Length 50th (m)	4.8	32.0		128.4	~199.5	
Queue Length 95th (m)	11.8	55.6		#217.0	#269.4	
Internal Link Dist (m)	393.0			93.5	105.7	
Turn Bay Length (m)						
Base Capacity (vph)	570	450		2042	2042	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.08	0.56		0.97	1.12	

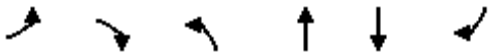
Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 74			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.12			
Intersection Signal Delay: 56.5		Intersection LOS: E	
Intersection Capacity Utilization 84.1%		ICU Level of Service E	
Analysis Period (min) 15			

~ 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.

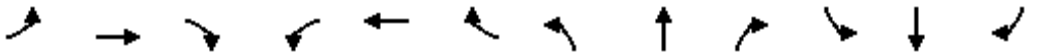
Splits and Phases: 10: Trafalgar Road & Highway 407 EB Off-Ramp



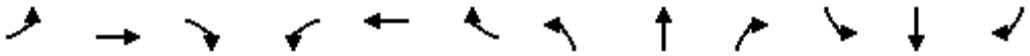


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	41	233	0	1842	2129	0
Future Volume (vph)	41	233	0	1842	2129	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1750	1377		3500	3500	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1750	1377		3500	3500	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	44	251	0	1981	2289	0
RTOR Reduction (vph)	0	2	0	0	0	0
Lane Group Flow (vph)	44	249	0	1981	2289	0
Heavy Vehicles (%)	2%	16%	2%	2%	2%	2%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	17.8	17.8		43.2	43.2	
Effective Green, g (s)	17.8	17.8		43.2	43.2	
Actuated g/C Ratio	0.24	0.24		0.58	0.58	
Clearance Time (s)	6.0	6.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	420	331		2043	2043	
v/s Ratio Prot	0.03			0.57	c0.65	
v/s Ratio Perm		c0.18				
v/c Ratio	0.10	0.75		0.97	1.12	
Uniform Delay, d1	21.9	26.0		14.8	15.4	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	9.3		13.9	61.4	
Delay (s)	22.0	35.3		28.7	76.8	
Level of Service	C	D		C	E	
Approach Delay (s)	33.3			28.7	76.8	
Approach LOS	C			C	E	

Intersection Summary			
HCM 2000 Control Delay	53.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	74.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	84.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	634	1107	292	156	316	337	120	1478	216	545	1294	237
Future Volume (vph)	634	1107	292	156	316	337	120	1478	216	545	1294	237
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	190.0		80.0	60.0		205.0	90.0		55.0	170.0		130.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	3500	1566	3395	3500	1452	3395	4421	1493	3362	4378	1566
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3395	3500	1566	3395	3500	1452	3395	4421	1493	3362	4378	1566
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			127			176			151			258
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		207.8			228.3			142.6			224.9	
Travel Time (s)		12.5			13.7			8.6			13.5	
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%	10%	2%	2%	7%	3%	3%	2%
Adj. Flow (vph)	689	1203	317	170	343	366	130	1607	235	592	1407	258
Shared Lane Traffic (%)												
Lane Group Flow (vph)	689	1203	317	170	343	366	130	1607	235	592	1407	258
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	

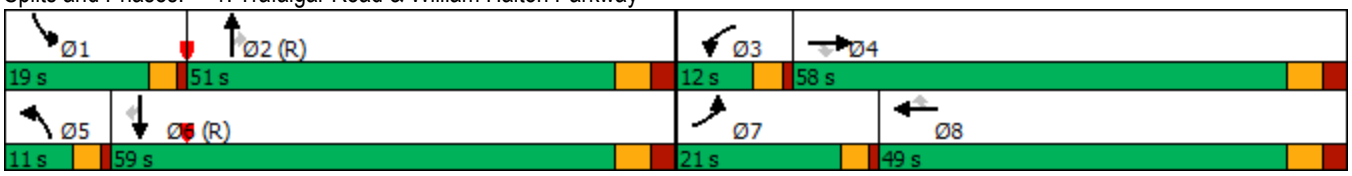


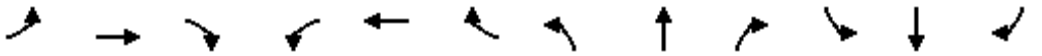
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	48.4	48.4	11.0	48.4	48.4	11.0	45.4	45.4	11.0	45.4	45.4
Total Split (s)	21.0	58.0	58.0	12.0	49.0	49.0	11.0	51.0	51.0	19.0	59.0	59.0
Total Split (%)	15.0%	41.4%	41.4%	8.6%	35.0%	35.0%	7.9%	36.4%	36.4%	13.6%	42.1%	42.1%
Maximum Green (s)	17.0	51.6	51.6	8.0	42.6	42.6	7.0	44.6	44.6	15.0	52.6	52.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		35.0	35.0		35.0	35.0		32.0	32.0		32.0	32.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	17.0	51.6	51.6	8.0	42.6	42.6	7.0	44.6	44.6	15.0	52.6	52.6
Actuated g/C Ratio	0.12	0.37	0.37	0.06	0.30	0.30	0.05	0.32	0.32	0.11	0.38	0.38
v/c Ratio	1.67	0.93	0.48	0.88	0.32	0.65	0.77	1.14	0.41	1.64	0.86	0.34
Control Delay	349.4	56.1	22.4	103.7	38.6	27.2	93.5	115.7	15.5	339.6	46.5	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	349.4	56.1	22.4	103.7	38.6	27.2	93.5	115.7	15.5	339.6	46.5	4.6
LOS	F	E	C	F	D	C	F	F	B	F	D	A
Approach Delay		142.8			46.5			102.3			118.6	
Approach LOS		F			D			F			F	
Queue Length 50th (m)	~142.9	167.8	39.4	24.5	38.6	46.1	18.7	~216.0	16.8	~121.9	148.4	0.0
Queue Length 95th (m)	#180.8	#211.0	67.2	#45.6	52.0	81.7	#35.0	#249.5	40.0	#158.6	171.6	17.4
Internal Link Dist (m)		183.8			204.3			118.6			200.9	
Turn Bay Length (m)	190.0		80.0	60.0		205.0	90.0		55.0	170.0		130.0
Base Capacity (vph)	412	1290	657	194	1065	564	169	1408	578	360	1644	749
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.67	0.93	0.48	0.88	0.32	0.65	0.77	1.14	0.41	1.64	0.86	0.34

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.67			
Intersection Signal Delay: 112.8		Intersection LOS: F	
Intersection Capacity Utilization 97.9%		ICU Level of Service F	
Analysis Period (min) 15			

* User Entered Value
~ 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.

Splits and Phases: 1: Trafalgar Road & William Halton Parkway

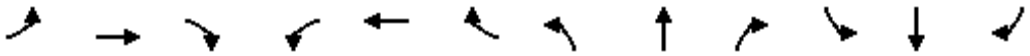




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	634	1107	292	156	316	337	120	1478	216	545	1294	237
Future Volume (vph)	634	1107	292	156	316	337	120	1478	216	545	1294	237
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	3500	1566	3395	3500	1452	3395	4421	1493	3362	4378	1566
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	3500	1566	3395	3500	1452	3395	4421	1493	3362	4378	1566
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)	689	1203	317	170	343	366	130	1607	235	592	1407	258
RTOR Reduction (vph)	0	0	80	0	0	122	0	0	103	0	0	161
Lane Group Flow (vph)	689	1203	237	170	343	244	130	1607	132	592	1407	97
Heavy Vehicles (%)	2%	2%	2%	2%	2%	10%	2%	2%	7%	3%	3%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	17.0	51.6	51.6	8.0	42.6	42.6	7.0	44.6	44.6	15.0	52.6	52.6
Effective Green, g (s)	17.0	51.6	51.6	8.0	42.6	42.6	7.0	44.6	44.6	15.0	52.6	52.6
Actuated g/C Ratio	0.12	0.37	0.37	0.06	0.30	0.30	0.05	0.32	0.32	0.11	0.38	0.38
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	412	1290	577	194	1065	441	169	1408	475	360	1644	588
v/s Ratio Prot	c0.20	c0.34		0.05	0.10		0.04	c0.36		c0.18	0.32	
v/s Ratio Perm			0.15			0.17			0.09			0.06
v/c Ratio	1.67	0.93	0.41	0.88	0.32	0.55	0.77	1.14	0.28	1.64	0.86	0.16
Uniform Delay, d1	61.5	42.5	32.9	65.5	37.6	40.7	65.7	47.7	35.7	62.5	40.2	29.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	313.1	12.7	1.0	32.8	0.4	2.5	18.8	72.6	1.5	302.2	6.0	0.6
Delay (s)	374.6	55.2	33.9	98.3	37.9	43.3	84.5	120.3	37.1	364.7	46.2	29.7
Level of Service	F	E	C	F	D	D	F	F	D	F	D	C
Approach Delay (s)		151.7			51.8			108.1			127.8	
Approach LOS		F			D			F			F	

Intersection Summary			
HCM 2000 Control Delay	120.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	97.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	294	266	114	87	184	65	251	1395	139	145	1499	51
Future Volume (vph)	294	266	114	87	184	65	251	1395	139	145	1499	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		0.0	120.0		0.0	130.0		0.0	170.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	*0.80	0.91	1.00	*0.80	0.91
Ped Bike Factor		1.00		1.00								
Frt		0.955			0.961			0.986			0.995	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3329	0	1750	3269	0	1700	4353	0	1750	4352	0
Flt Permitted	0.571			0.438			0.076			0.083		
Satd. Flow (perm)	1052	3329	0	806	3269	0	136	4353	0	153	4352	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		59			44			15			4	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		245.2			810.8			2139.5			320.3	
Travel Time (s)		17.7			58.4			128.4			19.2	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	6%	2%	5%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Adj. Flow (vph)	327	296	127	97	204	72	279	1550	154	161	1666	57
Shared Lane Traffic (%)												
Lane Group Flow (vph)	327	423	0	97	276	0	279	1704	0	161	1723	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.02	1.01	1.01	1.02	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	41.4	41.4		41.4	41.4		11.0	37.3		11.0	37.3	
Total Split (s)	46.0	46.0		46.0	46.0		20.0	59.0		15.0	54.0	
Total Split (%)	38.3%	38.3%		38.3%	38.3%		16.7%	49.2%		12.5%	45.0%	
Maximum Green (s)	39.6	39.6		39.6	39.6		16.0	52.7		11.0	47.7	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.0	3.7		3.0	3.7	
All-Red Time (s)	2.7	2.7		2.7	2.7		1.0	2.6		1.0	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		4.0	6.3		4.0	6.3	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	5.0		3.0	5.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	28.0	28.0		28.0	28.0			24.0			24.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	38.6	38.6		38.6	38.6		71.0	54.6		60.8	48.4	
Actuated g/C Ratio	0.32	0.32		0.32	0.32		0.59	0.46		0.51	0.40	
v/c Ratio	0.97	0.38		0.37	0.26		0.96	0.86		0.76	0.98	
Control Delay	81.8	27.7		36.1	25.5		76.0	34.9		47.2	53.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	81.8	27.7		36.1	25.5		76.0	34.9		47.2	53.0	
LOS	F	C		D	C		E	C		D	D	
Approach Delay		51.3			28.2			40.7			52.5	
Approach LOS		D			C			D			D	
Queue Length 50th (m)	74.5	34.0		17.3	20.6		50.5	149.6		20.8	165.9	
Queue Length 95th (m)	#131.0	47.8		33.1	31.4		#103.9	174.8		#50.7	#208.7	
Internal Link Dist (m)		221.2			786.8			2115.5			296.3	
Turn Bay Length (m)	140.0			120.0			130.0			170.0		
Base Capacity (vph)	347	1138		265	1108		292	1987		225	1757	
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	0.94	0.37		0.37	0.25		0.96	0.86		0.72	0.98	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.98	

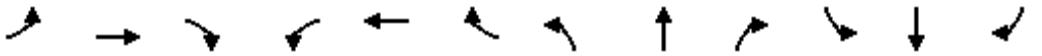
Intersection Signal Delay: 45.8	Intersection LOS: D
Intersection Capacity Utilization 87.9%	ICU Level of Service E
Analysis Period (min) 15	

* User Entered Value

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

Splits and Phases: 2: Trafalgar Road & Burnhamthorpe Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	294	266	114	87	184	65	251	1395	139	145	1499	51
Future Volume (vph)	294	266	114	87	184	65	251	1395	139	145	1499	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4		4.0	6.3		4.0	6.3	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	*0.80		1.00	*0.80	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	0.96		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)	1750	3329		1749	3268		1700	4355		1750	4352	
Flt Permitted	0.57	1.00		0.44	1.00		0.08	1.00		0.08	1.00	
Satd. Flow (perm)	1051	3329		807	3268		137	4355		152	4352	
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)	327	296	127	97	204	72	279	1550	154	161	1666	57
RTOR Reduction (vph)	0	40	0	0	30	0	0	8	0	0	2	0
Lane Group Flow (vph)	327	383	0	97	246	0	279	1696	0	161	1721	0
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	2%	2%	2%	2%	6%	2%	5%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
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)	38.6	38.6		38.6	38.6		68.7	54.6		58.5	48.4	
Effective Green, g (s)	38.6	38.6		38.6	38.6		68.7	54.6		58.5	48.4	
Actuated g/C Ratio	0.32	0.32		0.32	0.32		0.57	0.46		0.49	0.40	
Clearance Time (s)	6.4	6.4		6.4	6.4		4.0	6.3		4.0	6.3	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	338	1070		259	1051		290	1981		208	1755	
v/s Ratio Prot		0.12			0.08		c0.13	0.39		0.06	0.40	
v/s Ratio Perm	c0.31			0.12			c0.42			0.31		
v/c Ratio	0.97	0.36		0.37	0.23		0.96	0.86		0.77	0.98	
Uniform Delay, d1	40.1	31.2		31.4	29.9		38.1	29.2		25.1	35.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	39.8	0.2		0.9	0.1		42.3	5.0		16.3	17.3	
Delay (s)	79.9	31.4		32.3	30.0		80.4	34.2		41.4	52.6	
Level of Service	E	C		C	C		F	C		D	D	
Approach Delay (s)		52.6			30.6			40.7			51.7	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	45.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.7
Intersection Capacity Utilization	87.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1408	1	275	491	0	496
Future Volume (vph)	1408	1	275	491	0	496
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	100.0		30.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			15.0		50.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected			0.950			
Satd. Flow (prot)	3500	0	1716	3466	1842	1566
Flt Permitted			0.065			
Satd. Flow (perm)	3500	0	117	3466	1842	1566
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						270
Link Speed (k/h)	60			60	50	
Link Distance (m)	657.5			396.1	222.0	
Travel Time (s)	39.5			23.8	16.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	4%	3%	2%	2%
Adj. Flow (vph)	1530	1	299	534	0	539
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1531	0	299	534	0	539
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	10.0		2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6		2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	3	



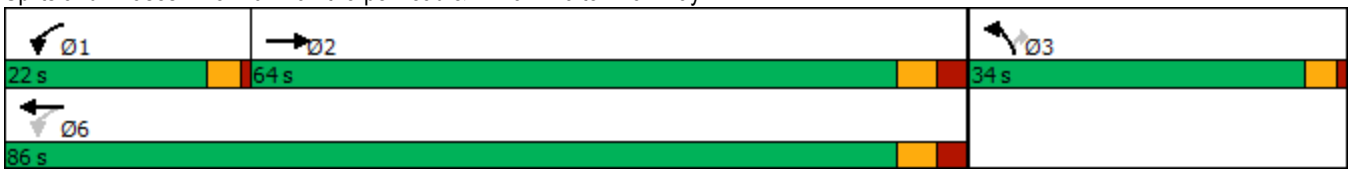
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases			6			3
Detector Phase	2		1	6	3	3
Switch Phase						
Minimum Initial (s)	10.0		7.0	10.0	7.0	7.0
Minimum Split (s)	28.4		11.0	28.4	31.0	31.0
Total Split (s)	64.0		22.0	86.0	34.0	34.0
Total Split (%)	53.3%		18.3%	71.7%	28.3%	28.3%
Maximum Green (s)	57.6		18.0	79.6	30.0	30.0
Yellow Time (s)	3.7		3.0	3.7	3.0	3.0
All-Red Time (s)	2.7		1.0	2.7	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4		4.0	6.4	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	Max		None	None	Max	Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	15.0			15.0	20.0	20.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	57.6		81.8	79.4		30.0
Actuated g/C Ratio	0.48		0.68	0.66		0.25
v/c Ratio	0.91		0.95	0.23		0.91
Control Delay	38.1		73.0	8.4		42.1
Queue Delay	0.0		0.0	0.0		0.0
Total Delay	38.1		73.0	8.4		42.1
LOS	D		E	A		D
Approach Delay	38.1			31.6	42.1	
Approach LOS	D			C	D	
Queue Length 50th (m)	170.6		54.2	24.1		67.6
Queue Length 95th (m)	#210.3		#107.5	31.6		#133.6
Internal Link Dist (m)	633.5			372.1	198.0	
Turn Bay Length (m)			100.0			
Base Capacity (vph)	1683		319	2304		595
Starvation Cap Reductn	0		0	0		0
Spillback Cap Reductn	0		0	0		0
Storage Cap Reductn	0		0	0		0
Reduced v/c Ratio	0.91		0.94	0.23		0.91

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 119.8			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay: 37.0		Intersection LOS: D	
Intersection Capacity Utilization 78.3%		ICU Level of Service D	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

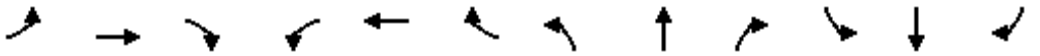
Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway



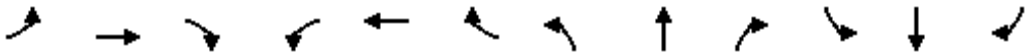


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1408	1	275	491	0	496
Future Volume (vph)	1408	1	275	491	0	496
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4		4.0	6.4		4.0
Lane Util. Factor	0.95		1.00	0.95		1.00
Frt	1.00		1.00	1.00		0.85
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	3500		1716	3466		1566
Flt Permitted	1.00		0.06	1.00		1.00
Satd. Flow (perm)	3500		117	3466		1566
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1530	1	299	534	0	539
RTOR Reduction (vph)	0	0	0	0	0	202
Lane Group Flow (vph)	1531	0	299	534	0	337
Heavy Vehicles (%)	2%	2%	4%	3%	2%	2%
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	3	
Permitted Phases			6			3
Actuated Green, G (s)	57.6		79.4	79.4		30.0
Effective Green, g (s)	57.6		79.4	79.4		30.0
Actuated g/C Ratio	0.48		0.66	0.66		0.25
Clearance Time (s)	6.4		4.0	6.4		4.0
Vehicle Extension (s)	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	1682		315	2297		392
v/s Ratio Prot	0.44		c0.14	0.15		
v/s Ratio Perm			c0.49			c0.21
v/c Ratio	0.91		0.95	0.23		0.86
Uniform Delay, d1	28.7		39.2	8.1		42.9
Progression Factor	1.00		1.00	1.00		1.00
Incremental Delay, d2	8.9		36.9	0.1		21.0
Delay (s)	37.6		76.2	8.1		63.9
Level of Service	D		E	A		E
Approach Delay (s)	37.6			32.5	63.9	
Approach LOS	D			C	E	

Intersection Summary			
HCM 2000 Control Delay	41.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	119.8	Sum of lost time (s)	14.4
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	461	2183	245	266	1249	279	197	1000	125	416	1577	302
Future Volume (vph)	461	2183	245	266	1249	279	197	1000	125	416	1577	302
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		85.0	90.0		85.0	100.0		50.0	130.0		100.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Ped Bike Factor	1.00		0.99	1.00		0.98	1.00		0.99	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	4421	1551	3298	4214	1536	3330	4378	1566	3330	4378	1551
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3393	4421	1529	3298	4214	1512	3328	4378	1543	3327	4378	1523
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			136			145			96			131
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		560.5			603.0			601.7			2139.5	
Travel Time (s)		28.8			31.0			36.1			128.4	
Confl. Peds. (#/hr)	4		2	2		4	6		3	3		6
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	3%	5%	7%	4%	4%	3%	2%	4%	3%	3%
Adj. Flow (vph)	480	2274	255	277	1301	291	205	1042	130	433	1643	315
Shared Lane Traffic (%)												
Lane Group Flow (vph)	480	2274	255	277	1301	291	205	1042	130	433	1643	315
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	50.4	50.4	11.0	50.4	50.4	11.0	48.4	48.4	11.0	48.4	48.4
Total Split (s)	14.0	57.0	57.0	11.0	54.0	54.0	11.0	49.0	49.0	13.0	51.0	51.0
Total Split (%)	10.8%	43.8%	43.8%	8.5%	41.5%	41.5%	8.5%	37.7%	37.7%	10.0%	39.2%	39.2%
Maximum Green (s)	10.0	50.6	50.6	7.0	47.6	47.6	7.0	42.6	42.6	9.0	44.6	44.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		37.0	37.0		37.0	37.0		35.0	35.0		35.0	35.0
Pedestrian Calls (#/hr)		2	2		4	4		3	3		6	6
Act Effct Green (s)	10.0	50.6	50.6	7.0	47.6	47.6	7.0	42.6	42.6	9.0	44.6	44.6
Actuated g/C Ratio	0.08	0.39	0.39	0.05	0.37	0.37	0.05	0.33	0.33	0.07	0.34	0.34
v/c Ratio	1.84	1.32	0.38	1.56	0.84	0.45	1.15	0.73	0.23	1.88	1.09	0.52
Control Delay	424.8	182.9	14.4	318.7	44.0	17.5	165.0	42.1	11.1	445.2	93.9	22.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	424.8	182.9	14.4	318.7	44.0	17.5	165.0	42.1	11.1	445.2	93.9	22.7
LOS	F	F	B	F	D	B	F	D	B	F	F	C
Approach Delay		207.2			80.6			57.5			148.1	
Approach LOS		F			F			E			F	
Queue Length 50th (m)	~95.8	~313.5	20.1	~51.6	126.5	26.9	~31.6	97.9	6.0	~87.1	~197.7	36.9
Queue Length 95th (m)	#129.5	#345.4	41.7	#79.6	149.0	52.1	#56.5	116.8	20.4	#119.7	#231.5	65.2
Internal Link Dist (m)		536.5			579.0			577.7			2115.5	
Turn Bay Length (m)	150.0		85.0	90.0		85.0	100.0		50.0	130.0		100.0
Base Capacity (vph)	261	1720	678	177	1542	645	179	1434	570	230	1501	608
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.84	1.32	0.38	1.56	0.84	0.45	1.15	0.73	0.23	1.88	1.09	0.52

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.88	
Intersection Signal Delay: 139.6	Intersection LOS: F

Intersection Capacity Utilization 104.3%	ICU Level of Service G
Analysis Period (min) 15	

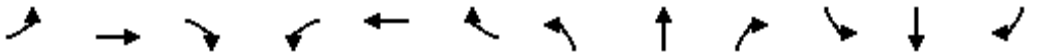
* User Entered Value

~ 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.

Splits and Phases: 4: Trafalgar Road & Dundas Street

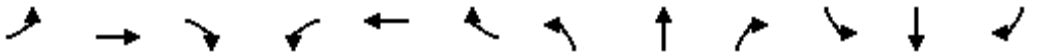




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	461	2183	245	266	1249	279	197	1000	125	416	1577	302
Future Volume (vph)	461	2183	245	266	1249	279	197	1000	125	416	1577	302
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	4421	1529	3298	4214	1512	3330	4378	1543	3330	4378	1523
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	4421	1529	3298	4214	1512	3330	4378	1543	3330	4378	1523
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	480	2274	255	277	1301	291	205	1042	130	433	1643	315
RTOR Reduction (vph)	0	0	83	0	0	92	0	0	65	0	0	86
Lane Group Flow (vph)	480	2274	172	277	1301	199	205	1042	65	433	1643	229
Confl. Peds. (#/hr)	4		2	2		4	6		3	3		6
Heavy Vehicles (%)	2%	2%	3%	5%	7%	4%	4%	3%	2%	4%	3%	3%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	10.0	50.6	50.6	7.0	47.6	47.6	7.0	42.6	42.6	9.0	44.6	44.6
Effective Green, g (s)	10.0	50.6	50.6	7.0	47.6	47.6	7.0	42.6	42.6	9.0	44.6	44.6
Actuated g/C Ratio	0.08	0.39	0.39	0.05	0.37	0.37	0.05	0.33	0.33	0.07	0.34	0.34
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Lane Grp Cap (vph)	261	1720	595	177	1542	553	179	1434	505	230	1501	522
v/s Ratio Prot	c0.14	c0.51		0.08	0.31		0.06	0.24		c0.13	c0.38	
v/s Ratio Perm			0.11			0.13			0.04			0.15
v/c Ratio	1.84	1.32	0.29	1.56	0.84	0.36	1.15	0.73	0.13	1.88	1.09	0.44
Uniform Delay, d1	60.0	39.7	27.3	61.5	37.8	30.1	61.5	38.6	30.7	60.5	42.7	33.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	392.1	149.1	1.2	279.8	5.8	1.8	111.7	1.9	0.1	413.2	53.6	0.7
Delay (s)	452.1	188.8	28.5	341.3	43.6	31.9	173.2	40.5	30.8	473.7	96.3	33.7
Level of Service	F	F	C	F	D	C	F	D	C	F	F	C
Approach Delay (s)		217.2			85.9			59.3			156.4	
Approach LOS		F			F			E			F	

Intersection Summary			
HCM 2000 Control Delay	146.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.35		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	104.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	136	49	129	200	22	184	568	128	79	471	11
Future Volume (vph)	58	136	49	129	200	22	184	568	128	79	471	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	40.0		0.0	40.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			15.0			15.0			50.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.960			0.985			0.972			0.997	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3360	0	1684	3358	0	1750	3378	0	1700	3456	0
Flt Permitted	0.597			0.621			0.450			0.341		
Satd. Flow (perm)	1100	3360	0	1101	3358	0	829	3378	0	610	3456	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		55			14			47			4	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		241.5			345.8			328.3			671.5	
Travel Time (s)		17.4			24.9			19.7			40.3	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	2%	6%	4%	11%	2%	2%	6%	5%	3%	2%
Adj. Flow (vph)	65	153	55	145	225	25	207	638	144	89	529	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	208	0	145	250	0	207	782	0	89	541	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	34.5	34.5		34.5	34.5		50.4	50.4		50.4	50.4	
Total Split (s)	35.0	35.0		35.0	35.0		55.0	55.0		55.0	55.0	
Total Split (%)	38.9%	38.9%		38.9%	38.9%		61.1%	61.1%		61.1%	61.1%	
Maximum Green (s)	28.5	28.5		28.5	28.5		48.6	48.6		48.6	48.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.2	3.2		3.2	3.2		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		19.0	19.0		19.0	19.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	15.7	15.7		15.7	15.7		48.8	48.8		48.8	48.8	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.63	0.63		0.63	0.63	
v/c Ratio	0.29	0.29		0.65	0.36		0.40	0.36		0.23	0.25	
Control Delay	29.1	19.4		42.4	26.0		11.1	7.6		9.5	7.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	29.1	19.4		42.4	26.0		11.1	7.6		9.5	7.2	
LOS	C	B		D	C		B	A		A	A	
Approach Delay		21.7			32.0			8.3			7.6	
Approach LOS		C			C			A			A	
Queue Length 50th (m)	8.1	9.8		19.6	15.6		12.9	23.1		4.9	15.6	
Queue Length 95th (m)	17.9	17.8		36.8	24.7		33.8	42.9		15.0	29.7	
Internal Link Dist (m)		217.5			321.8			304.3			647.5	
Turn Bay Length (m)	55.0			40.0			40.0			30.0		
Base Capacity (vph)	406	1276		406	1250		522	2147		384	2180	
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	0.16	0.16		0.36	0.20		0.40	0.36		0.23	0.25	

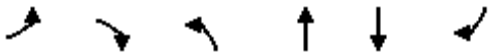
Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 77.4			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.65			
Intersection Signal Delay: 13.8		Intersection LOS: B	
Intersection Capacity Utilization 66.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 6: Sixth Line & Burnhamthorpe Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	136	49	129	200	22	184	568	128	79	471	11
Future Volume (vph)	58	136	49	129	200	22	184	568	128	79	471	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.98		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)	1750	3361		1684	3358		1750	3379		1700	3455	
Flt Permitted	0.60	1.00		0.62	1.00		0.45	1.00		0.34	1.00	
Satd. Flow (perm)	1099	3361		1101	3358		829	3379		610	3455	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	65	153	55	145	225	25	207	638	144	89	529	12
RTOR Reduction (vph)	0	44	0	0	11	0	0	17	0	0	1	0
Lane Group Flow (vph)	65	164	0	145	239	0	207	765	0	89	540	0
Heavy Vehicles (%)	2%	2%	2%	6%	4%	11%	2%	2%	6%	5%	3%	2%
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)	15.6	15.6		15.6	15.6		48.8	48.8		48.8	48.8	
Effective Green, g (s)	15.6	15.6		15.6	15.6		48.8	48.8		48.8	48.8	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.63	0.63		0.63	0.63	
Clearance Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	221	678		222	677		523	2133		385	2181	
v/s Ratio Prot		0.05			0.07			0.23			0.16	
v/s Ratio Perm	0.06			c0.13			c0.25			0.15		
v/c Ratio	0.29	0.24		0.65	0.35		0.40	0.36		0.23	0.25	
Uniform Delay, d1	26.2	25.9		28.4	26.5		7.0	6.8		6.2	6.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.2		6.7	0.3		2.2	0.5		1.4	0.3	
Delay (s)	26.9	26.1		35.1	26.8		9.2	7.3		7.6	6.5	
Level of Service	C	C		D	C		A	A		A	A	
Approach Delay (s)		26.3			29.9			7.7			6.6	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	13.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	77.3	Sum of lost time (s)	12.9
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



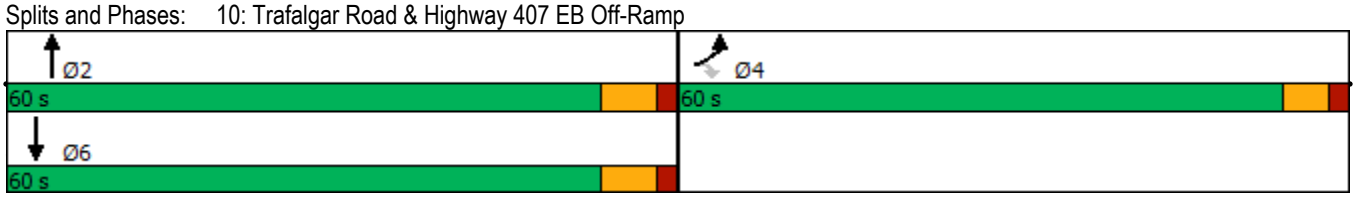
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	55	219	0	1975	1723	0
Future Volume (vph)	55	219	0	1975	1723	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1716	1401	0	3275	3305	0
Flt Permitted	0.950					
Satd. Flow (perm)	1716	1401	0	3275	3305	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		3				
Link Speed (k/h)	60			80	80	
Link Distance (m)	417.0			117.5	129.7	
Travel Time (s)	25.0			5.3	5.8	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	14%	2%	9%	8%	2%
Adj. Flow (vph)	60	241	0	2170	1893	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	60	241	0	2170	1893	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (m)	2.0	2.0		10.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	2.0		0.6	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						

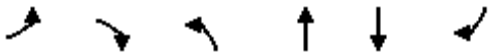
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Initial (s)	6.0	6.0		20.0	20.0	
Minimum Split (s)	24.0	24.0		27.0	27.0	
Total Split (s)	60.0	60.0		60.0	60.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	54.0	54.0		53.0	53.0	
Yellow Time (s)	4.0	4.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		7.0	7.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		Max	Max	
Act Effct Green (s)	19.6	19.6		53.2	53.2	
Actuated g/C Ratio	0.23	0.23		0.62	0.62	
v/c Ratio	0.15	0.75		1.07	0.92	
Control Delay	26.5	45.2		60.6	25.4	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	26.5	45.2		60.6	25.4	
LOS	C	D		E	C	
Approach Delay	41.5			60.6	25.4	
Approach LOS	D			E	C	
Queue Length 50th (m)	7.9	36.4		~209.3	130.5	
Queue Length 95th (m)	17.1	60.6		#292.0	#234.6	
Internal Link Dist (m)	393.0			93.5	105.7	
Turn Bay Length (m)						
Base Capacity (vph)	1083	885		2029	2048	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.06	0.27		1.07	0.92	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 85.8			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.07			
Intersection Signal Delay: 44.0		Intersection LOS: D	
Intersection Capacity Utilization 72.0%		ICU Level of Service C	
Analysis Period (min) 15			

~ 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.

Splits and Phases: 10: Trafalgar Road & Highway 407 EB Off-Ramp

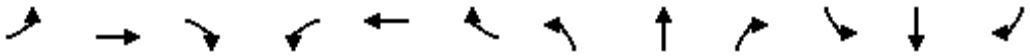




Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	55	219	0	1975	1723	0
Future Volume (vph)	55	219	0	1975	1723	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1716	1401		3275	3305	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1716	1401		3275	3305	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	60	241	0	2170	1893	0
RTOR Reduction (vph)	0	2	0	0	0	0
Lane Group Flow (vph)	60	239	0	2170	1893	0
Heavy Vehicles (%)	4%	14%	2%	9%	8%	2%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	19.6	19.6		53.2	53.2	
Effective Green, g (s)	19.6	19.6		53.2	53.2	
Actuated g/C Ratio	0.23	0.23		0.62	0.62	
Clearance Time (s)	6.0	6.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	392	320		2030	2049	
v/s Ratio Prot	0.03			c0.66	0.57	
v/s Ratio Perm		c0.17				
v/c Ratio	0.15	0.75		1.07	0.92	
Uniform Delay, d1	26.5	30.8		16.3	14.5	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	9.1		41.3	8.5	
Delay (s)	26.6	39.9		57.6	23.0	
Level of Service	C	D		E	C	
Approach Delay (s)	37.3			57.6	23.0	
Approach LOS	D			E	C	

Intersection Summary			
HCM 2000 Control Delay	41.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	85.8	Sum of lost time (s)	13.0
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	1555	45	231	531	51	29	31	317	97	3	5
Future Volume (vph)	11	1555	45	231	531	51	29	31	317	97	3	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		30.0	110.0		30.0	30.0		0.0	40.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.97			0.97	0.99	0.98		1.00	0.99	
Frt			0.850			0.850		0.863			0.900	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3500	1566	1750	3500	1566	1750	1557	0	1750	1634	0
Flt Permitted	0.429			0.068			0.752			0.163		
Satd. Flow (perm)	786	3500	1511	125	3500	1512	1377	1557	0	300	1634	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95			58		185			6	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		844.9			181.9			560.4			190.6	
Travel Time (s)		50.7			10.9			40.3			13.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	12	1728	50	257	590	57	32	34	352	108	3	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	1728	50	257	590	57	32	386	0	108	9	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2		2	6		6	4			8		
Detector Phase	2	2	2	1	6	6	4	4		3	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	10.0	10.0		7.0	10.0	
Minimum Split (s)	32.1	32.1	32.1	11.0	32.1	32.1	34.4	34.4		11.0	34.4	
Total Split (s)	60.0	60.0	60.0	14.0	74.0	74.0	35.0	35.0		11.0	46.0	
Total Split (%)	50.0%	50.0%	50.0%	11.7%	61.7%	61.7%	29.2%	29.2%		9.2%	38.3%	
Maximum Green (s)	54.9	54.9	54.9	10.0	68.9	68.9	29.6	29.6		7.0	40.6	
Yellow Time (s)	3.7	3.7	3.7	3.0	3.7	3.7	3.3	3.3		3.0	3.3	
All-Red Time (s)	1.4	1.4	1.4	1.0	1.4	1.4	2.1	2.1		1.0	2.1	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.1	5.1	5.1	4.0	5.1	5.1	5.4	5.4		4.0	5.4	
Lead/Lag	Lag	Lag	Lag	Lead			Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max	Max	None	Max	Max	None	None		None	None	
Walk Time (s)	7.0	7.0	7.0		7.0	7.0	7.0	7.0			7.0	
Flash Dont Walk (s)	20.0	20.0	20.0		20.0	20.0	22.0	22.0			22.0	
Pedestrian Calls (#/hr)	5	5	5		5	5	5	5			5	
Act Effct Green (s)	55.1	55.1	55.1	70.3	69.2	69.2	20.5	20.5		33.0	31.6	
Actuated g/C Ratio	0.50	0.50	0.50	0.63	0.62	0.62	0.18	0.18		0.30	0.28	
v/c Ratio	0.03	1.00	0.06	1.14	0.27	0.06	0.13	0.88		0.60	0.02	
Control Delay	17.5	50.2	0.5	131.9	10.8	3.0	37.5	44.4		43.2	18.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	17.5	50.2	0.5	131.9	10.8	3.0	37.5	44.4		43.2	18.5	
LOS	B	D	A	F	B	A	D	D		D	B	
Approach Delay		48.6			44.8			43.9			41.3	
Approach LOS		D			D			D			D	
Queue Length 50th (m)	1.3	~195.2	0.0	~50.6	29.1	0.0	5.8	44.5		17.5	0.5	
Queue Length 95th (m)	5.1	#281.7	1.0	#111.3	46.0	5.5	14.2	81.6		30.9	4.1	
Internal Link Dist (m)		820.9			157.9			536.4			166.6	
Turn Bay Length (m)	30.0		30.0	110.0		30.0	30.0			40.0		
Base Capacity (vph)	389	1733	796	225	2175	962	367	551		180	602	
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	0.03	1.00	0.06	1.14	0.27	0.06	0.09	0.70		0.60	0.01	

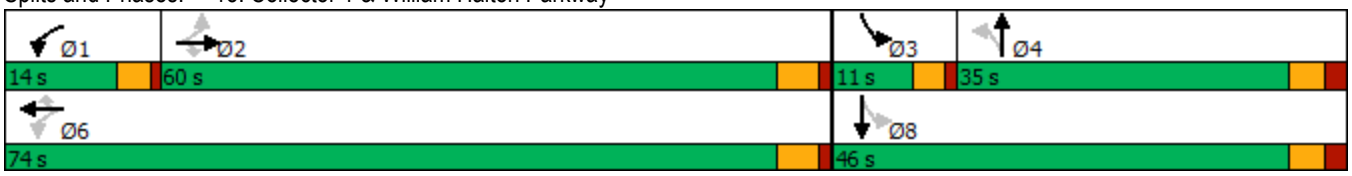
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 111.3			
Natural Cycle: 140			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.14			
Intersection Signal Delay: 46.6		Intersection LOS: D	
Intersection Capacity Utilization 99.1%		ICU Level of Service F	

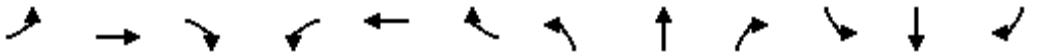
Analysis Period (min) 15

~ 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.

Splits and Phases: 15: Collector 1 & William Halton Parkway





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	1555	45	231	531	51	29	31	317	97	3	5
Future Volume (vph)	11	1555	45	231	531	51	29	31	317	97	3	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	5.1	4.0	5.1	5.1	5.4	5.4		4.0	5.4	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	0.98		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.86		1.00	0.90	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1742	3500	1513	1750	3500	1514	1740	1556		1750	1634	
Flt Permitted	0.43	1.00	1.00	0.07	1.00	1.00	0.75	1.00		0.16	1.00	
Satd. Flow (perm)	787	3500	1513	124	3500	1514	1377	1556		299	1634	
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)	12	1728	50	257	590	57	32	34	352	108	3	6
RTOR Reduction (vph)	0	0	25	0	0	22	0	151	0	0	4	0
Lane Group Flow (vph)	12	1728	25	257	590	35	32	235	0	108	5	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	55.2	55.2	55.2	69.2	69.2	69.2	20.6	20.6		31.6	31.6	
Effective Green, g (s)	55.2	55.2	55.2	69.2	69.2	69.2	20.6	20.6		31.6	31.6	
Actuated g/C Ratio	0.50	0.50	0.50	0.62	0.62	0.62	0.19	0.19		0.28	0.28	
Clearance Time (s)	5.1	5.1	5.1	4.0	5.1	5.1	5.4	5.4		4.0	5.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	390	1735	750	223	2176	941	254	287		176	463	
v/s Ratio Prot		0.49		c0.10	0.17			c0.15		c0.04	0.00	
v/s Ratio Perm	0.02		0.02	c0.61		0.02	0.02			0.14		
v/c Ratio	0.03	1.00	0.03	1.15	0.27	0.04	0.13	0.82		0.61	0.01	
Uniform Delay, d1	14.4	27.9	14.4	36.1	9.6	8.2	37.8	43.6		32.4	28.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	20.7	0.1	107.5	0.3	0.1	0.2	16.5		6.2	0.0	
Delay (s)	14.5	48.6	14.5	143.6	9.9	8.2	38.1	60.1		38.6	28.6	
Level of Service	B	D	B	F	A	A	D	E		D	C	
Approach Delay (s)		47.4			47.8			58.4			37.9	
Approach LOS		D			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	48.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	111.3	Sum of lost time (s)	18.5
Intersection Capacity Utilization	99.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

MOVEMENT SUMMARY

Site: [102] Sixth Line & William Halton Parkway - Mitigation

(General)

Output produced by SIDRA INTERSECTION Version: 10.0.8.241

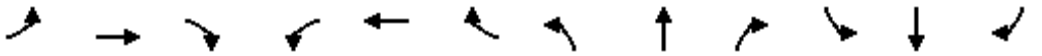
2036 Future Background AM - Mitigation
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

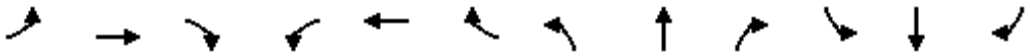
Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Sixth Line															
1	L2	All MCs	48	2.0	48	2.0	0.814	51.8	LOS F	4.0	28.2	0.93	1.19	1.98	31.6
2	T1	All MCs	230	2.0	230	2.0	0.814	51.3	LOS F	4.0	28.5	0.93	1.19	1.98	32.0
3	R2	All MCs	232	2.0	232	2.0	0.814	48.5	LOS E	4.0	28.5	0.93	1.18	1.98	32.4
Approach			510	2.0	510	2.0	0.814	50.1	LOS F	4.0	28.5	0.93	1.19	1.98	32.1
East: William Halton Parkway															
4	L2	All MCs	80	2.0	80	2.0	0.331	9.1	LOS A	1.1	8.1	0.50	0.47	0.55	48.1
5	T1	All MCs	401	2.0	401	2.0	0.331	9.0	LOS A	1.1	8.1	0.49	0.45	0.54	49.8
6	R2	All MCs	166	2.0	166	2.0	0.087	2.7	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			647	2.0	647	2.0	0.331	7.4	LOS A	1.1	8.1	0.36	0.34	0.40	51.1
North: Sixth Line															
7	L2	All MCs	869	2.0	869	2.0	1.139	96.8	LOS F	51.6	367.4	1.00	3.05	6.90	22.7
8	T1	All MCs	223	2.0	223	2.0	0.301	8.4	LOS A	1.0	6.8	0.47	0.41	0.47	50.7
9	R2	All MCs	368	2.0	368	2.0	0.194	4.3	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			1460	2.0	1460	2.0	1.139	60.0	LOS F	51.6	367.4	0.67	1.88	4.18	29.4
West: William Halton Parkway															
10	L2	All MCs	300	2.0	300	2.0	0.941	54.9	LOS F	10.4	73.8	0.95	1.54	3.06	30.3
11	T1	All MCs	651	2.0	651	2.0	0.941	53.6	LOS F	10.6	75.2	0.95	1.54	3.08	31.5
12	R2	All MCs	106	2.0	106	2.0	0.056	2.8	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			1057	2.0	1057	2.0	0.941	48.9	LOS E	10.6	75.2	0.86	1.39	2.77	32.5
All Vehicles			3673	2.0	3673	2.0	1.139	46.1	LOS E	51.6	367.4	0.71	1.37	2.80	33.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	573	589	147	281	854	875	258	1495	228	476	1557	482
Future Volume (vph)	573	589	147	281	854	875	258	1495	228	476	1557	482
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	190.0		80.0	60.0		205.0	90.0		55.0	170.0		130.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Ped Bike Factor							1.00					0.99
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	3500	1566	3330	3500	1566	3395	4421	1536	3267	4421	1566
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3395	3500	1566	3330	3500	1566	3394	4421	1536	3267	4421	1545
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			144			136			120			234
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		207.8			228.3			142.6			224.9	
Travel Time (s)		12.5			13.7			8.6			13.5	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	4%	2%	2%	2%	2%	4%	6%	2%	2%
Adj. Flow (vph)	616	633	158	302	918	941	277	1608	245	512	1674	518
Shared Lane Traffic (%)												
Lane Group Flow (vph)	616	633	158	302	918	941	277	1608	245	512	1674	518
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	48.4	48.4	11.0	48.4	48.4	11.0	45.4	45.4	11.0	44.4	44.4
Total Split (s)	17.0	52.0	52.0	22.0	57.0	57.0	12.0	50.0	50.0	16.0	54.0	54.0
Total Split (%)	12.1%	37.1%	37.1%	15.7%	40.7%	40.7%	8.6%	35.7%	35.7%	11.4%	38.6%	38.6%
Maximum Green (s)	13.0	45.6	45.6	18.0	50.6	50.6	8.0	43.6	43.6	12.0	48.6	48.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	2.7	2.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	5.4	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		35.0	35.0		35.0	35.0		32.0	32.0		32.0	32.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	13.0	47.0	47.0	16.6	50.6	50.6	8.0	43.6	43.6	12.0	48.6	48.6
Actuated g/C Ratio	0.09	0.34	0.34	0.12	0.36	0.36	0.06	0.31	0.31	0.09	0.35	0.35
v/c Ratio	1.96	0.54	0.25	0.76	0.73	1.44	1.43	1.17	0.44	1.83	1.09	0.75
Control Delay	473.0	40.1	7.7	73.0	42.7	237.8	264.5	126.7	21.7	420.5	95.0	29.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	473.0	40.1	7.7	73.0	42.7	237.8	264.5	126.7	21.7	420.5	95.0	29.2
LOS	F	D	A	E	D	F	F	F	C	F	F	C
Approach Delay		226.0			131.9			132.5			144.0	
Approach LOS		F			F			F			F	
Queue Length 50th (m)	~135.7	75.8	2.6	41.9	115.3	~329.8	~53.2	~220.0	26.6	~110.1	~217.0	72.6
Queue Length 95th (m)	#172.7	95.1	18.5	57.7	139.7	#409.0	#82.0	#253.8	51.4	#145.4	#250.5	118.6
Internal Link Dist (m)		183.8			204.3			118.6			200.9	
Turn Bay Length (m)	190.0		80.0	60.0		205.0	90.0		55.0	170.0		130.0
Base Capacity (vph)	315	1174	621	428	1265	652	194	1376	560	280	1534	689
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.96	0.54	0.25	0.71	0.73	1.44	1.43	1.17	0.44	1.83	1.09	0.75

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.96	
Intersection Signal Delay: 151.7	Intersection LOS: F

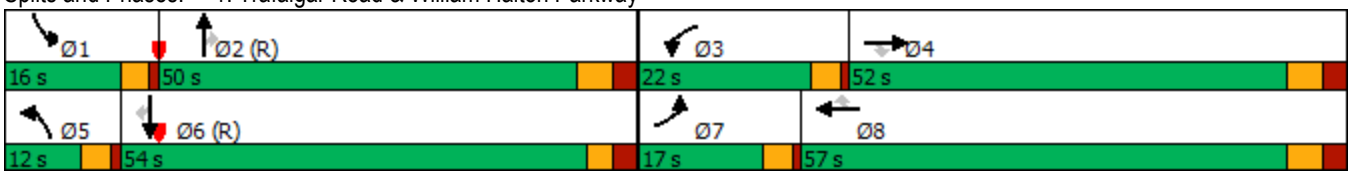
Intersection Capacity Utilization 113.4%	ICU Level of Service H
Analysis Period (min) 15	

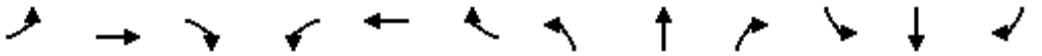
* User Entered Value

~ 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.

Splits and Phases: 1: Trafalgar Road & William Halton Parkway



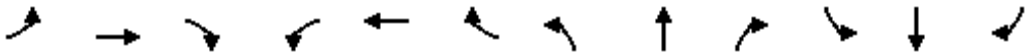


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	573	589	147	281	854	875	258	1495	228	476	1557	482
Future Volume (vph)	573	589	147	281	854	875	258	1495	228	476	1557	482
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	5.4	5.4
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	3500	1566	3330	3500	1566	3395	4421	1536	3267	4421	1545
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	3500	1566	3330	3500	1566	3395	4421	1536	3267	4421	1545
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)	616	633	158	302	918	941	277	1608	245	512	1674	518
RTOR Reduction (vph)	0	0	96	0	0	87	0	0	83	0	0	153
Lane Group Flow (vph)	616	633	62	302	918	854	277	1608	162	512	1674	365
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	2%	2%	2%	4%	2%	2%	2%	2%	4%	6%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	13.0	47.0	47.0	16.6	50.6	50.6	8.0	43.6	43.6	12.0	48.6	48.6
Effective Green, g (s)	13.0	47.0	47.0	16.6	50.6	50.6	8.0	43.6	43.6	12.0	48.6	48.6
Actuated g/C Ratio	0.09	0.34	0.34	0.12	0.36	0.36	0.06	0.31	0.31	0.09	0.35	0.35
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	5.4	5.4
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	315	1175	525	394	1265	565	194	1376	478	280	1534	536
v/s Ratio Prot	c0.18	0.18		0.09	0.26		0.08	0.36		c0.16	c0.38	
v/s Ratio Perm			0.04			c0.55			0.11			0.24
v/c Ratio	1.96	0.54	0.12	0.77	0.73	1.51	1.43	1.17	0.34	1.83	1.09	0.68
Uniform Delay, d1	63.5	37.7	32.2	59.8	38.7	44.7	66.0	48.2	37.1	64.0	45.7	39.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	441.4	0.9	0.2	8.6	2.6	239.4	219.7	84.1	1.9	386.5	52.1	6.9
Delay (s)	504.9	38.6	32.4	68.5	41.3	284.1	285.7	132.3	39.0	450.5	97.8	45.9
Level of Service	F	D	C	E	D	F	F	F	D	F	F	D
Approach Delay (s)		242.0			150.8			141.5			154.7	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	165.0	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)	20.8
Intersection Capacity Utilization	113.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	204	83	99	268	53	310	1672	112	99	1547	111
Future Volume (vph)	225	204	83	99	268	53	310	1672	112	99	1547	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		0.0	120.0		0.0	130.0		0.0	170.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	*0.80	0.91	1.00	*0.80	0.91
Frt		0.957			0.975			0.991			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1668	3349	0	1750	3412	0	1750	4375	0	1750	4331	0
Flt Permitted	0.500			0.536			0.074			0.079		
Satd. Flow (perm)	878	3349	0	987	3412	0	136	4375	0	146	4331	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		52			20			11			10	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		245.2			810.8			2139.5			320.3	
Travel Time (s)		17.7			58.4			128.4			19.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Adj. Flow (vph)	237	215	87	104	282	56	326	1760	118	104	1628	117
Shared Lane Traffic (%)												
Lane Group Flow (vph)	237	302	0	104	338	0	326	1878	0	104	1745	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.02	1.01	1.01	1.02	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	41.4	41.4		41.4	41.4		11.0	37.3		11.0	37.3	
Total Split (s)	42.0	42.0		42.0	42.0		23.0	67.0		11.0	55.0	
Total Split (%)	35.0%	35.0%		35.0%	35.0%		19.2%	55.8%		9.2%	45.8%	
Maximum Green (s)	35.6	35.6		35.6	35.6		19.0	60.7		7.0	48.7	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.0	3.7		3.0	3.7	
All-Red Time (s)	2.7	2.7		2.7	2.7		1.0	2.6		1.0	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		4.0	6.3		4.0	6.3	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	5.0		3.0	5.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	28.0	28.0		28.0	28.0			24.0			24.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	34.1	34.1		34.1	34.1		75.5	62.2		59.7	50.4	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.63	0.52		0.50	0.42	
v/c Ratio	0.95	0.31		0.37	0.34		0.96	0.83		0.63	0.96	
Control Delay	88.7	28.1		38.3	32.7		75.2	28.6		36.9	47.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	88.7	28.1		38.3	32.7		75.2	28.6		36.9	47.3	
LOS	F	C		D	C		E	C		D	D	
Approach Delay		54.8			34.0			35.4			46.7	
Approach LOS		D			C			D			D	
Queue Length 50th (m)	53.8	23.5		19.2	30.6		60.9	153.2		9.3	166.9	
Queue Length 95th (m)	#101.8	35.4		35.5	43.4		#117.5	178.3		#30.4	#209.5	
Internal Link Dist (m)		221.2			786.8			2115.5			296.3	
Turn Bay Length (m)	140.0			120.0			130.0			170.0		
Base Capacity (vph)	260	1030		292	1026		341	2273		166	1824	
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	0.91	0.29		0.36	0.33		0.96	0.83		0.63	0.96	

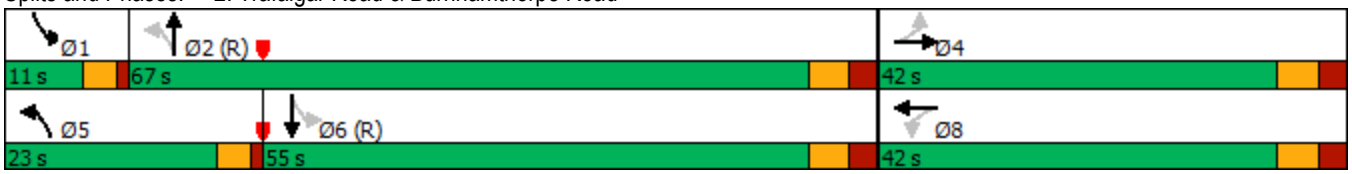
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 41.5		Intersection LOS: D	
Intersection Capacity Utilization 90.3%		ICU Level of Service E	

Analysis Period (min) 15

* User Entered Value

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

Splits and Phases: 2: Trafalgar Road & Burnhamthorpe Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	204	83	99	268	53	310	1672	112	99	1547	111
Future Volume (vph)	225	204	83	99	268	53	310	1672	112	99	1547	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4		4.0	6.3		4.0	6.3	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	*0.80		1.00	*0.80	
Frt	1.00	0.96		1.00	0.98		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)	1668	3349		1750	3413		1750	4373		1750	4331	
Flt Permitted	0.50	1.00		0.54	1.00		0.07	1.00		0.08	1.00	
Satd. Flow (perm)	877	3349		987	3413		135	4373		146	4331	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	237	215	87	104	282	56	326	1760	118	104	1628	117
RTOR Reduction (vph)	0	37	0	0	14	0	0	5	0	0	6	0
Lane Group Flow (vph)	237	265	0	104	324	0	326	1873	0	104	1739	0
Heavy Vehicles (%)	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
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)	34.1	34.1		34.1	34.1		73.2	62.2		57.4	50.4	
Effective Green, g (s)	34.1	34.1		34.1	34.1		73.2	62.2		57.4	50.4	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.61	0.52		0.48	0.42	
Clearance Time (s)	6.4	6.4		6.4	6.4		4.0	6.3		4.0	6.3	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	249	951		280	969		335	2266		163	1819	
v/s Ratio Prot		0.08			0.09		c0.15	0.43		0.04	0.40	
v/s Ratio Perm	c0.27			0.11			c0.44			0.27		
v/c Ratio	0.95	0.28		0.37	0.33		0.97	0.83		0.64	0.96	
Uniform Delay, d1	42.1	33.4		34.4	34.0		38.9	24.4		21.7	33.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	43.6	0.2		0.8	0.2		41.7	3.6		7.9	13.0	
Delay (s)	85.8	33.5		35.2	34.2		80.5	28.0		29.7	46.7	
Level of Service	F	C		D	C		F	C		C	D	
Approach Delay (s)		56.5			34.4			35.7			45.8	
Approach LOS		E			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	41.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.7
Intersection Capacity Utilization	90.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	835	1	373	1459	0	416
Future Volume (vph)	835	1	373	1459	0	416
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	120.0		30.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			15.0		50.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected			0.950			
Satd. Flow (prot)	3433	0	1750	3500	1842	1566
Flt Permitted			0.161			
Satd. Flow (perm)	3433	0	297	3500	1842	1566
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						430
Link Speed (k/h)	60			60	50	
Link Distance (m)	657.5			390.6	221.9	
Travel Time (s)	39.5			23.4	16.0	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%
Adj. Flow (vph)	870	1	389	1520	0	433
Shared Lane Traffic (%)						
Lane Group Flow (vph)	871	0	389	1520	0	433
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	10.0		2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6		2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	3	



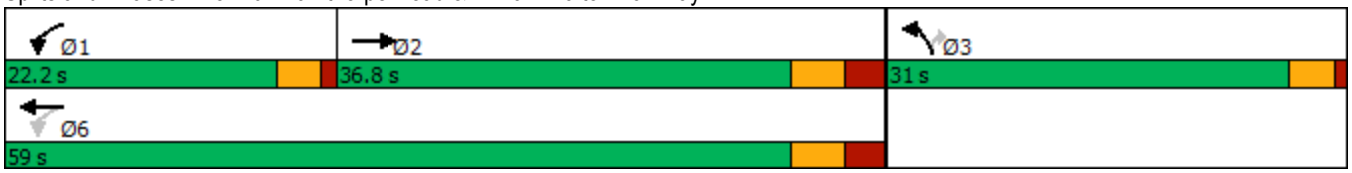
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases			6			3
Detector Phase	2		1	6	3	3
Switch Phase						
Minimum Initial (s)	10.0		7.0	10.0	7.0	7.0
Minimum Split (s)	28.4		11.5	28.4	31.0	31.0
Total Split (s)	36.8		22.2	59.0	31.0	31.0
Total Split (%)	40.9%		24.7%	65.6%	34.4%	34.4%
Maximum Green (s)	30.4		18.2	52.6	27.0	27.0
Yellow Time (s)	3.7		3.0	3.7	3.0	3.0
All-Red Time (s)	2.7		1.0	2.7	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4		4.0	6.4	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	Max		None	None	Max	Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	15.0			15.0	20.0	20.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	30.4		53.2	50.8		27.0
Actuated g/C Ratio	0.34		0.60	0.58		0.31
v/c Ratio	0.74		0.87	0.75		0.56
Control Delay	30.2		37.1	17.0		5.8
Queue Delay	0.0		0.0	0.0		0.0
Total Delay	30.2		37.1	17.0		5.8
LOS	C		D	B		A
Approach Delay	30.2			21.1	5.8	
Approach LOS	C			C	A	
Queue Length 50th (m)	69.5		39.8	93.8		0.4
Queue Length 95th (m)	91.4		#85.5	119.8		20.9
Internal Link Dist (m)	633.5			366.6	197.9	
Turn Bay Length (m)			120.0			
Base Capacity (vph)	1183		479	2088		777
Starvation Cap Reductn	0		0	0		0
Spillback Cap Reductn	0		0	0		0
Storage Cap Reductn	0		0	0		0
Reduced v/c Ratio	0.74		0.81	0.73		0.56

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 88.2			
Natural Cycle: 80			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 21.5		Intersection LOS: C	
Intersection Capacity Utilization 57.5%		ICU Level of Service B	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

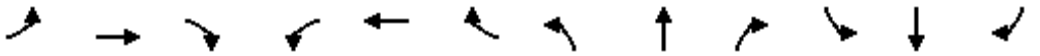
Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway



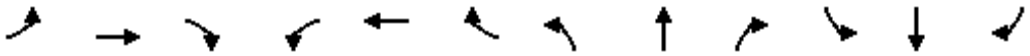


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	835	1	373	1459	0	416
Future Volume (vph)	835	1	373	1459	0	416
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4		4.0	6.4		4.0
Lane Util. Factor	0.95		1.00	0.95		1.00
Frt	1.00		1.00	1.00		0.85
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	3432		1750	3500		1566
Flt Permitted	1.00		0.16	1.00		1.00
Satd. Flow (perm)	3432		297	3500		1566
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	870	1	389	1520	0	433
RTOR Reduction (vph)	0	0	0	0	0	298
Lane Group Flow (vph)	871	0	389	1520	0	135
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	3	
Permitted Phases			6			3
Actuated Green, G (s)	30.4		50.8	50.8		27.0
Effective Green, g (s)	30.4		50.8	50.8		27.0
Actuated g/C Ratio	0.34		0.58	0.58		0.31
Clearance Time (s)	6.4		4.0	6.4		4.0
Vehicle Extension (s)	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	1182		441	2015		479
v/s Ratio Prot	0.25		c0.16	0.43		
v/s Ratio Perm			c0.34			c0.09
v/c Ratio	0.74		0.88	0.75		0.28
Uniform Delay, d1	25.4		18.9	14.0		23.2
Progression Factor	1.00		1.00	1.00		1.00
Incremental Delay, d2	4.1		18.3	1.6		1.5
Delay (s)	29.5		37.2	15.7		24.7
Level of Service	C		D	B		C
Approach Delay (s)	29.5			20.1	24.7	
Approach LOS	C			C	C	

Intersection Summary			
HCM 2000 Control Delay	23.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	88.2	Sum of lost time (s)	14.4
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	459	1710	198	298	1848	329	324	1642	232	345	1151	372
Future Volume (vph)	459	1710	198	298	1848	329	324	1642	232	345	1151	372
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		85.0	90.0		85.0	100.0		50.0	130.0		100.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Ped Bike Factor	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	4378	1566	3395	4421	1566	3395	4421	1566	3362	4421	1566
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3394	4378	1527	3391	4421	1540	3391	4421	1541	3361	4421	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			153			149			106			136
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		592.0			816.3			644.9			2139.5	
Travel Time (s)		30.4			42.0			38.7			128.4	
Confl. Peds. (#/hr)	5		15	15		5	6		4	4		6
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%
Adj. Flow (vph)	473	1763	204	307	1905	339	334	1693	239	356	1187	384
Shared Lane Traffic (%)												
Lane Group Flow (vph)	473	1763	204	307	1905	339	334	1693	239	356	1187	384
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



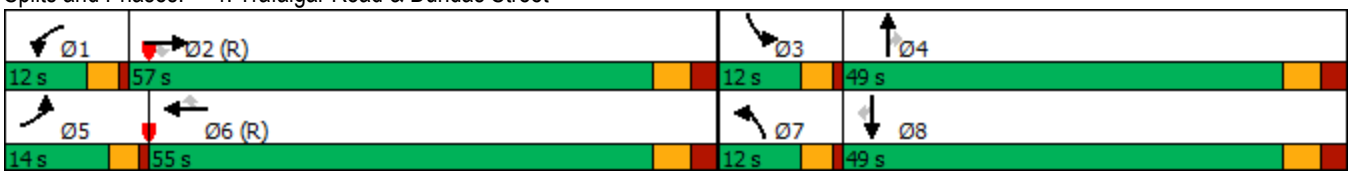
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	12.0	50.4	50.4	12.0	50.4	50.4	11.0	48.4	48.4	11.0	48.4	48.4
Total Split (s)	14.0	57.0	57.0	12.0	55.0	55.0	12.0	49.0	49.0	12.0	49.0	49.0
Total Split (%)	10.8%	43.8%	43.8%	9.2%	42.3%	42.3%	9.2%	37.7%	37.7%	9.2%	37.7%	37.7%
Maximum Green (s)	10.0	50.6	50.6	8.0	48.6	48.6	8.0	42.6	42.6	8.0	42.6	42.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		37.0	37.0		37.0	37.0		35.0	35.0		35.0	35.0
Pedestrian Calls (#/hr)		15	15		5	5		4	4		6	6
Act Effct Green (s)	10.0	50.6	50.6	8.0	48.6	48.6	8.0	42.6	42.6	8.0	42.6	42.6
Actuated g/C Ratio	0.08	0.39	0.39	0.06	0.37	0.37	0.06	0.33	0.33	0.06	0.33	0.33
v/c Ratio	1.81	1.03	0.30	1.48	1.15	0.51	1.61	1.17	0.41	1.73	0.82	0.65
Control Delay	413.4	70.3	8.8	279.4	113.8	19.9	331.6	123.3	20.8	382.3	45.8	29.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	413.4	70.3	8.8	279.4	113.8	19.9	331.6	123.3	20.8	382.3	45.8	29.2
LOS	F	E	A	F	F	B	F	F	C	F	D	C
Approach Delay		131.7			121.2			143.2			104.7	
Approach LOS		F			F			F			F	
Queue Length 50th (m)	~93.9	~202.0	8.2	~55.5	~239.2	36.3	~62.9	~214.7	25.5	~69.2	116.1	54.5
Queue Length 95th (m)	#127.4	#235.2	24.9	#84.6	#272.4	64.5	#92.8	#248.2	48.9	#99.7	137.2	89.8
Internal Link Dist (m)		568.0			792.3			620.9			2115.5	
Turn Bay Length (m)	150.0		85.0	90.0		85.0	100.0		50.0	130.0		100.0
Base Capacity (vph)	261	1704	687	208	1652	669	208	1448	576	206	1448	595
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.81	1.03	0.30	1.48	1.15	0.51	1.61	1.17	0.41	1.73	0.82	0.65

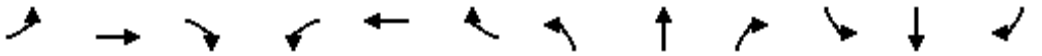
Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.81	
Intersection Signal Delay: 125.9	Intersection LOS: F

Intersection Capacity Utilization 109.1%	ICU Level of Service H
Analysis Period (min) 15	

* User Entered Value
~ 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.

Splits and Phases: 4: Trafalgar Road & Dundas Street

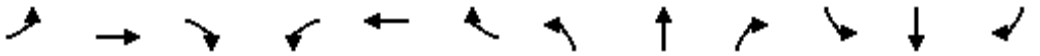




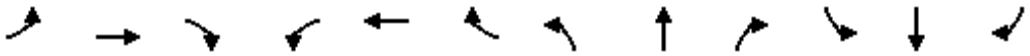
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	459	1710	198	298	1848	329	324	1642	232	345	1151	372
Future Volume (vph)	459	1710	198	298	1848	329	324	1642	232	345	1151	372
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	4378	1527	3395	4421	1540	3395	4421	1541	3362	4421	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	4378	1527	3395	4421	1540	3395	4421	1541	3362	4421	1538
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	473	1763	204	307	1905	339	334	1693	239	356	1187	384
RTOR Reduction (vph)	0	0	93	0	0	93	0	0	71	0	0	91
Lane Group Flow (vph)	473	1763	111	307	1905	246	334	1693	168	356	1187	293
Confl. Peds. (#/hr)	5		15	15		5	6		4	4		6
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	10.0	50.6	50.6	8.0	48.6	48.6	8.0	42.6	42.6	8.0	42.6	42.6
Effective Green, g (s)	10.0	50.6	50.6	8.0	48.6	48.6	8.0	42.6	42.6	8.0	42.6	42.6
Actuated g/C Ratio	0.08	0.39	0.39	0.06	0.37	0.37	0.06	0.33	0.33	0.06	0.33	0.33
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	261	1704	594	208	1652	575	208	1448	504	206	1448	503
v/s Ratio Prot	c0.14	0.40		0.09	c0.43		0.10	c0.38		c0.11	0.27	
v/s Ratio Perm			0.07			0.16			0.11			0.19
v/c Ratio	1.81	1.03	0.19	1.48	1.15	0.43	1.61	1.17	0.33	1.73	0.82	0.58
Uniform Delay, d1	60.0	39.7	26.1	61.0	40.7	30.3	61.0	43.7	33.0	61.0	40.2	36.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	380.3	31.3	0.7	238.3	76.3	2.3	293.9	83.9	0.8	347.2	4.3	2.6
Delay (s)	440.3	71.0	26.8	299.3	117.0	32.6	354.9	127.6	33.8	408.2	44.4	38.9
Level of Service	F	E	C	F	F	C	F	F	C	F	D	D
Approach Delay (s)		138.9			127.7			151.2			110.5	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	132.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	109.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



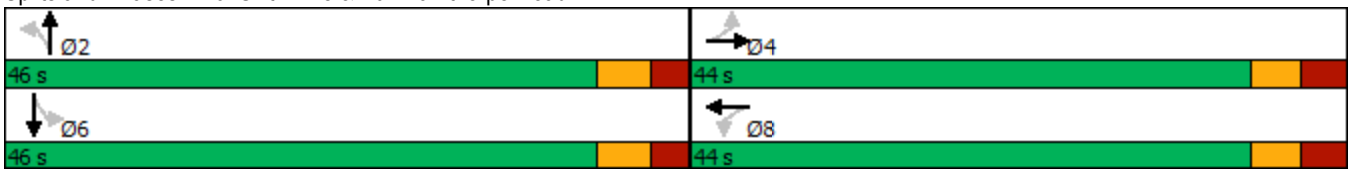
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	99	48	127	201	45	95	358	134	63	583	33
Future Volume (vph)	34	99	48	127	201	45	95	358	134	63	583	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	40.0		0.0	40.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			15.0			50.0			50.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.951			0.973			0.959			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3328	0	1750	3351	0	1750	3347	0	1750	3472	0
Flt Permitted	0.590			0.653			0.403			0.458		
Satd. Flow (perm)	1087	3328	0	1203	3351	0	742	3347	0	844	3472	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		51			37			77			8	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		241.5			345.8			218.8			671.6	
Travel Time (s)		17.4			24.9			13.1			40.3	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	2%	2%	11%	2%	2%	3%	2%	2%	2%
Adj. Flow (vph)	36	105	51	135	214	48	101	381	143	67	620	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	156	0	135	262	0	101	524	0	67	655	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	

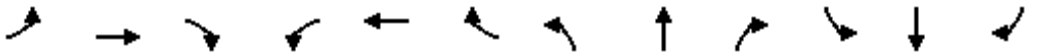


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	34.5	34.5		34.5	34.5		32.4	32.4		32.4	32.4	
Total Split (s)	44.0	44.0		44.0	44.0		46.0	46.0		46.0	46.0	
Total Split (%)	48.9%	48.9%		48.9%	48.9%		51.1%	51.1%		51.1%	51.1%	
Maximum Green (s)	37.5	37.5		37.5	37.5		39.6	39.6		39.6	39.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.2	3.2		3.2	3.2		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		19.0	19.0		19.0	19.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	13.1	13.1		13.1	13.1		39.7	39.7		39.7	39.7	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.60	0.60		0.60	0.60	
v/c Ratio	0.17	0.22		0.57	0.38		0.23	0.26		0.13	0.31	
Control Delay	23.2	15.5		33.4	20.8		8.5	5.9		7.3	7.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	23.2	15.5		33.4	20.8		8.5	5.9		7.3	7.2	
LOS	C	B		C	C		A	A		A	A	
Approach Delay		16.9			25.1			6.3			7.2	
Approach LOS		B			C			A			A	
Queue Length 50th (m)	3.7	5.6		15.0	12.4		4.8	11.1		3.0	17.0	
Queue Length 95th (m)	10.2	12.2		30.1	21.4		14.3	22.1		9.5	31.7	
Internal Link Dist (m)		217.5			321.8			194.8			647.6	
Turn Bay Length (m)	55.0			40.0			40.0			30.0		
Base Capacity (vph)	622	1926		688	1933		448	2053		510	2101	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.06	0.08		0.20	0.14		0.23	0.26		0.13	0.31	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 65.7			
Natural Cycle: 70			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.57			
Intersection Signal Delay: 11.5		Intersection LOS: B	
Intersection Capacity Utilization 63.7%		ICU Level of Service B	
Analysis Period (min) 15			

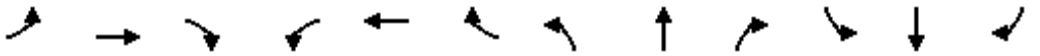
Splits and Phases: 6: Sixth Line & Burnhamthorpe Road



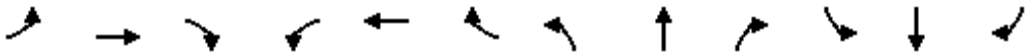


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	99	48	127	201	45	95	358	134	63	583	33
Future Volume (vph)	34	99	48	127	201	45	95	358	134	63	583	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.95		1.00	0.97		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)	1750	3328		1750	3350		1750	3348		1750	3472	
Flt Permitted	0.59	1.00		0.65	1.00		0.40	1.00		0.46	1.00	
Satd. Flow (perm)	1087	3328		1203	3350		742	3348		843	3472	
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)	36	105	51	135	214	48	101	381	143	67	620	35
RTOR Reduction (vph)	0	41	0	0	30	0	0	30	0	0	3	0
Lane Group Flow (vph)	36	115	0	135	232	0	101	494	0	67	652	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	11%	2%	2%	3%	2%	2%	2%
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)	13.0	13.0		13.0	13.0		39.7	39.7		39.7	39.7	
Effective Green, g (s)	13.0	13.0		13.0	13.0		39.7	39.7		39.7	39.7	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.61	0.61		0.61	0.61	
Clearance Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	215	659		238	663		449	2026		510	2101	
v/s Ratio Prot		0.03			0.07			0.15			c0.19	
v/s Ratio Perm	0.03			c0.11			0.14			0.08		
v/c Ratio	0.17	0.17		0.57	0.35		0.22	0.24		0.13	0.31	
Uniform Delay, d1	21.8	21.8		23.8	22.7		5.9	6.0		5.6	6.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.1		3.1	0.3		1.2	0.3		0.5	0.4	
Delay (s)	22.2	22.0		26.8	23.0		7.1	6.3		6.1	6.7	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		22.0			24.3			6.4			6.6	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	11.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	65.6	Sum of lost time (s)	12.9
Intersection Capacity Utilization	63.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	0	6	408	2	19	7	2458	0	0	1980	0
Future Volume (vph)	7	0	6	408	2	19	7	2458	0	0	1980	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		5.0	0.0		60.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		1	1		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt			0.850		0.999	0.850						
Flt Protected	0.950			0.950	0.953		0.950					
Satd. Flow (prot)	1526	0	1331	1615	1537	1431	1750	3500	0	0	4980	0
Flt Permitted	0.402			0.950	0.953		0.059					
Satd. Flow (perm)	646	0	1331	1615	1537	1431	109	3500	0	0	4980	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			73			73						
Link Speed (k/h)		20			60			80			80	
Link Distance (m)		81.5			393.0			34.5			195.6	
Travel Time (s)		14.7			23.6			1.6			8.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	17%	2%	20%	5%	100%	6%	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	7	0	6	425	2	20	7	2560	0	0	2063	0
Shared Lane Traffic (%)				50%		10%						
Lane Group Flow (vph)	7	0	6	212	217	18	7	2560	0	0	2063	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1		1	1	2	1	1	2			2	
Detector Template	Left		Right	Left	Thru	Right	Left	Thru			Thru	
Leading Detector (m)	2.0		2.0	2.0	10.0	2.0	2.0	10.0			10.0	
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Size(m)	2.0		2.0	2.0	0.6	2.0	2.0	0.6			0.6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 2 Position(m)					9.4			9.4			9.4	
Detector 2 Size(m)					0.6			0.6			0.6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	



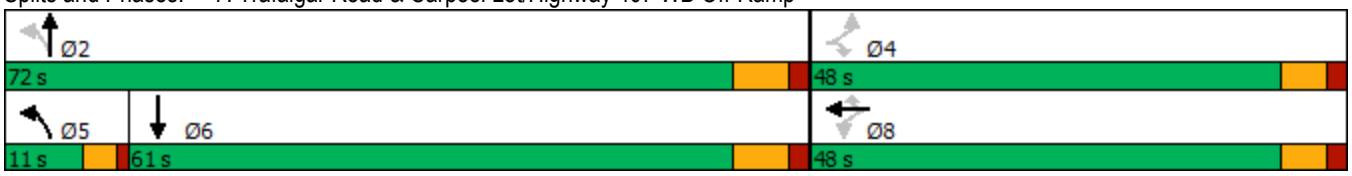
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8		8	2					
Detector Phase	4		4	8	8	8	5	2			6	
Switch Phase												
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	4.0	35.0			7.0	
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5	11.0	42.0			22.5	
Total Split (s)	48.0		48.0	48.0	48.0	48.0	11.0	72.0			61.0	
Total Split (%)	40.0%		40.0%	40.0%	40.0%	40.0%	9.2%	60.0%			50.8%	
Maximum Green (s)	42.0		42.0	42.0	42.0	42.0	7.0	65.0			54.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0	3.0	5.0			5.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0	1.0	2.0			2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Recall Mode	None		None	None	None	None	None	Min			Min	
Act Effct Green (s)	18.8		18.8	18.8	18.8	18.8	68.2	65.2			63.3	
Actuated g/C Ratio	0.19		0.19	0.19	0.19	0.19	0.70	0.67			0.65	
v/c Ratio	0.06		0.02	0.68	0.73	0.05	0.04	1.09			0.63	
Control Delay	31.7		0.2	47.6	51.4	0.3	6.1	66.2			12.6	
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	31.7		0.2	47.6	51.4	0.3	6.1	66.2			12.6	
LOS	C		A	D	D	A	A	E			B	
Approach Delay		17.2			47.5			66.0			12.6	
Approach LOS		B			D			E			B	
Queue Length 50th (m)	1.1		0.0	39.0	42.1	0.0	0.3	~285.2			70.1	
Queue Length 95th (m)	4.8		0.0	63.3	68.3	0.0	2.0	#370.3			138.6	
Internal Link Dist (m)		57.5			369.0			10.5			171.6	
Turn Bay Length (m)			5.0			60.0						
Base Capacity (vph)	280		619	701	667	662	195	2352			3252	
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		0.01	0.30	0.33	0.03	0.04	1.09			0.63	

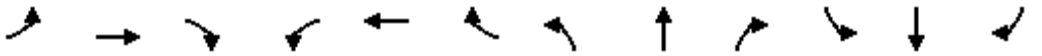
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 97			
Natural Cycle: 110			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.09			
Intersection Signal Delay: 42.6		Intersection LOS: D	
Intersection Capacity Utilization 97.0%		ICU Level of Service F	
Analysis Period (min) 15			

~ 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.

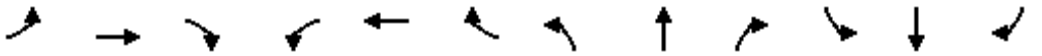
Splits and Phases: 7: Trafalgar Road & Carpool Lot/Highway 407 WB Off-Ramp



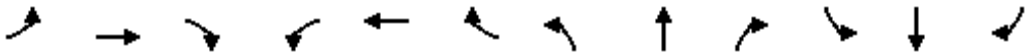


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	0	6	408	2	19	7	2458	0	0	1980	0
Future Volume (vph)	7	0	6	408	2	19	7	2458	0	0	1980	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Lane Util. Factor	1.00		1.00	0.95	0.91	0.95	1.00	0.95			0.91	
Frt	1.00		0.85	1.00	1.00	0.85	1.00	1.00			1.00	
Flt Protected	0.95		1.00	0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1526		1331	1615	1537	1431	1750	3500			4980	
Flt Permitted	0.40		1.00	0.95	0.95	1.00	0.06	1.00			1.00	
Satd. Flow (perm)	645		1331	1615	1537	1431	109	3500			4980	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	7	0	6	425	2	20	7	2560	0	0	2062	0
RTOR Reduction (vph)	0	0	5	0	0	15	0	0	0	0	0	0
Lane Group Flow (vph)	7	0	1	212	217	3	7	2560	0	0	2063	0
Heavy Vehicles (%)	17%	2%	20%	5%	100%	6%	2%	2%	2%	2%	3%	2%
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	
Permitted Phases	4		4	8		8	2					
Actuated Green, G (s)	18.8		18.8	18.8	18.8	18.8	68.4	68.4			63.3	
Effective Green, g (s)	18.8		18.8	18.8	18.8	18.8	68.4	68.4			63.3	
Actuated g/C Ratio	0.19		0.19	0.19	0.19	0.19	0.68	0.68			0.63	
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)	121		249	303	288	268	92	2389			3146	
v/s Ratio Prot							0.00	c0.73			0.41	
v/s Ratio Perm	0.01		0.00	0.13	0.14	0.00	0.05					
v/c Ratio	0.06		0.00	0.70	0.75	0.01	0.08	1.07			0.66	
Uniform Delay, d1	33.4		33.1	38.1	38.5	33.1	8.0	15.9			11.6	
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.2		0.0	6.9	10.6	0.0	0.4	41.1			0.5	
Delay (s)	33.6		33.1	45.0	49.1	33.2	8.3	57.0			12.1	
Level of Service	C		C	D	D	C	A	E			B	
Approach Delay (s)		33.4			46.5			56.8			12.1	
Approach LOS		C			D			E			B	

Intersection Summary			
HCM 2000 Control Delay	37.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	100.2	Sum of lost time (s)	17.0
Intersection Capacity Utilization	97.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	797	56	164	1263	71	32	40	352	110	1	6
Future Volume (vph)	16	797	56	164	1263	71	32	40	352	110	1	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		30.0	120.0		30.0	30.0		0.0	40.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97	1.00		0.97	1.00	0.98		1.00	0.98	
Frt			0.850			0.850		0.865			0.869	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3500	1566	1750	3500	1566	1750	1565	0	1750	1574	0
Flt Permitted	0.101			0.245			0.752			0.162		
Satd. Flow (perm)	186	3500	1515	450	3500	1515	1379	1565	0	298	1574	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			78			78		114			7	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		839.5			181.9			560.6			190.6	
Travel Time (s)		50.4			10.9			40.4			13.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	18	886	62	182	1403	79	36	44	391	122	1	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	18	886	62	182	1403	79	36	435	0	122	8	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



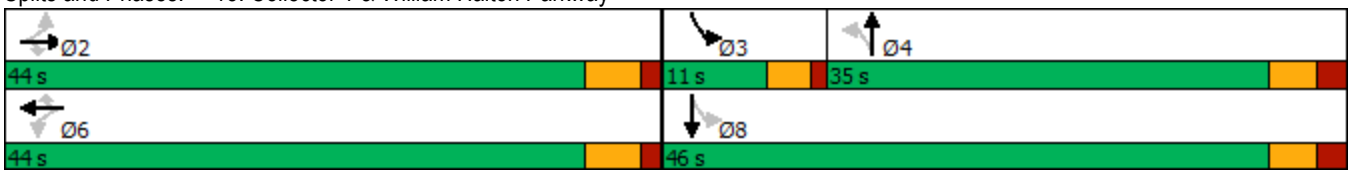
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		2			6			4		3	8	
Permitted Phases	2		2	6		6	4			8		
Detector Phase	2	2	2	6	6	6	4	4		3	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		7.0	10.0	
Minimum Split (s)	32.1	32.1	32.1	32.1	32.1	32.1	34.4	34.4		11.0	34.4	
Total Split (s)	44.0	44.0	44.0	44.0	44.0	44.0	35.0	35.0		11.0	46.0	
Total Split (%)	48.9%	48.9%	48.9%	48.9%	48.9%	48.9%	38.9%	38.9%		12.2%	51.1%	
Maximum Green (s)	38.9	38.9	38.9	38.9	38.9	38.9	29.6	29.6		7.0	40.6	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.0	3.3	
All-Red Time (s)	1.4	1.4	1.4	1.4	1.4	1.4	2.1	2.1		1.0	2.1	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.1	5.1	5.4	5.4		4.0	5.4	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max	Max	Max	Max	Max	None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0			7.0	
Flash Dont Walk (s)	20.0	20.0	20.0	20.0	20.0	20.0	22.0	22.0			22.0	
Pedestrian Calls (#/hr)	5	5	5	5	5	5	5	5			5	
Act Effct Green (s)	39.6	39.6	39.6	39.6	39.6	39.6	21.7	21.7		31.4	30.0	
Actuated g/C Ratio	0.49	0.49	0.49	0.49	0.49	0.49	0.27	0.27		0.39	0.37	
v/c Ratio	0.20	0.51	0.08	0.82	0.81	0.10	0.10	0.86		0.50	0.01	
Control Delay	22.4	17.1	3.0	54.0	24.7	4.3	22.4	38.2		21.8	8.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	22.4	17.1	3.0	54.0	24.7	4.3	22.4	38.2		21.8	8.7	
LOS	C	B	A	D	C	A	C	D		C	A	
Approach Delay		16.3			26.9			37.0			21.0	
Approach LOS		B			C			D			C	
Queue Length 50th (m)	1.6	50.3	0.0	24.7	99.3	0.1	4.2	49.1		11.6	0.1	
Queue Length 95th (m)	7.6	77.8	5.1	#70.0	#164.0	7.6	10.8	84.7		21.5	2.4	
Internal Link Dist (m)		815.5			157.9			536.6			166.6	
Turn Bay Length (m)	30.0		30.0	120.0		30.0	30.0			40.0		
Base Capacity (vph)	91	1726	786	221	1726	786	517	658		245	813	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.20	0.51	0.08	0.82	0.81	0.10	0.07	0.66		0.50	0.01	

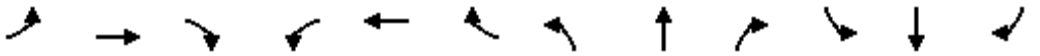
Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 80.3			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 25.0		Intersection LOS: C	
Intersection Capacity Utilization 90.0%		ICU Level of Service E	

Analysis Period (min) 15

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

Splits and Phases: 15: Collector 1 & William Halton Parkway





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	797	56	164	1263	71	32	40	352	110	1	6
Future Volume (vph)	16	797	56	164	1263	71	32	40	352	110	1	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	5.1	5.1	5.1	5.1	5.4	5.4		4.0	5.4	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	0.98		1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.87		1.00	0.87	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1749	3500	1517	1747	3500	1517	1743	1565		1750	1574	
Flt Permitted	0.10	1.00	1.00	0.24	1.00	1.00	0.75	1.00		0.16	1.00	
Satd. Flow (perm)	186	3500	1517	450	3500	1517	1380	1565		298	1574	
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)	18	886	62	182	1403	79	36	44	391	122	1	7
RTOR Reduction (vph)	0	0	32	0	0	40	0	83	0	0	4	0
Lane Group Flow (vph)	18	886	30	182	1403	39	36	352	0	122	4	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		2			6			4		3	8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	39.6	39.6	39.6	39.6	39.6	39.6	21.7	21.7		31.0	31.0	
Effective Green, g (s)	39.6	39.6	39.6	39.6	39.6	39.6	21.7	21.7		31.0	31.0	
Actuated g/C Ratio	0.49	0.49	0.49	0.49	0.49	0.49	0.27	0.27		0.38	0.38	
Clearance Time (s)	5.1	5.1	5.1	5.1	5.1	5.1	5.4	5.4		4.0	5.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	90	1709	740	219	1709	740	369	418		208	601	
v/s Ratio Prot		0.25			0.40			c0.22		c0.04	0.00	
v/s Ratio Perm	0.10		0.02	c0.40		0.03	0.03			0.18		
v/c Ratio	0.20	0.52	0.04	0.83	0.82	0.05	0.10	0.84		0.59	0.01	
Uniform Delay, d1	11.8	14.2	10.8	17.9	17.7	10.9	22.3	28.1		18.8	15.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.9	1.1	0.1	29.2	4.6	0.1	0.1	14.1		4.2	0.0	
Delay (s)	16.7	15.3	10.9	47.1	22.3	11.0	22.5	42.2		23.0	15.5	
Level of Service	B	B	B	D	C	B	C	D		C	B	
Approach Delay (s)		15.1			24.5			40.7			22.5	
Approach LOS		B			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	24.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	81.1	Sum of lost time (s)	14.5
Intersection Capacity Utilization	90.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

MOVEMENT SUMMARY

Site: [102] Sixth Line & William Halton Parkway - Mitigation

(General)

Output produced by SIDRA INTERSECTION Version: 10.0.8.241

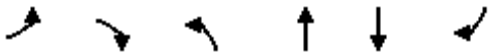
2036 Future Background PM - Mitigation
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Sixth Line															
1	L2	All MCs	12	2.0	12	2.0	0.424	14.5	LOS B	1.6	11.2	0.68	0.76	0.96	46.0
2	T1	All MCs	243	2.0	243	2.0	0.424	14.4	LOS B	1.6	11.2	0.67	0.75	0.95	46.7
3	R2	All MCs	178	2.0	178	2.0	0.424	13.9	LOS B	1.5	10.9	0.66	0.73	0.94	46.5
Approach			433	2.0	433	2.0	0.424	14.2	LOS B	1.6	11.2	0.67	0.75	0.95	46.6
East: William Halton Parkway															
4	L2	All MCs	249	2.0	249	2.0	0.615	15.1	LOS C	4.5	32.2	0.64	0.74	1.16	44.1
5	T1	All MCs	683	2.0	683	2.0	0.615	14.9	LOS B	4.5	32.2	0.62	0.72	1.15	46.1
6	R2	All MCs	523	2.0	523	2.0	0.276	4.3	LOS A	46.1	328.1	0.00	0.00	0.00	56.4
Approach			1456	2.0	1456	2.0	0.615	11.1	LOS B	46.1	328.1	0.40	0.47	0.74	48.9
North: Sixth Line															
7	L2	All MCs	341	2.0	341	2.0	0.601	18.3	LOS C	3.0	21.4	0.70	0.86	1.23	41.4
8	T1	All MCs	277	2.0	277	2.0	0.512	15.9	LOS C	2.2	16.0	0.68	0.79	1.06	46.1
9	R2	All MCs	313	2.0	313	2.0	0.165	4.6	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			931	2.0	931	2.0	0.601	13.0	LOS B	3.0	21.4	0.46	0.55	0.77	46.9
West: William Halton Parkway															
10	L2	All MCs	264	2.0	264	2.0	0.605	18.3	LOS C	3.3	23.2	0.70	0.86	1.24	42.0
11	T1	All MCs	446	2.0	446	2.0	0.605	17.8	LOS C	3.3	23.2	0.69	0.85	1.23	44.7
12	R2	All MCs	72	2.0	72	2.0	0.038	2.7	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			782	2.0	782	2.0	0.605	16.6	LOS C	3.3	23.2	0.63	0.77	1.12	44.5
All Vehicles			3602	2.0	3602	2.0	0.615	13.2	LOS B	46.1	328.1	0.50	0.59	0.85	47.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	41	233	0	1842	2129	0
Future Volume (vph)	41	233	0	1842	2129	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1750	1377	0	3500	3500	0
Flt Permitted	0.950					
Satd. Flow (perm)	1750	1377	0	3500	3500	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						
Link Speed (k/h)	60			80	80	
Link Distance (m)	417.0			117.5	129.7	
Travel Time (s)	25.0			5.3	5.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	16%	2%	2%	2%	2%
Adj. Flow (vph)	44	251	0	1981	2289	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	44	251	0	1981	2289	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (m)	2.0	2.0		10.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	2.0		0.6	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						

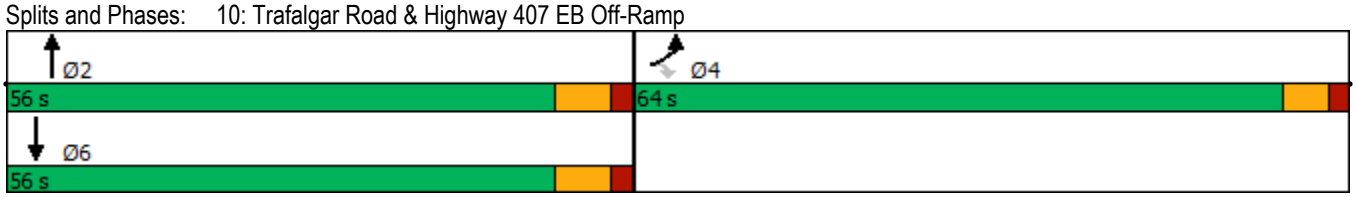
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Initial (s)	6.0	6.0		20.0	20.0	
Minimum Split (s)	24.0	24.0		27.0	27.0	
Total Split (s)	64.0	64.0		56.0	56.0	
Total Split (%)	53.3%	53.3%		46.7%	46.7%	
Maximum Green (s)	58.0	58.0		49.0	49.0	
Yellow Time (s)	4.0	4.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		7.0	7.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		Max	Max	
Act Effct Green (s)	19.9	19.9		49.2	49.2	
Actuated g/C Ratio	0.24	0.24		0.60	0.60	
v/c Ratio	0.10	0.75		0.95	1.09	
Control Delay	23.8	43.4		28.1	69.5	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	23.8	43.4		28.1	69.5	
LOS	C	D		C	E	
Approach Delay	40.5			28.1	69.5	
Approach LOS	D			C	E	
Queue Length 50th (m)	5.3	36.3		135.9	~214.6	
Queue Length 95th (m)	12.8	60.8		#240.6	#299.9	
Internal Link Dist (m)	393.0			93.5	105.7	
Turn Bay Length (m)						
Base Capacity (vph)	1240	976		2095	2095	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.04	0.26		0.95	1.09	

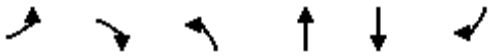
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 82.2			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.09			
Intersection Signal Delay: 49.6		Intersection LOS: D	
Intersection Capacity Utilization 84.1%		ICU Level of Service E	
Analysis Period (min) 15			

~ 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.

Splits and Phases: 10: Trafalgar Road & Highway 407 EB Off-Ramp



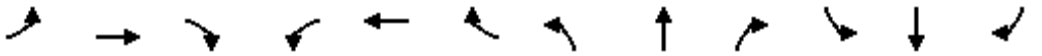


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	41	233	0	1842	2129	0
Future Volume (vph)	41	233	0	1842	2129	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1750	1377		3500	3500	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1750	1377		3500	3500	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	44	251	0	1981	2289	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	44	251	0	1981	2289	0
Heavy Vehicles (%)	2%	16%	2%	2%	2%	2%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	19.9	19.9		49.2	49.2	
Effective Green, g (s)	19.9	19.9		49.2	49.2	
Actuated g/C Ratio	0.24	0.24		0.60	0.60	
Clearance Time (s)	6.0	6.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	424	333		2097	2097	
v/s Ratio Prot	0.03			0.57	c0.65	
v/s Ratio Perm		c0.18				
v/c Ratio	0.10	0.75		0.94	1.09	
Uniform Delay, d1	24.2	28.8		15.2	16.4	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	9.3		10.4	49.7	
Delay (s)	24.3	38.1		25.5	66.1	
Level of Service	C	D		C	E	
Approach Delay (s)	36.1			25.5	66.1	
Approach LOS	D			C	E	

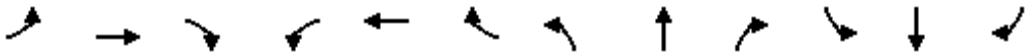
Intersection Summary			
HCM 2000 Control Delay	46.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	82.1	Sum of lost time (s)	13.0
Intersection Capacity Utilization	84.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Appendix J

2041 Future Background Conditions Synchro and Sidra Worksheets



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	642	1158	302	172	343	369	123	1527	265	634	1343	242
Future Volume (vph)	642	1158	302	172	343	369	123	1527	265	634	1343	242
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	190.0		80.0	60.0		205.0	90.0		55.0	170.0		130.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	3500	1566	3395	3500	1452	3395	3500	1493	3362	3466	1566
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3395	3500	1566	3395	3500	1452	3395	3500	1493	3362	3466	1566
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			122			160			151			263
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		207.8			228.3			142.6			224.9	
Travel Time (s)		12.5			13.7			8.6			13.5	
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%	10%	2%	2%	7%	3%	3%	2%
Adj. Flow (vph)	698	1259	328	187	373	401	134	1660	288	689	1460	263
Shared Lane Traffic (%)												
Lane Group Flow (vph)	698	1259	328	187	373	401	134	1660	288	689	1460	263
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	



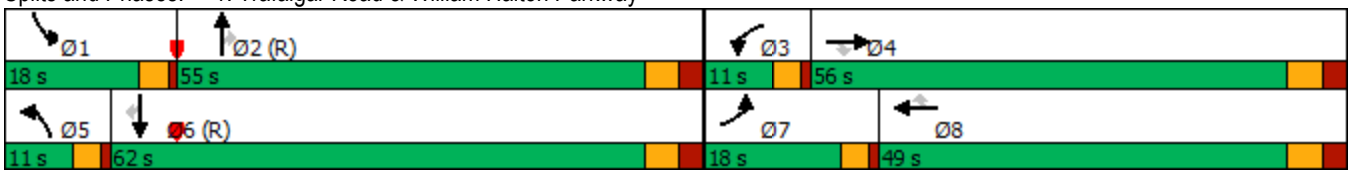
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	48.4	48.4	11.0	48.4	48.4	11.0	45.4	45.4	11.0	45.4	45.4
Total Split (s)	18.0	56.0	56.0	11.0	49.0	49.0	11.0	55.0	55.0	18.0	62.0	62.0
Total Split (%)	12.9%	40.0%	40.0%	7.9%	35.0%	35.0%	7.9%	39.3%	39.3%	12.9%	44.3%	44.3%
Maximum Green (s)	14.0	49.6	49.6	7.0	42.6	42.6	7.0	48.6	48.6	14.0	55.6	55.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		35.0	35.0		35.0	35.0		32.0	32.0		32.0	32.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	14.0	49.6	49.6	7.0	42.6	42.6	7.0	48.6	48.6	14.0	55.6	55.6
Actuated g/C Ratio	0.10	0.35	0.35	0.05	0.30	0.30	0.05	0.35	0.35	0.10	0.40	0.40
v/c Ratio	2.06	1.02	0.52	1.11	0.35	0.73	0.79	1.37	0.47	2.05	1.06	0.34
Control Delay	516.5	73.9	25.0	159.4	39.1	34.1	96.2	206.4	18.9	513.0	82.8	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	516.5	73.9	25.0	159.4	39.1	34.1	96.2	206.4	18.9	513.0	82.8	4.2
LOS	F	E	C	F	D	C	F	F	B	F	F	A
Approach Delay		202.1			60.4			173.4			197.1	
Approach LOS		F			E			F			F	
Queue Length 50th (m)	~156.4	~193.2	44.5	~30.2	42.4	61.5	19.2	~318.2	28.2	~154.2	~233.3	0.0
Queue Length 95th (m)	#194.3	#235.8	73.9	#55.1	56.6	101.5	#36.4	#360.5	54.9	#192.1	#275.9	16.7
Internal Link Dist (m)		183.8			204.3			118.6			200.9	
Turn Bay Length (m)	190.0		80.0	60.0		205.0	90.0		55.0	170.0		130.0
Base Capacity (vph)	339	1240	633	169	1065	553	169	1215	616	336	1376	780
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.06	1.02	0.52	1.11	0.35	0.73	0.79	1.37	0.47	2.05	1.06	0.34

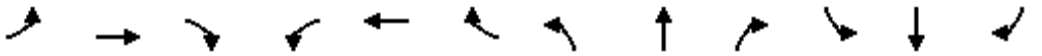
Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 2.06			
Intersection Signal Delay: 175.2		Intersection LOS: F	
Intersection Capacity Utilization 115.5%		ICU Level of Service H	
Analysis Period (min) 15			

~ 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.

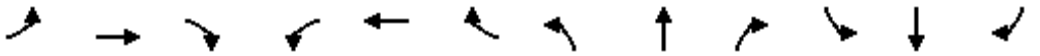
Splits and Phases: 1: Trafalgar Road & William Halton Parkway





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	642	1158	302	172	343	369	123	1527	265	634	1343	242
Future Volume (vph)	642	1158	302	172	343	369	123	1527	265	634	1343	242
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	3500	1566	3395	3500	1452	3395	3500	1493	3362	3466	1566
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	3500	1566	3395	3500	1452	3395	3500	1493	3362	3466	1566
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)	698	1259	328	187	373	401	134	1660	288	689	1460	263
RTOR Reduction (vph)	0	0	79	0	0	111	0	0	99	0	0	159
Lane Group Flow (vph)	698	1259	249	187	373	290	134	1660	189	689	1460	104
Heavy Vehicles (%)	2%	2%	2%	2%	2%	10%	2%	2%	7%	3%	3%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	14.0	49.6	49.6	7.0	42.6	42.6	7.0	48.6	48.6	14.0	55.6	55.6
Effective Green, g (s)	14.0	49.6	49.6	7.0	42.6	42.6	7.0	48.6	48.6	14.0	55.6	55.6
Actuated g/C Ratio	0.10	0.35	0.35	0.05	0.30	0.30	0.05	0.35	0.35	0.10	0.40	0.40
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	339	1240	554	169	1065	441	169	1215	518	336	1376	621
v/s Ratio Prot	c0.21	c0.36		0.06	0.11		0.04	c0.47		c0.20	0.42	
v/s Ratio Perm			0.16			0.20			0.13			0.07
v/c Ratio	2.06	1.02	0.45	1.11	0.35	0.66	0.79	1.37	0.37	2.05	1.06	0.17
Uniform Delay, d1	63.0	45.2	34.7	66.5	37.9	42.3	65.8	45.7	34.2	63.0	42.2	27.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	486.7	29.4	1.2	100.6	0.4	4.7	22.0	170.2	2.0	483.0	42.3	0.6
Delay (s)	549.7	74.6	35.9	167.1	38.3	47.0	87.8	215.9	36.2	546.0	84.5	27.8
Level of Service	F	E	D	F	D	D	F	F	D	F	F	C
Approach Delay (s)		214.2			67.0			182.8			210.1	
Approach LOS		F			E			F			F	

Intersection Summary			
HCM 2000 Control Delay	186.2	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)	20.8
Intersection Capacity Utilization	115.5%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	302	292	119	91	199	74	255	1477	145	149	1568	54
Future Volume (vph)	302	292	119	91	199	74	255	1477	145	149	1568	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		0.0	120.0		0.0	130.0		0.0	170.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor		1.00		1.00								
Frt		0.957			0.959			0.987			0.995	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3337	0	1750	3263	0	1700	3447	0	1750	3443	0
Flt Permitted	0.538			0.399			0.950			0.950		
Satd. Flow (perm)	991	3337	0	735	3263	0	1700	3447	0	1750	3443	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		52			45			10			4	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		245.2			810.8			2139.5			320.3	
Travel Time (s)		17.7			58.4			128.4			19.2	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	6%	2%	5%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Adj. Flow (vph)	336	324	132	101	221	82	283	1641	161	166	1742	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	336	456	0	101	303	0	283	1802	0	166	1802	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.02	1.01	1.01	1.02	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	41.4	41.4		41.4	41.4		11.5	37.3		22.0	37.3	
Total Split (s)	42.0	42.0		42.0	42.0		18.0	56.0		22.0	60.0	
Total Split (%)	35.0%	35.0%		35.0%	35.0%		15.0%	46.7%		18.3%	50.0%	
Maximum Green (s)	35.6	35.6		35.6	35.6		14.0	49.7		18.0	53.7	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.0	3.7		3.0	3.7	
All-Red Time (s)	2.7	2.7		2.7	2.7		1.0	2.6		1.0	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		4.0	6.3		4.0	6.3	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	5.0		3.0	5.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	28.0	28.0		28.0	28.0			24.0			24.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	35.6	35.6		35.6	35.6		14.0	52.3		15.4	53.7	
Actuated g/C Ratio	0.30	0.30		0.30	0.30		0.12	0.44		0.13	0.45	
v/c Ratio	1.15	0.44		0.46	0.30		1.43	1.20		0.74	1.17	
Control Delay	137.3	31.7		42.8	28.5		258.3	126.8		69.5	114.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	137.3	31.7		42.8	28.5		258.3	126.8		69.5	114.9	
LOS	F	C		D	C		F	F		E	F	
Approach Delay		76.5			32.1			144.6			111.0	
Approach LOS		E			C			F			F	
Queue Length 50th (m)	~92.6	40.4		19.4	24.4		~90.1	~275.3		37.7	~266.6	
Queue Length 95th (m)	#149.0	55.5		37.5	36.4		#143.5	#323.7		60.3	#309.6	
Internal Link Dist (m)		221.2			786.8			2115.5			296.3	
Turn Bay Length (m)	140.0			120.0			130.0			170.0		
Base Capacity (vph)	293	1026		218	999		198	1506		262	1542	
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	1.15	0.44		0.46	0.30		1.43	1.20		0.63	1.17	

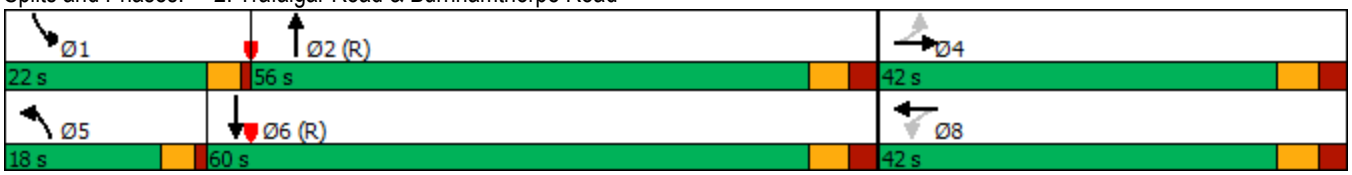
Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.43	

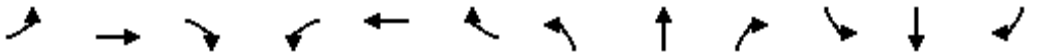
Intersection Signal Delay: 113.1	Intersection LOS: F
Intersection Capacity Utilization 103.5%	ICU Level of Service G
Analysis Period (min) 15	

~ 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.

Splits and Phases: 2: Trafalgar Road & Burnhamthorpe Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	302	292	119	91	199	74	255	1477	145	149	1568	54
Future Volume (vph)	302	292	119	91	199	74	255	1477	145	149	1568	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4		4.0	6.3		4.0	6.3	
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	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.96		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)	1750	3335		1749	3264		1700	3446		1750	3443	
Flt Permitted	0.54	1.00		0.40	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	992	3335		734	3264		1700	3446		1750	3443	
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)	336	324	132	101	221	82	283	1641	161	166	1742	60
RTOR Reduction (vph)	0	37	0	0	32	0	0	6	0	0	2	0
Lane Group Flow (vph)	336	419	0	101	271	0	283	1796	0	166	1800	0
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	2%	2%	2%	2%	6%	2%	5%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	35.6	35.6		35.6	35.6		14.0	52.3		15.4	53.7	
Effective Green, g (s)	35.6	35.6		35.6	35.6		14.0	52.3		15.4	53.7	
Actuated g/C Ratio	0.30	0.30		0.30	0.30		0.12	0.44		0.13	0.45	
Clearance Time (s)	6.4	6.4		6.4	6.4		4.0	6.3		4.0	6.3	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	294	989		217	968		198	1501		224	1540	
v/s Ratio Prot		0.13			0.08		c0.17	0.52		0.09	c0.52	
v/s Ratio Perm	c0.34			0.14								
v/c Ratio	1.14	0.42		0.47	0.28		1.43	1.20		0.74	1.17	
Uniform Delay, d1	42.2	34.0		34.4	32.4		53.0	33.9		50.4	33.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	96.8	0.3		1.6	0.2		219.8	95.3		12.4	83.3	
Delay (s)	139.0	34.2		36.0	32.5		272.8	129.2		62.8	116.4	
Level of Service	F	C		D	C		F	F		E	F	
Approach Delay (s)		78.7			33.4			148.7			111.9	
Approach LOS		E			C			F			F	

Intersection Summary			
HCM 2000 Control Delay	115.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.7
Intersection Capacity Utilization	103.5%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1543	1	290	553	0	542
Future Volume (vph)	1543	1	290	553	0	542
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	120.0		30.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			15.0		50.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected			0.950			
Satd. Flow (prot)	3500	0	1716	3466	1842	1566
Flt Permitted			0.092			
Satd. Flow (perm)	3500	0	166	3466	1842	1566
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						207
Link Speed (k/h)	60			60	50	
Link Distance (m)	657.5			396.1	222.0	
Travel Time (s)	39.5			23.8	16.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	4%	3%	2%	2%
Adj. Flow (vph)	1677	1	315	601	0	589
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1678	0	315	601	0	589
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	10.0		2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6		2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	3	



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases			6			3
Detector Phase	2		1	6	3	3
Switch Phase						
Minimum Initial (s)	10.0		7.0	10.0	7.0	7.0
Minimum Split (s)	28.4		11.5	28.4	31.0	31.0
Total Split (s)	46.0		13.0	59.0	31.0	31.0
Total Split (%)	51.1%		14.4%	65.6%	34.4%	34.4%
Maximum Green (s)	39.6		9.0	52.6	27.0	27.0
Yellow Time (s)	3.7		3.0	3.7	3.0	3.0
All-Red Time (s)	2.7		1.0	2.7	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4		4.0	6.4	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	Max		None	None	Max	Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	15.0			15.0	20.0	20.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	39.6		55.0	52.6		27.0
Actuated g/C Ratio	0.44		0.61	0.58		0.30
v/c Ratio	1.09		1.23	0.30		0.96
Control Delay	77.6		155.9	9.9		49.4
Queue Delay	0.0		0.0	0.0		0.0
Total Delay	77.6		155.9	9.9		49.4
LOS	E		F	A		D
Approach Delay	77.6			60.1	49.4	
Approach LOS	E			E	D	
Queue Length 50th (m)	~173.6		~52.2	25.4		69.5
Queue Length 95th (m)	#214.9		#102.4	34.5		#137.0
Internal Link Dist (m)	633.5			372.1	198.0	
Turn Bay Length (m)			120.0			
Base Capacity (vph)	1540		256	2025		614
Starvation Cap Reductn	0		0	0		0
Spillback Cap Reductn	0		0	0		0
Storage Cap Reductn	0		0	0		0
Reduced v/c Ratio	1.09		1.23	0.30		0.96

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Natural Cycle: 120			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.23			
Intersection Signal Delay: 67.4		Intersection LOS: E	
Intersection Capacity Utilization 84.9%		ICU Level of Service E	
Analysis Period (min) 15			

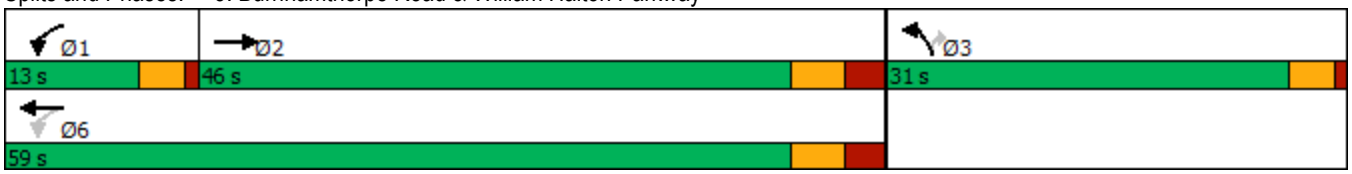
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

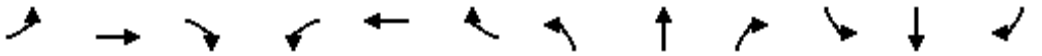
Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway



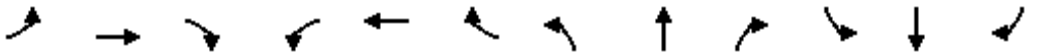


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1543	1	290	553	0	542
Future Volume (vph)	1543	1	290	553	0	542
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4		4.0	6.4		4.0
Lane Util. Factor	0.95		1.00	0.95		1.00
Frt	1.00		1.00	1.00		0.85
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	3500		1716	3466		1566
Flt Permitted	1.00		0.09	1.00		1.00
Satd. Flow (perm)	3500		166	3466		1566
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1677	1	315	601	0	589
RTOR Reduction (vph)	0	0	0	0	0	145
Lane Group Flow (vph)	1678	0	315	601	0	444
Heavy Vehicles (%)	2%	2%	4%	3%	2%	2%
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	3	
Permitted Phases			6			3
Actuated Green, G (s)	39.6		52.6	52.6		27.0
Effective Green, g (s)	39.6		52.6	52.6		27.0
Actuated g/C Ratio	0.44		0.58	0.58		0.30
Clearance Time (s)	6.4		4.0	6.4		4.0
Vehicle Extension (s)	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	1540		252	2025		469
v/s Ratio Prot	0.48		c0.12	0.17		
v/s Ratio Perm			c0.61			c0.28
v/c Ratio	1.09		1.25	0.30		0.95
Uniform Delay, d1	25.2		26.5	9.4		30.8
Progression Factor	1.00		1.00	1.00		1.00
Incremental Delay, d2	51.5		141.0	0.1		30.2
Delay (s)	76.7		167.5	9.5		61.0
Level of Service	E		F	A		E
Approach Delay (s)	76.7			63.8	61.0	
Approach LOS	E			E	E	

Intersection Summary			
HCM 2000 Control Delay	70.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.4
Intersection Capacity Utilization	84.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	488	2286	257	276	1294	292	207	1050	131	429	1632	313
Future Volume (vph)	488	2286	257	276	1294	292	207	1050	131	429	1632	313
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		85.0	90.0		85.0	100.0		50.0	130.0		100.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	1.00		0.99	1.00		0.98	1.00		0.99	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	3500	1551	3298	3336	1536	3330	3466	1566	3330	3466	1551
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3392	3500	1529	3298	3336	1512	3327	3466	1543	3326	3466	1523
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			118			142			96			127
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		560.5			603.0			601.7			2139.5	
Travel Time (s)		28.8			31.0			36.1			128.4	
Confl. Peds. (#/hr)	4		2	2		4	6		3	3		6
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	3%	5%	7%	4%	4%	3%	2%	4%	3%	3%
Adj. Flow (vph)	508	2381	268	288	1348	304	216	1094	136	447	1700	326
Shared Lane Traffic (%)												
Lane Group Flow (vph)	508	2381	268	288	1348	304	216	1094	136	447	1700	326
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	50.4	50.4	11.0	50.4	50.4	11.0	48.4	48.4	11.0	48.4	48.4
Total Split (s)	12.0	57.0	57.0	11.0	56.0	56.0	11.0	50.0	50.0	12.0	51.0	51.0
Total Split (%)	9.2%	43.8%	43.8%	8.5%	43.1%	43.1%	8.5%	38.5%	38.5%	9.2%	39.2%	39.2%
Maximum Green (s)	8.0	50.6	50.6	7.0	49.6	49.6	7.0	43.6	43.6	8.0	44.6	44.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		37.0	37.0		37.0	37.0		35.0	35.0		35.0	35.0
Pedestrian Calls (#/hr)		2	2		4	4		3	3		6	6
Act Effct Green (s)	8.0	50.6	50.6	7.0	49.6	49.6	7.0	43.6	43.6	8.0	44.6	44.6
Actuated g/C Ratio	0.06	0.39	0.39	0.05	0.38	0.38	0.05	0.34	0.34	0.06	0.34	0.34
v/c Ratio	2.44	1.75	0.40	1.63	1.06	0.46	1.21	0.94	0.23	2.19	1.43	0.54
Control Delay	688.1	367.4	17.5	343.9	81.6	17.9	184.4	57.8	11.7	579.4	231.8	24.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	688.1	367.4	17.5	343.9	81.6	17.9	184.4	57.8	11.7	579.4	231.8	24.1
LOS	F	F	B	F	F	B	F	E	B	F	F	C
Approach Delay		389.3			110.6			72.4			267.2	
Approach LOS		F			F			E			F	
Queue Length 50th (m)	~110.7	~476.1	26.4	~54.6	~199.3	29.6	~34.6	142.8	7.0	~94.5	~309.6	40.4
Queue Length 95th (m)	#145.0	#515.9	49.3	#83.1	#241.6	55.3	#60.1	#185.1	21.7	#127.4	#351.9	69.7
Internal Link Dist (m)		536.5			579.0			577.7			2115.5	
Turn Bay Length (m)	150.0		85.0	90.0		85.0	100.0		50.0	130.0		100.0
Base Capacity (vph)	208	1362	667	177	1272	664	179	1162	581	204	1189	605
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.44	1.75	0.40	1.63	1.06	0.46	1.21	0.94	0.23	2.19	1.43	0.54

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 2.44	
Intersection Signal Delay: 245.0	Intersection LOS: F

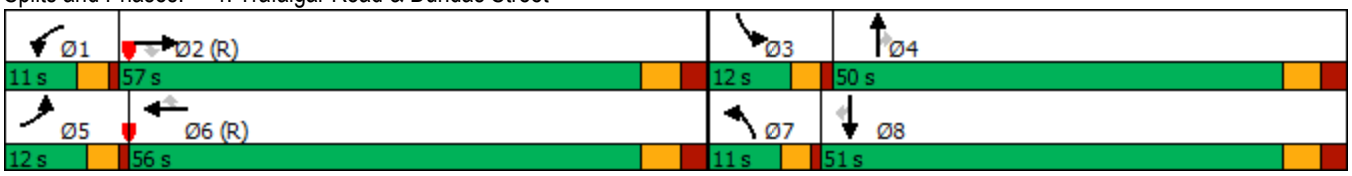
Intersection Capacity Utilization 139.4% ICU Level of Service H

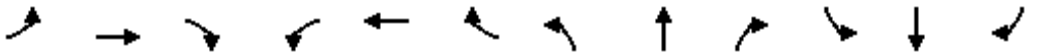
Analysis Period (min) 15

~ 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.

Splits and Phases: 4: Trafalgar Road & Dundas Street

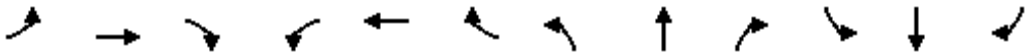




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	488	2286	257	276	1294	292	207	1050	131	429	1632	313
Future Volume (vph)	488	2286	257	276	1294	292	207	1050	131	429	1632	313
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	3500	1529	3298	3336	1512	3330	3466	1543	3330	3466	1523
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	3500	1529	3298	3336	1512	3330	3466	1543	3330	3466	1523
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	508	2381	268	288	1348	304	216	1094	136	447	1700	326
RTOR Reduction (vph)	0	0	72	0	0	88	0	0	64	0	0	83
Lane Group Flow (vph)	508	2381	196	288	1348	216	216	1094	72	447	1700	243
Confl. Peds. (#/hr)	4		2	2		4	6		3	3		6
Heavy Vehicles (%)	2%	2%	3%	5%	7%	4%	4%	3%	2%	4%	3%	3%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	8.0	50.6	50.6	7.0	49.6	49.6	7.0	43.6	43.6	8.0	44.6	44.6
Effective Green, g (s)	8.0	50.6	50.6	7.0	49.6	49.6	7.0	43.6	43.6	8.0	44.6	44.6
Actuated g/C Ratio	0.06	0.39	0.39	0.05	0.38	0.38	0.05	0.34	0.34	0.06	0.34	0.34
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Lane Grp Cap (vph)	208	1362	595	177	1272	576	179	1162	517	204	1189	522
v/s Ratio Prot	c0.15	c0.68		0.09	0.40		0.06	0.32		c0.13	c0.49	
v/s Ratio Perm			0.13			0.14			0.05			0.16
v/c Ratio	2.44	1.75	0.33	1.63	1.06	0.38	1.21	0.94	0.14	2.19	1.43	0.46
Uniform Delay, d1	61.0	39.7	27.8	61.5	40.2	29.0	61.5	42.0	30.1	61.0	42.7	33.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	663.4	339.7	1.5	306.5	42.7	1.9	133.8	14.7	0.1	551.8	198.3	0.8
Delay (s)	724.4	379.4	29.3	368.0	82.9	30.9	195.3	56.6	30.3	612.8	241.0	34.1
Level of Service	F	F	C	F	F	C	F	E	C	F	F	C
Approach Delay (s)		405.2			117.1			74.9			280.9	
Approach LOS		F			F			E			F	

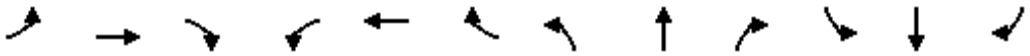
Intersection Summary			
HCM 2000 Control Delay	256.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.73		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	139.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



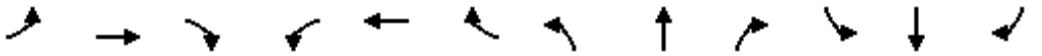
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	279	602	95	73	388	155	43	239	213	828	232	345
Future Volume (vph)	279	602	95	73	388	155	43	239	213	828	232	345
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.985			0.964			0.936			0.961	
Flt Protected		0.986			0.994			0.995			0.972	
Satd. Flow (prot)	0	3399	0	0	3354	0	0	3260	0	0	3269	0
Flt Permitted		0.986			0.994			0.995			0.972	
Satd. Flow (perm)	0	3399	0	0	3354	0	0	3260	0	0	3269	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		481.1			844.9			671.5			229.3	
Travel Time (s)		28.9			50.7			40.3			13.8	
Peak Hour Factor	0.90	0.90	0.90	0.96	0.90	0.96	0.90	0.96	0.96	0.96	0.96	0.90
Adj. Flow (vph)	310	669	106	76	431	161	48	249	222	863	242	383
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1085	0	0	668	0	0	519	0	0	1488	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 119.5%		ICU Level of Service H	
Analysis Period (min) 15			

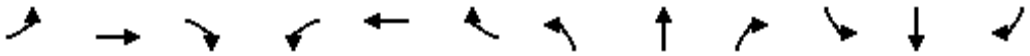


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	279	602	95	73	388	155	43	239	213	828	232	345
Future Volume (veh/h)	279	602	95	73	388	155	43	239	213	828	232	345
Peak Hour Factor	0.90	0.90	0.90	0.96	0.90	0.96	0.90	0.96	0.96	0.96	0.96	0.90
Hourly flow rate (vph)	310	669	106	76	431	161	48	249	222	862	242	383
Approach Volume (veh/h)		1085			668			519			1487	
Crossing Volume (veh/h)		1180			607			1841#			555	
High Capacity (veh/h)		537			857			308			893	
High v/c (veh/h)		2.02			0.78			1.69			1.66	
Low Capacity (veh/h)		409			687			220			719	
Low v/c (veh/h)		2.65			0.97			2.36			2.07	

Intersection Summary					
Maximum v/c High	2.02				
Maximum v/c Low	2.65				
Intersection Capacity Utilization	119.5%	ICU Level of Service		H	
# Crossing flow exceeds 1200, method is not applicable					



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	144	52	140	213	24	187	614	146	85	507	12
Future Volume (vph)	58	144	52	140	213	24	187	614	146	85	507	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	40.0		0.0	40.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			15.0			50.0			50.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.960			0.985			0.971			0.997	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3360	0	1684	3358	0	1750	3373	0	1700	3456	0
Flt Permitted	0.588			0.614			0.432			0.308		
Satd. Flow (perm)	1083	3360	0	1088	3358	0	796	3373	0	551	3456	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		58			14			50			4	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		241.5			345.8			328.3			671.5	
Travel Time (s)		17.4			24.9			19.7			40.3	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	2%	6%	4%	11%	2%	2%	6%	5%	3%	2%
Adj. Flow (vph)	65	162	58	157	239	27	210	690	164	96	570	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	220	0	157	266	0	210	854	0	96	583	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	

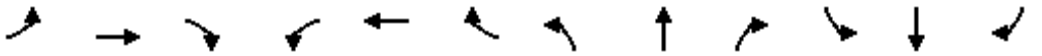


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	34.5	34.5		34.5	34.5		50.4	50.4		50.4	50.4	
Total Split (s)	35.0	35.0		35.0	35.0		55.0	55.0		55.0	55.0	
Total Split (%)	38.9%	38.9%		38.9%	38.9%		61.1%	61.1%		61.1%	61.1%	
Maximum Green (s)	28.5	28.5		28.5	28.5		48.6	48.6		48.6	48.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.2	3.2		3.2	3.2		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		19.0	19.0		19.0	19.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	16.6	16.6		16.6	16.6		48.8	48.8		48.8	48.8	
Actuated g/C Ratio	0.21	0.21		0.21	0.21		0.62	0.62		0.62	0.62	
v/c Ratio	0.28	0.29		0.68	0.37		0.42	0.40		0.28	0.27	
Control Delay	28.4	19.2		43.7	25.9		12.4	8.4		11.1	7.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	28.4	19.2		43.7	25.9		12.4	8.4		11.1	7.8	
LOS	C	B		D	C		B	A		B	A	
Approach Delay		21.3			32.5			9.2			8.3	
Approach LOS		C			C			A			A	
Queue Length 50th (m)	8.1	10.5		21.5	16.8		13.9	27.2		5.7	17.8	
Queue Length 95th (m)	17.9	18.6		39.7	26.2		37.1	50.6		18.0	34.0	
Internal Link Dist (m)		217.5			321.8			304.3			647.5	
Turn Bay Length (m)	55.0			40.0			40.0			30.0		
Base Capacity (vph)	395	1264		397	1235		495	2119		343	2154	
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	0.16	0.17		0.40	0.22		0.42	0.40		0.28	0.27	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 78.4			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 14.4		Intersection LOS: B	
Intersection Capacity Utilization 68.1%		ICU Level of Service C	
Analysis Period (min) 15			

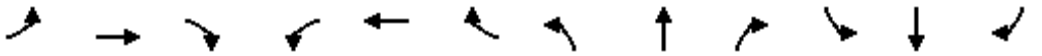
Splits and Phases: 6: Sixth Line & Burnhamthorpe Road



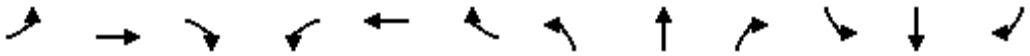


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	144	52	140	213	24	187	614	146	85	507	12
Future Volume (vph)	58	144	52	140	213	24	187	614	146	85	507	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.98		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)	1750	3361		1684	3357		1750	3374		1700	3455	
Flt Permitted	0.59	1.00		0.61	1.00		0.43	1.00		0.31	1.00	
Satd. Flow (perm)	1083	3361		1089	3357		796	3374		551	3455	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	65	162	58	157	239	27	210	690	164	96	570	13
RTOR Reduction (vph)	0	46	0	0	11	0	0	19	0	0	2	0
Lane Group Flow (vph)	65	174	0	157	255	0	210	835	0	96	581	0
Heavy Vehicles (%)	2%	2%	2%	6%	4%	11%	2%	2%	6%	5%	3%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	16.6	16.6		16.6	16.6		48.8	48.8		48.8	48.8	
Effective Green, g (s)	16.6	16.6		16.6	16.6		48.8	48.8		48.8	48.8	
Actuated g/C Ratio	0.21	0.21		0.21	0.21		0.62	0.62		0.62	0.62	
Clearance Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	229	712		230	711		496	2102		343	2153	
v/s Ratio Prot		0.05			0.08			0.25			0.17	
v/s Ratio Perm	0.06			c0.14			c0.26			0.17		
v/c Ratio	0.28	0.24		0.68	0.36		0.42	0.40		0.28	0.27	
Uniform Delay, d1	25.9	25.6		28.4	26.3		7.5	7.4		6.7	6.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.2		8.1	0.3		2.6	0.6		2.0	0.3	
Delay (s)	26.6	25.8		36.5	26.6		10.2	7.9		8.8	7.0	
Level of Service	C	C		D	C		B	A		A	A	
Approach Delay (s)		26.0			30.3			8.4			7.2	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	78.3	Sum of lost time (s)	12.9
Intersection Capacity Utilization	68.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	2	261	0	3	2	2005	0	0	1740	0
Future Volume (vph)	3	0	2	261	0	3	2	2005	0	0	1740	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		5.0	0.0		60.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		1	1		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt			0.850			0.850						
Flt Protected	0.950			0.950	0.950		0.950					
Satd. Flow (prot)	1069	0	1566	1449	1388	1487	1190	3305	0	0	4749	0
Flt Permitted	0.531			0.950	0.950		0.075					
Satd. Flow (perm)	597	0	1566	1449	1388	1487	94	3305	0	0	4749	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79			79						
Link Speed (k/h)		20			60			80			80	
Link Distance (m)		81.5			394.8			34.5			189.8	
Travel Time (s)		14.7			23.7			1.6			8.5	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	67%	2%	2%	17%	2%	2%	50%	8%	2%	2%	8%	2%
Adj. Flow (vph)	3	0	2	293	0	3	2	2253	0	0	1955	0
Shared Lane Traffic (%)				50%		10%						
Lane Group Flow (vph)	3	0	2	146	147	3	2	2253	0	0	1955	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1		1	1	2	1	1	2			2	
Detector Template	Left		Right	Left	Thru	Right	Left	Thru			Thru	
Leading Detector (m)	2.0		2.0	2.0	10.0	2.0	2.0	10.0			10.0	
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Size(m)	2.0		2.0	2.0	0.6	2.0	2.0	0.6			0.6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 2 Position(m)					9.4			9.4			9.4	
Detector 2 Size(m)					0.6			0.6			0.6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	

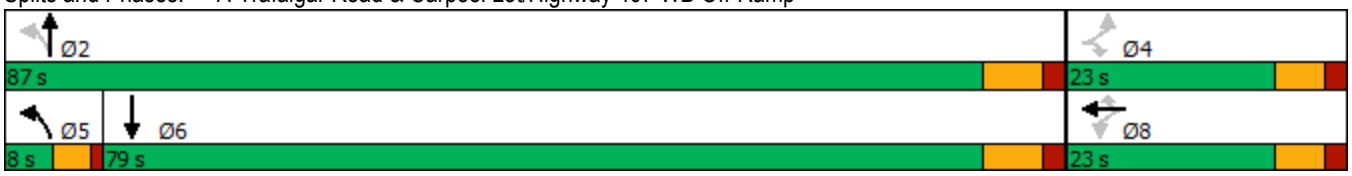


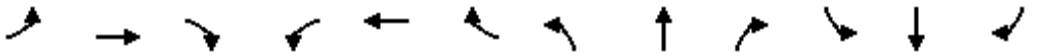
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8		8	2					
Detector Phase	4		4	8	8	8	5	2			6	
Switch Phase												
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	4.0	35.0			35.0	
Minimum Split (s)	13.0		13.0	13.0	13.0	13.0	8.0	42.0			42.0	
Total Split (s)	23.0		23.0	23.0	23.0	23.0	8.0	87.0			79.0	
Total Split (%)	20.9%		20.9%	20.9%	20.9%	20.9%	7.3%	79.1%			71.8%	
Maximum Green (s)	17.0		17.0	17.0	17.0	17.0	4.0	80.0			72.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0	3.0	5.0			5.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0	1.0	2.0			2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Recall Mode	None		None	None	None	None	None	Min			Min	
Act Effct Green (s)	14.7		14.7	14.7	14.7	14.7	76.0	72.9			71.4	
Actuated g/C Ratio	0.15		0.15	0.15	0.15	0.15	0.75	0.72			0.71	
v/c Ratio	0.03		0.01	0.70	0.73	0.01	0.02	0.94			0.58	
Control Delay	41.0		0.0	61.0	64.6	0.0	3.5	22.4			8.6	
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	41.0		0.0	61.0	64.6	0.0	3.5	22.4			8.6	
LOS	D		A	E	E	A	A	C			A	
Approach Delay		24.6			62.2			22.4			8.6	
Approach LOS		C			E			C			A	
Queue Length 50th (m)	0.6		0.0	31.3	33.1	0.0	0.1	189.3			61.6	
Queue Length 95th (m)	3.2		0.0	#56.1	#61.4	0.0	0.6	235.1			93.9	
Internal Link Dist (m)		57.5			370.8			10.5			165.8	
Turn Bay Length (m)			5.0			60.0						
Base Capacity (vph)	103		335	249	239	321	115	2633			3612	
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		0.01	0.59	0.62	0.01	0.02	0.86			0.54	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 100.9			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 19.0		Intersection LOS: B	
Intersection Capacity Utilization 80.2%		ICU Level of Service D	
Analysis Period (min) 15			

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

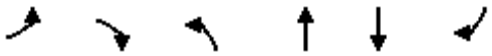
Splits and Phases: 7: Trafalgar Road & Carpool Lot/Highway 407 WB Off-Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	2	261	0	3	2	2005	0	0	1740	0
Future Volume (vph)	3	0	2	261	0	3	2	2005	0	0	1740	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	6.0	4.0	7.0			7.0	
Lane Util. Factor	1.00		1.00	0.95	0.91	0.95	1.00	0.95			0.91	
Frt	1.00		0.85	1.00	1.00	0.85	1.00	1.00			1.00	
Flt Protected	0.95		1.00	0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1069		1566	1449	1388	1487	1190	3305			4749	
Flt Permitted	0.53		1.00	0.95	0.95	1.00	0.08	1.00			1.00	
Satd. Flow (perm)	597		1566	1449	1388	1487	94	3305			4749	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	3	0	2	293	0	3	2	2253	0	0	1955	0
RTOR Reduction (vph)	0	0	2	0	0	3	0	0	0	0	0	0
Lane Group Flow (vph)	3	0	0	146	147	0	2	2253	0	0	1955	0
Heavy Vehicles (%)	67%	2%	2%	17%	2%	2%	50%	8%	2%	2%	8%	2%
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	
Permitted Phases	4		4	8		8	2					
Actuated Green, G (s)	14.7		14.7	14.7	14.7	14.7	76.1	76.1			71.4	
Effective Green, g (s)	14.7		14.7	14.7	14.7	14.7	76.1	76.1			71.4	
Actuated g/C Ratio	0.14		0.14	0.14	0.14	0.14	0.73	0.73			0.69	
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)	84		221	205	196	210	76	2423			3266	
v/s Ratio Prot							0.00	c0.68			0.41	
v/s Ratio Perm	0.01		0.00	0.10	0.11	0.00	0.02					
v/c Ratio	0.04		0.00	0.71	0.75	0.00	0.03	0.93			0.60	
Uniform Delay, d1	38.4		38.2	42.5	42.8	38.3	5.4	11.6			8.6	
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.2		0.0	11.1	14.8	0.0	0.1	7.0			0.3	
Delay (s)	38.6		38.3	53.6	57.6	38.3	5.5	18.6			8.9	
Level of Service	D		D	D	E	D	A	B			A	
Approach Delay (s)		38.5			55.5			18.6			8.9	
Approach LOS		D			E			B			A	

Intersection Summary			
HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	103.8	Sum of lost time (s)	17.0
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↑↑↑	↑↑	↱
Traffic Volume (vph)	0	0	0	2062	2002	34
Future Volume (vph)	0	0	0	2062	2002	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.95	1.00
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	4749	3275	1536
Flt Permitted						
Satd. Flow (perm)	0	0	0	4749	3275	1536
Link Speed (k/h)	60			80	80	
Link Distance (m)	161.4			55.2	34.5	
Travel Time (s)	9.7			2.5	1.6	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	2%	8%	9%	4%
Adj. Flow (vph)	0	0	0	2317	2249	38
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2317	2249	38
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 60.3%		ICU Level of Service B	
Analysis Period (min) 15			

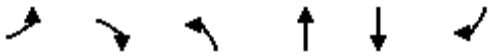
Intersection Sign configuration not allowed in HCM analysis.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	2062	42	0	2002
Future Volume (vph)	0	0	2062	42	0	2002
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt				0.850		
Flt Protected						
Satd. Flow (prot)	0	0	3305	1229	0	3275
Flt Permitted						
Satd. Flow (perm)	0	0	3305	1229	0	3275
Link Speed (k/h)	30		80			80
Link Distance (m)	192.3		37.4			100.8
Travel Time (s)	23.1		1.7			4.5
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	8%	30%	2%	9%
Adj. Flow (vph)	0	0	2317	47	0	2249
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	2317	47	0	2249
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Free		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 60.3%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection Sign configuration not allowed in HCM analysis.



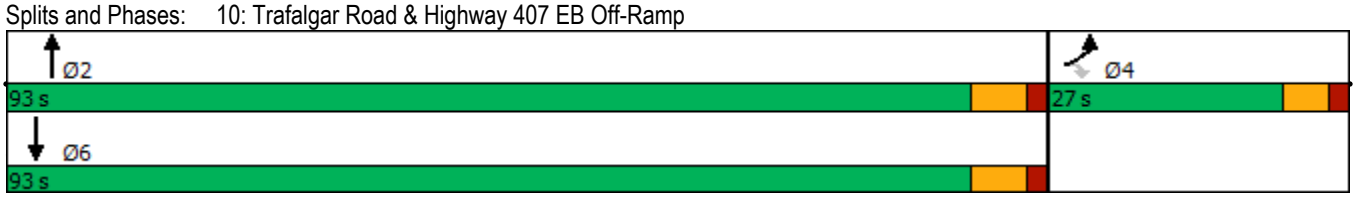
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	58	241	0	2042	1837	0
Future Volume (vph)	58	241	0	2042	1837	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1716	1401	0	3275	3305	0
Flt Permitted	0.950					
Satd. Flow (perm)	1716	1401	0	3275	3305	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		24				
Link Speed (k/h)	60			80	80	
Link Distance (m)	417.0			117.5	129.7	
Travel Time (s)	25.0			5.3	5.8	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	14%	2%	9%	8%	2%
Adj. Flow (vph)	64	265	0	2244	2019	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	64	265	0	2244	2019	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (m)	2.0	2.0		10.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	2.0		0.6	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						

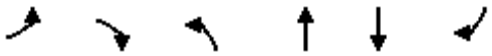
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Initial (s)	6.0	6.0		20.0	20.0	
Minimum Split (s)	24.0	24.0		27.0	27.0	
Total Split (s)	27.0	27.0		93.0	93.0	
Total Split (%)	22.5%	22.5%		77.5%	77.5%	
Maximum Green (s)	21.0	21.0		86.0	86.0	
Yellow Time (s)	4.0	4.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		7.0	7.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		Max	Max	
Act Effct Green (s)	21.0	21.0		86.0	86.0	
Actuated g/C Ratio	0.18	0.18		0.72	0.72	
v/c Ratio	0.21	1.00		0.96	0.85	
Control Delay	44.6	101.7		26.9	17.1	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	44.6	101.7		26.9	17.1	
LOS	D	F		C	B	
Approach Delay	90.6			26.9	17.1	
Approach LOS	F			C	B	
Queue Length 50th (m)	13.1	~58.0		222.3	161.6	
Queue Length 95th (m)	25.8	#112.7		#317.3	199.8	
Internal Link Dist (m)	393.0			93.5	105.7	
Turn Bay Length (m)						
Base Capacity (vph)	300	264		2347	2368	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.21	1.00		0.96	0.85	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay: 27.2		Intersection LOS: C	
Intersection Capacity Utilization 76.5%		ICU Level of Service D	
Analysis Period (min) 15			

~ 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.

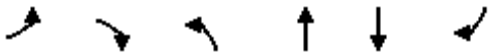
Splits and Phases: 10: Trafalgar Road & Highway 407 EB Off-Ramp





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	58	241	0	2042	1837	0
Future Volume (vph)	58	241	0	2042	1837	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1716	1401		3275	3305	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1716	1401		3275	3305	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	64	265	0	2244	2019	0
RTOR Reduction (vph)	0	20	0	0	0	0
Lane Group Flow (vph)	64	245	0	2244	2019	0
Heavy Vehicles (%)	4%	14%	2%	9%	8%	2%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	21.0	21.0		86.0	86.0	
Effective Green, g (s)	21.0	21.0		86.0	86.0	
Actuated g/C Ratio	0.18	0.18		0.72	0.72	
Clearance Time (s)	6.0	6.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	300	245		2347	2368	
v/s Ratio Prot	0.04			c0.69	0.61	
v/s Ratio Perm		c0.18				
v/c Ratio	0.21	1.00		0.96	0.85	
Uniform Delay, d1	42.4	49.5		15.3	12.4	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	57.7		10.8	4.1	
Delay (s)	42.8	107.2		26.1	16.5	
Level of Service	D	F		C	B	
Approach Delay (s)	94.7			26.1	16.5	
Approach LOS	F			C	B	

Intersection Summary			
HCM 2000 Control Delay	26.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	2100	1837	28
Future Volume (vph)	0	0	0	2100	1837	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	3275	3305	1465
Flt Permitted						
Satd. Flow (perm)	0	0	0	3275	3305	1465
Link Speed (k/h)	30			80	80	
Link Distance (m)	110.1			129.7	37.4	
Travel Time (s)	13.2			5.8	1.7	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	2%	2%	2%	9%	8%	9%
Adj. Flow (vph)	0	0	0	2308	2019	31
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2308	2019	31
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 76.5%		ICU Level of Service D	
Analysis Period (min) 15			

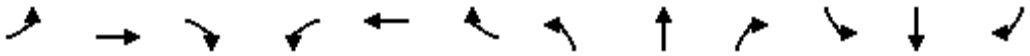
Intersection Sign configuration not allowed in HCM analysis.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	2042	254	0	2080
Future Volume (vph)	0	0	2042	254	0	2080
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.91
Frt				0.850		
Flt Protected						
Satd. Flow (prot)	0	0	3275	1521	0	4749
Flt Permitted						
Satd. Flow (perm)	0	0	3275	1521	0	4749
Link Speed (k/h)	50		80			80
Link Distance (m)	247.7		145.5			117.5
Travel Time (s)	17.8		6.5			5.3
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	2%	2%	9%	5%	2%	8%
Adj. Flow (vph)	0	0	2244	279	0	2286
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	2244	279	0	2286
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Free		Free			Free

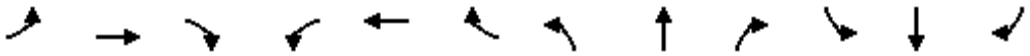
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 59.8%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection Sign configuration not allowed in HCM analysis.



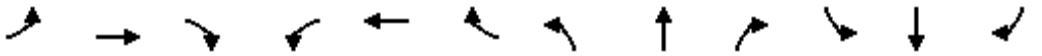
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	127	1353	442	117	643	105	161	386	109	220	694	102
Future Volume (vph)	127	1353	442	117	643	105	161	386	109	220	694	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.965			0.982			0.975			0.985	
Flt Protected		0.997			0.993			0.988			0.989	
Satd. Flow (prot)	0	3289	0	0	3380	0	0	3204	0	0	3409	0
Flt Permitted		0.997			0.993			0.988			0.989	
Satd. Flow (perm)	0	3289	0	0	3380	0	0	3204	0	0	3409	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		234.8			101.3			357.8			260.8	
Travel Time (s)		14.1			6.1			21.5			15.6	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	4%	2%	12%	2%	3%	4%	23%	2%	3%	2%	2%	2%
Adj. Flow (vph)	143	1520	497	131	722	118	181	434	122	247	780	115
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2160	0	0	971	0	0	737	0	0	1142	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 140.7%		ICU Level of Service H	
Analysis Period (min) 15			

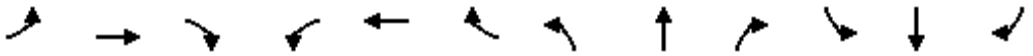


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	127	1353	442	117	643	105	161	386	109	220	694	102
Future Volume (veh/h)	127	1353	442	117	643	105	161	386	109	220	694	102
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	143	1520	497	131	722	118	181	434	122	247	780	115
Approach Volume (veh/h)		2160			971			737			1142	
Crossing Volume (veh/h)		1158			758			1910#			1034	
High Capacity (veh/h)		547			758			290			605	
High v/c (veh/h)		3.95			1.28			2.54			1.89	
Low Capacity (veh/h)		418			600			206			468	
Low v/c (veh/h)		5.17			1.62			3.57			2.44	

Intersection Summary					
Maximum v/c High	3.95				
Maximum v/c Low	5.17				
Intersection Capacity Utilization	140.7%	ICU Level of Service		H	
# Crossing flow exceeds 1200, method is not applicable					



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	1624	45	231	566	51	29	31	317	97	3	5
Future Volume (vph)	11	1624	45	231	566	51	29	31	317	97	3	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		30.0	120.0		30.0	30.0		0.0	40.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.97			0.97	0.99	0.98		1.00	0.99	
Frt			0.850			0.850		0.863			0.900	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3500	1566	1750	3500	1566	1750	1557	0	1750	1634	0
Flt Permitted	0.413			0.065			0.752			0.149		
Satd. Flow (perm)	757	3500	1511	120	3500	1512	1377	1557	0	274	1634	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95			58		153			6	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		844.9			181.9			559.9			190.6	
Travel Time (s)		50.7			10.9			40.3			13.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	12	1804	50	257	629	57	32	34	352	108	3	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	1804	50	257	629	57	32	386	0	108	9	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2		2	6		6	4			8		
Detector Phase	2	2	2	1	6	6	4	4		3	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	10.0	10.0		7.0	10.0	
Minimum Split (s)	32.1	32.1	32.1	11.0	32.1	32.1	34.4	34.4		11.0	34.4	
Total Split (s)	62.0	62.0	62.0	12.0	74.0	74.0	35.0	35.0		11.0	46.0	
Total Split (%)	51.7%	51.7%	51.7%	10.0%	61.7%	61.7%	29.2%	29.2%		9.2%	38.3%	
Maximum Green (s)	56.9	56.9	56.9	8.0	68.9	68.9	29.6	29.6		7.0	40.6	
Yellow Time (s)	3.7	3.7	3.7	3.0	3.7	3.7	3.3	3.3		3.0	3.3	
All-Red Time (s)	1.4	1.4	1.4	1.0	1.4	1.4	2.1	2.1		1.0	2.1	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.1	5.1	5.1	4.0	5.1	5.1	5.4	5.4		4.0	5.4	
Lead/Lag	Lag	Lag	Lag	Lead			Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max	Max	None	Max	Max	None	None		None	None	
Walk Time (s)	7.0	7.0	7.0		7.0	7.0	7.0	7.0			7.0	
Flash Dont Walk (s)	20.0	20.0	20.0		20.0	20.0	22.0	22.0			22.0	
Pedestrian Calls (#/hr)	5	5	5		5	5	5	5			5	
Act Effct Green (s)	57.1	57.1	57.1	70.2	69.1	69.1	22.8	22.8		35.2	33.8	
Actuated g/C Ratio	0.50	0.50	0.50	0.62	0.61	0.61	0.20	0.20		0.31	0.30	
v/c Ratio	0.03	1.02	0.06	1.36	0.30	0.06	0.12	0.89		0.61	0.02	
Control Delay	16.9	57.2	0.5	217.9	11.8	3.0	36.8	49.0		44.0	18.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	16.9	57.2	0.5	217.9	11.8	3.0	36.8	49.0		44.0	18.2	
LOS	B	E	A	F	B	A	D	D		D	B	
Approach Delay		55.5			67.4			48.0			42.0	
Approach LOS		E			E			D			D	
Queue Length 50th (m)	1.3	~230.7	0.0	~61.5	34.0	0.0	5.8	52.6		17.5	0.5	
Queue Length 95th (m)	5.0	#293.5	1.0	#118.9	49.4	5.5	14.2	#93.6		30.9	4.1	
Internal Link Dist (m)		820.9			157.9			535.9			166.6	
Turn Bay Length (m)	30.0		30.0	120.0		30.0	30.0			40.0		
Base Capacity (vph)	380	1760	807	189	2131	943	360	520		176	590	
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	0.03	1.02	0.06	1.36	0.30	0.06	0.09	0.74		0.61	0.02	

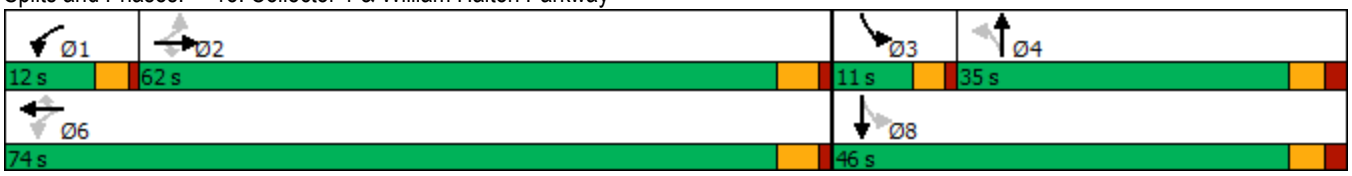
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 113.5			
Natural Cycle: 140			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.36			
Intersection Signal Delay: 57.4		Intersection LOS: E	
Intersection Capacity Utilization 101.0%		ICU Level of Service G	

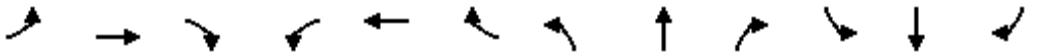
Analysis Period (min) 15

~ 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.

Splits and Phases: 15: Collector 1 & William Halton Parkway

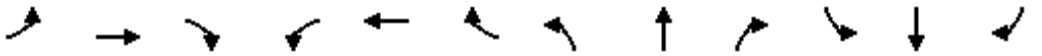




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	1624	45	231	566	51	29	31	317	97	3	5
Future Volume (vph)	11	1624	45	231	566	51	29	31	317	97	3	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	5.1	4.0	5.1	5.1	5.4	5.4		4.0	5.4	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	0.98		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.86		1.00	0.90	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1742	3500	1513	1750	3500	1514	1740	1556		1750	1634	
Flt Permitted	0.41	1.00	1.00	0.07	1.00	1.00	0.75	1.00		0.15	1.00	
Satd. Flow (perm)	758	3500	1513	121	3500	1514	1377	1556		275	1634	
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)	12	1804	50	257	629	57	32	34	352	108	3	6
RTOR Reduction (vph)	0	0	25	0	0	22	0	122	0	0	4	0
Lane Group Flow (vph)	12	1804	25	257	629	35	32	264	0	108	5	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	57.1	57.1	57.1	69.1	69.1	69.1	22.8	22.8		33.8	33.8	
Effective Green, g (s)	57.1	57.1	57.1	69.1	69.1	69.1	22.8	22.8		33.8	33.8	
Actuated g/C Ratio	0.50	0.50	0.50	0.61	0.61	0.61	0.20	0.20		0.30	0.30	
Clearance Time (s)	5.1	5.1	5.1	4.0	5.1	5.1	5.4	5.4		4.0	5.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	381	1762	761	188	2132	922	276	312		173	487	
v/s Ratio Prot		0.52		c0.10	0.18			c0.17		c0.04	0.00	
v/s Ratio Perm	0.02		0.02	c0.74		0.02	0.02			0.15		
v/c Ratio	0.03	1.02	0.03	1.37	0.30	0.04	0.12	0.85		0.62	0.01	
Uniform Delay, d1	14.2	28.2	14.2	35.3	10.5	8.9	37.1	43.6		32.2	28.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	27.7	0.1	195.3	0.4	0.1	0.2	18.5		6.8	0.0	
Delay (s)	14.4	55.9	14.3	230.6	10.9	8.9	37.2	62.1		39.1	28.0	
Level of Service	B	E	B	F	B	A	D	E		D	C	
Approach Delay (s)		54.5			70.7			60.2			38.2	
Approach LOS		D			E			E			D	

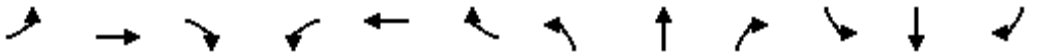
Intersection Summary			
HCM 2000 Control Delay	59.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	113.4	Sum of lost time (s)	18.5
Intersection Capacity Utilization	101.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	2020	18	0	610	98	0	0	82	0	0	238
Future Volume (vph)	0	2020	18	0	610	98	0	0	82	0	0	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		30.0	30.0		0.0	30.0		0.0
Storage Lanes	0		0	0		1	0		1	0		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999				0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3496	0	0	3500	1566	0	0	1593	0	0	1593
Flt Permitted												
Satd. Flow (perm)	0	3496	0	0	3500	1566	0	0	1593	0	0	1593
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		181.9			207.8			147.0			169.4	
Travel Time (s)		10.9			12.5			10.6			12.2	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	0	2244	20	0	678	109	0	0	91	0	0	264
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2264	0	0	678	109	0	0	91	0	0	264
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

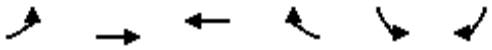
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 69.9%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2020	18	0	610	98	0	0	82	0	0	238
Future Volume (Veh/h)	0	2020	18	0	610	98	0	0	82	0	0	238
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	2244	20	0	678	109	0	0	91	0	0	264
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		182			208							
pX, platoon unblocked	0.93			0.50			0.54	0.54	0.50	0.54	0.54	0.93
vC, conflicting volume	792			2269			2867	3051	1142	1901	2952	349
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	638			1552			2206	2548	0	409	2364	164
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	83	100	100	67
cM capacity (veh/h)	876			212			9	14	542	232	18	789

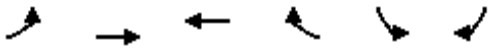
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	1496	768	339	339	109	91	264
Volume Left	0	0	0	0	0	0	0
Volume Right	0	20	0	0	109	91	264
cSH	1700	1700	1700	1700	1700	542	789
Volume to Capacity	0.88	0.45	0.20	0.20	0.06	0.17	0.33
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	4.6	11.2
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	13.0	11.8
Lane LOS						B	B
Approach Delay (s)	0.0		0.0			13.0	11.8
Approach LOS						B	B

Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	69.9%	ICU Level of Service		C
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	12	543	351	157	171	16
Future Volume (vph)	12	543	351	157	171	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0			0.0	30.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	15.0				15.0	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.954			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1750	3500	3339	0	1750	1566
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1750	3500	3339	0	1750	1566
Link Speed (k/h)		50	50		50	
Link Distance (m)		142.4	245.2		559.9	
Travel Time (s)		10.3	17.7		40.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	13	603	390	174	190	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	603	564	0	190	18
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		3.5	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

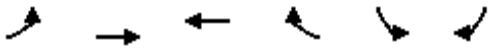
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	31.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	543	351	157	171	16
Future Volume (Veh/h)	12	543	351	157	171	16
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	13	603	390	174	190	18
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			245			
pX, platoon unblocked						
vC, conflicting volume	564				804	282
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	564				804	282
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				40	97
cM capacity (veh/h)	1004				316	715

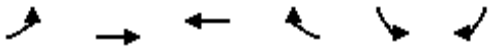
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	13	302	302	260	304	190	18
Volume Left	13	0	0	0	0	190	0
Volume Right	0	0	0	0	174	0	18
cSH	1004	1700	1700	1700	1700	316	715
Volume to Capacity	0.01	0.18	0.18	0.15	0.18	0.60	0.03
Queue Length 95th (m)	0.3	0.0	0.0	0.0	0.0	27.9	0.6
Control Delay (s)	8.6	0.0	0.0	0.0	0.0	32.1	10.2
Lane LOS	A					D	B
Approach Delay (s)	0.2			0.0		30.2	
Approach LOS						D	

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	31.2%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Volume (vph)	0	2057	643	6	0	241
Future Volume (vph)	0	2057	643	6	0	241
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0			30.0	0.0	0.0
Storage Lanes	0			1	0	1
Taper Length (m)	15.0				15.0	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor						
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	3500	3500	1566	0	1593
Flt Permitted						
Satd. Flow (perm)	0	3500	3500	1566	0	1593
Link Speed (k/h)		60	60		50	
Link Distance (m)		228.3	173.6		144.7	
Travel Time (s)		13.7	10.4		10.4	
Confl. Peds. (#/hr)	5			5	5	5
Confl. Bikes (#/hr)				5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	2286	714	7	0	268
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2286	714	7	0	268
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		7.0	7.0		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

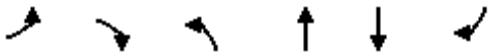
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 68.4%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Volume (veh/h)	0	2057	643	6	0	241
Future Volume (Veh/h)	0	2057	643	6	0	241
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	2286	714	7	0	268
Pedestrians		5	5		5	
Lane Width (m)		3.5	3.5		3.5	
Walking Speed (m/s)		1.0	1.0		1.0	
Percent Blockage		0	0		0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		228	174			
pX, platoon unblocked	0.97				0.67	0.97
vC, conflicting volume	726				1867	367
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	654				1101	283
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	61
cM capacity (veh/h)	896				137	685

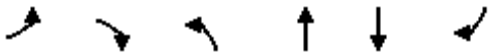
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	1143	1143	357	357	7	268
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	7	268
cSH	1700	1700	1700	1700	1700	685
Volume to Capacity	0.67	0.67	0.21	0.21	0.00	0.39
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	14.2
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	13.6
Lane LOS						B
Approach Delay (s)	0.0		0.0			13.6
Approach LOS						B

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	210	0	1904	1535	233
Future Volume (vph)	0	210	0	1904	1535	233
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865			0.980	
Flt Protected						
Satd. Flow (prot)	0	1593	0	3500	3430	0
Flt Permitted						
Satd. Flow (perm)	0	1593	0	3500	3430	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	168.4			320.3	142.6	
Travel Time (s)	12.1			19.2	8.6	
Confl. Peds. (#/hr)	5	5	5			5
Confl. Bikes (#/hr)		5				5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	233	0	2116	1706	259
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	233	0	2116	1965	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			7.0	7.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

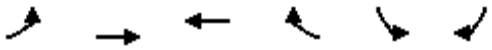
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 70.1%		ICU Level of Service C	
Analysis Period (min) 15			



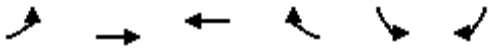
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	210	0	1904	1535	233
Future Volume (Veh/h)	0	210	0	1904	1535	233
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	233	0	2116	1706	259
Pedestrians	5			5	5	
Lane Width (m)	3.5			3.5	3.5	
Walking Speed (m/s)	1.0			1.0	1.0	
Percent Blockage	0			0	0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				320	143	
pX, platoon unblocked	0.77	0.61	0.61			
vC, conflicting volume	2904	992	1970			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	603	0	1308			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	64	100			
cM capacity (veh/h)	330	654	318			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	233	1058	1058	1137	828
Volume Left	0	0	0	0	0
Volume Right	233	0	0	0	259
cSH	654	1700	1700	1700	1700
Volume to Capacity	0.36	0.62	0.62	0.67	0.49
Queue Length 95th (m)	12.2	0.0	0.0	0.0	0.0
Control Delay (s)	13.5	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	13.5	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	534	1523	510	14	49	139
Future Volume (vph)	534	1523	510	14	49	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0			0.0	40.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	15.0				15.0	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00		1.00	0.98
Frt			0.996			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1750	3500	3483	0	1750	1566
Flt Permitted	0.432				0.950	
Satd. Flow (perm)	793	3500	3483	0	1743	1536
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			5			154
Link Speed (k/h)		60	60		50	
Link Distance (m)		173.6	1244.3		120.8	
Travel Time (s)		10.4	74.7		8.7	
Confl. Peds. (#/hr)	5			5	5	5
Confl. Bikes (#/hr)				5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	593	1692	567	16	54	154
Shared Lane Traffic (%)						
Lane Group Flow (vph)	593	1692	583	0	54	154
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		3.5	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (m)	2.0	10.0	10.0		2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6		2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Detector Phase	2	2	6		4	4
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0		7.0	7.0
Minimum Split (s)	37.5	37.5	37.5		36.0	36.0
Total Split (s)	54.0	54.0	54.0		36.0	36.0
Total Split (%)	60.0%	60.0%	60.0%		40.0%	40.0%
Maximum Green (s)	48.5	48.5	48.5		32.0	32.0
Yellow Time (s)	3.7	3.7	3.7		3.0	3.0
All-Red Time (s)	1.8	1.8	1.8		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.5	5.5	5.5		4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	None
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	25.0	25.0	25.0		25.0	25.0
Pedestrian Calls (#/hr)	5	5	5		5	5
Act Effct Green (s)	52.7	52.7	52.7		11.6	11.6
Actuated g/C Ratio	0.71	0.71	0.71		0.16	0.16
v/c Ratio	1.05	0.68	0.23		0.20	0.42
Control Delay	68.1	10.2	5.3		25.6	7.7
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	68.1	10.2	5.3		25.6	7.7
LOS	E	B	A		C	A
Approach Delay		25.2	5.3		12.4	
Approach LOS		C	A		B	
Queue Length 50th (m)	~56.1	39.9	8.3		6.1	0.0
Queue Length 95th (m)	#198.9	#169.9	37.5		13.8	11.9
Internal Link Dist (m)		149.6	1220.3		96.8	
Turn Bay Length (m)	85.0				40.0	
Base Capacity (vph)	565	2494	2484		769	761
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	1.05	0.68	0.23		0.07	0.20

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 74			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.05			
Intersection Signal Delay: 20.6		Intersection LOS: C	
Intersection Capacity Utilization 77.8%		ICU Level of Service D	

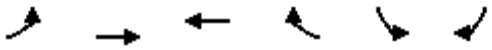
Analysis Period (min) 15

~ 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.

Splits and Phases: 24: William Halton Parkway & Collector 5





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	534	1523	510	14	49	139
Future Volume (vph)	534	1523	510	14	49	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1745	3500	3483		1750	1531
Flt Permitted	0.43	1.00	1.00		0.95	1.00
Satd. Flow (perm)	794	3500	3483		1750	1531
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	593	1692	567	16	54	154
RTOR Reduction (vph)	0	0	1	0	0	130
Lane Group Flow (vph)	593	1692	582	0	54	24
Confl. Peds. (#/hr)	5			5	5	5
Confl. Bikes (#/hr)				5		5
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Actuated Green, G (s)	52.7	52.7	52.7		11.6	11.6
Effective Green, g (s)	52.7	52.7	52.7		11.6	11.6
Actuated g/C Ratio	0.71	0.71	0.71		0.16	0.16
Clearance Time (s)	5.5	5.5	5.5		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	566	2499	2487		275	240
v/s Ratio Prot		0.48	0.17		c0.03	
v/s Ratio Perm	c0.75					0.02
v/c Ratio	1.05	0.68	0.23		0.20	0.10
Uniform Delay, d1	10.5	5.8	3.6		27.0	26.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	50.9	0.7	0.2		0.4	0.2
Delay (s)	61.5	6.6	3.8		27.4	26.8
Level of Service	E	A	A		C	C
Approach Delay (s)		20.8	3.8		27.0	
Approach LOS		C	A		C	

Intersection Summary			
HCM 2000 Control Delay	18.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	73.8	Sum of lost time (s)	9.5
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

MOVEMENT SUMMARY

Site: [101] Sixth Line & William Halton Parkway (General)

Output produced by SIDRA INTERSECTION Version: 10.0.8.241

2041 Future Background AM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Sixth Line															
1	L2	All MCs	48	2.0	48	2.0	0.882	63.1	LOS F	5.1	36.0	0.96	1.30	2.37	28.9
2	T1	All MCs	266	2.0	266	2.0	0.882	62.4	LOS F	5.2	36.7	0.96	1.30	2.37	29.3
3	R2	All MCs	237	2.0	237	2.0	0.882	59.4	LOS F	5.2	36.7	0.95	1.30	2.39	29.6
Approach			550	2.0	550	2.0	0.882	61.2	LOS F	5.2	36.7	0.96	1.30	2.38	29.4
East: William Halton Parkway															
4	L2	All MCs	81	2.0	81	2.0	0.364	9.9	LOS A	1.4	9.7	0.53	0.53	0.65	47.7
5	T1	All MCs	431	2.0	431	2.0	0.364	9.8	LOS A	1.4	9.7	0.52	0.51	0.64	49.3
6	R2	All MCs	172	2.0	172	2.0	0.091	2.8	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			684	2.0	684	2.0	0.364	8.0	LOS A	1.4	9.7	0.39	0.39	0.48	50.7
North: Sixth Line															
7	L2	All MCs	920	2.0	920	2.0	1.233	133.3	LOS F	68.9	490.5	1.00	3.75	9.08	20.2
8	T1	All MCs	258	2.0	258	2.0	0.356	9.4	LOS A	1.3	9.3	0.51	0.48	0.59	50.0
9	R2	All MCs	383	2.0	383	2.0	0.202	4.4	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			1561	2.0	1561	2.0	1.233	81.2	LOS F	68.9	490.5	0.67	2.29	5.45	26.9
West: William Halton Parkway															
10	L2	All MCs	310	2.0	310	2.0	0.982	64.5	LOS F	13.0	92.3	0.99	1.73	3.68	28.2
11	T1	All MCs	669	2.0	669	2.0	0.982	63.1	LOS F	13.3	94.7	0.98	1.74	3.73	29.2
12	R2	All MCs	106	2.0	106	2.0	0.056	2.9	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			1084	2.0	1084	2.0	0.982	57.6	LOS F	13.3	94.7	0.89	1.57	3.36	30.3
All Vehicles			3880	2.0	3880	2.0	1.233	58.9	LOS F	68.9	490.5	0.72	1.61	3.55	30.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [101] Ninth Line & William Halton Parkway (General)
Output produced by SIDRA INTERSECTION Version: 10.0.8.241

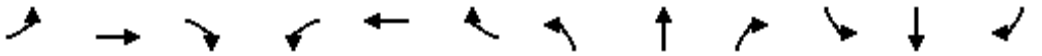
Future Background 2041 AM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

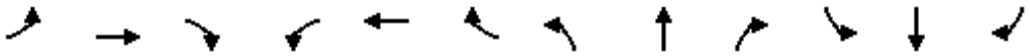
Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Ninth Line															
1	L2	All MCs	181	23.0	181	23.0	0.992	86.0	LOS F	8.9	69.7	1.00	1.69	3.60	24.8
2	T1	All MCs	434	2.0	434	2.0	0.992	74.9	LOS F	10.9	77.6	1.00	1.69	3.66	26.4
3	R2	All MCs	122	3.0	122	3.0	0.992	83.6	LOS F	10.9	77.6	0.99	1.69	3.69	26.9
Approach			737	7.3	737	7.3	0.992	79.0	LOS F	10.9	77.6	1.00	1.69	3.65	26.1
East: William Halton Parkway															
4	L2	All MCs	131	2.0	131	2.0	0.745	23.5	LOS C	6.0	43.3	0.77	1.01	1.62	40.8
5	T1	All MCs	722	3.0	722	3.0	0.745	23.3	LOS C	6.0	43.3	0.76	1.00	1.61	41.8
6	R2	All MCs	118	4.0	118	4.0	0.745	23.1	LOS C	6.0	43.0	0.75	0.99	1.60	41.9
Approach			972	3.0	972	3.0	0.745	23.3	LOS C	6.0	43.3	0.76	1.00	1.61	41.7
North: Ninth Line															
7	L2	All MCs	247	2.0	247	2.0	0.498	16.7	LOS C	2.0	14.4	0.71	0.81	1.07	42.1
8	T1	All MCs	780	2.0	780	2.0	1.489	249.2	LOS F	86.0	612.6	1.00	5.02	15.45	16.8
9	R2	All MCs	115	2.0	115	2.0	0.060	3.1	LOS A	0.0	0.0	0.00	0.00	0.00	56.4
Approach			1142	2.0	1142	2.0	1.489	174.2	LOS F	86.0	612.6	0.84	3.60	10.79	21.1
West: William Halton Parkway															
10	L2	All MCs	143	4.0	143	4.0	1.701	339.2	LOS F	133.3	951.6	1.00	6.22	18.89	14.8
11	T1	All MCs	1520	2.0	1520	2.0	1.701	252.1	LOS F	133.3	951.6	1.00	4.94	14.51	17.4
12	R2	All MCs	497	12.0	497	12.0	0.280	7.0	LOS A	0.0	0.0	0.00	0.00	0.00	56.1
Approach			2160	4.4	2160	4.4	1.701	201.5	LOS F	133.3	951.6	0.77	3.89	11.47	20.3
All Vehicles			5010	4.0	5010	4.0	1.701	142.7	LOS F	133.3	951.6	0.82	2.94	8.25	23.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	578	610	151	338	887	992	263	1558	252	519	1601	491
Future Volume (vph)	578	610	151	338	887	992	263	1558	252	519	1601	491
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	190.0		80.0	60.0		205.0	90.0		55.0	170.0		130.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor							1.00					0.99
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	3500	1566	3330	3500	1566	3395	3500	1536	3267	3500	1566
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3395	3500	1566	3330	3500	1566	3394	3500	1536	3267	3500	1545
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			120			117			120			208
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		207.8			228.3			142.6			224.9	
Travel Time (s)		12.5			13.7			8.6			13.5	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	4%	2%	2%	2%	2%	4%	6%	2%	2%
Adj. Flow (vph)	622	656	162	363	954	1067	283	1675	271	558	1722	528
Shared Lane Traffic (%)												
Lane Group Flow (vph)	622	656	162	363	954	1067	283	1675	271	558	1722	528
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	48.4	48.4	11.0	48.4	48.4	11.0	45.4	45.4	11.0	44.4	44.4
Total Split (s)	15.0	50.0	50.0	22.0	57.0	57.0	11.0	54.0	54.0	14.0	57.0	57.0
Total Split (%)	10.7%	35.7%	35.7%	15.7%	40.7%	40.7%	7.9%	38.6%	38.6%	10.0%	40.7%	40.7%
Maximum Green (s)	11.0	43.6	43.6	18.0	50.6	50.6	7.0	47.6	47.6	10.0	51.6	51.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	2.7	2.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	5.4	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		35.0	35.0		35.0	35.0		32.0	32.0		32.0	32.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	11.0	44.0	44.0	17.6	50.6	50.6	7.0	47.6	47.6	10.0	51.6	51.6
Actuated g/C Ratio	0.08	0.31	0.31	0.13	0.36	0.36	0.05	0.34	0.34	0.07	0.37	0.37
v/c Ratio	2.34	0.60	0.28	0.87	0.75	1.67	1.67	1.41	0.45	2.39	1.33	0.75
Control Delay	640.3	43.3	12.2	81.0	43.8	334.6	366.1	224.1	22.0	666.6	192.1	30.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	640.3	43.3	12.2	81.0	43.8	334.6	366.1	224.1	22.0	666.6	192.1	30.6
LOS	F	D	B	F	D	F	F	F	C	F	F	C
Approach Delay		297.7			179.6			217.6			256.0	
Approach LOS		F			F			F			F	
Queue Length 50th (m)	~144.6	81.1	8.2	51.4	121.5	~410.4	~58.6	~326.5	31.6	~130.6	~325.6	80.6
Queue Length 95th (m)	#181.7	101.3	25.5	#75.7	146.8	#490.8	#87.6	#368.5	57.2	#166.8	#367.6	127.3
Internal Link Dist (m)		183.8			204.3			118.6			200.9	
Turn Bay Length (m)	190.0		80.0	60.0		205.0	90.0		55.0	170.0		130.0
Base Capacity (vph)	266	1100	574	428	1265	640	169	1190	601	233	1290	700
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.34	0.60	0.28	0.85	0.75	1.67	1.67	1.41	0.45	2.39	1.33	0.75

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 2.39	
Intersection Signal Delay: 232.6	Intersection LOS: F

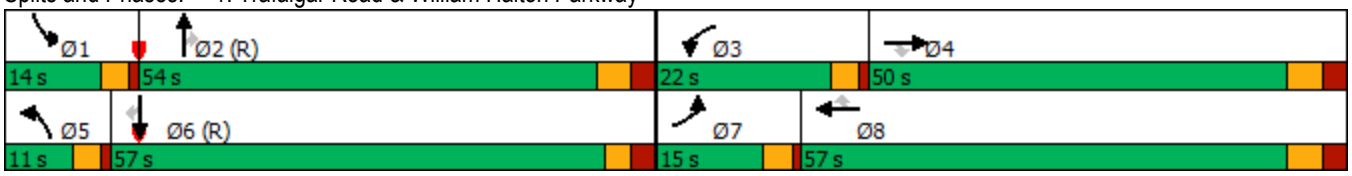
Intersection Capacity Utilization 135.0% ICU Level of Service H

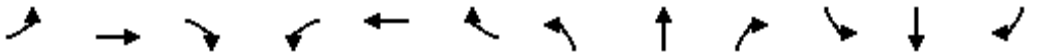
Analysis Period (min) 15

~ 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.

Splits and Phases: 1: Trafalgar Road & William Halton Parkway

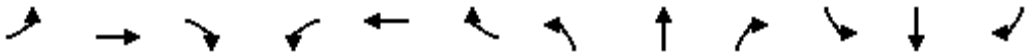




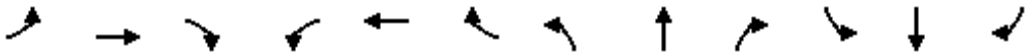
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	578	610	151	338	887	992	263	1558	252	519	1601	491
Future Volume (vph)	578	610	151	338	887	992	263	1558	252	519	1601	491
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	5.4	5.4
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	3500	1566	3330	3500	1566	3395	3500	1536	3267	3500	1545
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	3500	1566	3330	3500	1566	3395	3500	1536	3267	3500	1545
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)	622	656	162	363	954	1067	283	1675	271	558	1722	528
RTOR Reduction (vph)	0	0	82	0	0	75	0	0	79	0	0	131
Lane Group Flow (vph)	622	656	80	363	954	992	283	1675	192	558	1722	397
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	2%	2%	2%	4%	2%	2%	2%	2%	4%	6%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	11.0	44.0	44.0	17.6	50.6	50.6	7.0	47.6	47.6	10.0	51.6	51.6
Effective Green, g (s)	11.0	44.0	44.0	17.6	50.6	50.6	7.0	47.6	47.6	10.0	51.6	51.6
Actuated g/C Ratio	0.08	0.31	0.31	0.13	0.36	0.36	0.05	0.34	0.34	0.07	0.37	0.37
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	5.4	5.4
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	266	1100	492	418	1265	565	169	1190	522	233	1290	569
v/s Ratio Prot	c0.18	0.19		0.11	0.27		0.08	0.48		c0.17	c0.49	
v/s Ratio Perm			0.05			c0.63			0.12			0.26
v/c Ratio	2.34	0.60	0.16	0.87	0.75	1.76	1.67	1.41	0.37	2.39	1.33	0.70
Uniform Delay, d1	64.5	40.5	34.7	60.1	39.2	44.7	66.5	46.2	34.8	65.0	44.2	37.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	613.9	1.3	0.3	17.1	3.1	347.6	328.0	188.5	2.0	640.7	156.1	6.9
Delay (s)	678.4	41.8	35.0	77.2	42.3	392.3	394.5	234.7	36.8	705.7	200.3	44.5
Level of Service	F	D	D	E	D	F	F	F	D	F	F	D
Approach Delay (s)		316.0			204.3			230.9			271.4	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	250.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.71		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	135.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	229	223	86	103	287	58	315	1756	117	104	1641	115
Future Volume (vph)	229	223	86	103	287	58	315	1756	117	104	1641	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	140.0		0.0	120.0		0.0	130.0		0.0	170.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.958			0.975			0.991			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1668	3353	0	1750	3412	0	1750	3461	0	1750	3427	0
Flt Permitted	0.480			0.515			0.950			0.950		
Satd. Flow (perm)	843	3353	0	949	3412	0	1750	3461	0	1750	3427	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		48			20			8			7	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		245.2			810.8			2139.5			320.3	
Travel Time (s)		17.7			58.4			128.4			19.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Adj. Flow (vph)	241	235	91	108	302	61	332	1848	123	109	1727	121
Shared Lane Traffic (%)												
Lane Group Flow (vph)	241	326	0	108	363	0	332	1971	0	109	1848	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.02	1.01	1.01	1.02	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	41.4	41.4		41.4	41.4		11.5	37.3		11.0	37.3	
Total Split (s)	42.0	42.0		42.0	42.0		21.0	67.0		11.0	57.0	
Total Split (%)	35.0%	35.0%		35.0%	35.0%		17.5%	55.8%		9.2%	47.5%	
Maximum Green (s)	35.6	35.6		35.6	35.6		17.0	60.7		7.0	50.7	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.0	3.7		3.0	3.7	
All-Red Time (s)	2.7	2.7		2.7	2.7		1.0	2.6		1.0	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		4.0	6.3		4.0	6.3	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	5.0		3.0	5.0	
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	28.0	28.0		28.0	28.0			24.0			24.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
Act Effct Green (s)	35.3	35.3		35.3	35.3		17.3	60.7		7.3	50.7	
Actuated g/C Ratio	0.29	0.29		0.29	0.29		0.14	0.51		0.06	0.42	
v/c Ratio	0.97	0.32		0.39	0.36		1.32	1.12		1.03	1.27	
Control Delay	93.2	28.8		38.6	32.6		210.3	93.1		150.6	160.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	93.2	28.8		38.6	32.6		210.3	93.1		150.6	160.0	
LOS	F	C		D	C		F	F		F	F	
Approach Delay		56.2			33.9			110.0			159.5	
Approach LOS		E			C			F			F	
Queue Length 50th (m)	55.8	26.4		20.2	33.2		~101.9	~282.4		~28.4	~290.5	
Queue Length 95th (m)	#106.8	38.9		37.3	46.7		#157.8	#325.2		#64.7	#333.5	
Internal Link Dist (m)		221.2			786.8			2115.5			296.3	
Turn Bay Length (m)	140.0			120.0			130.0			170.0		
Base Capacity (vph)	250	1028		281	1026		251	1754		106	1451	
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	0.96	0.32		0.38	0.35		1.32	1.12		1.03	1.27	

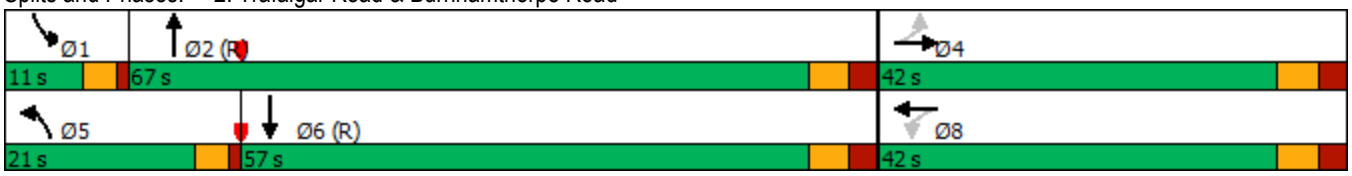
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 145			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.32			
Intersection Signal Delay: 115.7		Intersection LOS: F	
Intersection Capacity Utilization 108.2%		ICU Level of Service G	

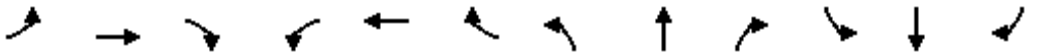
Analysis Period (min) 15

~ 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.

Splits and Phases: 2: Trafalgar Road & Burnhamthorpe Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	229	223	86	103	287	58	315	1756	117	104	1641	115
Future Volume (vph)	229	223	86	103	287	58	315	1756	117	104	1641	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4		4.0	6.3		4.0	6.3	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.97		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)	1668	3353		1750	3412		1750	3460		1750	3427	
Flt Permitted	0.48	1.00		0.52	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	842	3353		949	3412		1750	3460		1750	3427	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	241	235	91	108	302	61	332	1848	123	109	1727	121
RTOR Reduction (vph)	0	34	0	0	14	0	0	4	0	0	4	0
Lane Group Flow (vph)	241	292	0	108	349	0	332	1967	0	109	1844	0
Heavy Vehicles (%)	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	35.3	35.3		35.3	35.3		17.3	60.7		7.3	50.7	
Effective Green, g (s)	35.3	35.3		35.3	35.3		17.3	60.7		7.3	50.7	
Actuated g/C Ratio	0.29	0.29		0.29	0.29		0.14	0.51		0.06	0.42	
Clearance Time (s)	6.4	6.4		6.4	6.4		4.0	6.3		4.0	6.3	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	247	986		279	1003		252	1750		106	1447	
v/s Ratio Prot		0.09			0.10		c0.19	0.57		0.06	c0.54	
v/s Ratio Perm	c0.29			0.11								
v/c Ratio	0.98	0.30		0.39	0.35		1.32	1.12		1.03	1.27	
Uniform Delay, d1	41.9	32.7		33.7	33.3		51.4	29.6		56.4	34.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	50.0	0.2		0.9	0.2		168.1	63.9		95.2	129.0	
Delay (s)	91.9	32.9		34.6	33.5		219.4	93.6		151.6	163.6	
Level of Service	F	C		C	C		F	F		F	F	
Approach Delay (s)		58.0			33.8			111.7			163.0	
Approach LOS		E			C			F			F	

Intersection Summary			
HCM 2000 Control Delay	118.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.7
Intersection Capacity Utilization	108.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	898	1	385	1610	0	458
Future Volume (vph)	898	1	385	1610	0	458
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	120.0		30.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			15.0		50.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected			0.950			
Satd. Flow (prot)	3433	0	1750	3500	1842	1566
Flt Permitted			0.124			
Satd. Flow (perm)	3433	0	228	3500	1842	1566
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						440
Link Speed (k/h)	60			60	50	
Link Distance (m)	657.5			390.6	221.9	
Travel Time (s)	39.5			23.4	16.0	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%
Adj. Flow (vph)	935	1	401	1677	0	477
Shared Lane Traffic (%)						
Lane Group Flow (vph)	936	0	401	1677	0	477
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	10.0		2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6		2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	3	



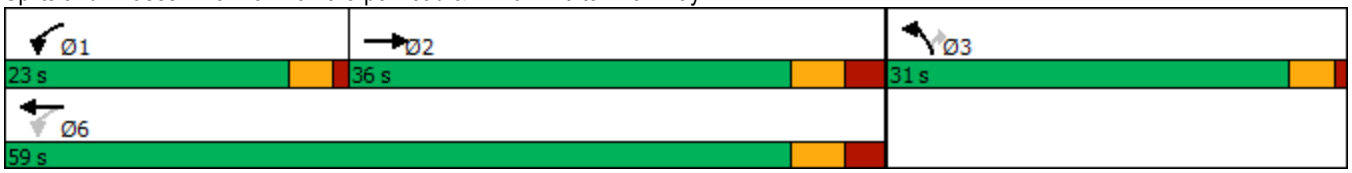
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases			6			3
Detector Phase	2		1	6	3	3
Switch Phase						
Minimum Initial (s)	10.0		7.0	10.0	7.0	7.0
Minimum Split (s)	28.4		11.5	28.4	31.0	31.0
Total Split (s)	36.0		23.0	59.0	31.0	31.0
Total Split (%)	40.0%		25.6%	65.6%	34.4%	34.4%
Maximum Green (s)	29.6		19.0	52.6	27.0	27.0
Yellow Time (s)	3.7		3.0	3.7	3.0	3.0
All-Red Time (s)	2.7		1.0	2.7	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4		4.0	6.4	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	Max		None	None	Max	Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	15.0			15.0	20.0	20.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	29.6		53.9	51.5		27.0
Actuated g/C Ratio	0.33		0.61	0.58		0.30
v/c Ratio	0.82		0.90	0.83		0.61
Control Delay	34.6		46.1	19.6		7.5
Queue Delay	0.0		0.0	0.0		0.0
Total Delay	34.6		46.1	19.6		7.5
LOS	C		D	B		A
Approach Delay	34.6			24.7	7.5	
Approach LOS	C			C	A	
Queue Length 50th (m)	77.8		48.9	112.4		4.6
Queue Length 95th (m)	101.6		#98.8	144.0		29.9
Internal Link Dist (m)	633.5			366.6	197.9	
Turn Bay Length (m)			120.0			
Base Capacity (vph)	1143		463	2071		781
Starvation Cap Reductn	0		0	0		0
Spillback Cap Reductn	0		0	0		0
Storage Cap Reductn	0		0	0		0
Reduced v/c Ratio	0.82		0.87	0.81		0.61

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 88.9			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 25.0		Intersection LOS: C	
Intersection Capacity Utilization 61.9%		ICU Level of Service B	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

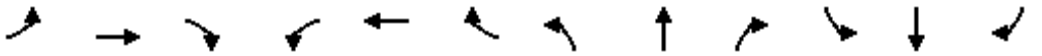
Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway



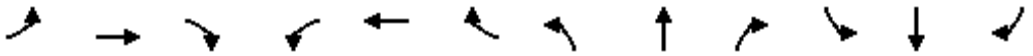


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	898	1	385	1610	0	458
Future Volume (vph)	898	1	385	1610	0	458
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4		4.0	6.4		4.0
Lane Util. Factor	0.95		1.00	0.95		1.00
Frt	1.00		1.00	1.00		0.85
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	3432		1750	3500		1566
Flt Permitted	1.00		0.12	1.00		1.00
Satd. Flow (perm)	3432		229	3500		1566
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	935	1	401	1677	0	477
RTOR Reduction (vph)	0	0	0	0	0	306
Lane Group Flow (vph)	936	0	401	1677	0	171
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	3	
Permitted Phases			6			3
Actuated Green, G (s)	29.6		51.5	51.5		27.0
Effective Green, g (s)	29.6		51.5	51.5		27.0
Actuated g/C Ratio	0.33		0.58	0.58		0.30
Clearance Time (s)	6.4		4.0	6.4		4.0
Vehicle Extension (s)	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	1142		438	2027		475
v/s Ratio Prot	0.27		c0.18	0.48		
v/s Ratio Perm			c0.35			c0.11
v/c Ratio	0.82		0.92	0.83		0.36
Uniform Delay, d1	27.2		23.3	15.1		24.2
Progression Factor	1.00		1.00	1.00		1.00
Incremental Delay, d2	6.6		23.5	2.9		2.1
Delay (s)	33.8		46.9	18.0		26.3
Level of Service	C		D	B		C
Approach Delay (s)	33.8			23.6	26.3	
Approach LOS	C			C	C	

Intersection Summary			
HCM 2000 Control Delay	26.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	88.9	Sum of lost time (s)	14.4
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	477	1776	208	311	1930	344	341	1702	241	363	1210	394
Future Volume (vph)	477	1776	208	311	1930	344	341	1702	241	363	1210	394
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0		85.0	90.0		85.0	100.0		50.0	130.0		100.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	3466	1566	3395	3500	1566	3395	3500	1566	3362	3500	1566
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3393	3466	1527	3389	3500	1540	3389	3500	1541	3360	3500	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			123			131			96			136
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		592.0			816.3			644.9			2139.5	
Travel Time (s)		30.4			42.0			38.7			128.4	
Confl. Peds. (#/hr)	5		15	15		5	6		4	4		6
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%
Adj. Flow (vph)	492	1831	214	321	1990	355	352	1755	248	374	1247	406
Shared Lane Traffic (%)												
Lane Group Flow (vph)	492	1831	214	321	1990	355	352	1755	248	374	1247	406
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	12.0	50.4	50.4	12.0	50.4	50.4	11.0	48.4	48.4	11.0	48.4	48.4
Total Split (s)	13.0	57.0	57.0	12.0	56.0	56.0	11.0	50.0	50.0	11.0	50.0	50.0
Total Split (%)	10.0%	43.8%	43.8%	9.2%	43.1%	43.1%	8.5%	38.5%	38.5%	8.5%	38.5%	38.5%
Maximum Green (s)	9.0	50.6	50.6	8.0	49.6	49.6	7.0	43.6	43.6	7.0	43.6	43.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		37.0	37.0		37.0	37.0		35.0	35.0		35.0	35.0
Pedestrian Calls (#/hr)		15	15		5	5		4	4		6	6
Act Effct Green (s)	9.0	50.6	50.6	8.0	49.6	49.6	7.0	43.6	43.6	7.0	43.6	43.6
Actuated g/C Ratio	0.07	0.39	0.39	0.06	0.38	0.38	0.05	0.34	0.34	0.05	0.34	0.34
v/c Ratio	2.09	1.36	0.32	1.54	1.49	0.53	1.93	1.50	0.43	2.07	1.06	0.67
Control Delay	535.1	198.9	12.9	306.2	256.1	22.3	471.3	260.4	22.5	527.8	86.3	30.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	535.1	198.9	12.9	306.2	256.1	22.3	471.3	260.4	22.5	527.8	86.3	30.3
LOS	F	F	B	F	F	C	F	F	C	F	F	C
Approach Delay		248.4			231.0			266.9			156.5	
Approach LOS		F			F			F			F	
Queue Length 50th (m)	~102.7	~323.9	15.0	~59.3	~370.4	43.5	~71.4	~327.2	29.3	~77.7	~184.8	60.0
Queue Length 95th (m)	#136.7	#365.9	33.7	#88.7	#411.8	73.1	#101.9	#369.4	53.2	#108.7	#227.2	96.6
Internal Link Dist (m)		568.0			792.3			620.9			2115.5	
Turn Bay Length (m)	150.0		85.0	90.0		85.0	100.0		50.0	130.0		100.0
Base Capacity (vph)	235	1349	669	208	1335	668	182	1173	580	181	1173	606
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.09	1.36	0.32	1.54	1.49	0.53	1.93	1.50	0.43	2.07	1.06	0.67

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 2.09	
Intersection Signal Delay: 228.7	Intersection LOS: F

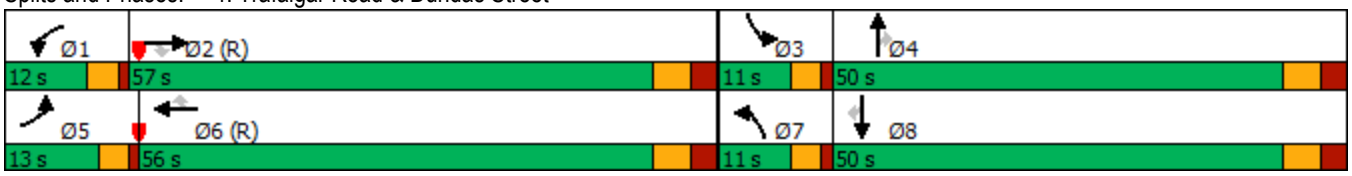
Intersection Capacity Utilization 141.7% ICU Level of Service H

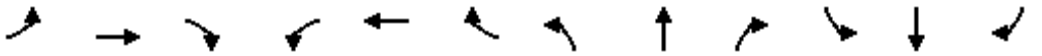
Analysis Period (min) 15

~ 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.

Splits and Phases: 4: Trafalgar Road & Dundas Street

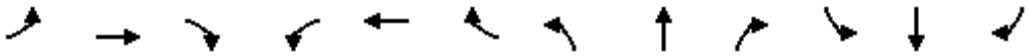




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	477	1776	208	311	1930	344	341	1702	241	363	1210	394
Future Volume (vph)	477	1776	208	311	1930	344	341	1702	241	363	1210	394
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	3466	1527	3395	3500	1540	3395	3500	1541	3362	3500	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	3466	1527	3395	3500	1540	3395	3500	1541	3362	3500	1538
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	492	1831	214	321	1990	355	352	1755	248	374	1247	406
RTOR Reduction (vph)	0	0	75	0	0	81	0	0	64	0	0	90
Lane Group Flow (vph)	492	1831	139	321	1990	274	352	1755	184	374	1247	316
Confl. Peds. (#/hr)	5		15	15		5	6		4	4		6
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	9.0	50.6	50.6	8.0	49.6	49.6	7.0	43.6	43.6	7.0	43.6	43.6
Effective Green, g (s)	9.0	50.6	50.6	8.0	49.6	49.6	7.0	43.6	43.6	7.0	43.6	43.6
Actuated g/C Ratio	0.07	0.39	0.39	0.06	0.38	0.38	0.05	0.34	0.34	0.05	0.34	0.34
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	235	1349	594	208	1335	587	182	1173	516	181	1173	515
v/s Ratio Prot	c0.14	0.53		0.09	c0.57		0.10	c0.50		c0.11	0.36	
v/s Ratio Perm			0.09			0.18			0.12			0.21
v/c Ratio	2.09	1.36	0.23	1.54	1.49	0.47	1.93	1.50	0.36	2.07	1.06	0.61
Uniform Delay, d1	60.5	39.7	26.7	61.0	40.2	30.2	61.5	43.2	32.6	61.5	43.2	36.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	506.4	165.7	0.9	267.0	224.8	2.7	439.9	227.8	0.9	498.4	44.8	3.1
Delay (s)	566.9	205.4	27.6	328.0	265.0	32.9	501.4	271.0	33.5	559.9	88.0	39.2
Level of Service	F	F	C	F	F	C	F	F	C	F	F	D
Approach Delay (s)		260.5			241.7			280.4			165.3	
Approach LOS		F			F			F			F	

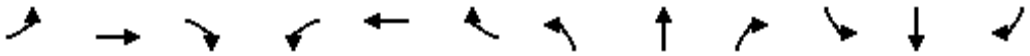
Intersection Summary			
HCM 2000 Control Delay	240.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.58		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	141.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



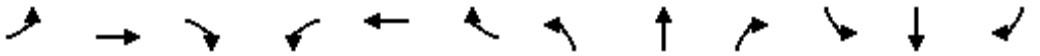
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	246	413	65	229	631	496	11	254	164	321	288	292
Future Volume (vph)	246	413	65	229	631	496	11	254	164	321	288	292
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Frt		0.987			0.945			0.943			0.951	
Flt Protected		0.983			0.992			0.999			0.982	
Satd. Flow (prot)	0	3396	0	0	3281	0	0	3297	0	0	3268	0
Flt Permitted		0.983			0.992			0.999			0.982	
Satd. Flow (perm)	0	3396	0	0	3281	0	0	3297	0	0	3268	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		476.6			839.5			671.6			229.3	
Travel Time (s)		28.6			50.4			40.3			13.8	
Confl. Bikes (#/hr)						1			1			
Peak Hour Factor	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)	251	421	66	234	644	506	11	259	167	328	294	298
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	738	0	0	1384	0	0	437	0	0	920	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 113.2%		ICU Level of Service H	
Analysis Period (min) 15			

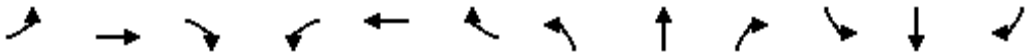


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	246	413	65	229	631	496	11	254	164	321	288	292
Future Volume (veh/h)	246	413	65	229	631	496	11	254	164	321	288	292
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	251	421	66	234	644	506	11	259	167	328	294	298
Approach Volume (veh/h)		738			1384			437			920	
Crossing Volume (veh/h)		856			521			1000			889	
High Capacity (veh/h)		700			918			623			682	
High v/c (veh/h)		1.05			1.51			0.70			1.35	
Low Capacity (veh/h)		550			741			483			534	
Low v/c (veh/h)		1.34			1.87			0.91			1.72	

Intersection Summary				
Maximum v/c High	1.51			
Maximum v/c Low	1.87			
Intersection Capacity Utilization	113.2%	ICU Level of Service	H	



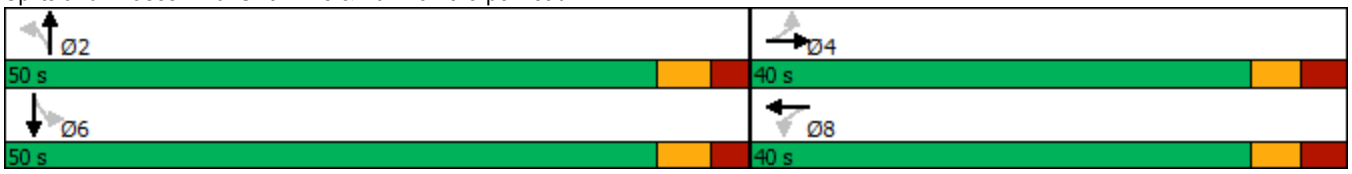
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	103	50	139	212	51	97	398	151	66	629	35
Future Volume (vph)	36	103	50	139	212	51	97	398	151	66	629	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	40.0		0.0	40.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			15.0			50.0			50.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.951			0.971			0.959			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3328	0	1750	3342	0	1750	3347	0	1750	3472	0
Flt Permitted	0.580			0.649			0.377			0.432		
Satd. Flow (perm)	1068	3328	0	1195	3342	0	694	3347	0	796	3472	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		53			37			86			9	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		241.5			345.8			218.8			671.6	
Travel Time (s)		17.4			24.9			13.1			40.3	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	2%	2%	11%	2%	2%	3%	2%	2%	2%
Adj. Flow (vph)	38	110	53	148	226	54	103	423	161	70	669	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	163	0	148	280	0	103	584	0	70	706	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	

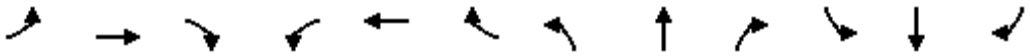


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	34.5	34.5		34.5	34.5		32.4	32.4		32.4	32.4	
Total Split (s)	40.0	40.0		40.0	40.0		50.0	50.0		50.0	50.0	
Total Split (%)	44.4%	44.4%		44.4%	44.4%		55.6%	55.6%		55.6%	55.6%	
Maximum Green (s)	33.5	33.5		33.5	33.5		43.6	43.6		43.6	43.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.2	3.2		3.2	3.2		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		19.0	19.0		19.0	19.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	14.3	14.3		14.3	14.3		43.7	43.7		43.7	43.7	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.62	0.62		0.62	0.62	
v/c Ratio	0.18	0.23		0.61	0.40		0.24	0.28		0.14	0.33	
Control Delay	24.8	16.4		37.2	22.6		9.1	6.2		7.8	7.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	24.8	16.4		37.2	22.6		9.1	6.2		7.8	7.5	
LOS	C	B		D	C		A	A		A	A	
Approach Delay		18.0			27.6			6.6			7.5	
Approach LOS		B			C			A			A	
Queue Length 50th (m)	4.2	6.3		18.0	14.6		5.3	13.4		3.4	20.1	
Queue Length 95th (m)	11.3	13.3		34.9	24.3		15.9	26.5		10.6	37.2	
Internal Link Dist (m)		217.5			321.8			194.8			647.6	
Turn Bay Length (m)	55.0			40.0			40.0			30.0		
Base Capacity (vph)	505	1603		565	1601		427	2095		490	2142	
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	0.08	0.10		0.26	0.17		0.24	0.28		0.14	0.33	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 71			
Natural Cycle: 70			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 12.4		Intersection LOS: B	
Intersection Capacity Utilization 65.0%		ICU Level of Service C	
Analysis Period (min) 15			

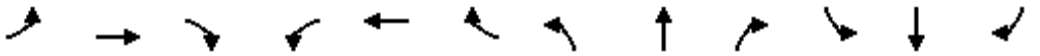
Splits and Phases: 6: Sixth Line & Burnhamthorpe Road



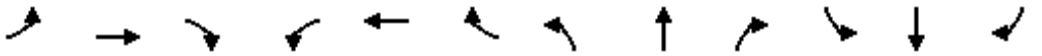


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	103	50	139	212	51	97	398	151	66	629	35
Future Volume (vph)	36	103	50	139	212	51	97	398	151	66	629	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.95		1.00	0.97		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)	1750	3329		1750	3342		1750	3346		1750	3472	
Flt Permitted	0.58	1.00		0.65	1.00		0.38	1.00		0.43	1.00	
Satd. Flow (perm)	1068	3329		1195	3342		695	3346		795	3472	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	38	110	53	148	226	54	103	423	161	70	669	37
RTOR Reduction (vph)	0	42	0	0	30	0	0	33	0	0	3	0
Lane Group Flow (vph)	38	121	0	148	250	0	103	551	0	70	703	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	11%	2%	2%	3%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	14.3	14.3		14.3	14.3		43.7	43.7		43.7	43.7	
Effective Green, g (s)	14.3	14.3		14.3	14.3		43.7	43.7		43.7	43.7	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.62	0.62		0.62	0.62	
Clearance Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	215	671		241	674		428	2062		490	2140	
v/s Ratio Prot		0.04			0.07			0.16			c0.20	
v/s Ratio Perm	0.04			c0.12			0.15			0.09		
v/c Ratio	0.18	0.18		0.61	0.37		0.24	0.27		0.14	0.33	
Uniform Delay, d1	23.4	23.4		25.8	24.4		6.1	6.2		5.7	6.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.1		4.6	0.3		1.3	0.3		0.6	0.4	
Delay (s)	23.8	23.6		30.4	24.8		7.5	6.6		6.3	7.0	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		23.6			26.7			6.7			6.9	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	70.9	Sum of lost time (s)	12.9
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	0	6	426	2	20	7	2601	0	0	2053	0
Future Volume (vph)	7	0	6	426	2	20	7	2601	0	0	2053	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		5.0	0.0		60.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		1	1		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt			0.850		0.999	0.850						
Flt Protected	0.950			0.950	0.953		0.950					
Satd. Flow (prot)	1526	0	1331	1615	1538	1431	1750	3500	0	0	4980	0
Flt Permitted	0.400			0.950	0.953		0.063					
Satd. Flow (perm)	642	0	1331	1615	1538	1431	116	3500	0	0	4980	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			73			73						
Link Speed (k/h)		20			60			80			80	
Link Distance (m)		81.5			393.0			34.5			195.6	
Travel Time (s)		14.7			23.6			1.6			8.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	17%	2%	20%	5%	100%	6%	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	7	0	6	444	2	21	7	2709	0	0	2139	0
Shared Lane Traffic (%)				50%		10%						
Lane Group Flow (vph)	7	0	6	222	226	19	7	2709	0	0	2139	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1		1	1	2	1	1	2			2	
Detector Template	Left		Right	Left	Thru	Right	Left	Thru			Thru	
Leading Detector (m)	2.0		2.0	2.0	10.0	2.0	2.0	10.0			10.0	
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Size(m)	2.0		2.0	2.0	0.6	2.0	2.0	0.6			0.6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 2 Position(m)					9.4			9.4			9.4	
Detector 2 Size(m)					0.6			0.6			0.6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8		8	2					
Detector Phase	4		4	8	8	8	5	2			6	
Switch Phase												
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	4.0	35.0			7.0	
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5	11.0	42.0			22.5	
Total Split (s)	52.0		52.0	52.0	52.0	52.0	11.0	68.0			57.0	
Total Split (%)	43.3%		43.3%	43.3%	43.3%	43.3%	9.2%	56.7%			47.5%	
Maximum Green (s)	46.0		46.0	46.0	46.0	46.0	7.0	61.0			50.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0	3.0	5.0			5.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0	1.0	2.0			2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Recall Mode	None		None	None	None	None	None	Min			Min	
Act Effct Green (s)	18.9		18.9	18.9	18.9	18.9	64.2	61.2			59.4	
Actuated g/C Ratio	0.20		0.20	0.20	0.20	0.20	0.69	0.66			0.64	
v/c Ratio	0.05		0.02	0.68	0.73	0.05	0.04	1.18			0.67	
Control Delay	29.6		0.2	45.0	48.4	0.3	6.6	104.3			13.8	
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	29.6		0.2	45.0	48.4	0.3	6.6	104.3			13.8	
LOS	C		A	D	D	A	A	F			B	
Approach Delay		16.0			44.8			104.0			13.8	
Approach LOS		B			D			F			B	
Queue Length 50th (m)	1.0		0.0	38.9	41.8	0.0	0.3	~306.5			74.3	
Queue Length 95th (m)	4.5		0.0	62.9	67.8	0.0	2.0	#400.0			151.0	
Internal Link Dist (m)		57.5			369.0			10.5			171.6	
Turn Bay Length (m)			5.0			60.0						
Base Capacity (vph)	317		696	800	762	746	203	2300			3175	
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	0.02		0.01	0.28	0.30	0.03	0.03	1.18			0.67	

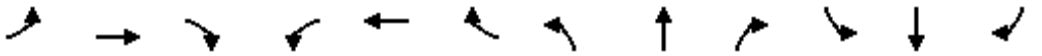
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 93.1			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.18			
Intersection Signal Delay: 62.4		Intersection LOS: E	
Intersection Capacity Utilization 101.5%		ICU Level of Service G	
Analysis Period (min) 15			

~ 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.

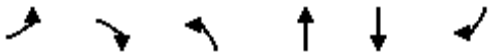
Splits and Phases: 7: Trafalgar Road & Carpool Lot/Highway 407 WB Off-Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	0	6	426	2	20	7	2601	0	0	2053	0
Future Volume (vph)	7	0	6	426	2	20	7	2601	0	0	2053	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	6.0	4.0	7.0			7.0	
Lane Util. Factor	1.00		1.00	0.95	0.91	0.95	1.00	0.95			0.91	
Frt	1.00		0.85	1.00	1.00	0.85	1.00	1.00			1.00	
Flt Protected	0.95		1.00	0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1526		1331	1615	1538	1431	1750	3500			4980	
Flt Permitted	0.40		1.00	0.95	0.95	1.00	0.06	1.00			1.00	
Satd. Flow (perm)	642		1331	1615	1538	1431	116	3500			4980	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	7	0	6	444	2	21	7	2709	0	0	2139	0
RTOR Reduction (vph)	0	0	5	0	0	15	0	0	0	0	0	0
Lane Group Flow (vph)	7	0	1	222	226	4	7	2709	0	0	2139	0
Heavy Vehicles (%)	17%	2%	20%	5%	100%	6%	2%	2%	2%	2%	3%	2%
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	
Permitted Phases	4		4	8		8	2					
Actuated Green, G (s)	18.9		18.9	18.9	18.9	18.9	64.5	64.5			59.4	
Effective Green, g (s)	18.9		18.9	18.9	18.9	18.9	64.5	64.5			59.4	
Actuated g/C Ratio	0.20		0.20	0.20	0.20	0.20	0.67	0.67			0.62	
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)	125		260	316	301	280	96	2341			3068	
v/s Ratio Prot							0.00	c0.77			0.43	
v/s Ratio Perm	0.01		0.00	0.14	0.15	0.00	0.05					
v/c Ratio	0.06		0.00	0.70	0.75	0.01	0.07	1.16			0.70	
Uniform Delay, d1	31.5		31.2	36.1	36.5	31.2	8.8	16.0			12.4	
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.2		0.0	6.9	10.1	0.0	0.3	76.0			0.7	
Delay (s)	31.7		31.2	43.0	46.6	31.3	9.1	92.0			13.2	
Level of Service	C		C	D	D	C	A	F			B	
Approach Delay (s)		31.5			44.3			91.7			13.2	
Approach LOS		C			D			F			B	

Intersection Summary			
HCM 2000 Control Delay	55.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	96.4	Sum of lost time (s)	17.0
Intersection Capacity Utilization	101.5%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↑↑↑	↑↑	↱
Traffic Volume (vph)	0	0	0	2679	2542	49
Future Volume (vph)	0	0	0	2679	2542	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.95	1.00
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	5029	3433	1521
Flt Permitted						
Satd. Flow (perm)	0	0	0	5029	3433	1521
Link Speed (k/h)	60			80	80	
Link Distance (m)	166.7			156.0	34.5	
Travel Time (s)	10.0			7.0	1.6	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	4%	5%
Adj. Flow (vph)	0	0	0	2791	2648	51
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2791	2648	51
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 77.4%		ICU Level of Service D	
Analysis Period (min) 15			

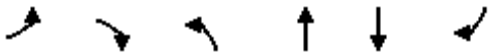
Intersection Sign configuration not allowed in HCM analysis.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↑↑	↱		↑↑
Traffic Volume (vph)	0	0	2679	165	0	2542
Future Volume (vph)	0	0	2679	165	0	2542
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt				0.850		
Flt Protected						
Satd. Flow (prot)	0	0	3500	1521	0	3433
Flt Permitted						
Satd. Flow (perm)	0	0	3500	1521	0	3433
Link Speed (k/h)	30		80			80
Link Distance (m)	189.2		37.4			156.0
Travel Time (s)	22.7		1.7			7.0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	5%	2%	4%
Adj. Flow (vph)	0	0	2791	172	0	2648
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	2791	172	0	2648
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Free		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 77.4%		ICU Level of Service D	
Analysis Period (min) 15			

Intersection Sign configuration not allowed in HCM analysis.



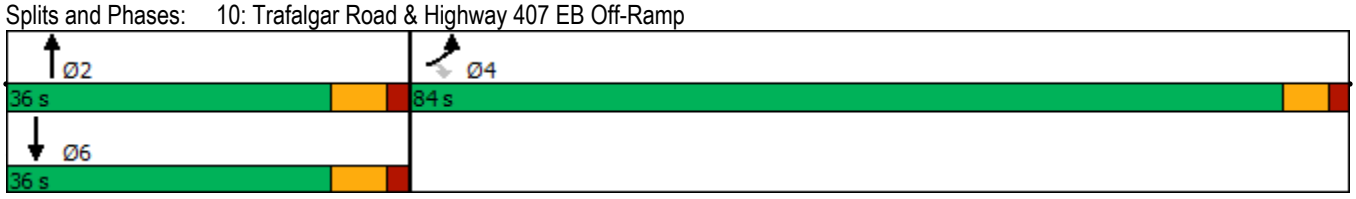
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	42	283	0	2798	2319	0
Future Volume (vph)	42	283	0	2798	2319	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1750	1278	0	3500	3466	0
Flt Permitted	0.950					
Satd. Flow (perm)	1750	1278	0	3500	3466	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						
Link Speed (k/h)	60			80	80	
Link Distance (m)	415.1			117.5	129.7	
Travel Time (s)	24.9			5.3	5.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	25%	2%	2%	3%	2%
Adj. Flow (vph)	45	301	0	2977	2467	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	45	301	0	2977	2467	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (m)	2.0	2.0		10.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	2.0		0.6	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						

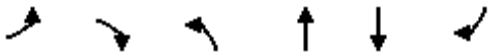
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Initial (s)	6.0	6.0		20.0	20.0	
Minimum Split (s)	24.0	24.0		27.0	27.0	
Total Split (s)	84.0	84.0		36.0	36.0	
Total Split (%)	70.0%	70.0%		30.0%	30.0%	
Maximum Green (s)	78.0	78.0		29.0	29.0	
Yellow Time (s)	4.0	4.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		7.0	7.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		Max	Max	
Act Effct Green (s)	19.3	19.3		29.2	29.2	
Actuated g/C Ratio	0.31	0.31		0.47	0.47	
v/c Ratio	0.08	0.75		1.80	1.50	
Control Delay	14.4	31.4		380.0	249.5	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	14.4	31.4		380.0	249.5	
LOS	B	C		F	F	
Approach Delay	29.2			380.0	249.5	
Approach LOS	C			F	F	
Queue Length 50th (m)	3.5	30.0		~273.2	~209.3	
Queue Length 95th (m)	9.1	53.8		#368.6	#295.2	
Internal Link Dist (m)	391.1			93.5	105.7	
Turn Bay Length (m)						
Base Capacity (vph)	1750	1278		1658	1642	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.03	0.24		1.80	1.50	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 61.6			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.80			
Intersection Signal Delay: 303.5		Intersection LOS: F	
Intersection Capacity Utilization 93.2%		ICU Level of Service F	
Analysis Period (min) 15			

~ 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.

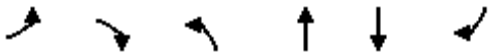
Splits and Phases: 10: Trafalgar Road & Highway 407 EB Off-Ramp





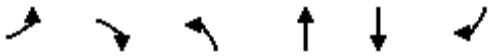
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	42	283	0	2798	2319	0
Future Volume (vph)	42	283	0	2798	2319	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1750	1278		3500	3466	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1750	1278		3500	3466	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	45	301	0	2977	2467	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	45	301	0	2977	2467	0
Heavy Vehicles (%)	2%	25%	2%	2%	3%	2%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	19.3	19.3		29.2	29.2	
Effective Green, g (s)	19.3	19.3		29.2	29.2	
Actuated g/C Ratio	0.31	0.31		0.47	0.47	
Clearance Time (s)	6.0	6.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	549	401		1661	1645	
v/s Ratio Prot	0.03			c0.85	0.71	
v/s Ratio Perm		c0.24				
v/c Ratio	0.08	0.75		1.79	1.50	
Uniform Delay, d1	14.9	18.9		16.1	16.1	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	7.7		359.0	228.1	
Delay (s)	14.9	26.7		375.1	244.3	
Level of Service	B	C		F	F	
Approach Delay (s)	25.1			375.1	244.3	
Approach LOS	C			F	F	

Intersection Summary			
HCM 2000 Control Delay	298.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.38		
Actuated Cycle Length (s)	61.5	Sum of lost time (s)	13.0
Intersection Capacity Utilization	93.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	2840	2319	23
Future Volume (vph)	0	0	0	2840	2319	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	3500	3466	1566
Flt Permitted						
Satd. Flow (perm)	0	0	0	3500	3466	1566
Link Speed (k/h)	30			80	80	
Link Distance (m)	113.6			129.7	37.4	
Travel Time (s)	13.6			5.8	1.7	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	0	0	0	3021	2467	24
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	3021	2467	24
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 93.2%		ICU Level of Service F	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	2840	2319	23
Future Volume (Veh/h)	0	0	0	2840	2319	23
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	0	3021	2467	24
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				130	228	
pX, platoon unblocked	0.74	0.60	0.60			
vC, conflicting volume	3978	1234	2491			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1867	44	2148			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	47	608	148			

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	1510	1510	1234	1234	24
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	24
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.89	0.89	0.73	0.73	0.01
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					
Approach Delay (s)	0.0		0.0		
Approach LOS					

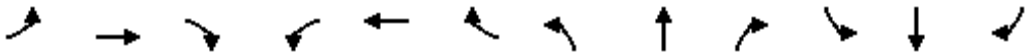
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	93.2%	ICU Level of Service	F
Analysis Period (min)	15		



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	2798	225	0	2602
Future Volume (vph)	0	0	2798	225	0	2602
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.91
Frt				0.850		
Flt Protected						
Satd. Flow (prot)	0	0	3500	1452	0	4885
Flt Permitted						
Satd. Flow (perm)	0	0	3500	1452	0	4885
Link Speed (k/h)	50		80			80
Link Distance (m)	246.0		145.5			117.5
Travel Time (s)	17.7		6.5			5.3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	10%	2%	5%
Adj. Flow (vph)	0	0	2977	239	0	2768
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	2977	239	0	2768
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Free		Free			Free

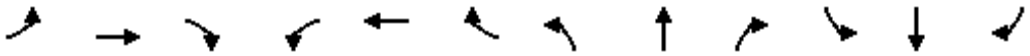
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 80.7%		ICU Level of Service D	
Analysis Period (min) 15			

Intersection Sign configuration not allowed in HCM analysis.



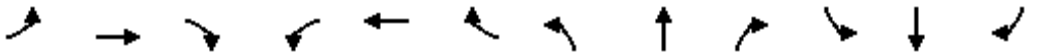
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	1112	239	162	1372	151	446	743	265	129	384	126
Future Volume (vph)	46	1112	239	162	1372	151	446	743	265	129	384	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.974			0.987			0.973			0.970	
Flt Protected		0.998			0.995			0.985			0.990	
Satd. Flow (prot)	0	3355	0	0	3437	0	0	3344	0	0	3361	0
Flt Permitted		0.998			0.995			0.985			0.990	
Satd. Flow (perm)	0	3355	0	0	3437	0	0	3344	0	0	3361	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		234.8			101.3			359.6			262.5	
Travel Time (s)		14.1			6.1			21.6			15.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	4%	2%	10%	2%	2%	2%	3%	2%	2%	2%	2%	2%
Adj. Flow (vph)	48	1158	249	169	1429	157	465	774	276	134	400	131
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1455	0	0	1755	0	0	1515	0	0	665	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 160.8%		ICU Level of Service H	
Analysis Period (min) 15			

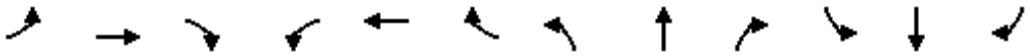


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	46	1112	239	162	1372	151	446	743	265	129	384	126
Future Volume (veh/h)	46	1112	239	162	1372	151	446	743	265	129	384	126
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	48	1158	249	169	1429	157	465	774	276	134	400	131
Approach Volume (veh/h)		1455			1755			1515			665	
Crossing Volume (veh/h)		703			1287#			1340#			2063#	
High Capacity (veh/h)		793			491			470			254	
High v/c (veh/h)		1.84			3.57			3.23			2.62	
Low Capacity (veh/h)		630			371			353			178	
Low v/c (veh/h)		2.31			4.73			4.29			3.74	

Intersection Summary				
Maximum v/c High	3.57			
Maximum v/c Low	4.73			
Intersection Capacity Utilization	160.8%	ICU Level of Service	H	
# Crossing flow exceeds 1200, method is not applicable				



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	827	56	164	1310	71	32	40	352	110	1	6
Future Volume (vph)	16	827	56	164	1310	71	32	40	352	110	1	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		30.0	120.0		30.0	30.0		0.0	40.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97	1.00		0.97	1.00	0.98		1.00	0.98	
Frt			0.850			0.850		0.865			0.869	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3500	1566	1750	3500	1566	1750	1565	0	1750	1574	0
Flt Permitted	0.101			0.230			0.752			0.166		
Satd. Flow (perm)	186	3500	1515	423	3500	1515	1379	1565	0	305	1574	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			78			78		108			7	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		839.5			181.9			560.5			190.6	
Travel Time (s)		50.4			10.9			40.4			13.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	18	919	62	182	1456	79	36	44	391	122	1	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	18	919	62	182	1456	79	36	435	0	122	8	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



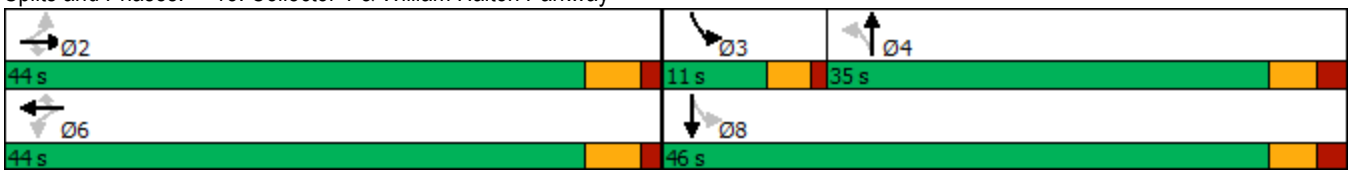
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		2			6			4		3	8	
Permitted Phases	2		2	6		6	4			8		
Detector Phase	2	2	2	6	6	6	4	4		3	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		7.0	10.0	
Minimum Split (s)	32.1	32.1	32.1	32.1	32.1	32.1	34.4	34.4		11.0	34.4	
Total Split (s)	44.0	44.0	44.0	44.0	44.0	44.0	35.0	35.0		11.0	46.0	
Total Split (%)	48.9%	48.9%	48.9%	48.9%	48.9%	48.9%	38.9%	38.9%		12.2%	51.1%	
Maximum Green (s)	38.9	38.9	38.9	38.9	38.9	38.9	29.6	29.6		7.0	40.6	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3		3.0	3.3	
All-Red Time (s)	1.4	1.4	1.4	1.4	1.4	1.4	2.1	2.1		1.0	2.1	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.1	5.1	5.4	5.4		4.0	5.4	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max	Max	Max	Max	Max	None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0			7.0	
Flash Dont Walk (s)	20.0	20.0	20.0	20.0	20.0	20.0	22.0	22.0			22.0	
Pedestrian Calls (#/hr)	5	5	5	5	5	5	5	5			5	
Act Effct Green (s)	39.6	39.6	39.6	39.6	39.6	39.6	22.0	22.0		31.8	30.4	
Actuated g/C Ratio	0.49	0.49	0.49	0.49	0.49	0.49	0.27	0.27		0.39	0.38	
v/c Ratio	0.20	0.53	0.08	0.88	0.85	0.10	0.10	0.86		0.49	0.01	
Control Delay	22.5	17.6	3.0	65.0	26.6	4.3	22.3	38.6		21.6	8.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	22.5	17.6	3.0	65.0	26.6	4.3	22.3	38.6		21.6	8.7	
LOS	C	B	A	E	C	A	C	D		C	A	
Approach Delay		16.8			29.7			37.4			20.8	
Approach LOS		B			C			D			C	
Queue Length 50th (m)	1.6	53.6	0.0	26.1	107.3	0.1	4.2	50.1		11.6	0.1	
Queue Length 95th (m)	7.6	81.5	5.1	#72.2	#174.3	7.6	10.8	85.8		21.5	2.4	
Internal Link Dist (m)		815.5			157.9			536.5			166.6	
Turn Bay Length (m)	30.0		30.0	120.0		30.0	30.0			40.0		
Base Capacity (vph)	91	1718	783	207	1718	783	515	652		247	810	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.20	0.53	0.08	0.88	0.85	0.10	0.07	0.67		0.49	0.01	

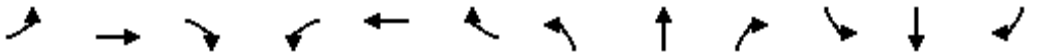
Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 80.7			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 26.5		Intersection LOS: C	
Intersection Capacity Utilization 91.3%		ICU Level of Service F	

Analysis Period (min) 15

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

Splits and Phases: 15: Collector 1 & William Halton Parkway

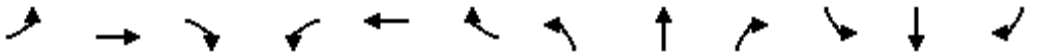




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	827	56	164	1310	71	32	40	352	110	1	6
Future Volume (vph)	16	827	56	164	1310	71	32	40	352	110	1	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	5.1	5.1	5.1	5.1	5.4	5.4		4.0	5.4	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	0.98		1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.87		1.00	0.87	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1749	3500	1517	1747	3500	1517	1743	1565		1750	1574	
Flt Permitted	0.10	1.00	1.00	0.23	1.00	1.00	0.75	1.00		0.17	1.00	
Satd. Flow (perm)	186	3500	1517	423	3500	1517	1380	1565		306	1574	
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)	18	919	62	182	1456	79	36	44	391	122	1	7
RTOR Reduction (vph)	0	0	32	0	0	40	0	79	0	0	4	0
Lane Group Flow (vph)	18	919	30	182	1456	39	36	356	0	122	4	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		2			6			4		3	8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	39.6	39.6	39.6	39.6	39.6	39.6	22.0	22.0		31.3	31.3	
Effective Green, g (s)	39.6	39.6	39.6	39.6	39.6	39.6	22.0	22.0		31.3	31.3	
Actuated g/C Ratio	0.49	0.49	0.49	0.49	0.49	0.49	0.27	0.27		0.38	0.38	
Clearance Time (s)	5.1	5.1	5.1	5.1	5.1	5.1	5.4	5.4		4.0	5.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	90	1702	738	205	1702	738	372	422		211	605	
v/s Ratio Prot		0.26			0.42			c0.23		c0.04	0.00	
v/s Ratio Perm	0.10		0.02	c0.43		0.03	0.03			0.18		
v/c Ratio	0.20	0.54	0.04	0.89	0.86	0.05	0.10	0.84		0.58	0.01	
Uniform Delay, d1	11.9	14.6	11.0	18.9	18.4	11.0	22.3	28.1		18.7	15.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.9	1.2	0.1	39.1	5.8	0.1	0.1	14.3		3.8	0.0	
Delay (s)	16.8	15.8	11.1	58.0	24.1	11.2	22.4	42.4		22.5	15.5	
Level of Service	B	B	B	E	C	B	C	D		C	B	
Approach Delay (s)		15.5			27.1			40.8			22.1	
Approach LOS		B			C			D			C	

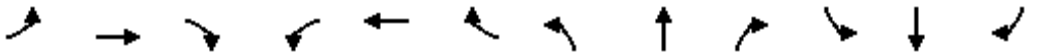
Intersection Summary			
HCM 2000 Control Delay	25.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	81.4	Sum of lost time (s)	14.5
Intersection Capacity Utilization	91.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1230	59	0	1375	266	0	0	78	0	0	170
Future Volume (vph)	0	1230	59	0	1375	266	0	0	78	0	0	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		30.0	30.0		0.0	30.0		0.0
Storage Lanes	0		0	0		1	0		1	0		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.993				0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3475	0	0	3500	1566	0	0	1593	0	0	1593
Flt Permitted												
Satd. Flow (perm)	0	3475	0	0	3500	1566	0	0	1593	0	0	1593
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		181.9			207.8			147.0			169.4	
Travel Time (s)		10.9			12.5			10.6			12.2	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	0	1367	66	0	1528	296	0	0	87	0	0	189
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1433	0	0	1528	296	0	0	87	0	0	189
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

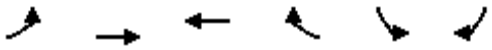
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 56.1%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1230	59	0	1375	266	0	0	78	0	0	170
Future Volume (Veh/h)	0	1230	59	0	1375	266	0	0	78	0	0	170
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1367	66	0	1528	296	0	0	87	0	0	189
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		182			208							
pX, platoon unblocked	0.78			0.82			0.87	0.87	0.82	0.87	0.87	0.78
vC, conflicting volume	1829			1438			2363	3234	726	2308	2971	774
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1491			1088			1316	2320	217	1253	2016	131
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	86	100	100	72
cM capacity (veh/h)	345			518			71	32	637	95	50	687

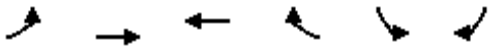
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	911	522	764	764	296	87	189
Volume Left	0	0	0	0	0	0	0
Volume Right	0	66	0	0	296	87	189
cSH	1700	1700	1700	1700	1700	637	687
Volume to Capacity	0.54	0.31	0.45	0.45	0.17	0.14	0.28
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	3.6	8.5
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	11.5	12.2
Lane LOS						B	B
Approach Delay (s)	0.0		0.0			11.5	12.2
Approach LOS						B	B

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	56.1%	ICU Level of Service	B	
Analysis Period (min)	15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	7	393	476	240	151	12
Future Volume (vph)	7	393	476	240	151	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0			0.0	30.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	15.0				15.0	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.950			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1750	3500	3325	0	1750	1566
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1750	3500	3325	0	1750	1566
Link Speed (k/h)		50	50		50	
Link Distance (m)		222.8	245.2		560.5	
Travel Time (s)		16.0	17.7		40.4	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	8	437	529	267	168	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	437	796	0	168	13
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		3.5	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

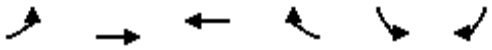
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 35.9%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	393	476	240	151	12
Future Volume (Veh/h)	7	393	476	240	151	12
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	8	437	529	267	168	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)			245			
pX, platoon unblocked	0.96				0.96	0.96
vC, conflicting volume	796				897	398
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	698				804	283
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				45	98
cM capacity (veh/h)	856				304	684

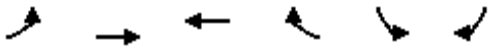
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	SB 2
Volume Total	8	218	218	353	443	168	13
Volume Left	8	0	0	0	0	168	0
Volume Right	0	0	0	0	267	0	13
cSH	856	1700	1700	1700	1700	304	684
Volume to Capacity	0.01	0.13	0.13	0.21	0.26	0.55	0.02
Queue Length 95th (m)	0.2	0.0	0.0	0.0	0.0	23.8	0.4
Control Delay (s)	9.2	0.0	0.0	0.0	0.0	30.5	10.4
Lane LOS	A					D	B
Approach Delay (s)	0.2			0.0		29.1	
Approach LOS						D	

Intersection Summary			
Average Delay	3.8		
Intersection Capacity Utilization	35.9%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Volume (vph)	0	1381	1846	13	0	371
Future Volume (vph)	0	1381	1846	13	0	371
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0			30.0	0.0	0.0
Storage Lanes	0			1	0	1
Taper Length (m)	15.0				15.0	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor						
Frt				0.850		0.865
Flt Protected						
Satd. Flow (prot)	0	3500	3500	1566	0	1593
Flt Permitted						
Satd. Flow (perm)	0	3500	3500	1566	0	1593
Link Speed (k/h)		60	60		50	
Link Distance (m)		228.3	173.6		144.7	
Travel Time (s)		13.7	10.4		10.4	
Confl. Peds. (#/hr)	5			5	5	5
Confl. Bikes (#/hr)				5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1534	2051	14	0	412
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1534	2051	14	0	412
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		7.0	7.0		0.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

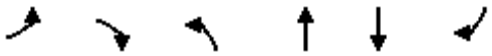
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 81.2%		ICU Level of Service D	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Volume (veh/h)	0	1381	1846	13	0	371
Future Volume (Veh/h)	0	1381	1846	13	0	371
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1534	2051	14	0	412
Pedestrians		5	5		5	
Lane Width (m)		3.5	3.5		3.5	
Walking Speed (m/s)		1.0	1.0		1.0	
Percent Blockage		0	0		0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		228	174			
pX, platoon unblocked	0.52				0.60	0.52
vC, conflicting volume	2070				2828	1036
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1208				1541	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	26
cM capacity (veh/h)	296				63	557

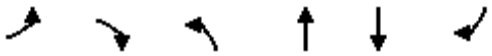
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	767	767	1026	1026	14	412
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	14	412
cSH	1700	1700	1700	1700	1700	557
Volume to Capacity	0.45	0.45	0.60	0.60	0.01	0.74
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	48.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	27.6
Lane LOS						D
Approach Delay (s)	0.0		0.0			27.6
Approach LOS						D

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	198	0	2038	1705	373
Future Volume (vph)	0	198	0	2038	1705	373
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865			0.973	
Flt Protected						
Satd. Flow (prot)	0	1593	0	3500	3405	0
Flt Permitted						
Satd. Flow (perm)	0	1593	0	3500	3405	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	168.4			320.3	142.6	
Travel Time (s)	12.1			19.2	8.6	
Confl. Peds. (#/hr)	5	5	5			5
Confl. Bikes (#/hr)		5				5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	220	0	2264	1894	414
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	220	0	2264	2308	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			7.0	7.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

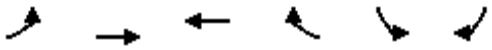
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		



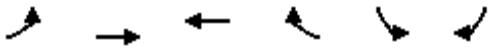
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	198	0	2038	1705	373
Future Volume (Veh/h)	0	198	0	2038	1705	373
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	220	0	2264	1894	414
Pedestrians	5			5	5	
Lane Width (m)	3.5			3.5	3.5	
Walking Speed (m/s)	1.0			1.0	1.0	
Percent Blockage	0			0	0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				320	143	
pX, platoon unblocked	0.69	0.64	0.64			
vC, conflicting volume	3243	1164	2313			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	985	118	1921			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	62	100			
cM capacity (veh/h)	168	575	193			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	220	1132	1132	1263	1045
Volume Left	0	0	0	0	0
Volume Right	220	0	0	0	414
cSH	575	1700	1700	1700	1700
Volume to Capacity	0.38	0.67	0.67	0.74	0.61
Queue Length 95th (m)	13.6	0.0	0.0	0.0	0.0
Control Delay (s)	15.1	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	15.1	0.0		0.0	
Approach LOS	C				

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	558	823	1610	9	77	249
Future Volume (vph)	558	823	1610	9	77	249
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0			0.0	40.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	15.0				15.0	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor			1.00		0.99	0.98
Frt			0.999			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1750	3500	3496	0	1750	1566
Flt Permitted	0.074				0.950	
Satd. Flow (perm)	136	3500	3496	0	1740	1532
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			1			277
Link Speed (k/h)		60	60		50	
Link Distance (m)		173.6	1244.3		120.8	
Travel Time (s)		10.4	74.7		8.7	
Confl. Peds. (#/hr)	5			5	5	5
Confl. Bikes (#/hr)				5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	620	914	1789	10	86	277
Shared Lane Traffic (%)						
Lane Group Flow (vph)	620	914	1799	0	86	277
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.5	3.5		3.5	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		3.0	3.0		3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25			15	25	15
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (m)	2.0	10.0	10.0		2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6		2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2					4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	7.0	10.0	10.0		7.0	7.0
Minimum Split (s)	11.0	37.5	37.5		36.0	36.0
Total Split (s)	29.0	84.0	55.0		36.0	36.0
Total Split (%)	24.2%	70.0%	45.8%		30.0%	30.0%
Maximum Green (s)	25.0	78.5	49.5		32.0	32.0
Yellow Time (s)	3.0	3.7	3.7		3.0	3.0
All-Red Time (s)	1.0	1.8	1.8		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.0	5.5	5.5		4.0	4.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	Max	None		None	None
Walk Time (s)		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		25.0	25.0		25.0	25.0
Pedestrian Calls (#/hr)		5	5		5	5
Act Effct Green (s)	80.6	79.1	49.9		13.2	13.2
Actuated g/C Ratio	0.79	0.78	0.49		0.13	0.13
v/c Ratio	1.23	0.34	1.05		0.38	0.63
Control Delay	146.8	4.9	63.7		44.0	11.3
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	146.8	4.9	63.7		44.0	11.3
LOS	F	A	E		D	B
Approach Delay		62.2	63.7		19.1	
Approach LOS		E	E		B	
Queue Length 50th (m)	~127.7	18.7	~183.1		15.7	0.0
Queue Length 95th (m)	#254.8	60.5	#322.4		29.0	20.1
Internal Link Dist (m)		149.6	1220.3		96.8	
Turn Bay Length (m)	85.0				40.0	
Base Capacity (vph)	506	2716	1711		553	673
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	1.23	0.34	1.05		0.16	0.41

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 101.9			
Natural Cycle: 145			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.23			
Intersection Signal Delay: 58.7		Intersection LOS: E	
Intersection Capacity Utilization 96.0%		ICU Level of Service F	

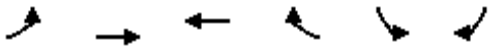
Analysis Period (min) 15

~ 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.

Splits and Phases: 24: William Halton Parkway & Collector 5





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	558	823	1610	9	77	249
Future Volume (vph)	558	823	1610	9	77	249
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5	5.5		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1750	3500	3496		1750	1526
Flt Permitted	0.07	1.00	1.00		0.95	1.00
Satd. Flow (perm)	137	3500	3496		1750	1526
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	620	914	1789	10	86	277
RTOR Reduction (vph)	0	0	1	0	0	241
Lane Group Flow (vph)	620	914	1798	0	86	36
Confl. Peds. (#/hr)	5			5	5	5
Confl. Bikes (#/hr)				5		5
Turn Type	pm+pt	NA	NA		Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2					4
Actuated Green, G (s)	79.1	79.1	49.9		13.2	13.2
Effective Green, g (s)	79.1	79.1	49.9		13.2	13.2
Actuated g/C Ratio	0.78	0.78	0.49		0.13	0.13
Clearance Time (s)	4.0	5.5	5.5		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	505	2719	1713		226	197
v/s Ratio Prot	c0.30	0.26	0.51		c0.05	
v/s Ratio Perm	c0.65					0.02
v/c Ratio	1.23	0.34	1.05		0.38	0.18
Uniform Delay, d1	32.9	3.4	25.9		40.6	39.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	119.0	0.3	36.2		1.1	0.4
Delay (s)	152.0	3.8	62.1		41.6	39.9
Level of Service	F	A	E		D	D
Approach Delay (s)		63.7	62.1		40.3	
Approach LOS		E	E		D	

Intersection Summary			
HCM 2000 Control Delay	60.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	101.8	Sum of lost time (s)	13.5
Intersection Capacity Utilization	96.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

MOVEMENT SUMMARY

Site: [101] Sixth Line & William Halton Parkway (General)

Output produced by SIDRA INTERSECTION Version: 10.0.8.241

2041 Future Background PM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Sixth Line															
1	L2	All MCs	12	2.0	12	2.0	0.480	16.4	LOS C	1.9	13.4	0.71	0.81	1.06	45.0
2	T1	All MCs	282	2.0	282	2.0	0.480	16.3	LOS C	1.9	13.4	0.71	0.80	1.05	45.7
3	R2	All MCs	182	2.0	182	2.0	0.480	15.7	LOS C	1.8	13.2	0.69	0.79	1.04	45.5
Approach			477	2.0	477	2.0	0.480	16.0	LOS C	1.9	13.4	0.70	0.80	1.05	45.6
East: William Halton Parkway															
4	L2	All MCs	254	2.0	254	2.0	0.653	17.0	LOS C	5.1	36.0	0.68	0.82	1.30	43.2
5	T1	All MCs	701	2.0	701	2.0	0.653	16.7	LOS C	5.1	36.0	0.67	0.81	1.29	45.1
6	R2	All MCs	551	2.0	551	2.0	0.290	4.6	LOS A	18.2	129.8	0.00	0.00	0.00	56.4
Approach			1507	2.0	1507	2.0	0.653	12.3	LOS B	18.2	129.8	0.42	0.51	0.82	48.2
North: Sixth Line															
7	L2	All MCs	357	2.0	357	2.0	0.640	20.2	LOS C	3.4	24.0	0.73	0.90	1.32	40.6
8	T1	All MCs	320	2.0	320	2.0	0.603	19.4	LOS C	3.0	21.4	0.73	0.88	1.25	44.2
9	R2	All MCs	324	2.0	324	2.0	0.171	4.7	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			1001	2.0	1001	2.0	0.640	14.9	LOS B	3.4	24.0	0.49	0.60	0.87	45.8
West: William Halton Parkway															
10	L2	All MCs	273	2.0	273	2.0	0.655	21.3	LOS C	3.7	26.3	0.75	0.93	1.38	40.7
11	T1	All MCs	459	2.0	459	2.0	0.655	20.6	LOS C	3.7	26.3	0.73	0.92	1.37	43.2
12	R2	All MCs	72	2.0	72	2.0	0.038	2.8	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			804	2.0	804	2.0	0.655	19.3	LOS C	3.7	26.3	0.67	0.84	1.25	43.2
All Vehicles			3789	2.0	3789	2.0	0.655	15.0	LOS B	18.2	129.8	0.53	0.64	0.95	46.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [101] Ninth Line & William Halton Parkway (General)

Output produced by SIDRA INTERSECTION Version: 10.0.8.241

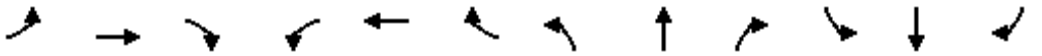
2041 Future Background PM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Ninth Line															
1	L2	All MCs	501	23.0	501	23.0	2.203	577.7	LOS F	124.1	994.0	1.00	6.72	21.96	12.1
2	T1	All MCs	835	2.0	835	2.0	2.203	569.2	LOS F	161.0	1149.7	1.00	6.79	23.06	12.1
3	R2	All MCs	298	3.0	298	3.0	2.203	579.2	LOS F	161.0	1149.7	1.00	6.82	23.43	12.0
Approach			1634	8.6	1634	8.6	2.203	573.5	LOS F	161.0	1149.7	1.00	6.77	22.79	12.1
East: Burnhamthorpe Road															
4	L2	All MCs	182	2.0	182	2.0	1.409	209.2	LOS F	94.0	673.9	1.00	4.80	12.84	17.4
5	T1	All MCs	1542	3.0	1542	3.0	1.409	209.1	LOS F	96.7	695.5	1.00	4.87	13.04	17.4
6	R2	All MCs	170	4.0	170	4.0	1.409	208.9	LOS F	96.7	695.5	1.00	4.93	13.23	17.3
Approach			1893	3.0	1893	3.0	1.409	209.1	LOS F	96.7	695.5	1.00	4.87	13.04	17.4
North: Ninth Line															
7	L2	All MCs	145	2.0	145	2.0	0.770	40.1	LOS E	3.7	26.2	0.90	1.10	1.67	34.3
8	T1	All MCs	431	2.0	431	2.0	0.770	38.5	LOS E	3.7	26.3	0.89	1.09	1.67	35.9
9	R2	All MCs	142	2.0	142	2.0	0.075	3.7	LOS A	0.0	0.0	0.00	0.00	0.00	56.4
Approach			718	2.0	718	2.0	0.770	31.9	LOS D	3.7	26.3	0.72	0.88	1.34	38.2
West: William Halton Parkway															
10	L2	All MCs	52	4.0	52	4.0	1.145	102.9	LOS F	44.1	314.6	1.00	3.05	7.49	23.8
11	T1	All MCs	1249	2.0	1249	2.0	1.145	75.7	LOS F	44.1	314.6	0.93	2.25	5.16	28.8
12	R2	All MCs	269	12.0	269	12.0	0.151	4.1	LOS A	0.0	0.0	0.00	0.00	0.00	56.2
Approach			1570	3.8	1570	3.8	1.145	64.4	LOS F	44.1	314.6	0.77	1.89	4.36	31.1
All Vehicles			5815	4.7	5815	4.7	2.203	250.6	LOS F	161.0	1149.7	0.90	4.11	11.99	18.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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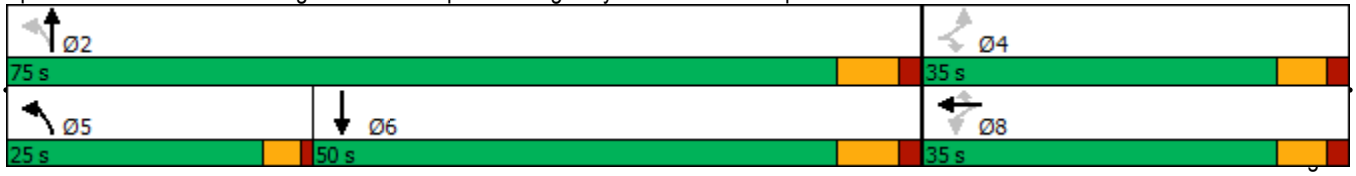
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	3	315	0	24	1	1892	0	0	1893	0
Future Volume (vph)	1	0	3	315	0	24	1	1892	0	0	1893	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		5.0	0.0		60.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		1	1		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt			0.850		0.997	0.850						
Flt Protected	0.950			0.950	0.953		0.950					
Satd. Flow (prot)	892	0	1566	1630	1563	1487	1750	3500	0	0	5029	0
Flt Permitted	0.511			0.950	0.953		0.065					
Satd. Flow (perm)	480	0	1566	1630	1563	1487	120	3500	0	0	5029	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79		79	79						
Link Speed (k/h)		20			60			80			80	
Link Distance (m)		81.5			394.8			34.5			189.8	
Travel Time (s)		14.7			23.7			1.6			8.5	
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 (%)	100%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	1	0	3	342	0	26	1	2057	0	0	2058	0
Shared Lane Traffic (%)				50%		10%						
Lane Group Flow (vph)	1	0	3	171	174	23	1	2057	0	0	2058	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1		1	1	2	1	1	2			2	
Detector Template	Left		Right	Left	Thru	Right	Left	Thru			Thru	
Leading Detector (m)	2.0		2.0	2.0	10.0	2.0	2.0	10.0			10.0	
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Size(m)	2.0		2.0	2.0	0.6	2.0	2.0	0.6			0.6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 2 Position(m)					9.4			9.4			9.4	
Detector 2 Size(m)					0.6			0.6			0.6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8		8	2					
Detector Phase	4		4	8	8	8	5	2			6	
Switch Phase												
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	4.0	35.0			35.0	
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5	9.5	42.0			42.0	
Total Split (s)	35.0		35.0	35.0	35.0	35.0	25.0	75.0			50.0	
Total Split (%)	31.8%		31.8%	31.8%	31.8%	31.8%	22.7%	68.2%			45.5%	
Maximum Green (s)	29.0		29.0	29.0	29.0	29.0	21.0	68.0			43.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0	3.0	5.0			5.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0	1.0	2.0			2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Recall Mode	None		None	None	None	None	None	Min			Min	
Act Effct Green (s)	15.0		15.0	15.0	15.0	15.0	62.1	59.0			57.4	
Actuated g/C Ratio	0.17		0.17	0.17	0.17	0.17	0.71	0.68			0.66	
v/c Ratio	0.01		0.01	0.61	0.52	0.07	0.01	0.87			0.62	
Control Delay	33.0		0.0	45.2	25.7	0.4	5.0	17.0			10.7	
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	33.0		0.0	45.2	25.7	0.4	5.0	17.0			10.7	
LOS	C		A	D	C	A	A	B			B	
Approach Delay		8.3			33.2			16.9			10.7	
Approach LOS		A			C			B			B	
Queue Length 50th (m)	0.2		0.0	30.0	16.5	0.0	0.1	123.3			59.9	
Queue Length 95th (m)	1.6		0.0	53.4	39.4	0.0	0.6	201.5			121.0	
Internal Link Dist (m)		57.5			370.8			10.5			165.8	
Turn Bay Length (m)			5.0			60.0						
Base Capacity (vph)	163		586	556	585	559	487	2768			3300	
Starvation Cap Reductn	0		0	0	0	0	0	0			0	
Spillback Cap Reductn	0		0	0	0	0	0	0			0	
Storage Cap Reductn	0		0	0	0	0	0	0			0	
Reduced v/c Ratio	0.01		0.01	0.31	0.30	0.04	0.00	0.74			0.62	

Intersection Summary

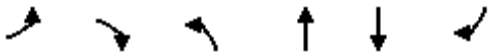
Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 87.4
Natural Cycle: 80
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 15.4 Intersection LOS: B
Intersection Capacity Utilization 78.8% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 7: Trafalgar Road & Carpool Lot/Highway 407 WB Off-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	3	315	0	24	1	1892	0	0	1893	0
Future Volume (vph)	1	0	3	315	0	24	1	1892	0	0	1893	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	6.0	4.0	7.0			7.0	
Lane Util. Factor	1.00		1.00	0.95	0.91	0.95	1.00	0.95			0.91	
Frt	1.00		0.85	1.00	1.00	0.85	1.00	1.00			1.00	
Flt Protected	0.95		1.00	0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	892		1566	1630	1563	1487	1750	3500			5029	
Flt Permitted	0.51		1.00	0.95	0.95	1.00	0.07	1.00			1.00	
Satd. Flow (perm)	480		1566	1630	1563	1487	120	3500			5029	
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)	1	0	3	342	0	26	1	2057	0	0	2058	0
RTOR Reduction (vph)	0	0	3	0	66	19	0	0	0	0	0	0
Lane Group Flow (vph)	1	0	0	171	108	4	1	2057	0	0	2058	0
Heavy Vehicles (%)	100%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	
Permitted Phases	4		4	8		8	2					
Actuated Green, G (s)	15.0		15.0	15.0	15.0	15.0	62.4	62.4			57.4	
Effective Green, g (s)	15.0		15.0	15.0	15.0	15.0	62.4	62.4			57.4	
Actuated g/C Ratio	0.17		0.17	0.17	0.17	0.17	0.69	0.69			0.63	
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)	79		259	270	259	246	100	2415			3193	
v/s Ratio Prot							0.00	c0.59			0.41	
v/s Ratio Perm	0.00		0.00	c0.10	0.07	0.00	0.01					
v/c Ratio	0.01		0.00	0.63	0.42	0.02	0.01	0.85			0.64	
Uniform Delay, d1	31.5		31.5	35.1	33.8	31.5	6.7	10.5			10.2	
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.1		0.0	4.8	1.1	0.0	0.0	3.1			0.5	
Delay (s)	31.6		31.5	39.9	34.9	31.6	6.8	13.6			10.6	
Level of Service	C		C	D	C	C	A	B			B	
Approach Delay (s)		31.5			37.0			13.6			10.6	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	90.4	Sum of lost time (s)	17.0
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



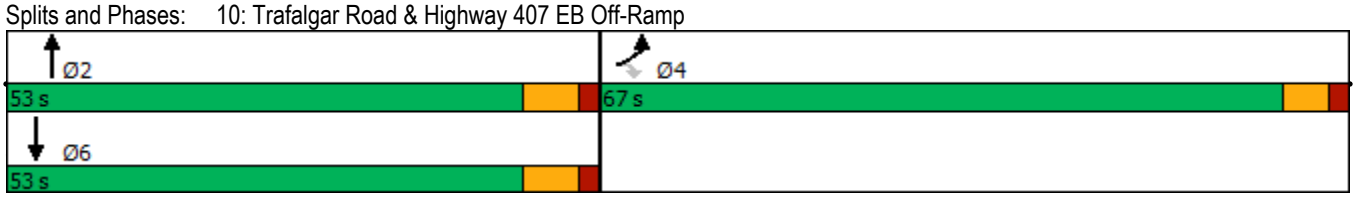
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	43	243	0	1958	2207	0
Future Volume (vph)	43	243	0	1958	2207	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1750	1377	0	3500	3500	0
Flt Permitted	0.950					
Satd. Flow (perm)	1750	1377	0	3500	3500	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						
Link Speed (k/h)	60			80	80	
Link Distance (m)	417.0			117.5	129.7	
Travel Time (s)	25.0			5.3	5.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	16%	2%	2%	2%	2%
Adj. Flow (vph)	46	261	0	2105	2373	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	46	261	0	2105	2373	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (m)	2.0	2.0		10.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	2.0		0.6	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						

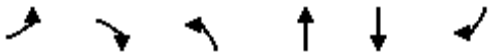
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Initial (s)	6.0	6.0		20.0	20.0	
Minimum Split (s)	24.0	24.0		27.0	27.0	
Total Split (s)	67.0	67.0		53.0	53.0	
Total Split (%)	55.8%	55.8%		44.2%	44.2%	
Maximum Green (s)	61.0	61.0		46.0	46.0	
Yellow Time (s)	4.0	4.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		7.0	7.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		Max	Max	
Act Effct Green (s)	19.9	19.9		46.2	46.2	
Actuated g/C Ratio	0.25	0.25		0.58	0.58	
v/c Ratio	0.10	0.75		1.03	1.16	
Control Delay	22.3	41.5		47.6	98.8	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	22.3	41.5		47.6	98.8	
LOS	C	D		D	F	
Approach Delay	38.6			47.6	98.8	
Approach LOS	D			D	F	
Queue Length 50th (m)	5.3	36.0		~180.2	~224.7	
Queue Length 95th (m)	12.6	60.7		#261.2	#311.0	
Internal Link Dist (m)	393.0			93.5	105.7	
Turn Bay Length (m)						
Base Capacity (vph)	1353	1065		2042	2042	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.03	0.25		1.03	1.16	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 79.2			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.16			
Intersection Signal Delay: 72.4		Intersection LOS: E	
Intersection Capacity Utilization 86.9%		ICU Level of Service E	
Analysis Period (min) 15			

~ 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.

Splits and Phases: 10: Trafalgar Road & Highway 407 EB Off-Ramp





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	43	243	0	1958	2207	0
Future Volume (vph)	43	243	0	1958	2207	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1750	1377		3500	3500	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1750	1377		3500	3500	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	46	261	0	2105	2373	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	46	261	0	2105	2373	0
Heavy Vehicles (%)	2%	16%	2%	2%	2%	2%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	19.9	19.9		46.2	46.2	
Effective Green, g (s)	19.9	19.9		46.2	46.2	
Actuated g/C Ratio	0.25	0.25		0.58	0.58	
Clearance Time (s)	6.0	6.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	440	346		2044	2044	
v/s Ratio Prot	0.03			0.60	c0.68	
v/s Ratio Perm		c0.19				
v/c Ratio	0.10	0.75		1.03	1.16	
Uniform Delay, d1	22.8	27.3		16.4	16.4	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	9.0		28.0	78.3	
Delay (s)	22.9	36.4		44.5	94.8	
Level of Service	C	D		D	F	
Approach Delay (s)	34.3			44.5	94.8	
Approach LOS	C			D	F	

Intersection Summary			
HCM 2000 Control Delay	68.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	79.1	Sum of lost time (s)	13.0
Intersection Capacity Utilization	86.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Appendix K

Planned HOV / BRT Correspondence with Halton Region

Outlook

RE: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

From Khan, Ayesha <Ayesha.Khan@halton.ca>
Date Wed 2024-05-15 08:40
To Jade Huangfu <jade.huangfu@cghtransportation.com>
Cc Robin Marinac <robin.marinac@cghtransportation.com>

Hello Jade and Robin,
My apologies for a delayed response.

I got the following information from our Mobility & Transportation Planning group:

The 2019 Defining Major Transit Requirements (DMTR) Study identified Preliminary 2031 and 2041 Recommended Transit Priority Corridor Networks (the report can be found at the following link: DMTR.) For Trafalgar Road from Highway 407 southerly to the Oakville GO, a Priority Bus with HOV lanes was lanes was identified in the 2031 network. In the 2041 network, a BRT with Bus Only lanes was identified from Highway 407 southerly to the Oakville GO. The Recommendations of the DMTR will reviewed and refined through the Region's ongoing Integrated Master Plan (IMP). The IMP is an ongoing study and the results, including modelling, are not available at this time. Additional information on the IMP can be found at the following link: IMP

Hope this is helpful.

Thanks,
Ayesha

From: Jade Huangfu <jade.huangfu@cghtransportation.com>
Sent: Friday, May 10, 2024 11:22 AM
To: Khan, Ayesha <Ayesha.Khan@halton.ca>
Cc: Robin Marinac <robin.marinac@cghtransportation.com>
Subject: Re: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

CAUTION: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe. If you are unsure or need assistance please contact the IT Service Desk.

Hi Ayesha,

Just wanted to follow up again on the previous email, regarding the information requested on the timelines and EMME data associated with the Trafalgar Road BRT and HOV implementation. We have a tight timeline with this project and wondering when we could expect to receive this information so that we can proceed with our work.

Thank you,

Jade Huangfu, BASc

CGH Transportation Inc.

P: 647-822-6294

E: Jade.Huangfu@cghtransportation.com

From: Jade Huangfu <jade.huangfu@cghtransportation.com>
Sent: Friday, May 3, 2024 11:59
To: Khan, Ayesha <Ayesha.Khan@halton.ca>
Cc: Robin Marinac <robin.marinac@cghtransportation.com>
Subject: Re: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

Hi Ayesha,

I apologize for following up so soon since the last email, as we are working with a tight deadline on this project. I am wondering when we could expect an answer for the requested information on Trafalgar Road.

Thank you,

Jade Huangfu, BASc

CGH Transportation Inc.

P: 647-822-6294

E: Jade.Huangfu@cghtransportation.com

From: Robin Marinac <robin.marinac@cghtransportation.com>
Sent: Tuesday, April 30, 2024 10:39
To: Khan, Ayesha <Ayesha.Khan@halton.ca>
Cc: Jade Huangfu <jade.huangfu@cghtransportation.com>
Subject: RE: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

Hi Ayesha,

No problem at all. Thank you!

Kind regards,

Robin Marinac

Robin Marinac, P.Eng.

CGH Transportation Inc.

P: 437-242-5183

E: robin.marinac@cghtransportation.com

From: Khan, Ayesha <Ayesha.Khan@halton.ca>
Sent: Tuesday, April 30, 2024 10:38 AM
To: Robin Marinac <robin.marinac@cghtransportation.com>
Cc: Jade Huangfu <jade.huangfu@cghtransportation.com>
Subject: RE: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

Hi Robin,

Apologies for the delay. Let me look into this and get back to you.

Thanks,

Ayesha

Ayesha Khan
Project Manager I – Transportation Development Review
Development Services
Public Works
Halton Region
905-825-6000, ext. | 1-866-442-5866

From: Robin Marinac <robin.marinac@cghtransportation.com>
Sent: Tuesday, April 30, 2024 10:28 AM
To: Khan, Ayesha <Ayesha.Khan@halton.ca>
Cc: Jade Huangfu <jade.huangfu@cghtransportation.com>
Subject: RE: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

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Hi Ayesha,

I've just noticed that we never heard back on this. Any chance you can provide the requested information below?

Kind regards,

Robin Marinac

Robin Marinac, P.Eng.

CGH Transportation Inc.

P: 437-242-5183

E: robin.marinac@cghtransportation.com

From: Jade Huangfu <jade.huangfu@cghtransportation.com>
Sent: Friday, February 2, 2024 11:10 AM
To: Ayesha.Khan@halton.ca
Cc: Robin Marinac <robin.marinac@cghtransportation.com>
Subject: Re: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

Hi Ayesha,

As part of the TOR that we submitted in November, we had requested the timelines associated with the implementation of the HOV and BRT lanes along Trafalgar Road within our Study Area as well as the EMME link volumes along Trafalgar Road prior and post BRT implementation. Would you be able to provide this information so we can progress on the TIS?

Thank you,

Jade Huangfu, BASc

CGH Transportation Inc.

P: 647-822-6294

E: Jade.Huangfu@cghtransportation.com

From: Robin Marinac <robin.marinac@cghtransportation.com>
Sent: Monday, December 18, 2023 13:57
To: Khan, Ayesha <Ayesha.Khan@halton.ca>
Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Jade Huangfu <jade.huangfu@cghtransportation.com>; aquisha.khan@oakville.ca <aquisha.khan@oakville.ca>
Subject: RE: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

Hi Ayesha,

We appreciate your consideration of our justification as well as your confirmation that these two additional intersections do not need to be analyzed.

Kind regards,

Robin Marinac

Robin Marinac, P.Eng.

CGH Transportation Inc.

P: 437-242-5183

E: robin.marinac@cghtransportation.com

From: Khan, Ayesha <Ayesha.Khan@halton.ca>
Sent: Thursday, December 14, 2023 3:51 PM
To: Robin Marinac <robin.marinac@cghtransportation.com>; aquisha.khan@oakville.ca
Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Jade Huangfu <jade.huangfu@cghtransportation.com>
Subject: RE: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

Hi Robin,

Thanks for your email and explanation. I am okay to exclude those two intersections, I am satisfied with your justification.

Thanks,

Ayesha

From: Robin Marinac <robin.marinac@cghtransportation.com>
Sent: Wednesday, December 13, 2023 7:59 PM
To: Khan, Ayesha <Ayesha.Khan@halton.ca>; aquisha.khan@oakville.ca

Cc: Mark Crockford <mark.crockford@cghtransportation.com>; Jade Huangfu <jade.huangfu@cghtransportation.com>
Subject: RE: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

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Hi Ayesha,

Thank you for the comments provided below. We will implement them in our TIS.

I would like to discuss the inclusion of the two additional intersections to our analysis. As these intersections are not within the EM4 JC7 JC9 lands and increases to turning movements are not expected at these intersections as a result of the subject lands, site generated volume is anticipated to be assigned primarily to the northbound through and southbound through movements at these intersections. As a result, we feel that it is not necessary to include these two intersections in our study. The inclusion of Dundas Street and Trafalgar Road just south of these two intersections is anticipated to better capture any trips south of the EM4 JC7 JC9 lands travelling to/from the south, east, and west. Future collector intersections on Trafalgar Road within the EM4 JC7 JC9 lands will be considered and are anticipated to better reflect the impact of the site generated trips on the existing and future road network than the two suggested additional intersections. Additionally, please note that our future total study area network is anticipated to include upwards of 20 intersections. As such, we feel that these two intersections should not be included in our analysis.

Please let us know your thoughts on this and if you accept our proposed change to the received comments. We are happy to discuss this further if needed.

Kind regards,

Robin Marinac

Robin Marinac, P.Eng.

CGH Transportation Inc.

P: 437-242-5183

E: robin.marinac@cghtransportation.com

From: Khan, Ayesha <Ayesha.Khan@halton.ca>
Sent: Friday, December 8, 2023 1:13 PM
To: Robin Marinac <robin.marinac@cghtransportation.com>; aquisha.khan@oakville.ca
Cc: Mark Crockford <mark.crockford@cghtransportation.com>
Subject: RE: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

Hello Robin,

Thank you for your patience while we had the TOR peer-reviewed. Please see our comments below:

- Study Area and Existing Conditions
    - There are six intersections included as part of the TIS and signal timing plans are being requested from the Region and Town of Oakville for three intersections along Trafalgar Road. However, there are two other signalized intersections within the study area not considered. The first is Trafalgar Road & Wheat Boom Drive and the second is Trafalgar Road & Threshing Mill Boulevard. Consider adding these two intersections to the study and requests for signal timing plans.
    - Turning movement counts from April 21st, 2022 are to be grown to existing 2023 volumes to avoid double counting background development traffic from background developments that may have been partially built-out in the last year. Consider acquiring new counts as the April 2022 counts are from a year and a half ago and taken during the end of Covid before traffic patterns returned to pre-pandemic levels and patterns.
- Analysis
    - Include Section 3.6.1 of the Region's TIS guidelines that the capacity analysis at intersections should be complete using either the Highway Capacity Manual (HCM) or Canadian Capacity Guide (CCG) methodologies. Additionally, the software package, such as Synchro v11 should be included.
    - Identify any intersections, exclusive movements and queues that increase beyond the Region's thresholds outlined in Section 3.6.1.
- Background Growth
    - The document outlines 13 background developments will be considered as part of the TIS and possibly another four will be added if a TIS is available. Although much of the background volume growth will be due to the background developments, a compound annual growth rate (CAGR) of 1.5% from 2023 to 2033 and 0.75% from 2033 to 2043 will be used for Burnhamthorpe Road, Trafalgar Road and William Halton Parkway. A 0.5% CAGR will be used for Dundas Street from 2023 to 2043. However, these CAGR are not consistent with the CAGR used in the some of the background developments. For example, both the Argo Trafalgar and the Green Ginger developments use a 2% percent CAGR for all streets within the study area as agreed to with Region and Town of Oakville staff. The Argo Trafalgar TIS does include a one percent CAGR after 2036. Consideration should be given for

a conservative two percent CAGR for all study area roads until 2033 followed by a one percent CAGR thereafter.

- Site Access
    - Halton Region's Access By-Law NO. 32-17 restricts and regulates access to the Regional Road System. Clarification should be provided for the allowable moves at each access (i.e., full moves or right-in/right-out) to a Regional Road.
    - Clarification should be provided for the intended use of each access. Specifically, each access should indicate whether it is intended for a residential neighbourhood, office, or mixed use for example.
    - Sight lines are mentioned only as a bullet at the end of the document under the Access Considerations heading. Include in the Site Access or as part of a Safety Analysis heading, Section 3.8 of the Region's TIS guidelines that indicates at each of the proposed accesses, sight distance requirements should be determined based on decision sight distance and turning sight distance as identified in the Transportation Association of Canada (TAC) Manual.

- Recommended Mitigation Measures
    - Traffic Impacts and Recommendations are mentioned only as bullets at the end of the document. Include a new Mitigation Measures heading for Section 3.9 of the Region's TIS guidelines that specifies to ensure that acceptable operations of the transportation system is maintained, identification of operational transportation system improvements and other measures are required. This includes any identified traffic signal and roadway deficiencies.

Thank you,

Ayesha

Ayesha Khan
Transportation Planning Coordination PM1
Infrastructure Planning & Policy
Public Works
Halton Region
905-825-6000, ext. | 1-866-442-5866

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From: Robin Marinac <robin.marinac@cghtransportation.com>
Sent: Monday, November 20, 2023 4:41 PM
To: Khan, Ayesha <Ayesha.Khan@halton.ca>; aquisha.khan@oakville.ca
Cc: Mark Crockford <mark.crockford@cghtransportation.com>
Subject: EM4 JC7 JC9 Transportation Impact Analysis - Terms of Reference

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Hi Ayesha and Aquisha,

Please see the attached Terms of Reference Scoping Document for the EM4 JC7 JC9 Area Transportation Impact Analysis. I'd like to note that the concept provided in the attachment is a draft concept only and has been included for discussion purposes only. Please let me know if you have any questions or comments as part of your review.

Kind regards,

Robin Marinac

Robin Marinac, P.Eng.

CGH Transportation Inc.

P: 437-242-5183

E: robin.marinac@cghtransportation.com

Appendix L

AWSC Warrant Sheets

Collector 3 & Collector 5

2031 FT	NBL	NBT	NBR	WBL	WBT	WBR	SBL	SBT	SBR	EBL	EBT	EBR
AM	74	86	5	2	6	4	10	74	46	107	15	25
AM Sum		165			12			130			147	
PM	102	108	4	5	16	11	7	99	99	87	11	18
PM Sum		214			32			205			116	
EB/WB AM	159	35%	NB/SB AM	295	65%							
EB/WB PM	148	26%	NB/SB PM	419	74%							

Settlers Road & Collector 1

2031 FT	NBL	NBT	NBR	WBL	WBT	WBR	SBL	SBT	SBR	EBL	EBT	EBR
AM	33	121	143	145	123	29	31	90	8	5	134	40
AM Sum		297			297			129			179	
PM	29	77	90	104	126	33	35	110	7	9	129	32
PM Sum		196			263			152			170	
EB/WB AM	476	53%	NB/SB AM	426	47%							
EB/WB PM	433	55%	NB/SB PM	348	45%							

Settlers Road & Collector 4

2031 FT	NBL	NBT	NBR	WBL	WBT	WBR	SBL	SBT	SBR	EBL	EBT	EBR
AM	35	130	49	21	292	8	19	124	146	61	306	50
AM Sum		214			321			289			417	
PM	24	172	15	20	174	17	12	137	92	131	212	110
PM Sum		211			211			241			453	
EB/WB AM	738	59%	NB/SB AM	503	41%							
EB/WB PM	664	59%	NB/SB PM	452	41%							

Settlers Road & Collector 6

2031 FT	NBL	NBT	NBR	WBL	WBT	WBR	SBL	SBT	SBR	EBL	EBT	EBR
AM	34	64	28	10	191	54	46	111	109	40	322	12
AM Sum		126			255			266			374	
PM	21	92	17	28	128	51	21	101	96	87	118	34
PM Sum		130			207			218			239	
EB/WB AM	629	62%	NB/SB AM	392	38%							
EB/WB PM	446	56%	NB/SB PM	348	44%							

Marvin Avenue & Collector 1

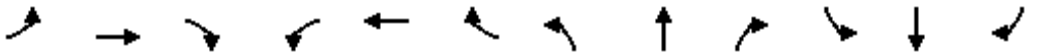
2031 FT	NBL	NBT	NBR	WBL	WBT	WBR	SBL	SBT	SBR	EBL	EBT	EBR
AM	20	45	3	8	191	185	205	47	33	13	82	9
AM Sum		68			384			285			104	
PM	4	49	8	5	77	177	134	53	21	32	108	4
PM Sum		61			259			208			144	
EB/WB AM	488	58%	NB/SB AM	353	42%							
EB/WB PM	403	60%	NB/SB PM	269	40%							

Marvin Avenue & Collector 4

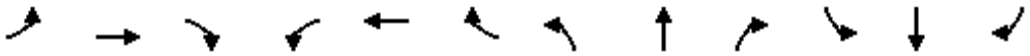
2031 FT	NBL	NBT	NBR	WBL	WBT	WBR	SBL	SBT	SBR	EBL	EBT	EBR
AM	48	94	54	167	105	7	20	147	222	52	44	113
AM Sum		196			279			389			209	
PM	68	159	138	109	70	20	12	89	143	116	106	68
PM Sum		365			199			244			290	
EB/WB AM	488	45%	NB/SB AM	585	55%							
EB/WB PM	489	45%	NB/SB PM	609	55%							

Appendix M

2031 Future Total Conditions Synchro and Sidra Worksheets



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	314	1045	242	213	592	366	160	1705	210	553	1321	256
Future Volume (vph)	314	1045	242	213	592	366	160	1705	210	553	1321	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		60.0	60.0		205.0	90.0		55.0	140.0		55.0
Storage Lanes	2		1	2		1	1		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	*0.80	1.00	0.97	*0.80	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	3500	1566	3395	3500	1452	1750	4421	1493	3362	4378	1566
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3395	3500	1566	3395	3500	1452	1750	4421	1493	3362	4378	1566
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			146			211			97			158
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		207.8			119.4			182.8			224.9	
Travel Time (s)		12.5			7.2			11.0			13.5	
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%	10%	2%	2%	7%	3%	3%	2%
Adj. Flow (vph)	341	1136	263	232	643	398	174	1853	228	601	1436	278
Shared Lane Traffic (%)												
Lane Group Flow (vph)	341	1136	263	232	643	398	174	1853	228	601	1436	278
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	

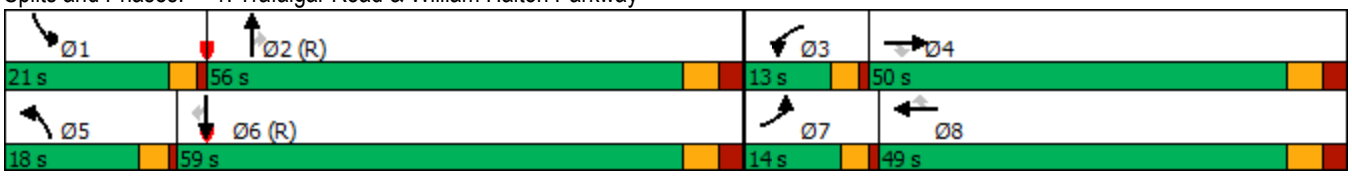


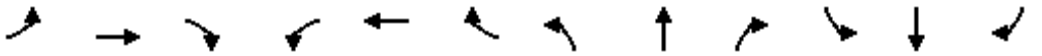
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	48.4	48.4	11.0	48.4	48.4	11.0	45.4	45.4	11.0	45.4	45.4
Total Split (s)	14.0	50.0	50.0	13.0	49.0	49.0	18.0	56.0	56.0	21.0	59.0	59.0
Total Split (%)	10.0%	35.7%	35.7%	9.3%	35.0%	35.0%	12.9%	40.0%	40.0%	15.0%	42.1%	42.1%
Maximum Green (s)	10.0	43.6	43.6	9.0	42.6	42.6	14.0	49.6	49.6	17.0	52.6	52.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		35.0	35.0		35.0	35.0		32.0	32.0		32.0	32.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	10.0	43.6	43.6	9.0	42.6	42.6	14.0	49.6	49.6	17.0	52.6	52.6
Actuated g/C Ratio	0.07	0.31	0.31	0.06	0.30	0.30	0.10	0.35	0.35	0.12	0.38	0.38
v/c Ratio	1.41	1.04	0.45	1.06	0.60	0.68	0.99	1.18	0.39	1.47	0.87	0.40
Control Delay	251.9	85.4	19.1	139.4	44.4	25.8	128.6	129.4	21.0	267.2	47.7	15.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	251.9	85.4	19.1	139.4	44.4	25.8	128.6	129.4	21.0	267.2	47.7	15.1
LOS	F	F	B	F	D	C	F	F	C	F	D	B
Approach Delay		108.0			55.9			118.4			100.8	
Approach LOS		F			E			F			F	
Queue Length 50th (m)	~65.0	~178.6	24.6	~36.3	80.0	46.1	49.0	~256.0	26.1	~117.5	153.0	22.7
Queue Length 95th (m)	#96.1	#220.7	50.1	#63.3	100.2	84.1	#96.8	#289.0	48.7	#154.2	176.6	46.4
Internal Link Dist (m)		183.8			95.4			158.8			200.9	
Turn Bay Length (m)	80.0		60.0	60.0		205.0	90.0		55.0	140.0		55.0
Base Capacity (vph)	242	1090	588	218	1065	588	175	1566	591	408	1644	687
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.41	1.04	0.45	1.06	0.60	0.68	0.99	1.18	0.39	1.47	0.87	0.40

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.47			
Intersection Signal Delay: 100.1		Intersection LOS: F	
Intersection Capacity Utilization 101.0%		ICU Level of Service G	
Analysis Period (min) 15			

* User Entered Value
~ 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.

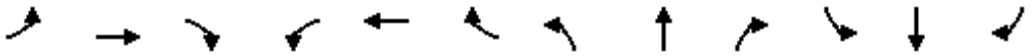
Splits and Phases: 1: Trafalgar Road & William Halton Parkway



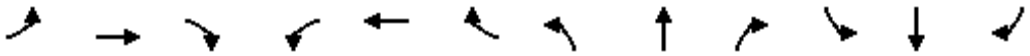


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	314	1045	242	213	592	366	160	1705	210	553	1321	256
Future Volume (vph)	314	1045	242	213	592	366	160	1705	210	553	1321	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	*0.80	1.00	0.97	*0.80	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	3500	1566	3395	3500	1452	1750	4421	1493	3362	4378	1566
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	3500	1566	3395	3500	1452	1750	4421	1493	3362	4378	1566
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)	341	1136	263	232	643	398	174	1853	228	601	1436	278
RTOR Reduction (vph)	0	0	101	0	0	147	0	0	63	0	0	99
Lane Group Flow (vph)	341	1136	162	232	643	251	174	1853	165	601	1436	179
Heavy Vehicles (%)	2%	2%	2%	2%	2%	10%	2%	2%	7%	3%	3%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	10.0	43.6	43.6	9.0	42.6	42.6	14.0	49.6	49.6	17.0	52.6	52.6
Effective Green, g (s)	10.0	43.6	43.6	9.0	42.6	42.6	14.0	49.6	49.6	17.0	52.6	52.6
Actuated g/C Ratio	0.07	0.31	0.31	0.06	0.30	0.30	0.10	0.35	0.35	0.12	0.38	0.38
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	242	1090	487	218	1065	441	175	1566	528	408	1644	588
v/s Ratio Prot	c0.10	c0.32		0.07	0.18		0.10	c0.42		c0.18	c0.33	
v/s Ratio Perm			0.10			0.17			0.11			0.11
v/c Ratio	1.41	1.04	0.33	1.06	0.60	0.57	0.99	1.18	0.31	1.47	0.87	0.31
Uniform Delay, d1	65.0	48.2	37.0	65.5	41.5	41.0	63.0	45.2	32.8	61.5	40.6	30.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	206.9	38.9	0.8	79.0	1.4	2.8	66.0	89.3	1.5	225.8	6.8	1.3
Delay (s)	271.9	87.1	37.9	144.5	42.9	43.8	129.0	134.5	34.4	287.3	47.4	32.2
Level of Service	F	F	D	F	D	D	F	F	C	F	D	C
Approach Delay (s)		115.9			61.7			124.0			107.8	
Approach LOS		F			E			F			F	

Intersection Summary			
HCM 2000 Control Delay	106.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	101.0%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	194	341	127	223	251	115	212	1660	233	146	1495	81
Future Volume (vph)	194	341	127	223	251	115	212	1660	233	146	1495	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	120.0		0.0	130.0		0.0	170.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	50.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	*0.80	0.91	1.00	*0.80	0.91
Ped Bike Factor			0.99	1.00								
Frt			0.850		0.953			0.982			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3500	1566	1750	3248	0	1700	4336	0	1750	4339	0
Flt Permitted	0.441			0.466			0.077			0.067		
Satd. Flow (perm)	812	3500	1545	858	3248	0	138	4336	0	123	4339	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			66		63			21			10	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		245.2			123.4			230.0			280.2	
Travel Time (s)		17.7			8.9			13.8			16.8	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	6%	2%	5%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Adj. Flow (vph)	216	379	141	248	279	128	236	1844	259	162	1661	90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	216	379	141	248	407	0	236	2103	0	162	1751	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.02	1.01	1.01	1.02	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		7.0	10.0	
Minimum Split (s)	41.4	41.4	41.4	41.4	41.4		37.3	37.3		22.0	37.3	
Total Split (s)	42.0	42.0	42.0	42.0	42.0		56.0	56.0		22.0	78.0	
Total Split (%)	35.0%	35.0%	35.0%	35.0%	35.0%		46.7%	46.7%		18.3%	65.0%	
Maximum Green (s)	35.6	35.6	35.6	35.6	35.6		49.7	49.7		18.0	71.7	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.7	3.7		3.0	3.7	
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7		2.6	2.6		1.0	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4		6.3	6.3		4.0	6.3	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		5.0	5.0		3.0	5.0	
Recall Mode	None	None	None	None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	28.0	28.0	28.0	28.0	28.0		24.0	24.0			24.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0			0	
Act Effct Green (s)	35.6	35.6	35.6	35.6	35.6		55.8	55.8		74.0	71.7	
Actuated g/C Ratio	0.30	0.30	0.30	0.30	0.30		0.46	0.46		0.62	0.60	
v/c Ratio	0.90	0.37	0.28	0.98	0.40		3.69	1.04		0.69	0.67	
Control Delay	78.9	34.5	18.9	93.6	29.6		1271.5	62.1		37.3	17.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	78.9	34.5	18.9	93.6	29.6		1271.5	62.1		37.3	17.8	
LOS	E	C	B	F	C		F	E		D	B	
Approach Delay		44.6			53.8			184.2			19.5	
Approach LOS		D			D			F			B	
Queue Length 50th (m)	48.7	37.0	13.1	57.8	33.8		~85.9	~218.8		20.8	108.5	
Queue Length 95th (m)	#94.3	50.7	29.4	#109.6	48.1		#140.0	#276.7		42.0	126.8	
Internal Link Dist (m)		221.2			99.4			206.0			256.2	
Turn Bay Length (m)	100.0			120.0			130.0			170.0		
Base Capacity (vph)	240	1038	504	254	1007		64	2028		319	2596	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.90	0.37	0.28	0.98	0.40		3.69	1.04		0.51	0.67	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 3.69	

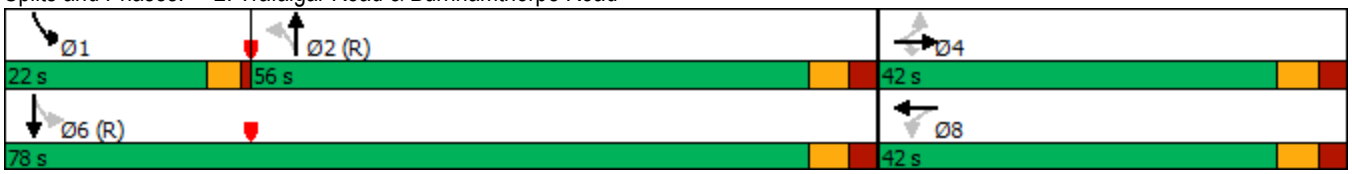
Intersection Signal Delay: 95.0	Intersection LOS: F
Intersection Capacity Utilization 87.0%	ICU Level of Service E
Analysis Period (min) 15	

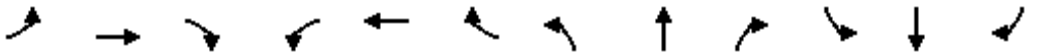
* User Entered Value

~ 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.

Splits and Phases: 2: Trafalgar Road & Burnhamthorpe Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	194	341	127	223	251	115	212	1660	233	146	1495	81
Future Volume (vph)	194	341	127	223	251	115	212	1660	233	146	1495	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4	6.4	6.4	6.4		6.3	6.3		4.0	6.3	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	*0.80		1.00	*0.80	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	3500	1545	1749	3247		1700	4333		1750	4341	
Flt Permitted	0.44	1.00	1.00	0.47	1.00		0.08	1.00		0.07	1.00	
Satd. Flow (perm)	812	3500	1545	858	3247		138	4333		123	4341	
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)	216	379	141	248	279	128	236	1844	259	162	1661	90
RTOR Reduction (vph)	0	0	46	0	44	0	0	11	0	0	4	0
Lane Group Flow (vph)	216	379	95	248	363	0	236	2092	0	162	1747	0
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	2%	2%	2%	2%	6%	2%	5%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	35.6	35.6	35.6	35.6	35.6		55.8	55.8		71.7	71.7	
Effective Green, g (s)	35.6	35.6	35.6	35.6	35.6		55.8	55.8		71.7	71.7	
Actuated g/C Ratio	0.30	0.30	0.30	0.30	0.30		0.46	0.46		0.60	0.60	
Clearance Time (s)	6.4	6.4	6.4	6.4	6.4		6.3	6.3		4.0	6.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		5.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	240	1038	458	254	963		64	2014		234	2593	
v/s Ratio Prot		0.11			0.11			0.48		0.07	c0.40	
v/s Ratio Perm	0.27		0.06	c0.29			c1.71			0.34		
v/c Ratio	0.90	0.37	0.21	0.98	0.38		3.69	1.04		0.69	0.67	
Uniform Delay, d1	40.5	33.3	31.6	41.8	33.4		32.1	32.1		31.3	16.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	32.8	0.2	0.2	49.4	0.2		1246.8	30.9		8.5	1.4	
Delay (s)	73.3	33.5	31.8	91.2	33.7		1278.9	63.0		39.8	17.7	
Level of Service	E	C	C	F	C		F	E		D	B	
Approach Delay (s)		44.9			55.4			185.7			19.6	
Approach LOS		D			E			F			B	

Intersection Summary			
HCM 2000 Control Delay	95.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.41		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.7
Intersection Capacity Utilization	87.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1356	1	690	759	0	1033
Future Volume (vph)	1356	1	690	759	0	1033
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	100.0		30.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			15.0		50.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected			0.950			
Satd. Flow (prot)	3500	0	1716	3466	1842	1566
Flt Permitted			0.123			
Satd. Flow (perm)	3500	0	222	3466	1842	1566
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						376
Link Speed (k/h)	60			60	50	
Link Distance (m)	657.5			396.1	222.0	
Travel Time (s)	39.5			23.8	16.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	4%	3%	2%	2%
Adj. Flow (vph)	1474	1	750	825	0	1123
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1475	0	750	825	0	1123
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	10.0		2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6		2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	3	



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases			6			3
Detector Phase	2		1	6	3	3
Switch Phase						
Minimum Initial (s)	10.0		7.0	10.0	7.0	7.0
Minimum Split (s)	28.4		11.5	28.4	31.0	31.0
Total Split (s)	35.0		19.0	54.0	36.0	36.0
Total Split (%)	38.9%		21.1%	60.0%	40.0%	40.0%
Maximum Green (s)	28.6		15.0	47.6	32.0	32.0
Yellow Time (s)	3.7		3.0	3.7	3.0	3.0
All-Red Time (s)	2.7		1.0	2.7	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4		4.0	6.4	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	Max		None	None	Max	Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	15.0			15.0	20.0	20.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	28.6		50.0	47.6		32.0
Actuated g/C Ratio	0.32		0.56	0.53		0.36
v/c Ratio	1.33		2.02	0.45		1.41
Control Delay	181.8		487.2	14.1		210.1
Queue Delay	0.0		0.0	0.0		0.0
Total Delay	181.8		487.2	14.1		210.1
LOS	F		F	B		F
Approach Delay	181.8			239.4	210.1	
Approach LOS	F			F	F	
Queue Length 50th (m)	~175.7		~191.6	43.8		~219.5
Queue Length 95th (m)	#216.4		#259.2	57.8		#294.6
Internal Link Dist (m)	633.5			372.1	198.0	
Turn Bay Length (m)			100.0			
Base Capacity (vph)	1112		372	1833		799
Starvation Cap Reductn	0		0	0		0
Spillback Cap Reductn	0		0	0		0
Storage Cap Reductn	0		0	0		0
Reduced v/c Ratio	1.33		2.02	0.45		1.41

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 2.02			
Intersection Signal Delay: 211.1		Intersection LOS: F	
Intersection Capacity Utilization 110.1%		ICU Level of Service H	
Analysis Period (min) 15			

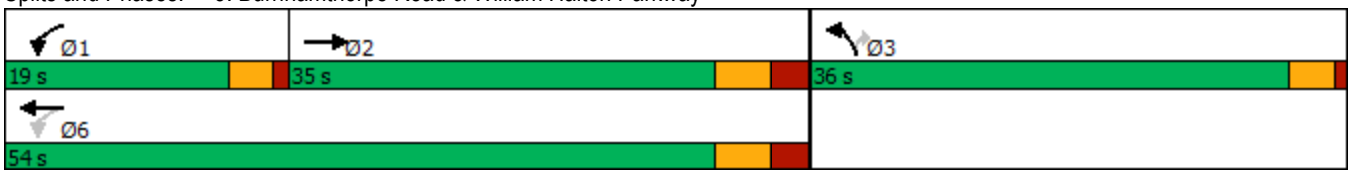
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

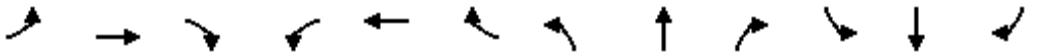
Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway



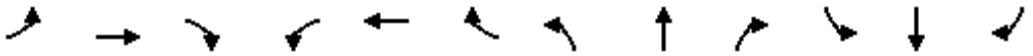


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1356	1	690	759	0	1033
Future Volume (vph)	1356	1	690	759	0	1033
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4		4.0	6.4		4.0
Lane Util. Factor	0.95		1.00	0.95		1.00
Frt	1.00		1.00	1.00		0.85
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	3500		1716	3466		1566
Flt Permitted	1.00		0.12	1.00		1.00
Satd. Flow (perm)	3500		222	3466		1566
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1474	1	750	825	0	1123
RTOR Reduction (vph)	0	0	0	0	0	242
Lane Group Flow (vph)	1475	0	750	825	0	881
Heavy Vehicles (%)	2%	2%	4%	3%	2%	2%
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	3	
Permitted Phases			6			3
Actuated Green, G (s)	28.6		47.6	47.6		32.0
Effective Green, g (s)	28.6		47.6	47.6		32.0
Actuated g/C Ratio	0.32		0.53	0.53		0.36
Clearance Time (s)	6.4		4.0	6.4		4.0
Vehicle Extension (s)	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	1112		366	1833		556
v/s Ratio Prot	0.42		c0.34	0.24		
v/s Ratio Perm			c0.74			c0.56
v/c Ratio	1.33		2.05	0.45		1.58
Uniform Delay, d1	30.7		26.1	13.1		29.0
Progression Factor	1.00		1.00	1.00		1.00
Incremental Delay, d2	153.2		481.5	0.2		271.3
Delay (s)	183.9		507.7	13.3		300.3
Level of Service	F		F	B		F
Approach Delay (s)	183.9			248.7	300.3	
Approach LOS	F			F	F	

Intersection Summary			
HCM 2000 Control Delay	239.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.92		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.4
Intersection Capacity Utilization	110.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	484	2085	233	257	1206	589	187	1165	120	769	1652	346
Future Volume (vph)	484	2085	233	257	1206	589	187	1165	120	769	1652	346
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	110.0		85.0	90.0		85.0	90.0		50.0	100.0		65.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Ped Bike Factor	1.00		0.99	1.00		0.98	1.00		0.99	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	4421	1551	3298	4214	1536	3330	4378	1566	3330	4378	1551
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3393	4421	1529	3298	4214	1512	3328	4378	1543	3328	4378	1523
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			134			156			129			135
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		560.5			603.0			601.7			1233.0	
Travel Time (s)		28.8			31.0			36.1			74.0	
Confl. Peds. (#/hr)	4		2	2		4	6		3	3		6
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	3%	5%	7%	4%	4%	3%	2%	4%	3%	3%
Adj. Flow (vph)	504	2172	243	268	1256	614	195	1214	125	801	1721	360
Shared Lane Traffic (%)												
Lane Group Flow (vph)	504	2172	243	268	1256	614	195	1214	125	801	1721	360
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	50.4	50.4	11.0	50.4	50.4	11.0	48.4	48.4	11.0	48.4	48.4
Total Split (s)	13.0	54.0	54.0	11.0	52.0	52.0	11.0	49.0	49.0	16.0	54.0	54.0
Total Split (%)	10.0%	41.5%	41.5%	8.5%	40.0%	40.0%	8.5%	37.7%	37.7%	12.3%	41.5%	41.5%
Maximum Green (s)	9.0	47.6	47.6	7.0	45.6	45.6	7.0	42.6	42.6	12.0	47.6	47.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		37.0	37.0		37.0	37.0		35.0	35.0		35.0	35.0
Pedestrian Calls (#/hr)		2	2		4	4		3	3		6	6
Act Effct Green (s)	9.0	47.6	47.6	7.0	45.6	45.6	7.0	42.6	42.6	12.0	47.6	47.6
Actuated g/C Ratio	0.07	0.37	0.37	0.05	0.35	0.35	0.05	0.33	0.33	0.09	0.37	0.37
v/c Ratio	2.14	1.34	0.38	1.51	0.85	0.97	1.09	0.85	0.21	2.61	1.07	0.56
Control Delay	557.2	192.6	14.9	298.4	45.7	61.1	149.1	47.3	5.6	756.3	84.7	23.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	557.2	192.6	14.9	298.4	45.7	61.1	149.1	47.3	5.6	756.3	84.7	23.7
LOS	F	F	B	F	D	E	F	D	A	F	F	C
Approach Delay		240.7			81.8			56.9			263.7	
Approach LOS		F			F			E			F	
Queue Length 50th (m)	~106.0	~302.1	18.9	~49.1	123.4	124.3	~28.9	120.2	0.0	~177.5	~203.9	45.3
Queue Length 95th (m)	#140.0	#334.5	40.5	#76.8	145.7	#202.1	#53.2	141.8	12.8	#215.9	#237.3	76.3
Internal Link Dist (m)		536.5			579.0			577.7			1209.0	
Turn Bay Length (m)	110.0		85.0	90.0		85.0	90.0		50.0	100.0		65.0
Base Capacity (vph)	235	1618	644	177	1478	631	179	1434	592	307	1603	643
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.14	1.34	0.38	1.51	0.85	0.97	1.09	0.85	0.21	2.61	1.07	0.56

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 2.61	
Intersection Signal Delay: 182.1	Intersection LOS: F

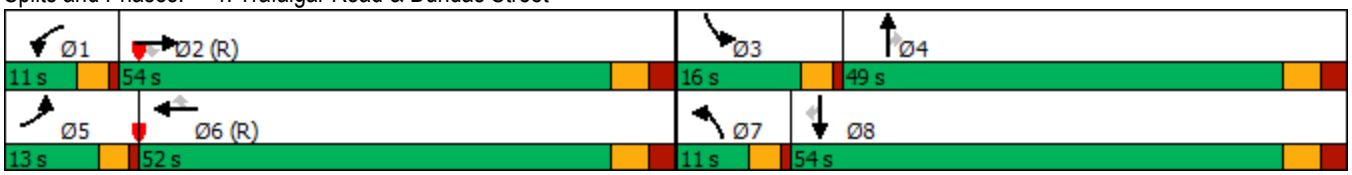
Intersection Capacity Utilization 113.4%	ICU Level of Service H
Analysis Period (min) 15	

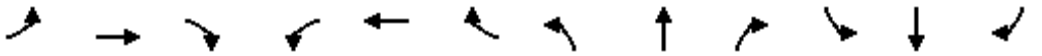
* User Entered Value

~ 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.

Splits and Phases: 4: Trafalgar Road & Dundas Street

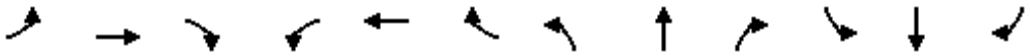




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	484	2085	233	257	1206	589	187	1165	120	769	1652	346
Future Volume (vph)	484	2085	233	257	1206	589	187	1165	120	769	1652	346
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	4421	1529	3298	4214	1512	3330	4378	1543	3330	4378	1523
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	4421	1529	3298	4214	1512	3330	4378	1543	3330	4378	1523
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	504	2172	243	268	1256	614	195	1214	125	801	1721	360
RTOR Reduction (vph)	0	0	85	0	0	101	0	0	84	0	0	86
Lane Group Flow (vph)	504	2172	158	268	1256	513	195	1214	41	801	1721	274
Confl. Peds. (#/hr)	4		2	2		4	6		3	3		6
Heavy Vehicles (%)	2%	2%	3%	5%	7%	4%	4%	3%	2%	4%	3%	3%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	9.0	47.6	47.6	7.0	45.6	45.6	7.0	42.6	42.6	12.0	47.6	47.6
Effective Green, g (s)	9.0	47.6	47.6	7.0	45.6	45.6	7.0	42.6	42.6	12.0	47.6	47.6
Actuated g/C Ratio	0.07	0.37	0.37	0.05	0.35	0.35	0.05	0.33	0.33	0.09	0.37	0.37
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Lane Grp Cap (vph)	235	1618	559	177	1478	530	179	1434	505	307	1603	557
v/s Ratio Prot	c0.15	c0.49		0.08	0.30		0.06	0.28		c0.24	c0.39	
v/s Ratio Perm			0.10			0.34			0.03			0.18
v/c Ratio	2.14	1.34	0.28	1.51	0.85	0.97	1.09	0.85	0.08	2.61	1.07	0.49
Uniform Delay, d1	60.5	41.2	29.1	61.5	39.0	41.5	61.5	40.7	30.2	59.0	41.2	31.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	529.1	158.3	1.3	258.2	6.3	31.8	93.1	4.9	0.1	733.5	45.1	0.8
Delay (s)	589.6	199.5	30.4	319.7	45.3	73.3	154.6	45.6	30.3	792.5	86.3	32.7
Level of Service	F	F	C	F	D	E	F	D	C	F	F	C
Approach Delay (s)		252.8			87.8			58.2			275.9	
Approach LOS		F			F			E			F	

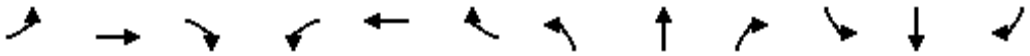
Intersection Summary			
HCM 2000 Control Delay	191.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.48		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	113.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



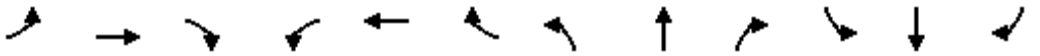
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	261	575	95	77	503	159	43	314	211	741	258	318
Future Volume (vph)	261	575	95	77	503	159	43	314	211	741	258	318
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.985			0.969			0.945			0.962	
Flt Protected		0.986			0.995			0.996			0.973	
Satd. Flow (prot)	0	3399	0	0	3374	0	0	3294	0	0	3276	0
Flt Permitted		0.986			0.995			0.996			0.973	
Satd. Flow (perm)	0	3399	0	0	3374	0	0	3294	0	0	3276	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		481.1			830.2			671.5			229.3	
Travel Time (s)		28.9			49.8			40.3			13.8	
Peak Hour Factor	0.90	0.90	0.90	0.96	0.90	0.96	0.90	0.96	0.96	0.96	0.96	0.90
Adj. Flow (vph)	290	639	106	80	559	166	48	327	220	772	269	353
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1035	0	0	805	0	0	595	0	0	1394	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 118.8%		ICU Level of Service H	
Analysis Period (min) 15			

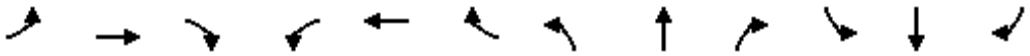


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	261	575	95	77	503	159	43	314	211	741	258	318
Future Volume (veh/h)	261	575	95	77	503	159	43	314	211	741	258	318
Peak Hour Factor	0.90	0.90	0.90	0.96	0.90	0.96	0.90	0.96	0.96	0.96	0.96	0.90
Hourly flow rate (vph)	290	639	106	80	559	166	48	327	220	772	269	353
Approach Volume (veh/h)		1035			805			595			1394	
Crossing Volume (veh/h)		1121			665			1701#			687	
High Capacity (veh/h)		563			818			347			803	
High v/c (veh/h)		1.84			0.98			1.72			1.74	
Low Capacity (veh/h)		432			652			252			640	
Low v/c (veh/h)		2.39			1.23			2.36			2.18	

Intersection Summary					
Maximum v/c High	1.84				
Maximum v/c Low	2.39				
Intersection Capacity Utilization	118.8%	ICU Level of Service		H	
# Crossing flow exceeds 1200, method is not applicable					



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	132	47	117	186	39	181	658	141	81	526	10
Future Volume (vph)	58	132	47	117	186	39	181	658	141	81	526	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	40.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			15.0			50.0			50.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.960			0.974			0.974			0.997	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3360	0	1684	3305	0	1750	3386	0	1700	3456	0
Flt Permitted	0.595			0.626			0.424			0.295		
Satd. Flow (perm)	1096	3360	0	1110	3305	0	781	3386	0	528	3456	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		53			29			44			3	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		241.5			345.8			328.3			671.5	
Travel Time (s)		17.4			24.9			19.7			40.3	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	2%	6%	4%	11%	2%	2%	6%	5%	3%	2%
Adj. Flow (vph)	65	148	53	131	209	44	203	739	158	91	591	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	201	0	131	253	0	203	897	0	91	602	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	

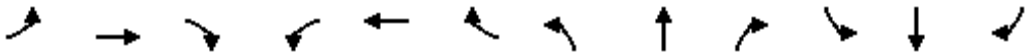


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	34.5	34.5		34.5	34.5		50.4	50.4		50.4	50.4	
Total Split (s)	35.0	35.0		35.0	35.0		55.0	55.0		55.0	55.0	
Total Split (%)	38.9%	38.9%		38.9%	38.9%		61.1%	61.1%		61.1%	61.1%	
Maximum Green (s)	28.5	28.5		28.5	28.5		48.6	48.6		48.6	48.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.2	3.2		3.2	3.2		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		19.0	19.0		19.0	19.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	14.6	14.6		14.6	14.6		48.8	48.8		48.8	48.8	
Actuated g/C Ratio	0.19	0.19		0.19	0.19		0.64	0.64		0.64	0.64	
v/c Ratio	0.31	0.29		0.62	0.39		0.41	0.41		0.27	0.27	
Control Delay	30.1	19.9		41.2	25.1		10.9	7.6		9.9	6.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	30.1	19.9		41.2	25.1		10.9	7.6		9.9	6.9	
LOS	C	B		D	C		B	A		A	A	
Approach Delay		22.4			30.6			8.2			7.3	
Approach LOS		C			C			A			A	
Queue Length 50th (m)	8.1	9.5		17.4	14.8		12.1	26.6		4.8	16.8	
Queue Length 95th (m)	18.1	17.6		33.5	24.1		32.3	48.2		15.5	31.4	
Internal Link Dist (m)		217.5			321.8			304.3			647.5	
Turn Bay Length (m)	55.0			40.0			30.0			30.0		
Base Capacity (vph)	410	1292		416	1256		499	2180		337	2210	
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	0.16	0.16		0.31	0.20		0.41	0.41		0.27	0.27	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 76.3			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.62			
Intersection Signal Delay: 13.0		Intersection LOS: B	
Intersection Capacity Utilization 69.2%		ICU Level of Service C	
Analysis Period (min) 15			

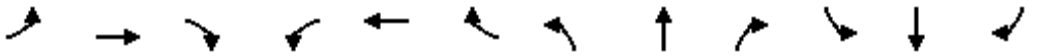
Splits and Phases: 6: Sixth Line & Burnhamthorpe Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	132	47	117	186	39	181	658	141	81	526	10
Future Volume (vph)	58	132	47	117	186	39	181	658	141	81	526	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.97		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)	1750	3361		1684	3304		1750	3384		1700	3457	
Flt Permitted	0.60	1.00		0.63	1.00		0.42	1.00		0.30	1.00	
Satd. Flow (perm)	1096	3361		1109	3304		782	3384		529	3457	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	65	148	53	131	209	44	203	739	158	91	591	11
RTOR Reduction (vph)	0	43	0	0	23	0	0	16	0	0	1	0
Lane Group Flow (vph)	65	158	0	131	230	0	203	881	0	91	601	0
Heavy Vehicles (%)	2%	2%	2%	6%	4%	11%	2%	2%	6%	5%	3%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	14.6	14.6		14.6	14.6		48.7	48.7		48.7	48.7	
Effective Green, g (s)	14.6	14.6		14.6	14.6		48.7	48.7		48.7	48.7	
Actuated g/C Ratio	0.19	0.19		0.19	0.19		0.64	0.64		0.64	0.64	
Clearance Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	209	643		212	633		499	2162		338	2209	
v/s Ratio Prot		0.05			0.07			c0.26			0.17	
v/s Ratio Perm	0.06			c0.12			0.26			0.17		
v/c Ratio	0.31	0.25		0.62	0.36		0.41	0.41		0.27	0.27	
Uniform Delay, d1	26.5	26.1		28.2	26.8		6.7	6.7		6.0	6.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.9	0.2		5.3	0.4		2.5	0.6		2.0	0.3	
Delay (s)	27.3	26.3		33.5	27.1		9.2	7.3		7.9	6.3	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		26.6			29.3			7.6			6.5	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	76.2	Sum of lost time (s)	12.9
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

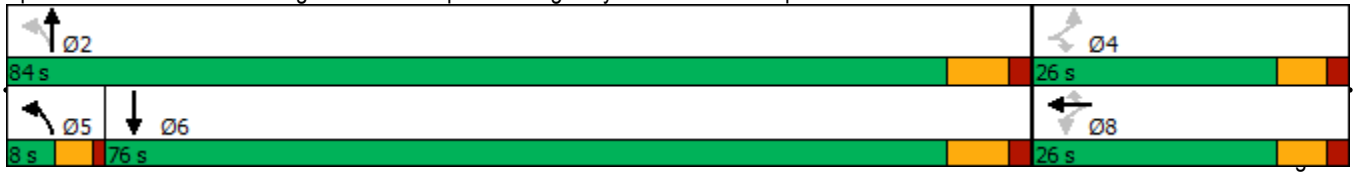


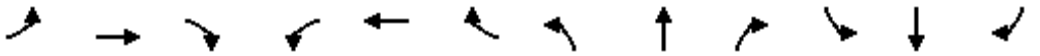
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	2	290	0	3	2	1767	0	0	1601	0
Future Volume (vph)	3	0	2	290	0	3	2	1767	0	0	1601	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		5.0	0.0		60.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		1	1		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt			0.850			0.850						
Flt Protected	0.950			0.950	0.950		0.950					
Satd. Flow (prot)	1069	0	1566	1449	1388	1487	1190	3305	0	0	4749	0
Flt Permitted	0.540			0.950	0.950		0.088					
Satd. Flow (perm)	608	0	1566	1449	1388	1487	110	3305	0	0	4749	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79			79						
Link Speed (k/h)		20			60			80			80	
Link Distance (m)		81.5			394.8			34.5			189.8	
Travel Time (s)		14.7			23.7			1.6			8.5	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	67%	2%	2%	17%	2%	2%	50%	8%	2%	2%	8%	2%
Adj. Flow (vph)	3	0	2	326	0	3	2	1985	0	0	1799	0
Shared Lane Traffic (%)				50%		10%						
Lane Group Flow (vph)	3	0	2	163	163	3	2	1985	0	0	1799	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1		1	1	2	1	1	2			2	
Detector Template	Left		Right	Left	Thru	Right	Left	Thru			Thru	
Leading Detector (m)	2.0		2.0	2.0	10.0	2.0	2.0	10.0			10.0	
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Size(m)	2.0		2.0	2.0	0.6	2.0	2.0	0.6			0.6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 2 Position(m)					9.4			9.4			9.4	
Detector 2 Size(m)					0.6			0.6			0.6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8		8	2					
Detector Phase	4		4	8	8	8	5	2			6	
Switch Phase												
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	4.0	35.0			35.0	
Minimum Split (s)	13.0		13.0	13.0	13.0	13.0	8.0	42.0			42.0	
Total Split (s)	26.0		26.0	26.0	26.0	26.0	8.0	84.0			76.0	
Total Split (%)	23.6%		23.6%	23.6%	23.6%	23.6%	7.3%	76.4%			69.1%	
Maximum Green (s)	20.0		20.0	20.0	20.0	20.0	4.0	77.0			69.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0	3.0	5.0			5.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0	1.0	2.0			2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Recall Mode	None		None	None	None	None	None	Min			Min	
Act Effct Green (s)	15.4		15.4	15.4	15.4	15.4	63.6	60.4			59.1	
Actuated g/C Ratio	0.17		0.17	0.17	0.17	0.17	0.71	0.67			0.66	
v/c Ratio	0.03		0.01	0.66	0.68	0.01	0.02	0.89			0.57	
Control Delay	37.3		0.0	51.7	54.1	0.0	4.5	18.1			9.5	
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	37.3		0.0	51.7	54.1	0.0	4.5	18.1			9.5	
LOS	D		A	D	D	A	A	B			A	
Approach Delay		22.4			52.4			18.1			9.5	
Approach LOS		C			D			B			A	
Queue Length 50th (m)	0.5		0.0	28.8	30.3	0.0	0.1	129.7			52.6	
Queue Length 95th (m)	3.1		0.0	56.9	60.0	0.0	0.7	182.2			90.0	
Internal Link Dist (m)		57.5			370.8			10.5			165.8	
Turn Bay Length (m)			5.0			60.0						
Base Capacity (vph)	143		430	342	328	412	129	2793			3768	
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	0.02		0.00	0.48	0.50	0.01	0.02	0.71			0.48	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 89.6			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 17.1		Intersection LOS: B	
Intersection Capacity Utilization 74.4%		ICU Level of Service D	
Analysis Period (min) 15			

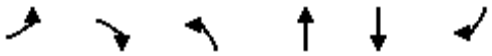
Splits and Phases: 7: Trafalgar Road & Carpool Lot/Highway 407 WB Off-Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	2	290	0	3	2	1767	0	0	1601	0
Future Volume (vph)	3	0	2	290	0	3	2	1767	0	0	1601	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	6.0	4.0	7.0			7.0	
Lane Util. Factor	1.00		1.00	0.95	0.91	0.95	1.00	0.95			0.91	
Frt	1.00		0.85	1.00	1.00	0.85	1.00	1.00			1.00	
Flt Protected	0.95		1.00	0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1069		1566	1449	1388	1487	1190	3305			4749	
Flt Permitted	0.54		1.00	0.95	0.95	1.00	0.09	1.00			1.00	
Satd. Flow (perm)	607		1566	1449	1388	1487	110	3305			4749	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	3	0	2	326	0	3	2	1985	0	0	1799	0
RTOR Reduction (vph)	0	0	2	0	0	2	0	0	0	0	0	0
Lane Group Flow (vph)	3	0	0	163	163	1	2	1985	0	0	1799	0
Heavy Vehicles (%)	67%	2%	2%	17%	2%	2%	50%	8%	2%	2%	8%	2%
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	
Permitted Phases	4		4	8		8	2					
Actuated Green, G (s)	15.4		15.4	15.4	15.4	15.4	63.9	63.9			59.2	
Effective Green, g (s)	15.4		15.4	15.4	15.4	15.4	63.9	63.9			59.2	
Actuated g/C Ratio	0.17		0.17	0.17	0.17	0.17	0.69	0.69			0.64	
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)	101		261	241	231	248	84	2288			3045	
v/s Ratio Prot							0.00	c0.60			0.38	
v/s Ratio Perm	0.00		0.00	0.11	0.12	0.00	0.02					
v/c Ratio	0.03		0.00	0.68	0.71	0.00	0.02	0.87			0.59	
Uniform Delay, d1	32.2		32.0	36.1	36.3	32.0	5.8	10.9			9.6	
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.1		0.0	7.3	9.4	0.0	0.1	3.8			0.3	
Delay (s)	32.3		32.0	43.4	45.7	32.0	5.9	14.7			9.9	
Level of Service	C		C	D	D	C	A	B			A	
Approach Delay (s)		32.2			44.5			14.7			9.9	
Approach LOS		C			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	92.3	Sum of lost time (s)	17.0
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↑↑↑	↑↑	↱
Traffic Volume (vph)	0	0	0	1785	1894	30
Future Volume (vph)	0	0	0	1785	1894	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.95	1.00
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	4749	3275	1536
Flt Permitted						
Satd. Flow (perm)	0	0	0	4749	3275	1536
Link Speed (k/h)	60			80	80	
Link Distance (m)	161.4			55.2	34.5	
Travel Time (s)	9.7			2.5	1.6	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	2%	8%	9%	4%
Adj. Flow (vph)	0	0	0	2006	2128	34
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2006	2128	34
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 55.7%		ICU Level of Service B	
Analysis Period (min) 15			

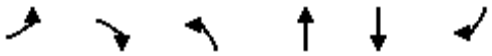
Intersection Sign configuration not allowed in HCM analysis.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	1785	186	0	1894
Future Volume (vph)	0	0	1785	186	0	1894
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt				0.850		
Flt Protected						
Satd. Flow (prot)	0	0	3305	1229	0	3275
Flt Permitted						
Satd. Flow (perm)	0	0	3305	1229	0	3275
Link Speed (k/h)	30		80			80
Link Distance (m)	192.3		37.4			100.8
Travel Time (s)	23.1		1.7			4.5
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	8%	30%	2%	9%
Adj. Flow (vph)	0	0	2006	209	0	2128
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	2006	209	0	2128
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Free		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 55.7%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection Sign configuration not allowed in HCM analysis.



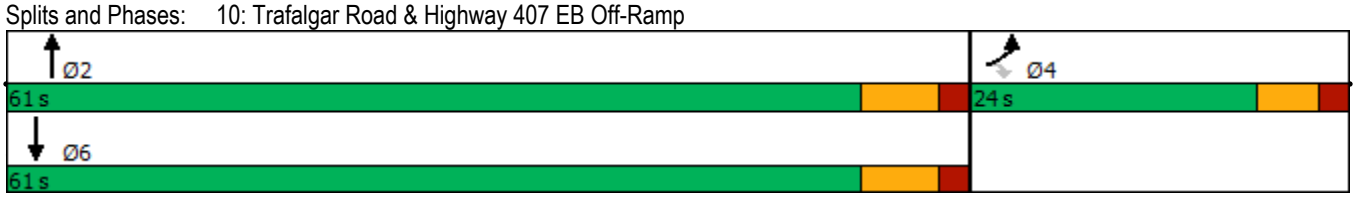
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	52	257	0	1916	1745	0
Future Volume (vph)	52	257	0	1916	1745	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1716	1401	0	3275	3305	0
Flt Permitted	0.950					
Satd. Flow (perm)	1716	1401	0	3275	3305	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		18				
Link Speed (k/h)	60			80	80	
Link Distance (m)	417.0			117.5	129.7	
Travel Time (s)	25.0			5.3	5.8	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	14%	2%	9%	8%	2%
Adj. Flow (vph)	57	282	0	2105	1918	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	57	282	0	2105	1918	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (m)	2.0	2.0		10.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	2.0		0.6	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						

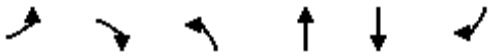
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Initial (s)	6.0	6.0		20.0	20.0	
Minimum Split (s)	24.0	24.0		27.0	27.0	
Total Split (s)	24.0	24.0		61.0	61.0	
Total Split (%)	28.2%	28.2%		71.8%	71.8%	
Maximum Green (s)	18.0	18.0		54.0	54.0	
Yellow Time (s)	4.0	4.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		7.0	7.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		Max	Max	
Act Effct Green (s)	17.6	17.6		54.0	54.0	
Actuated g/C Ratio	0.21	0.21		0.64	0.64	
v/c Ratio	0.16	0.92		1.01	0.91	
Control Delay	28.8	68.5		38.4	21.6	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	28.8	68.5		38.4	21.6	
LOS	C	E		D	C	
Approach Delay	61.9			38.4	21.6	
Approach LOS	E			D	C	
Queue Length 50th (m)	7.6	42.3		~169.2	127.1	
Queue Length 95th (m)	17.2	#87.5		#233.3	#182.1	
Internal Link Dist (m)	393.0			93.5	105.7	
Turn Bay Length (m)						
Base Capacity (vph)	365	311		2090	2109	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.16	0.91		1.01	0.91	

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 84.6			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.01			
Intersection Signal Delay: 32.8		Intersection LOS: C	
Intersection Capacity Utilization 75.0%		ICU Level of Service D	
Analysis Period (min) 15			

~ 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.

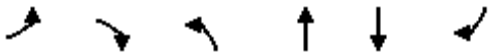
Splits and Phases: 10: Trafalgar Road & Highway 407 EB Off-Ramp





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	52	257	0	1916	1745	0
Future Volume (vph)	52	257	0	1916	1745	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1716	1401		3275	3305	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1716	1401		3275	3305	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	57	282	0	2105	1918	0
RTOR Reduction (vph)	0	14	0	0	0	0
Lane Group Flow (vph)	57	268	0	2105	1918	0
Heavy Vehicles (%)	4%	14%	2%	9%	8%	2%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	17.6	17.6		54.0	54.0	
Effective Green, g (s)	17.6	17.6		54.0	54.0	
Actuated g/C Ratio	0.21	0.21		0.64	0.64	
Clearance Time (s)	6.0	6.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	356	291		2090	2109	
v/s Ratio Prot	0.03			c0.64	0.58	
v/s Ratio Perm		c0.19				
v/c Ratio	0.16	0.92		1.01	0.91	
Uniform Delay, d1	27.4	32.8		15.3	13.2	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	32.6		21.4	7.3	
Delay (s)	27.7	65.4		36.7	20.5	
Level of Service	C	E		D	C	
Approach Delay (s)	59.0			36.7	20.5	
Approach LOS	E			D	C	

Intersection Summary			
HCM 2000 Control Delay	31.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	84.6	Sum of lost time (s)	13.0
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	1968	1745	26
Future Volume (vph)	0	0	0	1968	1745	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	3275	3305	1465
Flt Permitted						
Satd. Flow (perm)	0	0	0	3275	3305	1465
Link Speed (k/h)	30			80	80	
Link Distance (m)	110.1			129.7	37.4	
Travel Time (s)	13.2			5.8	1.7	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	2%	2%	2%	9%	8%	9%
Adj. Flow (vph)	0	0	0	2163	1918	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2163	1918	29
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 75.0%		ICU Level of Service D	
Analysis Period (min) 15			

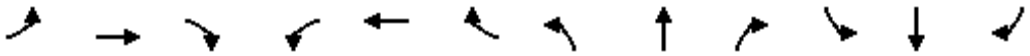
Intersection Sign configuration not allowed in HCM analysis.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	1916	378	0	2002
Future Volume (vph)	0	0	1916	378	0	2002
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.91
Frt				0.850		
Flt Protected						
Satd. Flow (prot)	0	0	3275	1521	0	4749
Flt Permitted						
Satd. Flow (perm)	0	0	3275	1521	0	4749
Link Speed (k/h)	50		80			80
Link Distance (m)	247.7		145.5			117.5
Travel Time (s)	17.8		6.5			5.3
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	2%	2%	9%	5%	2%	8%
Adj. Flow (vph)	0	0	2105	415	0	2200
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	2105	415	0	2200
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Free		Free			Free

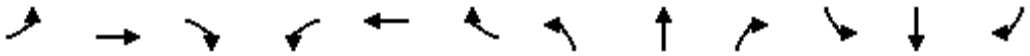
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 56.3%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection Sign configuration not allowed in HCM analysis.



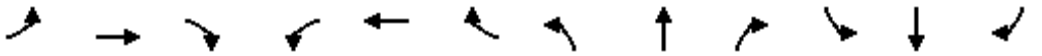
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	96	1764	434	106	1171	95	255	349	99	199	628	81
Future Volume (vph)	96	1764	434	106	1171	95	255	349	99	199	628	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.972			0.990			0.979			0.987	
Flt Protected		0.998			0.996			0.982			0.989	
Satd. Flow (prot)	0	3331	0	0	3418	0	0	3127	0	0	3416	0
Flt Permitted		0.998			0.996			0.982			0.989	
Satd. Flow (perm)	0	3331	0	0	3418	0	0	3127	0	0	3416	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		234.8			101.3			357.8			260.8	
Travel Time (s)		14.1			6.1			21.5			15.6	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	4%	2%	12%	2%	3%	4%	23%	2%	3%	2%	2%	2%
Adj. Flow (vph)	108	1982	488	119	1316	107	287	392	111	224	706	91
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2578	0	0	1542	0	0	790	0	0	1021	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 163.1%		ICU Level of Service H	
Analysis Period (min) 15			

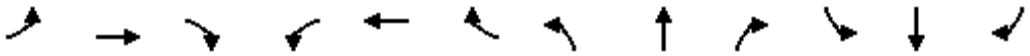


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	96	1764	434	106	1171	95	255	349	99	199	628	81
Future Volume (veh/h)	96	1764	434	106	1171	95	255	349	99	199	628	81
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	108	1982	488	119	1316	107	287	392	111	224	706	91
Approach Volume (veh/h)		2578			1542			790			1021	
Crossing Volume (veh/h)		1049			787			2314#			1722#	
High Capacity (veh/h)		598			741			204			340	
High v/c (veh/h)		4.31			2.08			3.87			3.00	
Low Capacity (veh/h)		462			585			139			247	
Low v/c (veh/h)		5.58			2.64			5.67			4.14	

Intersection Summary					
Maximum v/c High	4.31				
Maximum v/c Low	5.67				
Intersection Capacity Utilization	163.1%	ICU Level of Service		H	
# Crossing flow exceeds 1200, method is not applicable					



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	1524	22	143	711	155	12	31	14	21	5	2
Future Volume (vph)	14	1524	22	143	711	155	12	31	14	21	5	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		30.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00				0.97	1.00	0.99		1.00	1.00	
Frt		0.998				0.850		0.952			0.962	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3491	0	1750	3500	1566	1750	1742	0	1750	1763	0
Flt Permitted	0.348			0.105			0.752			0.724		
Satd. Flow (perm)	639	3491	0	193	3500	1516	1379	1742	0	1328	1763	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				172		16			2	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		830.2			198.4			579.5			190.6	
Travel Time (s)		49.8			11.9			41.7			13.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	16	1693	24	159	790	172	13	34	16	23	6	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	1717	0	159	790	172	13	50	0	23	8	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6		6	4			8		
Detector Phase	2	2		6	6	6	4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	32.1	32.1		32.1	32.1	32.1	34.4	34.4		34.4	34.4	
Total Split (s)	55.0	55.0		55.0	55.0	55.0	35.0	35.0		35.0	35.0	
Total Split (%)	61.1%	61.1%		61.1%	61.1%	61.1%	38.9%	38.9%		38.9%	38.9%	
Maximum Green (s)	49.9	49.9		49.9	49.9	49.9	29.6	29.6		29.6	29.6	
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7	3.3	3.3		3.3	3.3	
All-Red Time (s)	1.4	1.4		1.4	1.4	1.4	2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.1	5.1		5.1	5.1	5.1	5.4	5.4		5.4	5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max	Max	None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	20.0	20.0		20.0	20.0	20.0	22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)	5	5		5	5	5	5	5		5	5	
Act Effct Green (s)	62.5	62.5		62.5	62.5	62.5	13.4	13.4		13.4	13.4	
Actuated g/C Ratio	0.81	0.81		0.81	0.81	0.81	0.17	0.17		0.17	0.17	
v/c Ratio	0.03	0.61		1.03	0.28	0.14	0.05	0.16		0.10	0.03	
Control Delay	6.3	8.6		102.3	5.0	1.6	25.6	20.5		26.7	22.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	6.3	8.6		102.3	5.0	1.6	25.6	20.5		26.7	22.0	
LOS	A	A		F	A	A	C	C		C	C	
Approach Delay		8.5			18.3			21.6			25.5	
Approach LOS		A			B			C			C	
Queue Length 50th (m)	0.5	54.6		~29.1	16.4	0.0	1.9	5.0		3.4	0.9	
Queue Length 95th (m)	4.0	161.4		#57.7	50.3	8.1	5.5	11.7		8.0	3.8	
Internal Link Dist (m)		806.2			174.4			555.5			166.6	
Turn Bay Length (m)	30.0			30.0		30.0	30.0			30.0		
Base Capacity (vph)	515	2818		155	2824	1256	532	682		513	682	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.03	0.61		1.03	0.28	0.14	0.02	0.07		0.04	0.01	

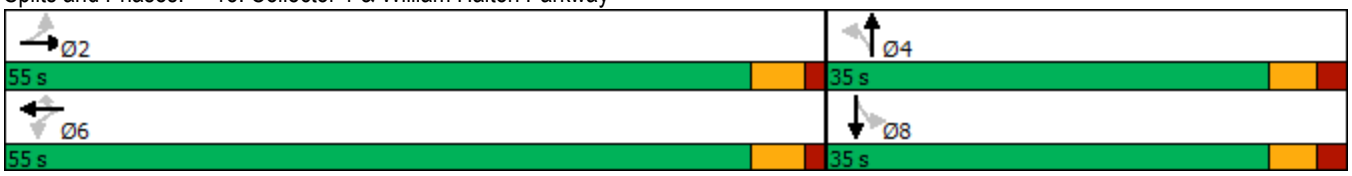
Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 77.4			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay: 12.7		Intersection LOS: B	
Intersection Capacity Utilization 74.9%		ICU Level of Service D	

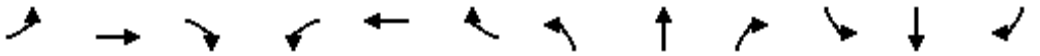
Analysis Period (min) 15

~ 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.

Splits and Phases: 15: Collector 1 & William Halton Parkway

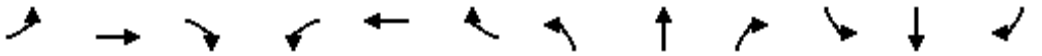




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	1524	22	143	711	155	12	31	14	21	5	2
Future Volume (vph)	14	1524	22	143	711	155	12	31	14	21	5	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1		5.1	5.1	5.1	5.4	5.4		5.4	5.4	
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	0.97	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	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.95		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1746	3491		1749	3500	1519	1743	1739		1743	1762	
Flt Permitted	0.35	1.00		0.11	1.00	1.00	0.75	1.00		0.72	1.00	
Satd. Flow (perm)	640	3491		194	3500	1519	1380	1739		1329	1762	
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)	16	1693	24	159	790	172	13	34	16	23	6	2
RTOR Reduction (vph)	0	0	0	0	0	42	0	14	0	0	2	0
Lane Group Flow (vph)	16	1717	0	159	790	130	13	36	0	23	6	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	60.2	60.2		60.2	60.2	60.2	9.0	9.0		9.0	9.0	
Effective Green, g (s)	60.2	60.2		60.2	60.2	60.2	9.0	9.0		9.0	9.0	
Actuated g/C Ratio	0.76	0.76		0.76	0.76	0.76	0.11	0.11		0.11	0.11	
Clearance Time (s)	5.1	5.1		5.1	5.1	5.1	5.4	5.4		5.4	5.4	
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)	483	2636		146	2643	1147	155	196		150	198	
v/s Ratio Prot		0.49			0.23			c0.02			0.00	
v/s Ratio Perm	0.02			c0.82		0.09	0.01			0.02		
v/c Ratio	0.03	0.65		1.09	0.30	0.11	0.08	0.18		0.15	0.03	
Uniform Delay, d1	2.4	4.7		9.8	3.1	2.6	31.7	32.0		31.9	31.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	1.3		100.3	0.3	0.2	0.2	0.5		0.5	0.1	
Delay (s)	2.6	6.0		110.1	3.4	2.8	31.9	32.5		32.4	31.5	
Level of Service	A	A		F	A	A	C	C		C	C	
Approach Delay (s)		5.9			18.4			32.4			32.2	
Approach LOS		A			B			C			C	

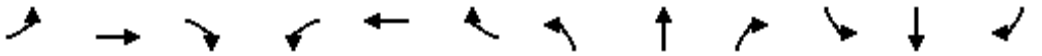
Intersection Summary			
HCM 2000 Control Delay	11.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	79.7	Sum of lost time (s)	10.5
Intersection Capacity Utilization	74.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1559	0	0	1009	0	0	0	41	0	0	0
Future Volume (vph)	0	1559	0	0	1009	0	0	0	41	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		30.0	30.0		0.0	30.0		0.0
Storage Lanes	0		0	0		1	0		1	0		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt									0.865			
Flt Protected												
Satd. Flow (prot)	0	3500	0	0	3500	1842	0	0	1593	0	0	1842
Flt Permitted												
Satd. Flow (perm)	0	3500	0	0	3500	1842	0	0	1593	0	0	1842
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		198.4			207.8			147.0			169.4	
Travel Time (s)		11.9			12.5			10.6			12.2	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	0	1732	0	0	1121	0	0	0	46	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1732	0	0	1121	0	0	0	46	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

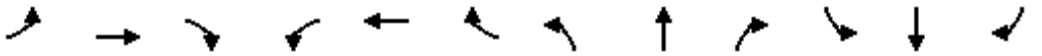
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 54.6%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1559	0	0	1009	0	0	0	41	0	0	0
Future Volume (Veh/h)	0	1559	0	0	1009	0	0	0	41	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1732	0	0	1121	0	0	0	46	0	0	0
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		198			208							
pX, platoon unblocked	0.85			0.72			0.80	0.80	0.72	0.80	0.80	0.85
vC, conflicting volume	1126			1737			2302	2863	876	2043	2863	570
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	786			1257			1267	1966	69	943	1966	129
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	93	100	100	100
cM capacity (veh/h)	698			396			99	49	703	160	49	752

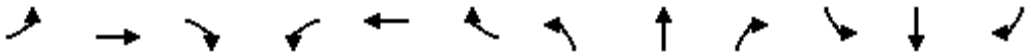
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	1155	577	560	560	0	46	0
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	46	0
cSH	1700	1700	1700	1700	1700	703	1700
Volume to Capacity	0.68	0.34	0.33	0.33	0.00	0.07	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	1.6	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	10.5	0.0
Lane LOS						B	A
Approach Delay (s)	0.0		0.0			10.5	0.0
Approach LOS						B	A

Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	54.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	528	9	90	327	129	19	91	116	18	47	2
Future Volume (vph)	15	528	9	90	327	129	19	91	116	18	47	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.997			0.958			0.916			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3489	0	1750	3353	0	1750	1687	0	1750	1831	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1750	3489	0	1750	3353	0	1750	1687	0	1750	1831	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		136.3			245.2			477.1			579.5	
Travel Time (s)		9.8			17.7			34.4			41.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	17	587	10	100	363	143	21	101	129	20	52	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	597	0	100	506	0	21	230	0	20	54	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 44.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	528	9	90	327	129	19	91	116	18	47	2
Future Volume (Veh/h)	15	528	9	90	327	129	19	91	116	18	47	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	587	10	100	363	143	21	101	129	20	52	2
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					245							
pX, platoon unblocked												
vC, conflicting volume	511			602			1046	1342	308	1152	1276	263
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	511			602			1046	1342	308	1152	1276	263
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			90			82	23	81	52	64	100
cM capacity (veh/h)	1045			967			118	132	681	42	145	728

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1	SB 2
Volume Total	17	391	206	100	242	264	21	230	20	54
Volume Left	17	0	0	100	0	0	21	0	20	0
Volume Right	0	0	10	0	0	143	0	129	0	2
cSH	1045	1700	1700	967	1700	1700	118	241	42	149
Volume to Capacity	0.02	0.23	0.12	0.10	0.14	0.16	0.18	0.96	0.48	0.36
Queue Length 95th (m)	0.4	0.0	0.0	2.6	0.0	0.0	4.7	65.7	12.9	11.5
Control Delay (s)	8.5	0.0	0.0	9.2	0.0	0.0	41.9	90.8	154.0	42.3
Lane LOS	A			A			E	F	F	E
Approach Delay (s)	0.2			1.5			86.7		72.5	
Approach LOS							F		F	

Intersection Summary				
Average Delay	18.2			
Intersection Capacity Utilization	44.8%	ICU Level of Service		A
Analysis Period (min)	15			



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	521	1	11	337	3	31
Future Volume (vph)	521	1	11	337	3	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	0.0		30.0	0.0
Storage Lanes		0	0		1	1
Taper Length (m)			15.0		15.0	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt						0.850
Flt Protected				0.998	0.950	
Satd. Flow (prot)	3500	0	0	3493	1750	1566
Flt Permitted				0.998	0.950	
Satd. Flow (perm)	3500	0	0	3493	1750	1566
Link Speed (k/h)	50			50	50	
Link Distance (m)	139.2			131.8	226.2	
Travel Time (s)	10.0			9.5	16.3	
Confl. Peds. (#/hr)		5	5		5	5
Confl. Bikes (#/hr)		5				5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	579	1	12	374	3	34
Shared Lane Traffic (%)						
Lane Group Flow (vph)	580	0	0	386	3	34
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

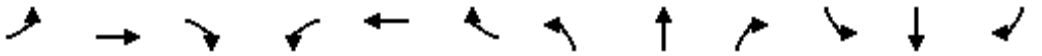
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	521	1	11	337	3	31
Future Volume (Veh/h)	521	1	11	337	3	31
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	579	1	12	374	3	34
Pedestrians	5			5	5	
Lane Width (m)	3.5			3.5	3.5	
Walking Speed (m/s)	1.0			1.0	1.0	
Percent Blockage	0			0	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			585		800	300
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			585		800	300
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		99	95
cM capacity (veh/h)			981		315	689

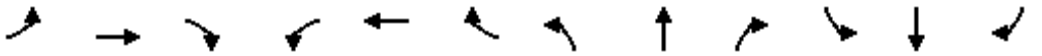
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	386	194	137	249	3	34
Volume Left	0	0	12	0	3	0
Volume Right	0	1	0	0	0	34
cSH	1700	1700	981	1700	315	689
Volume to Capacity	0.23	0.11	0.01	0.15	0.01	0.05
Queue Length 95th (m)	0.0	0.0	0.3	0.0	0.2	1.2
Control Delay (s)	0.0	0.0	0.9	0.0	16.5	10.5
Lane LOS			A		C	B
Approach Delay (s)	0.0		0.3		11.0	
Approach LOS					B	

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	28.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1798	9	0	916	11	0	0	14	0	0	255
Future Volume (vph)	0	1798	9	0	916	11	0	0	14	0	0	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		30.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		1	0		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999				0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3496	0	0	3500	1566	0	0	1593	0	0	1593
Flt Permitted												
Satd. Flow (perm)	0	3496	0	0	3500	1566	0	0	1593	0	0	1593
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		119.4			229.9			118.2			144.7	
Travel Time (s)		7.2			13.8			8.5			10.4	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5						5
Peak Hour Factor	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)	0	1998	10	0	1018	12	0	0	16	0	0	283
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2008	0	0	1018	12	0	0	16	0	0	283
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			0.0			0.0	
Link Offset(m)		0.0			0.0			5.0			5.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

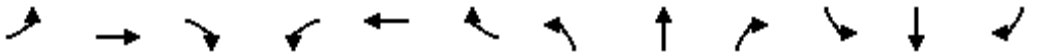
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 61.5%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1798	9	0	916	11	0	0	14	0	0	255
Future Volume (Veh/h)	0	1798	9	0	916	11	0	0	14	0	0	255
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1998	10	0	1018	12	0	0	16	0	0	283
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		119			230							
pX, platoon unblocked	0.82			0.69			0.78	0.78	0.69	0.78	0.78	0.82
vC, conflicting volume	1035			2013			2805	3043	1014	2043	3036	519
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	594			1576			1701	2004	136	731	1996	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	97	100	100	68
cM capacity (veh/h)	795			285			31	46	610	233	46	877

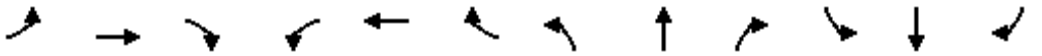
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	1332	676	509	509	12	16	283
Volume Left	0	0	0	0	0	0	0
Volume Right	0	10	0	0	12	16	283
cSH	1700	1700	1700	1700	1700	610	877
Volume to Capacity	0.78	0.40	0.30	0.30	0.01	0.03	0.32
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.6	10.7
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	11.1	11.0
Lane LOS						B	B
Approach Delay (s)	0.0		0.0			11.1	11.0
Approach LOS						B	B

Intersection Summary				
Average Delay	1.0			
Intersection Capacity Utilization	61.5%	ICU Level of Service		B
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	702	19	0	572	4	0	0	127	0	0	14
Future Volume (vph)	0	702	19	0	572	4	0	0	127	0	0	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.996			0.999				0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3486	0	0	3496	0	0	0	1593	0	0	1593
Flt Permitted												
Satd. Flow (perm)	0	3486	0	0	3496	0	0	0	1593	0	0	1593
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		123.4			223.5			492.2			141.1	
Travel Time (s)		8.9			16.1			35.4			10.2	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	0	780	21	0	636	4	0	0	141	0	0	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	801	0	0	640	0	0	0	141	0	0	16
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			-10.0			-10.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

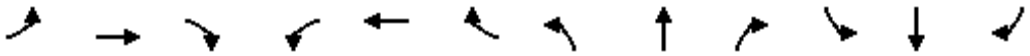
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 35.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	702	19	0	572	4	0	0	127	0	0	14
Future Volume (Veh/h)	0	702	19	0	572	4	0	0	127	0	0	14
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	780	21	0	636	4	0	0	141	0	0	16
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		123										
pX, platoon unblocked				0.92			0.92	0.92	0.92	0.92	0.92	
vC, conflicting volume	645			806			1134	1440	410	1179	1449	330
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	645			614			972	1304	184	1020	1314	330
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	81	100	100	98
cM capacity (veh/h)	932			880			183	145	753	140	143	659

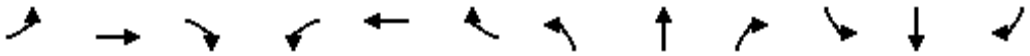
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	520	281	424	216	141	16
Volume Left	0	0	0	0	0	0
Volume Right	0	21	0	4	141	16
cSH	1700	1700	1700	1700	753	659
Volume to Capacity	0.31	0.17	0.25	0.13	0.19	0.02
Queue Length 95th (m)	0.0	0.0	0.0	0.0	5.2	0.6
Control Delay (s)	0.0	0.0	0.0	0.0	10.9	10.6
Lane LOS					B	B
Approach Delay (s)	0.0		0.0		10.9	10.6
Approach LOS					B	B

Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	35.8%	ICU Level of Service		A
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	4	0	0	84	0	1982	36	0	1696	31
Future Volume (vph)	0	0	4	0	0	84	0	1982	36	0	1696	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		30.0	0.0		30.0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	*0.80	0.91	1.00	*0.80	0.91
Ped Bike Factor												
Frt			0.865			0.865		0.997			0.997	
Flt Protected												
Satd. Flow (prot)	0	0	1593	0	0	1593	0	4408	0	0	4408	0
Flt Permitted												
Satd. Flow (perm)	0	0	1593	0	0	1593	0	4408	0	0	4408	0
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		168.4			345.0			280.2			182.8	
Travel Time (s)		12.1			24.8			16.8			11.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	0	0	4	0	0	93	0	2202	40	0	1884	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	4	0	0	93	0	2242	0	0	1918	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

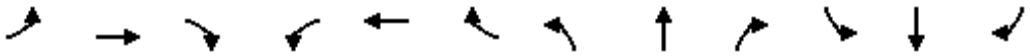
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 52.7%		ICU Level of Service A	
Analysis Period (min) 15			
* User Entered Value			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	4	0	0	84	0	1982	36	0	1696	31
Future Volume (Veh/h)	0	0	4	0	0	84	0	1982	36	0	1696	31
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	4	0	0	93	0	2202	40	0	1884	34
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								280			183	
pX, platoon unblocked	0.73	0.73	0.71	0.73	0.73	0.58	0.71			0.58		
vC, conflicting volume	2738	4153	655	2864	4150	764	1923			2247		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	1313	0	0	1309	0	862			620		
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	99	100	100	85	100			100		
cM capacity (veh/h)	621	113	761	727	114	624	547			553		

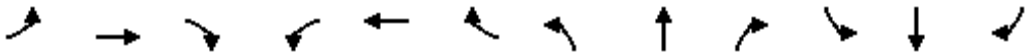
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	4	93	881	881	480	754	754	411
Volume Left	0	0	0	0	0	0	0	0
Volume Right	4	93	0	0	40	0	0	34
cSH	761	624	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.01	0.15	0.52	0.52	0.28	0.44	0.44	0.24
Queue Length 95th (m)	0.1	4.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	9.8	11.8	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	B						
Approach Delay (s)	9.8	11.8	0.0			0.0		
Approach LOS	A	B						

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	52.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	8	14	2	5	4	73	57	3	6	45	36
Future Volume (vph)	62	8	14	2	5	4	73	57	3	6	45	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.977			0.955			0.997			0.944	
Flt Protected		0.965			0.992			0.973			0.996	
Satd. Flow (prot)	0	1737	0	0	1745	0	0	1787	0	0	1732	0
Flt Permitted		0.965			0.992			0.973			0.996	
Satd. Flow (perm)	0	1737	0	0	1745	0	0	1787	0	0	1732	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		345.0			274.1			250.4			181.9	
Travel Time (s)		24.8			19.7			18.0			13.1	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	69	9	16	2	6	4	81	63	3	7	50	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	94	0	0	12	0	0	147	0	0	97	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

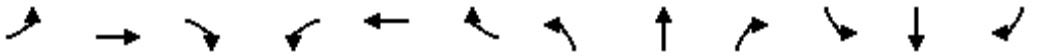
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.3%		ICU Level of Service A	
Analysis Period (min) 15			



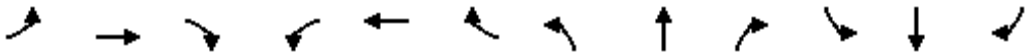
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	8	14	2	5	4	73	57	3	6	45	36
Future Volume (Veh/h)	62	8	14	2	5	4	73	57	3	6	45	36
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	69	9	16	2	6	4	81	63	3	7	50	40
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)											182	
pX, platoon unblocked												
vC, conflicting volume	328	322	80	341	340	74	95			71		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	328	322	80	341	340	74	95			71		
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 %	88	98	98	100	99	100	95			100		
cM capacity (veh/h)	580	555	971	559	542	977	1492			1522		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	94	12	147	97
Volume Left	69	2	81	7
Volume Right	16	4	3	40
cSH	620	640	1492	1522
Volume to Capacity	0.15	0.02	0.05	0.00
Queue Length 95th (m)	4.0	0.4	1.3	0.1
Control Delay (s)	11.8	10.7	4.4	0.6
Lane LOS	B	B	A	A
Approach Delay (s)	11.8	10.7	4.4	0.6
Approach LOS	B	B		

Intersection Summary				
Average Delay	5.5			
Intersection Capacity Utilization	32.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	491	1279	42	27	677	18	110	0	34	52	19	139
Future Volume (vph)	491	1279	42	27	677	18	110	0	34	52	19	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0		30.0	30.0		0.0	30.0		0.0	40.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.97	1.00	1.00		1.00	0.98		1.00	0.98	
Frt			0.850		0.996			0.850			0.868	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3500	1566	1750	3483	0	1750	1534	0	1750	1571	0
Flt Permitted	0.192			0.188			0.614			0.732		
Satd. Flow (perm)	353	3500	1514	346	3483	0	1127	1534	0	1342	1571	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			38		3			77			154	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		229.9			1297.0			181.9			123.7	
Travel Time (s)		13.8			77.8			13.1			8.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	546	1421	47	30	752	20	122	0	38	58	21	154
Shared Lane Traffic (%)												
Lane Group Flow (vph)	546	1421	47	30	772	0	122	38	0	58	175	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



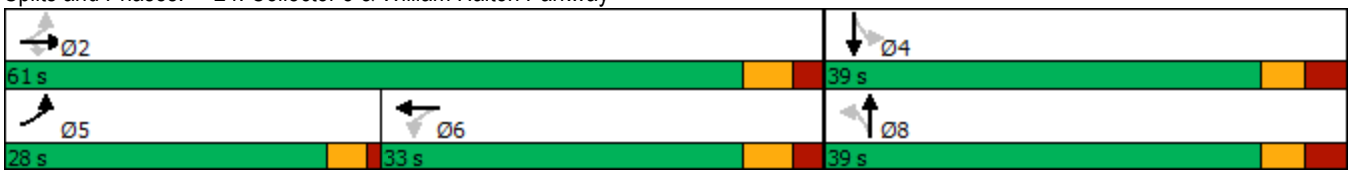
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	5	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	32.1	32.1	32.1	32.1		38.5	38.5		38.5	38.5	
Total Split (s)	28.0	61.0	61.0	33.0	33.0		39.0	39.0		39.0	39.0	
Total Split (%)	28.0%	61.0%	61.0%	33.0%	33.0%		39.0%	39.0%		39.0%	39.0%	
Maximum Green (s)	24.0	54.9	54.9	26.9	26.9		32.5	32.5		32.5	32.5	
Yellow Time (s)	3.0	3.7	3.7	3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.0	2.4	2.4	2.4	2.4		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.1	6.1	6.1	6.1		6.5	6.5		6.5	6.5	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	Max	Max		None	None		None	None	
Walk Time (s)		7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		19.0	19.0	19.0	19.0		25.0	25.0		25.0	25.0	
Pedestrian Calls (#/hr)		5	5	5	5		5	5		5	5	
Act Effct Green (s)	57.4	55.3	55.3	27.1	27.1		16.1	16.1		16.1	16.1	
Actuated g/C Ratio	0.68	0.66	0.66	0.32	0.32		0.19	0.19		0.19	0.19	
v/c Ratio	0.85	0.62	0.05	0.27	0.69		0.57	0.11		0.23	0.41	
Control Delay	30.4	11.2	3.6	32.4	29.9		40.6	1.6		29.6	9.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	30.4	11.2	3.6	32.4	29.9		40.6	1.6		29.6	9.4	
LOS	C	B	A	C	C		D	A		C	A	
Approach Delay		16.2			30.0			31.4			14.4	
Approach LOS		B			C			C			B	
Queue Length 50th (m)	50.0	54.1	0.4	3.4	53.0		17.8	0.0		7.9	2.8	
Queue Length 95th (m)	#150.0	128.7	5.6	13.7	95.2		33.1	1.6		17.1	17.0	
Internal Link Dist (m)		205.9			1273.0			157.9			99.7	
Turn Bay Length (m)	85.0		30.0	30.0			30.0			40.0		
Base Capacity (vph)	642	2302	1008	111	1124		438	644		522	705	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.85	0.62	0.05	0.27	0.69		0.28	0.06		0.11	0.25	

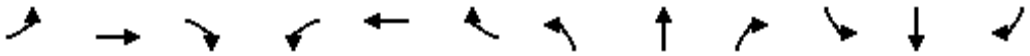
Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 84.1			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 20.3		Intersection LOS: C	
Intersection Capacity Utilization 89.1%		ICU Level of Service E	

Analysis Period (min) 15

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

Splits and Phases: 24: Collector 5 & William Halton Parkway

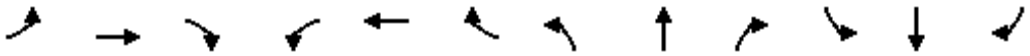




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	491	1279	42	27	677	18	110	0	34	52	19	139
Future Volume (vph)	491	1279	42	27	677	18	110	0	34	52	19	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.1	6.1	6.1	6.1		6.5	6.5		6.5	6.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	0.98		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	1.00	0.85	1.00	1.00		1.00	0.85		1.00	0.87	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1749	3500	1518	1748	3483		1745	1532		1743	1568	
Flt Permitted	0.19	1.00	1.00	0.19	1.00		0.61	1.00		0.73	1.00	
Satd. Flow (perm)	353	3500	1518	346	3483		1128	1532		1344	1568	
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)	546	1421	47	30	752	20	122	0	38	58	21	154
RTOR Reduction (vph)	0	0	13	0	2	0	0	31	0	0	124	0
Lane Group Flow (vph)	546	1421	34	30	770	0	122	7	0	58	51	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	pm+pt	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	55.3	55.3	55.3	27.1	27.1		16.1	16.1		16.1	16.1	
Effective Green, g (s)	55.3	55.3	55.3	27.1	27.1		16.1	16.1		16.1	16.1	
Actuated g/C Ratio	0.66	0.66	0.66	0.32	0.32		0.19	0.19		0.19	0.19	
Clearance Time (s)	4.0	6.1	6.1	6.1	6.1		6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	634	2304	999	111	1123		216	293		257	300	
v/s Ratio Prot	c0.25	0.41			0.22			0.00			0.03	
v/s Ratio Perm	c0.32		0.02	0.09			c0.11			0.04		
v/c Ratio	0.86	0.62	0.03	0.27	0.69		0.56	0.02		0.23	0.17	
Uniform Delay, d1	16.7	8.3	5.0	21.1	24.7		30.8	27.6		28.7	28.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	11.5	0.5	0.0	5.9	3.4		3.4	0.0		0.4	0.3	
Delay (s)	28.2	8.8	5.0	27.0	28.2		34.1	27.6		29.1	28.6	
Level of Service	C	A	A	C	C		C	C		C	C	
Approach Delay (s)		13.9			28.1			32.6			28.8	
Approach LOS		B			C			C			C	

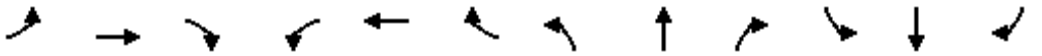
Intersection Summary			
HCM 2000 Control Delay	19.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	84.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	89.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	761	36	75	511	4	42	93	166	11	59	23
Future Volume (vph)	32	761	36	75	511	4	42	93	166	11	59	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.993			0.999			0.904			0.958	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3475	0	1750	3496	0	1750	1665	0	1750	1765	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1750	3475	0	1750	3496	0	1750	1665	0	1750	1765	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		223.5			463.9			185.3			250.4	
Travel Time (s)		16.1			33.4			13.3			18.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	36	846	40	83	568	4	47	103	184	12	66	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	886	0	83	572	0	47	287	0	12	92	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

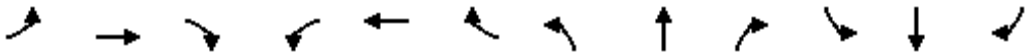
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 51.8%		ICU Level of Service A	
Analysis Period (min) 15			



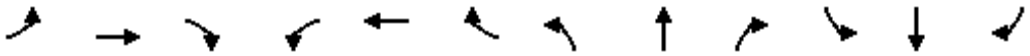
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	761	36	75	511	4	42	93	166	11	59	23
Future Volume (Veh/h)	32	761	36	75	511	4	42	93	166	11	59	23
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	36	846	40	83	568	4	47	103	184	12	66	26
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		347										
pX, platoon unblocked				0.95			0.95	0.95	0.95	0.95	0.95	
vC, conflicting volume	577			891			1457	1686	453	1476	1704	296
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	577			788			1382	1622	328	1402	1641	296
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			89			0	0	71	0	18	96
cM capacity (veh/h)	988			785			27	83	630	0	81	693

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1	SB 2
Volume Total	36	564	322	83	379	193	47	287	12	92
Volume Left	36	0	0	83	0	0	47	0	12	0
Volume Right	0	0	40	0	0	4	0	184	0	26
cSH	988	1700	1700	785	1700	1700	27	187	0	108
Volume to Capacity	0.04	0.33	0.19	0.11	0.22	0.11	1.74	1.53	Err	0.86
Queue Length 95th (m)	0.9	0.0	0.0	2.7	0.0	0.0	42.8	139.6	Err	37.9
Control Delay (s)	8.8	0.0	0.0	10.1	0.0	0.0	667.3	311.3	Err	124.1
Lane LOS	A			B			F	F	F	F
Approach Delay (s)	0.3			1.3			361.4		Err	
Approach LOS							F		F	

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	7	22	83	3	83	23	1945	19	57	1755	30
Future Volume (vph)	79	7	22	83	3	83	23	1945	19	57	1755	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	30.0		0.0	17.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Ped Bike Factor	1.00	0.99		1.00	0.98		1.00	1.00			1.00	
Frt		0.887			0.855			0.999			0.998	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	1610	0	1750	1546	0	1750	5022	0	1750	5016	0
Flt Permitted	0.695			0.736			0.083			0.083		
Satd. Flow (perm)	1275	1610	0	1350	1546	0	153	5022	0	153	5016	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			2			2			4	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		117.5			110.5			259.2			230.0	
Travel Time (s)		8.5			8.0			15.6			13.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	88	8	24	92	3	92	26	2161	21	63	1950	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	88	32	0	92	95	0	26	2182	0	63	1983	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	38.5	38.5		38.5	38.5		33.4	33.4		33.4	33.4	
Total Split (s)	39.0	39.0		39.0	39.0		51.0	51.0		51.0	51.0	
Total Split (%)	43.3%	43.3%		43.3%	43.3%		56.7%	56.7%		56.7%	56.7%	
Maximum Green (s)	32.5	32.5		32.5	32.5		44.6	44.6		44.6	44.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.2	3.2		3.2	3.2		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	25.0	25.0		25.0	25.0		20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	
Act Effct Green (s)	14.0	14.0		14.0	14.0		49.8	49.8		49.8	49.8	
Actuated g/C Ratio	0.19	0.19		0.19	0.19		0.69	0.69		0.69	0.69	
v/c Ratio	0.35	0.10		0.35	0.31		0.25	0.63		0.59	0.57	
Control Delay	28.2	20.8		27.9	26.2		17.7	10.7		42.6	9.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	28.2	20.8		27.9	26.2		17.7	10.7		42.6	9.8	
LOS	C	C		C	C		B	B		D	A	
Approach Delay		26.3			27.0			10.8			10.8	
Approach LOS		C			C			B			B	
Queue Length 50th (m)	10.3	3.1		10.8	10.8		1.1	50.3		3.8	42.7	
Queue Length 95th (m)	20.9	8.9		21.6	21.5		10.9	138.4		#33.6	117.8	
Internal Link Dist (m)		93.5			86.5			235.2			206.0	
Turn Bay Length (m)	30.0			30.0			30.0			17.0		
Base Capacity (vph)	583	739		618	708		106	3481		106	3477	
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	0.04		0.15	0.13		0.25	0.63		0.59	0.57	

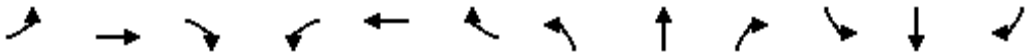
Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 71.9			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 11.9		Intersection LOS: B	
Intersection Capacity Utilization 71.7%		ICU Level of Service C	

Analysis Period (min) 15

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

Splits and Phases: 26: Trafalgar Road & Local 6

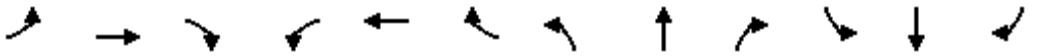




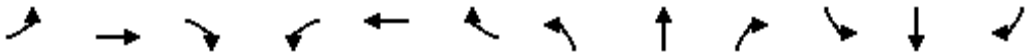
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	7	22	83	3	83	23	1945	19	57	1755	30
Future Volume (vph)	79	7	22	83	3	83	23	1945	19	57	1755	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.89		1.00	0.85		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1745	1608		1744	1541		1749	5020		1750	5014	
Flt Permitted	0.70	1.00		0.74	1.00		0.08	1.00		0.08	1.00	
Satd. Flow (perm)	1277	1608		1352	1541		152	5020		152	5014	
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)	88	8	24	92	3	92	26	2161	21	63	1950	33
RTOR Reduction (vph)	0	3	0	0	2	0	0	1	0	0	1	0
Lane Group Flow (vph)	88	29	0	92	93	0	26	2181	0	63	1982	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
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)	11.8	11.8		11.8	11.8		48.4	48.4		48.4	48.4	
Effective Green, g (s)	11.8	11.8		11.8	11.8		48.4	48.4		48.4	48.4	
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.66	0.66		0.66	0.66	
Clearance Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	206	259		218	248		100	3323		100	3319	
v/s Ratio Prot		0.02			0.06			c0.43			0.40	
v/s Ratio Perm	c0.07			0.07			0.17			0.41		
v/c Ratio	0.43	0.11		0.42	0.38		0.26	0.66		0.63	0.60	
Uniform Delay, d1	27.6	26.2		27.6	27.4		5.0	7.4		7.2	6.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.4	0.2		1.3	1.0		6.2	1.0		26.4	0.8	
Delay (s)	29.0	26.4		28.9	28.3		11.2	8.4		33.6	7.7	
Level of Service	C	C		C	C		B	A		C	A	
Approach Delay (s)		28.3			28.6			8.4			8.5	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	73.1	Sum of lost time (s)	12.9
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	153	112	197	257	126	59	89	1775	179	100	1641	119
Future Volume (vph)	153	112	197	257	126	59	89	1775	179	100	1641	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		30.0	85.0		30.0	90.0		0.0	60.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Ped Bike Factor	1.00		0.98	1.00		0.98		1.00			1.00	
Frt			0.850			0.850		0.986			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	1842	1566	1750	1842	1566	1750	4942	0	1750	4967	0
Flt Permitted	0.668			0.567			0.076			0.076		
Satd. Flow (perm)	1225	1842	1532	1040	1842	1534	140	4942	0	140	4967	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			143			67		18			12	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		219.8			129.6			268.7			259.2	
Travel Time (s)		15.8			9.3			16.1			15.6	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	170	124	219	286	140	66	99	1972	199	111	1823	132
Shared Lane Traffic (%)												
Lane Group Flow (vph)	170	124	219	286	140	66	99	2171	0	111	1955	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	4	3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0		7.0	10.0	
Minimum Split (s)	38.5	38.5	38.5	11.0	38.5	38.5	11.0	33.4		11.0	33.4	
Total Split (s)	39.0	39.0	39.0	11.0	50.0	50.0	11.0	59.0		11.0	59.0	
Total Split (%)	32.5%	32.5%	32.5%	9.2%	41.7%	41.7%	9.2%	49.2%		9.2%	49.2%	
Maximum Green (s)	32.5	32.5	32.5	7.0	43.5	43.5	7.0	52.6		7.0	52.6	
Yellow Time (s)	3.3	3.3	3.3	3.0	3.3	3.3	3.0	3.7		3.0	3.7	
All-Red Time (s)	3.2	3.2	3.2	1.0	3.2	3.2	1.0	2.7		1.0	2.7	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4		4.0	6.4	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max		None	Max	
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0			7.0	
Flash Dont Walk (s)	25.0	25.0	25.0		25.0	25.0		20.0			20.0	
Pedestrian Calls (#/hr)	5	5	5		5	5		5			5	
Act Effct Green (s)	20.4	20.4	20.4	34.0	31.5	31.5	62.3	52.8		62.3	52.8	
Actuated g/C Ratio	0.19	0.19	0.19	0.31	0.29	0.29	0.58	0.49		0.58	0.49	
v/c Ratio	0.74	0.36	0.54	0.77	0.26	0.13	0.54	0.90		0.60	0.80	
Control Delay	60.1	40.3	19.1	46.3	30.1	6.9	25.0	32.1		29.8	27.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	60.1	40.3	19.1	46.3	30.1	6.9	25.0	32.1		29.8	27.5	
LOS	E	D	B	D	C	A	C	C		C	C	
Approach Delay		37.8			36.4			31.8			27.6	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	34.0	22.9	13.8	49.1	22.5	0.0	7.9	145.0		8.9	121.1	
Queue Length 95th (m)	56.5	39.3	35.7	73.3	37.6	9.0	#25.2	#221.1		#33.4	173.0	
Internal Link Dist (m)		195.8			105.6			244.7			235.2	
Turn Bay Length (m)	60.0		30.0	85.0		30.0	90.0			60.0		
Base Capacity (vph)	369	555	561	372	743	658	185	2420		185	2429	
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	0.46	0.22	0.39	0.77	0.19	0.10	0.54	0.90		0.60	0.80	

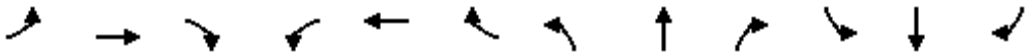
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 108.3			
Natural Cycle: 115			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 31.2		Intersection LOS: C	
Intersection Capacity Utilization 87.0%		ICU Level of Service E	

Analysis Period (min) 15

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

Splits and Phases: 27: Trafalgar Road & Settlers Road

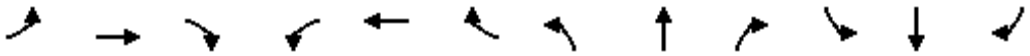




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	153	112	197	257	126	59	89	1775	179	100	1641	119
Future Volume (vph)	153	112	197	257	126	59	89	1775	179	100	1641	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4		4.0	6.4	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1743	1842	1530	1746	1842	1533	1750	4944		1750	4967	
Flt Permitted	0.67	1.00	1.00	0.57	1.00	1.00	0.08	1.00		0.08	1.00	
Satd. Flow (perm)	1225	1842	1530	1042	1842	1533	140	4944		140	4967	
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)	170	124	219	286	140	66	99	1972	199	111	1823	132
RTOR Reduction (vph)	0	0	116	0	0	47	0	9	0	0	6	0
Lane Group Flow (vph)	170	124	103	286	140	19	99	2162	0	111	1949	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	20.5	20.5	20.5	31.5	31.5	31.5	59.8	52.8		59.8	52.8	
Effective Green, g (s)	20.5	20.5	20.5	31.5	31.5	31.5	59.8	52.8		59.8	52.8	
Actuated g/C Ratio	0.19	0.19	0.19	0.29	0.29	0.29	0.55	0.49		0.55	0.49	
Clearance Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4		4.0	6.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	232	348	289	348	536	446	181	2412		181	2423	
v/s Ratio Prot		0.07		c0.05	0.08		0.04	c0.44		c0.04	0.39	
v/s Ratio Perm	0.14		0.07	c0.19		0.01	0.27			0.30		
v/c Ratio	0.73	0.36	0.36	0.82	0.26	0.04	0.55	0.90		0.61	0.80	
Uniform Delay, d1	41.3	38.1	38.1	35.4	29.4	27.5	17.5	25.2		20.0	23.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	11.3	0.6	0.8	14.4	0.3	0.0	3.4	5.7		6.0	3.0	
Delay (s)	52.6	38.7	38.9	49.8	29.7	27.6	20.9	30.9		26.0	26.3	
Level of Service	D	D	D	D	C	C	C	C		C	C	
Approach Delay (s)		43.4			41.1			30.5			26.3	
Approach LOS		D			D			C			C	

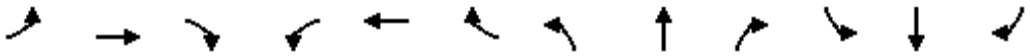
Intersection Summary			
HCM 2000 Control Delay	31.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	108.2	Sum of lost time (s)	20.9
Intersection Capacity Utilization	87.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	134	40	145	116	29	33	121	143	31	90	8
Future Volume (vph)	5	134	40	145	116	29	33	121	143	31	90	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.970			0.987			0.935			0.992	
Flt Protected		0.998			0.976			0.994			0.988	
Satd. Flow (prot)	0	1783	0	0	1774	0	0	1712	0	0	1805	0
Flt Permitted		0.998			0.976			0.994			0.988	
Satd. Flow (perm)	0	1783	0	0	1774	0	0	1712	0	0	1805	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		249.4			219.8			429.8			477.1	
Travel Time (s)		18.0			15.8			30.9			34.4	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	6	149	44	161	129	32	37	134	159	34	100	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	199	0	0	322	0	0	330	0	0	143	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
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												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	5	134	40	145	116	29	33	121	143	31	90	8
Future Volume (vph)	5	134	40	145	116	29	33	121	143	31	90	8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	149	44	161	129	32	37	134	159	34	100	9

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	199	322	330	143
Volume Left (vph)	6	161	37	34
Volume Right (vph)	44	32	159	9
Hadj (s)	-0.09	0.07	-0.23	0.04
Departure Headway (s)	5.8	5.7	5.5	6.1
Degree Utilization, x	0.32	0.51	0.50	0.24
Capacity (veh/h)	555	588	608	505
Control Delay (s)	11.5	14.6	13.9	11.0
Approach Delay (s)	11.5	14.6	13.9	11.0
Approach LOS	B	B	B	B

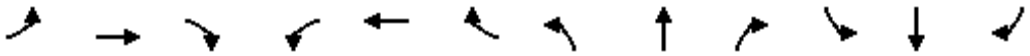
Intersection Summary				
Delay	13.2			
Level of Service	B			
Intersection Capacity Utilization	55.6%	ICU Level of Service	B	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	13.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	134	40	145	116	29	33	121	143	31	90	8
Future Vol, veh/h	5	134	40	145	116	29	33	121	143	31	90	8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	149	44	161	129	32	37	134	159	34	100	9
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

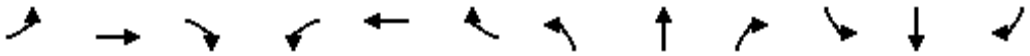
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	11.5	14.5	13.8	11
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	3%	50%	24%
Vol Thru, %	41%	75%	40%	70%
Vol Right, %	48%	22%	10%	6%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	297	179	290	129
LT Vol	33	5	145	31
Through Vol	121	134	116	90
RT Vol	143	40	29	8
Lane Flow Rate	330	199	322	143
Geometry Grp	1	1	1	1
Degree of Util (X)	0.497	0.317	0.508	0.24
Departure Headway (Hd)	5.424	5.733	5.673	6.036
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	660	623	632	591
Service Time	3.492	3.81	3.74	4.121
HCM Lane V/C Ratio	0.5	0.319	0.509	0.242
HCM Control Delay	13.8	11.5	14.5	11
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	2.8	1.4	2.9	0.9



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	304	50	21	278	8	35	165	49	17	152	125
Future Volume (vph)	38	304	50	21	278	8	35	165	49	17	152	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.983			0.996			0.974			0.943	
Flt Protected		0.995			0.997			0.993			0.997	
Satd. Flow (prot)	0	1802	0	0	1829	0	0	1782	0	0	1732	0
Flt Permitted		0.995			0.997			0.993			0.997	
Satd. Flow (perm)	0	1802	0	0	1829	0	0	1782	0	0	1732	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		129.6			125.1			416.4			492.2	
Travel Time (s)		9.3			9.0			30.0			35.4	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	42	338	56	23	309	9	39	183	54	19	169	139
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	436	0	0	341	0	0	276	0	0	327	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	60.9%	ICU Level of Service	B
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)	38	304	50	21	278	8	35	165	49	17	152	125
Future Volume (vph)	38	304	50	21	278	8	35	165	49	17	152	125
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	42	338	56	23	309	9	39	183	54	19	169	139

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	436	341	276	327
Volume Left (vph)	42	23	39	19
Volume Right (vph)	56	9	54	139
Hadj (s)	-0.02	0.03	-0.06	-0.21
Departure Headway (s)	7.5	7.8	8.1	7.8
Degree Utilization, x	0.91	0.74	0.62	0.71
Capacity (veh/h)	436	427	402	435
Control Delay (s)	48.6	30.3	23.5	27.3
Approach Delay (s)	48.6	30.3	23.5	27.3
Approach LOS	E	D	C	D

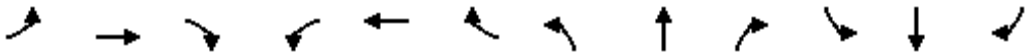
Intersection Summary				
Delay	34.0			
Level of Service	D			
Intersection Capacity Utilization	60.9%	ICU Level of Service	B	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	33.3
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	38	304	50	21	278	8	35	165	49	17	152	125
Future Vol, veh/h	38	304	50	21	278	8	35	165	49	17	152	125
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	42	338	56	23	309	9	39	183	54	19	169	139
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

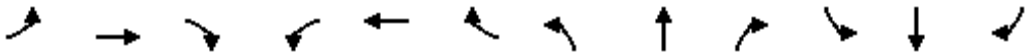
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	47.2	29.7	23.3	26.8
HCM LOS	E	D	C	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	10%	7%	6%
Vol Thru, %	66%	78%	91%	52%
Vol Right, %	20%	13%	3%	43%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	249	392	307	294
LT Vol	35	38	21	17
Through Vol	165	304	278	152
RT Vol	49	50	8	125
Lane Flow Rate	277	436	341	327
Geometry Grp	1	1	1	1
Degree of Util (X)	0.616	0.898	0.736	0.698
Departure Headway (Hd)	8.02	7.419	7.763	7.69
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	448	488	464	467
Service Time	6.109	5.493	5.844	5.771
HCM Lane V/C Ratio	0.618	0.893	0.735	0.7
HCM Control Delay	23.3	47.2	29.7	26.8
HCM Lane LOS	C	E	D	D
HCM 95th-tile Q	4	10	6	5.3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	320	12	10	191	53	34	62	28	42	82	95
Future Volume (vph)	38	320	12	10	191	53	34	62	28	42	82	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.996			0.972			0.970			0.941	
Flt Protected		0.995			0.998			0.986			0.990	
Satd. Flow (prot)	0	1826	0	0	1787	0	0	1762	0	0	1716	0
Flt Permitted		0.995			0.998			0.986			0.990	
Satd. Flow (perm)	0	1826	0	0	1787	0	0	1762	0	0	1716	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		125.1			190.9			160.4			138.9	
Travel Time (s)		9.0			13.7			11.5			10.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	42	356	13	11	212	59	38	69	31	47	91	106
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	411	0	0	282	0	0	138	0	0	244	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 54.9%		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)	38	320	12	10	191	53	34	62	28	42	82	95
Future Volume (vph)	38	320	12	10	191	53	34	62	28	42	82	95
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	42	356	13	11	212	59	38	69	31	47	91	106

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	411	282	138	244
Volume Left (vph)	42	11	38	47
Volume Right (vph)	13	59	31	106
Hadj (s)	0.04	-0.08	-0.05	-0.19
Departure Headway (s)	5.7	5.8	6.4	6.0
Degree Utilization, x	0.65	0.45	0.25	0.41
Capacity (veh/h)	606	564	473	524
Control Delay (s)	18.6	13.5	11.5	13.1
Approach Delay (s)	18.6	13.5	11.5	13.1
Approach LOS	C	B	B	B

Intersection Summary				
Delay	15.1			
Level of Service	C			
Intersection Capacity Utilization	54.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	14.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	38	320	12	10	191	53	34	62	28	42	82	95
Future Vol, veh/h	38	320	12	10	191	53	34	62	28	42	82	95
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	42	356	13	11	212	59	38	69	31	47	91	106
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	18.2	13.4	11.5	13.1
HCM LOS	C	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	27%	10%	4%	19%
Vol Thru, %	50%	86%	75%	37%
Vol Right, %	23%	3%	21%	43%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	124	370	254	219
LT Vol	34	38	10	42
Through Vol	62	320	191	82
RT Vol	28	12	53	95
Lane Flow Rate	138	411	282	243
Geometry Grp	1	1	1	1
Degree of Util (X)	0.245	0.638	0.446	0.407
Departure Headway (Hd)	6.412	5.686	5.798	6.023
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	562	641	627	601
Service Time	4.423	3.686	3.798	4.023
HCM Lane V/C Ratio	0.246	0.641	0.45	0.404
HCM Control Delay	11.5	18.2	13.4	13.1
HCM Lane LOS	B	C	B	B
HCM 95th-tile Q	1	4.6	2.3	2



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	34	2009	55	0	2091
Future Volume (vph)	0	34	2009	55	0	2091
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	*0.80	0.91	1.00	*0.80
Frt		0.865	0.996			
Flt Protected						
Satd. Flow (prot)	0	1593	4403	0	0	4421
Flt Permitted						
Satd. Flow (perm)	0	1593	4403	0	0	4421
Link Speed (k/h)	50		60			60
Link Distance (m)	87.7		148.7			268.7
Travel Time (s)	6.3		8.9			16.1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	38	2232	61	0	2323
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	38	2293	0	0	2323
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		3.5			3.5
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

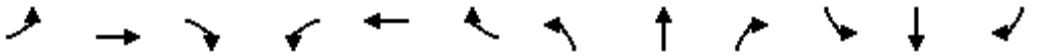
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.0%		ICU Level of Service A	
Analysis Period (min) 15			
* User Entered Value			



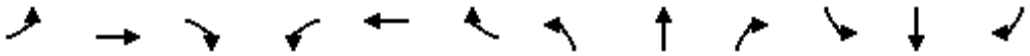
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	34	2009	55	0	2091
Future Volume (Veh/h)	0	34	2009	55	0	2091
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	38	2232	61	0	2323
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			149			269
pX, platoon unblocked	0.74	0.58			0.58	
vC, conflicting volume	3037	774			2293	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0			686	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	94			100	
cM capacity (veh/h)	758	627			523	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	38	893	893	507	774	774	774
Volume Left	0	0	0	0	0	0	0
Volume Right	38	0	0	61	0	0	0
cSH	627	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.06	0.53	0.53	0.30	0.46	0.46	0.46
Queue Length 95th (m)	1.5	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	11.1	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B						
Approach Delay (s)	11.1	0.0			0.0		
Approach LOS	B						

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	69	267	281	111	53	235	1978	67	96	1984	20
Future Volume (vph)	33	69	267	281	111	53	235	1978	67	96	1984	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		30.0	90.0		30.0	110.0		0.0	30.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Ped Bike Factor	1.00		0.98	1.00		0.98		1.00			1.00	
Frt			0.850			0.850		0.995			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	1842	1566	1750	1842	1566	1750	4998	0	1750	5022	0
Flt Permitted	0.678			0.577			0.076			0.082		
Satd. Flow (perm)	1243	1842	1532	1058	1842	1534	140	4998	0	151	5022	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			147			67		5			1	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		193.0			130.2			1233.0			148.7	
Travel Time (s)		13.9			9.4			74.0			8.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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	77	297	312	123	59	261	2198	74	107	2204	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	37	77	297	312	123	59	261	2272	0	107	2226	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	4	3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0		7.0	10.0	
Minimum Split (s)	38.5	38.5	38.5	11.0	38.5	38.5	11.0	33.4		11.0	33.4	
Total Split (s)	39.0	39.0	39.0	11.0	50.0	50.0	15.0	59.0		11.0	55.0	
Total Split (%)	32.5%	32.5%	32.5%	9.2%	41.7%	41.7%	12.5%	49.2%		9.2%	45.8%	
Maximum Green (s)	32.5	32.5	32.5	7.0	43.5	43.5	11.0	52.6		7.0	48.6	
Yellow Time (s)	3.3	3.3	3.3	3.0	3.3	3.3	3.0	3.7		3.0	3.7	
All-Red Time (s)	3.2	3.2	3.2	1.0	3.2	3.2	1.0	2.7		1.0	2.7	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4		4.0	6.4	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max		None	Max	
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0			7.0	
Flash Dont Walk (s)	25.0	25.0	25.0		25.0	25.0		20.0			20.0	
Pedestrian Calls (#/hr)	5	5	5		5	5		5			5	
Act Effct Green (s)	17.7	17.7	17.7	31.3	28.8	28.8	66.4	52.9		58.3	48.9	
Actuated g/C Ratio	0.17	0.17	0.17	0.30	0.27	0.27	0.63	0.50		0.55	0.46	
v/c Ratio	0.18	0.25	0.78	0.87	0.25	0.13	1.02	0.91		0.57	0.96	
Control Delay	38.1	38.9	35.4	57.7	30.4	6.0	90.1	31.6		27.3	39.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	38.1	38.9	35.4	57.7	30.4	6.0	90.1	31.6		27.3	39.9	
LOS	D	D	D	E	C	A	F	C		C	D	
Approach Delay		36.3			44.7			37.7			39.3	
Approach LOS		D			D			D			D	
Queue Length 50th (m)	6.6	13.8	29.8	54.5	19.6	0.0	~37.4	144.8		7.6	151.8	
Queue Length 95th (m)	15.3	26.1	58.7	80.4	33.6	7.4	#108.5	#238.2		#30.9	#245.0	
Internal Link Dist (m)		169.0			106.2			1209.0			124.7	
Turn Bay Length (m)	30.0		30.0	90.0		30.0	110.0			30.0		
Base Capacity (vph)	384	569	575	359	762	674	256	2503		189	2322	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.10	0.14	0.52	0.87	0.16	0.09	1.02	0.91		0.57	0.96	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 105.7			
Natural Cycle: 135			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.02			
Intersection Signal Delay: 38.8		Intersection LOS: D	
Intersection Capacity Utilization 88.8%		ICU Level of Service E	

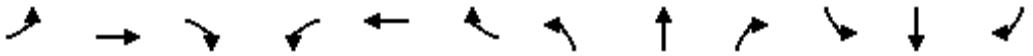
Analysis Period (min) 15

~ 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.

Splits and Phases: 32: Trafalgar Road & Marvin Avenue

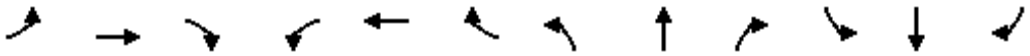




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	69	267	281	111	53	235	1978	67	96	1984	20
Future Volume (vph)	33	69	267	281	111	53	235	1978	67	96	1984	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4		4.0	6.4	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1743	1842	1529	1746	1842	1533	1750	4999		1750	5020	
Flt Permitted	0.68	1.00	1.00	0.58	1.00	1.00	0.08	1.00		0.08	1.00	
Satd. Flow (perm)	1244	1842	1529	1061	1842	1533	139	4999		151	5020	
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	77	297	312	123	59	261	2198	74	107	2204	22
RTOR Reduction (vph)	0	0	122	0	0	43	0	2	0	0	1	0
Lane Group Flow (vph)	37	77	175	312	123	16	261	2270	0	107	2225	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	17.8	17.8	17.8	28.8	28.8	28.8	64.0	53.0		55.9	48.9	
Effective Green, g (s)	17.8	17.8	17.8	28.8	28.8	28.8	64.0	53.0		55.9	48.9	
Actuated g/C Ratio	0.17	0.17	0.17	0.27	0.27	0.27	0.61	0.50		0.53	0.46	
Clearance Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4		4.0	6.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	209	310	257	334	501	417	253	2506		185	2322	
v/s Ratio Prot		0.04		c0.06	0.07		c0.11	0.45		0.04	0.44	
v/s Ratio Perm	0.03		0.11	c0.19		0.01	c0.51			0.27		
v/c Ratio	0.18	0.25	0.68	0.93	0.25	0.04	1.03	0.91		0.58	0.96	
Uniform Delay, d1	37.7	38.1	41.3	37.3	30.0	28.3	33.1	24.1		19.7	27.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.4	7.0	32.4	0.3	0.0	65.0	6.0		4.3	11.2	
Delay (s)	38.1	38.6	48.3	69.7	30.2	28.3	98.2	30.1		24.0	38.6	
Level of Service	D	D	D	E	C	C	F	C		C	D	
Approach Delay (s)		45.5			55.0			37.1			37.9	
Approach LOS		D			D			D			D	

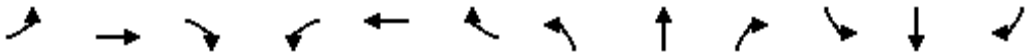
Intersection Summary			
HCM 2000 Control Delay	39.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	105.7	Sum of lost time (s)	20.9
Intersection Capacity Utilization	88.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	81	9	8	184	185	20	45	3	205	47	33
Future Volume (vph)	13	81	9	8	184	185	20	45	3	205	47	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.988			0.934			0.995			0.984	
Flt Protected		0.994			0.999			0.986			0.965	
Satd. Flow (prot)	0	1809	0	0	1719	0	0	1807	0	0	1749	0
Flt Permitted		0.994			0.999			0.986			0.965	
Satd. Flow (perm)	0	1809	0	0	1719	0	0	1807	0	0	1749	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		207.5			193.0			213.8			429.8	
Travel Time (s)		14.9			13.9			15.4			30.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	14	90	10	9	204	206	22	50	3	228	52	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	114	0	0	419	0	0	75	0	0	317	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
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												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	13	81	9	8	184	185	20	45	3	205	47	33
Future Volume (vph)	13	81	9	8	184	185	20	45	3	205	47	33
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	14	90	10	9	204	206	22	50	3	228	52	37

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	114	419	75	317
Volume Left (vph)	14	9	22	228
Volume Right (vph)	10	206	3	37
Hadj (s)	0.01	-0.26	0.07	0.11
Departure Headway (s)	5.7	5.0	6.0	5.6
Degree Utilization, x	0.18	0.58	0.12	0.49
Capacity (veh/h)	562	687	517	606
Control Delay (s)	10.0	14.7	9.8	13.8
Approach Delay (s)	10.0	14.7	9.8	13.8
Approach LOS	A	B	A	B

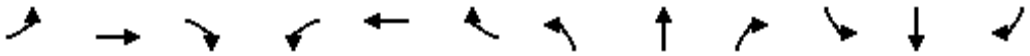
Intersection Summary				
Delay	13.4			
Level of Service	B			
Intersection Capacity Utilization	51.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	13.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	81	9	8	184	185	20	45	3	205	47	33
Future Vol, veh/h	13	81	9	8	184	185	20	45	3	205	47	33
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	90	10	9	204	206	22	50	3	228	52	37
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

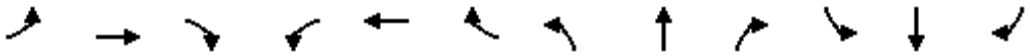
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10	14.6	9.9	13.8
HCM LOS	A	B	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	29%	13%	2%	72%
Vol Thru, %	66%	79%	49%	16%
Vol Right, %	4%	9%	49%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	68	103	377	285
LT Vol	20	13	8	205
Through Vol	45	81	184	47
RT Vol	3	9	185	33
Lane Flow Rate	76	114	419	317
Geometry Grp	1	1	1	1
Degree of Util (X)	0.125	0.181	0.578	0.488
Departure Headway (Hd)	5.944	5.684	4.97	5.543
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	601	629	725	649
Service Time	4	3.736	3.01	3.583
HCM Lane V/C Ratio	0.126	0.181	0.578	0.488
HCM Control Delay	9.9	10	14.6	13.8
HCM Lane LOS	A	A	B	B
HCM 95th-tile Q	0.4	0.7	3.7	2.7



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	44	106	138	105	7	47	92	52	20	140	257
Future Volume (vph)	70	44	106	138	105	7	47	92	52	20	140	257
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.935			0.996			0.963			0.917	
Flt Protected		0.984			0.973			0.988			0.998	
Satd. Flow (prot)	0	1695	0	0	1785	0	0	1753	0	0	1686	0
Flt Permitted		0.984			0.973			0.988			0.998	
Satd. Flow (perm)	0	1695	0	0	1785	0	0	1753	0	0	1686	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		130.2			198.3			214.8			416.4	
Travel Time (s)		9.4			14.3			15.5			30.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	78	49	118	153	117	8	52	102	58	22	156	286
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	245	0	0	278	0	0	212	0	0	464	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	70	44	106	138	105	7	47	92	52	20	140	257
Future Volume (vph)	70	44	106	138	105	7	47	92	52	20	140	257
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	78	49	118	153	117	8	52	102	58	22	156	286

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	245	278	212	464
Volume Left (vph)	78	153	52	22
Volume Right (vph)	118	8	58	286
Hadj (s)	-0.19	0.13	-0.08	-0.33
Departure Headway (s)	6.5	6.7	6.6	5.8
Degree Utilization, x	0.44	0.52	0.39	0.75
Capacity (veh/h)	482	478	461	581
Control Delay (s)	14.7	16.8	13.8	24.4
Approach Delay (s)	14.7	16.8	13.8	24.4
Approach LOS	B	C	B	C

Intersection Summary				
Delay	18.8			
Level of Service	C			
Intersection Capacity Utilization	58.0%	ICU Level of Service	B	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	18.5
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	70	44	106	138	105	7	47	92	52	20	140	257
Future Vol, veh/h	70	44	106	138	105	7	47	92	52	20	140	257
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	78	49	118	153	117	8	52	102	58	22	156	286
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	14.6	16.7	13.7	23.9
HCM LOS	B	C	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	25%	32%	55%	5%
Vol Thru, %	48%	20%	42%	34%
Vol Right, %	27%	48%	3%	62%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	191	220	250	417
LT Vol	47	70	138	20
Through Vol	92	44	105	140
RT Vol	52	106	7	257
Lane Flow Rate	212	244	278	463
Geometry Grp	1	1	1	1
Degree of Util (X)	0.386	0.439	0.515	0.745
Departure Headway (Hd)	6.545	6.47	6.678	5.787
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	548	552	536	621
Service Time	4.623	4.547	4.752	3.846
HCM Lane V/C Ratio	0.387	0.442	0.519	0.746
HCM Control Delay	13.7	14.6	16.7	23.9
HCM Lane LOS	B	B	C	C
HCM 95th-tile Q	1.8	2.2	2.9	6.6

MOVEMENT SUMMARY

Site: 101 [Sixth Line & William Halton Parkway (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2031 Future Background AM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Sixth Line															
1	L2	All MCs	48	2.0	48	2.0	0.933	69.2	LOS F	6.8	48.5	0.97	1.44	2.87	27.6
2	T1	All MCs	349	2.0	349	2.0	0.933	68.3	LOS F	7.0	49.8	0.97	1.44	2.88	28.0
3	R2	All MCs	234	2.0	234	2.0	0.933	65.8	LOS F	7.0	49.8	0.97	1.45	2.92	28.2
Approach			631	2.0	631	2.0	0.933	67.4	LOS F	7.0	49.8	0.97	1.45	2.90	28.1
East: William Halton Parkway															
4	L2	All MCs	86	2.0	86	2.0	0.608	16.3	LOS C	3.8	26.8	0.67	0.80	1.19	44.5
5	T1	All MCs	559	2.0	559	2.0	0.608	16.2	LOS C	3.8	26.8	0.66	0.79	1.19	45.5
6	R2	All MCs	177	2.0	177	2.0	0.608	15.9	LOS C	3.7	26.4	0.65	0.78	1.17	45.6
Approach			821	2.0	821	2.0	0.608	16.1	LOS C	3.8	26.8	0.66	0.79	1.18	45.4
North: Sixth Line															
7	L2	All MCs	823	2.0	823	2.0	1.212	127.5	LOS F	57.2	407.3	1.00	3.57	9.11	19.3
8	T1	All MCs	287	2.0	287	2.0	0.437	11.8	LOS B	1.9	13.4	0.58	0.63	0.83	48.5
9	R2	All MCs	353	2.0	353	2.0	0.186	4.2	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			1463	2.0	1463	2.0	1.212	75.1	LOS F	57.2	407.3	0.68	2.13	5.29	26.4
West: William Halton Parkway															
10	L2	All MCs	290	2.0	290	2.0	0.909	48.5	LOS E	8.9	63.1	0.93	1.42	2.69	31.9
11	T1	All MCs	639	2.0	639	2.0	0.909	47.3	LOS E	9.0	64.0	0.93	1.42	2.70	33.2
12	R2	All MCs	106	2.0	106	2.0	0.056	2.9	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			1034	2.0	1034	2.0	0.909	43.1	LOS E	9.0	64.0	0.83	1.27	2.42	34.2
All Vehicles			3950	2.0	3950	2.0	1.212	53.2	LOS F	57.2	407.3	0.76	1.52	3.30	31.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 101 [Ninth Line & William Halton Parkway (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

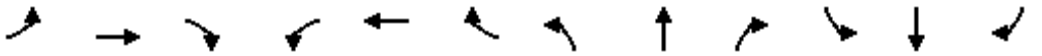
Future Total 2031 AM
Site Category: (None)
Roundabout

Vehicle Movement Performance

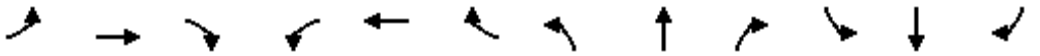
Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Ninth Line															
1	L2	All MCs	287	23.0	287	23.0	1.115	124.4	LOS F	16.2	132.6	1.00	2.39	6.09	19.6
2	T1	All MCs	392	2.0	392	2.0	1.115	110.6	LOS F	21.7	155.2	1.00	2.39	6.36	21.2
3	R2	All MCs	111	3.0	111	3.0	1.115	120.6	LOS F	21.7	155.2	1.00	2.39	6.40	21.4
Approach			790	9.8	790	9.8	1.115	117.0	LOS F	21.7	155.2	1.00	2.39	6.27	20.6
East: William Halton Parkway															
4	L2	All MCs	119	2.0	119	2.0	1.168	111.9	LOS F	46.8	335.3	1.00	3.16	7.79	21.1
5	T1	All MCs	1316	3.0	1316	3.0	1.168	111.6	LOS F	48.0	345.1	1.00	3.20	7.90	21.3
6	R2	All MCs	107	4.0	107	4.0	1.168	111.4	LOS F	48.0	345.1	1.00	3.23	8.00	21.2
Approach			1542	3.0	1542	3.0	1.168	111.6	LOS F	48.0	345.1	1.00	3.20	7.90	21.2
North: Ninth Line															
7	L2	All MCs	224	2.0	224	2.0	1.296	182.9	LOS F	36.7	261.2	1.00	3.20	9.77	15.2
8	T1	All MCs	706	2.0	706	2.0	1.296	180.9	LOS F	39.4	280.2	1.00	3.32	10.23	15.4
9	R2	All MCs	91	2.0	91	2.0	0.048	3.4	LOS A	0.0	0.0	0.00	0.00	0.00	56.4
Approach			1020	2.0	1020	2.0	1.296	165.5	LOS F	39.4	280.2	0.91	3.00	9.21	16.3
West: William Halton Parkway															
10	L2	All MCs	108	4.0	108	4.0	1.990	465.7	LOS F	198.7	1416.9	1.00	7.39	22.21	7.1
11	T1	All MCs	1982	2.0	1982	2.0	1.990	362.6	LOS F	198.7	1416.9	1.00	6.25	18.43	9.0
12	R2	All MCs	488	12.0	488	12.0	0.275	6.0	LOS A	0.0	0.0	0.00	0.00	0.00	56.1
Approach			2578	4.0	2578	4.0	1.990	299.5	LOS F	198.7	1416.9	0.81	5.12	15.10	10.5
All Vehicles			5929	4.2	5929	4.2	1.990	203.3	LOS F	198.7	1416.9	0.90	3.89	11.04	14.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	285	707	127	311	962	870	163	1626	228	518	1531	319
Future Volume (vph)	285	707	127	311	962	870	163	1626	228	518	1531	319
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	105.0		60.0	120.0		205.0	85.0		55.0	140.0		60.0
Storage Lanes	2		1	2		1	1		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	*0.80	1.00	0.97	*0.80	1.00
Ped Bike Factor							1.00					0.99
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	3500	1566	3330	3500	1566	1750	4421	1536	3267	4421	1566
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3395	3500	1566	3330	3500	1566	1750	4421	1536	3267	4421	1545
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			120			155			120			157
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		207.8			119.4			182.8			224.9	
Travel Time (s)		12.5			7.2			11.0			13.5	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	4%	2%	2%	2%	2%	4%	6%	2%	2%
Adj. Flow (vph)	306	760	137	334	1034	935	175	1748	245	557	1646	343
Shared Lane Traffic (%)												
Lane Group Flow (vph)	306	760	137	334	1034	935	175	1748	245	557	1646	343
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	48.4	48.4	11.0	48.4	48.4	11.0	45.4	45.4	11.0	44.4	44.4
Total Split (s)	12.0	50.0	50.0	20.0	58.0	58.0	13.0	53.0	53.0	17.0	57.0	57.0
Total Split (%)	8.6%	35.7%	35.7%	14.3%	41.4%	41.4%	9.3%	37.9%	37.9%	12.1%	40.7%	40.7%
Maximum Green (s)	8.0	43.6	43.6	16.0	51.6	51.6	9.0	46.6	46.6	13.0	51.6	51.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	2.7	2.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	5.4	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		35.0	35.0		35.0	35.0		32.0	32.0		32.0	32.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	8.0	43.7	43.7	15.9	51.6	51.6	9.0	46.6	46.6	13.0	51.6	51.6
Actuated g/C Ratio	0.06	0.31	0.31	0.11	0.37	0.37	0.06	0.33	0.33	0.09	0.37	0.37
v/c Ratio	1.58	0.70	0.24	0.89	0.80	1.39	1.56	1.19	0.41	1.84	1.01	0.51
Control Delay	323.5	46.4	9.0	85.9	45.4	212.2	332.3	132.9	20.1	423.5	68.6	20.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	323.5	46.4	9.0	85.9	45.4	212.2	332.3	132.9	20.1	423.5	68.6	20.9
LOS	F	D	A	F	D	F	F	F	C	F	E	C
Approach Delay		112.6			119.0			136.3			139.8	
Approach LOS		F			F			F			F	
Queue Length 50th (m)	~61.9	97.4	3.3	47.6	134.3	~316.5	~68.2	~242.2	25.7	~120.0	~193.2	39.0
Queue Length 95th (m)	#91.8	120.1	18.7	#73.0	161.4	#395.7	#115.3	#275.5	49.6	#156.1	#232.4	68.2
Internal Link Dist (m)		183.8			95.4			158.8			200.9	
Turn Bay Length (m)	105.0		60.0	120.0		205.0	85.0		55.0	140.0		60.0
Base Capacity (vph)	194	1093	571	380	1290	675	112	1471	591	303	1629	668
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.58	0.70	0.24	0.88	0.80	1.39	1.56	1.19	0.41	1.84	1.01	0.51

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.84	
Intersection Signal Delay: 129.1	Intersection LOS: F

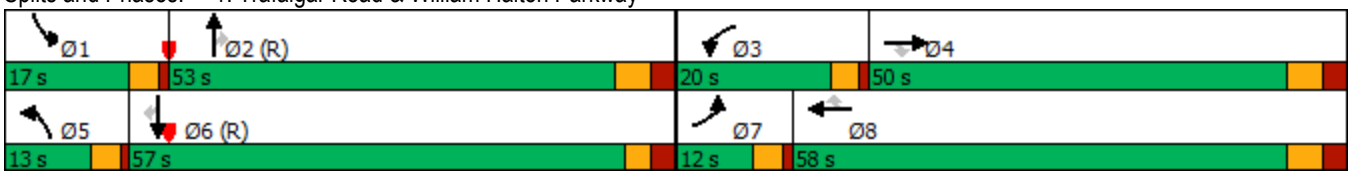
Intersection Capacity Utilization 107.4%	ICU Level of Service G
Analysis Period (min) 15	

* User Entered Value

~ 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.

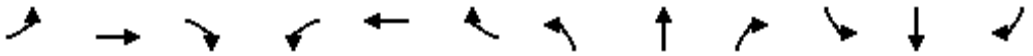
Splits and Phases: 1: Trafalgar Road & William Halton Parkway



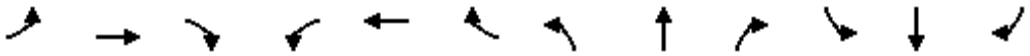
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	285	707	127	311	962	870	163	1626	228	518	1531	319
Future Volume (vph)	285	707	127	311	962	870	163	1626	228	518	1531	319
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	5.4	5.4
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	*0.80	1.00	0.97	*0.80	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	3500	1566	3330	3500	1566	1750	4421	1536	3267	4421	1545
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	3500	1566	3330	3500	1566	1750	4421	1536	3267	4421	1545
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)	306	760	137	334	1034	935	175	1748	245	557	1646	343
RTOR Reduction (vph)	0	0	83	0	0	98	0	0	80	0	0	99
Lane Group Flow (vph)	306	760	54	334	1034	837	175	1748	165	557	1646	244
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	2%	2%	2%	4%	2%	2%	2%	2%	4%	6%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	8.0	43.7	43.7	15.9	51.6	51.6	9.0	46.6	46.6	13.0	51.6	51.6
Effective Green, g (s)	8.0	43.7	43.7	15.9	51.6	51.6	9.0	46.6	46.6	13.0	51.6	51.6
Actuated g/C Ratio	0.06	0.31	0.31	0.11	0.37	0.37	0.06	0.33	0.33	0.09	0.37	0.37
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	5.4	5.4
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	194	1092	488	378	1290	577	112	1471	511	303	1629	569
v/s Ratio Prot	c0.09	0.22		0.10	0.30		0.10	c0.40		c0.17	c0.37	
v/s Ratio Perm			0.03			c0.53			0.11			0.16
v/c Ratio	1.58	0.70	0.11	0.88	0.80	1.45	1.56	1.19	0.32	1.84	1.01	0.43
Uniform Delay, d1	66.0	42.3	34.3	61.1	39.6	44.2	65.5	46.7	34.9	63.5	44.2	33.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	283.1	2.5	0.2	20.9	4.2	212.5	291.8	91.9	1.7	389.8	24.9	2.4
Delay (s)	349.1	44.8	34.5	82.0	43.8	256.7	357.3	138.6	36.6	453.3	69.1	35.5
Level of Service	F	D	C	F	D	F	F	F	D	F	E	D
Approach Delay (s)		121.0			135.8			144.7			148.6	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	139.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.37		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	107.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	300	166	318	307	72	127	1775	176	156	1611	174
Future Volume (vph)	138	300	166	318	307	72	127	1775	176	156	1611	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		0.0	120.0		0.0	130.0		0.0	170.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	*0.80	0.91	1.00	*0.80	0.91
Frt		0.947			0.971			0.986			0.985	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1668	3314	0	1750	3398	0	1750	4353	0	1750	4311	0
Flt Permitted	0.462			0.388			0.071			0.066		
Satd. Flow (perm)	811	3314	0	715	3398	0	131	4353	0	122	4311	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			25			16			21	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		245.2			123.4			230.0			280.2	
Travel Time (s)		17.7			8.9			13.8			16.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Adj. Flow (vph)	145	316	175	335	323	76	134	1868	185	164	1696	183
Shared Lane Traffic (%)												
Lane Group Flow (vph)	145	491	0	335	399	0	134	2053	0	164	1879	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.02	1.01	1.01	1.02	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		7.0	10.0	
Minimum Split (s)	41.4	41.4		41.4	41.4		37.3	37.3		11.0	37.3	
Total Split (s)	46.0	46.0		46.0	46.0		63.0	63.0		11.0	74.0	
Total Split (%)	38.3%	38.3%		38.3%	38.3%		52.5%	52.5%		9.2%	61.7%	
Maximum Green (s)	39.6	39.6		39.6	39.6		56.7	56.7		7.0	67.7	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.7	3.7		3.0	3.7	
All-Red Time (s)	2.7	2.7		2.7	2.7		2.6	2.6		1.0	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4		6.4	6.4		6.3	6.3		4.0	6.3	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		5.0	5.0		3.0	5.0	
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	28.0	28.0		28.0	28.0		24.0	24.0			24.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)	39.6	39.6		39.6	39.6		56.7	56.7		70.0	67.7	
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.47	0.47		0.58	0.56	
v/c Ratio	0.54	0.44		1.43	0.35		2.20	0.99		0.99	0.77	
Control Delay	41.9	31.9		246.7	29.5		609.5	50.0		93.0	22.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	41.9	31.9		246.7	29.5		609.5	50.0		93.0	22.6	
LOS	D	C		F	C		F	D		F	C	
Approach Delay		34.2			128.6			84.3			28.3	
Approach LOS		C			F			F			C	
Queue Length 50th (m)	27.8	45.7		~106.3	34.8		~36.5	194.2		23.0	134.0	
Queue Length 95th (m)	49.8	61.3		#162.7	48.2		#76.4	#241.0		#66.8	156.5	
Internal Link Dist (m)		221.2			99.4			206.0			256.2	
Turn Bay Length (m)	100.0			120.0			130.0			170.0		
Base Capacity (vph)	267	1105		235	1138		61	2065		166	2441	
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	0.54	0.44		1.43	0.35		2.20	0.99		0.99	0.77	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 2.20			
Intersection Signal Delay: 64.0		Intersection LOS: E	
Intersection Capacity Utilization 97.3%		ICU Level of Service F	

Analysis Period (min) 15

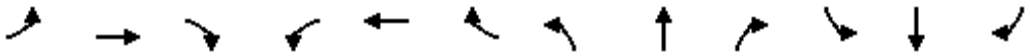
* User Entered Value

~ 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.

Splits and Phases: 2: Trafalgar Road & Burnhamthorpe Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	300	166	318	307	72	127	1775	176	156	1611	174
Future Volume (vph)	138	300	166	318	307	72	127	1775	176	156	1611	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4		6.4	6.4		6.3	6.3		4.0	6.3	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	*0.80		1.00	*0.80	
Frt	1.00	0.95		1.00	0.97		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)	1668	3313		1750	3400		1750	4355		1750	4312	
Flt Permitted	0.46	1.00		0.39	1.00		0.07	1.00		0.07	1.00	
Satd. Flow (perm)	811	3313		715	3400		130	4355		121	4312	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	145	316	175	335	323	76	134	1868	185	164	1696	183
RTOR Reduction (vph)	0	12	0	0	17	0	0	8	0	0	9	0
Lane Group Flow (vph)	145	479	0	335	382	0	134	2045	0	164	1870	0
Heavy Vehicles (%)	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	39.6	39.6		39.6	39.6		56.7	56.7		67.7	67.7	
Effective Green, g (s)	39.6	39.6		39.6	39.6		56.7	56.7		67.7	67.7	
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.47	0.47		0.56	0.56	
Clearance Time (s)	6.4	6.4		6.4	6.4		6.3	6.3		4.0	6.3	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		5.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	267	1093		235	1122		61	2057		163	2432	
v/s Ratio Prot		0.14			0.11			0.47		c0.06	0.43	
v/s Ratio Perm	0.18			c0.47			c1.03			0.51		
v/c Ratio	0.54	0.44		1.43	0.34		2.20	0.99		1.01	0.77	
Uniform Delay, d1	32.8	31.5		40.2	30.3		31.6	31.5		34.4	20.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.3	0.3		214.4	0.2		588.1	18.5		72.1	2.4	
Delay (s)	35.1	31.8		254.6	30.5		619.8	49.9		106.5	22.5	
Level of Service	D	C		F	C		F	D		F	C	
Approach Delay (s)		32.5			132.8			84.9			29.3	
Approach LOS		C			F			F			C	

Intersection Summary			
HCM 2000 Control Delay	64.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.81		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.7
Intersection Capacity Utilization	97.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	935	1	913	1563	0	790
Future Volume (vph)	935	1	913	1563	0	790
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	100.0		30.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			15.0		50.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected			0.950			
Satd. Flow (prot)	3433	0	1750	3500	1842	1566
Flt Permitted			0.140			
Satd. Flow (perm)	3433	0	258	3500	1842	1566
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						543
Link Speed (k/h)	60			60	50	
Link Distance (m)	657.5			390.6	221.9	
Travel Time (s)	39.5			23.4	16.0	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%
Adj. Flow (vph)	974	1	951	1628	0	823
Shared Lane Traffic (%)						
Lane Group Flow (vph)	975	0	951	1628	0	823
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	10.0		2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6		2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	3	



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases			6			3
Detector Phase	2		1	6	3	3
Switch Phase						
Minimum Initial (s)	10.0		7.0	10.0	7.0	7.0
Minimum Split (s)	28.4		11.5	28.4	31.0	31.0
Total Split (s)	31.0		28.0	59.0	31.0	31.0
Total Split (%)	34.4%		31.1%	65.6%	34.4%	34.4%
Maximum Green (s)	24.6		24.0	52.6	27.0	27.0
Yellow Time (s)	3.7		3.0	3.7	3.0	3.0
All-Red Time (s)	2.7		1.0	2.7	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4		4.0	6.4	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	Max		None	None	Max	Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	15.0			15.0	20.0	20.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	24.6		55.0	52.6		27.0
Actuated g/C Ratio	0.27		0.61	0.58		0.30
v/c Ratio	1.04		1.71	0.80		0.97
Control Delay	73.6		351.1	18.3		36.5
Queue Delay	0.0		0.0	0.0		0.0
Total Delay	73.6		351.1	18.3		36.5
LOS	E		F	B		D
Approach Delay	73.6			141.0	36.5	
Approach LOS	E			F	D	
Queue Length 50th (m)	~96.7		~231.0	106.4		56.8
Queue Length 95th (m)	#134.0		#303.1	135.8		#141.3
Internal Link Dist (m)	633.5			366.6	197.9	
Turn Bay Length (m)			100.0			
Base Capacity (vph)	938		555	2045		849
Starvation Cap Reductn	0		0	0		0
Spillback Cap Reductn	0		0	0		0
Storage Cap Reductn	0		0	0		0
Reduced v/c Ratio	1.04		1.71	0.80		0.97

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Natural Cycle: 140			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.71			
Intersection Signal Delay: 106.3		Intersection LOS: F	
Intersection Capacity Utilization 85.1%		ICU Level of Service E	
Analysis Period (min) 15			

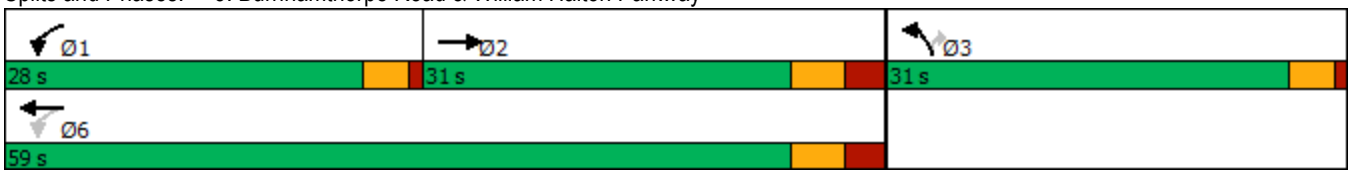
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

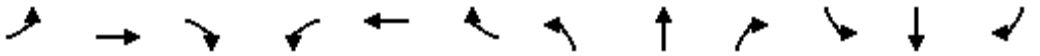
Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway



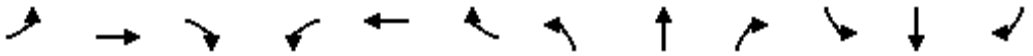


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	935	1	913	1563	0	790
Future Volume (vph)	935	1	913	1563	0	790
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4		4.0	6.4		4.0
Lane Util. Factor	0.95		1.00	0.95		1.00
Frt	1.00		1.00	1.00		0.85
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	3432		1750	3500		1566
Flt Permitted	1.00		0.14	1.00		1.00
Satd. Flow (perm)	3432		258	3500		1566
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	974	1	951	1628	0	823
RTOR Reduction (vph)	0	0	0	0	0	380
Lane Group Flow (vph)	975	0	951	1628	0	443
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	3	
Permitted Phases			6			3
Actuated Green, G (s)	24.6		52.6	52.6		27.0
Effective Green, g (s)	24.6		52.6	52.6		27.0
Actuated g/C Ratio	0.27		0.58	0.58		0.30
Clearance Time (s)	6.4		4.0	6.4		4.0
Vehicle Extension (s)	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	938		548	2045		469
v/s Ratio Prot	0.28		c0.46	0.47		
v/s Ratio Perm			c0.55			c0.28
v/c Ratio	1.04		1.74	0.80		0.94
Uniform Delay, d1	32.7		25.2	14.5		30.8
Progression Factor	1.00		1.00	1.00		1.00
Incremental Delay, d2	40.1		338.5	2.2		29.8
Delay (s)	72.8		363.7	16.8		60.5
Level of Service	E		F	B		E
Approach Delay (s)	72.8			144.7	60.5	
Approach LOS	E			F	E	

Intersection Summary			
HCM 2000 Control Delay	112.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.51		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.4
Intersection Capacity Utilization	85.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	486	1647	188	286	1770	671	308	1663	223	627	1233	372
Future Volume (vph)	486	1647	188	286	1770	671	308	1663	223	627	1233	372
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	125.0		85.0	80.0		85.0	90.0		50.0	90.0		65.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Ped Bike Factor	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	4378	1566	3395	4421	1566	3395	4421	1566	3362	4421	1566
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3394	4378	1527	3391	4421	1540	3392	4421	1541	3361	4421	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			148			149			101			140
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		592.0			816.3			644.9			1233.0	
Travel Time (s)		30.4			42.0			38.7			74.0	
Confl. Peds. (#/hr)	5		15	15		5	6		4	4		6
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%
Adj. Flow (vph)	501	1698	194	295	1825	692	318	1714	230	646	1271	384
Shared Lane Traffic (%)												
Lane Group Flow (vph)	501	1698	194	295	1825	692	318	1714	230	646	1271	384
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	12.0	50.4	50.4	12.0	50.4	50.4	11.0	48.4	48.4	11.0	48.4	48.4
Total Split (s)	14.0	55.0	55.0	12.0	53.0	53.0	12.0	49.0	49.0	14.0	51.0	51.0
Total Split (%)	10.8%	42.3%	42.3%	9.2%	40.8%	40.8%	9.2%	37.7%	37.7%	10.8%	39.2%	39.2%
Maximum Green (s)	10.0	48.6	48.6	8.0	46.6	46.6	8.0	42.6	42.6	10.0	44.6	44.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		37.0	37.0		37.0	37.0		35.0	35.0		35.0	35.0
Pedestrian Calls (#/hr)		15	15		5	5		4	4		6	6
Act Effct Green (s)	10.0	48.6	48.6	8.0	46.6	46.6	8.0	42.6	42.6	10.0	44.6	44.6
Actuated g/C Ratio	0.08	0.37	0.37	0.06	0.36	0.36	0.06	0.33	0.33	0.08	0.34	0.34
v/c Ratio	1.92	1.04	0.29	1.42	1.15	1.07	1.53	1.18	0.40	2.50	0.84	0.62
Control Delay	459.0	72.6	9.0	256.7	114.4	87.2	300.4	129.0	20.8	712.1	45.4	27.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	459.0	72.6	9.0	256.7	114.4	87.2	300.4	129.0	20.8	712.1	45.4	27.0
LOS	F	E	A	F	F	F	F	F	C	F	D	C
Approach Delay		148.3			122.7			142.1			229.5	
Approach LOS		F			F			F			F	
Queue Length 50th (m)	~101.6	~195.0	7.6	~52.2	~229.0	~170.1	~58.6	~219.4	24.6	~141.7	124.5	52.1
Queue Length 95th (m)	#135.9	#228.7	24.4	#81.0	#262.4	#243.6	#87.9	#252.9	47.1	#178.2	146.4	86.5
Internal Link Dist (m)		568.0			792.3			620.9			1209.0	
Turn Bay Length (m)	125.0		85.0	80.0		85.0	90.0		50.0	90.0		65.0
Base Capacity (vph)	261	1636	663	208	1584	647	208	1448	572	258	1516	619
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.92	1.04	0.29	1.42	1.15	1.07	1.53	1.18	0.40	2.50	0.84	0.62

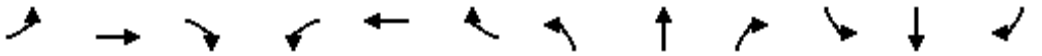
Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 2.50	
Intersection Signal Delay: 158.6	Intersection LOS: F

Intersection Capacity Utilization 118.2%	ICU Level of Service H
Analysis Period (min) 15	

* User Entered Value
~ 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.

Splits and Phases: 4: Trafalgar Road & Dundas Street

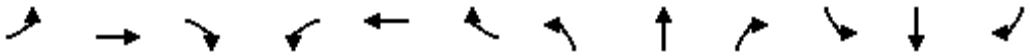




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	486	1647	188	286	1770	671	308	1663	223	627	1233	372
Future Volume (vph)	486	1647	188	286	1770	671	308	1663	223	627	1233	372
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	4378	1527	3395	4421	1540	3395	4421	1541	3362	4421	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	4378	1527	3395	4421	1540	3395	4421	1541	3362	4421	1538
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	501	1698	194	295	1825	692	318	1714	230	646	1271	384
RTOR Reduction (vph)	0	0	93	0	0	96	0	0	68	0	0	92
Lane Group Flow (vph)	501	1698	101	295	1825	596	318	1714	162	646	1271	292
Confl. Peds. (#/hr)	5		15	15		5	6		4	4		6
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	10.0	48.6	48.6	8.0	46.6	46.6	8.0	42.6	42.6	10.0	44.6	44.6
Effective Green, g (s)	10.0	48.6	48.6	8.0	46.6	46.6	8.0	42.6	42.6	10.0	44.6	44.6
Actuated g/C Ratio	0.08	0.37	0.37	0.06	0.36	0.36	0.06	0.33	0.33	0.08	0.34	0.34
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	261	1636	570	208	1584	552	208	1448	504	258	1516	527
v/s Ratio Prot	c0.15	0.39		0.09	c0.41		0.09	c0.39		c0.19	0.29	
v/s Ratio Perm			0.07			0.39			0.11			0.19
v/c Ratio	1.92	1.04	0.18	1.42	1.15	1.08	1.53	1.18	0.32	2.50	0.84	0.55
Uniform Delay, d1	60.0	40.7	27.3	61.0	41.7	41.7	61.0	43.7	32.8	60.0	39.4	34.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	427.7	32.7	0.7	214.0	76.2	61.8	260.8	90.0	0.8	688.2	4.7	2.1
Delay (s)	487.7	73.4	28.0	275.0	117.9	103.5	321.8	133.7	33.6	748.2	44.1	36.8
Level of Service	F	E	C	F	F	F	F	F	C	F	D	D
Approach Delay (s)		156.5			130.8			150.0			240.5	
Approach LOS		F			F			F			F	

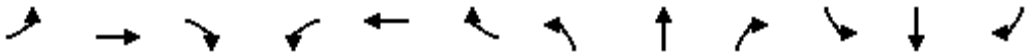
Intersection Summary			
HCM 2000 Control Delay	167.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.34		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	118.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



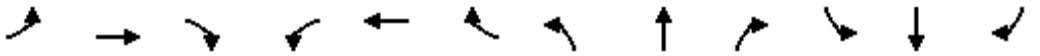
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	231	426	65	228	705	474	11	274	148	272	341	272
Future Volume (vph)	231	426	65	228	705	474	11	274	148	272	341	272
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Frt		0.987			0.949			0.949			0.954	
Flt Protected		0.984			0.992			0.999			0.985	
Satd. Flow (prot)	0	3399	0	0	3295	0	0	3318	0	0	3289	0
Flt Permitted		0.984			0.992			0.999			0.985	
Satd. Flow (perm)	0	3399	0	0	3295	0	0	3318	0	0	3289	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		476.6			825.2			671.6			229.3	
Travel Time (s)		28.6			49.5			40.3			13.8	
Confl. Bikes (#/hr)						1			1			
Peak Hour Factor	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)	236	435	66	233	719	484	11	280	151	278	348	278
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	737	0	0	1436	0	0	442	0	0	904	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization	113.9%	ICU Level of Service	H
Analysis Period (min)	15		

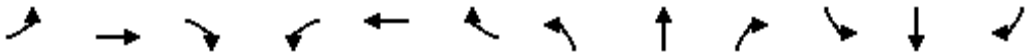


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	231	426	65	228	705	474	11	274	148	272	341	272
Future Volume (veh/h)	231	426	65	228	705	474	11	274	148	272	341	272
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	236	435	66	233	719	484	11	280	151	278	348	278
Approach Volume (veh/h)		737			1436			442			904	
Crossing Volume (veh/h)		859			527			949			963	
High Capacity (veh/h)		699			913			649			642	
High v/c (veh/h)		1.05			1.57			0.68			1.41	
Low Capacity (veh/h)		548			737			506			499	
Low v/c (veh/h)		1.34			1.95			0.87			1.81	

Intersection Summary				
Maximum v/c High	1.57			
Maximum v/c Low	1.95			
Intersection Capacity Utilization	113.9%	ICU Level of Service	H	



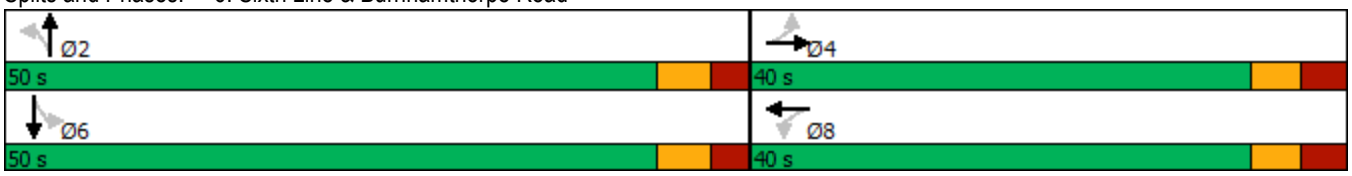
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	102	46	127	197	49	93	407	145	76	666	31
Future Volume (vph)	33	102	46	127	197	49	93	407	145	76	666	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	40.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			15.0			50.0			50.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.953			0.970			0.961			0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3335	0	1750	3336	0	1750	3355	0	1750	3475	0
Flt Permitted	0.590			0.652			0.362			0.431		
Satd. Flow (perm)	1087	3335	0	1201	3336	0	667	3355	0	794	3475	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		49			39			77			7	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		241.5			345.8			218.8			671.6	
Travel Time (s)		17.4			24.9			13.1			40.3	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	2%	2%	11%	2%	2%	3%	2%	2%	2%
Adj. Flow (vph)	35	109	49	135	210	52	99	433	154	81	709	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	35	158	0	135	262	0	99	587	0	81	742	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	

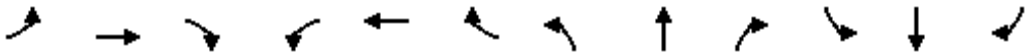


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	34.5	34.5		34.5	34.5		32.4	32.4		32.4	32.4	
Total Split (s)	40.0	40.0		40.0	40.0		50.0	50.0		50.0	50.0	
Total Split (%)	44.4%	44.4%		44.4%	44.4%		55.6%	55.6%		55.6%	55.6%	
Maximum Green (s)	33.5	33.5		33.5	33.5		43.6	43.6		43.6	43.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.2	3.2		3.2	3.2		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		19.0	19.0		19.0	19.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	13.5	13.5		13.5	13.5		43.7	43.7		43.7	43.7	
Actuated g/C Ratio	0.19	0.19		0.19	0.19		0.62	0.62		0.62	0.62	
v/c Ratio	0.17	0.23		0.58	0.39		0.24	0.28		0.16	0.34	
Control Delay	25.0	17.0		36.3	22.3		8.7	6.0		7.6	7.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	25.0	17.0		36.3	22.3		8.7	6.0		7.6	7.3	
LOS	C	B		D	C		A	A		A	A	
Approach Delay		18.4			27.1			6.4			7.3	
Approach LOS		B			C			A			A	
Queue Length 50th (m)	3.9	6.3		16.2	13.4		4.9	13.2		3.8	20.5	
Queue Length 95th (m)	10.7	13.2		32.0	22.7		14.9	25.8		11.6	37.6	
Internal Link Dist (m)		217.5			321.8			194.8			647.6	
Turn Bay Length (m)	55.0			40.0			30.0			30.0		
Base Capacity (vph)	520	1621		574	1617		415	2118		494	2167	
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	0.07	0.10		0.24	0.16		0.24	0.28		0.16	0.34	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 70.2			
Natural Cycle: 70			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 11.8		Intersection LOS: B	
Intersection Capacity Utilization 65.9%		ICU Level of Service C	
Analysis Period (min) 15			

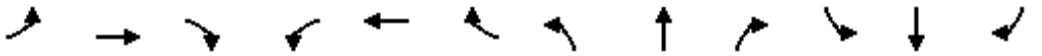
Splits and Phases: 6: Sixth Line & Burnhamthorpe Road



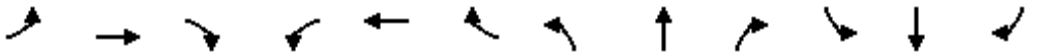


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	102	46	127	197	49	93	407	145	76	666	31
Future Volume (vph)	33	102	46	127	197	49	93	407	145	76	666	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.95		1.00	0.97		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)	1750	3337		1750	3337		1750	3354		1750	3477	
Flt Permitted	0.59	1.00		0.65	1.00		0.36	1.00		0.43	1.00	
Satd. Flow (perm)	1087	3337		1201	3337		667	3354		793	3477	
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)	35	109	49	135	210	52	99	433	154	81	709	33
RTOR Reduction (vph)	0	40	0	0	31	0	0	29	0	0	3	0
Lane Group Flow (vph)	35	118	0	135	231	0	99	558	0	81	739	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	11%	2%	2%	3%	2%	2%	2%
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)	13.5	13.5		13.5	13.5		43.7	43.7		43.7	43.7	
Effective Green, g (s)	13.5	13.5		13.5	13.5		43.7	43.7		43.7	43.7	
Actuated g/C Ratio	0.19	0.19		0.19	0.19		0.62	0.62		0.62	0.62	
Clearance Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	209	642		231	642		415	2090		494	2167	
v/s Ratio Prot		0.04			0.07			0.17			c0.21	
v/s Ratio Perm	0.03			c0.11			0.15			0.10		
v/c Ratio	0.17	0.18		0.58	0.36		0.24	0.27		0.16	0.34	
Uniform Delay, d1	23.6	23.7		25.7	24.5		5.8	6.0		5.5	6.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.1		3.7	0.3		1.4	0.3		0.7	0.4	
Delay (s)	24.0	23.8		29.5	24.9		7.2	6.3		6.3	6.7	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		23.9			26.5			6.4			6.7	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	11.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	70.1	Sum of lost time (s)	12.9
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	0	6	431	2	18	7	2250	0	0	1799	0
Future Volume (vph)	7	0	6	431	2	18	7	2250	0	0	1799	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		5.0	0.0		60.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		1	1		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt			0.850		0.999	0.850						
Flt Protected	0.950			0.950	0.953		0.950					
Satd. Flow (prot)	1526	0	1331	1615	1538	1431	1750	3500	0	0	4980	0
Flt Permitted	0.405			0.950	0.953		0.073					
Satd. Flow (perm)	650	0	1331	1615	1538	1431	134	3500	0	0	4980	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79			79						
Link Speed (k/h)		20			60			80			80	
Link Distance (m)		81.5			393.0			34.5			195.6	
Travel Time (s)		14.7			23.6			1.6			8.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	17%	2%	20%	5%	100%	6%	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	7	0	6	449	2	19	7	2344	0	0	1874	0
Shared Lane Traffic (%)				50%		10%						
Lane Group Flow (vph)	7	0	6	224	229	17	7	2344	0	0	1874	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1		1	1	2	1	1	2			2	
Detector Template	Left		Right	Left	Thru	Right	Left	Thru			Thru	
Leading Detector (m)	2.0		2.0	2.0	10.0	2.0	2.0	10.0			10.0	
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Size(m)	2.0		2.0	2.0	0.6	2.0	2.0	0.6			0.6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 2 Position(m)					9.4			9.4			9.4	
Detector 2 Size(m)					0.6			0.6			0.6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	



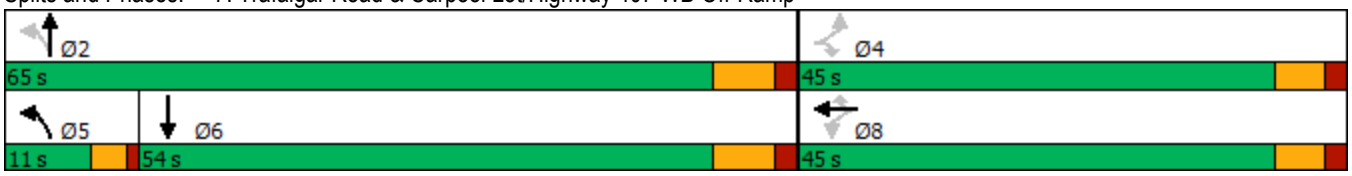
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8		8	2					
Detector Phase	4		4	8	8	8	5	2			6	
Switch Phase												
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	4.0	35.0			7.0	
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5	11.0	42.0			22.5	
Total Split (s)	45.0		45.0	45.0	45.0	45.0	11.0	65.0			54.0	
Total Split (%)	40.9%		40.9%	40.9%	40.9%	40.9%	10.0%	59.1%			49.1%	
Maximum Green (s)	39.0		39.0	39.0	39.0	39.0	7.0	58.0			47.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0	3.0	5.0			5.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0	1.0	2.0			2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Recall Mode	None		None	None	None	None	None	Min			Min	
Act Effct Green (s)	18.6		18.6	18.6	18.6	18.6	61.2	58.2			56.4	
Actuated g/C Ratio	0.21		0.21	0.21	0.21	0.21	0.68	0.65			0.63	
v/c Ratio	0.05		0.02	0.67	0.72	0.05	0.04	1.03			0.60	
Control Delay	28.1		0.2	43.0	46.4	0.2	6.6	46.4			12.6	
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	28.1		0.2	43.0	46.4	0.2	6.6	46.4			12.6	
LOS	C		A	D	D	A	A	D			B	
Approach Delay		15.2			43.1			46.2			12.6	
Approach LOS		B			D			D			B	
Queue Length 50th (m)	1.0		0.0	37.5	40.6	0.0	0.3	~229.0			58.7	
Queue Length 95th (m)	4.3		0.0	61.2	66.3	0.0	2.0	#316.6			121.8	
Internal Link Dist (m)		57.5			369.0			10.5			171.6	
Turn Bay Length (m)			5.0			60.0						
Base Capacity (vph)	283		624	703	670	668	217	2268			3126	
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	0.02		0.01	0.32	0.34	0.03	0.03	1.03			0.60	

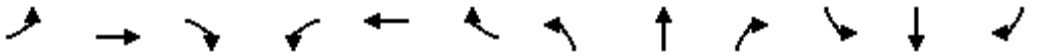
Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 89.8			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay: 32.4		Intersection LOS: C	
Intersection Capacity Utilization 91.9%		ICU Level of Service F	
Analysis Period (min) 15			

~ 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.

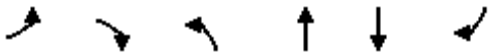
Splits and Phases: 7: Trafalgar Road & Carpool Lot/Highway 407 WB Off-Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	0	6	431	2	18	7	2250	0	0	1799	0
Future Volume (vph)	7	0	6	431	2	18	7	2250	0	0	1799	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	6.0	4.0	7.0			7.0	
Lane Util. Factor	1.00		1.00	0.95	0.91	0.95	1.00	0.95			0.91	
Frt	1.00		0.85	1.00	1.00	0.85	1.00	1.00			1.00	
Flt Protected	0.95		1.00	0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1526		1331	1615	1538	1431	1750	3500			4980	
Flt Permitted	0.41		1.00	0.95	0.95	1.00	0.07	1.00			1.00	
Satd. Flow (perm)	650		1331	1615	1538	1431	135	3500			4980	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	7	0	6	449	2	19	7	2344	0	0	1874	0
RTOR Reduction (vph)	0	0	5	0	0	14	0	0	0	0	0	0
Lane Group Flow (vph)	7	0	1	224	229	3	7	2344	0	0	1874	0
Heavy Vehicles (%)	17%	2%	20%	5%	100%	6%	2%	2%	2%	2%	3%	2%
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	
Permitted Phases	4		4	8		8	2					
Actuated Green, G (s)	18.6		18.6	18.6	18.6	18.6	61.5	61.5			56.4	
Effective Green, g (s)	18.6		18.6	18.6	18.6	18.6	61.5	61.5			56.4	
Actuated g/C Ratio	0.20		0.20	0.20	0.20	0.20	0.66	0.66			0.61	
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)	129		265	322	307	285	108	2312			3016	
v/s Ratio Prot							0.00	c0.67			0.38	
v/s Ratio Perm	0.01		0.00	0.14	0.15	0.00	0.04					
v/c Ratio	0.05		0.00	0.70	0.75	0.01	0.06	1.01			0.62	
Uniform Delay, d1	30.1		29.8	34.6	35.0	29.9	7.5	15.8			11.6	
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.2		0.0	6.4	9.5	0.0	0.3	22.2			0.4	
Delay (s)	30.3		29.8	41.0	44.5	29.9	7.8	38.0			12.0	
Level of Service	C		C	D	D	C	A	D			B	
Approach Delay (s)		30.1			42.3			37.9			12.0	
Approach LOS		C			D			D			B	

Intersection Summary			
HCM 2000 Control Delay	28.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	93.1	Sum of lost time (s)	17.0
Intersection Capacity Utilization	91.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↑↑↑	↑↑	↱
Traffic Volume (vph)	0	0	0	2282	2285	45
Future Volume (vph)	0	0	0	2282	2285	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.95	1.00
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	5029	3433	1521
Flt Permitted						
Satd. Flow (perm)	0	0	0	5029	3433	1521
Link Speed (k/h)	60			80	80	
Link Distance (m)	166.7			156.0	34.5	
Travel Time (s)	10.0			7.0	1.6	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	4%	5%
Adj. Flow (vph)	0	0	0	2377	2380	47
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2377	2380	47
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 66.5%		ICU Level of Service C	
Analysis Period (min) 15			

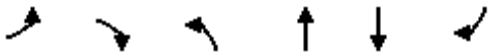
Intersection Sign configuration not allowed in HCM analysis.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	2282	266	0	2285
Future Volume (vph)	0	0	2282	266	0	2285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt				0.850		
Flt Protected						
Satd. Flow (prot)	0	0	3500	1521	0	3433
Flt Permitted						
Satd. Flow (perm)	0	0	3500	1521	0	3433
Link Speed (k/h)	30		80			80
Link Distance (m)	189.2		37.4			156.0
Travel Time (s)	22.7		1.7			7.0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	5%	2%	4%
Adj. Flow (vph)	0	0	2377	277	0	2380
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	2377	277	0	2380
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Free		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 66.5%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection Sign configuration not allowed in HCM analysis.



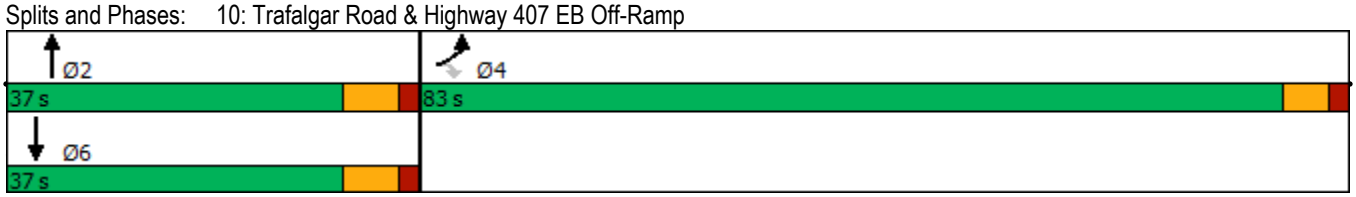
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	38	278	0	2507	2083	0
Future Volume (vph)	38	278	0	2507	2083	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1750	1278	0	3500	3466	0
Flt Permitted	0.950					
Satd. Flow (perm)	1750	1278	0	3500	3466	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						
Link Speed (k/h)	60			80	80	
Link Distance (m)	415.1			117.5	129.7	
Travel Time (s)	24.9			5.3	5.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	25%	2%	2%	3%	2%
Adj. Flow (vph)	40	296	0	2667	2216	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	40	296	0	2667	2216	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (m)	2.0	2.0		10.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	2.0		0.6	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						

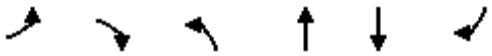
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Initial (s)	6.0	6.0		20.0	20.0	
Minimum Split (s)	24.0	24.0		27.0	27.0	
Total Split (s)	83.0	83.0		37.0	37.0	
Total Split (%)	69.2%	69.2%		30.8%	30.8%	
Maximum Green (s)	77.0	77.0		30.0	30.0	
Yellow Time (s)	4.0	4.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		7.0	7.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		Max	Max	
Act Effct Green (s)	19.3	19.3		30.2	30.2	
Actuated g/C Ratio	0.31	0.31		0.48	0.48	
v/c Ratio	0.07	0.75		1.58	1.33	
Control Delay	14.7	32.0		284.5	171.6	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	14.7	32.0		284.5	171.6	
LOS	B	C		F	F	
Approach Delay	29.9			284.5	171.6	
Approach LOS	C			F	F	
Queue Length 50th (m)	3.2	30.1		~235.9	~178.6	
Queue Length 95th (m)	8.5	54.0		#325.6	#259.4	
Internal Link Dist (m)	391.1			93.5	105.7	
Turn Bay Length (m)						
Base Capacity (vph)	1750	1278		1687	1671	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.02	0.23		1.58	1.33	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 62.6			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.58			
Intersection Signal Delay: 220.2		Intersection LOS: F	
Intersection Capacity Utilization 85.6%		ICU Level of Service E	
Analysis Period (min) 15			

~ 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.

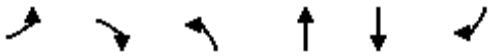
Splits and Phases: 10: Trafalgar Road & Highway 407 EB Off-Ramp





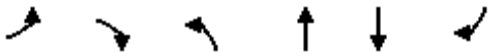
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	38	278	0	2507	2083	0
Future Volume (vph)	38	278	0	2507	2083	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1750	1278		3500	3466	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1750	1278		3500	3466	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	40	296	0	2667	2216	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	40	296	0	2667	2216	0
Heavy Vehicles (%)	2%	25%	2%	2%	3%	2%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	19.3	19.3		30.2	30.2	
Effective Green, g (s)	19.3	19.3		30.2	30.2	
Actuated g/C Ratio	0.31	0.31		0.48	0.48	
Clearance Time (s)	6.0	6.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	540	394		1691	1674	
v/s Ratio Prot	0.02			c0.76	0.64	
v/s Ratio Perm		c0.23				
v/c Ratio	0.07	0.75		1.58	1.32	
Uniform Delay, d1	15.3	19.4		16.1	16.1	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	7.9		262.6	150.0	
Delay (s)	15.3	27.3		278.8	166.1	
Level of Service	B	C		F	F	
Approach Delay (s)	25.9			278.8	166.1	
Approach LOS	C			F	F	

Intersection Summary			
HCM 2000 Control Delay	214.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	62.5	Sum of lost time (s)	13.0
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	2545	2083	21
Future Volume (vph)	0	0	0	2545	2083	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	3500	3466	1566
Flt Permitted						
Satd. Flow (perm)	0	0	0	3500	3466	1566
Link Speed (k/h)	30			80	80	
Link Distance (m)	113.6			129.7	37.4	
Travel Time (s)	13.6			5.8	1.7	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	0	0	0	2707	2216	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2707	2216	22
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 85.6%		ICU Level of Service E	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	2545	2083	21
Future Volume (Veh/h)	0	0	0	2545	2083	21
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	0	2707	2216	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)				130	228	
pX, platoon unblocked	0.67	0.70	0.70			
vC, conflicting volume	3570	1108	2238			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1872	315	1919			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	43	480	215			

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	1354	1354	1108	1108	22
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	22
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.80	0.80	0.65	0.65	0.01
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					
Approach Delay (s)	0.0		0.0		
Approach LOS					

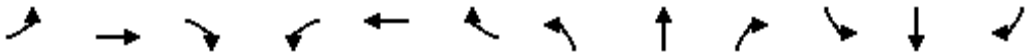
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	2507	321	0	2359
Future Volume (vph)	0	0	2507	321	0	2359
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.91
Frt				0.850		
Flt Protected						
Satd. Flow (prot)	0	0	3500	1452	0	4885
Flt Permitted						
Satd. Flow (perm)	0	0	3500	1452	0	4885
Link Speed (k/h)	50		80			80
Link Distance (m)	246.0		145.5			117.5
Travel Time (s)	17.7		6.5			5.3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	10%	2%	5%
Adj. Flow (vph)	0	0	2667	341	0	2510
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	2667	341	0	2510
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Free		Free			Free

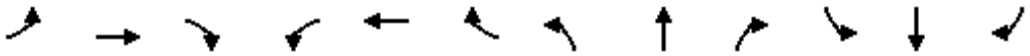
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 72.6%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection Sign configuration not allowed in HCM analysis.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	1461	306	147	1872	137	460	673	240	117	347	100
Future Volume (vph)	36	1461	306	147	1872	137	460	673	240	117	347	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.975			0.990			0.974			0.973	
Flt Protected		0.999			0.997			0.984			0.990	
Satd. Flow (prot)	0	3363	0	0	3454	0	0	3343	0	0	3371	0
Flt Permitted		0.999			0.997			0.984			0.990	
Satd. Flow (perm)	0	3363	0	0	3454	0	0	3343	0	0	3371	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		234.8			101.3			359.6			262.5	
Travel Time (s)		14.1			6.1			21.6			15.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	4%	2%	10%	2%	2%	2%	3%	2%	2%	2%	2%	2%
Adj. Flow (vph)	38	1522	319	153	1950	143	479	701	250	122	361	104
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1879	0	0	2246	0	0	1430	0	0	587	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

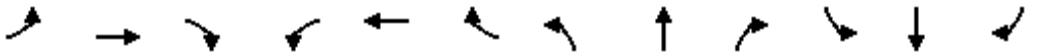
Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 180.7%		ICU Level of Service H	
Analysis Period (min) 15			



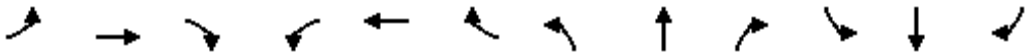
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	36	1461	306	147	1872	137	460	673	240	117	347	100
Future Volume (veh/h)	36	1461	306	147	1872	137	460	673	240	117	347	100
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	38	1522	319	153	1950	143	479	701	250	122	361	104
Approach Volume (veh/h)		1879			2246			1430			587	
Crossing Volume (veh/h)		636			1218#			1682#			2582#	
High Capacity (veh/h)		837			520			352			161	
High v/c (veh/h)		2.25			4.32			4.06			3.64	
Low Capacity (veh/h)		669			395			256			107	
Low v/c (veh/h)		2.81			5.68			5.58			5.49	

Intersection Summary				
Maximum v/c High	4.32			
Maximum v/c Low	5.68			
Intersection Capacity Utilization	180.7%	ICU Level of Service	H	

Crossing flow exceeds 1200, method is not applicable



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	831	14	55	1360	28	23	6	73	137	33	13
Future Volume (vph)	3	831	14	55	1360	28	23	6	73	137	33	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	50.0		30.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00		0.97	1.00	0.98		1.00	0.99	
Frt		0.997				0.850		0.862			0.959	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3488	0	1750	3500	1566	1750	1559	0	1750	1757	0
Flt Permitted	0.120			0.276			0.724			0.700		
Satd. Flow (perm)	221	3488	0	507	3500	1516	1328	1559	0	1284	1757	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				29		81			14	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		825.2			198.4			580.4			190.6	
Travel Time (s)		49.5			11.9			41.8			13.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	3	923	16	61	1511	31	26	7	81	152	37	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	939	0	61	1511	31	26	88	0	152	51	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

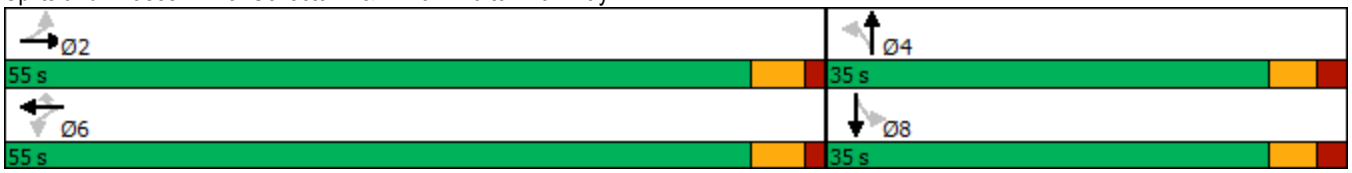


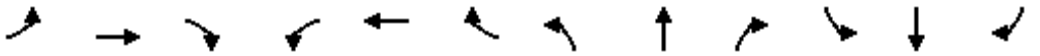
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6		6	4			8		
Detector Phase	2	2		6	6	6	4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	32.1	32.1		32.1	32.1	32.1	34.4	34.4		34.4	34.4	
Total Split (s)	55.0	55.0		55.0	55.0	55.0	35.0	35.0		35.0	35.0	
Total Split (%)	61.1%	61.1%		61.1%	61.1%	61.1%	38.9%	38.9%		38.9%	38.9%	
Maximum Green (s)	49.9	49.9		49.9	49.9	49.9	29.6	29.6		29.6	29.6	
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7	3.3	3.3		3.3	3.3	
All-Red Time (s)	1.4	1.4		1.4	1.4	1.4	2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.1	5.1		5.1	5.1	5.1	5.4	5.4		5.4	5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max	Max	None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	20.0	20.0		20.0	20.0	20.0	22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)	5	5		5	5	5	5	5		5	5	
Act Effct Green (s)	53.1	53.1		53.1	53.1	53.1	16.0	16.0		16.0	16.0	
Actuated g/C Ratio	0.67	0.67		0.67	0.67	0.67	0.20	0.20		0.20	0.20	
v/c Ratio	0.02	0.40		0.18	0.65	0.03	0.10	0.23		0.59	0.14	
Control Delay	7.7	7.7		8.8	10.8	3.2	24.0	8.2		37.1	19.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	7.7	7.7		8.8	10.8	3.2	24.0	8.2		37.1	19.1	
LOS	A	A		A	B	A	C	A		D	B	
Approach Delay		7.7			10.6			11.8			32.6	
Approach LOS		A			B			B			C	
Queue Length 50th (m)	0.1	26.1		2.7	54.4	0.1	3.1	0.8		19.8	4.3	
Queue Length 95th (m)	1.5	62.2		12.3	126.5	3.7	8.6	10.5		36.3	12.1	
Internal Link Dist (m)		801.2			174.4			556.4			166.6	
Turn Bay Length (m)	30.0			50.0		30.0	30.0			30.0		
Base Capacity (vph)	147	2326		337	2332	1020	497	634		481	667	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.02	0.40		0.18	0.65	0.03	0.05	0.14		0.32	0.08	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 79.6			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.65			
Intersection Signal Delay: 11.2		Intersection LOS: B	
Intersection Capacity Utilization 70.2%		ICU Level of Service C	

Analysis Period (min) 15

Splits and Phases: 15: Collector 1 & William Halton Parkway

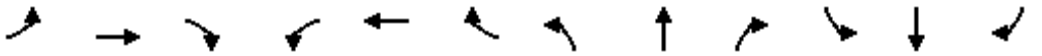




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	831	14	55	1360	28	23	6	73	137	33	13
Future Volume (vph)	3	831	14	55	1360	28	23	6	73	137	33	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1		5.1	5.1	5.1	5.4	5.4		5.4	5.4	
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	0.97	1.00	0.98		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.86		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1749	3489		1747	3500	1519	1743	1556		1744	1756	
Flt Permitted	0.12	1.00		0.28	1.00	1.00	0.72	1.00		0.70	1.00	
Satd. Flow (perm)	221	3489		508	3500	1519	1328	1556		1285	1756	
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)	3	923	16	61	1511	31	26	7	81	152	37	14
RTOR Reduction (vph)	0	1	0	0	0	10	0	65	0	0	11	0
Lane Group Flow (vph)	3	938	0	61	1511	21	26	23	0	152	40	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	53.0	53.0		53.0	53.0	53.0	16.0	16.0		16.0	16.0	
Effective Green, g (s)	53.0	53.0		53.0	53.0	53.0	16.0	16.0		16.0	16.0	
Actuated g/C Ratio	0.67	0.67		0.67	0.67	0.67	0.20	0.20		0.20	0.20	
Clearance Time (s)	5.1	5.1		5.1	5.1	5.1	5.4	5.4		5.4	5.4	
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)	147	2326		338	2333	1012	267	313		258	353	
v/s Ratio Prot		0.27			c0.43			0.01			0.02	
v/s Ratio Perm	0.01			0.12		0.01	0.02			c0.12		
v/c Ratio	0.02	0.40		0.18	0.65	0.02	0.10	0.07		0.59	0.11	
Uniform Delay, d1	4.5	6.0		5.0	7.8	4.5	25.9	25.7		28.8	25.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.5		1.2	1.4	0.0	0.2	0.1		3.4	0.1	
Delay (s)	4.7	6.6		6.2	9.2	4.5	26.0	25.8		32.2	26.1	
Level of Service	A	A		A	A	A	C	C		C	C	
Approach Delay (s)		6.6			9.0			25.9			30.7	
Approach LOS		A			A			C			C	

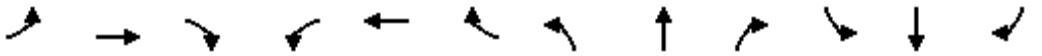
Intersection Summary			
HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	79.5	Sum of lost time (s)	10.5
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1041	0	0	1443	0	0	0	48	0	0	0
Future Volume (vph)	0	1041	0	0	1443	0	0	0	48	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		30.0	30.0		0.0	30.0		0.0
Storage Lanes	0		0	0		1	0		1	0		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt									0.865			
Flt Protected												
Satd. Flow (prot)	0	3500	0	0	3500	1842	0	0	1593	0	0	1842
Flt Permitted												
Satd. Flow (perm)	0	3500	0	0	3500	1842	0	0	1593	0	0	1842
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		198.4			207.8			147.0			166.3	
Travel Time (s)		11.9			12.5			10.6			12.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	0	1157	0	0	1603	0	0	0	53	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1157	0	0	1603	0	0	0	53	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

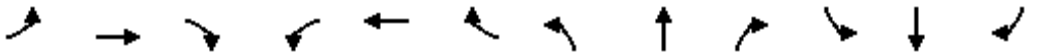
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 51.4%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1041	0	0	1443	0	0	0	48	0	0	0
Future Volume (Veh/h)	0	1041	0	0	1443	0	0	0	48	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1157	0	0	1603	0	0	0	53	0	0	0
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		198			208							
pX, platoon unblocked	0.73			0.88			0.79	0.79	0.88	0.79	0.79	0.73
vC, conflicting volume	1608			1162			1968	2770	588	2244	2770	812
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1101			918			1030	2043	268	1379	2043	14
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	92	100	100	100
cM capacity (veh/h)	459			649			146	44	638	74	44	771

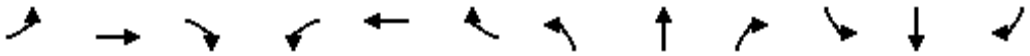
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	771	386	802	802	0	53	0
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	53	0
cSH	1700	1700	1700	1700	1700	638	1700
Volume to Capacity	0.45	0.23	0.47	0.47	0.00	0.08	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	2.1	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	11.2	0.0
Lane LOS						B	A
Approach Delay (s)	0.0		0.0			11.2	0.0
Approach LOS						B	A

Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	51.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	396	18	121	462	24	13	43	96	114	82	13
Future Volume (vph)	3	396	18	121	462	24	13	43	96	114	82	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.993			0.992			0.896			0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3475	0	1750	3472	0	1750	1650	0	1750	1805	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1750	3475	0	1750	3472	0	1750	1650	0	1750	1805	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		136.3			245.2			477.1			580.4	
Travel Time (s)		9.8			17.7			34.4			41.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	3	440	20	134	513	27	14	48	107	127	91	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	460	0	134	540	0	14	155	0	127	105	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 47.4%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	396	18	121	462	24	13	43	96	114	82	13
Future Volume (Veh/h)	3	396	18	121	462	24	13	43	96	114	82	13
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	3	440	20	134	513	27	14	48	107	127	91	14
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)					245							
pX, platoon unblocked												
vC, conflicting volume	545			465			1050	1274	240	1162	1270	280
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	545			465			1050	1274	240	1162	1270	280
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			88			82	67	86	0	37	98
cM capacity (veh/h)	1015			1087			79	144	754	85	144	710

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1	SB 2
Volume Total	3	293	167	134	342	198	14	155	127	105
Volume Left	3	0	0	134	0	0	14	0	127	0
Volume Right	0	0	20	0	0	27	0	107	0	14
cSH	1015	1700	1700	1087	1700	1700	79	325	85	161
Volume to Capacity	0.00	0.17	0.10	0.12	0.20	0.12	0.18	0.48	1.49	0.65
Queue Length 95th (m)	0.1	0.0	0.0	3.2	0.0	0.0	4.5	18.6	75.8	27.9
Control Delay (s)	8.6	0.0	0.0	8.8	0.0	0.0	59.8	25.7	357.3	61.4
Lane LOS	A			A			F	D	F	F
Approach Delay (s)	0.1			1.7			28.5		223.4	
Approach LOS							D		F	

Intersection Summary				
Average Delay	37.6			
Intersection Capacity Utilization	47.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	397	3	29	459	2	20
Future Volume (vph)	397	3	29	459	2	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	0.0		30.0	0.0
Storage Lanes		0	0		1	1
Taper Length (m)			15.0		15.0	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt	0.999					0.850
Flt Protected				0.997	0.950	
Satd. Flow (prot)	3496	0	0	3489	1750	1566
Flt Permitted				0.997	0.950	
Satd. Flow (perm)	3496	0	0	3489	1750	1566
Link Speed (k/h)	50			50	50	
Link Distance (m)	139.2			131.8	226.2	
Travel Time (s)	10.0			9.5	16.3	
Confl. Peds. (#/hr)		5	5		5	5
Confl. Bikes (#/hr)		5				5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	441	3	32	510	2	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	444	0	0	542	2	22
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

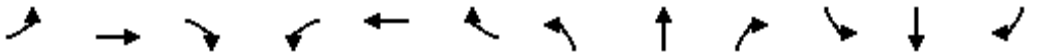
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	397	3	29	459	2	20
Future Volume (Veh/h)	397	3	29	459	2	20
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	441	3	32	510	2	22
Pedestrians	5			5	5	
Lane Width (m)	3.5			3.5	3.5	
Walking Speed (m/s)	1.0			1.0	1.0	
Percent Blockage	0			0	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			449		772	232
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			449		772	232
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		99	97
cM capacity (veh/h)			1102		323	763

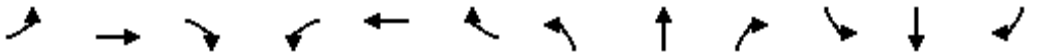
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	294	150	202	340	2	22
Volume Left	0	0	32	0	2	0
Volume Right	0	3	0	0	0	22
cSH	1700	1700	1102	1700	323	763
Volume to Capacity	0.17	0.09	0.03	0.20	0.01	0.03
Queue Length 95th (m)	0.0	0.0	0.7	0.0	0.1	0.7
Control Delay (s)	0.0	0.0	1.6	0.0	16.2	9.9
Lane LOS			A		C	A
Approach Delay (s)	0.0		0.6		10.4	
Approach LOS					B	

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	39.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1437	16	0	1759	22	0	0	12	0	0	383
Future Volume (vph)	0	1437	16	0	1759	22	0	0	12	0	0	383
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		30.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		1	0		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.998				0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3493	0	0	3500	1566	0	0	1593	0	0	1593
Flt Permitted												
Satd. Flow (perm)	0	3493	0	0	3500	1566	0	0	1593	0	0	1593
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		119.4			229.9			118.2			144.7	
Travel Time (s)		7.2			13.8			8.5			10.4	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	0	1597	18	0	1954	24	0	0	13	0	0	426
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1615	0	0	1954	24	0	0	13	0	0	426
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			0.0			0.0	
Link Offset(m)		0.0			0.0			5.0			5.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

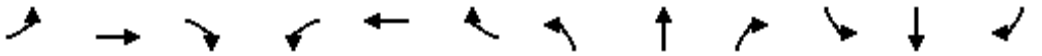
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 79.5%		ICU Level of Service D	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1437	16	0	1759	22	0	0	12	0	0	383
Future Volume (Veh/h)	0	1437	16	0	1759	22	0	0	12	0	0	383
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1597	18	0	1954	24	0	0	13	0	0	426
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		119			230							
pX, platoon unblocked	0.61			0.81			0.71	0.71	0.81	0.71	0.71	0.61
vC, conflicting volume	1983			1620			3019	3594	818	2776	3579	987
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1334			1297			1816	2631	306	1471	2610	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	98	100	100	35
cM capacity (veh/h)	312			428			12	16	554	60	17	656

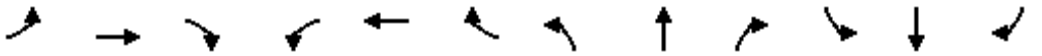
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	1065	550	977	977	24	13	426
Volume Left	0	0	0	0	0	0	0
Volume Right	0	18	0	0	24	13	426
cSH	1700	1700	1700	1700	1700	554	656
Volume to Capacity	0.63	0.32	0.57	0.57	0.01	0.02	0.65
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.5	36.3
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	11.7	20.1
Lane LOS						B	C
Approach Delay (s)	0.0		0.0			11.7	20.1
Approach LOS						B	C

Intersection Summary				
Average Delay	2.2			
Intersection Capacity Utilization	79.5%	ICU Level of Service	D	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	588	44	0	676	6	0	0	93	0	0	12
Future Volume (vph)	0	588	44	0	676	6	0	0	93	0	0	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.990			0.999				0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3465	0	0	3496	0	0	0	1593	0	0	1593
Flt Permitted												
Satd. Flow (perm)	0	3465	0	0	3496	0	0	0	1593	0	0	1593
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		123.4			223.5			492.2			141.1	
Travel Time (s)		8.9			16.1			35.4			10.2	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	0	653	49	0	751	7	0	0	103	0	0	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	702	0	0	758	0	0	0	103	0	0	13
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			-10.0			-10.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

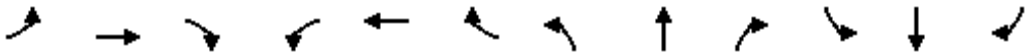
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 31.7%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	588	44	0	676	6	0	0	93	0	0	12
Future Volume (Veh/h)	0	588	44	0	676	6	0	0	93	0	0	12
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	653	49	0	751	7	0	0	103	0	0	13
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		123										
pX, platoon unblocked				0.95			0.95	0.95	0.95	0.95	0.95	
vC, conflicting volume	763			707			1076	1446	361	1194	1466	389
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	763			577			967	1357	211	1091	1379	389
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	86	100	100	98
cM capacity (veh/h)	841			935			190	138	745	136	134	604

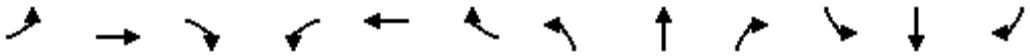
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	435	267	501	257	103	13
Volume Left	0	0	0	0	0	0
Volume Right	0	49	0	7	103	13
cSH	1700	1700	1700	1700	745	604
Volume to Capacity	0.26	0.16	0.29	0.15	0.14	0.02
Queue Length 95th (m)	0.0	0.0	0.0	0.0	3.6	0.5
Control Delay (s)	0.0	0.0	0.0	0.0	10.6	11.1
Lane LOS					B	B
Approach Delay (s)	0.0		0.0		10.6	11.1
Approach LOS					B	B

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	31.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	27	0	0	63	0	1919	62	0	1952	6
Future Volume (vph)	0	0	27	0	0	63	0	1919	62	0	1952	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		30.0	0.0		30.0
Storage Lanes	0		1	0		1	0		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	*0.80	0.91	1.00	*0.80	0.91
Ped Bike Factor												
Frt			0.865			0.865		0.995				
Flt Protected												
Satd. Flow (prot)	0	0	1593	0	0	1593	0	4399	0	0	4421	0
Flt Permitted												
Satd. Flow (perm)	0	0	1593	0	0	1593	0	4399	0	0	4421	0
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		168.4			345.0			280.2			182.8	
Travel Time (s)		12.1			24.8			16.8			11.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	0	0	30	0	0	70	0	2132	69	0	2169	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	30	0	0	70	0	2201	0	0	2176	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

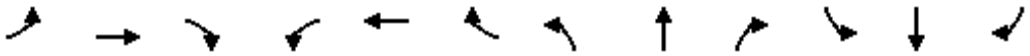
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.9%		ICU Level of Service A	
Analysis Period (min) 15			
* User Entered Value			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	27	0	0	63	0	1919	62	0	1952	6
Future Volume (Veh/h)	0	0	27	0	0	63	0	1919	62	0	1952	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	30	0	0	70	0	2132	69	0	2169	7
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								280			183	
pX, platoon unblocked	0.75	0.75	0.65	0.75	0.75	0.57	0.65			0.57		
vC, conflicting volume	2963	4384	736	2930	4352	755	2181			2206		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	1186	0	0	1145	0	928			505		
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	96	100	100	89	100			100		
cM capacity (veh/h)	668	139	697	721	147	617	473			603		

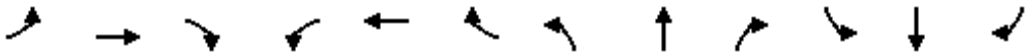
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	30	70	853	853	495	868	868	441
Volume Left	0	0	0	0	0	0	0	0
Volume Right	30	70	0	0	69	0	0	7
cSH	697	617	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.04	0.11	0.50	0.50	0.29	0.51	0.51	0.26
Queue Length 95th (m)	1.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	10.4	11.6	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	B						
Approach Delay (s)	10.4	11.6	0.0			0.0		
Approach LOS	B	B						

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	50.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	7	12	3	9	6	74	61	2	5	90	57
Future Volume (vph)	57	7	12	3	9	6	74	61	2	5	90	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.979			0.953			0.998			0.950	
Flt Protected		0.964			0.993			0.974			0.998	
Satd. Flow (prot)	0	1738	0	0	1743	0	0	1791	0	0	1746	0
Flt Permitted		0.964			0.993			0.974			0.998	
Satd. Flow (perm)	0	1738	0	0	1743	0	0	1791	0	0	1746	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		345.0			275.5			250.4			181.9	
Travel Time (s)		24.8			19.8			18.0			13.1	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	63	8	13	3	10	7	82	68	2	6	100	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	84	0	0	20	0	0	152	0	0	169	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

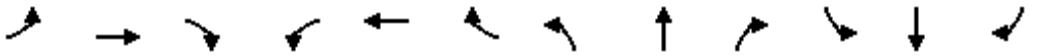
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.1%		ICU Level of Service A	
Analysis Period (min) 15			



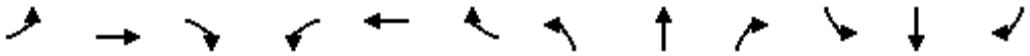
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	7	12	3	9	6	74	61	2	5	90	57
Future Volume (Veh/h)	57	7	12	3	9	6	74	61	2	5	90	57
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	63	8	13	3	10	7	82	68	2	6	100	63
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)											182	
pX, platoon unblocked												
vC, conflicting volume	398	388	142	404	418	79	168			75		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	398	388	142	404	418	79	168			75		
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 %	88	98	99	99	98	99	94			100		
cM capacity (veh/h)	514	508	897	508	488	972	1403			1517		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	84	20	152	169
Volume Left	63	3	82	6
Volume Right	13	7	2	63
cSH	550	596	1403	1517
Volume to Capacity	0.15	0.03	0.06	0.00
Queue Length 95th (m)	4.1	0.8	1.4	0.1
Control Delay (s)	12.7	11.3	4.4	0.3
Lane LOS	B	B	A	A
Approach Delay (s)	12.7	11.3	4.4	0.3
Approach LOS	B	B		

Intersection Summary				
Average Delay	4.7			
Intersection Capacity Utilization	39.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	549	814	87	47	1490	15	86	0	29	79	44	205
Future Volume (vph)	549	814	87	47	1490	15	86	0	29	79	44	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0		30.0	30.0		0.0	40.0		0.0	40.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97	1.00	1.00		1.00	0.98		0.99	0.98	
Frt			0.850		0.998			0.850			0.877	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3500	1566	1750	3492	0	1750	1534	0	1750	1587	0
Flt Permitted	0.090			0.315			0.209			0.736		
Satd. Flow (perm)	166	3500	1511	578	3492	0	384	1534	0	1348	1587	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			68		1			108			194	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		229.9			1297.0			181.9			123.7	
Travel Time (s)		13.8			77.8			13.1			8.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	610	904	97	52	1656	17	96	0	32	88	49	228
Shared Lane Traffic (%)												
Lane Group Flow (vph)	610	904	97	52	1673	0	96	32	0	88	277	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	5	2			6		3	8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	5	2	2	6	6		3	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	10.0	10.0		7.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	32.1	32.1	32.1	32.1		11.0	38.5		38.5	38.5	
Total Split (s)	23.0	69.0	69.0	46.0	46.0		11.0	51.0		40.0	40.0	
Total Split (%)	19.2%	57.5%	57.5%	38.3%	38.3%		9.2%	42.5%		33.3%	33.3%	
Maximum Green (s)	19.0	62.9	62.9	39.9	39.9		7.0	44.5		33.5	33.5	
Yellow Time (s)	3.0	3.7	3.7	3.7	3.7		3.0	3.3		3.3	3.3	
All-Red Time (s)	1.0	2.4	2.4	2.4	2.4		1.0	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.1	6.1	6.1	6.1		4.0	6.5		6.5	6.5	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Max	Max	None	None		None	None		None	None	
Walk Time (s)		7.0	7.0	7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)		19.0	19.0	19.0	19.0			25.0		25.0	25.0	
Pedestrian Calls (#/hr)		5	5	5	5			5		5	5	
Act Effct Green (s)	65.7	63.6	63.6	40.3	40.3		26.2	23.7		15.1	15.1	
Actuated g/C Ratio	0.66	0.64	0.64	0.40	0.40		0.26	0.24		0.15	0.15	
v/c Ratio	1.48	0.41	0.10	0.22	1.19		0.49	0.07		0.43	0.69	
Control Delay	253.0	11.2	4.5	26.8	121.1		35.8	0.3		45.2	22.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	253.0	11.2	4.5	26.8	121.1		35.8	0.3		45.2	22.0	
LOS	F	B	A	C	F		D	A		D	C	
Approach Delay		102.3			118.3			26.9			27.6	
Approach LOS		F			F			C			C	
Queue Length 50th (m)	~145.4	39.7	1.8	6.3	~202.7		14.4	0.0		16.0	14.9	
Queue Length 95th (m)	#267.1	83.7	11.1	19.7	#321.4		26.1	0.0		30.0	39.6	
Internal Link Dist (m)		205.9			1273.0			157.9			99.7	
Turn Bay Length (m)	85.0		30.0	30.0			40.0			40.0		
Base Capacity (vph)	413	2226	985	232	1409		197	749		456	665	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	1.48	0.41	0.10	0.22	1.19		0.49	0.04		0.19	0.42	

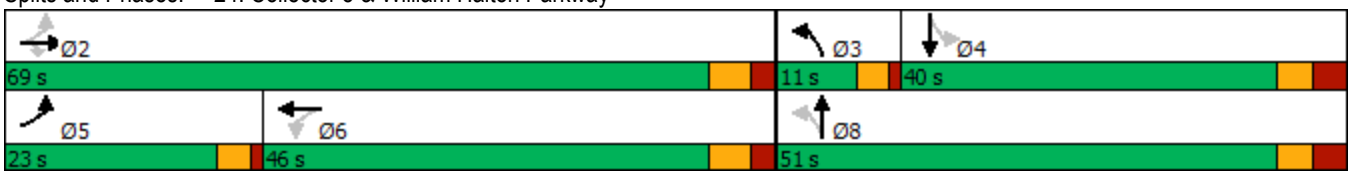
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 100			
Natural Cycle: 145			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.48			
Intersection Signal Delay: 99.9		Intersection LOS: F	
Intersection Capacity Utilization 112.2%		ICU Level of Service H	

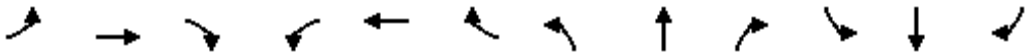
Analysis Period (min) 15

~ 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.

Splits and Phases: 24: Collector 5 & William Halton Parkway

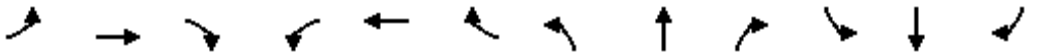




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	549	814	87	47	1490	15	86	0	29	79	44	205
Future Volume (vph)	549	814	87	47	1490	15	86	0	29	79	44	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.1	6.1	6.1	6.1		4.0	6.5		6.5	6.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	0.98		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	1.00	0.85	1.00	1.00		1.00	0.85		1.00	0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	3500	1515	1745	3493		1749	1533		1742	1583	
Flt Permitted	0.09	1.00	1.00	0.32	1.00		0.21	1.00		0.74	1.00	
Satd. Flow (perm)	166	3500	1515	579	3493		386	1533		1350	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)	610	904	97	52	1656	17	96	0	32	88	49	228
RTOR Reduction (vph)	0	0	25	0	1	0	0	24	0	0	165	0
Lane Group Flow (vph)	610	904	72	52	1672	0	96	8	0	88	112	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	pm+pt	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	5	2			6		3	8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	63.6	63.6	63.6	40.4	40.4		24.5	24.5		15.1	15.1	
Effective Green, g (s)	63.6	63.6	63.6	40.4	40.4		24.5	24.5		15.1	15.1	
Actuated g/C Ratio	0.63	0.63	0.63	0.40	0.40		0.24	0.24		0.15	0.15	
Clearance Time (s)	4.0	6.1	6.1	6.1	6.1		4.0	6.5		6.5	6.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	406	2210	956	232	1401		167	372		202	237	
v/s Ratio Prot	c0.29	0.26			0.48		c0.03	0.01			0.07	
v/s Ratio Perm	c0.66		0.05	0.09			c0.11			0.07		
v/c Ratio	1.50	0.41	0.08	0.22	1.19		0.57	0.02		0.44	0.47	
Uniform Delay, d1	32.0	9.2	7.2	19.8	30.2		31.4	29.0		38.9	39.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	238.7	0.6	0.2	0.5	94.5		4.7	0.0		1.5	1.5	
Delay (s)	270.6	9.8	7.3	20.3	124.6		36.1	29.0		40.4	40.6	
Level of Service	F	A	A	C	F		D	C		D	D	
Approach Delay (s)		108.4			121.5			34.4			40.6	
Approach LOS		F			F			C			D	

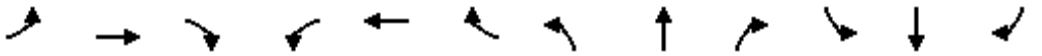
Intersection Summary			
HCM 2000 Control Delay	105.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.33		
Actuated Cycle Length (s)	100.7	Sum of lost time (s)	20.6
Intersection Capacity Utilization	112.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	578	47	180	633	6	30	71	117	10	102	19
Future Volume (vph)	56	578	47	180	633	6	30	71	117	10	102	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.989			0.999			0.907			0.976	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3461	0	1750	3496	0	1750	1671	0	1750	1798	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1750	3461	0	1750	3496	0	1750	1671	0	1750	1798	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		223.5			463.9			185.3			250.4	
Travel Time (s)		16.1			33.4			13.3			18.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	62	642	52	200	703	7	33	79	130	11	113	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	62	694	0	200	710	0	33	209	0	11	134	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

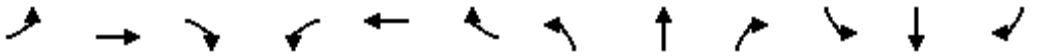
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 55.7%		ICU Level of Service B	
Analysis Period (min) 15			



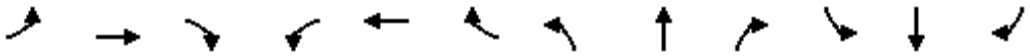
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	578	47	180	633	6	30	71	117	10	102	19
Future Volume (Veh/h)	56	578	47	180	633	6	30	71	117	10	102	19
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	62	642	52	200	703	7	33	79	130	11	113	21
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		347										
pX, platoon unblocked												
vC, conflicting volume	715			699			1631	1912	357	1731	1934	365
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	715			699			1631	1912	357	1731	1934	365
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			78			0	0	79	0	0	97
cM capacity (veh/h)	877			889			0	48	633	0	46	626

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1	SB 2
Volume Total	62	428	266	200	469	241	33	209	11	134
Volume Left	62	0	0	200	0	0	33	0	11	0
Volume Right	0	0	52	0	0	7	0	130	0	21
cSH	877	1700	1700	889	1700	1700	0	113	0	54
Volume to Capacity	0.07	0.25	0.16	0.22	0.28	0.14	Err	1.85	Err	2.47
Queue Length 95th (m)	1.7	0.0	0.0	6.6	0.0	0.0	Err	127.0	Err	103.7
Control Delay (s)	9.4	0.0	0.0	10.2	0.0	0.0	Err	480.5	Err	828.8
Lane LOS	A			B			F	F	F	F
Approach Delay (s)	0.8			2.2			Err		Err	
Approach LOS							F		F	

Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	55.7%	ICU Level of Service		B
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	5	26	61	7	61	27	1967	44	131	1876	80
Future Volume (vph)	51	5	26	61	7	61	27	1967	44	131	1876	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	30.0		0.0	17.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Ped Bike Factor	1.00	0.98		1.00	0.98		1.00	1.00			1.00	
Frt		0.876			0.866			0.997			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	1587	0	1750	1567	0	1750	5010	0	1750	4992	0
Flt Permitted	0.708			0.734			0.085			0.078		
Satd. Flow (perm)	1299	1587	0	1346	1567	0	157	5010	0	144	4992	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			68			4			10	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		117.5			110.5			259.2			230.0	
Travel Time (s)		8.5			8.0			15.6			13.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	57	6	29	68	8	68	30	2186	49	146	2084	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	57	35	0	68	76	0	30	2235	0	146	2173	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		7.0	10.0	
Minimum Split (s)	38.5	38.5		38.5	38.5		33.4	33.4		11.0	33.4	
Total Split (s)	39.0	39.0		39.0	39.0		50.0	50.0		11.0	61.0	
Total Split (%)	39.0%	39.0%		39.0%	39.0%		50.0%	50.0%		11.0%	61.0%	
Maximum Green (s)	32.5	32.5		32.5	32.5		43.6	43.6		7.0	54.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.0	3.7	
All-Red Time (s)	3.2	3.2		3.2	3.2		2.7	2.7		1.0	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		4.0	6.4	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		None	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	25.0	25.0		25.0	25.0		20.0	20.0			20.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5			5	
Act Effct Green (s)	13.9	13.9		13.9	13.9		47.3	47.3		60.8	59.7	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.58	0.58		0.74	0.73	
v/c Ratio	0.26	0.13		0.30	0.24		0.33	0.77		0.60	0.60	
Control Delay	31.4	25.3		32.1	10.4		28.3	18.4		23.2	9.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	31.4	25.3		32.1	10.4		28.3	18.4		23.2	9.2	
LOS	C	C		C	B		C	B		C	A	
Approach Delay		29.1			20.6			18.6			10.1	
Approach LOS		C			C			B			B	
Queue Length 50th (m)	7.7	4.0		9.3	1.1		2.2	86.9		5.1	50.0	
Queue Length 95th (m)	17.0	11.0		19.5	10.7		#16.8	#197.7		#42.2	135.2	
Internal Link Dist (m)		93.5			86.5			235.2			206.0	
Turn Bay Length (m)	30.0			30.0			30.0			17.0		
Base Capacity (vph)	521	640		540	670		90	2899		245	3652	
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	0.11	0.05		0.13	0.11		0.33	0.77		0.60	0.60	

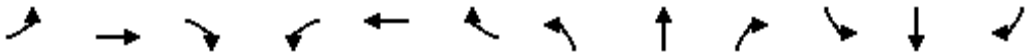
Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 81.7			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 14.7		Intersection LOS: B	
Intersection Capacity Utilization 75.1%		ICU Level of Service D	

Analysis Period (min) 15

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

Splits and Phases: 26: Trafalgar Road & Local 6

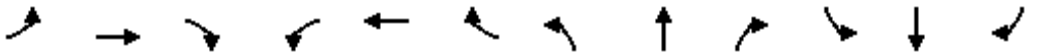




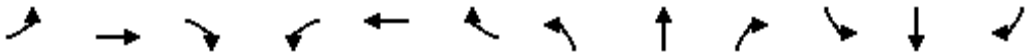
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	5	26	61	7	61	27	1967	44	131	1876	80
Future Volume (vph)	51	5	26	61	7	61	27	1967	44	131	1876	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		6.4	6.4		4.0	6.4	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.88		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)	1744	1582		1743	1561		1749	5009		1750	4992	
Flt Permitted	0.71	1.00		0.73	1.00		0.08	1.00		0.08	1.00	
Satd. Flow (perm)	1299	1582		1348	1561		156	5009		144	4992	
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)	57	6	29	68	8	68	30	2186	49	146	2084	89
RTOR Reduction (vph)	0	4	0	0	58	0	0	2	0	0	3	0
Lane Group Flow (vph)	57	31	0	68	18	0	30	2233	0	146	2170	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	11.7	11.7		11.7	11.7		47.3	47.3		58.4	58.4	
Effective Green, g (s)	11.7	11.7		11.7	11.7		47.3	47.3		58.4	58.4	
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.57	0.57		0.70	0.70	
Clearance Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		4.0	6.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	183	223		190	220		88	2854		238	3512	
v/s Ratio Prot		0.02			0.01			c0.45		0.05	c0.43	
v/s Ratio Perm	0.04			c0.05			0.19			0.38		
v/c Ratio	0.31	0.14		0.36	0.08		0.34	0.78		0.61	0.62	
Uniform Delay, d1	32.0	31.2		32.3	31.0		9.5	13.9		12.8	6.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	0.3		1.2	0.2		10.2	2.2		4.6	0.8	
Delay (s)	33.0	31.5		33.4	31.1		19.8	16.1		17.5	7.3	
Level of Service	C	C		C	C		B	B		B	A	
Approach Delay (s)		32.4			32.2			16.1			7.9	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	83.0	Sum of lost time (s)	16.9
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	112	140	167	99	32	199	1917	154	145	1704	116
Future Volume (vph)	87	112	140	167	99	32	199	1917	154	145	1704	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		30.0	85.0		30.0	90.0		0.0	60.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Ped Bike Factor			0.98	1.00		0.98		1.00			1.00	
Frt			0.850			0.850		0.989			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	1842	1566	1750	1842	1566	1750	4961	0	1750	4967	0
Flt Permitted	0.686			0.540			0.076			0.082		
Satd. Flow (perm)	1264	1842	1532	990	1842	1534	140	4961	0	151	4967	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			156			67		14			11	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		219.8			129.6			268.7			259.2	
Travel Time (s)		15.8			9.3			16.1			15.6	
Confl. Peds. (#/hr)			5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	97	124	156	186	110	36	221	2130	171	161	1893	129
Shared Lane Traffic (%)												
Lane Group Flow (vph)	97	124	156	186	110	36	221	2301	0	161	2022	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	4	3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0		7.0	10.0	
Minimum Split (s)	38.5	38.5	38.5	11.0	38.5	38.5	11.0	33.4		11.0	33.4	
Total Split (s)	39.0	39.0	39.0	11.0	50.0	50.0	15.0	59.0		11.0	55.0	
Total Split (%)	32.5%	32.5%	32.5%	9.2%	41.7%	41.7%	12.5%	49.2%		9.2%	45.8%	
Maximum Green (s)	32.5	32.5	32.5	7.0	43.5	43.5	11.0	52.6		7.0	48.6	
Yellow Time (s)	3.3	3.3	3.3	3.0	3.3	3.3	3.0	3.7		3.0	3.7	
All-Red Time (s)	3.2	3.2	3.2	1.0	3.2	3.2	1.0	2.7		1.0	2.7	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4		4.0	6.4	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max		None	Max	
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0			7.0	
Flash Dont Walk (s)	25.0	25.0	25.0		25.0	25.0		20.0			20.0	
Pedestrian Calls (#/hr)	5	5	5		5	5		5			5	
Act Effct Green (s)	15.7	15.7	15.7	29.3	26.7	26.7	66.4	52.9		58.3	48.9	
Actuated g/C Ratio	0.15	0.15	0.15	0.28	0.26	0.26	0.64	0.51		0.56	0.47	
v/c Ratio	0.51	0.45	0.43	0.56	0.23	0.08	0.85	0.91		0.83	0.86	
Control Delay	49.1	44.3	9.5	36.7	30.8	1.8	52.1	30.3		54.8	30.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	49.1	44.3	9.5	36.7	30.8	1.8	52.1	30.3		54.8	30.0	
LOS	D	D	A	D	C	A	D	C		D	C	
Approach Delay		31.1			31.0			32.2			31.8	
Approach LOS		C			C			C			C	
Queue Length 50th (m)	18.1	22.9	0.0	29.9	17.4	0.0	25.9	137.6		14.8	120.0	
Queue Length 95th (m)	33.1	39.3	15.7	47.5	30.6	2.1	#85.6	#244.0		#64.7	#209.2	
Internal Link Dist (m)		195.8			105.6			244.7			235.2	
Turn Bay Length (m)	60.0		30.0	85.0		30.0	90.0			60.0		
Base Capacity (vph)	398	580	589	331	777	686	261	2538		193	2347	
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	0.24	0.21	0.26	0.56	0.14	0.05	0.85	0.91		0.83	0.86	

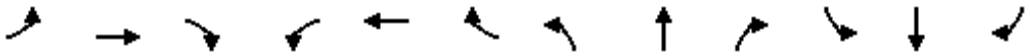
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 103.7			
Natural Cycle: 125			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 31.9		Intersection LOS: C	
Intersection Capacity Utilization 80.2%		ICU Level of Service D	

Analysis Period (min) 15

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

Splits and Phases: 27: Trafalgar Road & Settlers Road

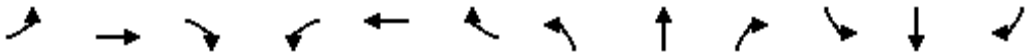




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	112	140	167	99	32	199	1917	154	145	1704	116
Future Volume (vph)	87	112	140	167	99	32	199	1917	154	145	1704	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4		4.0	6.4	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	1842	1528	1746	1842	1533	1750	4961		1750	4970	
Flt Permitted	0.69	1.00	1.00	0.54	1.00	1.00	0.08	1.00		0.08	1.00	
Satd. Flow (perm)	1264	1842	1528	992	1842	1533	139	4961		151	4970	
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)	97	124	156	186	110	36	221	2130	171	161	1893	129
RTOR Reduction (vph)	0	0	132	0	0	27	0	7	0	0	6	0
Lane Group Flow (vph)	97	124	24	186	110	9	221	2294	0	161	2016	0
Confl. Peds. (#/hr)			5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	15.7	15.7	15.7	26.7	26.7	26.7	64.0	53.0		55.9	48.9	
Effective Green, g (s)	15.7	15.7	15.7	26.7	26.7	26.7	64.0	53.0		55.9	48.9	
Actuated g/C Ratio	0.15	0.15	0.15	0.26	0.26	0.26	0.62	0.51		0.54	0.47	
Clearance Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4		4.0	6.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	191	279	231	306	474	395	258	2537		189	2345	
v/s Ratio Prot		0.07		c0.04	0.06		c0.09	c0.46		0.06	0.41	
v/s Ratio Perm	0.08		0.02	c0.12		0.01	0.44			0.40		
v/c Ratio	0.51	0.44	0.10	0.61	0.23	0.02	0.86	0.90		0.85	0.86	
Uniform Delay, d1	40.4	40.0	37.9	32.9	30.4	28.7	28.2	23.0		22.0	24.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.1	1.1	0.2	3.4	0.3	0.0	23.3	5.9		29.0	4.4	
Delay (s)	42.5	41.1	38.1	36.3	30.6	28.7	51.5	28.9		51.0	28.7	
Level of Service	D	D	D	D	C	C	D	C		D	C	
Approach Delay (s)		40.2			33.6			30.9			30.3	
Approach LOS		D			C			C			C	

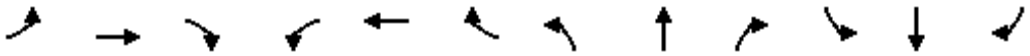
Intersection Summary			
HCM 2000 Control Delay	31.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	103.6	Sum of lost time (s)	20.9
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	129	32	104	125	33	29	77	90	35	110	7
Future Volume (vph)	9	129	32	104	125	33	29	77	90	35	110	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.974			0.983			0.938			0.994	
Flt Protected		0.997			0.981			0.993			0.989	
Satd. Flow (prot)	0	1789	0	0	1776	0	0	1716	0	0	1811	0
Flt Permitted		0.997			0.981			0.993			0.989	
Satd. Flow (perm)	0	1789	0	0	1776	0	0	1716	0	0	1811	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		249.4			219.8			429.8			477.1	
Travel Time (s)		18.0			15.8			30.9			34.4	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	10	143	36	116	139	37	32	86	100	39	122	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	189	0	0	292	0	0	218	0	0	169	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	47.9%	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)	9	129	32	104	125	33	29	77	90	35	110	7
Future Volume (vph)	9	129	32	104	125	33	29	77	90	35	110	7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	10	143	36	116	139	37	32	86	100	39	122	8

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	189	292	218	169
Volume Left (vph)	10	116	32	39
Volume Right (vph)	36	37	100	8
Hadj (s)	-0.07	0.04	-0.21	0.05
Departure Headway (s)	5.4	5.3	5.3	5.7
Degree Utilization, x	0.28	0.43	0.32	0.27
Capacity (veh/h)	606	630	611	572
Control Delay (s)	10.5	12.4	10.8	10.7
Approach Delay (s)	10.5	12.4	10.8	10.7
Approach LOS	B	B	B	B

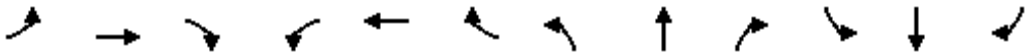
Intersection Summary				
Delay	11.3			
Level of Service	B			
Intersection Capacity Utilization	47.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	11.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	129	32	104	125	33	29	77	90	35	110	7
Future Vol, veh/h	9	129	32	104	125	33	29	77	90	35	110	7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	143	36	116	139	37	32	86	100	39	122	8
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

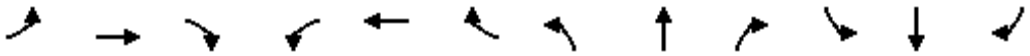
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.5	12.3	10.8	10.7
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	15%	5%	40%	23%
Vol Thru, %	39%	76%	48%	72%
Vol Right, %	46%	19%	13%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	196	170	262	152
LT Vol	29	9	104	35
Through Vol	77	129	125	110
RT Vol	90	32	33	7
Lane Flow Rate	218	189	291	169
Geometry Grp	1	1	1	1
Degree of Util (X)	0.32	0.282	0.43	0.264
Departure Headway (Hd)	5.283	5.372	5.312	5.62
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	679	667	675	638
Service Time	3.329	3.419	3.354	3.668
HCM Lane V/C Ratio	0.321	0.283	0.431	0.265
HCM Control Delay	10.8	10.5	12.3	10.7
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	1.4	1.2	2.2	1.1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	212	110	20	173	17	24	248	15	12	166	91
Future Volume (vph)	87	212	110	20	173	17	24	248	15	12	166	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.964			0.989			0.993			0.954	
Flt Protected		0.989			0.995			0.996			0.998	
Satd. Flow (prot)	0	1756	0	0	1813	0	0	1822	0	0	1754	0
Flt Permitted		0.989			0.995			0.996			0.998	
Satd. Flow (perm)	0	1756	0	0	1813	0	0	1822	0	0	1754	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		129.6			125.1			416.4			492.2	
Travel Time (s)		9.3			9.0			30.0			35.4	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	97	236	122	22	192	19	27	276	17	13	184	101
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	455	0	0	233	0	0	320	0	0	298	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	87	212	110	20	173	17	24	248	15	12	166	91
Future Volume (vph)	87	212	110	20	173	17	24	248	15	12	166	91
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	97	236	122	22	192	19	27	276	17	13	184	101

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	455	233	320	298
Volume Left (vph)	97	22	27	13
Volume Right (vph)	122	19	17	101
Hadj (s)	-0.08	0.00	0.02	-0.16
Departure Headway (s)	6.8	7.5	7.3	7.2
Degree Utilization, x	0.86	0.49	0.65	0.60
Capacity (veh/h)	455	428	449	446
Control Delay (s)	38.4	17.5	22.9	20.4
Approach Delay (s)	38.4	17.5	22.9	20.4
Approach LOS	E	C	C	C

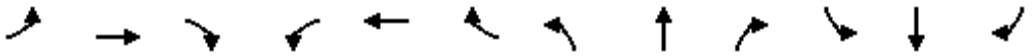
Intersection Summary				
Delay	26.8			
Level of Service	D			
Intersection Capacity Utilization	67.4%	ICU Level of Service	C	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	26.3
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	87	212	110	20	173	17	24	248	15	12	166	91
Future Vol, veh/h	87	212	110	20	173	17	24	248	15	12	166	91
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	97	236	122	22	192	19	27	276	17	13	184	101
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

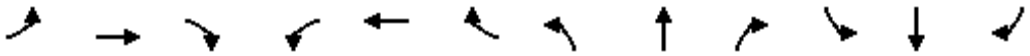
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	37.4	17.4	22.5	20.3
HCM LOS	E	C	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	8%	21%	10%	4%
Vol Thru, %	86%	52%	82%	62%
Vol Right, %	5%	27%	8%	34%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	287	409	210	269
LT Vol	24	87	20	12
Through Vol	248	212	173	166
RT Vol	15	110	17	91
Lane Flow Rate	319	454	233	299
Geometry Grp	1	1	1	1
Degree of Util (X)	0.642	0.851	0.483	0.594
Departure Headway (Hd)	7.25	6.745	7.459	7.151
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	497	536	481	502
Service Time	5.325	4.811	5.542	5.227
HCM Lane V/C Ratio	0.642	0.847	0.484	0.596
HCM Control Delay	22.5	37.4	17.4	20.3
HCM Lane LOS	C	E	C	C
HCM 95th-tile Q	4.5	9	2.6	3.8



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	118	34	28	128	51	21	81	18	21	88	95
Future Volume (vph)	87	118	34	28	128	51	21	81	18	21	88	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.981			0.967			0.980			0.937	
Flt Protected		0.982			0.993			0.991			0.995	
Satd. Flow (prot)	0	1775	0	0	1769	0	0	1789	0	0	1717	0
Flt Permitted		0.982			0.993			0.991			0.995	
Satd. Flow (perm)	0	1775	0	0	1769	0	0	1789	0	0	1717	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		125.1			190.9			160.4			138.9	
Travel Time (s)		9.0			13.7			11.5			10.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	97	131	38	31	142	57	23	90	20	23	98	106
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	266	0	0	230	0	0	133	0	0	227	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	48.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	87	118	34	28	128	51	21	81	18	21	88	95
Future Volume (vph)	87	118	34	28	128	51	21	81	18	21	88	95
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	97	131	38	31	142	57	23	90	20	23	98	106

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	266	230	133	227
Volume Left (vph)	97	31	23	23
Volume Right (vph)	38	57	20	106
Hadj (s)	0.02	-0.09	-0.02	-0.23
Departure Headway (s)	5.3	5.2	5.6	5.2
Degree Utilization, x	0.39	0.33	0.21	0.33
Capacity (veh/h)	634	634	566	626
Control Delay (s)	11.6	10.9	10.1	10.8
Approach Delay (s)	11.6	10.9	10.1	10.8
Approach LOS	B	B	B	B

Intersection Summary				
Delay	11.0			
Level of Service	B			
Intersection Capacity Utilization	48.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	11
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	87	118	34	28	128	51	21	81	18	21	88	95
Future Vol, veh/h	87	118	34	28	128	51	21	81	18	21	88	95
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	97	131	38	31	142	57	23	90	20	23	98	106
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	11.6	10.9	10.1	10.8
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	17%	36%	14%	10%
Vol Thru, %	68%	49%	62%	43%
Vol Right, %	15%	14%	25%	47%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	120	239	207	204
LT Vol	21	87	28	21
Through Vol	81	118	128	88
RT Vol	18	34	51	95
Lane Flow Rate	133	266	230	227
Geometry Grp	1	1	1	1
Degree of Util (X)	0.207	0.388	0.333	0.329
Departure Headway (Hd)	5.576	5.263	5.214	5.22
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	643	682	688	689
Service Time	3.621	3.302	3.255	3.259
HCM Lane V/C Ratio	0.207	0.39	0.334	0.329
HCM Control Delay	10.1	11.6	10.9	10.8
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	0.8	1.8	1.5	1.4



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	21	2248	145	0	1983
Future Volume (vph)	0	21	2248	145	0	1983
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	*0.80	0.91	1.00	*0.80
Frt		0.865	0.991			
Flt Protected						
Satd. Flow (prot)	0	1593	4381	0	0	4421
Flt Permitted						
Satd. Flow (perm)	0	1593	4381	0	0	4421
Link Speed (k/h)	50		60			60
Link Distance (m)	87.7		148.7			268.7
Travel Time (s)	6.3		8.9			16.1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	23	2498	161	0	2203
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	23	2659	0	0	2203
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		3.5			3.5
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

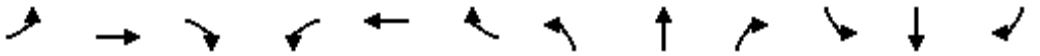
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 56.7%		ICU Level of Service B	
Analysis Period (min) 15			
* User Entered Value			



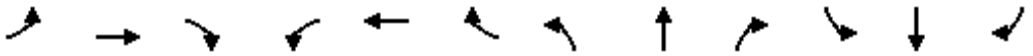
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	21	2248	145	0	1983
Future Volume (Veh/h)	0	21	2248	145	0	1983
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	23	2498	161	0	2203
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			149			269
pX, platoon unblocked	0.67	0.50			0.50	
vC, conflicting volume	3313	913			2659	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0			784	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	96			100	
cM capacity (veh/h)	688	537			411	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	23	999	999	661	734	734	734
Volume Left	0	0	0	0	0	0	0
Volume Right	23	0	0	161	0	0	0
cSH	537	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.04	0.59	0.59	0.39	0.43	0.43	0.43
Queue Length 95th (m)	1.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	12.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B						
Approach Delay (s)	12.0	0.0			0.0		
Approach LOS	B						

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	56.7%	ICU Level of Service	B
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	99	152	176	91	65	222	2309	179	90	1894	4
Future Volume (vph)	19	99	152	176	91	65	222	2309	179	90	1894	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		30.0	90.0		30.0	110.0		0.0	30.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Ped Bike Factor	1.00		0.98	1.00		0.98		1.00			1.00	
Frt			0.850			0.850		0.989				
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	1842	1566	1750	1842	1566	1750	4961	0	1750	5028	0
Flt Permitted	0.692			0.540			0.075			0.080		
Satd. Flow (perm)	1268	1842	1532	990	1842	1534	138	4961	0	147	5028	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			163			72		13				
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		193.0			130.2			1233.0			148.7	
Travel Time (s)		13.9			9.4			74.0			8.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	21	110	169	196	101	72	247	2566	199	100	2104	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	110	169	196	101	72	247	2765	0	100	2108	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Detector Phase	4	4	4	3	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0		7.0	10.0	
Minimum Split (s)	38.5	38.5	38.5	11.0	38.5	38.5	11.0	33.4		11.0	33.4	
Total Split (s)	39.0	39.0	39.0	11.0	50.0	50.0	14.0	59.0		11.0	56.0	
Total Split (%)	32.5%	32.5%	32.5%	9.2%	41.7%	41.7%	11.7%	49.2%		9.2%	46.7%	
Maximum Green (s)	32.5	32.5	32.5	7.0	43.5	43.5	10.0	52.6		7.0	49.6	
Yellow Time (s)	3.3	3.3	3.3	3.0	3.3	3.3	3.0	3.7		3.0	3.7	
All-Red Time (s)	3.2	3.2	3.2	1.0	3.2	3.2	1.0	2.7		1.0	2.7	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4		4.0	6.4	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max		None	Max	
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0			7.0	
Flash Dont Walk (s)	25.0	25.0	25.0		25.0	25.0		20.0			20.0	
Pedestrian Calls (#/hr)	5	5	5		5	5		5			5	
Act Effct Green (s)	14.7	14.7	14.7	28.3	25.7	25.7	65.4	52.9		59.3	49.9	
Actuated g/C Ratio	0.14	0.14	0.14	0.28	0.25	0.25	0.64	0.52		0.58	0.49	
v/c Ratio	0.12	0.42	0.47	0.60	0.22	0.16	1.01	1.08		0.51	0.86	
Control Delay	37.9	44.1	10.9	38.7	30.9	7.4	86.9	69.1		22.8	29.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	37.9	44.1	10.9	38.7	30.9	7.4	86.9	69.1		22.8	29.1	
LOS	D	D	B	D	C	A	F	E		C	C	
Approach Delay		25.0			30.5			70.6			28.8	
Approach LOS		C			C			E			C	
Queue Length 50th (m)	3.7	20.1	1.0	31.7	15.9	0.0	31.6	~210.9		6.0	121.0	
Queue Length 95th (m)	10.1	35.4	17.2	49.9	28.4	9.6	#104.7	#326.8		#26.7	#219.3	
Internal Link Dist (m)		169.0			106.2			1209.0			124.7	
Turn Bay Length (m)	30.0		30.0	90.0		30.0	110.0			30.0		
Base Capacity (vph)	403	586	598	324	784	695	245	2562		195	2442	
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	0.05	0.19	0.28	0.60	0.13	0.10	1.01	1.08		0.51	0.86	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 102.7			
Natural Cycle: 145			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.08			
Intersection Signal Delay: 50.1		Intersection LOS: D	
Intersection Capacity Utilization 86.5%		ICU Level of Service E	

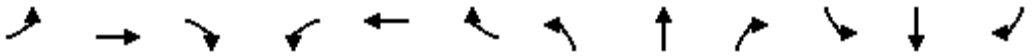
Analysis Period (min) 15

~ 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.

Splits and Phases: 32: Trafalgar Road & Marvin Avenue

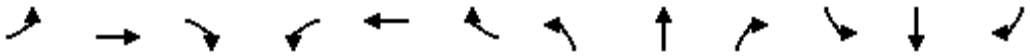




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	99	152	176	91	65	222	2309	179	90	1894	4
Future Volume (vph)	19	99	152	176	91	65	222	2309	179	90	1894	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4		4.0	6.4	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91		1.00	0.91	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1743	1842	1528	1746	1842	1533	1750	4963		1750	5027	
Flt Permitted	0.69	1.00	1.00	0.54	1.00	1.00	0.08	1.00		0.08	1.00	
Satd. Flow (perm)	1269	1842	1528	993	1842	1533	139	4963		148	5027	
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)	21	110	169	196	101	72	247	2566	199	100	2104	4
RTOR Reduction (vph)	0	0	140	0	0	54	0	6	0	0	0	0
Lane Group Flow (vph)	21	110	29	196	101	18	247	2759	0	100	2108	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	14.8	14.8	14.8	25.8	25.8	25.8	63.1	53.0		56.9	49.9	
Effective Green, g (s)	14.8	14.8	14.8	25.8	25.8	25.8	63.1	53.0		56.9	49.9	
Actuated g/C Ratio	0.14	0.14	0.14	0.25	0.25	0.25	0.61	0.52		0.55	0.49	
Clearance Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4		4.0	6.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	182	265	220	300	462	385	243	2561		191	2442	
v/s Ratio Prot		0.06		c0.04	0.05		c0.10	c0.56		0.04	0.42	
v/s Ratio Perm	0.02		0.02	c0.12		0.01	0.52			0.25		
v/c Ratio	0.12	0.42	0.13	0.65	0.22	0.05	1.02	1.08		0.52	0.86	
Uniform Delay, d1	38.3	40.0	38.4	33.6	30.5	29.1	30.6	24.9		21.7	23.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	1.1	0.3	5.0	0.2	0.1	62.0	42.7		2.6	4.3	
Delay (s)	38.5	41.1	38.6	38.7	30.7	29.2	92.7	67.6		24.3	27.7	
Level of Service	D	D	D	D	C	C	F	E		C	C	
Approach Delay (s)		39.5			34.6			69.6			27.6	
Approach LOS		D			C			E			C	

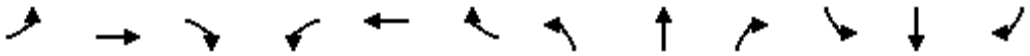
Intersection Summary			
HCM 2000 Control Delay	50.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	102.7	Sum of lost time (s)	20.9
Intersection Capacity Utilization	86.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	108	4	5	76	177	4	49	8	134	53	21
Future Volume (vph)	32	108	4	5	76	177	4	49	8	134	53	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.997			0.907			0.982			0.987	
Flt Protected		0.989			0.999			0.997			0.969	
Satd. Flow (prot)	0	1816	0	0	1669	0	0	1803	0	0	1762	0
Flt Permitted		0.989			0.999			0.997			0.969	
Satd. Flow (perm)	0	1816	0	0	1669	0	0	1803	0	0	1762	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		207.5			193.0			213.8			429.8	
Travel Time (s)		14.9			13.9			15.4			30.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	36	120	4	6	84	197	4	54	9	149	59	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	160	0	0	287	0	0	67	0	0	231	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	49.7%	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)	32	108	4	5	76	177	4	49	8	134	53	21
Future Volume (vph)	32	108	4	5	76	177	4	49	8	134	53	21
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	36	120	4	6	84	197	4	54	9	149	59	23

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	160	287	67	231
Volume Left (vph)	36	6	4	149
Volume Right (vph)	4	197	9	23
Hadj (s)	0.06	-0.37	-0.03	0.10
Departure Headway (s)	5.2	4.6	5.3	5.2
Degree Utilization, x	0.23	0.37	0.10	0.33
Capacity (veh/h)	644	740	589	640
Control Delay (s)	9.7	10.2	8.9	10.8
Approach Delay (s)	9.7	10.2	8.9	10.8
Approach LOS	A	B	A	B

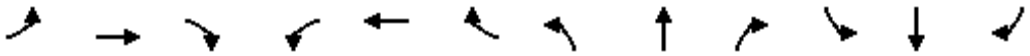
Intersection Summary				
Delay	10.2			
Level of Service	B			
Intersection Capacity Utilization	49.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	10.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	108	4	5	76	177	4	49	8	134	53	21
Future Vol, veh/h	32	108	4	5	76	177	4	49	8	134	53	21
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	36	120	4	6	84	197	4	54	9	149	59	23
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

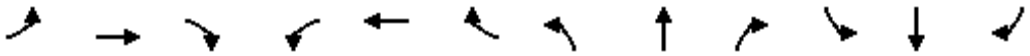
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.7	10.1	8.9	10.7
HCM LOS	A	B	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	7%	22%	2%	64%
Vol Thru, %	80%	75%	29%	25%
Vol Right, %	13%	3%	69%	10%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	61	144	258	208
LT Vol	4	32	5	134
Through Vol	49	108	76	53
RT Vol	8	4	177	21
Lane Flow Rate	68	160	287	231
Geometry Grp	1	1	1	1
Degree of Util (X)	0.101	0.225	0.359	0.329
Departure Headway (Hd)	5.34	5.07	4.505	5.121
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	675	701	791	693
Service Time	3.34	3.16	2.579	3.21
HCM Lane V/C Ratio	0.101	0.228	0.363	0.333
HCM Control Delay	8.9	9.7	10.1	10.7
HCM Lane LOS	A	A	B	B
HCM 95th-tile Q	0.3	0.9	1.6	1.4



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	159	106	67	96	71	20	68	148	127	13	88	173
Future Volume (vph)	159	106	67	96	71	20	68	148	127	13	88	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.973			0.986			0.950			0.915	
Flt Protected		0.977			0.975			0.990			0.998	
Satd. Flow (prot)	0	1751	0	0	1771	0	0	1732	0	0	1682	0
Flt Permitted		0.977			0.975			0.990			0.998	
Satd. Flow (perm)	0	1751	0	0	1771	0	0	1732	0	0	1682	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		130.2			198.3			214.8			416.4	
Travel Time (s)		9.4			14.3			15.5			30.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	177	118	74	107	79	22	76	164	141	14	98	192
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	369	0	0	208	0	0	381	0	0	304	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
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)	159	106	67	96	71	20	68	148	127	13	88	173
Future Volume (vph)	159	106	67	96	71	20	68	148	127	13	88	173
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	177	118	74	107	79	22	76	164	141	14	98	192

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	369	208	381	304
Volume Left (vph)	177	107	76	14
Volume Right (vph)	74	22	141	192
Hadj (s)	0.01	0.07	-0.15	-0.34
Departure Headway (s)	6.8	7.4	6.6	6.6
Degree Utilization, x	0.70	0.43	0.70	0.56
Capacity (veh/h)	492	416	503	487
Control Delay (s)	24.2	15.7	23.6	17.8
Approach Delay (s)	24.2	15.7	23.6	17.8
Approach LOS	C	C	C	C

Intersection Summary				
Delay	21.1			
Level of Service	C			
Intersection Capacity Utilization	68.3%	ICU Level of Service	C	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	20.9
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	159	106	67	96	71	20	68	148	127	13	88	173
Future Vol, veh/h	159	106	67	96	71	20	68	148	127	13	88	173
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	177	118	74	107	79	22	76	164	141	14	98	192
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	24	15.7	23.4	17.7
HCM LOS	C	C	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	20%	48%	51%	5%
Vol Thru, %	43%	32%	38%	32%
Vol Right, %	37%	20%	11%	63%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	343	332	187	274
LT Vol	68	159	96	13
Through Vol	148	106	71	88
RT Vol	127	67	20	173
Lane Flow Rate	381	369	208	304
Geometry Grp	1	1	1	1
Degree of Util (X)	0.696	0.696	0.423	0.558
Departure Headway (Hd)	6.578	6.788	7.322	6.602
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	549	531	490	545
Service Time	4.632	4.84	5.384	4.661
HCM Lane V/C Ratio	0.694	0.695	0.424	0.558
HCM Control Delay	23.4	24	15.7	17.7
HCM Lane LOS	C	C	C	C
HCM 95th-tile Q	5.4	5.4	2.1	3.4

MOVEMENT SUMMARY

Site: 101 [Sixth Line & William Halton Parkway (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2031 Future Background PM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Sixth Line															
1	L2	All MCs	12	2.0	12	2.0	0.464	15.4	LOS C	1.8	13.0	0.69	0.78	1.01	45.5
2	T1	All MCs	304	2.0	304	2.0	0.464	15.2	LOS C	1.8	13.0	0.68	0.77	1.01	46.3
3	R2	All MCs	164	2.0	164	2.0	0.464	14.7	LOS B	1.8	12.7	0.67	0.76	0.99	46.1
Approach			481	2.0	481	2.0	0.464	15.0	LOS C	1.8	13.0	0.68	0.77	1.00	46.2
East: William Halton Parkway															
4	L2	All MCs	253	2.0	253	2.0	1.073	76.2	LOS F	36.8	261.9	1.00	2.53	5.52	26.2
5	T1	All MCs	783	2.0	783	2.0	1.073	76.0	LOS F	37.5	267.2	1.00	2.54	5.56	26.4
6	R2	All MCs	527	2.0	527	2.0	1.073	75.5	LOS F	37.5	267.2	1.00	2.56	5.62	26.3
Approach			1563	2.0	1563	2.0	1.073	75.9	LOS F	37.5	267.2	1.00	2.55	5.57	26.4
North: Sixth Line															
7	L2	All MCs	302	2.0	302	2.0	0.631	20.8	LOS C	3.2	22.6	0.75	0.90	1.26	40.6
8	T1	All MCs	379	2.0	379	2.0	0.631	20.0	LOS C	3.2	22.6	0.73	0.88	1.25	43.7
9	R2	All MCs	302	2.0	302	2.0	0.159	3.9	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			983	2.0	983	2.0	0.631	15.3	LOS C	3.2	22.6	0.51	0.61	0.87	45.7
West: William Halton Parkway															
10	L2	All MCs	257	2.0	257	2.0	0.646	20.7	LOS C	3.6	25.7	0.74	0.92	1.35	41.1
11	T1	All MCs	473	2.0	473	2.0	0.646	20.1	LOS C	3.6	25.7	0.72	0.90	1.34	43.5
12	R2	All MCs	72	2.0	72	2.0	0.038	2.8	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			802	2.0	802	2.0	0.646	18.7	LOS C	3.6	25.7	0.66	0.83	1.22	43.5
All Vehicles			3830	2.0	3830	2.0	1.073	40.7	LOS E	37.5	267.2	0.76	1.47	2.88	34.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Ninth Line & William Halton Parkway (Site Folder: General)]

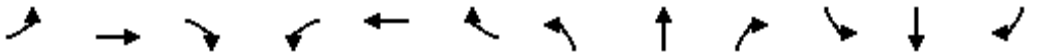
Output produced by SIDRA INTERSECTION Version: 9.1.6.228

2031 Future Total PM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Ninth Line															
1	L2	All MCs	517	23.0	517	23.0	2.444	690.9	LOS F	122.3	993.6	1.00	6.64	22.27	5.1
2	T1	All MCs	756	2.0	756	2.0	2.444	680.1	LOS F	167.8	1197.7	1.00	6.74	23.68	5.1
3	R2	All MCs	270	3.0	270	3.0	2.444	694.5	LOS F	167.8	1197.7	1.00	6.76	23.98	5.0
Approach			1543	9.2	1543	9.2	2.444	686.1	LOS F	167.8	1197.7	1.00	6.71	23.26	5.1
East: William Halton Parkway															
4	L2	All MCs	165	2.0	165	2.0	1.667	319.5	LOS F	158.8	1138.7	1.00	6.15	16.13	9.8
5	T1	All MCs	2103	3.0	2103	3.0	1.667	319.5	LOS F	162.9	1170.7	1.00	6.22	16.35	9.8
6	R2	All MCs	154	4.0	154	4.0	1.667	319.4	LOS F	162.9	1170.7	1.00	6.30	16.56	9.8
Approach			2422	3.0	2422	3.0	1.667	321.2	LOS F	162.9	1170.7	1.00	6.22	16.35	9.8
North: Ninth Line															
7	L2	All MCs	131	2.0	131	2.0	0.763	42.5	LOS E	3.4	24.0	0.91	1.09	1.63	33.6
8	T1	All MCs	390	2.0	390	2.0	0.763	40.6	LOS E	3.4	24.1	0.90	1.08	1.62	35.2
9	R2	All MCs	112	2.0	112	2.0	0.059	3.7	LOS A	0.0	0.0	0.00	0.00	0.00	56.4
Approach			634	2.0	634	2.0	0.763	34.4	LOS D	3.4	24.1	0.74	0.89	1.34	37.2
West: William Halton Parkway															
10	L2	All MCs	40	4.0	40	4.0	1.389	199.2	LOS F	97.8	696.6	1.00	4.81	12.57	14.2
11	T1	All MCs	1642	2.0	1642	2.0	1.389	144.5	LOS F	97.8	696.6	1.00	3.61	8.95	18.5
12	R2	All MCs	344	12.0	344	12.0	0.194	4.5	LOS A	0.0	0.0	0.00	0.00	0.00	56.2
Approach			2026	3.7	2026	3.7	1.389	121.8	LOS F	97.8	696.6	0.83	3.02	7.50	20.7
All Vehicles			6625	4.6	6625	4.6	2.444	317.2	LOS F	167.8	1197.7	0.92	4.85	13.82	9.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

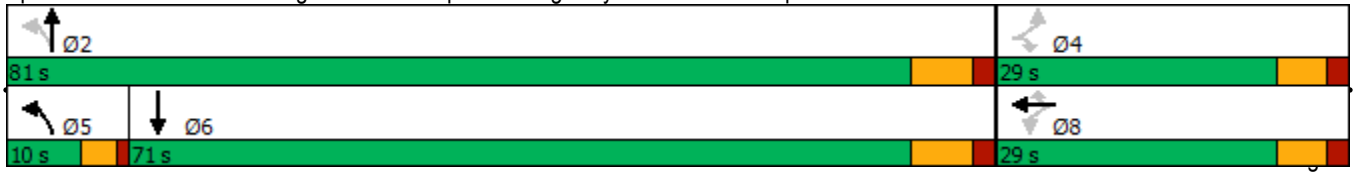


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	3	329	0	22	1	1591	0	0	1650	0
Future Volume (vph)	1	0	3	329	0	22	1	1591	0	0	1650	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		5.0	0.0		60.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		1	1		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt			0.850		0.998	0.850						
Flt Protected	0.950			0.950	0.953		0.950					
Satd. Flow (prot)	892	0	1566	1630	1564	1487	1750	3500	0	0	5029	0
Flt Permitted	0.553			0.950	0.953		0.082					
Satd. Flow (perm)	520	0	1566	1630	1564	1487	151	3500	0	0	5029	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79		79	79						
Link Speed (k/h)		20			60			80			80	
Link Distance (m)		81.5			394.8			34.5			189.8	
Travel Time (s)		14.7			23.7			1.6			8.5	
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 (%)	100%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	1	0	3	358	0	24	1	1729	0	0	1793	0
Shared Lane Traffic (%)				50%		10%						
Lane Group Flow (vph)	1	0	3	179	181	22	1	1729	0	0	1793	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1		1	1	2	1	1	2			2	
Detector Template	Left		Right	Left	Thru	Right	Left	Thru			Thru	
Leading Detector (m)	2.0		2.0	2.0	10.0	2.0	2.0	10.0			10.0	
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Size(m)	2.0		2.0	2.0	0.6	2.0	2.0	0.6			0.6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 2 Position(m)					9.4			9.4			9.4	
Detector 2 Size(m)					0.6			0.6			0.6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8		8	2					
Detector Phase	4		4	8	8	8	5	2			6	
Switch Phase												
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	4.0	35.0			35.0	
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5	9.5	42.0			42.0	
Total Split (s)	29.0		29.0	29.0	29.0	29.0	10.0	81.0			71.0	
Total Split (%)	26.4%		26.4%	26.4%	26.4%	26.4%	9.1%	73.6%			64.5%	
Maximum Green (s)	23.0		23.0	23.0	23.0	23.0	6.0	74.0			64.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0	3.0	5.0			5.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0	1.0	2.0			2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Recall Mode	None		None	None	None	None	None	Min			Min	
Act Effct Green (s)	13.9		13.9	13.9	13.9	13.9	49.1	46.0			44.6	
Actuated g/C Ratio	0.19		0.19	0.19	0.19	0.19	0.67	0.63			0.61	
v/c Ratio	0.01		0.01	0.58	0.50	0.06	0.00	0.79			0.59	
Control Delay	30.0		0.0	37.6	22.5	0.3	5.0	13.6			10.6	
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	30.0		0.0	37.6	22.5	0.3	5.0	13.6			10.6	
LOS	C		A	D	C	A	A	B			B	
Approach Delay		7.5			28.3			13.6			10.6	
Approach LOS		A			C			B			B	
Queue Length 50th (m)	0.1		0.0	22.2	12.6	0.0	0.0	77.5			44.0	
Queue Length 95th (m)	1.6		0.0	55.3	40.8	0.0	0.6	138.9			98.6	
Internal Link Dist (m)		57.5			370.8			10.5			165.8	
Turn Bay Length (m)			5.0			60.0						
Base Capacity (vph)	170		566	534	566	540	237	3245			4366	
Starvation Cap Reductn	0		0	0	0	0	0	0			0	
Spillback Cap Reductn	0		0	0	0	0	0	0			0	
Storage Cap Reductn	0		0	0	0	0	0	0			0	
Reduced v/c Ratio	0.01		0.01	0.34	0.32	0.04	0.00	0.53			0.41	

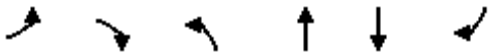
Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 73.5			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 13.7		Intersection LOS: B	
Intersection Capacity Utilization 70.8%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 7: Trafalgar Road & Carpool Lot/Highway 407 WB Off-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	3	329	0	22	1	1591	0	0	1650	0
Future Volume (vph)	1	0	3	329	0	22	1	1591	0	0	1650	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	6.0	4.0	7.0			7.0	
Lane Util. Factor	1.00		1.00	0.95	0.91	0.95	1.00	0.95			0.91	
Frt	1.00		0.85	1.00	1.00	0.85	1.00	1.00			1.00	
Flt Protected	0.95		1.00	0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	892		1566	1630	1564	1487	1750	3500			5029	
Flt Permitted	0.55		1.00	0.95	0.95	1.00	0.08	1.00			1.00	
Satd. Flow (perm)	520		1566	1630	1564	1487	152	3500			5029	
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)	1	0	3	358	0	24	1	1729	0	0	1793	0
RTOR Reduction (vph)	0	0	2	0	65	18	0	0	0	0	0	0
Lane Group Flow (vph)	1	0	1	179	116	4	1	1729	0	0	1793	0
Heavy Vehicles (%)	100%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	
Permitted Phases	4		4	8		8	2					
Actuated Green, G (s)	13.9		13.9	13.9	13.9	13.9	49.4	49.4			44.6	
Effective Green, g (s)	13.9		13.9	13.9	13.9	13.9	49.4	49.4			44.6	
Actuated g/C Ratio	0.18		0.18	0.18	0.18	0.18	0.65	0.65			0.58	
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)	94		285	296	284	270	115	2266			2939	
v/s Ratio Prot							0.00	c0.49			0.36	
v/s Ratio Perm	0.00		0.00	c0.11	0.07	0.00	0.01					
v/c Ratio	0.01		0.00	0.60	0.41	0.01	0.01	0.76			0.61	
Uniform Delay, d1	25.6		25.5	28.7	27.6	25.6	6.3	9.4			10.2	
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.0		0.0	3.5	1.0	0.0	0.0	1.6			0.4	
Delay (s)	25.6		25.5	32.1	28.5	25.6	6.3	10.9			10.6	
Level of Service	C		C	C	C	C	A	B			B	
Approach Delay (s)		25.5			30.1			10.9			10.6	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	76.3	Sum of lost time (s)	17.0
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

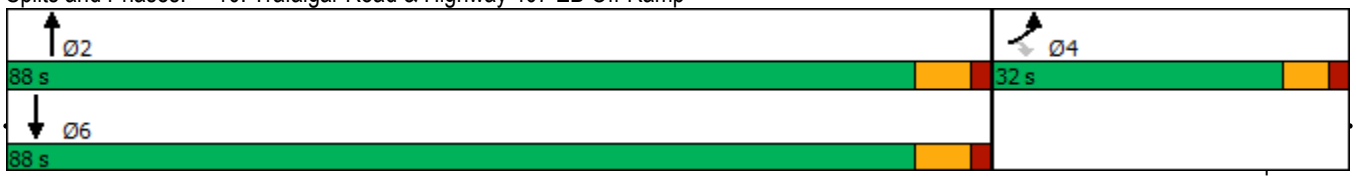


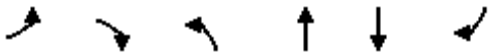
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	39	241	0	1724	1977	0
Future Volume (vph)	39	241	0	1724	1977	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1750	1377	0	3500	3500	0
Flt Permitted	0.950					
Satd. Flow (perm)	1750	1377	0	3500	3500	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		15				
Link Speed (k/h)	60			80	80	
Link Distance (m)	417.0			117.5	129.7	
Travel Time (s)	25.0			5.3	5.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	16%	2%	2%	2%	2%
Adj. Flow (vph)	42	259	0	1854	2126	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	42	259	0	1854	2126	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (m)	2.0	2.0		10.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	2.0		0.6	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Initial (s)	6.0	6.0		20.0	20.0	
Minimum Split (s)	24.0	24.0		27.0	27.0	
Total Split (s)	32.0	32.0		88.0	88.0	
Total Split (%)	26.7%	26.7%		73.3%	73.3%	
Maximum Green (s)	26.0	26.0		81.0	81.0	
Yellow Time (s)	4.0	4.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		7.0	7.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		Max	Max	
Act Effct Green (s)	23.8	23.8		81.1	81.1	
Actuated g/C Ratio	0.20	0.20		0.69	0.69	
v/c Ratio	0.12	0.89		0.77	0.88	
Control Delay	39.0	75.1		15.5	21.0	
Queue Delay	0.0	0.0		0.6	0.0	
Total Delay	39.0	75.1		16.1	21.0	
LOS	D	E		B	C	
Approach Delay	70.1			16.1	21.0	
Approach LOS	E			B	C	
Queue Length 50th (m)	8.0	55.6		144.7	199.0	
Queue Length 95th (m)	17.6	#99.9		175.0	242.5	
Internal Link Dist (m)	393.0			93.5	105.7	
Turn Bay Length (m)						
Base Capacity (vph)	386	315		2406	2406	
Starvation Cap Reductn	0	0		221	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.11	0.82		0.85	0.88	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 117.9			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 22.3		Intersection LOS: C	
Intersection Capacity Utilization 80.4%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

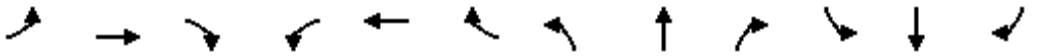
Splits and Phases: 10: Trafalgar Road & Highway 407 EB Off-Ramp



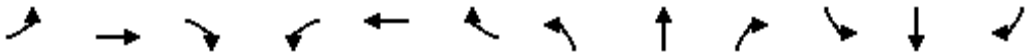


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	39	241	0	1724	1977	0
Future Volume (vph)	39	241	0	1724	1977	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1750	1377		3500	3500	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1750	1377		3500	3500	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	42	259	0	1854	2126	0
RTOR Reduction (vph)	0	12	0	0	0	0
Lane Group Flow (vph)	42	247	0	1854	2126	0
Heavy Vehicles (%)	2%	16%	2%	2%	2%	2%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	23.8	23.8		81.1	81.1	
Effective Green, g (s)	23.8	23.8		81.1	81.1	
Actuated g/C Ratio	0.20	0.20		0.69	0.69	
Clearance Time (s)	6.0	6.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	353	277		2407	2407	
v/s Ratio Prot	0.02			0.53	c0.61	
v/s Ratio Perm		c0.18				
v/c Ratio	0.12	0.89		0.77	0.88	
Uniform Delay, d1	38.5	45.8		12.2	14.6	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	28.0		2.4	5.2	
Delay (s)	38.6	73.8		14.7	19.8	
Level of Service	D	E		B	B	
Approach Delay (s)	68.9			14.7	19.8	
Approach LOS	E			B	B	

Intersection Summary			
HCM 2000 Control Delay	21.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	117.9	Sum of lost time (s)	13.0
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	314	1045	242	213	592	366	160	1705	210	553	1321	256
Future Volume (vph)	314	1045	242	213	592	366	160	1705	210	553	1321	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	105.0		60.0	120.0		205.0	85.0		55.0	180.0		80.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	3500	1566	3395	3500	1452	3395	4421	1493	3362	4378	1566
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3395	3500	1566	3395	3500	1452	3395	4421	1493	3362	4378	1566
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			149			154			101			218
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		207.8			119.4			182.8			224.9	
Travel Time (s)		12.5			7.2			11.0			13.5	
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%	10%	2%	2%	7%	3%	3%	2%
Adj. Flow (vph)	341	1136	263	232	643	398	174	1853	228	601	1436	278
Shared Lane Traffic (%)												
Lane Group Flow (vph)	341	1136	263	232	643	398	174	1853	228	601	1436	278
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	

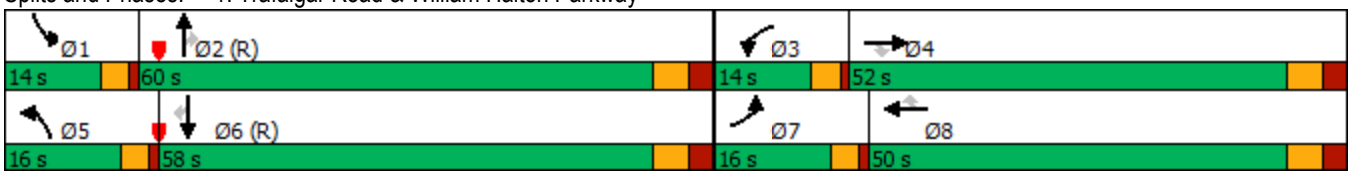


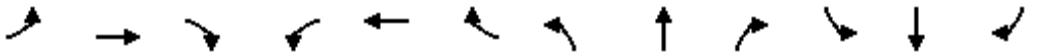
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	48.4	48.4	11.0	48.4	48.4	11.0	45.4	45.4	11.0	45.4	45.4
Total Split (s)	16.0	52.0	52.0	14.0	50.0	50.0	16.0	60.0	60.0	14.0	58.0	58.0
Total Split (%)	11.4%	37.1%	37.1%	10.0%	35.7%	35.7%	11.4%	42.9%	42.9%	10.0%	41.4%	41.4%
Maximum Green (s)	12.0	45.6	45.6	10.0	43.6	43.6	12.0	53.6	53.6	10.0	51.6	51.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		35.0	35.0		35.0	35.0		32.0	32.0		32.0	32.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	12.0	45.6	45.6	10.0	43.6	43.6	11.2	53.6	53.6	10.0	52.4	52.4
Actuated g/C Ratio	0.09	0.33	0.33	0.07	0.31	0.31	0.08	0.38	0.38	0.07	0.37	0.37
v/c Ratio	1.17	1.00	0.43	0.96	0.59	0.71	0.64	1.10	0.36	2.50	0.88	0.39
Control Delay	161.4	72.7	17.8	112.1	43.3	33.6	73.5	93.4	18.4	713.9	48.2	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	161.4	72.7	17.8	112.1	43.3	33.6	73.5	93.4	18.4	713.9	48.2	9.2
LOS	F	E	B	F	D	C	E	F	B	F	D	A
Approach Delay		81.8			52.8			84.3			216.3	
Approach LOS		F			D			F			F	
Queue Length 50th (m)	~57.8	165.1	23.3	33.6	79.1	61.6	24.3	~240.9	23.9	~142.4	154.9	10.9
Queue Length 95th (m)	#88.9	#213.1	48.1	#59.7	99.1	101.0	36.7	#274.0	45.5	#179.1	178.7	32.3
Internal Link Dist (m)		183.8			95.4			158.8			200.9	
Turn Bay Length (m)	105.0		60.0	120.0		205.0	85.0		55.0	180.0		80.0
Base Capacity (vph)	291	1140	610	242	1090	558	291	1692	633	240	1637	722
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.17	1.00	0.43	0.96	0.59	0.71	0.60	1.10	0.36	2.50	0.88	0.39

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 2.50			
Intersection Signal Delay: 118.8		Intersection LOS: F	
Intersection Capacity Utilization 101.0%		ICU Level of Service G	
Analysis Period (min) 15			

* User Entered Value
~ 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.

Splits and Phases: 1: Trafalgar Road & William Halton Parkway

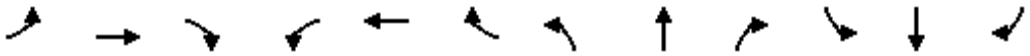




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	314	1045	242	213	592	366	160	1705	210	553	1321	256
Future Volume (vph)	314	1045	242	213	592	366	160	1705	210	553	1321	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	3500	1566	3395	3500	1452	3395	4421	1493	3362	4378	1566
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	3500	1566	3395	3500	1452	3395	4421	1493	3362	4378	1566
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)	341	1136	263	232	643	398	174	1853	228	601	1436	278
RTOR Reduction (vph)	0	0	100	0	0	106	0	0	62	0	0	136
Lane Group Flow (vph)	341	1136	163	232	643	292	174	1853	166	601	1436	142
Heavy Vehicles (%)	2%	2%	2%	2%	2%	10%	2%	2%	7%	3%	3%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	12.0	45.6	45.6	10.0	43.6	43.6	11.2	53.6	53.6	10.0	52.4	52.4
Effective Green, g (s)	12.0	45.6	45.6	10.0	43.6	43.6	11.2	53.6	53.6	10.0	52.4	52.4
Actuated g/C Ratio	0.09	0.33	0.33	0.07	0.31	0.31	0.08	0.38	0.38	0.07	0.37	0.37
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	291	1140	510	242	1090	452	271	1692	571	240	1638	586
v/s Ratio Prot	c0.10	c0.32		0.07	0.18		0.05	c0.42		c0.18	0.33	
v/s Ratio Perm			0.10			0.20			0.11			0.09
v/c Ratio	1.17	1.00	0.32	0.96	0.59	0.65	0.64	1.10	0.29	2.50	0.88	0.24
Uniform Delay, d1	64.0	47.1	35.5	64.8	40.7	41.5	62.5	43.2	30.0	65.0	40.8	30.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	107.6	25.7	0.8	45.8	1.3	4.3	5.1	52.8	1.3	689.1	6.9	1.0
Delay (s)	171.6	72.8	36.3	110.6	41.9	45.8	67.6	96.0	31.3	754.1	47.7	31.1
Level of Service	F	E	D	F	D	D	E	F	C	F	D	C
Approach Delay (s)		86.7			55.7			87.2			229.1	
Approach LOS		F			E			F			F	

Intersection Summary			
HCM 2000 Control Delay	125.1	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)	20.8
Intersection Capacity Utilization	101.0%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	194	341	127	223	251	115	212	1660	233	146	1495	81
Future Volume (vph)	194	341	127	223	251	115	212	1660	233	146	1495	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		30.0	120.0		0.0	130.0		0.0	170.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	50.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	*0.80	0.91	1.00	*0.80	0.91
Ped Bike Factor			0.99	1.00								
Frt			0.850		0.953			0.982			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3500	1566	1750	3248	0	1700	4336	0	1750	4339	0
Flt Permitted	0.513			0.396			0.080			0.086		
Satd. Flow (perm)	945	3500	1545	729	3248	0	143	4336	0	158	4339	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			141		73			21			7	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		245.2			123.4			230.0			280.2	
Travel Time (s)		17.7			8.9			13.8			16.8	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	6%	2%	5%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Adj. Flow (vph)	216	379	141	248	279	128	236	1844	259	162	1661	90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	216	379	141	248	407	0	236	2103	0	162	1751	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.02	1.01	1.01	1.02	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	41.4	41.4	41.4	11.0	41.4		11.0	37.3		11.0	37.3	
Total Split (s)	42.0	42.0	42.0	11.0	53.0		15.0	56.0		11.0	52.0	
Total Split (%)	35.0%	35.0%	35.0%	9.2%	44.2%		12.5%	46.7%		9.2%	43.3%	
Maximum Green (s)	35.6	35.6	35.6	7.0	46.6		11.0	49.7		7.0	45.7	
Yellow Time (s)	3.7	3.7	3.7	3.0	3.7		3.0	3.7		3.0	3.7	
All-Red Time (s)	2.7	2.7	2.7	1.0	2.7		1.0	2.6		1.0	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4	6.4	4.0	6.4		4.0	6.3		4.0	6.3	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	5.0		3.0	5.0	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0	7.0		7.0			7.0			7.0	
Flash Dont Walk (s)	28.0	28.0	28.0		28.0			24.0			24.0	
Pedestrian Calls (#/hr)	0	0	0		0			0			0	
Act Effct Green (s)	31.0	31.0	31.0	44.4	42.0		67.6	51.6		58.2	46.2	
Actuated g/C Ratio	0.26	0.26	0.26	0.37	0.35		0.56	0.43		0.48	0.38	
v/c Ratio	0.89	0.42	0.28	0.75	0.34		0.86	1.12		0.79	1.04	
Control Delay	76.7	37.7	6.6	44.4	23.4		58.5	94.8		52.2	71.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	76.7	37.7	6.6	44.4	23.4		58.5	94.8		52.2	71.0	
LOS	E	D	A	D	C		E	F		D	E	
Approach Delay		43.2			31.4			91.1			69.5	
Approach LOS		D			C			F			E	
Queue Length 50th (m)	47.1	37.6	0.0	40.5	28.6		40.6	~244.5		22.2	~188.2	
Queue Length 95th (m)	#84.7	50.7	14.4	60.3	40.3		#97.1	#277.9		#66.2	#222.2	
Internal Link Dist (m)		221.2			99.4			206.0			256.2	
Turn Bay Length (m)	100.0		30.0	120.0			130.0			170.0		
Base Capacity (vph)	280	1038	557	329	1305		275	1877		205	1676	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.77	0.37	0.25	0.75	0.31		0.86	1.12		0.79	1.04	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 135	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.12	

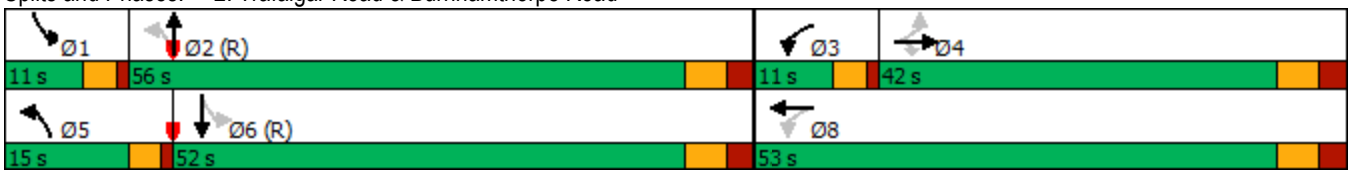
Intersection Signal Delay: 70.6	Intersection LOS: E
Intersection Capacity Utilization 86.0%	ICU Level of Service E
Analysis Period (min) 15	

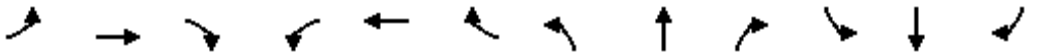
* User Entered Value

~ 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.

Splits and Phases: 2: Trafalgar Road & Burnhamthorpe Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	194	341	127	223	251	115	212	1660	233	146	1495	81
Future Volume (vph)	194	341	127	223	251	115	212	1660	233	146	1495	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4	6.4	4.0	6.4		4.0	6.3		4.0	6.3	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	*0.80		1.00	*0.80	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	3500	1545	1750	3247		1700	4333		1750	4341	
Flt Permitted	0.51	1.00	1.00	0.40	1.00		0.08	1.00		0.09	1.00	
Satd. Flow (perm)	945	3500	1545	730	3247		142	4333		159	4341	
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)	216	379	141	248	279	128	236	1844	259	162	1661	90
RTOR Reduction (vph)	0	0	105	0	47	0	0	12	0	0	4	0
Lane Group Flow (vph)	216	379	36	248	360	0	236	2091	0	162	1747	0
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	2%	2%	2%	2%	6%	2%	5%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	31.0	31.0	31.0	42.0	42.0		65.3	51.6		56.0	46.3	
Effective Green, g (s)	31.0	31.0	31.0	42.0	42.0		65.3	51.6		56.0	46.3	
Actuated g/C Ratio	0.26	0.26	0.26	0.35	0.35		0.54	0.43		0.47	0.39	
Clearance Time (s)	6.4	6.4	6.4	4.0	6.4		4.0	6.3		4.0	6.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	244	904	399	315	1136		272	1863		202	1674	
v/s Ratio Prot		0.11		c0.05	0.11		c0.11	c0.48		0.06	0.40	
v/s Ratio Perm	c0.23		0.02	0.23			0.36			0.31		
v/c Ratio	0.89	0.42	0.09	0.79	0.32		0.87	1.12		0.80	1.04	
Uniform Delay, d1	42.8	37.0	33.8	34.4	28.5		35.4	34.2		27.5	36.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	29.3	0.3	0.1	12.2	0.2		24.0	62.8		20.0	34.3	
Delay (s)	72.1	37.3	33.9	46.6	28.7		59.3	97.0		47.5	71.1	
Level of Service	E	D	C	D	C		E	F		D	E	
Approach Delay (s)		46.9			35.5			93.2			69.1	
Approach LOS		D			D			F			E	

Intersection Summary			
HCM 2000 Control Delay	72.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	86.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1356	1	690	759	0	1033
Future Volume (vph)	1356	1	690	759	0	1033
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	170.0		30.0	0.0
Storage Lanes		0	2		1	1
Taper Length (m)			15.0		50.0	
Lane Util. Factor	0.95	0.95	0.97	0.95	1.00	1.00
Frt						0.850
Flt Protected			0.950			
Satd. Flow (prot)	3500	0	3330	3466	1842	1566
Flt Permitted			0.950			
Satd. Flow (perm)	3500	0	3330	3466	1842	1566
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						349
Link Speed (k/h)	60			60	50	
Link Distance (m)	657.5			396.1	222.0	
Travel Time (s)	39.5			23.8	16.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	4%	3%	2%	2%
Adj. Flow (vph)	1474	1	750	825	0	1123
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1475	0	750	825	0	1123
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.0			7.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	10.0		2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6		2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	2		1	6	3	



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases						3
Detector Phase	2		1	6	3	3
Switch Phase						
Minimum Initial (s)	10.0		7.0	10.0	7.0	7.0
Minimum Split (s)	28.4		11.0	28.4	31.0	31.0
Total Split (s)	47.0		23.0	70.0	50.0	50.0
Total Split (%)	39.2%		19.2%	58.3%	41.7%	41.7%
Maximum Green (s)	40.6		19.0	63.6	46.0	46.0
Yellow Time (s)	3.7		3.0	3.7	3.0	3.0
All-Red Time (s)	2.7		1.0	2.7	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4		4.0	6.4	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	Max		None	None	Max	Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	15.0			15.0	20.0	20.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	40.6		19.0	63.6		46.0
Actuated g/C Ratio	0.34		0.16	0.53		0.38
v/c Ratio	1.25		1.42	0.45		1.38
Control Delay	152.9		238.7	18.4		200.8
Queue Delay	0.0		0.0	0.0		0.0
Total Delay	152.9		238.7	18.4		200.8
LOS	F		F	B		F
Approach Delay	152.9			123.3	200.8	
Approach LOS	F			F	F	
Queue Length 50th (m)	~227.6		~122.8	60.7		~298.5
Queue Length 95th (m)	#270.0		#160.0	76.1		#378.3
Internal Link Dist (m)	633.5			372.1	198.0	
Turn Bay Length (m)			170.0			
Base Capacity (vph)	1184		527	1836		815
Starvation Cap Reductn	0		0	0		0
Spillback Cap Reductn	0		0	0		0
Storage Cap Reductn	0		0	0		0
Reduced v/c Ratio	1.25		1.42	0.45		1.38

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.42			
Intersection Signal Delay: 154.6		Intersection LOS: F	
Intersection Capacity Utilization 110.1%		ICU Level of Service H	
Analysis Period (min) 15			

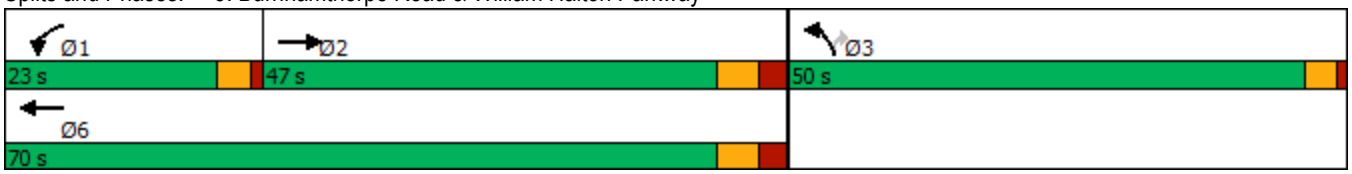
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

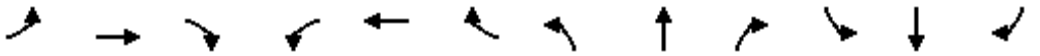
Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway



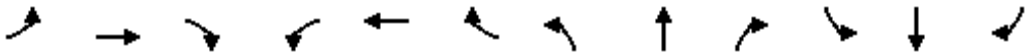


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1356	1	690	759	0	1033
Future Volume (vph)	1356	1	690	759	0	1033
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4		4.0	6.4		4.0
Lane Util. Factor	0.95		0.97	0.95		1.00
Frt	1.00		1.00	1.00		0.85
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	3500		3330	3466		1566
Flt Permitted	1.00		0.95	1.00		1.00
Satd. Flow (perm)	3500		3330	3466		1566
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1474	1	750	825	0	1123
RTOR Reduction (vph)	0	0	0	0	0	215
Lane Group Flow (vph)	1475	0	750	825	0	908
Heavy Vehicles (%)	2%	2%	4%	3%	2%	2%
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	2		1	6	3	
Permitted Phases						3
Actuated Green, G (s)	40.6		19.0	63.6		46.0
Effective Green, g (s)	40.6		19.0	63.6		46.0
Actuated g/C Ratio	0.34		0.16	0.53		0.38
Clearance Time (s)	6.4		4.0	6.4		4.0
Vehicle Extension (s)	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	1184		527	1836		600
v/s Ratio Prot	c0.42		c0.23	0.24		
v/s Ratio Perm						c0.58
v/c Ratio	1.25		1.42	0.45		1.51
Uniform Delay, d1	39.7		50.5	17.4		37.0
Progression Factor	1.00		1.00	1.00		1.00
Incremental Delay, d2	117.8		201.3	0.2		239.4
Delay (s)	157.5		251.8	17.6		276.4
Level of Service	F		F	B		F
Approach Delay (s)	157.5			129.1	276.4	
Approach LOS	F			F	F	

Intersection Summary			
HCM 2000 Control Delay	178.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.39		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.4
Intersection Capacity Utilization	110.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	484	2085	233	257	1206	589	187	1165	120	769	1652	346
Future Volume (vph)	484	2085	233	257	1206	589	187	1165	120	769	1652	346
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	160.0		85.0	95.0		260.0	90.0		50.0	250.0		100.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Ped Bike Factor	1.00		0.99	1.00		0.98	1.00		0.99	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	4421	1551	3298	4214	1536	3330	4378	1566	3330	4378	1551
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3393	4421	1529	3298	4214	1512	3328	4378	1543	3328	4378	1523
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			134			156			129			135
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		560.5			603.0			601.7			1233.0	
Travel Time (s)		28.8			31.0			36.1			74.0	
Confl. Peds. (#/hr)	4		2	2		4	6		3	3		6
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	3%	5%	7%	4%	4%	3%	2%	4%	3%	3%
Adj. Flow (vph)	504	2172	243	268	1256	614	195	1214	125	801	1721	360
Shared Lane Traffic (%)												
Lane Group Flow (vph)	504	2172	243	268	1256	614	195	1214	125	801	1721	360
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	50.4	50.4	11.0	50.4	50.4	11.0	48.4	48.4	11.0	48.4	48.4
Total Split (s)	13.0	54.0	54.0	11.0	52.0	52.0	11.0	49.0	49.0	16.0	54.0	54.0
Total Split (%)	10.0%	41.5%	41.5%	8.5%	40.0%	40.0%	8.5%	37.7%	37.7%	12.3%	41.5%	41.5%
Maximum Green (s)	9.0	47.6	47.6	7.0	45.6	45.6	7.0	42.6	42.6	12.0	47.6	47.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		37.0	37.0		37.0	37.0		35.0	35.0		35.0	35.0
Pedestrian Calls (#/hr)		2	2		4	4		3	3		6	6
Act Effct Green (s)	9.0	47.6	47.6	7.0	45.6	45.6	7.0	42.6	42.6	12.0	47.6	47.6
Actuated g/C Ratio	0.07	0.37	0.37	0.05	0.35	0.35	0.05	0.33	0.33	0.09	0.37	0.37
v/c Ratio	2.14	1.34	0.38	1.51	0.85	0.97	1.09	0.85	0.21	2.61	1.07	0.56
Control Delay	557.2	192.6	14.9	298.4	45.7	61.1	149.1	47.3	5.6	756.3	84.7	23.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	557.2	192.6	14.9	298.4	45.7	61.1	149.1	47.3	5.6	756.3	84.7	23.7
LOS	F	F	B	F	D	E	F	D	A	F	F	C
Approach Delay		240.7			81.8			56.9			263.7	
Approach LOS		F			F			E			F	
Queue Length 50th (m)	~106.0	~302.1	18.9	~49.1	123.4	124.3	~28.9	120.2	0.0	~177.5	~203.9	45.3
Queue Length 95th (m)	#140.0	#334.5	40.5	#76.8	145.7	#202.1	#53.2	141.8	12.8	#215.9	#237.3	76.3
Internal Link Dist (m)		536.5			579.0			577.7			1209.0	
Turn Bay Length (m)	160.0		85.0	95.0		260.0	90.0		50.0	250.0		100.0
Base Capacity (vph)	235	1618	644	177	1478	631	179	1434	592	307	1603	643
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.14	1.34	0.38	1.51	0.85	0.97	1.09	0.85	0.21	2.61	1.07	0.56

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 2.61	
Intersection Signal Delay: 182.1	Intersection LOS: F

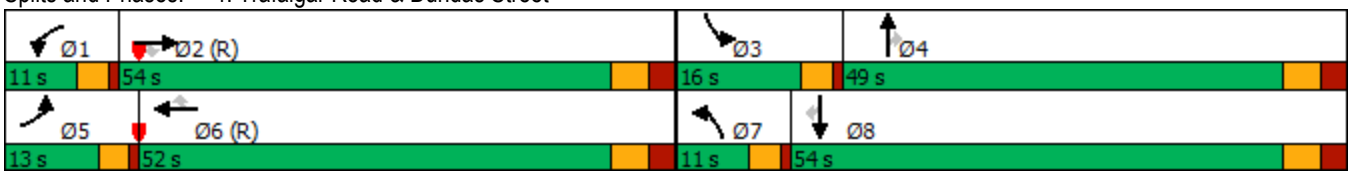
Intersection Capacity Utilization 113.4%	ICU Level of Service H
Analysis Period (min) 15	

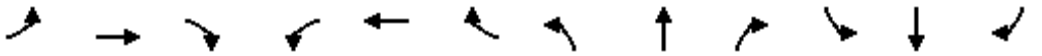
* User Entered Value

~ 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.

Splits and Phases: 4: Trafalgar Road & Dundas Street

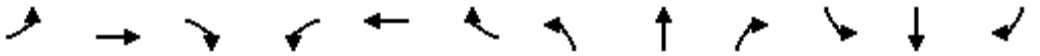




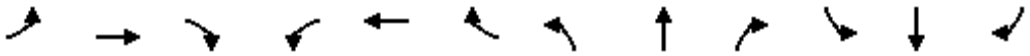
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	484	2085	233	257	1206	589	187	1165	120	769	1652	346
Future Volume (vph)	484	2085	233	257	1206	589	187	1165	120	769	1652	346
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	4421	1529	3298	4214	1512	3330	4378	1543	3330	4378	1523
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	4421	1529	3298	4214	1512	3330	4378	1543	3330	4378	1523
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	504	2172	243	268	1256	614	195	1214	125	801	1721	360
RTOR Reduction (vph)	0	0	85	0	0	101	0	0	84	0	0	86
Lane Group Flow (vph)	504	2172	158	268	1256	513	195	1214	41	801	1721	274
Confl. Peds. (#/hr)	4		2	2		4	6		3	3		6
Heavy Vehicles (%)	2%	2%	3%	5%	7%	4%	4%	3%	2%	4%	3%	3%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	9.0	47.6	47.6	7.0	45.6	45.6	7.0	42.6	42.6	12.0	47.6	47.6
Effective Green, g (s)	9.0	47.6	47.6	7.0	45.6	45.6	7.0	42.6	42.6	12.0	47.6	47.6
Actuated g/C Ratio	0.07	0.37	0.37	0.05	0.35	0.35	0.05	0.33	0.33	0.09	0.37	0.37
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Lane Grp Cap (vph)	235	1618	559	177	1478	530	179	1434	505	307	1603	557
v/s Ratio Prot	c0.15	c0.49		0.08	0.30		0.06	0.28		c0.24	c0.39	
v/s Ratio Perm			0.10			0.34			0.03			0.18
v/c Ratio	2.14	1.34	0.28	1.51	0.85	0.97	1.09	0.85	0.08	2.61	1.07	0.49
Uniform Delay, d1	60.5	41.2	29.1	61.5	39.0	41.5	61.5	40.7	30.2	59.0	41.2	31.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	529.1	158.3	1.3	258.2	6.3	31.8	93.1	4.9	0.1	733.5	45.1	0.8
Delay (s)	589.6	199.5	30.4	319.7	45.3	73.3	154.6	45.6	30.3	792.5	86.3	32.7
Level of Service	F	F	C	F	D	E	F	D	C	F	F	C
Approach Delay (s)		252.8			87.8			58.2			275.9	
Approach LOS		F			F			E			F	

Intersection Summary			
HCM 2000 Control Delay	191.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.48		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	113.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	132	47	117	186	39	181	658	141	81	526	10
Future Volume (vph)	58	132	47	117	186	39	181	658	141	81	526	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	40.0		0.0	40.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			50.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.960			0.974			0.974			0.997	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3360	0	1684	3305	0	1750	3386	0	1700	3456	0
Flt Permitted	0.595			0.626			0.424			0.295		
Satd. Flow (perm)	1096	3360	0	1110	3305	0	781	3386	0	528	3456	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		53			29			43			3	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		241.5			345.8			328.3			671.5	
Travel Time (s)		17.4			24.9			19.7			40.3	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	2%	6%	4%	11%	2%	2%	6%	5%	3%	2%
Adj. Flow (vph)	65	148	53	131	209	44	203	739	158	91	591	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	201	0	131	253	0	203	897	0	91	602	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	

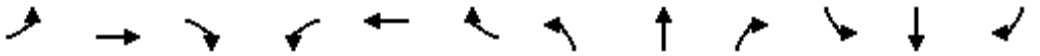


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	34.5	34.5		34.5	34.5		50.4	50.4		50.4	50.4	
Total Split (s)	36.0	36.0		36.0	36.0		54.0	54.0		54.0	54.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%		60.0%	60.0%		60.0%	60.0%	
Maximum Green (s)	29.5	29.5		29.5	29.5		47.6	47.6		47.6	47.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.2	3.2		3.2	3.2		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		19.0	19.0		19.0	19.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	14.5	14.5		14.5	14.5		47.8	47.8		47.8	47.8	
Actuated g/C Ratio	0.19	0.19		0.19	0.19		0.64	0.64		0.64	0.64	
v/c Ratio	0.31	0.29		0.61	0.38		0.41	0.41		0.27	0.27	
Control Delay	29.6	19.5		40.4	24.6		11.0	7.7		9.9	7.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	29.6	19.5		40.4	24.6		11.0	7.7		9.9	7.0	
LOS	C	B		D	C		B	A		A	A	
Approach Delay		22.0			30.0			8.3			7.4	
Approach LOS		C			C			A			A	
Queue Length 50th (m)	8.0	9.3		17.1	14.5		12.1	26.4		4.8	16.7	
Queue Length 95th (m)	17.9	17.3		33.1	23.7		32.2	48.1		15.5	31.2	
Internal Link Dist (m)		217.5			321.8			304.3			647.5	
Turn Bay Length (m)	55.0			40.0			40.0			30.0		
Base Capacity (vph)	431	1354		436	1318		495	2166		335	2196	
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	0.15		0.30	0.19		0.41	0.41		0.27	0.27	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 75.2			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 12.9		Intersection LOS: B	
Intersection Capacity Utilization 69.2%		ICU Level of Service C	
Analysis Period (min) 15			

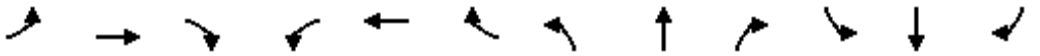
Splits and Phases: 6: Sixth Line & Burnhamthorpe Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	132	47	117	186	39	181	658	141	81	526	10
Future Volume (vph)	58	132	47	117	186	39	181	658	141	81	526	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.97		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)	1750	3361		1684	3304		1750	3384		1700	3457	
Flt Permitted	0.60	1.00		0.63	1.00		0.42	1.00		0.30	1.00	
Satd. Flow (perm)	1096	3361		1109	3304		782	3384		528	3457	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	65	148	53	131	209	44	203	739	158	91	591	11
RTOR Reduction (vph)	0	43	0	0	23	0	0	16	0	0	1	0
Lane Group Flow (vph)	65	158	0	131	230	0	203	881	0	91	601	0
Heavy Vehicles (%)	2%	2%	2%	6%	4%	11%	2%	2%	6%	5%	3%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	14.5	14.5		14.5	14.5		47.7	47.7		47.7	47.7	
Effective Green, g (s)	14.5	14.5		14.5	14.5		47.7	47.7		47.7	47.7	
Actuated g/C Ratio	0.19	0.19		0.19	0.19		0.64	0.64		0.64	0.64	
Clearance Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	211	648		214	637		496	2149		335	2195	
v/s Ratio Prot		0.05			0.07			c0.26			0.17	
v/s Ratio Perm	0.06			c0.12			0.26			0.17		
v/c Ratio	0.31	0.24		0.61	0.36		0.41	0.41		0.27	0.27	
Uniform Delay, d1	26.0	25.7		27.7	26.3		6.8	6.8		6.0	6.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.2		5.1	0.3		2.5	0.6		2.0	0.3	
Delay (s)	26.8	25.9		32.8	26.6		9.2	7.3		8.0	6.4	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		26.1			28.7			7.7			6.6	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	75.1	Sum of lost time (s)	12.9
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



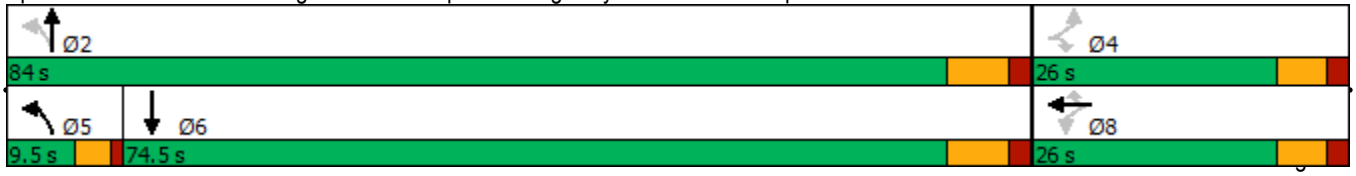
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	2	290	0	3	2	1767	0	0	1601	0
Future Volume (vph)	3	0	2	290	0	3	2	1767	0	0	1601	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		5.0	0.0		60.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		1	1		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt			0.850			0.850						
Flt Protected	0.950			0.950	0.950		0.950					
Satd. Flow (prot)	1069	0	1566	1449	1388	1487	1190	3305	0	0	4749	0
Flt Permitted	0.540			0.950	0.950		0.087					
Satd. Flow (perm)	608	0	1566	1449	1388	1487	109	3305	0	0	4749	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79			79						
Link Speed (k/h)		20			60			80			80	
Link Distance (m)		81.5			394.8			34.5			189.8	
Travel Time (s)		14.7			23.7			1.6			8.5	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	67%	2%	2%	17%	2%	2%	50%	8%	2%	2%	8%	2%
Adj. Flow (vph)	3	0	2	326	0	3	2	1985	0	0	1799	0
Shared Lane Traffic (%)				50%		10%						
Lane Group Flow (vph)	3	0	2	163	163	3	2	1985	0	0	1799	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1		1	1	2	1	1	2			2	
Detector Template	Left		Right	Left	Thru	Right	Left	Thru			Thru	
Leading Detector (m)	2.0		2.0	2.0	10.0	2.0	2.0	10.0			10.0	
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Size(m)	2.0		2.0	2.0	0.6	2.0	2.0	0.6			0.6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 2 Position(m)					9.4			9.4			9.4	
Detector 2 Size(m)					0.6			0.6			0.6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8		8	2					
Detector Phase	4		4	8	8	8	5	2			6	
Switch Phase												
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	4.0	35.0			35.0	
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5	9.5	42.0			42.0	
Total Split (s)	26.0		26.0	26.0	26.0	26.0	9.5	84.0			74.5	
Total Split (%)	23.6%		23.6%	23.6%	23.6%	23.6%	8.6%	76.4%			67.7%	
Maximum Green (s)	20.0		20.0	20.0	20.0	20.0	5.5	77.0			67.5	
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0	3.0	5.0			5.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0	1.0	2.0			2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Recall Mode	None		None	None	None	None	None	Min			Min	
Act Effct Green (s)	15.4		15.4	15.4	15.4	15.4	63.6	60.4			58.9	
Actuated g/C Ratio	0.17		0.17	0.17	0.17	0.17	0.71	0.67			0.66	
v/c Ratio	0.03		0.01	0.66	0.68	0.01	0.01	0.89			0.58	
Control Delay	37.3		0.0	51.7	54.1	0.0	4.5	18.1			9.8	
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	37.3		0.0	51.7	54.1	0.0	4.5	18.1			9.8	
LOS	D		A	D	D	A	A	B			A	
Approach Delay		22.4			52.4			18.1			9.8	
Approach LOS		C			D			B			A	
Queue Length 50th (m)	0.5		0.0	28.8	30.3	0.0	0.1	129.7			52.6	
Queue Length 95th (m)	3.1		0.0	56.9	60.0	0.0	0.7	182.2			93.8	
Internal Link Dist (m)		57.5			370.8			10.5			165.8	
Turn Bay Length (m)			5.0			60.0						
Base Capacity (vph)	143		430	342	328	412	147	2793			3721	
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	0.02		0.00	0.48	0.50	0.01	0.01	0.71			0.48	

Intersection Summary

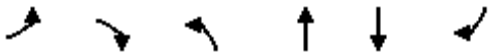
Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 89.6
Natural Cycle: 80
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 17.2 — Intersection LOS: B
Intersection Capacity Utilization 74.4% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 7: Trafalgar Road & Carpool Lot/Highway 407 WB Off-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	2	290	0	3	2	1767	0	0	1601	0
Future Volume (vph)	3	0	2	290	0	3	2	1767	0	0	1601	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	6.0	4.0	7.0			7.0	
Lane Util. Factor	1.00		1.00	0.95	0.91	0.95	1.00	0.95			0.91	
Frt	1.00		0.85	1.00	1.00	0.85	1.00	1.00			1.00	
Flt Protected	0.95		1.00	0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1069		1566	1449	1388	1487	1190	3305			4749	
Flt Permitted	0.54		1.00	0.95	0.95	1.00	0.09	1.00			1.00	
Satd. Flow (perm)	608		1566	1449	1388	1487	109	3305			4749	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	3	0	2	326	0	3	2	1985	0	0	1799	0
RTOR Reduction (vph)	0	0	2	0	0	2	0	0	0	0	0	0
Lane Group Flow (vph)	3	0	0	163	163	1	2	1985	0	0	1799	0
Heavy Vehicles (%)	67%	2%	2%	17%	2%	2%	50%	8%	2%	2%	8%	2%
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	
Permitted Phases	4		4	8		8	2					
Actuated Green, G (s)	15.4		15.4	15.4	15.4	15.4	63.8	63.8			58.9	
Effective Green, g (s)	15.4		15.4	15.4	15.4	15.4	63.8	63.8			58.9	
Actuated g/C Ratio	0.17		0.17	0.17	0.17	0.17	0.69	0.69			0.64	
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)	101		261	242	231	248	85	2286			3033	
v/s Ratio Prot							0.00	c0.60			0.38	
v/s Ratio Perm	0.00		0.00	0.11	0.12	0.00	0.02					
v/c Ratio	0.03		0.00	0.67	0.71	0.00	0.02	0.87			0.59	
Uniform Delay, d1	32.1		32.0	36.0	36.3	32.0	5.8	11.0			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		0.0	7.2	9.4	0.0	0.1	3.8			0.3	
Delay (s)	32.3		32.0	43.2	45.7	32.0	5.9	14.7			10.0	
Level of Service	C		C	D	D	C	A	B			A	
Approach Delay (s)		32.2			44.3			14.7			10.0	
Approach LOS		C			D			B			A	

Intersection Summary			
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	92.2	Sum of lost time (s)	17.0
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

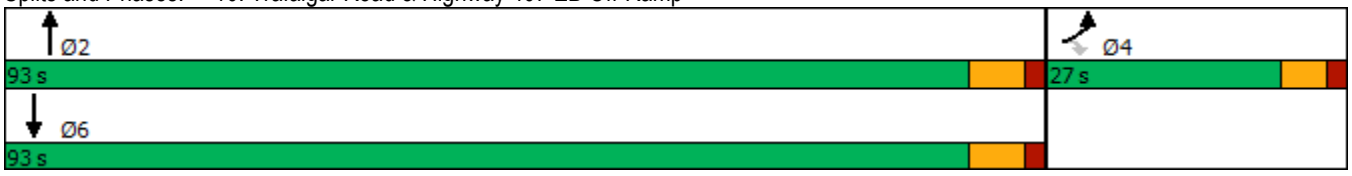


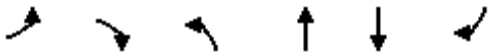
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	52	257	0	1916	1745	0
Future Volume (vph)	52	257	0	1916	1745	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	0.95	0.95	1.00
Frt	0.899	0.850				
Flt Protected	0.984					
Satd. Flow (prot)	1501	1331	0	3275	3305	0
Flt Permitted	0.984					
Satd. Flow (perm)	1501	1331	0	3275	3305	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	29	29				
Link Speed (k/h)	60			80	80	
Link Distance (m)	417.0			117.5	129.7	
Travel Time (s)	25.0			5.3	5.8	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	14%	2%	9%	8%	2%
Adj. Flow (vph)	57	282	0	2105	1918	0
Shared Lane Traffic (%)		41%				
Lane Group Flow (vph)	173	166	0	2105	1918	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (m)	2.0	2.0		10.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	2.0		0.6	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Initial (s)	6.0	6.0		20.0	20.0	
Minimum Split (s)	24.0	24.0		27.0	27.0	
Total Split (s)	27.0	27.0		93.0	93.0	
Total Split (%)	22.5%	22.5%		77.5%	77.5%	
Maximum Green (s)	21.0	21.0		86.0	86.0	
Yellow Time (s)	4.0	4.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		7.0	7.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		Max	Max	
Act Effct Green (s)	16.4	16.4		86.1	86.1	
Actuated g/C Ratio	0.14	0.14		0.75	0.75	
v/c Ratio	0.73	0.78		0.86	0.78	
Control Delay	57.2	63.5		16.4	12.6	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	57.2	63.5		16.4	12.6	
LOS	E	E		B	B	
Approach Delay	60.3			16.4	12.6	
Approach LOS	E			B	B	
Queue Length 50th (m)	31.6	31.8		159.8	124.1	
Queue Length 95th (m)	55.3	56.9		229.4	175.0	
Internal Link Dist (m)	393.0			93.5	105.7	
Turn Bay Length (m)						
Base Capacity (vph)	296	265		2441	2464	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.58	0.63		0.86	0.78	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 115.5			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 18.1		Intersection LOS: B	
Intersection Capacity Utilization 71.9%		ICU Level of Service C	
Analysis Period (min) 15			

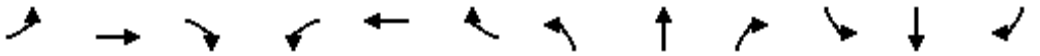
Splits and Phases: 10: Trafalgar Road & Highway 407 EB Off-Ramp



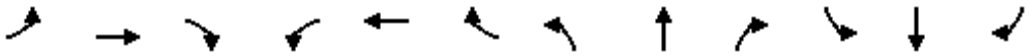


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	52	257	0	1916	1745	0
Future Volume (vph)	52	257	0	1916	1745	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		0.95	0.95	
Frt	0.90	0.85		1.00	1.00	
Flt Protected	0.98	1.00		1.00	1.00	
Satd. Flow (prot)	1502	1331		3275	3305	
Flt Permitted	0.98	1.00		1.00	1.00	
Satd. Flow (perm)	1502	1331		3275	3305	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	57	282	0	2105	1918	0
RTOR Reduction (vph)	25	25	0	0	0	0
Lane Group Flow (vph)	148	141	0	2105	1918	0
Heavy Vehicles (%)	4%	14%	2%	9%	8%	2%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	16.4	16.4		86.1	86.1	
Effective Green, g (s)	16.4	16.4		86.1	86.1	
Actuated g/C Ratio	0.14	0.14		0.75	0.75	
Clearance Time (s)	6.0	6.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	213	188		2441	2463	
v/s Ratio Prot	0.10			c0.64	0.58	
v/s Ratio Perm		c0.11				
v/c Ratio	0.70	0.75		0.86	0.78	
Uniform Delay, d1	47.2	47.6		10.5	8.9	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.5	15.5		4.3	2.5	
Delay (s)	56.6	63.0		14.8	11.4	
Level of Service	E	E		B	B	
Approach Delay (s)	59.8			14.8	11.4	
Approach LOS	E			B	B	

Intersection Summary			
HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	115.5	Sum of lost time (s)	13.0
Intersection Capacity Utilization	71.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	1524	22	143	711	155	12	31	14	21	5	2
Future Volume (vph)	14	1524	22	143	711	155	12	31	14	21	5	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	50.0		30.0	30.0		0.0	40.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00				0.97	0.99	0.99		0.99	0.99	
Frt		0.998				0.850		0.952			0.962	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3491	0	1750	3500	1566	1750	1741	0	1750	1762	0
Flt Permitted	0.353			0.074			0.752			0.724		
Satd. Flow (perm)	648	3491	0	136	3500	1513	1377	1741	0	1326	1762	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				172		16			2	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		830.2			198.4			579.5			190.6	
Travel Time (s)		49.8			11.9			41.7			13.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	16	1693	24	159	790	172	13	34	16	23	6	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	1717	0	159	790	172	13	50	0	23	8	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6		6	4			8		
Detector Phase	2	2		1	6	6	4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	32.1	32.1		11.5	32.1	32.1	34.4	34.4		34.4	34.4	
Total Split (s)	69.0	69.0		16.0	85.0	85.0	35.0	35.0		35.0	35.0	
Total Split (%)	57.5%	57.5%		13.3%	70.8%	70.8%	29.2%	29.2%		29.2%	29.2%	
Maximum Green (s)	63.9	63.9		12.0	79.9	79.9	29.6	29.6		29.6	29.6	
Yellow Time (s)	3.7	3.7		3.0	3.7	3.7	3.3	3.3		3.3	3.3	
All-Red Time (s)	1.4	1.4		1.0	1.4	1.4	2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.1	5.1		4.0	5.1	5.1	5.4	5.4		5.4	5.4	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		None	Max	Max	None	None		None	None	
Walk Time (s)	7.0	7.0			7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	20.0	20.0			20.0	20.0	22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)	5	5			5	5	5	5		5	5	
Act Effct Green (s)	69.8	69.8		84.6	84.6	84.6	13.4	13.4		13.4	13.4	
Actuated g/C Ratio	0.67	0.67		0.81	0.81	0.81	0.13	0.13		0.13	0.13	
v/c Ratio	0.04	0.73		0.61	0.28	0.14	0.07	0.21		0.14	0.04	
Control Delay	10.1	16.6		24.9	4.2	1.1	39.1	31.2		40.6	33.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	10.1	16.6		24.9	4.2	1.1	39.1	31.2		40.6	33.6	
LOS	B	B		C	A	A	D	C		D	C	
Approach Delay		16.5			6.6			32.8			38.8	
Approach LOS		B			A			C			D	
Queue Length 50th (m)	1.0	106.2		8.7	16.4	0.0	2.4	6.2		4.2	1.1	
Queue Length 95th (m)	5.3	#228.3		38.2	47.8	6.7	7.5	16.3		11.0	5.3	
Internal Link Dist (m)		806.2			174.4			555.5			166.6	
Turn Bay Length (m)	30.0			50.0		30.0	30.0			40.0		
Base Capacity (vph)	433	2338		297	2840	1260	392	508		378	504	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.04	0.73		0.54	0.28	0.14	0.03	0.10		0.06	0.02	

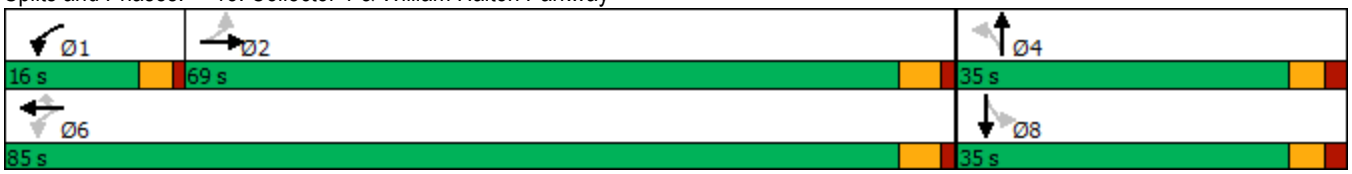
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 104.2			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 13.3		Intersection LOS: B	
Intersection Capacity Utilization 73.6%		ICU Level of Service D	

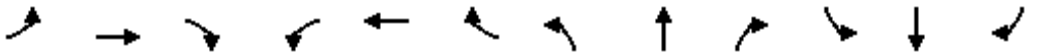
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 15: Collector 1 & William Halton Parkway

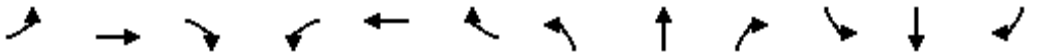




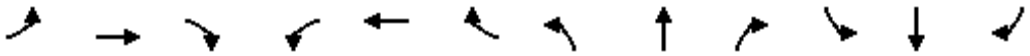
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	1524	22	143	711	155	12	31	14	21	5	2
Future Volume (vph)	14	1524	22	143	711	155	12	31	14	21	5	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1		4.0	5.1	5.1	5.4	5.4		5.4	5.4	
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	0.97	1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	0.99	1.00		0.99	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.95		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1744	3491		1750	3500	1516	1741	1738		1741	1761	
Flt Permitted	0.35	1.00		0.07	1.00	1.00	0.75	1.00		0.72	1.00	
Satd. Flow (perm)	648	3491		136	3500	1516	1379	1738		1328	1761	
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)	16	1693	24	159	790	172	13	34	16	23	6	2
RTOR Reduction (vph)	0	1	0	0	0	36	0	14	0	0	2	0
Lane Group Flow (vph)	16	1716	0	159	790	136	13	36	0	23	6	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	69.8	69.8		83.5	83.5	83.5	11.3	11.3		11.3	11.3	
Effective Green, g (s)	69.8	69.8		83.5	83.5	83.5	11.3	11.3		11.3	11.3	
Actuated g/C Ratio	0.66	0.66		0.79	0.79	0.79	0.11	0.11		0.11	0.11	
Clearance Time (s)	5.1	5.1		4.0	5.1	5.1	5.4	5.4		5.4	5.4	
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)	429	2314		256	2775	1202	147	186		142	188	
v/s Ratio Prot		c0.49		c0.06	0.23			c0.02			0.00	
v/s Ratio Perm	0.02			0.44		0.09	0.01			0.02		
v/c Ratio	0.04	0.74		0.62	0.28	0.11	0.09	0.19		0.16	0.03	
Uniform Delay, d1	6.1	11.8		19.2	2.9	2.5	42.4	42.8		42.7	42.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	2.2		4.6	0.3	0.2	0.3	0.5		0.5	0.1	
Delay (s)	6.3	14.0		23.8	3.2	2.7	42.6	43.3		43.2	42.2	
Level of Service	A	B		C	A	A	D	D		D	D	
Approach Delay (s)		13.9			6.0			43.2			43.0	
Approach LOS		B			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	105.3	Sum of lost time (s)	14.5
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	528	9	90	327	129	19	91	116	18	47	2
Future Volume (vph)	15	528	9	90	327	129	19	91	116	18	47	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	0.99		1.00	0.99		1.00	1.00	
Frt		0.997			0.958			0.916			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3488	0	1750	3322	0	1750	1669	0	1750	1830	0
Flt Permitted	0.466			0.426			0.722			0.508		
Satd. Flow (perm)	855	3488	0	782	3322	0	1324	1669	0	932	1830	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			89			83			2	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		136.3			245.2			477.1			579.5	
Travel Time (s)		9.8			17.7			34.4			41.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	17	587	10	100	363	143	21	101	129	20	52	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	597	0	100	506	0	21	230	0	20	54	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

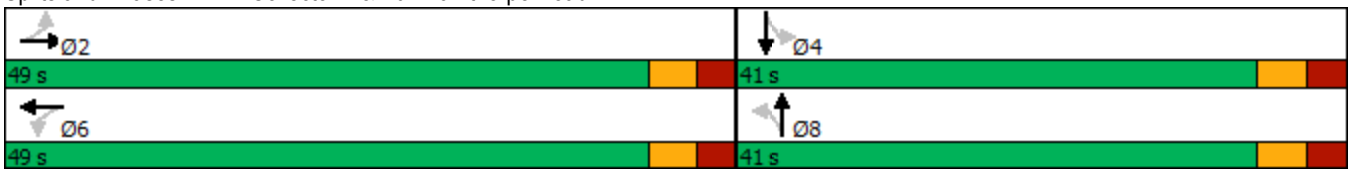


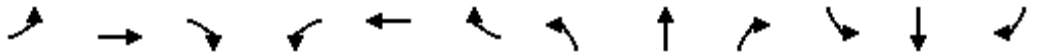
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	31.9	31.9		31.9	31.9		33.1	33.1		33.1	33.1	
Total Split (s)	49.0	49.0		49.0	49.0		41.0	41.0		41.0	41.0	
Total Split (%)	54.4%	54.4%		54.4%	54.4%		45.6%	45.6%		45.6%	45.6%	
Maximum Green (s)	43.1	43.1		43.1	43.1		34.9	34.9		34.9	34.9	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.6	2.6		2.6	2.6		2.8	2.8		2.8	2.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	
Act Effct Green (s)	45.3	45.3		45.3	45.3		13.2	13.2		13.2	13.2	
Actuated g/C Ratio	0.64	0.64		0.64	0.64		0.19	0.19		0.19	0.19	
v/c Ratio	0.03	0.27		0.20	0.23		0.08	0.61		0.11	0.16	
Control Delay	7.4	6.9		8.5	5.7		21.8	22.4		22.8	22.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	7.4	6.9		8.5	5.7		21.8	22.4		22.8	22.1	
LOS	A	A		A	A		C	C		C	C	
Approach Delay		6.9			6.1			22.3			22.3	
Approach LOS		A			A			C			C	
Queue Length 50th (m)	0.6	13.7		4.2	9.1		2.2	16.7		2.1	5.6	
Queue Length 95th (m)	4.2	36.5		17.3	26.3		7.0	34.7		6.9	13.2	
Internal Link Dist (m)		112.3			221.2			453.1			555.5	
Turn Bay Length (m)	30.0			30.0			30.0			30.0		
Base Capacity (vph)	548	2237		501	2162		659	872		463	912	
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	0.27		0.20	0.23		0.03	0.26		0.04	0.06	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 70.6			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 9.9		Intersection LOS: A	
Intersection Capacity Utilization 58.5%		ICU Level of Service B	

Analysis Period (min) 15

Splits and Phases: 17: Collector 1 & Burnhamthorpe Road

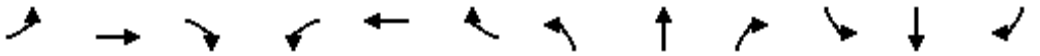




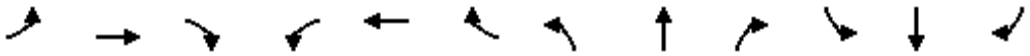
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	528	9	90	327	129	19	91	116	18	47	2
Future Volume (vph)	15	528	9	90	327	129	19	91	116	18	47	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
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	0.99		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	1.00		1.00	0.96		1.00	0.92		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)	1744	3489		1745	3324		1744	1667		1745	1830	
Flt Permitted	0.47	1.00		0.43	1.00		0.72	1.00		0.51	1.00	
Satd. Flow (perm)	855	3489		783	3324		1325	1667		934	1830	
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)	17	587	10	100	363	143	21	101	129	20	52	2
RTOR Reduction (vph)	0	1	0	0	32	0	0	67	0	0	2	0
Lane Group Flow (vph)	17	596	0	100	474	0	21	163	0	20	52	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	45.3	45.3		45.3	45.3		13.2	13.2		13.2	13.2	
Effective Green, g (s)	45.3	45.3		45.3	45.3		13.2	13.2		13.2	13.2	
Actuated g/C Ratio	0.64	0.64		0.64	0.64		0.19	0.19		0.19	0.19	
Clearance Time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	549	2241		503	2135		248	312		174	342	
v/s Ratio Prot		c0.17			0.14			c0.10			0.03	
v/s Ratio Perm	0.02			0.13			0.02			0.02		
v/c Ratio	0.03	0.27		0.20	0.22		0.08	0.52		0.11	0.15	
Uniform Delay, d1	4.6	5.4		5.2	5.3		23.7	25.8		23.8	24.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.3		0.9	0.2		0.1	1.6		0.3	0.2	
Delay (s)	4.7	5.7		6.0	5.5		23.8	27.4		24.1	24.2	
Level of Service	A	A		A	A		C	C		C	C	
Approach Delay (s)		5.7			5.6			27.1			24.2	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	10.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	70.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	761	36	75	511	4	42	93	166	11	59	23
Future Volume (vph)	32	761	36	75	511	4	42	93	166	11	59	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	50.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Frt		0.993			0.999			0.904			0.958	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3470	0	1750	3496	0	1750	1644	0	1750	1755	0
Flt Permitted	0.437			0.298			0.697			0.385		
Satd. Flow (perm)	802	3470	0	548	3496	0	1278	1644	0	707	1755	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			1			113			25	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		223.5			463.9			185.3			250.4	
Travel Time (s)		16.1			33.4			13.3			18.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	36	846	40	83	568	4	47	103	184	12	66	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	886	0	83	572	0	47	287	0	12	92	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

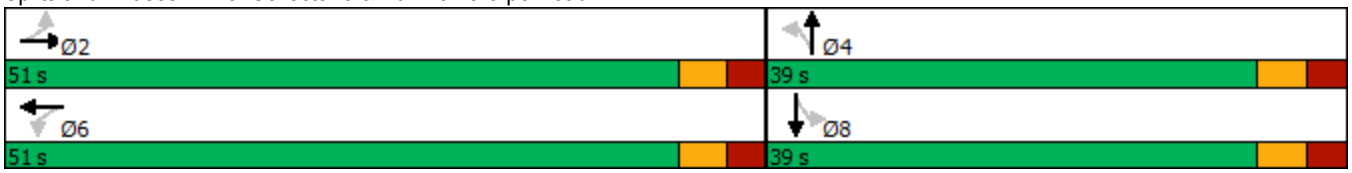


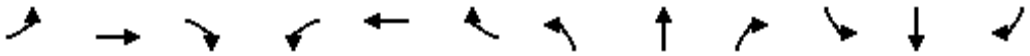
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	32.1	32.1		32.1	32.1		33.1	33.1		33.1	33.1	
Total Split (s)	51.0	51.0		51.0	51.0		39.0	39.0		39.0	39.0	
Total Split (%)	56.7%	56.7%		56.7%	56.7%		43.3%	43.3%		43.3%	43.3%	
Maximum Green (s)	45.1	45.1		45.1	45.1		32.9	32.9		32.9	32.9	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.6	2.6		2.6	2.6		2.8	2.8		2.8	2.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	
Act Effct Green (s)	45.8	45.8		45.8	45.8		14.2	14.2		14.2	14.2	
Actuated g/C Ratio	0.64	0.64		0.64	0.64		0.20	0.20		0.20	0.20	
v/c Ratio	0.07	0.40		0.24	0.26		0.19	0.69		0.09	0.25	
Control Delay	7.6	8.2		10.1	7.2		24.4	24.5		23.1	19.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	7.6	8.2		10.1	7.2		24.4	24.5		23.1	19.3	
LOS	A	A		B	A		C	C		C	B	
Approach Delay		8.1			7.5			24.5			19.7	
Approach LOS		A			A			C			B	
Queue Length 50th (m)	1.5	25.0		4.0	14.5		5.3	21.0		1.3	7.5	
Queue Length 95th (m)	7.2	57.4		16.2	34.7		12.9	43.0		5.1	17.8	
Internal Link Dist (m)		199.5			439.9			161.3			226.4	
Turn Bay Length (m)	30.0			50.0			30.0			30.0		
Base Capacity (vph)	509	2205		347	2219		587	817		325	820	
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	0.07	0.40		0.24	0.26		0.08	0.35		0.04	0.11	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 72.1			
Natural Cycle: 70			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 11.2		Intersection LOS: B	
Intersection Capacity Utilization 59.5%		ICU Level of Service B	

Analysis Period (min) 15

Splits and Phases: 25: Collector 5 & Burnhamthorpe Road

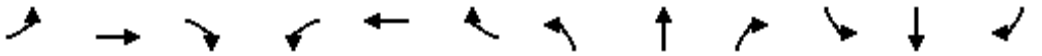




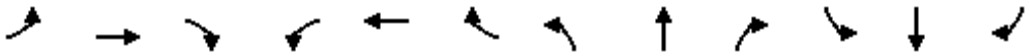
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	761	36	75	511	4	42	93	166	11	59	23
Future Volume (vph)	32	761	36	75	511	4	42	93	166	11	59	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
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	0.99		1.00	1.00		1.00	0.90		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)	1744	3472		1747	3495		1744	1642		1746	1753	
Flt Permitted	0.44	1.00		0.30	1.00		0.70	1.00		0.38	1.00	
Satd. Flow (perm)	802	3472		548	3495		1280	1642		707	1753	
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)	36	846	40	83	568	4	47	103	184	12	66	26
RTOR Reduction (vph)	0	3	0	0	0	0	0	91	0	0	20	0
Lane Group Flow (vph)	36	883	0	83	572	0	47	196	0	12	72	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	45.7	45.7		45.7	45.7		14.2	14.2		14.2	14.2	
Effective Green, g (s)	45.7	45.7		45.7	45.7		14.2	14.2		14.2	14.2	
Actuated g/C Ratio	0.64	0.64		0.64	0.64		0.20	0.20		0.20	0.20	
Clearance Time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	509	2206		348	2221		252	324		139	346	
v/s Ratio Prot		c0.25			0.16			c0.12			0.04	
v/s Ratio Perm	0.04			0.15			0.04			0.02		
v/c Ratio	0.07	0.40		0.24	0.26		0.19	0.61		0.09	0.21	
Uniform Delay, d1	5.0	6.4		5.6	5.7		24.0	26.3		23.6	24.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.5		1.6	0.3		0.4	3.2		0.3	0.3	
Delay (s)	5.3	6.9		7.2	6.0		24.4	29.5		23.8	24.4	
Level of Service	A	A		A	A		C	C		C	C	
Approach Delay (s)		6.9			6.1			28.8			24.4	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	11.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	71.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	153	112	197	257	126	59	89	1775	179	100	1641	119
Future Volume (vph)	153	112	197	257	126	59	89	1775	179	100	1641	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		40.0	85.0		30.0	60.0		40.0	80.0		30.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00
Ped Bike Factor	1.00		0.98	1.00		0.98			0.96			0.96
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	1842	1566	1750	1842	1566	1750	4421	1566	1750	4421	1566
Flt Permitted	0.668			0.555			0.065			0.064		
Satd. Flow (perm)	1225	1842	1532	1018	1842	1534	120	4421	1511	118	4421	1511
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			142			67			105			105
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		219.8			129.6			268.7			259.2	
Travel Time (s)		15.8			9.3			16.1			15.6	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	170	124	219	286	140	66	99	1972	199	111	1823	132
Shared Lane Traffic (%)												
Lane Group Flow (vph)	170	124	219	286	140	66	99	1972	199	111	1823	132
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	38.5	38.5	38.5	11.0	38.5	38.5	11.0	33.4	33.4	11.0	33.4	33.4
Total Split (s)	39.0	39.0	39.0	11.0	50.0	50.0	11.0	59.0	59.0	11.0	59.0	59.0
Total Split (%)	32.5%	32.5%	32.5%	9.2%	41.7%	41.7%	9.2%	49.2%	49.2%	9.2%	49.2%	49.2%
Maximum Green (s)	32.5	32.5	32.5	7.0	43.5	43.5	7.0	52.6	52.6	7.0	52.6	52.6
Yellow Time (s)	3.3	3.3	3.3	3.0	3.3	3.3	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	3.2	3.2	3.2	1.0	3.2	3.2	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)	25.0	25.0	25.0		25.0	25.0		20.0	20.0		20.0	20.0
Pedestrian Calls (#/hr)	5	5	5		5	5		5	5		5	5
Act Effct Green (s)	22.2	22.2	22.2	35.7	33.2	33.2	71.8	61.6	61.6	72.8	62.1	62.1
Actuated g/C Ratio	0.18	0.18	0.18	0.30	0.28	0.28	0.60	0.51	0.51	0.61	0.52	0.52
v/c Ratio	0.75	0.36	0.55	0.83	0.28	0.14	0.56	0.87	0.24	0.60	0.80	0.16
Control Delay	65.6	44.0	20.3	56.9	33.8	6.9	29.4	32.2	9.6	32.2	28.5	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.6	44.0	20.3	56.9	33.8	6.9	29.4	32.2	9.6	32.2	28.5	5.9
LOS	E	D	C	E	C	A	C	C	A	C	C	A
Approach Delay		41.0			43.7			30.1			27.2	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	38.3	25.8	15.8	56.7	25.9	0.0	8.3	165.0	11.2	9.4	141.8	3.0
Queue Length 95th (m)	56.6	39.3	36.0	73.6	37.9	9.0	#29.1	#238.0	28.6	#37.1	#207.8	14.9
Internal Link Dist (m)		195.8			105.6			244.7			235.2	
Turn Bay Length (m)	60.0		40.0	85.0		30.0	60.0		40.0	80.0		30.0
Base Capacity (vph)	331	498	518	345	667	598	178	2267	826	185	2287	832
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.25	0.42	0.83	0.21	0.11	0.56	0.87	0.24	0.60	0.80	0.16

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 11 (9%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 31.3	Intersection LOS: C

Intersection Capacity Utilization 82.9% ICU Level of Service E

Analysis Period (min) 15

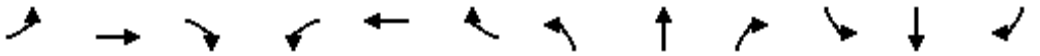
* User Entered Value

\# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 27: Trafalgar Road & Settlers Road

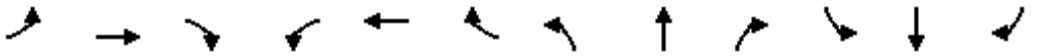




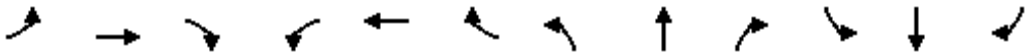
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	153	112	197	257	126	59	89	1775	179	100	1641	119
Future Volume (vph)	153	112	197	257	126	59	89	1775	179	100	1641	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.97	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	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1742	1842	1529	1746	1842	1532	1750	4421	1512	1750	4421	1512
Flt Permitted	0.67	1.00	1.00	0.55	1.00	1.00	0.07	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	1224	1842	1529	1020	1842	1532	120	4421	1512	119	4421	1512
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)	170	124	219	286	140	66	99	1972	199	111	1823	132
RTOR Reduction (vph)	0	0	116	0	0	48	0	0	51	0	0	51
Lane Group Flow (vph)	170	124	103	286	140	18	99	1972	148	111	1823	81
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	22.2	22.2	22.2	33.2	33.2	33.2	69.3	61.5	61.5	70.5	62.1	62.1
Effective Green, g (s)	22.2	22.2	22.2	33.2	33.2	33.2	69.3	61.5	61.5	70.5	62.1	62.1
Actuated g/C Ratio	0.18	0.18	0.18	0.28	0.28	0.28	0.58	0.51	0.51	0.59	0.52	0.52
Clearance Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	226	340	282	324	509	423	175	2265	774	184	2287	782
v/s Ratio Prot		0.07		c0.05	0.08		0.04	c0.45		c0.04	0.41	
v/s Ratio Perm	0.14		0.07	c0.19		0.01	0.29		0.10	0.31		0.05
v/c Ratio	0.75	0.36	0.37	0.88	0.28	0.04	0.57	0.87	0.19	0.60	0.80	0.10
Uniform Delay, d1	46.3	42.7	42.7	41.4	34.0	31.8	19.4	25.7	15.8	21.8	23.8	14.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	13.2	0.7	0.8	23.4	0.3	0.0	4.1	4.9	0.5	5.5	3.0	0.3
Delay (s)	59.5	43.4	43.6	64.8	34.3	31.8	23.5	30.7	16.4	27.3	26.8	15.0
Level of Service	E	D	D	E	C	C	C	C	B	C	C	B
Approach Delay (s)		48.8			51.7			29.1			26.0	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	31.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.9
Intersection Capacity Utilization	82.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	69	267	281	111	53	235	1978	67	96	1984	20
Future Volume (vph)	33	69	267	281	111	53	235	1978	67	96	1984	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		70.0	90.0		30.0	130.0		40.0	40.0		30.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00
Ped Bike Factor	1.00		0.98	1.00		0.98			0.96			0.96
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	1842	1566	1750	1842	1566	1750	4421	1566	1750	4421	1566
Flt Permitted	0.678			0.579			0.076			0.077		
Satd. Flow (perm)	1243	1842	1532	1061	1842	1534	140	4421	1511	142	4421	1511
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			141			67			105			105
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		193.0			130.2			1233.0			148.7	
Travel Time (s)		13.9			9.4			74.0			8.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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	77	297	312	123	59	261	2198	74	107	2204	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	37	77	297	312	123	59	261	2198	74	107	2204	22
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	38.5	38.5	38.5	11.0	38.5	38.5	11.0	33.4	33.4	11.0	33.4	33.4
Total Split (s)	39.0	39.0	39.0	11.0	50.0	50.0	12.0	59.0	59.0	11.0	58.0	58.0
Total Split (%)	32.5%	32.5%	32.5%	9.2%	41.7%	41.7%	10.0%	49.2%	49.2%	9.2%	48.3%	48.3%
Maximum Green (s)	32.5	32.5	32.5	7.0	43.5	43.5	8.0	52.6	52.6	7.0	51.6	51.6
Yellow Time (s)	3.3	3.3	3.3	3.0	3.3	3.3	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	3.2	3.2	3.2	1.0	3.2	3.2	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)	25.0	25.0	25.0		25.0	25.0		20.0	20.0		20.0	20.0
Pedestrian Calls (#/hr)	5	5	5		5	5		5	5		5	5
Act Effct Green (s)	18.0	18.0	18.0	31.6	29.1	29.1	63.3	52.9	52.9	61.3	51.9	51.9
Actuated g/C Ratio	0.17	0.17	0.17	0.30	0.27	0.27	0.60	0.50	0.50	0.58	0.49	0.49
v/c Ratio	0.18	0.25	0.79	0.86	0.24	0.13	1.27	1.00	0.09	0.57	1.02	0.03
Control Delay	37.9	38.7	36.5	56.6	30.3	6.0	179.4	46.1	1.8	27.1	52.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	38.7	36.5	56.6	30.3	6.0	179.4	46.1	1.8	27.1	52.3	0.1
LOS	D	D	D	E	C	A	F	D	A	C	D	A
Approach Delay		37.1			44.0			58.5			50.7	
Approach LOS		D			D			E			D	
Queue Length 50th (m)	6.6	13.8	31.1	54.5	19.6	0.0	~50.6	175.4	0.0	7.8	~182.7	0.0
Queue Length 95th (m)	15.3	26.1	60.2	80.4	33.6	7.4	#119.6	#281.7	4.2	#31.1	#286.7	0.0
Internal Link Dist (m)		169.0			106.2			1209.0			124.7	
Turn Bay Length (m)	30.0		70.0	90.0		30.0	130.0		40.0	40.0		30.0
Base Capacity (vph)	383	567	569	362	759	672	205	2205	806	188	2163	793
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.14	0.52	0.86	0.16	0.09	1.27	1.00	0.09	0.57	1.02	0.03

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 106			
Natural Cycle: 145			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.27			
Intersection Signal Delay: 52.6		Intersection LOS: D	
Intersection Capacity Utilization 88.4%		ICU Level of Service E	

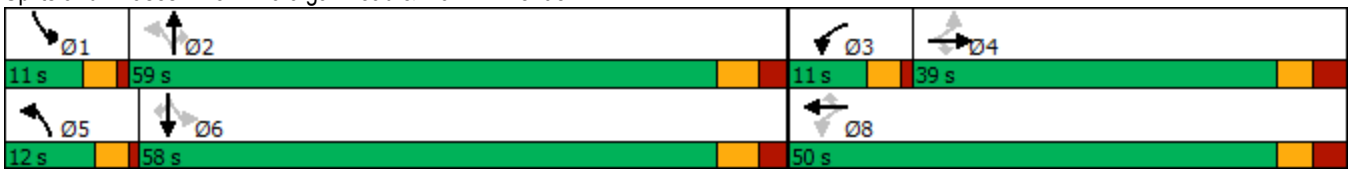
Analysis Period (min) 15

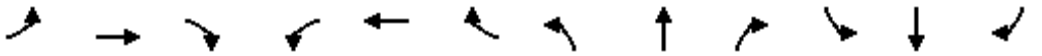
* User Entered Value

~ 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.

Splits and Phases: 32: Trafalgar Road & Marvin Avenue





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	69	267	281	111	53	235	1978	67	96	1984	20
Future Volume (vph)	33	69	267	281	111	53	235	1978	67	96	1984	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.97	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	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1743	1842	1529	1746	1842	1533	1750	4421	1514	1750	4421	1514
Flt Permitted	0.68	1.00	1.00	0.58	1.00	1.00	0.08	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	1244	1842	1529	1064	1842	1533	139	4421	1514	142	4421	1514
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	77	297	312	123	59	261	2198	74	107	2204	22
RTOR Reduction (vph)	0	0	117	0	0	43	0	0	37	0	0	11
Lane Group Flow (vph)	37	77	180	312	123	16	261	2198	37	107	2204	11
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	18.1	18.1	18.1	29.1	29.1	29.1	60.9	52.9	52.9	58.9	51.9	51.9
Effective Green, g (s)	18.1	18.1	18.1	29.1	29.1	29.1	60.9	52.9	52.9	58.9	51.9	51.9
Actuated g/C Ratio	0.17	0.17	0.17	0.27	0.27	0.27	0.58	0.50	0.50	0.56	0.49	0.49
Clearance Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	212	314	261	337	506	421	201	2208	756	185	2166	741
v/s Ratio Prot		0.04		c0.06	0.07		c0.10	0.50		0.04	0.50	
v/s Ratio Perm	0.03		0.12	c0.19		0.01	c0.65		0.02	0.28		0.01
v/c Ratio	0.17	0.25	0.69	0.93	0.24	0.04	1.30	1.00	0.05	0.58	1.02	0.01
Uniform Delay, d1	37.5	38.0	41.3	37.2	29.8	28.1	31.3	26.4	13.6	22.5	27.0	13.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.4	7.6	30.4	0.3	0.0	165.9	18.1	0.1	4.3	23.8	0.0
Delay (s)	37.9	38.4	48.9	67.6	30.1	28.2	197.2	44.5	13.7	26.8	50.8	13.9
Level of Service	D	D	D	E	C	C	F	D	B	C	D	B
Approach Delay (s)		45.9			53.5			59.3			49.4	
Approach LOS		D			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	53.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.24		
Actuated Cycle Length (s)	105.9	Sum of lost time (s)	20.9
Intersection Capacity Utilization	88.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

MOVEMENT SUMMARY

Site: 101 [Sixth Line & William Halton Parkway - Mitigation (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

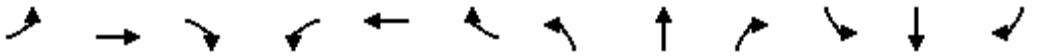
2031 Future Background AM
Site Category: (None)
Roundabout

Vehicle Movement Performance

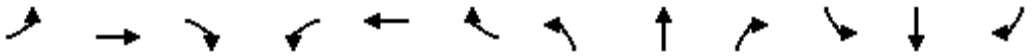
Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Sixth Line															
1	L2	All MCs	48	2.0	48	2.0	0.933	69.2	LOS F	6.8	48.5	0.97	1.44	2.87	27.6
2	T1	All MCs	349	2.0	349	2.0	0.933	68.3	LOS F	7.0	49.8	0.97	1.44	2.88	28.0
3	R2	All MCs	234	2.0	234	2.0	0.933	65.8	LOS F	7.0	49.8	0.97	1.45	2.92	28.2
Approach			631	2.0	631	2.0	0.933	67.4	LOS F	7.0	49.8	0.97	1.45	2.90	28.1
East: William Halton Parkway															
4	L2	All MCs	86	2.0	86	2.0	0.478	12.6	LOS B	2.3	16.1	0.60	0.66	0.90	46.3
5	T1	All MCs	559	2.0	559	2.0	0.478	12.4	LOS B	2.3	16.1	0.58	0.65	0.89	47.8
6	R2	All MCs	177	2.0	177	2.0	0.093	2.9	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			821	2.0	821	2.0	0.478	10.3	LOS B	2.3	16.1	0.46	0.51	0.70	49.2
North: Sixth Line															
7	L2	All MCs	823	2.0	823	2.0	1.212	127.5	LOS F	57.3	407.8	1.00	3.58	9.12	19.3
8	T1	All MCs	287	2.0	287	2.0	0.437	11.8	LOS B	1.9	13.5	0.58	0.63	0.83	48.5
9	R2	All MCs	353	2.0	353	2.0	0.186	4.4	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			1463	2.0	1463	2.0	1.212	75.1	LOS F	57.3	407.8	0.68	2.14	5.29	26.4
West: William Halton Parkway															
10	L2	All MCs	290	2.0	290	2.0	0.909	48.5	LOS E	8.9	63.1	0.93	1.42	2.69	31.9
11	T1	All MCs	639	2.0	639	2.0	0.909	47.3	LOS E	9.0	64.0	0.93	1.42	2.70	33.2
12	R2	All MCs	106	2.0	106	2.0	0.056	2.9	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			1034	2.0	1034	2.0	0.909	43.1	LOS E	9.0	64.0	0.83	1.27	2.42	34.2
All Vehicles			3950	2.0	3950	2.0	1.212	52.0	LOS F	57.3	407.8	0.72	1.46	3.20	31.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	285	707	127	311	962	870	163	1626	228	518	1531	319
Future Volume (vph)	285	707	127	311	962	870	163	1626	228	518	1531	319
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	105.0		60.0	120.0		205.0	85.0		55.0	180.0		80.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Ped Bike Factor							1.00					0.99
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	3500	1566	3330	3500	1566	3395	4421	1536	3267	4421	1566
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3395	3500	1566	3330	3500	1566	3394	4421	1536	3267	4421	1545
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			151			155			151			159
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		207.8			119.4			182.8			224.9	
Travel Time (s)		12.5			7.2			11.0			13.5	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	4%	2%	2%	2%	2%	4%	6%	2%	2%
Adj. Flow (vph)	306	760	137	334	1034	935	175	1748	245	557	1646	343
Shared Lane Traffic (%)												
Lane Group Flow (vph)	306	760	137	334	1034	935	175	1748	245	557	1646	343
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	48.4	48.4	11.0	48.4	48.4	11.0	45.4	45.4	11.0	44.4	44.4
Total Split (s)	12.0	50.0	50.0	20.0	58.0	58.0	11.0	53.0	53.0	17.0	59.0	59.0
Total Split (%)	8.6%	35.7%	35.7%	14.3%	41.4%	41.4%	7.9%	37.9%	37.9%	12.1%	42.1%	42.1%
Maximum Green (s)	8.0	43.6	43.6	16.0	51.6	51.6	7.0	46.6	46.6	13.0	53.6	53.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	2.7	2.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	5.4	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		35.0	35.0		35.0	35.0		32.0	32.0		32.0	32.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	8.0	43.7	43.7	15.9	51.6	51.6	7.0	46.6	46.6	13.0	53.6	53.6
Actuated g/C Ratio	0.06	0.31	0.31	0.11	0.37	0.37	0.05	0.33	0.33	0.09	0.38	0.38
v/c Ratio	1.58	0.70	0.23	0.89	0.80	1.39	1.04	1.19	0.40	1.84	0.97	0.50
Control Delay	323.5	46.4	4.9	85.9	45.4	212.2	141.8	132.9	15.5	423.5	58.7	19.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	323.5	46.4	4.9	85.9	45.4	212.2	141.8	132.9	15.5	423.5	58.7	19.6
LOS	F	D	A	F	D	F	F	F	B	F	E	B
Approach Delay		112.1			119.0			120.4			133.3	
Approach LOS		F			F			F			F	
Queue Length 50th (m)	~61.9	97.4	0.0	47.6	134.3	~316.5	~26.7	~242.2	18.5	~120.0	185.5	37.6
Queue Length 95th (m)	#91.8	120.1	12.1	#73.0	161.4	#395.7	#50.9	#275.5	41.8	#156.1	#224.9	66.0
Internal Link Dist (m)		183.8			95.4			158.8			200.9	
Turn Bay Length (m)	105.0		60.0	120.0		205.0	85.0		55.0	180.0		80.0
Base Capacity (vph)	194	1093	592	380	1290	675	169	1471	612	303	1692	689
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.58	0.70	0.23	0.88	0.80	1.39	1.04	1.19	0.40	1.84	0.97	0.50

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.84	
Intersection Signal Delay: 122.8	Intersection LOS: F

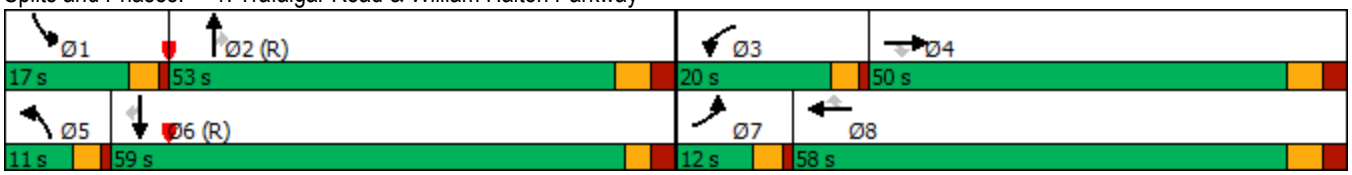
Intersection Capacity Utilization 107.4%	ICU Level of Service G
Analysis Period (min) 15	

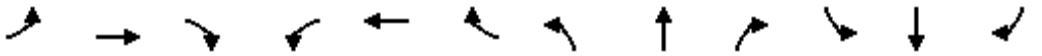
* User Entered Value

~ 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.

Splits and Phases: 1: Trafalgar Road & William Halton Parkway

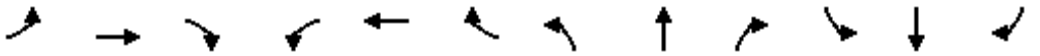




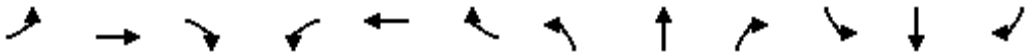
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	285	707	127	311	962	870	163	1626	228	518	1531	319
Future Volume (vph)	285	707	127	311	962	870	163	1626	228	518	1531	319
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	5.4	5.4
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	3500	1566	3330	3500	1566	3395	4421	1536	3267	4421	1545
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	3500	1566	3330	3500	1566	3395	4421	1536	3267	4421	1545
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)	306	760	137	334	1034	935	175	1748	245	557	1646	343
RTOR Reduction (vph)	0	0	94	0	0	98	0	0	101	0	0	98
Lane Group Flow (vph)	306	760	43	334	1034	837	175	1748	144	557	1646	245
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	2%	2%	2%	4%	2%	2%	2%	2%	4%	6%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	8.0	43.7	43.7	15.9	51.6	51.6	7.0	46.6	46.6	13.0	53.6	53.6
Effective Green, g (s)	8.0	43.7	43.7	15.9	51.6	51.6	7.0	46.6	46.6	13.0	53.6	53.6
Actuated g/C Ratio	0.06	0.31	0.31	0.11	0.37	0.37	0.05	0.33	0.33	0.09	0.38	0.38
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	5.4	5.4
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	194	1092	488	378	1290	577	169	1471	511	303	1692	591
v/s Ratio Prot	c0.09	0.22		0.10	0.30		0.05	c0.40		c0.17	0.37	
v/s Ratio Perm			0.03			c0.53			0.09			0.16
v/c Ratio	1.58	0.70	0.09	0.88	0.80	1.45	1.04	1.19	0.28	1.84	0.97	0.41
Uniform Delay, d1	66.0	42.3	34.1	61.1	39.6	44.2	66.5	46.7	34.4	63.5	42.5	31.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	283.1	2.5	0.2	20.9	4.2	212.5	78.9	91.9	1.4	389.8	16.3	2.1
Delay (s)	349.1	44.8	34.2	82.0	43.8	256.7	145.4	138.6	35.8	453.3	58.8	33.8
Level of Service	F	D	C	F	D	F	F	F	D	F	E	C
Approach Delay (s)		121.0			135.8			127.5			141.7	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	133.3	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)	20.8
Intersection Capacity Utilization	107.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	300	166	318	307	72	127	1775	176	156	1611	174
Future Volume (vph)	138	300	166	318	307	72	127	1775	176	156	1611	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		30.0	120.0		0.0	130.0		0.0	170.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	50.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	*0.80	0.91	1.00	*0.80	0.91
Frt			0.850		0.971			0.986			0.985	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1668	3500	1566	1750	3398	0	1750	4353	0	1750	4311	0
Flt Permitted	0.517			0.417			0.072			0.069		
Satd. Flow (perm)	908	3500	1566	768	3398	0	133	4353	0	127	4311	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			138		28			14			16	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		245.2			123.4			230.0			280.2	
Travel Time (s)		17.7			8.9			13.8			16.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Adj. Flow (vph)	145	316	175	335	323	76	134	1868	185	164	1696	183
Shared Lane Traffic (%)												
Lane Group Flow (vph)	145	316	175	335	399	0	134	2053	0	164	1879	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.02	1.01	1.01	1.02	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	41.4	41.4	41.4	11.0	41.4		11.0	37.3		11.0	37.3	
Total Split (s)	42.0	42.0	42.0	11.0	53.0		11.0	56.0		11.0	56.0	
Total Split (%)	35.0%	35.0%	35.0%	9.2%	44.2%		9.2%	46.7%		9.2%	46.7%	
Maximum Green (s)	35.6	35.6	35.6	7.0	46.6		7.0	49.7		7.0	49.7	
Yellow Time (s)	3.7	3.7	3.7	3.0	3.7		3.0	3.7		3.0	3.7	
All-Red Time (s)	2.7	2.7	2.7	1.0	2.7		1.0	2.6		1.0	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4	6.4	4.0	6.4		4.0	6.3		4.0	6.3	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	5.0		3.0	5.0	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0	7.0		7.0			7.0			7.0	
Flash Dont Walk (s)	28.0	28.0	28.0		28.0			24.0			24.0	
Pedestrian Calls (#/hr)	0	0	0		0			0			0	
Act Effct Green (s)	24.6	24.6	24.6	38.0	35.6		67.2	55.4		72.4	58.1	
Actuated g/C Ratio	0.20	0.20	0.20	0.32	0.30		0.56	0.46		0.60	0.48	
v/c Ratio	0.78	0.44	0.41	1.12	0.39		0.66	1.02		0.68	0.90	
Control Delay	70.6	42.2	12.4	122.7	31.0		37.6	57.5		39.0	36.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	70.6	42.2	12.4	122.7	31.0		37.6	57.5		39.0	36.2	
LOS	E	D	B	F	C		D	E		D	D	
Approach Delay		40.5			72.9			56.3			36.4	
Approach LOS		D			E			E			D	
Queue Length 50th (m)	32.6	34.5	7.2	~76.8	36.4		14.8	~221.7		20.4	165.7	
Queue Length 95th (m)	50.4	42.5	23.2	#107.8	43.3		#51.6	#267.8		#71.3	#233.7	
Internal Link Dist (m)		221.2			99.4			206.0			256.2	
Turn Bay Length (m)	100.0		30.0	120.0			130.0			170.0		
Base Capacity (vph)	269	1038	561	300	1336		203	2016		242	2096	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.54	0.30	0.31	1.12	0.30		0.66	1.02		0.68	0.90	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 145			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.12			
Intersection Signal Delay: 49.4		Intersection LOS: D	
Intersection Capacity Utilization 90.1%		ICU Level of Service E	

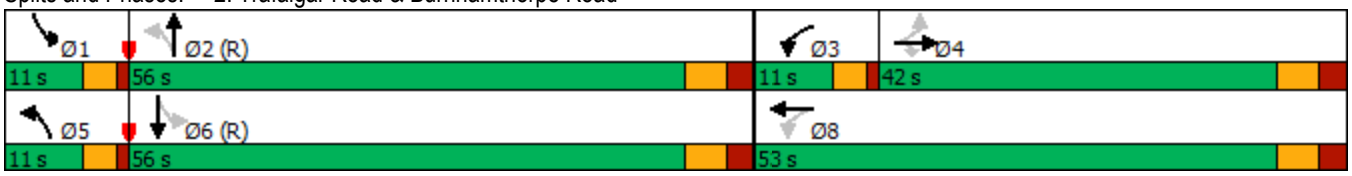
Analysis Period (min) 15

* User Entered Value

~ 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.

Splits and Phases: 2: Trafalgar Road & Burnhamthorpe Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	300	166	318	307	72	127	1775	176	156	1611	174
Future Volume (vph)	138	300	166	318	307	72	127	1775	176	156	1611	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4	6.4	4.0	6.4		4.0	6.3		4.0	6.3	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	*0.80		1.00	*0.80	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1668	3500	1566	1750	3400		1750	4355		1750	4312	
Flt Permitted	0.52	1.00	1.00	0.42	1.00		0.07	1.00		0.07	1.00	
Satd. Flow (perm)	908	3500	1566	768	3400		133	4355		127	4312	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	145	316	175	335	323	76	134	1868	185	164	1696	183
RTOR Reduction (vph)	0	0	110	0	20	0	0	8	0	0	8	0
Lane Group Flow (vph)	145	316	65	335	379	0	134	2045	0	164	1871	0
Heavy Vehicles (%)	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	24.6	24.6	24.6	35.6	35.6		64.9	55.4		70.5	58.2	
Effective Green, g (s)	24.6	24.6	24.6	35.6	35.6		64.9	55.4		70.5	58.2	
Actuated g/C Ratio	0.21	0.21	0.21	0.30	0.30		0.54	0.46		0.59	0.49	
Clearance Time (s)	6.4	6.4	6.4	4.0	6.4		4.0	6.3		4.0	6.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	186	717	321	285	1008		199	2010		240	2091	
v/s Ratio Prot		0.09		c0.07	0.11		0.05	c0.47		c0.07	0.43	
v/s Ratio Perm	0.16		0.04	c0.28			0.31			0.33		
v/c Ratio	0.78	0.44	0.20	1.18	0.38		0.67	1.02		0.68	0.89	
Uniform Delay, d1	45.1	41.7	39.6	41.7	33.4		22.8	32.3		30.7	28.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	18.4	0.4	0.3	109.5	0.2		8.7	24.6		7.8	6.4	
Delay (s)	63.6	42.1	39.9	151.1	33.6		31.5	56.9		38.5	34.5	
Level of Service	E	D	D	F	C		C	E		D	C	
Approach Delay (s)		46.4			87.3			55.3			34.9	
Approach LOS		D			F			E			C	

Intersection Summary			
HCM 2000 Control Delay	51.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	90.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	935	1	913	1563	0	790
Future Volume (vph)	935	1	913	1563	0	790
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	170.0		30.0	0.0
Storage Lanes		0	2		1	1
Taper Length (m)			15.0		50.0	
Lane Util. Factor	0.95	0.95	0.97	0.95	1.00	1.00
Frt						0.850
Flt Protected			0.950			
Satd. Flow (prot)	3433	0	3395	3500	1842	1566
Flt Permitted			0.099			
Satd. Flow (perm)	3433	0	354	3500	1842	1566
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						490
Link Speed (k/h)	60			60	50	
Link Distance (m)	657.5			390.6	221.9	
Travel Time (s)	39.5			23.4	16.0	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%
Adj. Flow (vph)	974	1	951	1628	0	823
Shared Lane Traffic (%)						
Lane Group Flow (vph)	975	0	951	1628	0	823
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.0			7.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	10.0		2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6		2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	3	



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases			6			3
Detector Phase	2		1	6	3	3
Switch Phase						
Minimum Initial (s)	10.0		7.0	10.0	7.0	7.0
Minimum Split (s)	28.4		11.5	28.4	31.0	31.0
Total Split (s)	43.0		33.0	76.0	44.0	44.0
Total Split (%)	35.8%		27.5%	63.3%	36.7%	36.7%
Maximum Green (s)	36.6		29.0	69.6	40.0	40.0
Yellow Time (s)	3.7		3.0	3.7	3.0	3.0
All-Red Time (s)	2.7		1.0	2.7	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4		4.0	6.4	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	Max		None	None	Max	Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	15.0			15.0	20.0	20.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	36.6		72.0	69.6		40.0
Actuated g/C Ratio	0.30		0.60	0.58		0.33
v/c Ratio	0.93		1.00	0.80		0.97
Control Delay	56.4		64.7	23.7		41.1
Queue Delay	0.0		0.0	0.0		0.0
Total Delay	56.4		64.7	23.7		41.1
LOS	E		E	C		D
Approach Delay	56.4			38.8	41.1	
Approach LOS	E			D	D	
Queue Length 50th (m)	117.1		~100.0	150.4		96.8
Queue Length 95th (m)	#156.4		#143.8	181.5		#187.1
Internal Link Dist (m)	633.5			366.6	197.9	
Turn Bay Length (m)			170.0			
Base Capacity (vph)	1047		947	2030		848
Starvation Cap Reductn	0		0	0		0
Spillback Cap Reductn	0		0	0		0
Storage Cap Reductn	0		0	0		0
Reduced v/c Ratio	0.93		1.00	0.80		0.97

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay: 43.2		Intersection LOS: D	
Intersection Capacity Utilization 83.5%		ICU Level of Service E	
Analysis Period (min) 15			

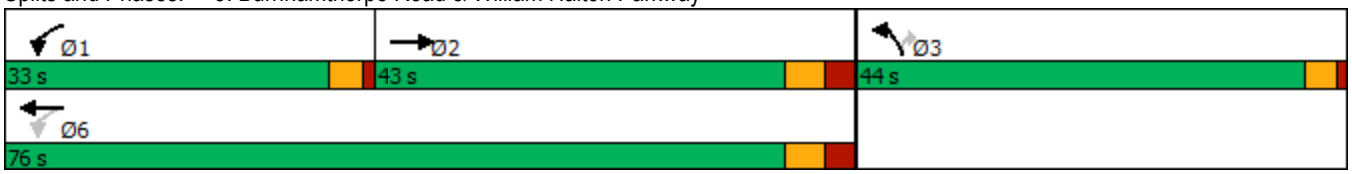
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

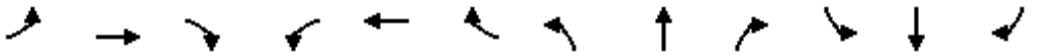
Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway



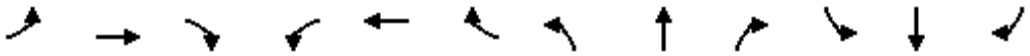


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	935	1	913	1563	0	790
Future Volume (vph)	935	1	913	1563	0	790
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4		4.0	6.4		4.0
Lane Util. Factor	0.95		0.97	0.95		1.00
Frt	1.00		1.00	1.00		0.85
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	3432		3395	3500		1566
Flt Permitted	1.00		0.10	1.00		1.00
Satd. Flow (perm)	3432		352	3500		1566
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	974	1	951	1628	0	823
RTOR Reduction (vph)	0	0	0	0	0	327
Lane Group Flow (vph)	975	0	951	1628	0	496
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	3	
Permitted Phases			6			3
Actuated Green, G (s)	36.6		69.6	69.6		40.0
Effective Green, g (s)	36.6		69.6	69.6		40.0
Actuated g/C Ratio	0.31		0.58	0.58		0.33
Clearance Time (s)	6.4		4.0	6.4		4.0
Vehicle Extension (s)	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	1046		939	2030		522
v/s Ratio Prot	0.28		c0.24	0.47		
v/s Ratio Perm			c0.34			c0.32
v/c Ratio	0.93		1.01	0.80		0.95
Uniform Delay, d1	40.5		36.6	19.8		39.0
Progression Factor	1.00		1.00	1.00		1.00
Incremental Delay, d2	15.6		32.6	2.4		28.9
Delay (s)	56.1		69.2	22.2		67.9
Level of Service	E		E	C		E
Approach Delay (s)	56.1			39.5	67.9	
Approach LOS	E			D	E	

Intersection Summary			
HCM 2000 Control Delay	48.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.4
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	486	1647	188	286	1770	671	308	1663	223	627	1233	372
Future Volume (vph)	486	1647	188	286	1770	671	308	1663	223	627	1233	372
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	160.0		85.0	95.0		260.0	90.0		50.0	250.0		100.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Ped Bike Factor	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	4378	1566	3395	4421	1566	3395	4421	1566	3362	4421	1566
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3394	4378	1527	3391	4421	1540	3392	4421	1541	3361	4421	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			148			149			101			140
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		592.0			816.3			644.9			1233.0	
Travel Time (s)		30.4			42.0			38.7			74.0	
Confl. Peds. (#/hr)	5		15	15		5	6		4	4		6
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%
Adj. Flow (vph)	501	1698	194	295	1825	692	318	1714	230	646	1271	384
Shared Lane Traffic (%)												
Lane Group Flow (vph)	501	1698	194	295	1825	692	318	1714	230	646	1271	384
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	12.0	50.4	50.4	12.0	50.4	50.4	11.0	48.4	48.4	11.0	48.4	48.4
Total Split (s)	14.0	55.0	55.0	12.0	53.0	53.0	12.0	49.0	49.0	14.0	51.0	51.0
Total Split (%)	10.8%	42.3%	42.3%	9.2%	40.8%	40.8%	9.2%	37.7%	37.7%	10.8%	39.2%	39.2%
Maximum Green (s)	10.0	48.6	48.6	8.0	46.6	46.6	8.0	42.6	42.6	10.0	44.6	44.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		37.0	37.0		37.0	37.0		35.0	35.0		35.0	35.0
Pedestrian Calls (#/hr)		15	15		5	5		4	4		6	6
Act Effct Green (s)	10.0	48.6	48.6	8.0	46.6	46.6	8.0	42.6	42.6	10.0	44.6	44.6
Actuated g/C Ratio	0.08	0.37	0.37	0.06	0.36	0.36	0.06	0.33	0.33	0.08	0.34	0.34
v/c Ratio	1.92	1.04	0.29	1.42	1.15	1.07	1.53	1.18	0.40	2.50	0.84	0.62
Control Delay	459.0	72.6	9.0	256.7	114.4	87.2	300.4	129.0	20.8	712.1	45.4	27.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	459.0	72.6	9.0	256.7	114.4	87.2	300.4	129.0	20.8	712.1	45.4	27.0
LOS	F	E	A	F	F	F	F	F	C	F	D	C
Approach Delay		148.3			122.7			142.1			229.5	
Approach LOS		F			F			F			F	
Queue Length 50th (m)	~101.6	~195.0	7.6	~52.2	~229.0	~170.1	~58.6	~219.4	24.6	~141.7	124.5	52.1
Queue Length 95th (m)	#135.9	#228.7	24.4	#81.0	#262.4	#243.6	#87.9	#252.9	47.1	#178.2	146.4	86.5
Internal Link Dist (m)		568.0			792.3			620.9			1209.0	
Turn Bay Length (m)	160.0		85.0	95.0		260.0	90.0		50.0	250.0		100.0
Base Capacity (vph)	261	1636	663	208	1584	647	208	1448	572	258	1516	619
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.92	1.04	0.29	1.42	1.15	1.07	1.53	1.18	0.40	2.50	0.84	0.62

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 2.50	
Intersection Signal Delay: 158.6	Intersection LOS: F

Intersection Capacity Utilization 118.2%	ICU Level of Service H
Analysis Period (min) 15	

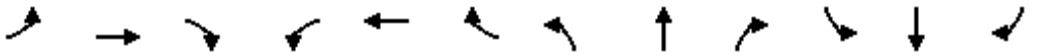
* User Entered Value

~ 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.

Splits and Phases: 4: Trafalgar Road & Dundas Street

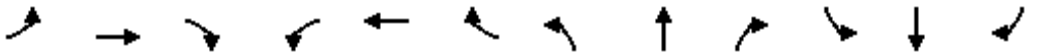




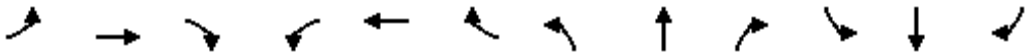
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	486	1647	188	286	1770	671	308	1663	223	627	1233	372
Future Volume (vph)	486	1647	188	286	1770	671	308	1663	223	627	1233	372
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	4378	1527	3395	4421	1540	3395	4421	1541	3362	4421	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	4378	1527	3395	4421	1540	3395	4421	1541	3362	4421	1538
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	501	1698	194	295	1825	692	318	1714	230	646	1271	384
RTOR Reduction (vph)	0	0	93	0	0	96	0	0	68	0	0	92
Lane Group Flow (vph)	501	1698	101	295	1825	596	318	1714	162	646	1271	292
Confl. Peds. (#/hr)	5		15	15		5	6		4	4		6
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	10.0	48.6	48.6	8.0	46.6	46.6	8.0	42.6	42.6	10.0	44.6	44.6
Effective Green, g (s)	10.0	48.6	48.6	8.0	46.6	46.6	8.0	42.6	42.6	10.0	44.6	44.6
Actuated g/C Ratio	0.08	0.37	0.37	0.06	0.36	0.36	0.06	0.33	0.33	0.08	0.34	0.34
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	261	1636	570	208	1584	552	208	1448	504	258	1516	527
v/s Ratio Prot	c0.15	0.39		0.09	c0.41		0.09	c0.39		c0.19	0.29	
v/s Ratio Perm			0.07			0.39			0.11			0.19
v/c Ratio	1.92	1.04	0.18	1.42	1.15	1.08	1.53	1.18	0.32	2.50	0.84	0.55
Uniform Delay, d1	60.0	40.7	27.3	61.0	41.7	41.7	61.0	43.7	32.8	60.0	39.4	34.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	427.7	32.7	0.7	214.0	76.2	61.8	260.8	90.0	0.8	688.2	4.7	2.1
Delay (s)	487.7	73.4	28.0	275.0	117.9	103.5	321.8	133.7	33.6	748.2	44.1	36.8
Level of Service	F	E	C	F	F	F	F	F	C	F	D	D
Approach Delay (s)		156.5			130.8			150.0			240.5	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	167.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.34		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	118.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



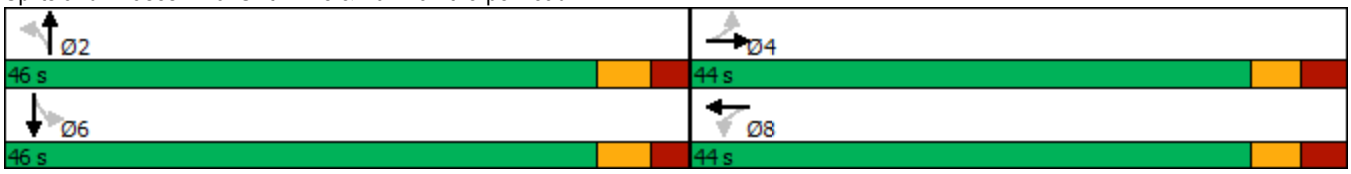
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	102	46	127	197	49	93	407	145	76	666	31
Future Volume (vph)	33	102	46	127	197	49	93	407	145	76	666	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	40.0		0.0	40.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			15.0			15.0			50.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.953			0.970			0.961			0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3335	0	1750	3336	0	1750	3355	0	1750	3475	0
Flt Permitted	0.590			0.652			0.363			0.431		
Satd. Flow (perm)	1087	3335	0	1201	3336	0	669	3355	0	794	3475	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		49			41			71			7	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		241.5			345.8			218.8			671.6	
Travel Time (s)		17.4			24.9			13.1			40.3	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	2%	2%	11%	2%	2%	3%	2%	2%	2%
Adj. Flow (vph)	35	109	49	135	210	52	99	433	154	81	709	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	35	158	0	135	262	0	99	587	0	81	742	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	

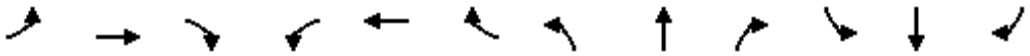


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	34.5	34.5		34.5	34.5		32.4	32.4		32.4	32.4	
Total Split (s)	44.0	44.0		44.0	44.0		46.0	46.0		46.0	46.0	
Total Split (%)	48.9%	48.9%		48.9%	48.9%		51.1%	51.1%		51.1%	51.1%	
Maximum Green (s)	37.5	37.5		37.5	37.5		39.6	39.6		39.6	39.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.2	3.2		3.2	3.2		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		19.0	19.0		19.0	19.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	13.1	13.1		13.1	13.1		39.7	39.7		39.7	39.7	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.60	0.60		0.60	0.60	
v/c Ratio	0.16	0.23		0.57	0.38		0.25	0.29		0.17	0.35	
Control Delay	23.1	15.8		33.4	20.4		9.0	6.2		7.8	7.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	23.1	15.8		33.4	20.4		9.0	6.2		7.8	7.5	
LOS	C	B		C	C		A	A		A	A	
Approach Delay		17.1			24.8			6.6			7.5	
Approach LOS		B			C			A			A	
Queue Length 50th (m)	3.6	5.8		15.0	12.2		4.7	13.1		3.7	20.0	
Queue Length 95th (m)	10.1	12.5		30.1	21.2		14.6	25.5		11.3	36.7	
Internal Link Dist (m)		217.5			321.8			194.8			647.6	
Turn Bay Length (m)	55.0			40.0			40.0			30.0		
Base Capacity (vph)	622	1929		687	1926		404	2056		480	2103	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.06	0.08		0.20	0.14		0.25	0.29		0.17	0.35	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 65.7			
Natural Cycle: 70			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.57			
Intersection Signal Delay: 11.4		Intersection LOS: B	
Intersection Capacity Utilization 65.9%		ICU Level of Service C	
Analysis Period (min) 15			

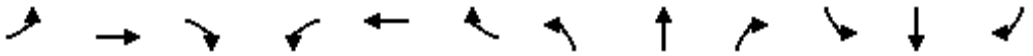
Splits and Phases: 6: Sixth Line & Burnhamthorpe Road



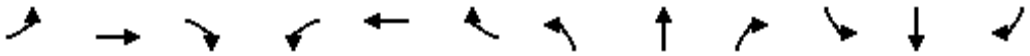


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	102	46	127	197	49	93	407	145	76	666	31
Future Volume (vph)	33	102	46	127	197	49	93	407	145	76	666	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.95		1.00	0.97		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)	1750	3337		1750	3337		1750	3354		1750	3477	
Flt Permitted	0.59	1.00		0.65	1.00		0.36	1.00		0.43	1.00	
Satd. Flow (perm)	1087	3337		1201	3337		668	3354		793	3477	
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)	35	109	49	135	210	52	99	433	154	81	709	33
RTOR Reduction (vph)	0	39	0	0	33	0	0	28	0	0	3	0
Lane Group Flow (vph)	35	119	0	135	229	0	99	559	0	81	739	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	11%	2%	2%	3%	2%	2%	2%
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)	13.0	13.0		13.0	13.0		39.7	39.7		39.7	39.7	
Effective Green, g (s)	13.0	13.0		13.0	13.0		39.7	39.7		39.7	39.7	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.61	0.61		0.61	0.61	
Clearance Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	215	661		238	661		404	2029		479	2104	
v/s Ratio Prot		0.04			0.07			0.17			c0.21	
v/s Ratio Perm	0.03			c0.11			0.15			0.10		
v/c Ratio	0.16	0.18		0.57	0.35		0.25	0.28		0.17	0.35	
Uniform Delay, d1	21.8	21.9		23.8	22.6		6.0	6.1		5.7	6.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.1		3.1	0.3		1.4	0.3		0.8	0.5	
Delay (s)	22.1	22.0		26.8	23.0		7.4	6.5		6.5	7.0	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		22.0			24.3			6.6			6.9	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	11.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	65.6	Sum of lost time (s)	12.9
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	0	6	431	2	18	7	2250	0	0	1799	0
Future Volume (vph)	7	0	6	431	2	18	7	2250	0	0	1799	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		5.0	0.0		60.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		1	1		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt			0.850		0.999	0.850						
Flt Protected	0.950			0.950	0.953		0.950					
Satd. Flow (prot)	1526	0	1331	1615	1538	1431	1750	3500	0	0	4980	0
Flt Permitted	0.495			0.950	0.953		0.102					
Satd. Flow (perm)	795	0	1331	1615	1538	1431	188	3500	0	0	4980	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			73			73						
Link Speed (k/h)		20			60			80			80	
Link Distance (m)		81.5			393.0			34.5			195.6	
Travel Time (s)		14.7			23.6			1.6			8.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	17%	2%	20%	5%	100%	6%	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	7	0	6	449	2	19	7	2344	0	0	1874	0
Shared Lane Traffic (%)				50%		10%						
Lane Group Flow (vph)	7	0	6	224	229	17	7	2344	0	0	1874	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1		1	1	2	1	1	2			2	
Detector Template	Left		Right	Left	Thru	Right	Left	Thru			Thru	
Leading Detector (m)	2.0		2.0	2.0	10.0	2.0	2.0	10.0			10.0	
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Size(m)	2.0		2.0	2.0	0.6	2.0	2.0	0.6			0.6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 2 Position(m)					9.4			9.4			9.4	
Detector 2 Size(m)					0.6			0.6			0.6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	



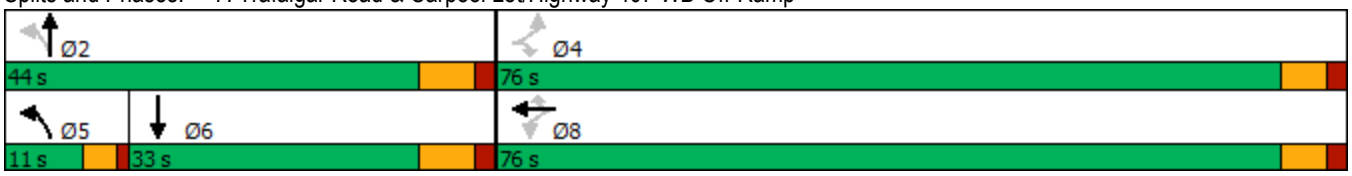
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8		8	2					
Detector Phase	4		4	8	8	8	5	2			6	
Switch Phase												
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	4.0	35.0			7.0	
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5	11.0	42.0			22.5	
Total Split (s)	76.0		76.0	76.0	76.0	76.0	11.0	44.0			33.0	
Total Split (%)	63.3%		63.3%	63.3%	63.3%	63.3%	9.2%	36.7%			27.5%	
Maximum Green (s)	70.0		70.0	70.0	70.0	70.0	7.0	37.0			26.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0	3.0	5.0			5.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0	1.0	2.0			2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Recall Mode	None		None	None	None	None	None	Min			Min	
Act Effct Green (s)	14.8		14.8	14.8	14.8	14.8	40.1	37.1			35.3	
Actuated g/C Ratio	0.23		0.23	0.23	0.23	0.23	0.62	0.57			0.54	
v/c Ratio	0.04		0.02	0.61	0.65	0.04	0.03	1.17			0.69	
Control Delay	19.1		0.2	29.7	31.9	0.2	6.4	101.9			15.1	
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	19.1		0.2	29.7	31.9	0.2	6.4	101.9			15.1	
LOS	B		A	C	C	A	A	F			B	
Approach Delay		10.4			29.7			101.7			15.1	
Approach LOS		B			C			F			B	
Queue Length 50th (m)	0.7		0.0	25.4	27.4	0.0	0.4	~180.8			50.2	
Queue Length 95th (m)	3.3		0.0	45.1	48.9	0.0	1.9	#255.0			#123.9	
Internal Link Dist (m)		57.5			369.0			10.5			171.6	
Turn Bay Length (m)			5.0			60.0						
Base Capacity (vph)	792		1327	1610	1533	1427	284	1998			2704	
Starvation Cap Reductn	0		0	0	0	0	0	0			0	
Spillback Cap Reductn	0		0	0	0	0	0	0			0	
Storage Cap Reductn	0		0	0	0	0	0	0			0	
Reduced v/c Ratio	0.01		0.00	0.14	0.15	0.01	0.02	1.17			0.69	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 65			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.17			
Intersection Signal Delay: 59.8		Intersection LOS: E	
Intersection Capacity Utilization 91.9%		ICU Level of Service F	
Analysis Period (min) 15			

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

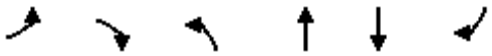
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Trafalgar Road & Carpool Lot/Highway 407 WB Off-Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	0	6	431	2	18	7	2250	0	0	1799	0
Future Volume (vph)	7	0	6	431	2	18	7	2250	0	0	1799	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	6.0	4.0	7.0			7.0	
Lane Util. Factor	1.00		1.00	0.95	0.91	0.95	1.00	0.95			0.91	
Frt	1.00		0.85	1.00	1.00	0.85	1.00	1.00			1.00	
Flt Protected	0.95		1.00	0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1526		1331	1615	1538	1431	1750	3500			4980	
Flt Permitted	0.49		1.00	0.95	0.95	1.00	0.10	1.00			1.00	
Satd. Flow (perm)	794		1331	1615	1538	1431	187	3500			4980	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	7	0	6	449	2	19	7	2344	0	0	1874	0
RTOR Reduction (vph)	0	0	5	0	0	13	0	0	0	0	0	0
Lane Group Flow (vph)	7	0	1	224	229	4	7	2344	0	0	1874	0
Heavy Vehicles (%)	17%	2%	20%	5%	100%	6%	2%	2%	2%	2%	3%	2%
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	
Permitted Phases	4		4	8		8	2					
Actuated Green, G (s)	14.9		14.9	14.9	14.9	14.9	40.4	40.4			35.3	
Effective Green, g (s)	14.9		14.9	14.9	14.9	14.9	40.4	40.4			35.3	
Actuated g/C Ratio	0.22		0.22	0.22	0.22	0.22	0.59	0.59			0.52	
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)	173		290	352	335	312	135	2070			2573	
v/s Ratio Prot							0.00	c0.67			0.38	
v/s Ratio Perm	0.01		0.00	0.14	0.15	0.00	0.03					
v/c Ratio	0.04		0.00	0.64	0.68	0.01	0.05	1.13			0.73	
Uniform Delay, d1	21.1		20.9	24.2	24.5	20.9	8.0	13.9			12.8	
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.1		0.0	3.7	5.7	0.0	0.2	66.3			1.1	
Delay (s)	21.2		20.9	28.0	30.2	20.9	8.1	80.2			13.8	
Level of Service	C		C	C	C	C	A	F			B	
Approach Delay (s)		21.0			28.8			80.0			13.8	
Approach LOS		C			C			E			B	

Intersection Summary			
HCM 2000 Control Delay	48.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	68.3	Sum of lost time (s)	17.0
Intersection Capacity Utilization	91.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	38	278	0	2507	2083	0
Future Volume (vph)	38	278	0	2507	2083	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	0.95	0.95	1.00
Frt	0.885	0.850				
Flt Protected	0.988					
Satd. Flow (prot)	1374	1214	0	3500	3466	0
Flt Permitted	0.988					
Satd. Flow (perm)	1374	1214	0	3500	3466	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	11	11				
Link Speed (k/h)	60			80	80	
Link Distance (m)	415.1			117.5	129.7	
Travel Time (s)	24.9			5.3	5.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	25%	2%	2%	3%	2%
Adj. Flow (vph)	40	296	0	2667	2216	0
Shared Lane Traffic (%)		44%				
Lane Group Flow (vph)	170	166	0	2667	2216	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (m)	2.0	2.0		10.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	2.0		0.6	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						

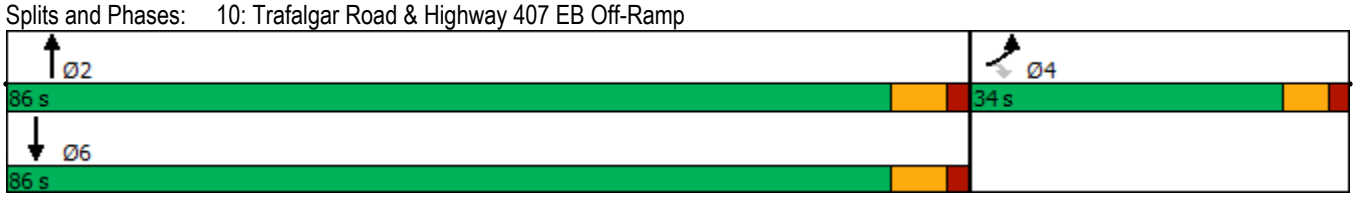
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Initial (s)	6.0	6.0		20.0	20.0	
Minimum Split (s)	24.0	24.0		27.0	27.0	
Total Split (s)	34.0	34.0		86.0	86.0	
Total Split (%)	28.3%	28.3%		71.7%	71.7%	
Maximum Green (s)	28.0	28.0		79.0	79.0	
Yellow Time (s)	4.0	4.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		7.0	7.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		Max	Max	
Act Effct Green (s)	19.2	19.2		79.3	79.3	
Actuated g/C Ratio	0.17	0.17		0.71	0.71	
v/c Ratio	0.69	0.76		1.07	0.90	
Control Delay	55.1	62.9		59.4	20.7	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	55.1	62.9		59.4	20.7	
LOS	E	E		E	C	
Approach Delay	59.0			59.4	20.7	
Approach LOS	E			E	C	
Queue Length 50th (m)	32.8	34.2		~340.4	180.3	
Queue Length 95th (m)	55.0	58.5		#429.8	#318.5	
Internal Link Dist (m)	391.1			93.5	105.7	
Turn Bay Length (m)						
Base Capacity (vph)	354	313		2488	2463	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.48	0.53		1.07	0.90	

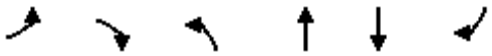
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 111.5			
Natural Cycle: 120			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.07			
Intersection Signal Delay: 42.9		Intersection LOS: D	
Intersection Capacity Utilization 87.9%		ICU Level of Service E	
Analysis Period (min) 15			

~ 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.

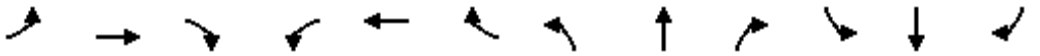
Splits and Phases: 10: Trafalgar Road & Highway 407 EB Off-Ramp



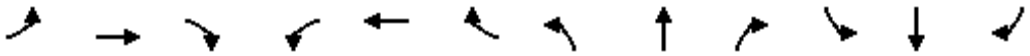


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	38	278	0	2507	2083	0
Future Volume (vph)	38	278	0	2507	2083	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		0.95	0.95	
Frt	0.89	0.85		1.00	1.00	
Flt Protected	0.99	1.00		1.00	1.00	
Satd. Flow (prot)	1375	1214		3500	3466	
Flt Permitted	0.99	1.00		1.00	1.00	
Satd. Flow (perm)	1375	1214		3500	3466	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	40	296	0	2667	2216	0
RTOR Reduction (vph)	9	9	0	0	0	0
Lane Group Flow (vph)	161	157	0	2667	2216	0
Heavy Vehicles (%)	2%	25%	2%	2%	3%	2%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	19.2	19.2		79.2	79.2	
Effective Green, g (s)	19.2	19.2		79.2	79.2	
Actuated g/C Ratio	0.17	0.17		0.71	0.71	
Clearance Time (s)	6.0	6.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	236	209		2488	2464	
v/s Ratio Prot	0.12			c0.76	0.64	
v/s Ratio Perm		c0.13				
v/c Ratio	0.68	0.75		1.07	0.90	
Uniform Delay, d1	43.2	43.8		16.1	12.9	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.9	14.1		40.9	5.8	
Delay (s)	51.1	57.9		57.0	18.7	
Level of Service	D	E		E	B	
Approach Delay (s)	54.5			57.0	18.7	
Approach LOS	D			E	B	

Intersection Summary			
HCM 2000 Control Delay	40.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	111.4	Sum of lost time (s)	13.0
Intersection Capacity Utilization	87.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	831	14	55	1360	28	23	6	73	137	33	13
Future Volume (vph)	3	831	14	55	1360	28	23	6	73	137	33	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	50.0		30.0	30.0		0.0	40.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00		0.97	1.00	0.98		1.00	0.99	
Frt		0.997				0.850		0.862			0.959	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3488	0	1750	3500	1566	1750	1559	0	1750	1757	0
Flt Permitted	0.120			0.276			0.724			0.700		
Satd. Flow (perm)	221	3488	0	507	3500	1516	1328	1559	0	1284	1757	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				29		81			14	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		825.2			198.4			580.4			190.6	
Travel Time (s)		49.5			11.9			41.8			13.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	3	923	16	61	1511	31	26	7	81	152	37	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	939	0	61	1511	31	26	88	0	152	51	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

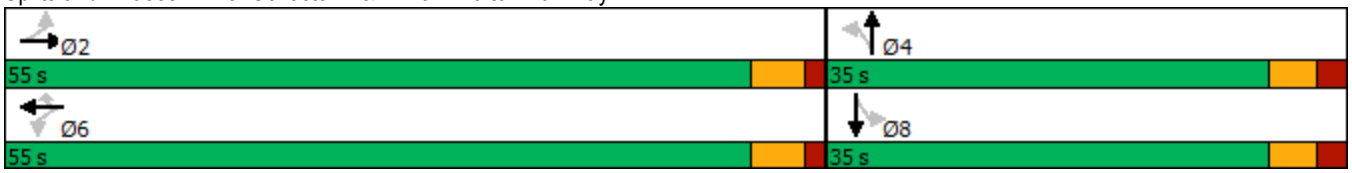


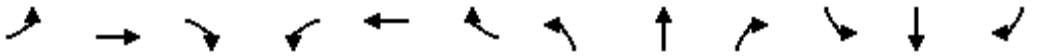
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6		6	4			8		
Detector Phase	2	2		6	6	6	4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	32.1	32.1		32.1	32.1	32.1	34.4	34.4		34.4	34.4	
Total Split (s)	55.0	55.0		55.0	55.0	55.0	35.0	35.0		35.0	35.0	
Total Split (%)	61.1%	61.1%		61.1%	61.1%	61.1%	38.9%	38.9%		38.9%	38.9%	
Maximum Green (s)	49.9	49.9		49.9	49.9	49.9	29.6	29.6		29.6	29.6	
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7	3.3	3.3		3.3	3.3	
All-Red Time (s)	1.4	1.4		1.4	1.4	1.4	2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.1	5.1		5.1	5.1	5.1	5.4	5.4		5.4	5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max	Max	None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	20.0	20.0		20.0	20.0	20.0	22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)	5	5		5	5	5	5	5		5	5	
Act Effct Green (s)	53.1	53.1		53.1	53.1	53.1	16.0	16.0		16.0	16.0	
Actuated g/C Ratio	0.67	0.67		0.67	0.67	0.67	0.20	0.20		0.20	0.20	
v/c Ratio	0.02	0.40		0.18	0.65	0.03	0.10	0.23		0.59	0.14	
Control Delay	7.7	7.7		8.8	10.8	3.2	24.0	8.2		37.1	19.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	7.7	7.7		8.8	10.8	3.2	24.0	8.2		37.1	19.1	
LOS	A	A		A	B	A	C	A		D	B	
Approach Delay		7.7			10.6			11.8			32.6	
Approach LOS		A			B			B			C	
Queue Length 50th (m)	0.1	26.1		2.7	54.4	0.1	3.1	0.8		19.8	4.3	
Queue Length 95th (m)	1.5	62.2		12.3	126.5	3.7	8.6	10.5		36.3	12.1	
Internal Link Dist (m)		801.2			174.4			556.4			166.6	
Turn Bay Length (m)	30.0			50.0		30.0	30.0			40.0		
Base Capacity (vph)	147	2326		337	2332	1020	497	634		481	667	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.02	0.40		0.18	0.65	0.03	0.05	0.14		0.32	0.08	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 79.6			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.65			
Intersection Signal Delay: 11.2		Intersection LOS: B	
Intersection Capacity Utilization 70.2%		ICU Level of Service C	

Analysis Period (min) 15

Splits and Phases: 15: Collector 1 & William Halton Parkway

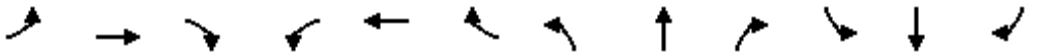




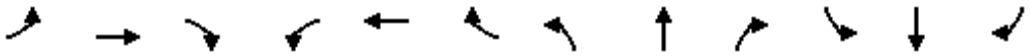
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	831	14	55	1360	28	23	6	73	137	33	13
Future Volume (vph)	3	831	14	55	1360	28	23	6	73	137	33	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1		5.1	5.1	5.1	5.4	5.4		5.4	5.4	
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	0.97	1.00	0.98		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.86		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1749	3489		1747	3500	1519	1743	1556		1744	1756	
Flt Permitted	0.12	1.00		0.28	1.00	1.00	0.72	1.00		0.70	1.00	
Satd. Flow (perm)	221	3489		508	3500	1519	1328	1556		1285	1756	
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)	3	923	16	61	1511	31	26	7	81	152	37	14
RTOR Reduction (vph)	0	1	0	0	0	10	0	65	0	0	11	0
Lane Group Flow (vph)	3	938	0	61	1511	21	26	23	0	152	40	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	53.0	53.0		53.0	53.0	53.0	16.0	16.0		16.0	16.0	
Effective Green, g (s)	53.0	53.0		53.0	53.0	53.0	16.0	16.0		16.0	16.0	
Actuated g/C Ratio	0.67	0.67		0.67	0.67	0.67	0.20	0.20		0.20	0.20	
Clearance Time (s)	5.1	5.1		5.1	5.1	5.1	5.4	5.4		5.4	5.4	
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)	147	2326		338	2333	1012	267	313		258	353	
v/s Ratio Prot		0.27			c0.43			0.01			0.02	
v/s Ratio Perm	0.01			0.12		0.01	0.02			c0.12		
v/c Ratio	0.02	0.40		0.18	0.65	0.02	0.10	0.07		0.59	0.11	
Uniform Delay, d1	4.5	6.0		5.0	7.8	4.5	25.9	25.7		28.8	25.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.5		1.2	1.4	0.0	0.2	0.1		3.4	0.1	
Delay (s)	4.7	6.6		6.2	9.2	4.5	26.0	25.8		32.2	26.1	
Level of Service	A	A		A	A	A	C	C		C	C	
Approach Delay (s)		6.6			9.0			25.9			30.7	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	79.5	Sum of lost time (s)	10.5
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	396	18	121	462	24	13	43	96	114	82	13
Future Volume (vph)	3	396	18	121	462	24	13	43	96	114	82	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00		1.00	0.99		1.00	1.00	
Frt		0.993			0.992			0.896			0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3470	0	1750	3466	0	1750	1628	0	1750	1800	0
Flt Permitted	0.451			0.487			0.689			0.659		
Satd. Flow (perm)	828	3470	0	893	3466	0	1264	1628	0	1209	1800	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			8			107			10	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		136.3			245.2			477.1			580.4	
Travel Time (s)		9.8			17.7			34.4			41.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	3	440	20	134	513	27	14	48	107	127	91	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	460	0	134	540	0	14	155	0	127	105	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

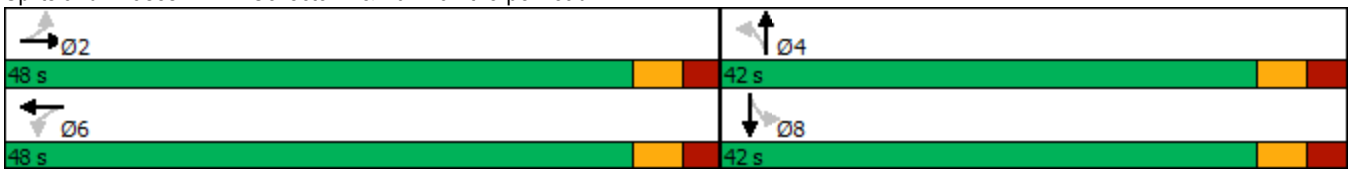


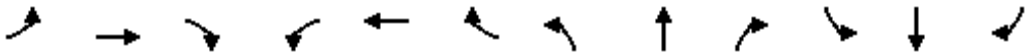
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	31.9	31.9		31.9	31.9		33.1	33.1		33.1	33.1	
Total Split (s)	48.0	48.0		48.0	48.0		42.0	42.0		42.0	42.0	
Total Split (%)	53.3%	53.3%		53.3%	53.3%		46.7%	46.7%		46.7%	46.7%	
Maximum Green (s)	42.1	42.1		42.1	42.1		35.9	35.9		35.9	35.9	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.6	2.6		2.6	2.6		2.8	2.8		2.8	2.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	
Act Effct Green (s)	44.1	44.1		44.1	44.1		13.8	13.8		13.8	13.8	
Actuated g/C Ratio	0.63	0.63		0.63	0.63		0.20	0.20		0.20	0.20	
v/c Ratio	0.01	0.21		0.24	0.25		0.06	0.38		0.53	0.29	
Control Delay	7.7	6.8		8.9	7.0		20.7	11.0		32.3	21.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	7.7	6.8		8.9	7.0		20.7	11.0		32.3	21.9	
LOS	A	A		A	A		C	B		C	C	
Approach Delay		6.8			7.4			11.8			27.6	
Approach LOS		A			A			B			C	
Queue Length 50th (m)	0.2	10.5		6.0	12.6		1.4	5.0		14.4	10.2	
Queue Length 95th (m)	1.4	27.6		22.3	32.6		5.3	17.4		28.2	21.0	
Internal Link Dist (m)		112.3			221.2			453.1			556.4	
Turn Bay Length (m)	30.0			30.0			30.0			30.0		
Base Capacity (vph)	521	2188		562	2186		652	892		624	934	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.01	0.21		0.24	0.25		0.02	0.17		0.20	0.11	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 70			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.53			
Intersection Signal Delay: 10.7		Intersection LOS: B	
Intersection Capacity Utilization 65.4%		ICU Level of Service C	

Analysis Period (min) 15

Splits and Phases: 17: Collector 1 & Burnhamthorpe Road

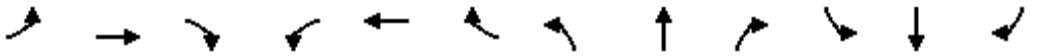




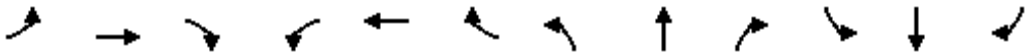
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	396	18	121	462	24	13	43	96	114	82	13
Future Volume (vph)	3	396	18	121	462	24	13	43	96	114	82	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
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	0.90		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)	1744	3473		1744	3469		1744	1627		1744	1800	
Flt Permitted	0.45	1.00		0.49	1.00		0.69	1.00		0.66	1.00	
Satd. Flow (perm)	828	3473		894	3469		1265	1627		1209	1800	
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)	3	440	20	134	513	27	14	48	107	127	91	14
RTOR Reduction (vph)	0	3	0	0	3	0	0	86	0	0	8	0
Lane Group Flow (vph)	3	457	0	134	537	0	14	69	0	127	97	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	44.1	44.1		44.1	44.1		13.8	13.8		13.8	13.8	
Effective Green, g (s)	44.1	44.1		44.1	44.1		13.8	13.8		13.8	13.8	
Actuated g/C Ratio	0.63	0.63		0.63	0.63		0.20	0.20		0.20	0.20	
Clearance Time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	522	2191		564	2188		249	321		238	355	
v/s Ratio Prot		0.13			c0.15			0.04			0.05	
v/s Ratio Perm	0.00			0.15			0.01			c0.11		
v/c Ratio	0.01	0.21		0.24	0.25		0.06	0.22		0.53	0.27	
Uniform Delay, d1	4.8	5.5		5.6	5.6		22.8	23.5		25.2	23.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	0.2		1.0	0.3		0.1	0.3		2.3	0.4	
Delay (s)	4.8	5.7		6.6	5.9		22.9	23.9		27.5	24.2	
Level of Service	A	A		A	A		C	C		C	C	
Approach Delay (s)		5.7			6.0			23.8			26.0	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	10.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	69.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	578	47	180	633	6	30	71	117	10	102	19
Future Volume (vph)	56	578	47	180	633	6	30	71	117	10	102	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		30.0	50.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00		1.00	0.99		1.00	1.00	
Frt		0.989			0.999			0.907			0.976	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3453	0	1750	3495	0	1750	1649	0	1750	1792	0
Flt Permitted	0.377			0.385			0.671			0.517		
Satd. Flow (perm)	692	3453	0	707	3495	0	1231	1649	0	949	1792	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			2			95			11	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		223.5			463.9			185.3			250.4	
Travel Time (s)		16.1			33.4			13.3			18.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	62	642	52	200	703	7	33	79	130	11	113	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	62	694	0	200	710	0	33	209	0	11	134	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



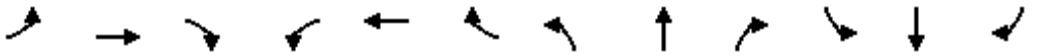
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	31.9	31.9		31.9	31.9		34.0	34.0		34.0	34.0	
Total Split (s)	56.0	56.0		56.0	56.0		34.0	34.0		34.0	34.0	
Total Split (%)	62.2%	62.2%		62.2%	62.2%		37.8%	37.8%		37.8%	37.8%	
Maximum Green (s)	50.1	50.1		50.1	50.1		27.9	27.9		27.9	27.9	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.6	2.6		2.6	2.6		2.8	2.8		2.8	2.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	
Act Effct Green (s)	51.5	51.5		51.5	51.5		12.8	12.8		12.8	12.8	
Actuated g/C Ratio	0.67	0.67		0.67	0.67		0.17	0.17		0.17	0.17	
v/c Ratio	0.13	0.30		0.42	0.30		0.16	0.59		0.07	0.43	
Control Delay	7.3	6.4		11.0	6.5		26.9	22.1		25.2	29.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	7.3	6.4		11.0	6.5		26.9	22.1		25.2	29.2	
LOS	A	A		B	A		C	C		C	C	
Approach Delay		6.4			7.5			22.8			28.9	
Approach LOS		A			A			C			C	
Queue Length 50th (m)	2.4	15.5		9.8	16.4		4.0	14.5		1.3	15.7	
Queue Length 95th (m)	11.2	41.9		39.2	43.6		10.7	32.2		5.1	29.6	
Internal Link Dist (m)		199.5			439.9			161.3			226.4	
Turn Bay Length (m)	30.0			50.0			30.0			30.0		
Base Capacity (vph)	466	2332		476	2356		452	666		349	665	
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	0.13	0.30		0.42	0.30		0.07	0.31		0.03	0.20	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 76.4			
Natural Cycle: 70			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 10.4		Intersection LOS: B	
Intersection Capacity Utilization 70.4%		ICU Level of Service C	

Analysis Period (min) 15

Splits and Phases: 25: Collector 5 & Burnhamthorpe Road

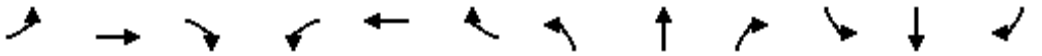




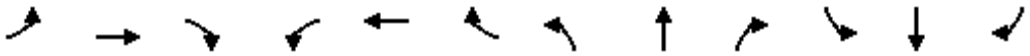
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	578	47	180	633	6	30	71	117	10	102	19
Future Volume (vph)	56	578	47	180	633	6	30	71	117	10	102	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
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	1.00		1.00	0.91		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)	1745	3453		1745	3494		1744	1647		1745	1792	
Flt Permitted	0.38	1.00		0.38	1.00		0.67	1.00		0.52	1.00	
Satd. Flow (perm)	693	3453		707	3494		1232	1647		950	1792	
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)	62	642	52	200	703	7	33	79	130	11	113	21
RTOR Reduction (vph)	0	5	0	0	1	0	0	79	0	0	9	0
Lane Group Flow (vph)	62	689	0	200	709	0	33	130	0	11	125	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	51.5	51.5		51.5	51.5		12.8	12.8		12.8	12.8	
Effective Green, g (s)	51.5	51.5		51.5	51.5		12.8	12.8		12.8	12.8	
Actuated g/C Ratio	0.67	0.67		0.67	0.67		0.17	0.17		0.17	0.17	
Clearance Time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	467	2330		477	2358		206	276		159	300	
v/s Ratio Prot		0.20			0.20			c0.08			0.07	
v/s Ratio Perm	0.09			c0.28			0.03			0.01		
v/c Ratio	0.13	0.30		0.42	0.30		0.16	0.47		0.07	0.42	
Uniform Delay, d1	4.4	5.0		5.6	5.1		27.2	28.7		26.7	28.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.3		2.7	0.3		0.4	1.3		0.2	0.9	
Delay (s)	5.0	5.4		8.3	5.4		27.5	30.0		26.9	29.3	
Level of Service	A	A		A	A		C	C		C	C	
Approach Delay (s)		5.3			6.0			29.6			29.2	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	10.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	76.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	112	140	167	99	32	199	1917	154	145	1704	116
Future Volume (vph)	87	112	140	167	99	32	199	1917	154	145	1704	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		40.0	85.0		30.0	60.0		40.0	80.0		30.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00
Ped Bike Factor			0.98	1.00		0.98			0.96			0.96
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	1842	1566	1750	1842	1566	1750	4421	1566	1750	4421	1566
Flt Permitted	0.686			0.513			0.066			0.070		
Satd. Flow (perm)	1264	1842	1532	941	1842	1534	122	4421	1511	129	4421	1511
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			156			67			105			105
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		219.8			129.6			268.7			259.2	
Travel Time (s)		15.8			9.3			16.1			15.6	
Confl. Peds. (#/hr)			5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	97	124	156	186	110	36	221	2130	171	161	1893	129
Shared Lane Traffic (%)												
Lane Group Flow (vph)	97	124	156	186	110	36	221	2130	171	161	1893	129
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	38.5	38.5	38.5	11.0	38.5	38.5	11.0	33.4	33.4	11.0	33.4	33.4
Total Split (s)	39.0	39.0	39.0	11.0	50.0	50.0	13.0	59.0	59.0	11.0	57.0	57.0
Total Split (%)	32.5%	32.5%	32.5%	9.2%	41.7%	41.7%	10.8%	49.2%	49.2%	9.2%	47.5%	47.5%
Maximum Green (s)	32.5	32.5	32.5	7.0	43.5	43.5	9.0	52.6	52.6	7.0	50.6	50.6
Yellow Time (s)	3.3	3.3	3.3	3.0	3.3	3.3	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	3.2	3.2	3.2	1.0	3.2	3.2	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)	25.0	25.0	25.0		25.0	25.0		20.0	20.0		20.0	20.0
Pedestrian Calls (#/hr)	5	5	5		5	5		5	5		5	5
Act Effct Green (s)	17.1	17.1	17.1	30.6	28.1	28.1	81.0	62.5	62.5	71.5	56.7	56.7
Actuated g/C Ratio	0.14	0.14	0.14	0.26	0.23	0.23	0.68	0.52	0.52	0.60	0.47	0.47
v/c Ratio	0.54	0.47	0.44	0.65	0.26	0.09	0.67	0.92	0.20	0.66	0.91	0.17
Control Delay	56.7	51.2	10.0	47.5	36.9	1.9	44.6	26.8	12.2	38.4	37.1	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.7	51.2	10.0	47.5	36.9	1.9	44.6	26.8	12.2	38.4	37.1	6.2
LOS	E	D	A	D	D	A	D	C	B	D	D	A
Approach Delay		35.6			39.1			27.4			35.4	
Approach LOS		D			D			C			D	
Queue Length 50th (m)	22.1	27.9	0.0	37.8	21.8	0.0	43.7	88.9	9.6	19.1	162.5	2.9
Queue Length 95th (m)	33.3	39.3	15.8	47.8	30.6	2.1	m#49.0	m#222.8	m16.2	#67.0	#229.6	14.8
Internal Link Dist (m)		195.8			105.6			244.7			235.2	
Turn Bay Length (m)	60.0		40.0	85.0		30.0	60.0		40.0	80.0		30.0
Base Capacity (vph)	342	498	528	287	667	598	329	2304	837	244	2089	769
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.25	0.30	0.65	0.16	0.06	0.67	0.92	0.20	0.66	0.91	0.17

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 14 (12%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 125	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 31.9	Intersection LOS: C

Intersection Capacity Utilization 76.7% ICU Level of Service D

Analysis Period (min) 15

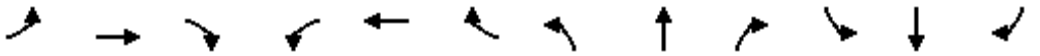
* User Entered Value

\# 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.

Splits and Phases: 27: Trafalgar Road & Settlers Road

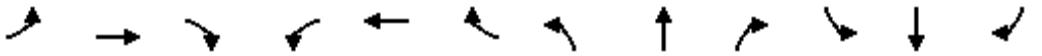




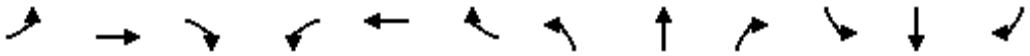
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	112	140	167	99	32	199	1917	154	145	1704	116
Future Volume (vph)	87	112	140	167	99	32	199	1917	154	145	1704	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.98	1.00	1.00	0.97	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	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1750	1842	1526	1746	1842	1531	1750	4421	1512	1750	4421	1511
Flt Permitted	0.69	1.00	1.00	0.51	1.00	1.00	0.07	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	1264	1842	1526	943	1842	1531	121	4421	1512	130	4421	1511
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)	97	124	156	186	110	36	221	2130	171	161	1893	129
RTOR Reduction (vph)	0	0	134	0	0	28	0	0	50	0	0	55
Lane Group Flow (vph)	97	124	22	186	110	8	221	2130	121	161	1893	74
Confl. Peds. (#/hr)			5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	17.1	17.1	17.1	28.1	28.1	28.1	79.0	62.6	62.6	69.2	56.8	56.8
Effective Green, g (s)	17.1	17.1	17.1	28.1	28.1	28.1	79.0	62.6	62.6	69.2	56.8	56.8
Actuated g/C Ratio	0.14	0.14	0.14	0.23	0.23	0.23	0.66	0.52	0.52	0.58	0.47	0.47
Clearance Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	180	262	217	267	431	358	326	2306	788	242	2092	715
v/s Ratio Prot		0.07		c0.04	0.06		c0.10	c0.48		0.07	0.43	
v/s Ratio Perm	0.08		0.01	c0.12		0.01	0.34		0.08	0.32		0.05
v/c Ratio	0.54	0.47	0.10	0.70	0.26	0.02	0.68	0.92	0.15	0.67	0.90	0.10
Uniform Delay, d1	47.8	47.3	44.8	41.4	37.4	35.4	32.7	26.5	14.9	28.0	29.1	17.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.68	0.86	1.63	1.00	1.00	1.00
Incremental Delay, d2	3.1	1.4	0.2	7.7	0.3	0.0	1.5	2.4	0.1	6.7	7.0	0.3
Delay (s)	50.9	48.7	45.0	49.1	37.7	35.4	56.5	25.2	24.4	34.7	36.1	17.8
Level of Service	D	D	D	D	D	D	E	C	C	C	D	B
Approach Delay (s)		47.7			43.9			27.9			35.0	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	33.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.9
Intersection Capacity Utilization	76.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	99	152	176	91	65	222	2309	179	90	1894	4
Future Volume (vph)	19	99	152	176	91	65	222	2309	179	90	1894	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		70.0	90.0		30.0	130.0		40.0	40.0		30.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00
Ped Bike Factor	1.00		0.98	1.00		0.98			0.96			0.96
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	1842	1566	1750	1842	1566	1750	4421	1566	1750	4421	1566
Flt Permitted	0.692			0.539			0.069			0.074		
Satd. Flow (perm)	1268	1842	1532	988	1842	1534	127	4421	1511	136	4421	1511
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			156			72			105			105
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		193.0			130.2			1233.0			148.7	
Travel Time (s)		13.9			9.4			74.0			8.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	21	110	169	196	101	72	247	2566	199	100	2104	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	110	169	196	101	72	247	2566	199	100	2104	4
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	38.5	38.5	38.5	11.0	38.5	38.5	11.0	33.4	33.4	11.0	33.4	33.4
Total Split (s)	39.0	39.0	39.0	11.0	50.0	50.0	11.0	59.0	59.0	11.0	59.0	59.0
Total Split (%)	32.5%	32.5%	32.5%	9.2%	41.7%	41.7%	9.2%	49.2%	49.2%	9.2%	49.2%	49.2%
Maximum Green (s)	32.5	32.5	32.5	7.0	43.5	43.5	7.0	52.6	52.6	7.0	52.6	52.6
Yellow Time (s)	3.3	3.3	3.3	3.0	3.3	3.3	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	3.2	3.2	3.2	1.0	3.2	3.2	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)	25.0	25.0	25.0		25.0	25.0		20.0	20.0		20.0	20.0
Pedestrian Calls (#/hr)	5	5	5		5	5		5	5		5	5
Act Effct Green (s)	15.9	15.9	15.9	29.4	26.9	26.9	81.8	68.4	68.4	64.2	54.0	54.0
Actuated g/C Ratio	0.13	0.13	0.13	0.24	0.22	0.22	0.68	0.57	0.57	0.54	0.45	0.45
v/c Ratio	0.12	0.45	0.50	0.69	0.24	0.18	0.64	1.02	0.22	0.56	1.06	0.01
Control Delay	43.2	51.9	13.1	50.8	37.6	7.8	35.9	49.2	8.0	33.2	56.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.2	51.9	13.1	50.8	37.6	7.8	35.9	49.2	8.0	33.2	56.4	0.0
LOS	D	D	B	D	D	A	D	D	A	C	E	A
Approach Delay		29.4			38.8			45.4			55.2	
Approach LOS		C			D			D			E	
Queue Length 50th (m)	4.6	25.1	2.8	41.0	20.4	0.0	35.4	227.1	8.9	12.2	~86.0	0.0
Queue Length 95th (m)	10.1	35.4	18.7	50.2	28.6	9.5	#117.2	#357.5	28.6	m19.8	#257.5	m0.0
Internal Link Dist (m)		169.0			106.2			1209.0			124.7	
Turn Bay Length (m)	30.0		70.0	90.0		30.0	130.0		40.0	40.0		30.0
Base Capacity (vph)	343	498	528	286	667	601	386	2519	906	177	1987	737
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.22	0.32	0.69	0.15	0.12	0.64	1.02	0.22	0.56	1.06	0.01

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 16 (13%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.06	
Intersection Signal Delay: 47.8	Intersection LOS: D

Intersection Capacity Utilization 82.5%	ICU Level of Service E
Analysis Period (min) 15	

* User Entered Value

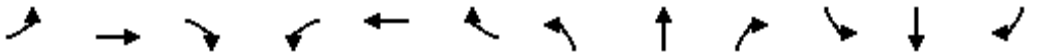
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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.

Splits and Phases: 32: Trafalgar Road & Marvin Avenue





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	99	152	176	91	65	222	2309	179	90	1894	4
Future Volume (vph)	19	99	152	176	91	65	222	2309	179	90	1894	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.98	1.00	1.00	0.97	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	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1741	1842	1525	1746	1842	1531	1750	4421	1512	1750	4421	1511
Flt Permitted	0.69	1.00	1.00	0.54	1.00	1.00	0.07	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	1268	1842	1525	990	1842	1531	127	4421	1512	136	4421	1511
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)	21	110	169	196	101	72	247	2566	199	100	2104	4
RTOR Reduction (vph)	0	0	135	0	0	56	0	0	45	0	0	2
Lane Group Flow (vph)	21	110	34	196	101	16	247	2566	154	100	2104	2
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	15.9	15.9	15.9	26.9	26.9	26.9	80.2	68.4	68.4	61.8	54.0	54.0
Effective Green, g (s)	15.9	15.9	15.9	26.9	26.9	26.9	80.2	68.4	68.4	61.8	54.0	54.0
Actuated g/C Ratio	0.13	0.13	0.13	0.22	0.22	0.22	0.67	0.57	0.57	0.51	0.45	0.45
Clearance Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	168	244	202	266	412	343	385	2519	861	174	1989	679
v/s Ratio Prot		0.06		c0.04	0.05		c0.12	c0.58		0.04	0.48	
v/s Ratio Perm	0.02		0.02	c0.12		0.01	0.31		0.10	0.26		0.00
v/c Ratio	0.12	0.45	0.17	0.74	0.25	0.05	0.64	1.02	0.18	0.57	1.06	0.00
Uniform Delay, d1	45.9	48.0	46.2	42.7	38.2	36.5	32.6	25.8	12.4	26.0	33.0	18.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.52	0.67	1.00
Incremental Delay, d2	0.3	1.3	0.4	10.2	0.3	0.1	3.6	22.8	0.5	2.4	32.8	0.0
Delay (s)	46.3	49.3	46.6	52.9	38.5	36.6	36.3	48.6	12.8	41.8	54.9	18.2
Level of Service	D	D	D	D	D	D	D	D	B	D	D	B
Approach Delay (s)		47.6			45.8			45.2			54.2	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	48.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.9
Intersection Capacity Utilization	82.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

MOVEMENT SUMMARY

Site: 101 [Sixth Line & William Halton Parkway - Mitigation (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

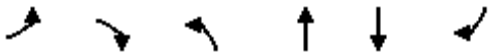
2031 Future Background PM
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Sixth Line															
1	L2	All MCs	12	2.0	12	2.0	0.464	15.4	LOS C	1.8	13.0	0.69	0.78	1.01	45.5
2	T1	All MCs	304	2.0	304	2.0	0.464	15.2	LOS C	1.8	13.0	0.68	0.77	1.01	46.3
3	R2	All MCs	164	2.0	164	2.0	0.464	14.7	LOS B	1.8	12.7	0.67	0.76	0.99	46.1
Approach			481	2.0	481	2.0	0.464	15.0	LOS C	1.8	13.0	0.68	0.77	1.00	46.2
East: William Halton Parkway															
4	L2	All MCs	253	2.0	253	2.0	0.712	19.7	LOS C	6.4	45.5	0.73	0.92	1.51	42.1
5	T1	All MCs	783	2.0	783	2.0	0.712	19.4	LOS C	6.4	45.5	0.72	0.91	1.50	43.8
6	R2	All MCs	527	2.0	527	2.0	0.278	4.6	LOS A	0.0	0.0	0.00	0.00	0.00	56.4
Approach			1563	2.0	1563	2.0	0.712	14.4	LOS B	6.4	45.5	0.48	0.60	1.00	46.9
North: Sixth Line															
7	L2	All MCs	302	2.0	302	2.0	0.665	23.5	LOS C	3.5	24.8	0.78	0.96	1.41	39.5
8	T1	All MCs	379	2.0	379	2.0	0.665	22.6	LOS C	3.5	24.8	0.77	0.94	1.40	42.5
9	R2	All MCs	302	2.0	302	2.0	0.159	4.7	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			983	2.0	983	2.0	0.665	17.4	LOS C	3.5	24.8	0.54	0.66	0.97	44.7
West: William Halton Parkway															
10	L2	All MCs	257	2.0	257	2.0	0.654	21.3	LOS C	3.7	26.1	0.75	0.93	1.38	40.8
11	T1	All MCs	473	2.0	473	2.0	0.654	20.7	LOS C	3.7	26.1	0.73	0.92	1.36	43.2
12	R2	All MCs	72	2.0	72	2.0	0.038	2.8	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			802	2.0	802	2.0	0.654	19.3	LOS C	3.7	26.1	0.67	0.84	1.25	43.2
All Vehicles			3830	2.0	3830	2.0	0.712	16.3	LOS C	6.4	45.5	0.56	0.69	1.04	45.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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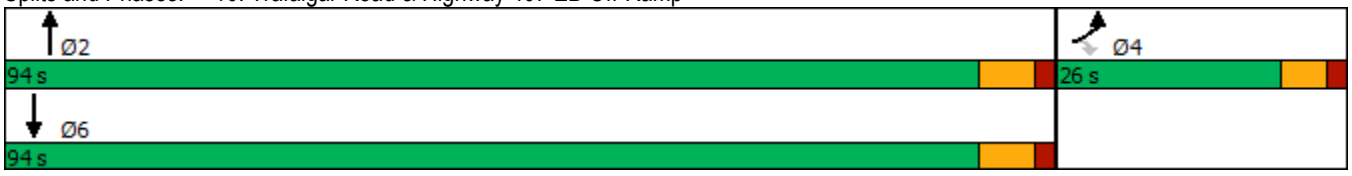


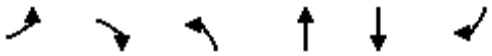
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	39	241	0	1724	1977	0
Future Volume (vph)	39	241	0	1724	1977	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	0.95	0.95	1.00
Frt	0.891	0.850				
Flt Protected	0.986					
Satd. Flow (prot)	1472	1308	0	3500	3500	0
Flt Permitted	0.986					
Satd. Flow (perm)	1472	1308	0	3500	3500	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	20	20				
Link Speed (k/h)	60			80	80	
Link Distance (m)	417.0			117.5	129.7	
Travel Time (s)	25.0			5.3	5.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	16%	2%	2%	2%	2%
Adj. Flow (vph)	42	259	0	1854	2126	0
Shared Lane Traffic (%)		43%				
Lane Group Flow (vph)	153	148	0	1854	2126	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (m)	2.0	2.0		10.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	2.0		0.6	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Initial (s)	6.0	6.0		20.0	20.0	
Minimum Split (s)	24.0	24.0		27.0	27.0	
Total Split (s)	26.0	26.0		94.0	94.0	
Total Split (%)	21.7%	21.7%		78.3%	78.3%	
Maximum Green (s)	20.0	20.0		87.0	87.0	
Yellow Time (s)	4.0	4.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		7.0	7.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		Max	Max	
Act Effct Green (s)	15.7	15.7		87.1	87.1	
Actuated g/C Ratio	0.14	0.14		0.75	0.75	
v/c Ratio	0.71	0.76		0.70	0.81	
Control Delay	59.2	66.0		10.0	13.0	
Queue Delay	0.0	0.0		0.4	0.0	
Total Delay	59.2	66.0		10.4	13.0	
LOS	E	E		B	B	
Approach Delay	62.5			10.4	13.0	
Approach LOS	E			B	B	
Queue Length 50th (m)	29.2	29.8		104.3	143.7	
Queue Length 95th (m)	51.3	53.5		143.1	198.5	
Internal Link Dist (m)	393.0			93.5	105.7	
Turn Bay Length (m)						
Base Capacity (vph)	271	242		2632	2632	
Starvation Cap Reductn	0	0		304	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.56	0.61		0.80	0.81	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 115.8			
Natural Cycle: 80			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 15.4		Intersection LOS: B	
Intersection Capacity Utilization 75.4%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 10: Trafalgar Road & Highway 407 EB Off-Ramp



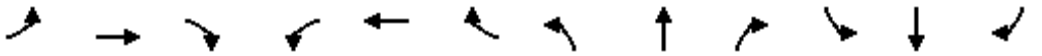


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	39	241	0	1724	1977	0
Future Volume (vph)	39	241	0	1724	1977	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		0.95	0.95	
Frt	0.89	0.85		1.00	1.00	
Flt Protected	0.99	1.00		1.00	1.00	
Satd. Flow (prot)	1473	1308		3500	3500	
Flt Permitted	0.99	1.00		1.00	1.00	
Satd. Flow (perm)	1473	1308		3500	3500	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	42	259	0	1854	2126	0
RTOR Reduction (vph)	17	17	0	0	0	0
Lane Group Flow (vph)	136	131	0	1854	2126	0
Heavy Vehicles (%)	2%	16%	2%	2%	2%	2%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	15.7	15.7		87.1	87.1	
Effective Green, g (s)	15.7	15.7		87.1	87.1	
Actuated g/C Ratio	0.14	0.14		0.75	0.75	
Clearance Time (s)	6.0	6.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	199	177		2632	2632	
v/s Ratio Prot	0.09			0.53	c0.61	
v/s Ratio Perm		c0.10				
v/c Ratio	0.68	0.74		0.70	0.81	
Uniform Delay, d1	47.7	48.1		7.6	9.1	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.3	14.8		1.6	2.8	
Delay (s)	56.9	62.9		9.2	11.8	
Level of Service	E	E		A	B	
Approach Delay (s)	59.9			9.2	11.8	
Approach LOS	E			A	B	

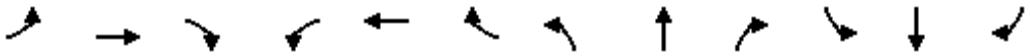
Intersection Summary			
HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	115.8	Sum of lost time (s)	13.0
Intersection Capacity Utilization	75.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Appendix N

2036 Future Total Conditions Synchro and Sidra Worksheets



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	689	1159	298	225	476	371	206	1998	240	566	1626	359
Future Volume (vph)	689	1159	298	225	476	371	206	1998	240	566	1626	359
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	105.0		60.0	120.0		205.0	85.0		55.0	180.0		80.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	3500	1566	3395	3500	1452	3395	4421	1493	3362	4378	1566
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3395	3500	1566	3395	3500	1452	3395	4421	1493	3362	4378	1566
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			132			151			151			254
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		207.8			119.4			182.8			224.9	
Travel Time (s)		12.5			7.2			11.0			13.5	
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%	10%	2%	2%	7%	3%	3%	2%
Adj. Flow (vph)	749	1260	324	245	517	403	224	2172	261	615	1767	390
Shared Lane Traffic (%)												
Lane Group Flow (vph)	749	1260	324	245	517	403	224	2172	261	615	1767	390
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	

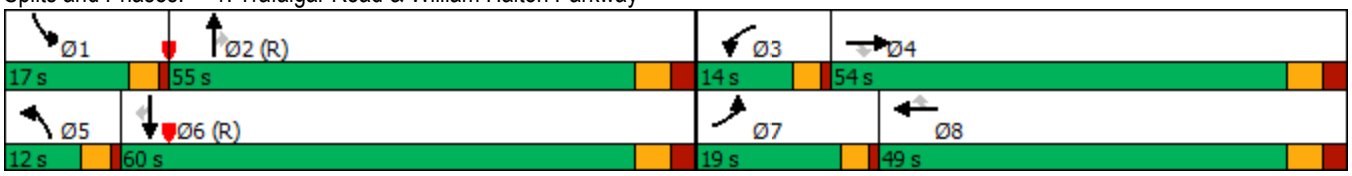


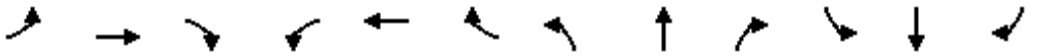
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	48.4	48.4	11.0	48.4	48.4	11.0	45.4	45.4	11.0	45.4	45.4
Total Split (s)	19.0	54.0	54.0	14.0	49.0	49.0	12.0	55.0	55.0	17.0	60.0	60.0
Total Split (%)	13.6%	38.6%	38.6%	10.0%	35.0%	35.0%	8.6%	39.3%	39.3%	12.1%	42.9%	42.9%
Maximum Green (s)	15.0	47.6	47.6	10.0	42.6	42.6	8.0	48.6	48.6	13.0	53.6	53.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		35.0	35.0		35.0	35.0		32.0	32.0		32.0	32.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	15.0	47.6	47.6	10.0	42.6	42.6	8.0	48.6	48.6	13.0	53.6	53.6
Actuated g/C Ratio	0.11	0.34	0.34	0.07	0.30	0.30	0.06	0.35	0.35	0.09	0.38	0.38
v/c Ratio	2.06	1.06	0.52	1.01	0.49	0.74	1.15	1.42	0.42	1.97	1.05	0.52
Control Delay	517.6	87.4	24.6	124.3	41.6	35.9	168.4	226.3	16.4	479.8	79.5	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	517.6	87.4	24.6	124.3	41.6	35.9	168.4	226.3	16.4	479.8	79.5	13.4
LOS	F	F	C	F	D	D	F	F	B	F	E	B
Approach Delay		216.8			57.0			200.8			159.0	
Approach LOS		F			E			F			F	
Queue Length 50th (m)	~167.9	~201.0	42.1	~36.0	61.6	64.6	~37.6	~336.2	21.8	~135.8	~222.3	26.4
Queue Length 95th (m)	#206.4	#243.3	71.8	#64.1	78.9	105.1	#64.2	#368.0	46.1	#172.8	#255.6	56.6
Internal Link Dist (m)		183.8			95.4			158.8			200.9	
Turn Bay Length (m)	105.0		60.0	120.0		205.0	85.0		55.0	180.0		80.0
Base Capacity (vph)	363	1190	619	242	1065	546	194	1534	616	312	1676	756
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.06	1.06	0.52	1.01	0.49	0.74	1.15	1.42	0.42	1.97	1.05	0.52

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 2.06			
Intersection Signal Delay: 173.2		Intersection LOS: F	
Intersection Capacity Utilization 110.5%		ICU Level of Service H	
Analysis Period (min) 15			

* User Entered Value
~ 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.

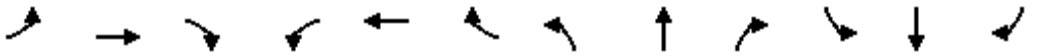
Splits and Phases: 1: Trafalgar Road & William Halton Parkway



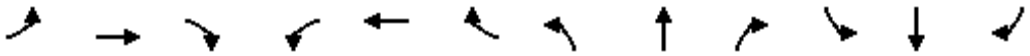


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	689	1159	298	225	476	371	206	1998	240	566	1626	359
Future Volume (vph)	689	1159	298	225	476	371	206	1998	240	566	1626	359
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	3500	1566	3395	3500	1452	3395	4421	1493	3362	4378	1566
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	3500	1566	3395	3500	1452	3395	4421	1493	3362	4378	1566
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)	749	1260	324	245	517	403	224	2172	261	615	1767	390
RTOR Reduction (vph)	0	0	87	0	0	105	0	0	99	0	0	157
Lane Group Flow (vph)	749	1260	237	245	517	298	224	2172	162	615	1767	233
Heavy Vehicles (%)	2%	2%	2%	2%	2%	10%	2%	2%	7%	3%	3%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	15.0	47.6	47.6	10.0	42.6	42.6	8.0	48.6	48.6	13.0	53.6	53.6
Effective Green, g (s)	15.0	47.6	47.6	10.0	42.6	42.6	8.0	48.6	48.6	13.0	53.6	53.6
Actuated g/C Ratio	0.11	0.34	0.34	0.07	0.30	0.30	0.06	0.35	0.35	0.09	0.38	0.38
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	363	1190	532	242	1065	441	194	1534	518	312	1676	599
v/s Ratio Prot	c0.22	c0.36		0.07	0.15		0.07	c0.49		c0.18	0.40	
v/s Ratio Perm			0.15			0.21			0.11			0.15
v/c Ratio	2.06	1.06	0.45	1.01	0.49	0.68	1.15	1.42	0.31	1.97	1.05	0.39
Uniform Delay, d1	62.5	46.2	35.9	65.0	39.8	42.6	66.0	45.7	33.5	63.5	43.2	31.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	487.9	43.2	1.2	61.1	0.7	5.3	112.5	191.1	1.6	448.4	37.9	1.9
Delay (s)	550.4	89.4	37.2	126.1	40.5	47.9	178.5	236.8	35.1	511.9	81.1	33.2
Level of Service	F	F	D	F	D	D	F	F	D	F	F	C
Approach Delay (s)		230.1			61.1			212.0			169.9	
Approach LOS		F			E			F			F	

Intersection Summary			
HCM 2000 Control Delay	184.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.45		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	110.5%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	367	366	134	229	291	122	354	1847	253	202	1788	83
Future Volume (vph)	367	366	134	229	291	122	354	1847	253	202	1788	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		30.0	120.0		30.0	130.0		50.0	170.0		40.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	50.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	*0.80	0.91	1.00	*0.80	0.91
Ped Bike Factor			0.99	1.00								
Frt			0.850		0.956			0.982			0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3500	1566	1750	3256	0	1700	4336	0	1750	4343	0
Flt Permitted	0.488			0.417			0.089			0.098		
Satd. Flow (perm)	899	3500	1545	768	3256	0	159	4336	0	181	4343	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			149		68			19			5	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		245.2			123.4			230.0			280.2	
Travel Time (s)		17.7			8.9			13.8			16.8	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	6%	2%	5%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Adj. Flow (vph)	408	407	149	254	323	136	393	2052	281	224	1987	92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	408	407	149	254	459	0	393	2333	0	224	2079	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.02	1.01	1.01	1.02	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	41.4	41.4	41.4	11.0	41.4		11.0	37.3		11.0	37.3	
Total Split (s)	47.0	47.0	47.0	11.0	58.0		15.0	51.0		11.0	47.0	
Total Split (%)	39.2%	39.2%	39.2%	9.2%	48.3%		12.5%	42.5%		9.2%	39.2%	
Maximum Green (s)	40.6	40.6	40.6	7.0	51.6		11.0	44.7		7.0	40.7	
Yellow Time (s)	3.7	3.7	3.7	3.0	3.7		3.0	3.7		3.0	3.7	
All-Red Time (s)	2.7	2.7	2.7	1.0	2.7		1.0	2.6		1.0	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4	6.4	4.0	6.4		4.0	6.3		4.0	6.3	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	5.0		3.0	5.0	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0	7.0		7.0			7.0			7.0	
Flash Dont Walk (s)	28.0	28.0	28.0		28.0			24.0			24.0	
Pedestrian Calls (#/hr)	0	0	0		0			0			0	
Act Effct Green (s)	40.6	40.6	40.6	54.0	51.6		58.0	44.7		50.0	40.7	
Actuated g/C Ratio	0.34	0.34	0.34	0.45	0.43		0.48	0.37		0.42	0.34	
v/c Ratio	1.34	0.34	0.24	0.63	0.32		1.80	1.43		1.35	1.41	
Control Delay	207.9	30.8	5.4	30.8	19.7		402.5	229.6		216.3	220.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	207.9	30.8	5.4	30.8	19.7		402.5	229.6		216.3	220.2	
LOS	F	C	A	C	B		F	F		F	F	
Approach Delay		101.8			23.7			254.5			219.8	
Approach LOS		F			C			F			F	
Queue Length 50th (m)	~125.4	37.5	0.0	37.7	31.0		~124.8	~311.4		~52.9	~275.5	
Queue Length 95th (m)	#185.7	50.8	13.8	57.0	43.4		#185.6	#344.2		#102.2	#309.1	
Internal Link Dist (m)		221.2			99.4			206.0			256.2	
Turn Bay Length (m)	100.0		30.0	120.0			130.0			170.0		
Base Capacity (vph)	304	1184	621	402	1438		218	1627		166	1476	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	1.34	0.34	0.24	0.63	0.32		1.80	1.43		1.35	1.41	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.80	

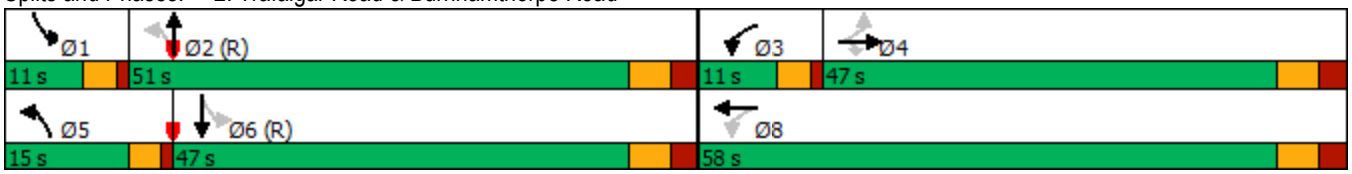
Intersection Signal Delay: 196.1	Intersection LOS: F
Intersection Capacity Utilization 107.5%	ICU Level of Service G
Analysis Period (min) 15	

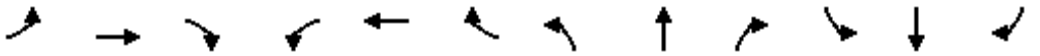
* User Entered Value

~ 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.

Splits and Phases: 2: Trafalgar Road & Burnhamthorpe Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	367	366	134	229	291	122	354	1847	253	202	1788	83
Future Volume (vph)	367	366	134	229	291	122	354	1847	253	202	1788	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4	6.4	4.0	6.4		4.0	6.3		4.0	6.3	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	*0.80		1.00	*0.80	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	3500	1545	1750	3255		1700	4335		1750	4345	
Flt Permitted	0.49	1.00	1.00	0.42	1.00		0.09	1.00		0.10	1.00	
Satd. Flow (perm)	898	3500	1545	768	3255		160	4335		181	4345	
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)	408	407	149	254	323	136	393	2052	281	224	1987	92
RTOR Reduction (vph)	0	0	99	0	39	0	0	12	0	0	3	0
Lane Group Flow (vph)	408	407	50	254	420	0	393	2321	0	224	2076	0
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	2%	2%	2%	2%	6%	2%	5%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	40.6	40.6	40.6	51.6	51.6		55.7	44.7		47.7	40.7	
Effective Green, g (s)	40.6	40.6	40.6	51.6	51.6		55.7	44.7		47.7	40.7	
Actuated g/C Ratio	0.34	0.34	0.34	0.43	0.43		0.46	0.37		0.40	0.34	
Clearance Time (s)	6.4	6.4	6.4	4.0	6.4		4.0	6.3		4.0	6.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	303	1184	522	387	1399		215	1614		163	1473	
v/s Ratio Prot		0.12		c0.04	0.13		c0.17	0.54		0.08	0.48	
v/s Ratio Perm	c0.45		0.03	0.24			c0.68			0.46		
v/c Ratio	1.35	0.34	0.10	0.66	0.30		1.83	1.44		1.37	1.41	
Uniform Delay, d1	39.7	29.7	27.2	26.4	22.4		34.6	37.6		31.6	39.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	176.4	0.2	0.1	4.0	0.1		390.2	200.7		202.2	188.2	
Delay (s)	216.1	29.9	27.2	30.4	22.5		424.8	238.4		233.7	227.9	
Level of Service	F	C	C	C	C		F	F		F	F	
Approach Delay (s)		108.3			25.3			265.3			228.5	
Approach LOS		F			C			F			F	

Intersection Summary			
HCM 2000 Control Delay	204.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.60		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	107.5%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1512	1	731	661	0	1143
Future Volume (vph)	1512	1	731	661	0	1143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	170.0		30.0	0.0
Storage Lanes		0	2		1	1
Taper Length (m)			15.0		50.0	
Lane Util. Factor	0.95	0.95	0.97	0.95	1.00	1.00
Frt						0.850
Flt Protected			0.950			
Satd. Flow (prot)	3500	0	3330	3466	1842	1566
Flt Permitted			0.950			
Satd. Flow (perm)	3500	0	3330	3466	1842	1566
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						323
Link Speed (k/h)	60			60	50	
Link Distance (m)	657.5			396.1	222.0	
Travel Time (s)	39.5			23.8	16.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	4%	3%	2%	2%
Adj. Flow (vph)	1643	1	795	718	0	1242
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1644	0	795	718	0	1242
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.0			7.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	10.0		2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6		2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	2		1	6	3	



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases						3
Detector Phase	2		1	6	3	3
Switch Phase						
Minimum Initial (s)	10.0		7.0	10.0	7.0	7.0
Minimum Split (s)	28.4		11.0	28.4	31.0	31.0
Total Split (s)	47.0		21.0	68.0	52.0	52.0
Total Split (%)	39.2%		17.5%	56.7%	43.3%	43.3%
Maximum Green (s)	40.6		17.0	61.6	48.0	48.0
Yellow Time (s)	3.7		3.0	3.7	3.0	3.0
All-Red Time (s)	2.7		1.0	2.7	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4		4.0	6.4	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	Max		None	None	Max	Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	15.0			15.0	20.0	20.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	40.6		17.0	61.6		48.0
Actuated g/C Ratio	0.34		0.14	0.51		0.40
v/c Ratio	1.39		1.69	0.40		1.51
Control Delay	212.8		351.2	18.8		260.8
Queue Delay	0.0		0.0	0.0		0.0
Total Delay	212.8		351.2	18.8		260.8
LOS	F		F	B		F
Approach Delay	212.8			193.5	260.8	
Approach LOS	F			F	F	
Queue Length 50th (m)	~271.2		~141.2	52.6		~362.1
Queue Length 95th (m)	#313.5		#178.8	66.8		#442.8
Internal Link Dist (m)	633.5			372.1	198.0	
Turn Bay Length (m)			170.0			
Base Capacity (vph)	1184		471	1779		820
Starvation Cap Reductn	0		0	0		0
Spillback Cap Reductn	0		0	0		0
Storage Cap Reductn	0		0	0		0
Reduced v/c Ratio	1.39		1.69	0.40		1.51

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.69			
Intersection Signal Delay: 219.7		Intersection LOS: F	
Intersection Capacity Utilization 121.3%		ICU Level of Service H	
Analysis Period (min) 15			

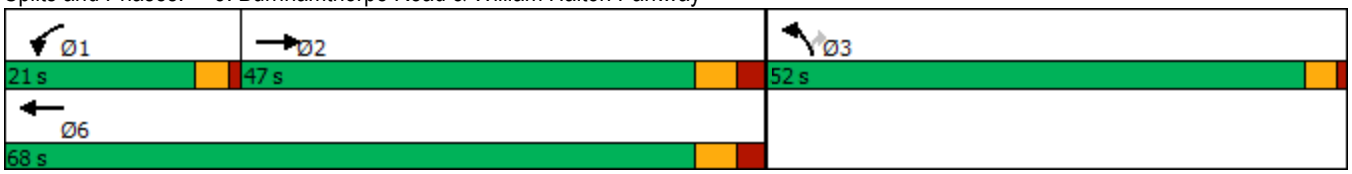
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

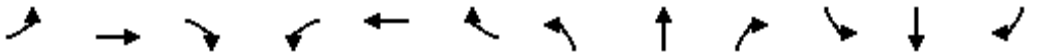
Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway



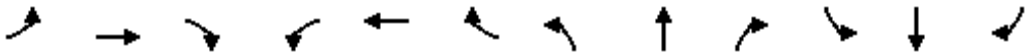


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1512	1	731	661	0	1143
Future Volume (vph)	1512	1	731	661	0	1143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4		4.0	6.4		4.0
Lane Util. Factor	0.95		0.97	0.95		1.00
Frt	1.00		1.00	1.00		0.85
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	3500		3330	3466		1566
Flt Permitted	1.00		0.95	1.00		1.00
Satd. Flow (perm)	3500		3330	3466		1566
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1643	1	795	718	0	1242
RTOR Reduction (vph)	0	0	0	0	0	194
Lane Group Flow (vph)	1644	0	795	718	0	1048
Heavy Vehicles (%)	2%	2%	4%	3%	2%	2%
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	2		1	6	3	
Permitted Phases						3
Actuated Green, G (s)	40.6		17.0	61.6		48.0
Effective Green, g (s)	40.6		17.0	61.6		48.0
Actuated g/C Ratio	0.34		0.14	0.51		0.40
Clearance Time (s)	6.4		4.0	6.4		4.0
Vehicle Extension (s)	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	1184		471	1779		626
v/s Ratio Prot	c0.47		c0.24	0.21		
v/s Ratio Perm						c0.67
v/c Ratio	1.39		1.69	0.40		1.67
Uniform Delay, d1	39.7		51.5	17.9		36.0
Progression Factor	1.00		1.00	1.00		1.00
Incremental Delay, d2	180.1		318.7	0.2		310.5
Delay (s)	219.8		370.2	18.1		346.5
Level of Service	F		F	B		F
Approach Delay (s)	219.8			203.1	346.5	
Approach LOS	F			F	F	

Intersection Summary			
HCM 2000 Control Delay	249.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.57		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.4
Intersection Capacity Utilization	121.3%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	589	2183	245	266	1249	621	197	1376	125	888	2080	464
Future Volume (vph)	589	2183	245	266	1249	621	197	1376	125	888	2080	464
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	160.0		85.0	95.0		260.0	90.0		50.0	250.0		100.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Ped Bike Factor	1.00		0.99	1.00		0.98	1.00		0.99	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	4421	1551	3298	4214	1536	3330	4378	1566	3330	4378	1551
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3393	4421	1529	3298	4214	1512	3329	4378	1543	3328	4378	1523
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			149			151			96			143
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		560.5			603.0			601.7			1233.0	
Travel Time (s)		28.8			31.0			36.1			74.0	
Confl. Peds. (#/hr)	4		2	2		4	6		3	3		6
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	3%	5%	7%	4%	4%	3%	2%	4%	3%	3%
Adj. Flow (vph)	614	2274	255	277	1301	647	205	1433	130	925	2167	483
Shared Lane Traffic (%)												
Lane Group Flow (vph)	614	2274	255	277	1301	647	205	1433	130	925	2167	483
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	50.4	50.4	11.0	50.4	50.4	11.0	48.4	48.4	11.0	48.4	48.4
Total Split (s)	14.0	57.0	57.0	12.0	55.0	55.0	12.0	49.0	49.0	12.0	49.0	49.0
Total Split (%)	10.8%	43.8%	43.8%	9.2%	42.3%	42.3%	9.2%	37.7%	37.7%	9.2%	37.7%	37.7%
Maximum Green (s)	10.0	50.6	50.6	8.0	48.6	48.6	8.0	42.6	42.6	8.0	42.6	42.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		37.0	37.0		37.0	37.0		35.0	35.0		35.0	35.0
Pedestrian Calls (#/hr)		2	2		4	4		3	3		6	6
Act Effct Green (s)	10.0	50.6	50.6	8.0	48.6	48.6	8.0	42.6	42.6	8.0	42.6	42.6
Actuated g/C Ratio	0.08	0.39	0.39	0.06	0.37	0.37	0.06	0.33	0.33	0.06	0.33	0.33
v/c Ratio	2.35	1.32	0.37	1.37	0.83	0.98	1.00	1.00	0.23	4.53	1.51	0.81
Control Delay	645.9	182.9	13.0	239.4	42.3	62.1	124.5	67.2	11.1	1615.0	266.2	39.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	645.9	182.9	13.0	239.4	42.3	62.1	124.5	67.2	11.1	1615.0	266.2	39.9
LOS	F	F	B	F	D	E	F	E	B	F	F	D
Approach Delay		259.5			72.6			69.7			584.6	
Approach LOS		F			E			E			F	
Queue Length 50th (m)	~132.6	~313.5	17.7	~48.1	124.7	134.8	~27.5	152.5	6.0	~225.6	~321.4	82.9
Queue Length 95th (m)	#168.8	#345.4	38.9	#76.1	146.9	#214.6	#53.0	#192.4	20.4	#265.1	#353.8	#137.8
Internal Link Dist (m)		536.5			579.0			577.7			1209.0	
Turn Bay Length (m)	160.0		85.0	95.0		260.0	90.0		50.0	250.0		100.0
Base Capacity (vph)	261	1720	686	202	1575	659	204	1434	570	204	1434	595
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.35	1.32	0.37	1.37	0.83	0.98	1.00	1.00	0.23	4.53	1.51	0.81

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 4.53	
Intersection Signal Delay: 297.9	Intersection LOS: F

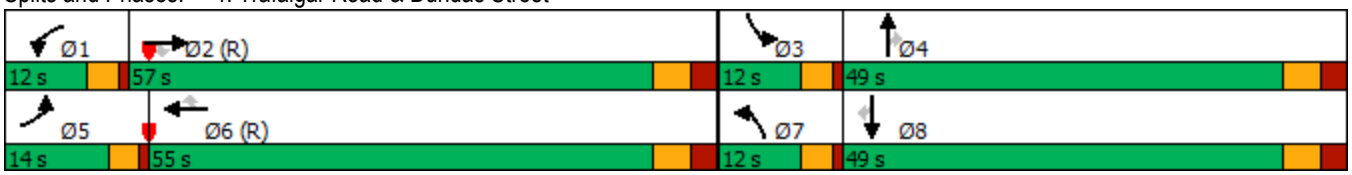
Intersection Capacity Utilization 123.5%	ICU Level of Service H
Analysis Period (min) 15	

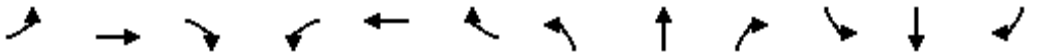
* User Entered Value

~ 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.

Splits and Phases: 4: Trafalgar Road & Dundas Street

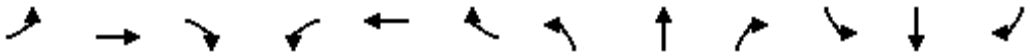




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	589	2183	245	266	1249	621	197	1376	125	888	2080	464
Future Volume (vph)	589	2183	245	266	1249	621	197	1376	125	888	2080	464
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	4421	1529	3298	4214	1512	3330	4378	1543	3330	4378	1523
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	4421	1529	3298	4214	1512	3330	4378	1543	3330	4378	1523
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	614	2274	255	277	1301	647	205	1433	130	925	2167	483
RTOR Reduction (vph)	0	0	91	0	0	95	0	0	65	0	0	96
Lane Group Flow (vph)	614	2274	164	277	1301	552	205	1433	65	925	2167	387
Confl. Peds. (#/hr)	4		2	2		4	6		3	3		6
Heavy Vehicles (%)	2%	2%	3%	5%	7%	4%	4%	3%	2%	4%	3%	3%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	10.0	50.6	50.6	8.0	48.6	48.6	8.0	42.6	42.6	8.0	42.6	42.6
Effective Green, g (s)	10.0	50.6	50.6	8.0	48.6	48.6	8.0	42.6	42.6	8.0	42.6	42.6
Actuated g/C Ratio	0.08	0.39	0.39	0.06	0.37	0.37	0.06	0.33	0.33	0.06	0.33	0.33
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Lane Grp Cap (vph)	261	1720	595	202	1575	565	204	1434	505	204	1434	499
v/s Ratio Prot	c0.18	c0.51		0.08	0.31		0.06	0.33		c0.28	c0.49	
v/s Ratio Perm			0.11			0.37			0.04			0.25
v/c Ratio	2.35	1.32	0.28	1.37	0.83	0.98	1.00	1.00	0.13	4.53	1.51	0.78
Uniform Delay, d1	60.0	39.7	27.2	61.0	36.9	40.2	61.0	43.7	30.7	61.0	43.7	39.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	620.4	149.1	1.1	195.2	5.1	32.8	64.3	23.4	0.1	1601.7	233.7	7.6
Delay (s)	680.4	188.8	28.3	256.2	42.0	72.9	125.3	67.1	30.8	1662.7	277.4	47.0
Level of Service	F	F	C	F	D	E	F	E	C	F	F	D
Approach Delay (s)		271.8			77.6			71.2			604.7	
Approach LOS		F			E			E			F	

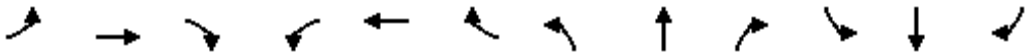
Intersection Summary			
HCM 2000 Control Delay	309.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.74		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	123.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



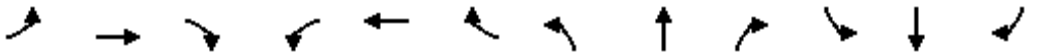
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	270	604	95	81	403	182	43	342	218	826	285	331
Future Volume (vph)	270	604	95	81	403	182	43	342	218	826	285	331
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.985			0.961			0.946			0.964	
Flt Protected		0.986			0.994			0.996			0.973	
Satd. Flow (prot)	0	3399	0	0	3343	0	0	3298	0	0	3283	0
Flt Permitted		0.986			0.994			0.996			0.973	
Satd. Flow (perm)	0	3399	0	0	3343	0	0	3298	0	0	3283	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		481.1			830.2			671.5			229.3	
Travel Time (s)		28.9			49.8			40.3			13.8	
Peak Hour Factor	0.90	0.90	0.90	0.96	0.90	0.96	0.90	0.96	0.96	0.96	0.96	0.90
Adj. Flow (vph)	300	671	106	84	448	190	48	356	227	860	297	368
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1077	0	0	722	0	0	631	0	0	1525	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization	123.7%	ICU Level of Service	H
Analysis Period (min)	15		

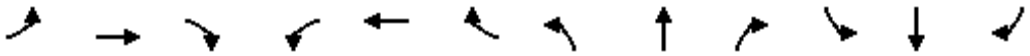


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	270	604	95	81	403	182	43	342	218	826	285	331
Future Volume (veh/h)	270	604	95	81	403	182	43	342	218	826	285	331
Peak Hour Factor	0.90	0.90	0.90	0.96	0.90	0.96	0.90	0.96	0.96	0.96	0.96	0.90
Hourly flow rate (vph)	300	671	106	84	448	190	48	356	227	860	297	368
Approach Volume (veh/h)		1077			722			631			1525	
Crossing Volume (veh/h)		1241#			704			1831#			580	
High Capacity (veh/h)		510			792			310			875	
High v/c (veh/h)		2.11			0.91			2.03			1.74	
Low Capacity (veh/h)		387			630			222			703	
Low v/c (veh/h)		2.78			1.15			2.84			2.17	

Intersection Summary					
Maximum v/c High	2.11				
Maximum v/c Low	2.84				
Intersection Capacity Utilization	123.7%	ICU Level of Service		H	
# Crossing flow exceeds 1200, method is not applicable					



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	145	49	133	214	42	184	698	163	87	557	11
Future Volume (vph)	58	145	49	133	214	42	184	698	163	87	557	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	40.0		0.0	40.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			50.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.962			0.975			0.972			0.997	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3367	0	1684	3310	0	1750	3377	0	1700	3456	0
Flt Permitted	0.576			0.615			0.407			0.265		
Satd. Flow (perm)	1061	3367	0	1090	3310	0	750	3377	0	474	3456	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		54			26			49			3	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		241.5			345.8			328.3			671.5	
Travel Time (s)		17.4			24.9			19.7			40.3	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	2%	6%	4%	11%	2%	2%	6%	5%	3%	2%
Adj. Flow (vph)	65	163	55	149	240	47	207	784	183	98	626	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	218	0	149	287	0	207	967	0	98	638	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	

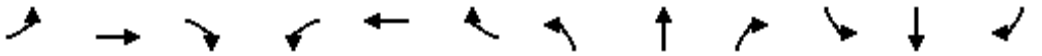


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	34.5	34.5		34.5	34.5		50.4	50.4		50.4	50.4	
Total Split (s)	35.0	35.0		35.0	35.0		55.0	55.0		55.0	55.0	
Total Split (%)	38.9%	38.9%		38.9%	38.9%		61.1%	61.1%		61.1%	61.1%	
Maximum Green (s)	28.5	28.5		28.5	28.5		48.6	48.6		48.6	48.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.2	3.2		3.2	3.2		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		19.0	19.0		19.0	19.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	16.2	16.2		16.2	16.2		48.8	48.8		48.8	48.8	
Actuated g/C Ratio	0.21	0.21		0.21	0.21		0.63	0.63		0.63	0.63	
v/c Ratio	0.30	0.29		0.66	0.41		0.44	0.45		0.33	0.29	
Control Delay	28.9	19.8		42.4	25.4		12.8	8.8		12.5	7.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	28.9	19.8		42.4	25.4		12.8	8.8		12.5	7.8	
LOS	C	B		D	C		B	A		B	A	
Approach Delay		21.9			31.2			9.5			8.5	
Approach LOS		C			C			A			A	
Queue Length 50th (m)	8.1	10.6		20.2	17.4		13.6	31.6		5.9	19.5	
Queue Length 95th (m)	18.0	18.7		37.5	27.2		38.0	59.4		19.9	37.4	
Internal Link Dist (m)		217.5			321.8			304.3			647.5	
Turn Bay Length (m)	55.0			40.0			40.0			30.0		
Base Capacity (vph)	389	1270		399	1231		469	2132		296	2164	
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	0.17	0.17		0.37	0.23		0.44	0.45		0.33	0.29	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 78			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 14.1		Intersection LOS: B	
Intersection Capacity Utilization 71.0%		ICU Level of Service C	
Analysis Period (min) 15			

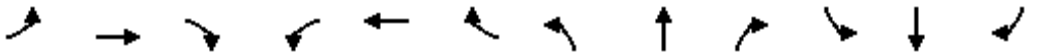
Splits and Phases: 6: Sixth Line & Burnhamthorpe Road



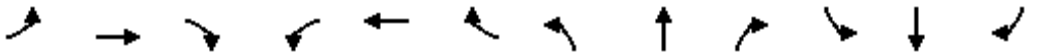


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	145	49	133	214	42	184	698	163	87	557	11
Future Volume (vph)	58	145	49	133	214	42	184	698	163	87	557	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.98		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)	1750	3367		1684	3312		1750	3375		1700	3457	
Flt Permitted	0.58	1.00		0.62	1.00		0.41	1.00		0.27	1.00	
Satd. Flow (perm)	1061	3367		1091	3312		750	3375		475	3457	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	65	163	55	149	240	47	207	784	183	98	626	12
RTOR Reduction (vph)	0	43	0	0	21	0	0	18	0	0	1	0
Lane Group Flow (vph)	65	175	0	149	266	0	207	949	0	98	637	0
Heavy Vehicles (%)	2%	2%	2%	6%	4%	11%	2%	2%	6%	5%	3%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	16.2	16.2		16.2	16.2		48.8	48.8		48.8	48.8	
Effective Green, g (s)	16.2	16.2		16.2	16.2		48.8	48.8		48.8	48.8	
Actuated g/C Ratio	0.21	0.21		0.21	0.21		0.63	0.63		0.63	0.63	
Clearance Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	220	700		226	688		469	2114		297	2165	
v/s Ratio Prot		0.05			0.08			c0.28			0.18	
v/s Ratio Perm	0.06			c0.14			0.28			0.21		
v/c Ratio	0.30	0.25		0.66	0.39		0.44	0.45		0.33	0.29	
Uniform Delay, d1	26.0	25.8		28.3	26.6		7.5	7.6		6.9	6.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.2		6.8	0.4		3.0	0.7		3.0	0.3	
Delay (s)	26.8	26.0		35.1	26.9		10.5	8.3		9.8	7.0	
Level of Service	C	C		D	C		B	A		A	A	
Approach Delay (s)		26.2			29.7			8.6			7.4	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	77.9	Sum of lost time (s)	12.9
Intersection Capacity Utilization	71.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	2	357	0	3	2	2249	0	0	1878	0
Future Volume (vph)	3	0	2	357	0	3	2	2249	0	0	1878	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		5.0	0.0		60.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		1	1		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt			0.850			0.850						
Flt Protected	0.950			0.950	0.950		0.950					
Satd. Flow (prot)	1069	0	1566	1449	1388	1487	1190	3305	0	0	4749	0
Flt Permitted	0.456			0.950	0.950		0.062					
Satd. Flow (perm)	513	0	1566	1449	1388	1487	78	3305	0	0	4749	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79			79						
Link Speed (k/h)		20			60			80			80	
Link Distance (m)		81.5			394.8			34.5			189.8	
Travel Time (s)		14.7			23.7			1.6			8.5	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	67%	2%	2%	17%	2%	2%	50%	8%	2%	2%	8%	2%
Adj. Flow (vph)	3	0	2	401	0	3	2	2527	0	0	2110	0
Shared Lane Traffic (%)				50%		10%						
Lane Group Flow (vph)	3	0	2	200	201	3	2	2527	0	0	2110	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1		1	1	2	1	1	2			2	
Detector Template	Left		Right	Left	Thru	Right	Left	Thru			Thru	
Leading Detector (m)	2.0		2.0	2.0	10.0	2.0	2.0	10.0			10.0	
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Size(m)	2.0		2.0	2.0	0.6	2.0	2.0	0.6			0.6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 2 Position(m)					9.4			9.4			9.4	
Detector 2 Size(m)					0.6			0.6			0.6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	



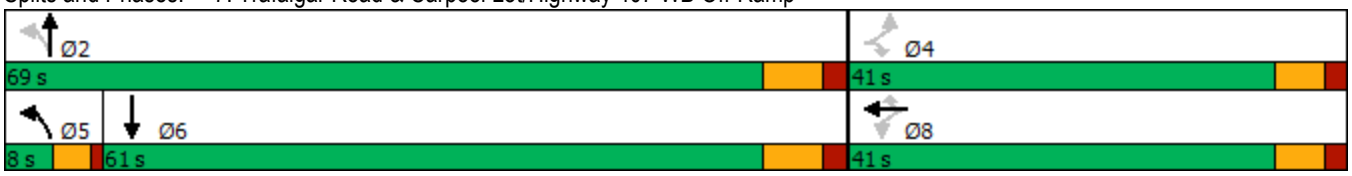
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8		8	2					
Detector Phase	4		4	8	8	8	5	2			6	
Switch Phase												
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	4.0	35.0			35.0	
Minimum Split (s)	13.0		13.0	13.0	13.0	13.0	8.0	42.0			42.0	
Total Split (s)	41.0		41.0	41.0	41.0	41.0	8.0	69.0			61.0	
Total Split (%)	37.3%		37.3%	37.3%	37.3%	37.3%	7.3%	62.7%			55.5%	
Maximum Green (s)	35.0		35.0	35.0	35.0	35.0	4.0	62.0			54.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0	3.0	5.0			5.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0	1.0	2.0			2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Recall Mode	None		None	None	None	None	None	Min			Min	
Act Effct Green (s)	18.7		18.7	18.7	18.7	18.7	65.2	62.2			60.7	
Actuated g/C Ratio	0.20		0.20	0.20	0.20	0.20	0.69	0.66			0.65	
v/c Ratio	0.03		0.01	0.70	0.73	0.01	0.02	1.15			0.69	
Control Delay	29.3		0.0	47.9	50.8	0.0	6.5	94.4			13.6	
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	29.3		0.0	47.9	50.8	0.0	6.5	94.4			13.6	
LOS	C		A	D	D	A	A	F			B	
Approach Delay		17.6			49.0			94.3			13.6	
Approach LOS		B			D			F			B	
Queue Length 50th (m)	0.5		0.0	35.5	37.6	0.0	0.1	~285.3			75.1	
Queue Length 95th (m)	2.7		0.0	58.3	61.7	0.0	0.9	#368.1			143.0	
Internal Link Dist (m)		57.5			370.8			10.5			165.8	
Turn Bay Length (m)			5.0			60.0						
Base Capacity (vph)	191		635	541	518	605	101	2189			3071	
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	0.02		0.00	0.37	0.39	0.00	0.02	1.15			0.69	

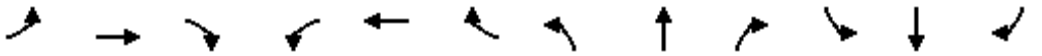
Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 93.9			
Natural Cycle: 120			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.15			
Intersection Signal Delay: 56.9		Intersection LOS: E	
Intersection Capacity Utilization 89.6%		ICU Level of Service E	
Analysis Period (min) 15			

~ 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.

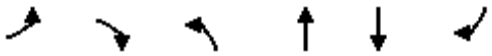
Splits and Phases: 7: Trafalgar Road & Carpool Lot/Highway 407 WB Off-Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	2	357	0	3	2	2249	0	0	1878	0
Future Volume (vph)	3	0	2	357	0	3	2	2249	0	0	1878	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	6.0	4.0	7.0			7.0	
Lane Util. Factor	1.00		1.00	0.95	0.91	0.95	1.00	0.95			0.91	
Frt	1.00		0.85	1.00	1.00	0.85	1.00	1.00			1.00	
Flt Protected	0.95		1.00	0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1069		1566	1449	1388	1487	1190	3305			4749	
Flt Permitted	0.46		1.00	0.95	0.95	1.00	0.06	1.00			1.00	
Satd. Flow (perm)	513		1566	1449	1388	1487	77	3305			4749	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	3	0	2	401	0	3	2	2527	0	0	2110	0
RTOR Reduction (vph)	0	0	2	0	0	2	0	0	0	0	0	0
Lane Group Flow (vph)	3	0	0	200	201	1	2	2527	0	0	2110	0
Heavy Vehicles (%)	67%	2%	2%	17%	2%	2%	50%	8%	2%	2%	8%	2%
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	
Permitted Phases	4		4	8		8	2					
Actuated Green, G (s)	18.7		18.7	18.7	18.7	18.7	65.4	65.4			60.7	
Effective Green, g (s)	18.7		18.7	18.7	18.7	18.7	65.4	65.4			60.7	
Actuated g/C Ratio	0.19		0.19	0.19	0.19	0.19	0.67	0.67			0.63	
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)	98		301	279	267	286	59	2226			2968	
v/s Ratio Prot							0.00	c0.76			0.44	
v/s Ratio Perm	0.01		0.00	0.14	0.14	0.00	0.02					
v/c Ratio	0.03		0.00	0.72	0.75	0.00	0.03	1.14			0.71	
Uniform Delay, d1	31.8		31.7	36.7	37.0	31.7	8.3	15.8			12.3	
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.1		0.0	8.5	11.4	0.0	0.2	67.0			0.8	
Delay (s)	32.0		31.7	45.2	48.4	31.7	8.5	82.9			13.1	
Level of Service	C		C	D	D	C	A	F			B	
Approach Delay (s)		31.8			46.7			82.8			13.1	
Approach LOS		C			D			F			B	

Intersection Summary			
HCM 2000 Control Delay	50.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	97.1	Sum of lost time (s)	17.0
Intersection Capacity Utilization	89.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↑↑↑	↑↑	↱
Traffic Volume (vph)	0	0	0	2305	2238	32
Future Volume (vph)	0	0	0	2305	2238	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.95	1.00
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	4749	3275	1536
Flt Permitted						
Satd. Flow (perm)	0	0	0	4749	3275	1536
Link Speed (k/h)	60			80	80	
Link Distance (m)	161.4			55.2	34.5	
Travel Time (s)	9.7			2.5	1.6	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	2%	8%	9%	4%
Adj. Flow (vph)	0	0	0	2590	2515	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2590	2515	36
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 67.0%		ICU Level of Service C	
Analysis Period (min) 15			

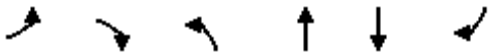
Intersection Sign configuration not allowed in HCM analysis.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	2305	188	0	2238
Future Volume (vph)	0	0	2305	188	0	2238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt				0.850		
Flt Protected						
Satd. Flow (prot)	0	0	3305	1229	0	3275
Flt Permitted						
Satd. Flow (perm)	0	0	3305	1229	0	3275
Link Speed (k/h)	30		80			80
Link Distance (m)	192.3		37.4			100.8
Travel Time (s)	23.1		1.7			4.5
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	8%	30%	2%	9%
Adj. Flow (vph)	0	0	2590	211	0	2515
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	2590	211	0	2515
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Free		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 67.0%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection Sign configuration not allowed in HCM analysis.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	55	335	0	2435	2081	0
Future Volume (vph)	55	335	0	2435	2081	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	0.95	0.95	1.00
Frt	0.891	0.850				
Flt Protected	0.986					
Satd. Flow (prot)	1484	1331	0	3275	3305	0
Flt Permitted	0.986					
Satd. Flow (perm)	1484	1331	0	3275	3305	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	2	2				
Link Speed (k/h)	60			80	80	
Link Distance (m)	417.0			117.5	129.7	
Travel Time (s)	25.0			5.3	5.8	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	14%	2%	9%	8%	2%
Adj. Flow (vph)	60	368	0	2676	2287	0
Shared Lane Traffic (%)		43%				
Lane Group Flow (vph)	218	210	0	2676	2287	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (m)	2.0	2.0		10.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	2.0		0.6	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						

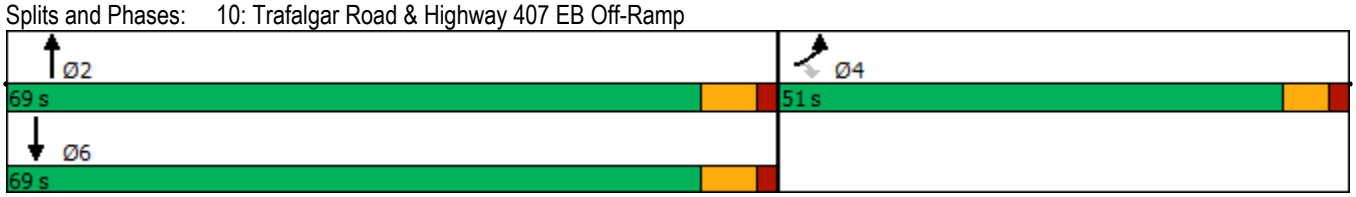
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Initial (s)	6.0	6.0		20.0	20.0	
Minimum Split (s)	24.0	24.0		27.0	27.0	
Total Split (s)	51.0	51.0		69.0	69.0	
Total Split (%)	42.5%	42.5%		57.5%	57.5%	
Maximum Green (s)	45.0	45.0		62.0	62.0	
Yellow Time (s)	4.0	4.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		7.0	7.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		Max	Max	
Act Effct Green (s)	19.9	19.9		62.2	62.2	
Actuated g/C Ratio	0.21	0.21		0.65	0.65	
v/c Ratio	0.70	0.75		1.25	1.06	
Control Delay	46.7	51.8		136.7	56.1	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	46.7	51.8		136.7	56.1	
LOS	D	D		F	E	
Approach Delay	49.2			136.7	56.1	
Approach LOS	D			F	E	
Queue Length 50th (m)	36.9	37.8		~324.0	~243.5	
Queue Length 95th (m)	60.2	62.9		#418.6	#331.2	
Internal Link Dist (m)	393.0			93.5	105.7	
Turn Bay Length (m)						
Base Capacity (vph)	705	632		2141	2160	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.31	0.33		1.25	1.06	

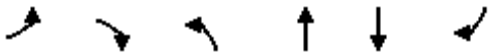
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 95.2			
Natural Cycle: 130			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.25			
Intersection Signal Delay: 95.6		Intersection LOS: F	
Intersection Capacity Utilization 88.1%		ICU Level of Service E	
Analysis Period (min) 15			

~ 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.

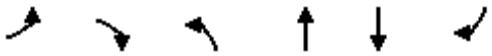
Splits and Phases: 10: Trafalgar Road & Highway 407 EB Off-Ramp





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	55	335	0	2435	2081	0
Future Volume (vph)	55	335	0	2435	2081	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		0.95	0.95	
Frt	0.89	0.85		1.00	1.00	
Flt Protected	0.99	1.00		1.00	1.00	
Satd. Flow (prot)	1485	1331		3275	3305	
Flt Permitted	0.99	1.00		1.00	1.00	
Satd. Flow (perm)	1485	1331		3275	3305	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	60	368	0	2676	2287	0
RTOR Reduction (vph)	2	2	0	0	0	0
Lane Group Flow (vph)	216	208	0	2676	2287	0
Heavy Vehicles (%)	4%	14%	2%	9%	8%	2%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	19.9	19.9		62.2	62.2	
Effective Green, g (s)	19.9	19.9		62.2	62.2	
Actuated g/C Ratio	0.21	0.21		0.65	0.65	
Clearance Time (s)	6.0	6.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	310	278		2142	2161	
v/s Ratio Prot	0.15			c0.82	0.69	
v/s Ratio Perm		c0.16				
v/c Ratio	0.70	0.75		1.25	1.06	
Uniform Delay, d1	34.8	35.3		16.4	16.4	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.7	10.6		116.2	37.0	
Delay (s)	41.5	45.8		132.7	53.4	
Level of Service	D	D		F	D	
Approach Delay (s)	43.6			132.7	53.4	
Approach LOS	D			F	D	

Intersection Summary			
HCM 2000 Control Delay	92.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	95.1	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	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	2490	2081	27
Future Volume (vph)	0	0	0	2490	2081	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	3275	3305	1465
Flt Permitted						
Satd. Flow (perm)	0	0	0	3275	3305	1465
Link Speed (k/h)	30			80	80	
Link Distance (m)	110.1			129.7	37.4	
Travel Time (s)	13.2			5.8	1.7	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	2%	2%	2%	9%	8%	9%
Adj. Flow (vph)	0	0	0	2736	2287	30
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2736	2287	30
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 88.1%		ICU Level of Service E	
Analysis Period (min) 15			

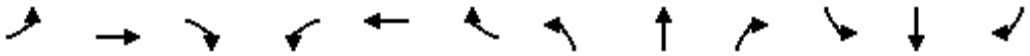
Intersection Sign configuration not allowed in HCM analysis.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	2435	390	0	2417
Future Volume (vph)	0	0	2435	390	0	2417
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.91
Frt				0.850		
Flt Protected						
Satd. Flow (prot)	0	0	3275	1521	0	4749
Flt Permitted						
Satd. Flow (perm)	0	0	3275	1521	0	4749
Link Speed (k/h)	50		80			80
Link Distance (m)	247.7		145.5			117.5
Travel Time (s)	17.8		6.5			5.3
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	2%	2%	9%	5%	2%	8%
Adj. Flow (vph)	0	0	2676	429	0	2656
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	2676	429	0	2656
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Free		Free			Free

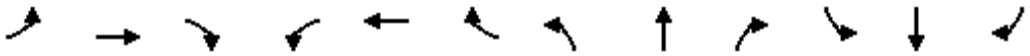
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 70.6%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection Sign configuration not allowed in HCM analysis.



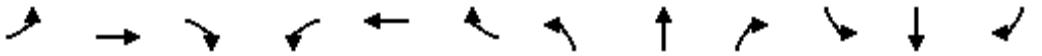
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	1916	498	111	1087	100	273	367	104	209	660	93
Future Volume (vph)	114	1916	498	111	1087	100	273	367	104	209	660	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.970			0.988			0.979			0.986	
Flt Protected		0.998			0.996			0.982			0.989	
Satd. Flow (prot)	0	3321	0	0	3411	0	0	3124	0	0	3413	0
Flt Permitted		0.998			0.996			0.982			0.989	
Satd. Flow (perm)	0	3321	0	0	3411	0	0	3124	0	0	3413	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		234.8			101.3			357.8			260.8	
Travel Time (s)		14.1			6.1			21.5			15.6	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	4%	2%	12%	2%	3%	4%	23%	2%	3%	2%	2%	2%
Adj. Flow (vph)	128	2153	560	125	1221	112	307	412	117	235	742	104
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2841	0	0	1458	0	0	836	0	0	1081	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 170.6%		ICU Level of Service H	
Analysis Period (min) 15			

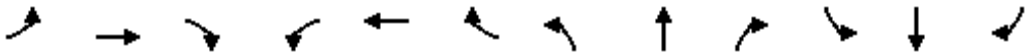


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	114	1916	498	111	1087	100	273	367	104	209	660	93
Future Volume (veh/h)	114	1916	498	111	1087	100	273	367	104	209	660	93
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	128	2153	560	125	1221	112	307	412	117	235	742	104
Approach Volume (veh/h)		2841			1458			836			1081	
Crossing Volume (veh/h)		1102			847			2516#			1653#	
High Capacity (veh/h)		572			705			171			361	
High v/c (veh/h)		4.96			2.07			4.89			2.99	
Low Capacity (veh/h)		440			554			114			263	
Low v/c (veh/h)		6.46			2.63			7.33			4.10	

Intersection Summary				
Maximum v/c High	4.96			
Maximum v/c Low	7.33			
Intersection Capacity Utilization	170.6%	ICU Level of Service	H	
# Crossing flow exceeds 1200, method is not applicable				



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	1591	67	374	602	206	41	62	331	118	8	7
Future Volume (vph)	25	1591	67	374	602	206	41	62	331	118	8	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	50.0		30.0	30.0		0.0	40.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00				0.97	0.99	0.98		1.00	0.99	
Frt		0.994				0.850		0.874			0.929	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3474	0	1750	3500	1566	1750	1580	0	1750	1694	0
Flt Permitted	0.397			0.072			0.746			0.199		
Satd. Flow (perm)	728	3474	0	133	3500	1513	1366	1580	0	366	1694	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				229		227			8	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		830.2			198.4			579.5			190.6	
Travel Time (s)		49.8			11.9			41.7			13.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	28	1768	74	416	669	229	46	69	368	131	9	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	1842	0	416	669	229	46	437	0	131	17	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6		6	4			8		
Detector Phase	2	2		1	6	6	4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		7.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	32.1	32.1		11.5	32.1	32.1	34.4	34.4		34.4	34.4	
Total Split (s)	57.0	57.0		22.0	79.0	79.0	41.0	41.0		41.0	41.0	
Total Split (%)	47.5%	47.5%		18.3%	65.8%	65.8%	34.2%	34.2%		34.2%	34.2%	
Maximum Green (s)	51.9	51.9		18.0	73.9	73.9	35.6	35.6		35.6	35.6	
Yellow Time (s)	3.7	3.7		3.0	3.7	3.7	3.3	3.3		3.3	3.3	
All-Red Time (s)	1.4	1.4		1.0	1.4	1.4	2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.1	5.1		4.0	5.1	5.1	5.4	5.4		5.4	5.4	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		None	Max	Max	None	None		None	None	
Walk Time (s)	7.0	7.0			7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	20.0	20.0			20.0	20.0	22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)	5	5			5	5	5	5		5	5	
Act Effct Green (s)	51.9	51.9		75.0	73.9	73.9	35.6	35.6		35.6	35.6	
Actuated g/C Ratio	0.43	0.43		0.62	0.62	0.62	0.30	0.30		0.30	0.30	
v/c Ratio	0.09	1.22		1.28	0.31	0.22	0.11	0.70		1.21	0.03	
Control Delay	21.2	138.9		179.2	11.4	1.8	31.8	24.0		192.8	21.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	21.2	138.9		179.2	11.4	1.8	31.8	24.0		192.8	21.3	
LOS	C	F		F	B	A	C	C		F	C	
Approach Delay		137.1			62.9			24.7			173.1	
Approach LOS		F			E			C			F	
Queue Length 50th (m)	3.8	~282.1		~108.8	36.8	0.0	7.9	44.1		~37.6	1.5	
Queue Length 95th (m)	9.9	#325.2		#170.6	47.1	9.1	17.1	81.9		#76.8	7.0	
Internal Link Dist (m)		806.2			174.4			555.5			166.6	
Turn Bay Length (m)	30.0			50.0		30.0	30.0			40.0		
Base Capacity (vph)	314	1504		325	2155	1019	405	628		108	508	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.09	1.22		1.28	0.31	0.22	0.11	0.70		1.21	0.03	

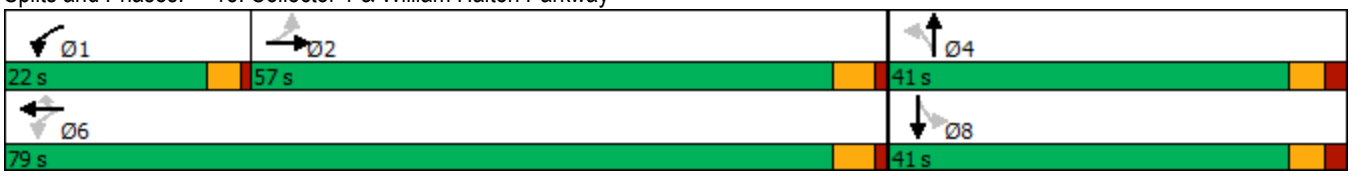
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 130			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.28			
Intersection Signal Delay: 98.7		Intersection LOS: F	
Intersection Capacity Utilization 115.9%		ICU Level of Service H	

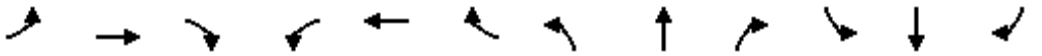
Analysis Period (min) 15

~ 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.

Splits and Phases: 15: Collector 1 & William Halton Parkway

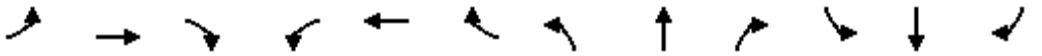




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	1591	67	374	602	206	41	62	331	118	8	7
Future Volume (vph)	25	1591	67	374	602	206	41	62	331	118	8	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1		4.0	5.1	5.1	5.4	5.4		5.4	5.4	
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	0.97	1.00	0.98		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	0.99	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.87		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1742	3474		1750	3500	1513	1739	1580		1746	1694	
Flt Permitted	0.40	1.00		0.07	1.00	1.00	0.75	1.00		0.20	1.00	
Satd. Flow (perm)	729	3474		132	3500	1513	1366	1580		366	1694	
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)	28	1768	74	416	669	229	46	69	368	131	9	8
RTOR Reduction (vph)	0	2	0	0	0	88	0	160	0	0	6	0
Lane Group Flow (vph)	28	1840	0	416	669	141	46	277	0	131	11	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	51.9	51.9		73.9	73.9	73.9	35.6	35.6		35.6	35.6	
Effective Green, g (s)	51.9	51.9		73.9	73.9	73.9	35.6	35.6		35.6	35.6	
Actuated g/C Ratio	0.43	0.43		0.62	0.62	0.62	0.30	0.30		0.30	0.30	
Clearance Time (s)	5.1	5.1		4.0	5.1	5.1	5.4	5.4		5.4	5.4	
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)	315	1502		323	2155	931	405	468		108	502	
v/s Ratio Prot		0.53		c0.19	0.19			0.18			0.01	
v/s Ratio Perm	0.04			c0.60		0.09	0.03			c0.36		
v/c Ratio	0.09	1.22		1.29	0.31	0.15	0.11	0.59		1.21	0.02	
Uniform Delay, d1	20.1	34.0		40.1	10.9	9.8	30.7	36.0		42.2	29.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	107.3		151.0	0.4	0.3	0.1	2.0		154.7	0.0	
Delay (s)	20.7	141.4		191.1	11.3	10.1	30.8	38.0		196.9	29.9	
Level of Service	C	F		F	B	B	C	D		F	C	
Approach Delay (s)		139.6			68.0			37.3			177.7	
Approach LOS		F			E			D			F	

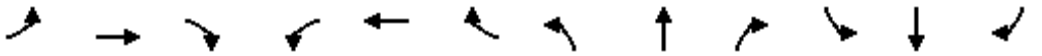
Intersection Summary			
HCM 2000 Control Delay	103.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.29		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	115.9%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	2022	18	0	944	98	0	0	123	0	0	238
Future Volume (vph)	0	2022	18	0	944	98	0	0	123	0	0	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		30.0	30.0		0.0	30.0		0.0
Storage Lanes	0		0	0		1	0		1	0		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999				0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3496	0	0	3500	1566	0	0	1593	0	0	1593
Flt Permitted												
Satd. Flow (perm)	0	3496	0	0	3500	1566	0	0	1593	0	0	1593
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		198.4			207.8			147.0			205.0	
Travel Time (s)		11.9			12.5			10.6			14.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	0	2247	20	0	1049	109	0	0	137	0	0	264
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2267	0	0	1049	109	0	0	137	0	0	264
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

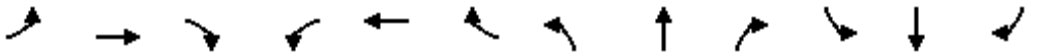
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 72.1%		ICU Level of Service C	
Analysis Period (min) 15			



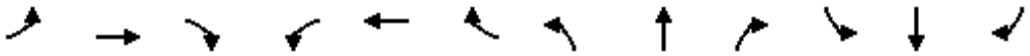
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2022	18	0	944	98	0	0	123	0	0	238
Future Volume (Veh/h)	0	2022	18	0	944	98	0	0	123	0	0	238
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	2247	20	0	1049	109	0	0	137	0	0	264
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		198			208							
pX, platoon unblocked	0.89			0.58			0.63	0.63	0.58	0.63	0.63	0.89
vC, conflicting volume	1163			2272			3056	3425	1144	2320	3326	534
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	939			1737			2312	2897	0	1145	2740	233
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	78	100	100	61
cM capacity (veh/h)	644			206			8	10	619	75	12	678

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	1498	769	524	524	109	137	264
Volume Left	0	0	0	0	0	0	0
Volume Right	0	20	0	0	109	137	264
cSH	1700	1700	1700	1700	1700	619	678
Volume to Capacity	0.88	0.45	0.31	0.31	0.06	0.22	0.39
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	6.4	14.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	12.5	13.6
Lane LOS						B	B
Approach Delay (s)	0.0		0.0			12.5	13.6
Approach LOS						B	B

Intersection Summary				
Average Delay	1.4			
Intersection Capacity Utilization	72.1%	ICU Level of Service		C
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	564	9	90	354	286	19	91	116	189	47	18
Future Volume (vph)	27	564	9	90	354	286	19	91	116	189	47	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	0.99		1.00	0.99		1.00	0.99	
Frt		0.998			0.933			0.916			0.958	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3491	0	1750	3218	0	1750	1669	0	1750	1755	0
Flt Permitted	0.361			0.398			0.710			0.564		
Satd. Flow (perm)	663	3491	0	731	3218	0	1302	1669	0	1035	1755	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			294			88			20	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		136.3			245.2			477.1			579.5	
Travel Time (s)		9.8			17.7			34.4			41.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	30	627	10	100	393	318	21	101	129	210	52	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	637	0	100	711	0	21	230	0	210	72	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

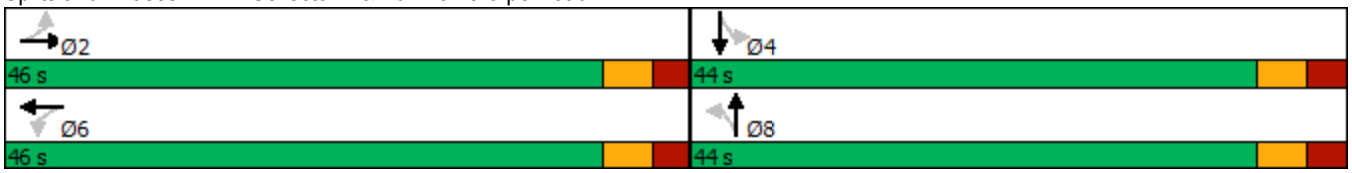


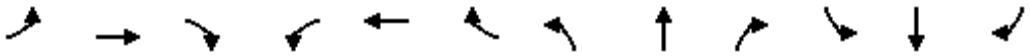
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	31.9	31.9		31.9	31.9		33.1	33.1		33.1	33.1	
Total Split (s)	46.0	46.0		46.0	46.0		44.0	44.0		44.0	44.0	
Total Split (%)	51.1%	51.1%		51.1%	51.1%		48.9%	48.9%		48.9%	48.9%	
Maximum Green (s)	40.1	40.1		40.1	40.1		37.9	37.9		37.9	37.9	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.6	2.6		2.6	2.6		2.8	2.8		2.8	2.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	
Act Effct Green (s)	40.4	40.4		40.4	40.4		18.8	18.8		18.8	18.8	
Actuated g/C Ratio	0.57	0.57		0.57	0.57		0.26	0.26		0.26	0.26	
v/c Ratio	0.08	0.32		0.24	0.36		0.06	0.46		0.77	0.15	
Control Delay	10.0	9.8		11.8	6.0		18.6	15.7		43.2	15.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	10.0	9.8		11.8	6.0		18.6	15.7		43.2	15.3	
LOS	B	A		B	A		B	B		D	B	
Approach Delay		9.8			6.7			15.9			36.0	
Approach LOS		A			A			B			D	
Queue Length 50th (m)	1.6	21.2		6.0	13.1		2.1	15.1		25.7	5.2	
Queue Length 95th (m)	6.9	41.8		18.9	30.3		6.6	31.8		47.6	13.6	
Internal Link Dist (m)		112.3			221.2			453.1			555.5	
Turn Bay Length (m)	30.0			30.0			30.0			30.0		
Base Capacity (vph)	376	1980		414	1951		697	935		554	949	
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	0.08	0.32		0.24	0.36		0.03	0.25		0.38	0.08	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 71.3			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 13.0		Intersection LOS: B	
Intersection Capacity Utilization 71.7%		ICU Level of Service C	

Analysis Period (min) 15

Splits and Phases: 17: Collector 1 & Burnhamthorpe Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	564	9	90	354	286	19	91	116	189	47	18
Future Volume (vph)	27	564	9	90	354	286	19	91	116	189	47	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
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	0.99		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	1.00		1.00	0.93		1.00	0.92		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)	1746	3490		1745	3221		1744	1668		1745	1755	
Flt Permitted	0.36	1.00		0.40	1.00		0.71	1.00		0.56	1.00	
Satd. Flow (perm)	663	3490		732	3221		1303	1668		1035	1755	
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)	30	627	10	100	393	318	21	101	129	210	52	20
RTOR Reduction (vph)	0	1	0	0	127	0	0	65	0	0	15	0
Lane Group Flow (vph)	30	636	0	100	584	0	21	165	0	210	57	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	40.4	40.4		40.4	40.4		18.8	18.8		18.8	18.8	
Effective Green, g (s)	40.4	40.4		40.4	40.4		18.8	18.8		18.8	18.8	
Actuated g/C Ratio	0.57	0.57		0.57	0.57		0.26	0.26		0.26	0.26	
Clearance Time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	376	1980		415	1827		344	440		273	463	
v/s Ratio Prot		c0.18			0.18			0.10			0.03	
v/s Ratio Perm	0.05			0.14			0.02			c0.20		
v/c Ratio	0.08	0.32		0.24	0.32		0.06	0.38		0.77	0.12	
Uniform Delay, d1	7.0	8.1		7.7	8.1		19.6	21.4		24.2	19.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.4		1.4	0.5		0.1	0.5		12.3	0.1	
Delay (s)	7.4	8.6		9.1	8.6		19.7	21.9		36.5	20.1	
Level of Service	A	A		A	A		B	C		D	C	
Approach Delay (s)		8.5			8.7			21.8			32.3	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	71.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	569	1	11	380	3	31
Future Volume (vph)	569	1	11	380	3	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	0.0		30.0	0.0
Storage Lanes		0	0		1	1
Taper Length (m)			15.0		15.0	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt						0.850
Flt Protected				0.999	0.950	
Satd. Flow (prot)	3500	0	0	3496	1750	1566
Flt Permitted				0.999	0.950	
Satd. Flow (perm)	3500	0	0	3496	1750	1566
Link Speed (k/h)	50			50	50	
Link Distance (m)	139.2			131.8	226.2	
Travel Time (s)	10.0			9.5	16.3	
Confl. Peds. (#/hr)		5	5		5	5
Confl. Bikes (#/hr)		5				5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	632	1	12	422	3	34
Shared Lane Traffic (%)						
Lane Group Flow (vph)	633	0	0	434	3	34
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

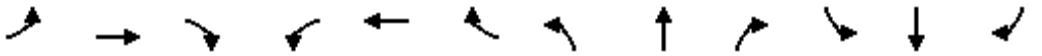
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 30.0%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	569	1	11	380	3	31
Future Volume (Veh/h)	569	1	11	380	3	31
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	632	1	12	422	3	34
Pedestrians	5			5	5	
Lane Width (m)	3.5			3.5	3.5	
Walking Speed (m/s)	1.0			1.0	1.0	
Percent Blockage	0			0	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)				268		
pX, platoon unblocked						
vC, conflicting volume			638		878	326
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			638		878	326
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		99	95
cM capacity (veh/h)			937		281	663

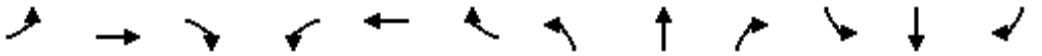
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	421	212	153	281	3	34
Volume Left	0	0	12	0	3	0
Volume Right	0	1	0	0	0	34
cSH	1700	1700	937	1700	281	663
Volume to Capacity	0.25	0.12	0.01	0.17	0.01	0.05
Queue Length 95th (m)	0.0	0.0	0.3	0.0	0.2	1.2
Control Delay (s)	0.0	0.0	0.8	0.0	17.9	10.7
Lane LOS			A		C	B
Approach Delay (s)	0.0		0.3		11.3	
Approach LOS					B	

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	30.0%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1955	9	0	817	11	0	0	14	0	0	255
Future Volume (vph)	0	1955	9	0	817	11	0	0	14	0	0	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		30.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		1	0		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999				0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3496	0	0	3500	1566	0	0	1593	0	0	1593
Flt Permitted												
Satd. Flow (perm)	0	3496	0	0	3500	1566	0	0	1593	0	0	1593
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		119.4			229.9			118.2			144.7	
Travel Time (s)		7.2			13.8			8.5			10.4	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5						5
Peak Hour Factor	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)	0	2172	10	0	908	12	0	0	16	0	0	283
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2182	0	0	908	12	0	0	16	0	0	283
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			0.0			0.0	
Link Offset(m)		0.0			0.0			5.0			5.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

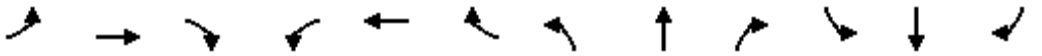
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 65.9%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1955	9	0	817	11	0	0	14	0	0	255
Future Volume (Veh/h)	0	1955	9	0	817	11	0	0	14	0	0	255
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	2172	10	0	908	12	0	0	16	0	0	283
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		119			230							
pX, platoon unblocked	0.85			0.66			0.74	0.74	0.66	0.74	0.74	0.85
vC, conflicting volume	925			2187			2924	3107	1101	2020	3100	464
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	572			1777			2010	2258	143	784	2248	32
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	97	100	100	68
cM capacity (veh/h)	848			229			17	30	578	200	30	875

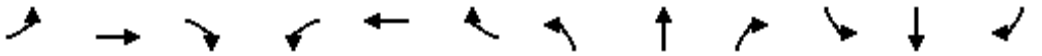
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	1448	734	454	454	12	16	283
Volume Left	0	0	0	0	0	0	0
Volume Right	0	10	0	0	12	16	283
cSH	1700	1700	1700	1700	1700	578	875
Volume to Capacity	0.85	0.43	0.27	0.27	0.01	0.03	0.32
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.6	10.7
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	11.4	11.1
Lane LOS						B	B
Approach Delay (s)	0.0		0.0			11.4	11.1
Approach LOS						B	B

Intersection Summary				
Average Delay	1.0			
Intersection Capacity Utilization	65.9%	ICU Level of Service		C
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	803	19	0	625	4	0	0	127	0	0	14
Future Volume (vph)	0	803	19	0	625	4	0	0	127	0	0	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.997			0.999				0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3489	0	0	3496	0	0	0	1593	0	0	1593
Flt Permitted												
Satd. Flow (perm)	0	3489	0	0	3496	0	0	0	1593	0	0	1593
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		123.4			223.5			492.2			141.1	
Travel Time (s)		8.9			16.1			35.4			10.2	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	0	892	21	0	694	4	0	0	141	0	0	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	913	0	0	698	0	0	0	141	0	0	16
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			-10.0			-10.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

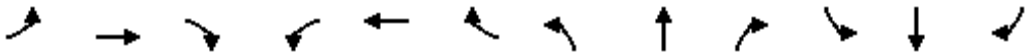
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.6%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	803	19	0	625	4	0	0	127	0	0	14
Future Volume (Veh/h)	0	803	19	0	625	4	0	0	127	0	0	14
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	892	21	0	694	4	0	0	141	0	0	16
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		123			223							
pX, platoon unblocked	0.95			0.92			0.94	0.94	0.92	0.94	0.94	0.95
vC, conflicting volume	703			918			1276	1610	466	1293	1619	359
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	586			732			937	1293	240	956	1302	224
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	80	100	100	98
cM capacity (veh/h)	933			793			199	151	692	157	149	734

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	595	318	463	235	141	16
Volume Left	0	0	0	0	0	0
Volume Right	0	21	0	4	141	16
cSH	1700	1700	1700	1700	692	734
Volume to Capacity	0.35	0.19	0.27	0.14	0.20	0.02
Queue Length 95th (m)	0.0	0.0	0.0	0.0	5.8	0.5
Control Delay (s)	0.0	0.0	0.0	0.0	11.5	10.0
Lane LOS					B	B
Approach Delay (s)	0.0		0.0		11.5	10.0
Approach LOS					B	B

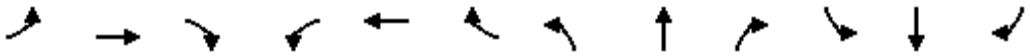
Intersection Summary				
Average Delay	1.0			
Intersection Capacity Utilization	38.6%	ICU Level of Service		A
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	214	0	0	84	0	2351	36	0	1836	264
Future Volume (vph)	0	0	214	0	0	84	0	2351	36	0	1836	264
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	*0.80	0.91	1.00	*0.80	0.91
Ped Bike Factor												
Frt			0.865			0.865		0.998			0.981	
Flt Protected												
Satd. Flow (prot)	0	0	1593	0	0	1593	0	4412	0	0	4337	0
Flt Permitted												
Satd. Flow (perm)	0	0	1593	0	0	1593	0	4412	0	0	4337	0
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		168.4			345.0			280.2			182.8	
Travel Time (s)		12.1			24.8			16.8			11.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	0	0	238	0	0	93	0	2612	40	0	2040	293
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	238	0	0	93	0	2652	0	0	2333	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		

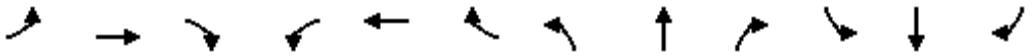
* User Entered Value



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	214	0	0	84	0	2351	36	0	1836	264
Future Volume (Veh/h)	0	0	214	0	0	84	0	2351	36	0	1836	264
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	238	0	0	93	0	2612	40	0	2040	293
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								280			183	
pX, platoon unblocked	0.81	0.81	0.64	0.81	0.81	0.66	0.64			0.66		
vC, conflicting volume	3160	4848	836	3560	4975	901	2338			2657		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0	2085	0	485	2242	0	1099			1708		
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	65	100	100	87	100			100		
cM capacity (veh/h)	704	42	683	240	33	709	399			242		

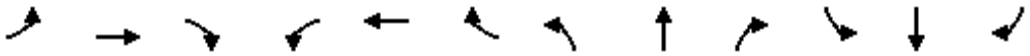
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	238	93	1045	1045	562	816	816	701
Volume Left	0	0	0	0	0	0	0	0
Volume Right	238	93	0	0	40	0	0	293
cSH	683	709	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.35	0.13	0.61	0.61	0.33	0.48	0.48	0.41
Queue Length 95th (m)	11.9	3.4	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	13.1	10.8	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	B						
Approach Delay (s)	13.1	10.8	0.0			0.0		
Approach LOS	B	B						

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	61.9%	ICU Level of Service	B	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	8	14	2	5	4	73	57	3	6	45	36
Future Volume (vph)	62	8	14	2	5	4	73	57	3	6	45	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.977			0.955			0.997			0.944	
Flt Protected		0.965			0.992			0.973			0.996	
Satd. Flow (prot)	0	1737	0	0	1745	0	0	1787	0	0	1732	0
Flt Permitted		0.965			0.992			0.973			0.996	
Satd. Flow (perm)	0	1737	0	0	1745	0	0	1787	0	0	1732	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		345.0			274.1			250.4			181.9	
Travel Time (s)		24.8			19.7			18.0			13.1	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	69	9	16	2	6	4	81	63	3	7	50	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	94	0	0	12	0	0	147	0	0	97	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

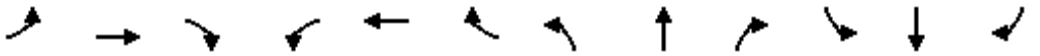
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.3%		ICU Level of Service A	
Analysis Period (min) 15			



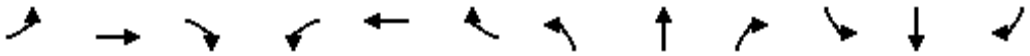
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	8	14	2	5	4	73	57	3	6	45	36
Future Volume (Veh/h)	62	8	14	2	5	4	73	57	3	6	45	36
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	69	9	16	2	6	4	81	63	3	7	50	40
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								251			182	
pX, platoon unblocked												
vC, conflicting volume	328	322	80	341	340	74	95			71		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	328	322	80	341	340	74	95			71		
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 %	88	98	98	100	99	100	95			100		
cM capacity (veh/h)	580	555	971	559	542	977	1492			1522		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	94	12	147	97
Volume Left	69	2	81	7
Volume Right	16	4	3	40
cSH	620	640	1492	1522
Volume to Capacity	0.15	0.02	0.05	0.00
Queue Length 95th (m)	4.0	0.4	1.3	0.1
Control Delay (s)	11.8	10.7	4.4	0.6
Lane LOS	B	B	A	A
Approach Delay (s)	11.8	10.7	4.4	0.6
Approach LOS	B	B		

Intersection Summary				
Average Delay	5.5			
Intersection Capacity Utilization	32.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	491	1436	42	27	578	18	110	0	34	52	19	139
Future Volume (vph)	491	1436	42	27	578	18	110	0	34	52	19	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0		30.0	30.0		0.0	30.0		0.0	40.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.97	1.00	1.00		1.00	0.98		1.00	0.98	
Frt			0.850		0.995			0.850			0.868	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3500	1566	1750	3479	0	1750	1534	0	1750	1571	0
Flt Permitted	0.251			0.157			0.614			0.732		
Satd. Flow (perm)	461	3500	1514	289	3479	0	1127	1534	0	1342	1571	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			38		3			77			154	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		229.9			1297.0			181.9			123.7	
Travel Time (s)		13.8			77.8			13.1			8.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	546	1596	47	30	642	20	122	0	38	58	21	154
Shared Lane Traffic (%)												
Lane Group Flow (vph)	546	1596	47	30	662	0	122	38	0	58	175	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



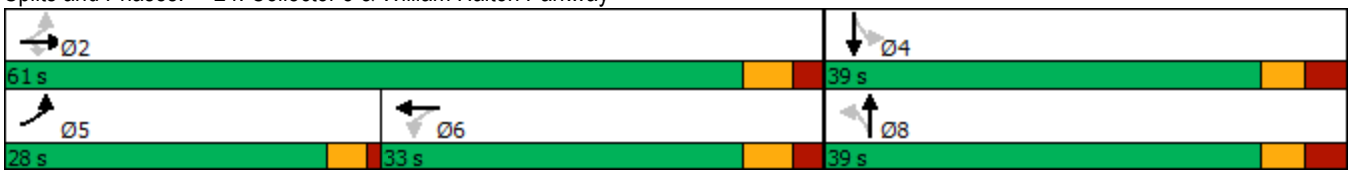
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	5	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	32.1	32.1	32.1	32.1		38.5	38.5		38.5	38.5	
Total Split (s)	28.0	61.0	61.0	33.0	33.0		39.0	39.0		39.0	39.0	
Total Split (%)	28.0%	61.0%	61.0%	33.0%	33.0%		39.0%	39.0%		39.0%	39.0%	
Maximum Green (s)	24.0	54.9	54.9	26.9	26.9		32.5	32.5		32.5	32.5	
Yellow Time (s)	3.0	3.7	3.7	3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.0	2.4	2.4	2.4	2.4		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.1	6.1	6.1	6.1		6.5	6.5		6.5	6.5	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	Max	Max		None	None		None	None	
Walk Time (s)		7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		19.0	19.0	19.0	19.0		25.0	25.0		25.0	25.0	
Pedestrian Calls (#/hr)		5	5	5	5		5	5		5	5	
Act Effct Green (s)	57.4	55.3	55.3	27.1	27.1		16.1	16.1		16.1	16.1	
Actuated g/C Ratio	0.68	0.66	0.66	0.32	0.32		0.19	0.19		0.19	0.19	
v/c Ratio	0.80	0.69	0.05	0.32	0.59		0.57	0.11		0.23	0.41	
Control Delay	22.6	12.7	3.6	36.7	27.6		40.6	1.6		29.6	9.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	22.6	12.7	3.6	36.7	27.6		40.6	1.6		29.6	9.4	
LOS	C	B	A	D	C		D	A		C	A	
Approach Delay		15.0			28.0			31.4			14.4	
Approach LOS		B			C			C			B	
Queue Length 50th (m)	39.2	66.2	0.4	3.4	43.6		17.8	0.0		7.9	2.8	
Queue Length 95th (m)	#134.9	157.5	5.6	14.5	79.7		33.1	1.6		17.1	17.0	
Internal Link Dist (m)		205.9			1273.0			157.9			99.7	
Turn Bay Length (m)	85.0		30.0	30.0			30.0			40.0		
Base Capacity (vph)	685	2302	1008	93	1123		438	644		522	705	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.80	0.69	0.05	0.32	0.59		0.28	0.06		0.11	0.25	

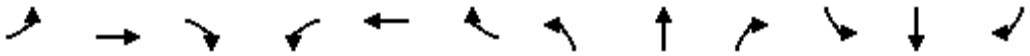
Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 84.1			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay: 18.5		Intersection LOS: B	
Intersection Capacity Utilization 90.0%		ICU Level of Service E	

Analysis Period (min) 15

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

Splits and Phases: 24: Collector 5 & William Halton Parkway

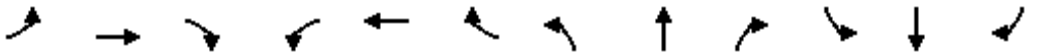




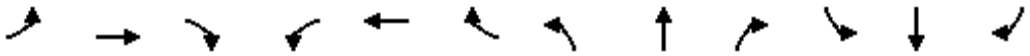
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	491	1436	42	27	578	18	110	0	34	52	19	139
Future Volume (vph)	491	1436	42	27	578	18	110	0	34	52	19	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.1	6.1	6.1	6.1		6.5	6.5		6.5	6.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	0.98		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	1.00	0.85	1.00	1.00		1.00	0.85		1.00	0.87	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1749	3500	1518	1748	3480		1745	1532		1743	1568	
Flt Permitted	0.25	1.00	1.00	0.16	1.00		0.61	1.00		0.73	1.00	
Satd. Flow (perm)	463	3500	1518	289	3480		1128	1532		1344	1568	
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)	546	1596	47	30	642	20	122	0	38	58	21	154
RTOR Reduction (vph)	0	0	13	0	2	0	0	31	0	0	124	0
Lane Group Flow (vph)	546	1596	34	30	660	0	122	7	0	58	51	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	pm+pt	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	55.3	55.3	55.3	27.1	27.1		16.1	16.1		16.1	16.1	
Effective Green, g (s)	55.3	55.3	55.3	27.1	27.1		16.1	16.1		16.1	16.1	
Actuated g/C Ratio	0.66	0.66	0.66	0.32	0.32		0.19	0.19		0.19	0.19	
Clearance Time (s)	4.0	6.1	6.1	6.1	6.1		6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	675	2304	999	93	1122		216	293		257	300	
v/s Ratio Prot	c0.23	0.46			0.19			0.00			0.03	
v/s Ratio Perm	c0.30		0.02	0.10			c0.11			0.04		
v/c Ratio	0.81	0.69	0.03	0.32	0.59		0.56	0.02		0.23	0.17	
Uniform Delay, d1	12.2	9.0	5.0	21.5	23.8		30.8	27.6		28.7	28.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.1	0.9	0.0	9.0	2.3		3.4	0.0		0.4	0.3	
Delay (s)	19.3	9.9	5.0	30.5	26.0		34.1	27.6		29.1	28.6	
Level of Service	B	A	A	C	C		C	C		C	C	
Approach Delay (s)		12.2			26.2			32.6			28.8	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	17.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	84.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	90.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	862	36	75	564	4	42	93	166	11	59	23
Future Volume (vph)	32	862	36	75	564	4	42	93	166	11	59	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Frt		0.994			0.999			0.904			0.958	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3474	0	1750	3496	0	1750	1644	0	1750	1755	0
Flt Permitted	0.410			0.253			0.697			0.407		
Satd. Flow (perm)	753	3474	0	465	3496	0	1278	1644	0	747	1755	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			1			79			25	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		223.5			463.9			185.3			250.4	
Travel Time (s)		16.1			33.4			13.3			18.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	36	958	40	83	627	4	47	103	184	12	66	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	998	0	83	631	0	47	287	0	12	92	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

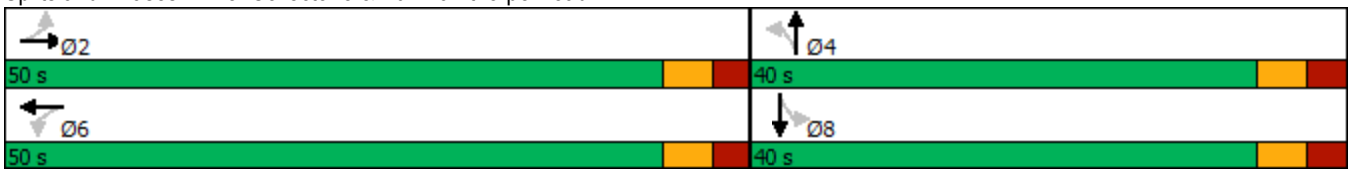


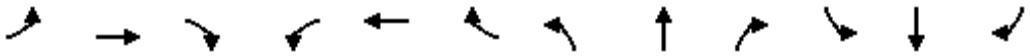
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	32.1	32.1		32.1	32.1		33.1	33.1		33.1	33.1	
Total Split (s)	50.0	50.0		50.0	50.0		40.0	40.0		40.0	40.0	
Total Split (%)	55.6%	55.6%		55.6%	55.6%		44.4%	44.4%		44.4%	44.4%	
Maximum Green (s)	44.1	44.1		44.1	44.1		33.9	33.9		33.9	33.9	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.6	2.6		2.6	2.6		2.8	2.8		2.8	2.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	
Act Effct Green (s)	44.7	44.7		44.7	44.7		15.4	15.4		15.4	15.4	
Actuated g/C Ratio	0.62	0.62		0.62	0.62		0.21	0.21		0.21	0.21	
v/c Ratio	0.08	0.46		0.29	0.29		0.17	0.70		0.08	0.23	
Control Delay	8.1	9.2		12.0	7.8		23.3	27.6		22.0	18.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	8.1	9.2		12.0	7.8		23.3	27.6		22.0	18.5	
LOS	A	A		B	A		C	C		C	B	
Approach Delay		9.2			8.3			27.0			18.9	
Approach LOS		A			A			C			B	
Queue Length 50th (m)	1.6	31.4		4.4	17.4		5.2	25.5		1.3	7.4	
Queue Length 95th (m)	7.2	67.3		17.7	38.8		12.6	47.7		5.1	17.5	
Internal Link Dist (m)		199.5			439.9			161.3			226.4	
Turn Bay Length (m)	30.0			30.0			30.0			30.0		
Base Capacity (vph)	466	2154		288	2166		604	819		353	843	
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	0.08	0.46		0.29	0.29		0.08	0.35		0.03	0.11	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 72.1			
Natural Cycle: 70			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 12.1		Intersection LOS: B	
Intersection Capacity Utilization 62.3%		ICU Level of Service B	

Analysis Period (min) 15

Splits and Phases: 25: Collector 5 & Burnhamthorpe Road

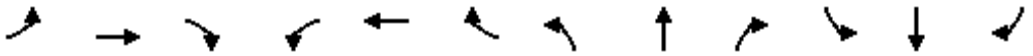




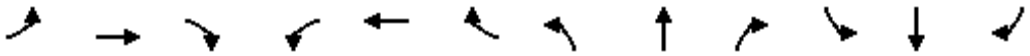
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	862	36	75	564	4	42	93	166	11	59	23
Future Volume (vph)	32	862	36	75	564	4	42	93	166	11	59	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
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	0.99		1.00	1.00		1.00	0.90		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)	1745	3475		1747	3496		1744	1642		1746	1753	
Flt Permitted	0.41	1.00		0.25	1.00		0.70	1.00		0.41	1.00	
Satd. Flow (perm)	752	3475		464	3496		1280	1642		749	1753	
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)	36	958	40	83	627	4	47	103	184	12	66	26
RTOR Reduction (vph)	0	2	0	0	0	0	0	62	0	0	20	0
Lane Group Flow (vph)	36	996	0	83	631	0	47	225	0	12	72	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	44.7	44.7		44.7	44.7		15.4	15.4		15.4	15.4	
Effective Green, g (s)	44.7	44.7		44.7	44.7		15.4	15.4		15.4	15.4	
Actuated g/C Ratio	0.62	0.62		0.62	0.62		0.21	0.21		0.21	0.21	
Clearance Time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	466	2154		287	2167		273	350		159	374	
v/s Ratio Prot		c0.29			0.18			c0.14			0.04	
v/s Ratio Perm	0.05			0.18			0.04			0.02		
v/c Ratio	0.08	0.46		0.29	0.29		0.17	0.64		0.08	0.19	
Uniform Delay, d1	5.5	7.3		6.3	6.4		23.1	25.8		22.7	23.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.7		2.5	0.3		0.3	4.0		0.2	0.3	
Delay (s)	5.8	8.0		8.9	6.7		23.4	29.8		22.9	23.5	
Level of Service	A	A		A	A		C	C		C	C	
Approach Delay (s)		7.9			6.9			28.9			23.4	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	11.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	72.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	7	22	83	3	83	23	2294	19	57	2061	30
Future Volume (vph)	79	7	22	83	3	83	23	2294	19	57	2061	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	30.0		0.0	17.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	*0.80	0.91	1.00	*0.80	0.91
Ped Bike Factor	1.00	0.98		0.99	0.98			1.00			1.00	
Frt		0.887			0.855			0.999			0.998	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	1607	0	1750	1542	0	1750	4415	0	1750	4410	0
Flt Permitted	0.695			0.736			0.051			0.051		
Satd. Flow (perm)	1274	1607	0	1348	1542	0	94	4415	0	94	4410	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			4			2			3	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		117.5			110.5			259.2			230.0	
Travel Time (s)		8.5			8.0			15.6			13.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	88	8	24	92	3	92	26	2549	21	63	2290	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	88	32	0	92	95	0	26	2570	0	63	2323	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	38.5	38.5		38.5	38.5		33.4	33.4		33.4	33.4	
Total Split (s)	39.0	39.0		39.0	39.0		81.0	81.0		81.0	81.0	
Total Split (%)	32.5%	32.5%		32.5%	32.5%		67.5%	67.5%		67.5%	67.5%	
Maximum Green (s)	32.5	32.5		32.5	32.5		74.6	74.6		74.6	74.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.2	3.2		3.2	3.2		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	25.0	25.0		25.0	25.0		20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	
Act Effct Green (s)	15.3	15.3		15.3	15.3		77.9	77.9		77.9	77.9	
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.73	0.73		0.73	0.73	
v/c Ratio	0.48	0.13		0.47	0.42		0.38	0.79		0.93	0.72	
Control Delay	48.5	31.4		47.9	43.3		29.3	13.1		114.0	11.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.1	
Total Delay	48.5	31.4		47.9	43.3		29.3	13.2		114.0	11.2	
LOS	D	C		D	D		C	B		F	B	
Approach Delay		44.0			45.6			13.3			13.9	
Approach LOS		D			D			B			B	
Queue Length 50th (m)	16.3	4.4		17.0	16.7		1.5	102.9		7.7	81.9	
Queue Length 95th (m)	30.6	12.2		31.5	31.0		#17.4	243.5		#31.7	194.0	
Internal Link Dist (m)		93.5			86.5			235.2			206.0	
Turn Bay Length (m)	30.0			30.0			30.0			17.0		
Base Capacity (vph)	392	499		414	477		68	3238		68	3234	
Starvation Cap Reductn	0	0		0	0		0	19		0	160	
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	0.22	0.06		0.22	0.20		0.38	0.80		0.93	0.76	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 106.2			
Natural Cycle: 100			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 15.4		Intersection LOS: B	
Intersection Capacity Utilization 71.7%		ICU Level of Service C	

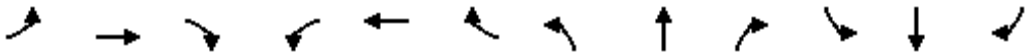
Analysis Period (min) 15

* User Entered Value

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

Splits and Phases: 26: Trafalgar Road & Local 6

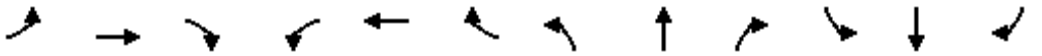




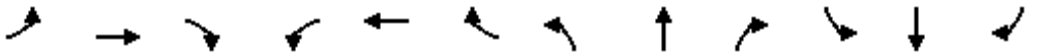
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	7	22	83	3	83	23	2294	19	57	2061	30
Future Volume (vph)	79	7	22	83	3	83	23	2294	19	57	2061	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	*0.80		1.00	*0.80	
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.89		1.00	0.85		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1742	1605		1742	1537		1750	4414		1750	4409	
Flt Permitted	0.70	1.00		0.74	1.00		0.05	1.00		0.05	1.00	
Satd. Flow (perm)	1276	1605		1350	1537		95	4414		95	4409	
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)	88	8	24	92	3	92	26	2549	21	63	2290	33
RTOR Reduction (vph)	0	6	0	0	3	0	0	1	0	0	1	0
Lane Group Flow (vph)	88	26	0	92	92	0	26	2569	0	63	2322	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
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)	15.3	15.3		15.3	15.3		77.9	77.9		77.9	77.9	
Effective Green, g (s)	15.3	15.3		15.3	15.3		77.9	77.9		77.9	77.9	
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.73	0.73		0.73	0.73	
Clearance Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	184	231		194	221		69	3240		69	3237	
v/s Ratio Prot		0.02			0.06			0.58			0.53	
v/s Ratio Perm	c0.07			0.07			0.27			c0.67		
v/c Ratio	0.48	0.11		0.47	0.41		0.38	0.79		0.91	0.72	
Uniform Delay, d1	41.7	39.5		41.7	41.3		5.2	9.0		11.4	7.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.0	0.2		1.8	1.3		15.0	2.1		85.8	1.4	
Delay (s)	43.7	39.7		43.5	42.6		20.2	11.1		97.2	9.3	
Level of Service	D	D		D	D		C	B		F	A	
Approach Delay (s)		42.6			43.1			11.1			11.6	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	106.1	Sum of lost time (s)	12.9
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	153	112	197	257	126	59	89	2124	179	100	1947	119
Future Volume (vph)	153	112	197	257	126	59	89	2124	179	100	1947	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		40.0	85.0		30.0	60.0		40.0	80.0		30.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00
Ped Bike Factor	1.00		0.98	1.00		0.98			0.96			0.96
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	1842	1566	1750	1842	1566	1750	4421	1566	1750	4421	1566
Flt Permitted	0.668			0.555			0.065			0.064		
Satd. Flow (perm)	1225	1842	1532	1018	1842	1534	120	4421	1511	118	4421	1511
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			141			67			105			105
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		219.8			129.6			268.7			259.2	
Travel Time (s)		15.8			9.3			16.1			15.6	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	170	124	219	286	140	66	99	2360	199	111	2163	132
Shared Lane Traffic (%)												
Lane Group Flow (vph)	170	124	219	286	140	66	99	2360	199	111	2163	132
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	38.5	38.5	38.5	11.0	38.5	38.5	11.0	33.4	33.4	11.0	33.4	33.4
Total Split (s)	39.0	39.0	39.0	11.0	50.0	50.0	11.0	59.0	59.0	11.0	59.0	59.0
Total Split (%)	32.5%	32.5%	32.5%	9.2%	41.7%	41.7%	9.2%	49.2%	49.2%	9.2%	49.2%	49.2%
Maximum Green (s)	32.5	32.5	32.5	7.0	43.5	43.5	7.0	52.6	52.6	7.0	52.6	52.6
Yellow Time (s)	3.3	3.3	3.3	3.0	3.3	3.3	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	3.2	3.2	3.2	1.0	3.2	3.2	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)	25.0	25.0	25.0		25.0	25.0		20.0	20.0		20.0	20.0
Pedestrian Calls (#/hr)	5	5	5		5	5		5	5		5	5
Act Effct Green (s)	22.2	22.2	22.2	35.7	33.2	33.2	71.8	61.6	61.6	72.8	62.1	62.1
Actuated g/C Ratio	0.18	0.18	0.18	0.30	0.28	0.28	0.60	0.51	0.51	0.61	0.52	0.52
v/c Ratio	0.75	0.36	0.55	0.83	0.28	0.14	0.56	1.04	0.24	0.60	0.95	0.16
Control Delay	65.6	44.0	20.5	56.9	33.8	6.9	29.4	60.3	9.6	32.2	38.5	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.6	44.0	20.5	56.9	33.8	6.9	29.4	60.3	9.6	32.2	38.5	5.9
LOS	E	D	C	E	C	A	C	E	A	C	D	A
Approach Delay		41.1			43.7			55.4			36.4	
Approach LOS		D			D			E			D	
Queue Length 50th (m)	38.3	25.8	16.0	56.7	25.9	0.0	8.3	~251.2	11.2	9.4	193.7	3.0
Queue Length 95th (m)	56.6	39.3	36.2	73.6	37.9	9.0	#29.1	#316.2	28.6	#37.1	#276.6	14.9
Internal Link Dist (m)		195.8			105.6			244.7			235.2	
Turn Bay Length (m)	60.0		40.0	85.0		30.0	60.0		40.0	80.0		30.0
Base Capacity (vph)	331	498	517	345	667	598	178	2267	826	185	2287	832
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.25	0.42	0.83	0.21	0.11	0.56	1.04	0.24	0.60	0.95	0.16

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 11 (9%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 45.7	Intersection LOS: D

Intersection Capacity Utilization 89.7%	ICU Level of Service E
Analysis Period (min) 15	

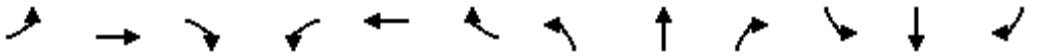
* User Entered Value

~ 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.

Splits and Phases: 27: Trafalgar Road & Settlers Road

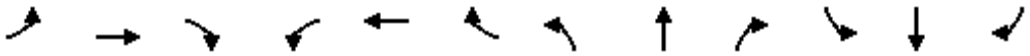




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	153	112	197	257	126	59	89	2124	179	100	1947	119
Future Volume (vph)	153	112	197	257	126	59	89	2124	179	100	1947	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.97	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	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1742	1842	1529	1746	1842	1532	1750	4421	1512	1750	4421	1512
Flt Permitted	0.67	1.00	1.00	0.55	1.00	1.00	0.07	1.00	1.00	0.06	1.00	1.00
Satd. Flow (perm)	1224	1842	1529	1020	1842	1532	120	4421	1512	119	4421	1512
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)	170	124	219	286	140	66	99	2360	199	111	2163	132
RTOR Reduction (vph)	0	0	115	0	0	48	0	0	51	0	0	51
Lane Group Flow (vph)	170	124	104	286	140	18	99	2360	148	111	2163	81
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	22.2	22.2	22.2	33.2	33.2	33.2	69.3	61.5	61.5	70.5	62.1	62.1
Effective Green, g (s)	22.2	22.2	22.2	33.2	33.2	33.2	69.3	61.5	61.5	70.5	62.1	62.1
Actuated g/C Ratio	0.18	0.18	0.18	0.28	0.28	0.28	0.58	0.51	0.51	0.59	0.52	0.52
Clearance Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	226	340	282	324	509	423	175	2265	774	184	2287	782
v/s Ratio Prot		0.07		c0.05	0.08		0.04	c0.53		c0.04	0.49	
v/s Ratio Perm	0.14		0.07	c0.19		0.01	0.29		0.10	0.31		0.05
v/c Ratio	0.75	0.36	0.37	0.88	0.28	0.04	0.57	1.04	0.19	0.60	0.95	0.10
Uniform Delay, d1	46.3	42.7	42.8	41.4	34.0	31.8	24.0	29.2	15.8	25.9	27.4	14.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	13.2	0.7	0.8	23.4	0.3	0.0	4.1	30.9	0.5	5.5	9.8	0.3
Delay (s)	59.5	43.4	43.6	64.8	34.3	31.8	28.1	60.2	16.4	31.4	37.2	15.0
Level of Service	E	D	D	E	C	C	C	E	B	C	D	B
Approach Delay (s)		48.8			51.7			55.7			35.7	
Approach LOS		D			D			E			D	

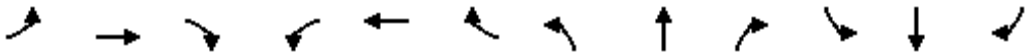
Intersection Summary			
HCM 2000 Control Delay	46.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.9
Intersection Capacity Utilization	89.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	134	40	145	116	29	33	121	143	31	90	8
Future Volume (vph)	5	134	40	145	116	29	33	121	143	31	90	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.970			0.987			0.935			0.992	
Flt Protected		0.998			0.976			0.994			0.988	
Satd. Flow (prot)	0	1783	0	0	1774	0	0	1712	0	0	1805	0
Flt Permitted		0.998			0.976			0.994			0.988	
Satd. Flow (perm)	0	1783	0	0	1774	0	0	1712	0	0	1805	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		249.4			219.8			429.8			477.1	
Travel Time (s)		18.0			15.8			30.9			34.4	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	6	149	44	161	129	32	37	134	159	34	100	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	199	0	0	322	0	0	330	0	0	143	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
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												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	5	134	40	145	116	29	33	121	143	31	90	8
Future Volume (vph)	5	134	40	145	116	29	33	121	143	31	90	8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	149	44	161	129	32	37	134	159	34	100	9

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	199	322	330	143
Volume Left (vph)	6	161	37	34
Volume Right (vph)	44	32	159	9
Hadj (s)	-0.09	0.07	-0.23	0.04
Departure Headway (s)	5.8	5.7	5.5	6.1
Degree Utilization, x	0.32	0.51	0.50	0.24
Capacity (veh/h)	555	588	608	505
Control Delay (s)	11.5	14.6	13.9	11.0
Approach Delay (s)	11.5	14.6	13.9	11.0
Approach LOS	B	B	B	B

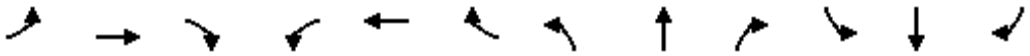
Intersection Summary				
Delay	13.2			
Level of Service	B			
Intersection Capacity Utilization	55.6%	ICU Level of Service	B	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	13.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	134	40	145	116	29	33	121	143	31	90	8
Future Vol, veh/h	5	134	40	145	116	29	33	121	143	31	90	8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	149	44	161	129	32	37	134	159	34	100	9
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

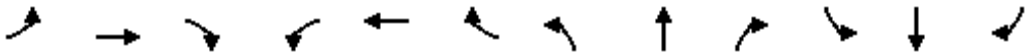
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	11.5	14.5	13.8	11
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	3%	50%	24%
Vol Thru, %	41%	75%	40%	70%
Vol Right, %	48%	22%	10%	6%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	297	179	290	129
LT Vol	33	5	145	31
Through Vol	121	134	116	90
RT Vol	143	40	29	8
Lane Flow Rate	330	199	322	143
Geometry Grp	1	1	1	1
Degree of Util (X)	0.497	0.317	0.508	0.24
Departure Headway (Hd)	5.424	5.733	5.673	6.036
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	660	623	632	591
Service Time	3.492	3.81	3.74	4.121
HCM Lane V/C Ratio	0.5	0.319	0.509	0.242
HCM Control Delay	13.8	11.5	14.5	11
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	2.8	1.4	2.9	0.9



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	304	50	21	278	8	35	165	49	17	152	125
Future Volume (vph)	38	304	50	21	278	8	35	165	49	17	152	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.983			0.996			0.974			0.943	
Flt Protected		0.995			0.997			0.993			0.997	
Satd. Flow (prot)	0	1802	0	0	1829	0	0	1782	0	0	1732	0
Flt Permitted		0.995			0.997			0.993			0.997	
Satd. Flow (perm)	0	1802	0	0	1829	0	0	1782	0	0	1732	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		129.6			125.1			416.4			492.2	
Travel Time (s)		9.3			9.0			30.0			35.4	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	42	338	56	23	309	9	39	183	54	19	169	139
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	436	0	0	341	0	0	276	0	0	327	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	60.9%	ICU Level of Service	B
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)	38	304	50	21	278	8	35	165	49	17	152	125
Future Volume (vph)	38	304	50	21	278	8	35	165	49	17	152	125
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	42	338	56	23	309	9	39	183	54	19	169	139

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	436	341	276	327
Volume Left (vph)	42	23	39	19
Volume Right (vph)	56	9	54	139
Hadj (s)	-0.02	0.03	-0.06	-0.21
Departure Headway (s)	7.5	7.8	8.1	7.8
Degree Utilization, x	0.91	0.74	0.62	0.71
Capacity (veh/h)	436	427	402	435
Control Delay (s)	48.6	30.3	23.5	27.3
Approach Delay (s)	48.6	30.3	23.5	27.3
Approach LOS	E	D	C	D

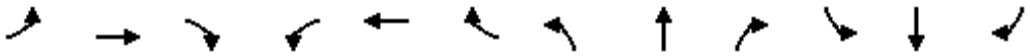
Intersection Summary				
Delay	34.0			
Level of Service	D			
Intersection Capacity Utilization	60.9%	ICU Level of Service	B	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	33.3
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	38	304	50	21	278	8	35	165	49	17	152	125
Future Vol, veh/h	38	304	50	21	278	8	35	165	49	17	152	125
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	42	338	56	23	309	9	39	183	54	19	169	139
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

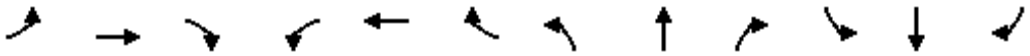
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	47.2	29.7	23.3	26.8
HCM LOS	E	D	C	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	10%	7%	6%
Vol Thru, %	66%	78%	91%	52%
Vol Right, %	20%	13%	3%	43%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	249	392	307	294
LT Vol	35	38	21	17
Through Vol	165	304	278	152
RT Vol	49	50	8	125
Lane Flow Rate	277	436	341	327
Geometry Grp	1	1	1	1
Degree of Util (X)	0.616	0.898	0.736	0.698
Departure Headway (Hd)	8.02	7.419	7.763	7.69
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	448	488	464	467
Service Time	6.109	5.493	5.844	5.771
HCM Lane V/C Ratio	0.618	0.893	0.735	0.7
HCM Control Delay	23.3	47.2	29.7	26.8
HCM Lane LOS	C	E	D	D
HCM 95th-tile Q	4	10	6	5.3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	320	12	10	191	53	34	62	28	42	82	95
Future Volume (vph)	38	320	12	10	191	53	34	62	28	42	82	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.996			0.972			0.970			0.941	
Flt Protected		0.995			0.998			0.986			0.990	
Satd. Flow (prot)	0	1826	0	0	1787	0	0	1762	0	0	1716	0
Flt Permitted		0.995			0.998			0.986			0.990	
Satd. Flow (perm)	0	1826	0	0	1787	0	0	1762	0	0	1716	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		125.1			190.9			160.4			138.9	
Travel Time (s)		9.0			13.7			11.5			10.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	42	356	13	11	212	59	38	69	31	47	91	106
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	411	0	0	282	0	0	138	0	0	244	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 54.9%		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)	38	320	12	10	191	53	34	62	28	42	82	95
Future Volume (vph)	38	320	12	10	191	53	34	62	28	42	82	95
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	42	356	13	11	212	59	38	69	31	47	91	106

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	411	282	138	244
Volume Left (vph)	42	11	38	47
Volume Right (vph)	13	59	31	106
Hadj (s)	0.04	-0.08	-0.05	-0.19
Departure Headway (s)	5.7	5.8	6.4	6.0
Degree Utilization, x	0.65	0.45	0.25	0.41
Capacity (veh/h)	606	564	473	524
Control Delay (s)	18.6	13.5	11.5	13.1
Approach Delay (s)	18.6	13.5	11.5	13.1
Approach LOS	C	B	B	B

Intersection Summary				
Delay	15.1			
Level of Service	C			
Intersection Capacity Utilization	54.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	14.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	38	320	12	10	191	53	34	62	28	42	82	95
Future Vol, veh/h	38	320	12	10	191	53	34	62	28	42	82	95
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	42	356	13	11	212	59	38	69	31	47	91	106
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	18.2	13.4	11.5	13.1
HCM LOS	C	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	27%	10%	4%	19%
Vol Thru, %	50%	86%	75%	37%
Vol Right, %	23%	3%	21%	43%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	124	370	254	219
LT Vol	34	38	10	42
Through Vol	62	320	191	82
RT Vol	28	12	53	95
Lane Flow Rate	138	411	282	243
Geometry Grp	1	1	1	1
Degree of Util (X)	0.245	0.638	0.446	0.407
Departure Headway (Hd)	6.412	5.686	5.798	6.023
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	562	641	627	601
Service Time	4.423	3.686	3.798	4.023
HCM Lane V/C Ratio	0.246	0.641	0.45	0.404
HCM Control Delay	11.5	18.2	13.4	13.1
HCM Lane LOS	B	C	B	B
HCM 95th-tile Q	1	4.6	2.3	2



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	34	2358	55	0	2397
Future Volume (vph)	0	34	2358	55	0	2397
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	*0.80	0.91	1.00	*0.80
Ped Bike Factor						
Frt		0.865	0.997			
Flt Protected						
Satd. Flow (prot)	0	1593	4408	0	0	4421
Flt Permitted						
Satd. Flow (perm)	0	1593	4408	0	0	4421
Link Speed (k/h)	50		60			60
Link Distance (m)	74.3		148.7			268.7
Travel Time (s)	5.3		8.9			16.1
Confl. Peds. (#/hr)	5	5		5	5	
Confl. Bikes (#/hr)		5		5		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	38	2620	61	0	2663
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	38	2681	0	0	2663
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		3.5			3.5
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.3%		ICU Level of Service B	
Analysis Period (min) 15			

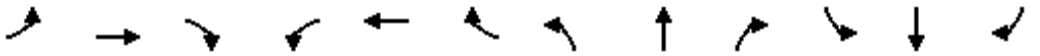
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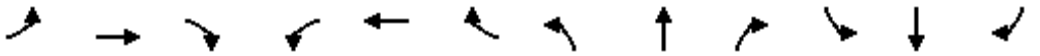
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	34	2358	55	0	2397
Future Volume (Veh/h)	0	34	2358	55	0	2397
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	38	2620	61	0	2663
Pedestrians	5		5			5
Lane Width (m)	3.5		3.5			3.5
Walking Speed (m/s)	1.0		1.0			1.0
Percent Blockage	0		0			0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			149			269
pX, platoon unblocked	0.75	0.52			0.52	
vC, conflicting volume	3548	914			2686	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0			1012	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	93			100	
cM capacity (veh/h)	758	558			352	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	38	1048	1048	585	888	888	888
Volume Left	0	0	0	0	0	0	0
Volume Right	38	0	0	61	0	0	0
cSH	558	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.07	0.62	0.62	0.34	0.52	0.52	0.52
Queue Length 95th (m)	1.7	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	11.9	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B						
Approach Delay (s)	11.9	0.0			0.0		
Approach LOS	B						

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	58.3%	ICU Level of Service	B
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	69	267	281	111	53	235	2327	67	96	2290	20
Future Volume (vph)	33	69	267	281	111	53	235	2327	67	96	2290	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		70.0	90.0		30.0	130.0		40.0	40.0		30.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00
Ped Bike Factor	1.00		0.98	1.00		0.98			0.96			0.96
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	1842	1566	1750	1842	1566	1750	4421	1566	1750	4421	1566
Flt Permitted	0.678			0.579			0.076			0.077		
Satd. Flow (perm)	1243	1842	1532	1061	1842	1534	140	4421	1511	142	4421	1511
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			140			67			105			105
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		193.0			130.2			1233.0			148.7	
Travel Time (s)		13.9			9.4			74.0			8.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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	77	297	312	123	59	261	2586	74	107	2544	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	37	77	297	312	123	59	261	2586	74	107	2544	22
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	38.5	38.5	38.5	11.0	38.5	38.5	11.0	33.4	33.4	11.0	33.4	33.4
Total Split (s)	39.0	39.0	39.0	11.0	50.0	50.0	12.0	59.0	59.0	11.0	58.0	58.0
Total Split (%)	32.5%	32.5%	32.5%	9.2%	41.7%	41.7%	10.0%	49.2%	49.2%	9.2%	48.3%	48.3%
Maximum Green (s)	32.5	32.5	32.5	7.0	43.5	43.5	8.0	52.6	52.6	7.0	51.6	51.6
Yellow Time (s)	3.3	3.3	3.3	3.0	3.3	3.3	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	3.2	3.2	3.2	1.0	3.2	3.2	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)	25.0	25.0	25.0		25.0	25.0		20.0	20.0		20.0	20.0
Pedestrian Calls (#/hr)	5	5	5		5	5		5	5		5	5
Act Effct Green (s)	18.0	18.0	18.0	31.6	29.1	29.1	63.3	52.9	52.9	61.3	51.9	51.9
Actuated g/C Ratio	0.17	0.17	0.17	0.30	0.27	0.27	0.60	0.50	0.50	0.58	0.49	0.49
v/c Ratio	0.18	0.25	0.79	0.86	0.24	0.13	1.27	1.17	0.09	0.57	1.18	0.03
Control Delay	37.9	38.7	36.8	56.6	30.3	6.0	179.4	109.7	1.8	27.1	111.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	38.7	36.8	56.6	30.3	6.0	179.4	109.7	1.8	27.1	111.6	0.1
LOS	D	D	D	E	C	A	F	F	A	C	F	A
Approach Delay		37.3			44.0			113.2			107.3	
Approach LOS		D			D			F			F	
Queue Length 50th (m)	6.6	13.8	31.4	54.5	19.6	0.0	~50.6	~259.2	0.0	7.8	~255.6	0.0
Queue Length 95th (m)	15.3	26.1	60.5	80.4	33.6	7.4	#119.6	#359.4	4.2	#31.1	#354.6	0.0
Internal Link Dist (m)		169.0			106.2			1209.0			124.7	
Turn Bay Length (m)	30.0		70.0	90.0		30.0	130.0		40.0	40.0		30.0
Base Capacity (vph)	383	567	569	362	759	672	205	2205	806	188	2163	793
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.14	0.52	0.86	0.16	0.09	1.27	1.17	0.09	0.57	1.18	0.03

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 106			
Natural Cycle: 145			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.27			
Intersection Signal Delay: 100.7		Intersection LOS: F	
Intersection Capacity Utilization 94.3%		ICU Level of Service F	

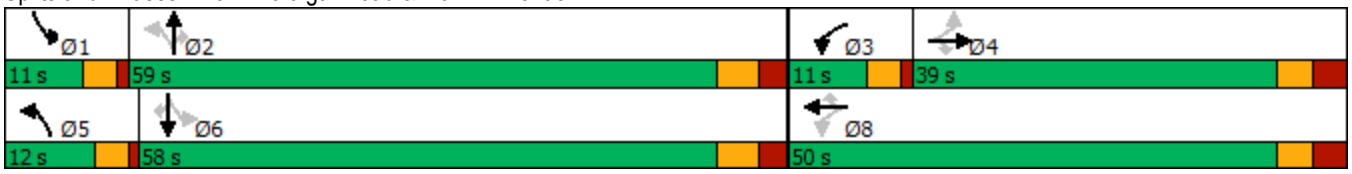
Analysis Period (min) 15

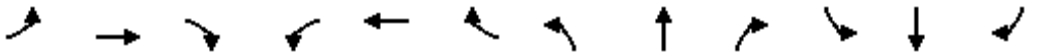
* User Entered Value

~ 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.

Splits and Phases: 32: Trafalgar Road & Marvin Avenue

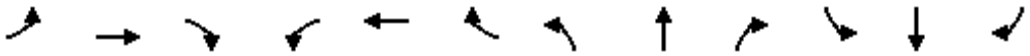




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	69	267	281	111	53	235	2327	67	96	2290	20
Future Volume (vph)	33	69	267	281	111	53	235	2327	67	96	2290	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.97	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	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1743	1842	1529	1746	1842	1533	1750	4421	1514	1750	4421	1514
Flt Permitted	0.68	1.00	1.00	0.58	1.00	1.00	0.08	1.00	1.00	0.08	1.00	1.00
Satd. Flow (perm)	1244	1842	1529	1064	1842	1533	139	4421	1514	142	4421	1514
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	77	297	312	123	59	261	2586	74	107	2544	22
RTOR Reduction (vph)	0	0	116	0	0	43	0	0	37	0	0	11
Lane Group Flow (vph)	37	77	181	312	123	16	261	2586	37	107	2544	11
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	18.1	18.1	18.1	29.1	29.1	29.1	60.9	52.9	52.9	58.9	51.9	51.9
Effective Green, g (s)	18.1	18.1	18.1	29.1	29.1	29.1	60.9	52.9	52.9	58.9	51.9	51.9
Actuated g/C Ratio	0.17	0.17	0.17	0.27	0.27	0.27	0.58	0.50	0.50	0.56	0.49	0.49
Clearance Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	212	314	261	337	506	421	201	2208	756	185	2166	741
v/s Ratio Prot		0.04		c0.06	0.07		c0.10	0.58		0.04	0.58	
v/s Ratio Perm	0.03		0.12	c0.19		0.01	c0.65		0.02	0.28		0.01
v/c Ratio	0.17	0.25	0.69	0.93	0.24	0.04	1.30	1.17	0.05	0.58	1.17	0.01
Uniform Delay, d1	37.5	38.0	41.3	37.2	29.8	28.1	31.3	26.5	13.6	22.6	27.0	13.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.4	7.7	30.4	0.3	0.0	165.9	82.3	0.1	4.3	83.8	0.0
Delay (s)	37.9	38.4	49.0	67.6	30.1	28.2	197.2	108.8	13.7	26.9	110.8	13.9
Level of Service	D	D	D	E	C	C	F	F	B	C	F	B
Approach Delay (s)		46.0			53.5			114.3			106.6	
Approach LOS		D			D			F			F	

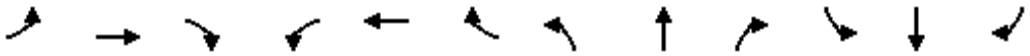
Intersection Summary			
HCM 2000 Control Delay	102.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.24		
Actuated Cycle Length (s)	105.9	Sum of lost time (s)	20.9
Intersection Capacity Utilization	94.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	81	9	8	184	185	20	45	3	205	47	33
Future Volume (vph)	13	81	9	8	184	185	20	45	3	205	47	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.988			0.934			0.995			0.984	
Flt Protected		0.994			0.999			0.986			0.965	
Satd. Flow (prot)	0	1809	0	0	1719	0	0	1807	0	0	1749	0
Flt Permitted		0.994			0.999			0.986			0.965	
Satd. Flow (perm)	0	1809	0	0	1719	0	0	1807	0	0	1749	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		207.5			193.0			213.8			429.8	
Travel Time (s)		14.9			13.9			15.4			30.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	14	90	10	9	204	206	22	50	3	228	52	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	114	0	0	419	0	0	75	0	0	317	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
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												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	13	81	9	8	184	185	20	45	3	205	47	33
Future Volume (vph)	13	81	9	8	184	185	20	45	3	205	47	33
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	14	90	10	9	204	206	22	50	3	228	52	37

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	114	419	75	317
Volume Left (vph)	14	9	22	228
Volume Right (vph)	10	206	3	37
Hadj (s)	0.01	-0.26	0.07	0.11
Departure Headway (s)	5.7	5.0	6.0	5.6
Degree Utilization, x	0.18	0.58	0.12	0.49
Capacity (veh/h)	562	687	517	606
Control Delay (s)	10.0	14.7	9.8	13.8
Approach Delay (s)	10.0	14.7	9.8	13.8
Approach LOS	A	B	A	B

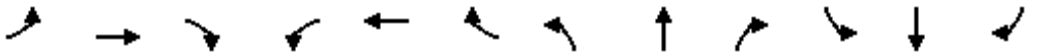
Intersection Summary				
Delay	13.4			
Level of Service	B			
Intersection Capacity Utilization	51.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	13.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	81	9	8	184	185	20	45	3	205	47	33
Future Vol, veh/h	13	81	9	8	184	185	20	45	3	205	47	33
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	90	10	9	204	206	22	50	3	228	52	37
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

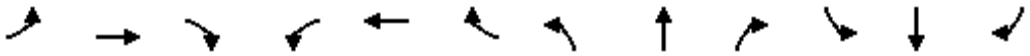
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10	14.6	9.9	13.8
HCM LOS	A	B	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	29%	13%	2%	72%
Vol Thru, %	66%	79%	49%	16%
Vol Right, %	4%	9%	49%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	68	103	377	285
LT Vol	20	13	8	205
Through Vol	45	81	184	47
RT Vol	3	9	185	33
Lane Flow Rate	76	114	419	317
Geometry Grp	1	1	1	1
Degree of Util (X)	0.125	0.181	0.578	0.488
Departure Headway (Hd)	5.944	5.684	4.97	5.543
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	601	629	725	649
Service Time	4	3.736	3.01	3.583
HCM Lane V/C Ratio	0.126	0.181	0.578	0.488
HCM Control Delay	9.9	10	14.6	13.8
HCM Lane LOS	A	A	B	B
HCM 95th-tile Q	0.4	0.7	3.7	2.7



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	44	106	138	105	7	47	92	52	20	140	257
Future Volume (vph)	70	44	106	138	105	7	47	92	52	20	140	257
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.935			0.996			0.963			0.917	
Flt Protected		0.984			0.973			0.988			0.998	
Satd. Flow (prot)	0	1695	0	0	1785	0	0	1753	0	0	1686	0
Flt Permitted		0.984			0.973			0.988			0.998	
Satd. Flow (perm)	0	1695	0	0	1785	0	0	1753	0	0	1686	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		130.2			198.3			214.8			416.4	
Travel Time (s)		9.4			14.3			15.5			30.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	78	49	118	153	117	8	52	102	58	22	156	286
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	245	0	0	278	0	0	212	0	0	464	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	70	44	106	138	105	7	47	92	52	20	140	257
Future Volume (vph)	70	44	106	138	105	7	47	92	52	20	140	257
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	78	49	118	153	117	8	52	102	58	22	156	286

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	245	278	212	464
Volume Left (vph)	78	153	52	22
Volume Right (vph)	118	8	58	286
Hadj (s)	-0.19	0.13	-0.08	-0.33
Departure Headway (s)	6.5	6.7	6.6	5.8
Degree Utilization, x	0.44	0.52	0.39	0.75
Capacity (veh/h)	482	478	461	581
Control Delay (s)	14.7	16.8	13.8	24.4
Approach Delay (s)	14.7	16.8	13.8	24.4
Approach LOS	B	C	B	C

Intersection Summary				
Delay	18.8			
Level of Service	C			
Intersection Capacity Utilization	58.0%	ICU Level of Service	B	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	18.5
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	70	44	106	138	105	7	47	92	52	20	140	257
Future Vol, veh/h	70	44	106	138	105	7	47	92	52	20	140	257
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	78	49	118	153	117	8	52	102	58	22	156	286
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	14.6	16.7	13.7	23.9
HCM LOS	B	C	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	25%	32%	55%	5%
Vol Thru, %	48%	20%	42%	34%
Vol Right, %	27%	48%	3%	62%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	191	220	250	417
LT Vol	47	70	138	20
Through Vol	92	44	105	140
RT Vol	52	106	7	257
Lane Flow Rate	212	244	278	463
Geometry Grp	1	1	1	1
Degree of Util (X)	0.386	0.439	0.515	0.745
Departure Headway (Hd)	6.545	6.47	6.678	5.787
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	548	552	536	621
Service Time	4.623	4.547	4.752	3.846
HCM Lane V/C Ratio	0.387	0.442	0.519	0.746
HCM Control Delay	13.7	14.6	16.7	23.9
HCM Lane LOS	B	B	C	C
HCM 95th-tile Q	1.8	2.2	2.9	6.6

MOVEMENT SUMMARY

Site: [101] Sixth Line & William Halton Parkway (General)

Output produced by SIDRA INTERSECTION Version: 10.0.8.241

2036 Future Total AM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Sixth Line															
1	L2	All MCs	48	2.0	48	2.0	1.051	102.1	LOS F	12.4	88.1	1.00	1.87	4.54	23.2
2	T1	All MCs	380	2.0	380	2.0	1.051	101.0	LOS F	13.0	92.9	1.00	1.88	4.60	23.4
3	R2	All MCs	242	2.0	242	2.0	1.051	98.1	LOS F	13.0	92.9	1.00	1.92	4.75	23.5
Approach			670	2.0	670	2.0	1.051	100.0	LOS F	13.0	92.9	1.00	1.89	4.65	23.4
East: William Halton Parkway															
4	L2	All MCs	90	2.0	90	2.0	0.406	11.3	LOS B	1.6	11.7	0.57	0.61	0.78	46.8
5	T1	All MCs	448	2.0	448	2.0	0.406	11.1	LOS B	1.6	11.7	0.55	0.60	0.76	48.5
6	R2	All MCs	202	2.0	202	2.0	0.107	3.0	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			740	2.0	740	2.0	0.406	8.9	LOS A	1.6	11.7	0.40	0.43	0.56	50.1
North: Sixth Line															
7	L2	All MCs	918	2.0	918	2.0	1.251	141.0	LOS F	71.1	506.4	1.00	3.88	9.58	19.9
8	T1	All MCs	317	2.0	317	2.0	0.445	11.2	LOS B	2.0	14.6	0.56	0.58	0.79	48.9
9	R2	All MCs	368	2.0	368	2.0	0.194	4.3	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			1602	2.0	1602	2.0	1.251	84.0	LOS F	71.1	506.4	0.68	2.34	5.65	26.8
West: William Halton Parkway															
10	L2	All MCs	300	2.0	300	2.0	1.015	74.5	LOS F	15.0	106.9	1.00	1.89	4.27	26.6
11	T1	All MCs	671	2.0	671	2.0	1.015	73.0	LOS F	15.5	110.4	1.00	1.91	4.35	27.5
12	R2	All MCs	106	2.0	106	2.0	0.056	3.0	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			1077	2.0	1077	2.0	1.015	66.5	LOS F	15.5	110.4	0.90	1.72	3.90	28.6
All Vehicles			4089	2.0	4089	2.0	1.251	68.4	LOS F	71.1	506.4	0.74	1.76	4.10	29.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [101] Ninth Line & William Halton Parkway (General)

Output produced by SIDRA INTERSECTION Version: 10.0.8.241

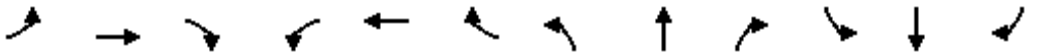
2036 Future Total AM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

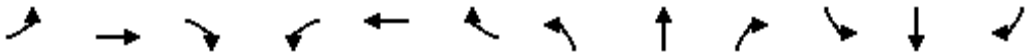
Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Ninth Line															
1	L2	All MCs	307	23.0	307	23.0	1.161	138.7	LOS F	20.3	166.3	1.00	2.69	7.18	20.5
2	T1	All MCs	412	2.0	412	2.0	1.161	125.5	LOS F	27.3	194.4	1.00	2.69	7.52	21.9
3	R2	All MCs	117	3.0	117	3.0	1.161	135.3	LOS F	27.3	194.4	1.00	2.69	7.56	22.0
Approach			836	9.8	836	9.8	1.161	131.7	LOS F	27.3	194.4	1.00	2.69	7.40	21.4
East: William Halton Parkway															
4	L2	All MCs	125	2.0	125	2.0	1.120	95.4	LOS F	38.0	272.1	1.00	2.80	6.70	24.4
5	T1	All MCs	1221	3.0	1221	3.0	1.120	95.0	LOS F	38.9	279.8	1.00	2.83	6.78	24.7
6	R2	All MCs	112	4.0	112	4.0	1.120	94.7	LOS F	38.9	279.8	1.00	2.85	6.87	24.7
Approach			1458	3.0	1458	3.0	1.120	95.0	LOS F	38.9	279.8	1.00	2.83	6.78	24.7
North: Ninth Line															
7	L2	All MCs	235	2.0	235	2.0	1.344	201.4	LOS F	42.2	300.5	1.00	3.46	10.76	17.9
8	T1	All MCs	742	2.0	742	2.0	1.344	199.5	LOS F	45.3	322.5	1.00	3.59	11.26	18.2
9	R2	All MCs	104	2.0	104	2.0	0.055	3.5	LOS A	0.0	0.0	0.00	0.00	0.00	56.4
Approach			1081	2.0	1081	2.0	1.344	181.0	LOS F	45.3	322.5	0.90	3.21	10.06	19.3
West: William Halton Parkway															
10	L2	All MCs	128	4.0	128	4.0	2.204	561.6	LOS F	236.6	1686.9	1.00	7.98	24.33	12.3
11	T1	All MCs	2153	2.0	2153	2.0	2.204	445.1	LOS F	236.6	1686.9	1.00	6.92	20.77	13.7
12	R2	All MCs	560	12.0	560	12.0	0.316	6.7	LOS A	0.0	0.0	0.00	0.00	0.00	56.1
Approach			2840	4.1	2840	4.1	2.204	364.0	LOS F	236.6	1686.9	0.80	5.60	16.84	16.0
All Vehicles			6216	4.2	6216	4.2	2.204	237.8	LOS F	236.6	1686.9	0.89	4.14	12.03	18.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	689	756	183	339	921	896	284	1836	249	526	2036	533
Future Volume (vph)	689	756	183	339	921	896	284	1836	249	526	2036	533
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	105.0		60.0	120.0		205.0	85.0		55.0	180.0		80.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Ped Bike Factor							1.00					0.99
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	3500	1566	3330	3500	1566	3395	4421	1536	3267	4421	1566
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3395	3500	1566	3330	3500	1566	3395	4421	1536	3267	4421	1545
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			134			131			120			230
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		207.8			119.4			182.8			224.9	
Travel Time (s)		12.5			7.2			11.0			13.5	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	4%	2%	2%	2%	2%	4%	6%	2%	2%
Adj. Flow (vph)	741	813	197	365	990	963	305	1974	268	566	2189	573
Shared Lane Traffic (%)												
Lane Group Flow (vph)	741	813	197	365	990	963	305	1974	268	566	2189	573
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	48.4	48.4	11.0	48.4	48.4	11.0	45.4	45.4	11.0	44.4	44.4
Total Split (s)	17.0	51.0	51.0	22.0	56.0	56.0	12.0	52.0	52.0	15.0	55.0	55.0
Total Split (%)	12.1%	36.4%	36.4%	15.7%	40.0%	40.0%	8.6%	37.1%	37.1%	10.7%	39.3%	39.3%
Maximum Green (s)	13.0	44.6	44.6	18.0	49.6	49.6	8.0	45.6	45.6	11.0	49.6	49.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	2.7	2.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	5.4	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		35.0	35.0		35.0	35.0		32.0	32.0		32.0	32.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	13.0	45.0	45.0	17.6	49.6	49.6	8.0	45.6	45.6	11.0	49.6	49.6
Actuated g/C Ratio	0.09	0.32	0.32	0.13	0.35	0.35	0.06	0.33	0.33	0.08	0.35	0.35
v/c Ratio	2.35	0.72	0.33	0.87	0.80	1.51	1.57	1.37	0.46	2.21	1.40	0.82
Control Delay	644.5	46.5	13.8	81.3	46.6	265.5	321.4	208.7	22.9	585.5	218.3	35.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	644.5	46.5	13.8	81.3	46.6	265.5	321.4	208.7	22.9	585.5	218.3	35.3
LOS	F	D	B	F	D	F	F	F	C	F	F	D
Approach Delay		295.9			143.0			202.7			249.3	
Approach LOS		F			F			F			F	
Queue Length 50th (m)	~172.7	105.2	12.4	51.8	129.5	~347.2	~61.5	~300.1	31.7	~129.5	~336.5	92.6
Queue Length 95th (m)	#211.2	128.8	32.3	#76.3	155.9	#427.1	#91.4	#332.9	58.0	#165.7	#368.0	#146.1
Internal Link Dist (m)		183.8			95.4			158.8			200.9	
Turn Bay Length (m)	105.0		60.0	120.0		205.0	85.0		55.0	180.0		80.0
Base Capacity (vph)	315	1124	594	428	1240	639	194	1439	581	256	1566	695
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.35	0.72	0.33	0.85	0.80	1.51	1.57	1.37	0.46	2.21	1.40	0.82

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 2.35	
Intersection Signal Delay: 220.8	Intersection LOS: F

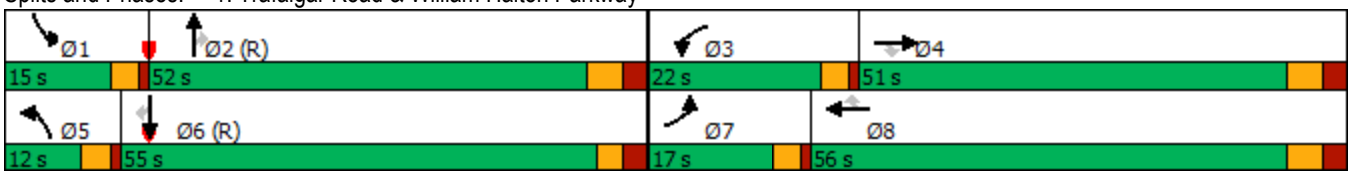
Intersection Capacity Utilization 124.6%	ICU Level of Service H
Analysis Period (min) 15	

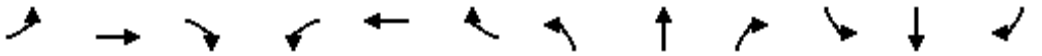
* User Entered Value

~ 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.

Splits and Phases: 1: Trafalgar Road & William Halton Parkway



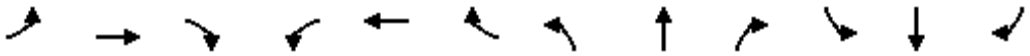


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	689	756	183	339	921	896	284	1836	249	526	2036	533
Future Volume (vph)	689	756	183	339	921	896	284	1836	249	526	2036	533
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	5.4	5.4
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	3500	1566	3330	3500	1566	3395	4421	1536	3267	4421	1545
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	3500	1566	3330	3500	1566	3395	4421	1536	3267	4421	1545
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)	741	813	197	365	990	963	305	1974	268	566	2189	573
RTOR Reduction (vph)	0	0	91	0	0	85	0	0	81	0	0	149
Lane Group Flow (vph)	741	813	106	365	990	878	305	1974	187	566	2189	424
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	2%	2%	2%	4%	2%	2%	2%	2%	4%	6%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	13.0	45.0	45.0	17.6	49.6	49.6	8.0	45.6	45.6	11.0	49.6	49.6
Effective Green, g (s)	13.0	45.0	45.0	17.6	49.6	49.6	8.0	45.6	45.6	11.0	49.6	49.6
Actuated g/C Ratio	0.09	0.32	0.32	0.13	0.35	0.35	0.06	0.33	0.33	0.08	0.35	0.35
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	5.4	5.4
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	315	1125	503	418	1240	554	194	1439	500	256	1566	547
v/s Ratio Prot	c0.22	0.23		0.11	0.28		0.09	0.45		c0.17	c0.50	
v/s Ratio Perm			0.07			c0.56			0.12			0.27
v/c Ratio	2.35	0.72	0.21	0.87	0.80	1.59	1.57	1.37	0.37	2.21	1.40	0.78
Uniform Delay, d1	63.5	42.0	34.6	60.1	40.7	45.2	66.0	47.2	36.2	64.5	45.2	40.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	618.4	2.9	0.4	17.9	4.2	272.0	280.8	171.8	2.1	557.5	183.0	10.3
Delay (s)	681.9	44.8	35.0	78.0	44.9	317.2	346.8	219.0	38.4	622.0	228.2	50.6
Level of Service	F	D	D	E	D	F	F	F	D	F	F	D
Approach Delay (s)		313.3			163.3			215.3			264.6	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	236.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.67		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	124.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	288	325	176	332	363	86	335	1964	186	203	1973	177
Future Volume (vph)	288	325	176	332	363	86	335	1964	186	203	1973	177
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		30.0	120.0		30.0	130.0		50.0	170.0		40.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	50.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	*0.80	0.91	1.00	*0.80	0.91
Frt			0.850		0.971			0.987			0.988	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1668	3500	1566	1750	3398	0	1750	4358	0	1750	4323	0
Flt Permitted	0.481			0.454			0.082			0.088		
Satd. Flow (perm)	845	3500	1566	836	3398	0	151	4358	0	162	4323	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			145		29			13			12	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		245.2			123.4			230.0			280.2	
Travel Time (s)		17.7			8.9			13.8			16.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Adj. Flow (vph)	303	342	185	349	382	91	353	2067	196	214	2077	186
Shared Lane Traffic (%)												
Lane Group Flow (vph)	303	342	185	349	473	0	353	2263	0	214	2263	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.02	1.01	1.01	1.02	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	41.4	41.4	41.4	11.0	41.4		11.0	37.3		11.0	37.3	
Total Split (s)	43.0	43.0	43.0	11.0	54.0		14.0	55.0		11.0	52.0	
Total Split (%)	35.8%	35.8%	35.8%	9.2%	45.0%		11.7%	45.8%		9.2%	43.3%	
Maximum Green (s)	36.6	36.6	36.6	7.0	47.6		10.0	48.7		7.0	45.7	
Yellow Time (s)	3.7	3.7	3.7	3.0	3.7		3.0	3.7		3.0	3.7	
All-Red Time (s)	2.7	2.7	2.7	1.0	2.7		1.0	2.6		1.0	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.4	6.4	6.4	4.0	6.4		4.0	6.3		4.0	6.3	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	5.0		3.0	5.0	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0	7.0		7.0			7.0			7.0	
Flash Dont Walk (s)	28.0	28.0	28.0		28.0			24.0			24.0	
Pedestrian Calls (#/hr)	0	0	0		0			0			0	
Act Effct Green (s)	36.6	36.6	36.6	50.0	47.6		61.0	48.7		55.0	45.7	
Actuated g/C Ratio	0.30	0.30	0.30	0.42	0.40		0.51	0.41		0.46	0.38	
v/c Ratio	1.18	0.32	0.32	0.87	0.35		1.68	1.27		1.29	1.37	
Control Delay	151.3	33.2	10.1	52.6	24.5		350.6	159.8		192.8	201.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	151.3	33.2	10.1	52.6	24.5		350.6	159.8		192.8	201.5	
LOS	F	C	B	D	C		F	F		F	F	
Approach Delay		71.2			36.5			185.6			200.7	
Approach LOS		E			D			F			F	
Queue Length 50th (m)	~85.3	32.6	6.7	58.9	37.8		~106.5	~281.5		~48.0	~294.5	
Queue Length 95th (m)	#139.7	45.3	24.0	#105.5	51.1		#164.8	#314.7		#96.3	#327.7	
Internal Link Dist (m)		221.2			99.4			206.0			256.2	
Turn Bay Length (m)	100.0		30.0	120.0			130.0			170.0		
Base Capacity (vph)	257	1067	578	401	1365		210	1776		166	1653	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	1.18	0.32	0.32	0.87	0.35		1.68	1.27		1.29	1.37	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 145			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.68			
Intersection Signal Delay: 158.9		Intersection LOS: F	
Intersection Capacity Utilization 108.6%		ICU Level of Service G	

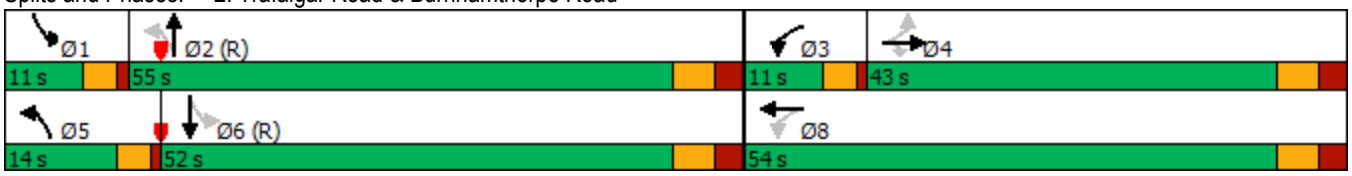
Analysis Period (min) 15

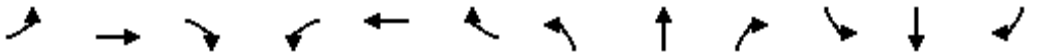
* User Entered Value

~ 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.

Splits and Phases: 2: Trafalgar Road & Burnhamthorpe Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	288	325	176	332	363	86	335	1964	186	203	1973	177
Future Volume (vph)	288	325	176	332	363	86	335	1964	186	203	1973	177
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4	6.4	4.0	6.4		4.0	6.3		4.0	6.3	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	*0.80		1.00	*0.80	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1668	3500	1566	1750	3399		1750	4358		1750	4322	
Flt Permitted	0.48	1.00	1.00	0.45	1.00		0.08	1.00		0.09	1.00	
Satd. Flow (perm)	845	3500	1566	836	3399		151	4358		161	4322	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	303	342	185	349	382	91	353	2067	196	214	2077	186
RTOR Reduction (vph)	0	0	101	0	17	0	0	8	0	0	7	0
Lane Group Flow (vph)	303	342	84	349	456	0	353	2255	0	214	2256	0
Heavy Vehicles (%)	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	36.6	36.6	36.6	47.6	47.6		58.7	48.7		52.7	45.7	
Effective Green, g (s)	36.6	36.6	36.6	47.6	47.6		58.7	48.7		52.7	45.7	
Actuated g/C Ratio	0.31	0.31	0.31	0.40	0.40		0.49	0.41		0.44	0.38	
Clearance Time (s)	6.4	6.4	6.4	4.0	6.4		4.0	6.3		4.0	6.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	257	1067	477	384	1348		207	1768		163	1645	
v/s Ratio Prot		0.10		c0.05	0.13		c0.14	0.52		0.08	0.52	
v/s Ratio Perm	c0.36		0.05	0.31			c0.69			0.50		
v/c Ratio	1.18	0.32	0.18	0.91	0.34		1.71	1.28		1.31	1.37	
Uniform Delay, d1	41.7	32.1	30.6	33.8	25.2		34.7	35.6		29.1	37.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	113.3	0.2	0.2	24.6	0.1		337.2	128.6		177.5	171.0	
Delay (s)	155.0	32.3	30.8	58.3	25.4		371.9	164.2		206.6	208.1	
Level of Service	F	C	C	E	C		F	F		F	F	
Approach Delay (s)		76.8			39.4			192.2			208.0	
Approach LOS		E			D			F			F	

Intersection Summary			
HCM 2000 Control Delay	165.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.50		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	108.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1013	1	984	1575	0	882
Future Volume (vph)	1013	1	984	1575	0	882
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	170.0		30.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			15.0		50.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected			0.950			
Satd. Flow (prot)	3433	0	1750	3500	1842	1566
Flt Permitted			0.106			
Satd. Flow (perm)	3433	0	195	3500	1842	1566
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						621
Link Speed (k/h)	60			60	50	
Link Distance (m)	657.5			390.6	221.9	
Travel Time (s)	39.5			23.4	16.0	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%
Adj. Flow (vph)	1055	1	1025	1641	0	919
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1056	0	1025	1641	0	919
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	10.0		2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6		2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	3	



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases			6			3
Detector Phase	2		1	6	3	3
Switch Phase						
Minimum Initial (s)	10.0		7.0	10.0	7.0	7.0
Minimum Split (s)	28.4		11.5	28.4	31.0	31.0
Total Split (s)	40.0		48.0	88.0	32.0	32.0
Total Split (%)	33.3%		40.0%	73.3%	26.7%	26.7%
Maximum Green (s)	33.6		44.0	81.6	28.0	28.0
Yellow Time (s)	3.7		3.0	3.7	3.0	3.0
All-Red Time (s)	2.7		1.0	2.7	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4		4.0	6.4	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	Max		None	None	Max	Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	15.0			15.0	20.0	20.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	33.6		84.0	81.6		28.0
Actuated g/C Ratio	0.28		0.70	0.68		0.23
v/c Ratio	1.10		1.45	0.69		1.09
Control Delay	100.7		238.7	13.5		74.4
Queue Delay	0.0		0.0	0.0		0.0
Total Delay	100.7		238.7	13.5		74.4
LOS	F		F	B		E
Approach Delay	100.7			100.1	74.4	
Approach LOS	F			F	E	
Queue Length 50th (m)	~148.3		~315.3	111.3		~124.2
Queue Length 95th (m)	#189.1		#393.6	134.2		#200.9
Internal Link Dist (m)	633.5			366.6	197.9	
Turn Bay Length (m)			170.0			
Base Capacity (vph)	961		706	2380		841
Starvation Cap Reductn	0		0	0		0
Spillback Cap Reductn	0		0	0		0
Storage Cap Reductn	0		0	0		0
Reduced v/c Ratio	1.10		1.45	0.69		1.09

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.45			
Intersection Signal Delay: 95.1		Intersection LOS: F	
Intersection Capacity Utilization 91.3%		ICU Level of Service F	
Analysis Period (min) 15			

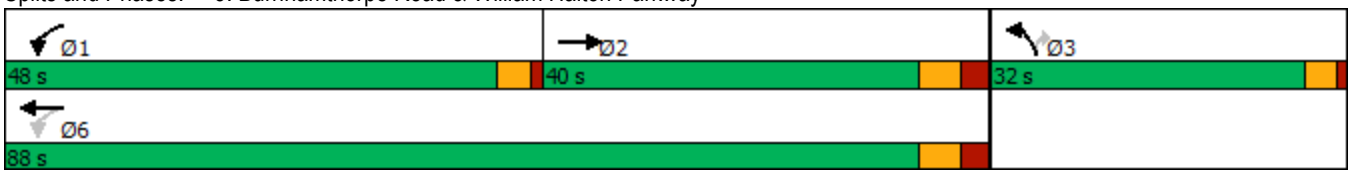
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

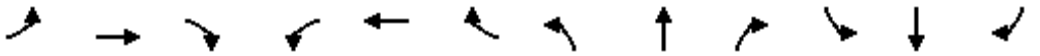
Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway



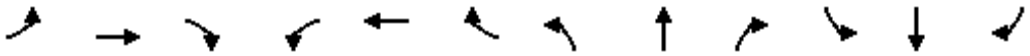


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1013	1	984	1575	0	882
Future Volume (vph)	1013	1	984	1575	0	882
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4		4.0	6.4		4.0
Lane Util. Factor	0.95		1.00	0.95		1.00
Frt	1.00		1.00	1.00		0.85
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	3432		1750	3500		1566
Flt Permitted	1.00		0.11	1.00		1.00
Satd. Flow (perm)	3432		196	3500		1566
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	1055	1	1025	1641	0	919
RTOR Reduction (vph)	0	0	0	0	0	476
Lane Group Flow (vph)	1056	0	1025	1641	0	443
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	3	
Permitted Phases			6			3
Actuated Green, G (s)	33.6		81.6	81.6		28.0
Effective Green, g (s)	33.6		81.6	81.6		28.0
Actuated g/C Ratio	0.28		0.68	0.68		0.23
Clearance Time (s)	6.4		4.0	6.4		4.0
Vehicle Extension (s)	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	960		703	2380		365
v/s Ratio Prot	0.31		c0.53	0.47		
v/s Ratio Perm			c0.46			c0.28
v/c Ratio	1.10		1.46	0.69		1.21
Uniform Delay, d1	43.2		32.5	11.6		46.0
Progression Factor	1.00		1.00	1.00		1.00
Incremental Delay, d2	60.4		214.0	0.8		118.7
Delay (s)	103.6		246.5	12.4		164.7
Level of Service	F		F	B		F
Approach Delay (s)	103.6			102.4	164.7	
Approach LOS	F			F	F	

Intersection Summary			
HCM 2000 Control Delay	115.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.43		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.4
Intersection Capacity Utilization	91.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	625	1710	198	298	1848	723	324	2112	232	698	1550	501
Future Volume (vph)	625	1710	198	298	1848	723	324	2112	232	698	1550	501
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	160.0		85.0	95.0		260.0	90.0		50.0	250.0		100.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Ped Bike Factor	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	4378	1566	3395	4421	1566	3395	4421	1566	3362	4421	1566
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3394	4378	1527	3391	4421	1540	3393	4421	1541	3361	4421	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			132			130			96			142
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		592.0			816.3			644.9			1233.0	
Travel Time (s)		30.4			42.0			38.7			74.0	
Confl. Peds. (#/hr)	5		15	15		5	6		4	4		6
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%
Adj. Flow (vph)	644	1763	204	307	1905	745	334	2177	239	720	1598	516
Shared Lane Traffic (%)												
Lane Group Flow (vph)	644	1763	204	307	1905	745	334	2177	239	720	1598	516
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

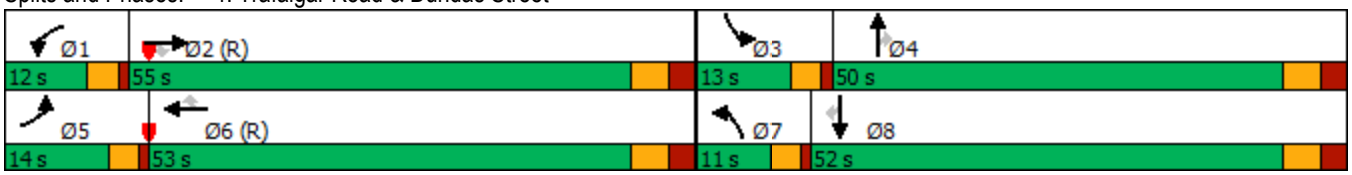


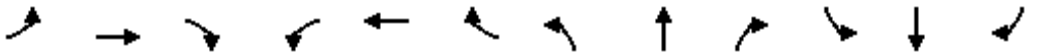
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	12.0	50.4	50.4	12.0	50.4	50.4	11.0	48.4	48.4	11.0	48.4	48.4
Total Split (s)	14.0	55.0	55.0	12.0	53.0	53.0	11.0	50.0	50.0	13.0	52.0	52.0
Total Split (%)	10.8%	42.3%	42.3%	9.2%	40.8%	40.8%	8.5%	38.5%	38.5%	10.0%	40.0%	40.0%
Maximum Green (s)	10.0	48.6	48.6	8.0	46.6	46.6	7.0	43.6	43.6	9.0	45.6	45.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		37.0	37.0		37.0	37.0		35.0	35.0		35.0	35.0
Pedestrian Calls (#/hr)		15	15		5	5		4	4		6	6
Act Effct Green (s)	10.0	48.6	48.6	8.0	46.6	46.6	7.0	43.6	43.6	9.0	45.6	45.6
Actuated g/C Ratio	0.08	0.37	0.37	0.06	0.36	0.36	0.05	0.34	0.34	0.07	0.35	0.35
v/c Ratio	2.47	1.08	0.31	1.48	1.20	1.17	1.84	1.47	0.41	3.10	1.03	0.82
Control Delay	696.1	85.4	11.8	279.4	134.7	125.5	429.6	247.8	21.8	977.2	72.6	39.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	696.1	85.4	11.8	279.4	134.7	125.5	429.6	247.8	21.8	977.2	72.6	39.3
LOS	F	F	B	F	F	F	F	F	C	F	E	D
Approach Delay		230.3			147.4			250.2			296.4	
Approach LOS		F			F			F			F	
Queue Length 50th (m)	~140.8	~209.5	12.0	~55.5	~246.7	~205.4	~66.5	~318.3	27.3	~165.6	~182.4	90.5
Queue Length 95th (m)	#177.6	#242.7	30.1	#84.6	#280.0	#280.0	#96.4	#350.7	50.6	#203.1	#216.1	#148.4
Internal Link Dist (m)		568.0			792.3			620.9			1209.0	
Turn Bay Length (m)	160.0		85.0	95.0		260.0	90.0		50.0	250.0		100.0
Base Capacity (vph)	261	1636	653	208	1584	635	182	1482	580	232	1550	631
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.47	1.08	0.31	1.48	1.20	1.17	1.84	1.47	0.41	3.10	1.03	0.82

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 3.10	
Intersection Signal Delay: 230.0	Intersection LOS: F

Intersection Capacity Utilization 132.5%	ICU Level of Service H
Analysis Period (min) 15	
* User Entered Value	
~ 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.	

Splits and Phases: 4: Trafalgar Road & Dundas Street

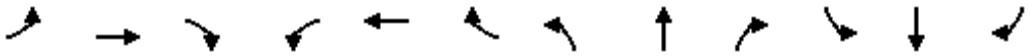




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	625	1710	198	298	1848	723	324	2112	232	698	1550	501
Future Volume (vph)	625	1710	198	298	1848	723	324	2112	232	698	1550	501
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	4378	1527	3395	4421	1540	3395	4421	1541	3362	4421	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	4378	1527	3395	4421	1540	3395	4421	1541	3362	4421	1538
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	644	1763	204	307	1905	745	334	2177	239	720	1598	516
RTOR Reduction (vph)	0	0	83	0	0	83	0	0	64	0	0	92
Lane Group Flow (vph)	644	1763	121	307	1905	662	334	2177	175	720	1598	424
Confl. Peds. (#/hr)	5		15	15		5	6		4	4		6
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	10.0	48.6	48.6	8.0	46.6	46.6	7.0	43.6	43.6	9.0	45.6	45.6
Effective Green, g (s)	10.0	48.6	48.6	8.0	46.6	46.6	7.0	43.6	43.6	9.0	45.6	45.6
Actuated g/C Ratio	0.08	0.37	0.37	0.06	0.36	0.36	0.05	0.34	0.34	0.07	0.35	0.35
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	261	1636	570	208	1584	552	182	1482	516	232	1550	539
v/s Ratio Prot	c0.19	0.40		0.09	c0.43		0.10	c0.49		c0.21	0.36	
v/s Ratio Perm			0.08			0.43			0.11			0.28
v/c Ratio	2.47	1.08	0.21	1.48	1.20	1.20	1.84	1.47	0.34	3.10	1.03	0.79
Uniform Delay, d1	60.0	40.7	27.7	61.0	41.7	41.7	61.5	43.2	32.4	60.5	42.2	37.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	671.7	46.4	0.9	238.3	97.5	105.9	396.4	214.8	0.8	957.9	31.2	8.6
Delay (s)	731.7	87.1	28.5	299.3	139.2	147.6	457.9	258.0	33.2	1018.4	73.4	46.4
Level of Service	F	F	C	F	F	F	F	F	C	F	E	D
Approach Delay (s)		241.5			158.0			262.7			308.6	
Approach LOS		F			F			F			F	

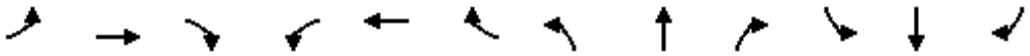
Intersection Summary			
HCM 2000 Control Delay	241.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.55		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	132.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



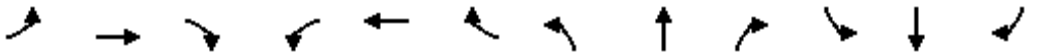
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	238	432	65	235	651	520	11	304	170	345	375	282
Future Volume (vph)	238	432	65	235	651	520	11	304	170	345	375	282
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Frt		0.987			0.944			0.947			0.958	
Flt Protected		0.984			0.992			0.999			0.983	
Satd. Flow (prot)	0	3399	0	0	3277	0	0	3311	0	0	3296	0
Flt Permitted		0.984			0.992			0.999			0.983	
Satd. Flow (perm)	0	3399	0	0	3277	0	0	3311	0	0	3296	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		476.6			825.2			671.6			229.3	
Travel Time (s)		28.6			49.5			40.3			13.8	
Confl. Bikes (#/hr)						1			1			
Peak Hour Factor	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)	243	441	66	240	664	531	11	310	173	352	383	288
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	750	0	0	1435	0	0	494	0	0	1023	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization	119.3%	ICU Level of Service	H
Analysis Period (min)	15		

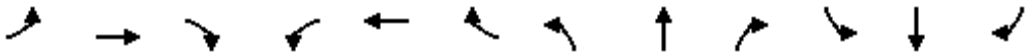


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	238	432	65	235	651	520	11	304	170	345	375	282
Future Volume (veh/h)	238	432	65	235	651	520	11	304	170	345	375	282
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	243	441	66	240	664	531	11	310	173	352	383	288
Approach Volume (veh/h)		750			1435			494			1023	
Crossing Volume (veh/h)		975			564			1036			915	
High Capacity (veh/h)		635			887			604			667	
High v/c (veh/h)		1.18			1.62			0.82			1.53	
Low Capacity (veh/h)		494			713			467			521	
Low v/c (veh/h)		1.52			2.01			1.06			1.96	

Intersection Summary				
Maximum v/c High	1.62			
Maximum v/c Low	2.01			
Intersection Capacity Utilization	119.3%	ICU Level of Service	H	



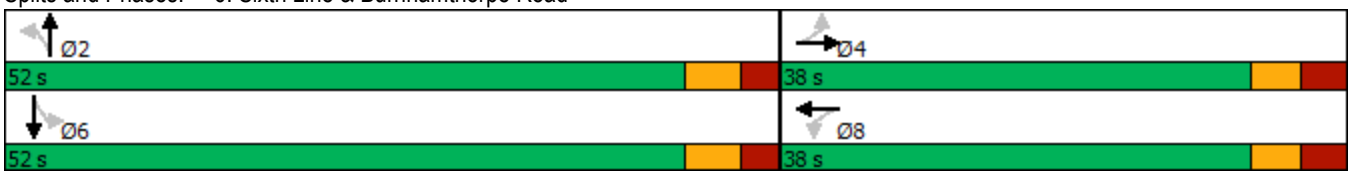
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	115	48	143	213	57	95	442	170	82	706	33
Future Volume (vph)	34	115	48	143	213	57	95	442	170	82	706	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	40.0		0.0	40.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			15.0			15.0			50.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.956			0.968			0.958			0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3346	0	1750	3326	0	1750	3344	0	1750	3475	0
Flt Permitted	0.575			0.643			0.339			0.403		
Satd. Flow (perm)	1059	3346	0	1184	3326	0	624	3344	0	742	3475	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		51			41			91			7	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		241.5			345.8			218.8			671.6	
Travel Time (s)		17.4			24.9			13.1			40.3	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	2%	2%	11%	2%	2%	3%	2%	2%	2%
Adj. Flow (vph)	36	122	51	152	227	61	101	470	181	87	751	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	173	0	152	288	0	101	651	0	87	786	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	

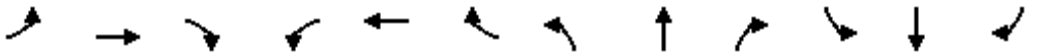


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	34.5	34.5		34.5	34.5		32.4	32.4		32.4	32.4	
Total Split (s)	38.0	38.0		38.0	38.0		52.0	52.0		52.0	52.0	
Total Split (%)	42.2%	42.2%		42.2%	42.2%		57.8%	57.8%		57.8%	57.8%	
Maximum Green (s)	31.5	31.5		31.5	31.5		45.6	45.6		45.6	45.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.2	3.2		3.2	3.2		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		19.0	19.0		19.0	19.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	15.1	15.1		15.1	15.1		45.8	45.8		45.8	45.8	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.62	0.62		0.62	0.62	
v/c Ratio	0.17	0.24		0.63	0.41		0.26	0.31		0.19	0.36	
Control Delay	25.2	17.3		38.7	23.0		9.9	6.6		8.7	8.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	25.2	17.3		38.7	23.0		9.9	6.6		8.7	8.0	
LOS	C	B		D	C		A	A		A	A	
Approach Delay		18.7			28.4			7.0			8.1	
Approach LOS		B			C			A			A	
Queue Length 50th (m)	4.1	7.3		19.3	15.5		5.4	15.8		4.5	23.8	
Queue Length 95th (m)	11.2	14.6		36.6	25.4		17.2	32.1		13.9	45.0	
Internal Link Dist (m)		217.5			321.8			194.8			647.6	
Turn Bay Length (m)	55.0			40.0			40.0			30.0		
Base Capacity (vph)	453	1463		507	1448		387	2108		460	2158	
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	0.08	0.12		0.30	0.20		0.26	0.31		0.19	0.36	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 73.8			
Natural Cycle: 70			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 12.7		Intersection LOS: B	
Intersection Capacity Utilization 67.1%		ICU Level of Service C	
Analysis Period (min) 15			

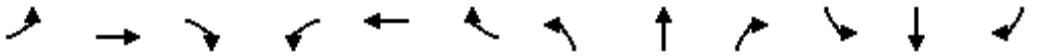
Splits and Phases: 6: Sixth Line & Burnhamthorpe Road



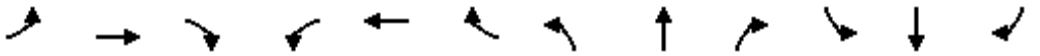


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	115	48	143	213	57	95	442	170	82	706	33
Future Volume (vph)	34	115	48	143	213	57	95	442	170	82	706	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.97		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)	1750	3345		1750	3327		1750	3345		1750	3477	
Flt Permitted	0.58	1.00		0.64	1.00		0.34	1.00		0.40	1.00	
Satd. Flow (perm)	1060	3345		1184	3327		625	3345		742	3477	
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)	36	122	51	152	227	61	101	470	181	87	751	35
RTOR Reduction (vph)	0	41	0	0	33	0	0	35	0	0	3	0
Lane Group Flow (vph)	36	132	0	152	255	0	101	616	0	87	783	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	11%	2%	2%	3%	2%	2%	2%
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)	15.1	15.1		15.1	15.1		45.8	45.8		45.8	45.8	
Effective Green, g (s)	15.1	15.1		15.1	15.1		45.8	45.8		45.8	45.8	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.62	0.62		0.62	0.62	
Clearance Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	216	684		242	680		387	2075		460	2157	
v/s Ratio Prot		0.04			0.08			0.18			c0.23	
v/s Ratio Perm	0.03			c0.13			0.16			0.12		
v/c Ratio	0.17	0.19		0.63	0.38		0.26	0.30		0.19	0.36	
Uniform Delay, d1	24.2	24.3		26.8	25.3		6.3	6.5		6.0	6.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.1		5.0	0.3		1.6	0.4		0.9	0.5	
Delay (s)	24.5	24.4		31.8	25.6		8.0	6.9		6.9	7.3	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		24.5			27.8			7.0			7.3	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	73.8	Sum of lost time (s)	12.9
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	0	6	550	2	19	7	2704	0	0	2279	0
Future Volume (vph)	7	0	6	550	2	19	7	2704	0	0	2279	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		5.0	0.0		60.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		1	1		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt			0.850		0.999	0.850						
Flt Protected	0.950			0.950	0.953		0.950					
Satd. Flow (prot)	1526	0	1331	1615	1541	1431	1750	3500	0	0	4980	0
Flt Permitted	0.388			0.950	0.953		0.099					
Satd. Flow (perm)	623	0	1331	1615	1541	1431	182	3500	0	0	4980	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			73			73						
Link Speed (k/h)		20			60			80			80	
Link Distance (m)		81.5			393.0			34.5			195.6	
Travel Time (s)		14.7			23.6			1.6			8.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	17%	2%	20%	5%	100%	6%	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	7	0	6	573	2	20	7	2817	0	0	2374	0
Shared Lane Traffic (%)				50%		10%						
Lane Group Flow (vph)	7	0	6	286	291	18	7	2817	0	0	2374	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1		1	1	2	1	1	2			2	
Detector Template	Left		Right	Left	Thru	Right	Left	Thru			Thru	
Leading Detector (m)	2.0		2.0	2.0	10.0	2.0	2.0	10.0			10.0	
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Size(m)	2.0		2.0	2.0	0.6	2.0	2.0	0.6			0.6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 2 Position(m)					9.4			9.4			9.4	
Detector 2 Size(m)					0.6			0.6			0.6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	



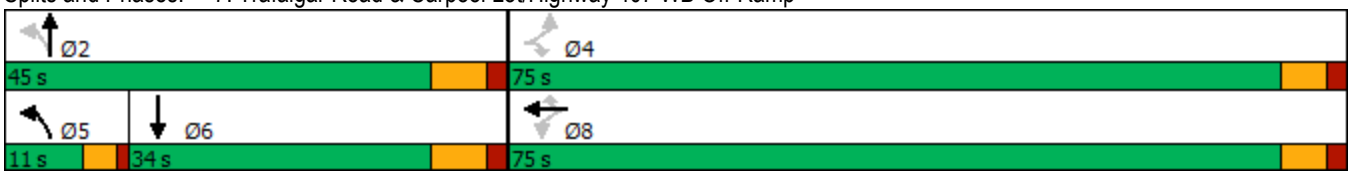
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8		8	2					
Detector Phase	4		4	8	8	8	5	2			6	
Switch Phase												
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	4.0	35.0			7.0	
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5	11.0	42.0			22.5	
Total Split (s)	75.0		75.0	75.0	75.0	75.0	11.0	45.0			34.0	
Total Split (%)	62.5%		62.5%	62.5%	62.5%	62.5%	9.2%	37.5%			28.3%	
Maximum Green (s)	69.0		69.0	69.0	69.0	69.0	7.0	38.0			27.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0	3.0	5.0			5.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0	1.0	2.0			2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Recall Mode	None		None	None	None	None	None	Min			Min	
Act Effct Green (s)	18.3		18.3	18.3	18.3	18.3	41.2	38.2			36.4	
Actuated g/C Ratio	0.26		0.26	0.26	0.26	0.26	0.59	0.55			0.52	
v/c Ratio	0.04		0.01	0.67	0.72	0.04	0.03	1.47			0.91	
Control Delay	18.6		0.0	31.1	33.7	0.2	7.9	233.3			24.6	
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	18.6		0.0	31.1	33.7	0.2	7.9	233.3			24.6	
LOS	B		A	C	C	A	A	F			C	
Approach Delay		10.0			31.4			232.8			24.6	
Approach LOS		A			C			F			C	
Queue Length 50th (m)	0.7		0.0	34.7	37.4	0.0	0.3	~267.3			87.4	
Queue Length 95th (m)	3.3		0.0	58.3	63.2	0.0	2.1	#358.0			#194.4	
Internal Link Dist (m)		57.5			369.0			10.5			171.6	
Turn Bay Length (m)			5.0			60.0						
Base Capacity (vph)	604		1292	1566	1494	1389	266	1920			2603	
Starvation Cap Reductn	0		0	0	0	0	0	0			0	
Spillback Cap Reductn	0		0	0	0	0	0	0			0	
Storage Cap Reductn	0		0	0	0	0	0	0			0	
Reduced v/c Ratio	0.01		0.00	0.18	0.19	0.01	0.03	1.47			0.91	

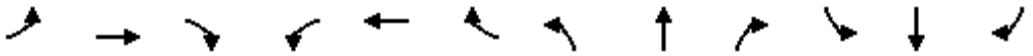
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 69.6			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.47			
Intersection Signal Delay: 126.5		Intersection LOS: F	
Intersection Capacity Utilization 107.7%		ICU Level of Service G	
Analysis Period (min) 15			

~ 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.

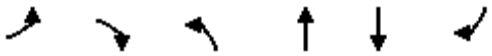
Splits and Phases: 7: Trafalgar Road & Carpool Lot/Highway 407 WB Off-Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	0	6	550	2	19	7	2704	0	0	2279	0
Future Volume (vph)	7	0	6	550	2	19	7	2704	0	0	2279	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	6.0	4.0	7.0			7.0	
Lane Util. Factor	1.00		1.00	0.95	0.91	0.95	1.00	0.95			0.91	
Frt	1.00		0.85	1.00	1.00	0.85	1.00	1.00			1.00	
Flt Protected	0.95		1.00	0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1526		1331	1615	1541	1431	1750	3500			4980	
Flt Permitted	0.39		1.00	0.95	0.95	1.00	0.10	1.00			1.00	
Satd. Flow (perm)	623		1331	1615	1541	1431	182	3500			4980	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	7	0	6	573	2	20	7	2817	0	0	2374	0
RTOR Reduction (vph)	0	0	4	0	0	13	0	0	0	0	0	0
Lane Group Flow (vph)	7	0	2	286	291	5	7	2817	0	0	2374	0
Heavy Vehicles (%)	17%	2%	20%	5%	100%	6%	2%	2%	2%	2%	3%	2%
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	
Permitted Phases	4		4	8		8	2					
Actuated Green, G (s)	18.3		18.3	18.3	18.3	18.3	41.5	41.5			36.4	
Effective Green, g (s)	18.3		18.3	18.3	18.3	18.3	41.5	41.5			36.4	
Actuated g/C Ratio	0.25		0.25	0.25	0.25	0.25	0.57	0.57			0.50	
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)	156		334	405	387	359	127	1995			2490	
v/s Ratio Prot							0.00	c0.80			0.48	
v/s Ratio Perm	0.01		0.00	0.18	0.19	0.00	0.03					
v/c Ratio	0.04		0.00	0.71	0.75	0.01	0.06	1.41			0.95	
Uniform Delay, d1	20.6		20.4	24.8	25.2	20.5	13.4	15.6			17.4	
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.1		0.0	5.5	8.0	0.0	0.2	188.5			9.4	
Delay (s)	20.8		20.4	30.3	33.2	20.5	13.6	204.1			26.8	
Level of Service	C		C	C	C	C	B	F			C	
Approach Delay (s)		20.6			31.4			203.6			26.8	
Approach LOS		C			C			F			C	

Intersection Summary			
HCM 2000 Control Delay	113.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.30		
Actuated Cycle Length (s)	72.8	Sum of lost time (s)	17.0
Intersection Capacity Utilization	107.7%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↑↑↑	↑↑	↱
Traffic Volume (vph)	0	0	0	2774	2886	47
Future Volume (vph)	0	0	0	2774	2886	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.95	1.00
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	5029	3433	1521
Flt Permitted						
Satd. Flow (perm)	0	0	0	5029	3433	1521
Link Speed (k/h)	60			80	80	
Link Distance (m)	166.7			156.0	34.5	
Travel Time (s)	10.0			7.0	1.6	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	4%	5%
Adj. Flow (vph)	0	0	0	2890	3006	49
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2890	3006	49
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 83.1%		ICU Level of Service E	
Analysis Period (min) 15			

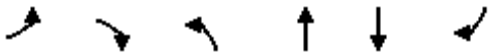
Intersection Sign configuration not allowed in HCM analysis.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	2774	274	0	2886
Future Volume (vph)	0	0	2774	274	0	2886
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt				0.850		
Flt Protected						
Satd. Flow (prot)	0	0	3500	1521	0	3433
Flt Permitted						
Satd. Flow (perm)	0	0	3500	1521	0	3433
Link Speed (k/h)	30		80			80
Link Distance (m)	189.2		37.4			156.0
Travel Time (s)	22.7		1.7			7.0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	5%	2%	4%
Adj. Flow (vph)	0	0	2890	285	0	3006
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	2890	285	0	3006
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Free		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 83.1%		ICU Level of Service E	
Analysis Period (min) 15			

Intersection Sign configuration not allowed in HCM analysis.



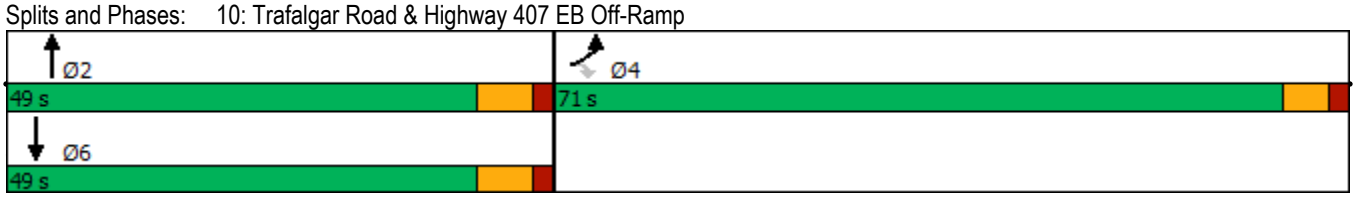
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	40	413	0	3004	2674	0
Future Volume (vph)	40	413	0	3004	2674	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	0.95	0.95	1.00
Frt	0.876	0.850				
Flt Protected	0.991					
Satd. Flow (prot)	1348	1214	0	3500	3466	0
Flt Permitted	0.991					
Satd. Flow (perm)	1348	1214	0	3500	3466	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						
Link Speed (k/h)	60			80	80	
Link Distance (m)	415.1			117.5	129.7	
Travel Time (s)	24.9			5.3	5.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	25%	2%	2%	3%	2%
Adj. Flow (vph)	43	439	0	3196	2845	0
Shared Lane Traffic (%)		46%				
Lane Group Flow (vph)	245	237	0	3196	2845	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (m)	2.0	2.0		10.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	2.0		0.6	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						

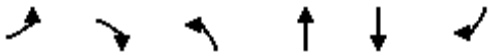
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Initial (s)	6.0	6.0		20.0	20.0	
Minimum Split (s)	24.0	24.0		27.0	27.0	
Total Split (s)	71.0	71.0		49.0	49.0	
Total Split (%)	59.2%	59.2%		40.8%	40.8%	
Maximum Green (s)	65.0	65.0		42.0	42.0	
Yellow Time (s)	4.0	4.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		7.0	7.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		Max	Max	
Act Effct Green (s)	19.5	19.5		42.2	42.2	
Actuated g/C Ratio	0.26	0.26		0.56	0.56	
v/c Ratio	0.70	0.75		1.62	1.45	
Control Delay	35.8	40.5		301.0	228.0	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	35.8	40.5		301.0	228.0	
LOS	D	D		F	F	
Approach Delay	38.1			301.0	228.0	
Approach LOS	D			F	F	
Queue Length 50th (m)	31.0	32.1		~345.6	~292.2	
Queue Length 95th (m)	53.4	56.4		#448.5	#389.0	
Internal Link Dist (m)	391.1			93.5	105.7	
Turn Bay Length (m)						
Base Capacity (vph)	1177	1060		1975	1956	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.21	0.22		1.62	1.45	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 74.8			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.62			
Intersection Signal Delay: 249.7		Intersection LOS: F	
Intersection Capacity Utilization 104.6%		ICU Level of Service G	
Analysis Period (min) 15			

~ 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.

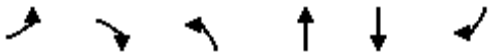
Splits and Phases: 10: Trafalgar Road & Highway 407 EB Off-Ramp





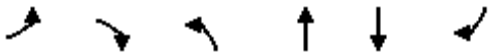
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	40	413	0	3004	2674	0
Future Volume (vph)	40	413	0	3004	2674	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		0.95	0.95	
Frt	0.88	0.85		1.00	1.00	
Flt Protected	0.99	1.00		1.00	1.00	
Satd. Flow (prot)	1349	1214		3500	3466	
Flt Permitted	0.99	1.00		1.00	1.00	
Satd. Flow (perm)	1349	1214		3500	3466	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	43	439	0	3196	2845	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	245	237	0	3196	2845	0
Heavy Vehicles (%)	2%	25%	2%	2%	3%	2%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	19.5	19.5		42.2	42.2	
Effective Green, g (s)	19.5	19.5		42.2	42.2	
Actuated g/C Ratio	0.26	0.26		0.56	0.56	
Clearance Time (s)	6.0	6.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	352	316		1977	1958	
v/s Ratio Prot	0.18			c0.91	0.82	
v/s Ratio Perm		c0.20				
v/c Ratio	0.70	0.75		1.62	1.45	
Uniform Delay, d1	24.9	25.4		16.2	16.2	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.9	9.6		279.8	206.8	
Delay (s)	30.8	35.0		296.1	223.0	
Level of Service	C	C		F	F	
Approach Delay (s)	32.9			296.1	223.0	
Approach LOS	C			F	F	

Intersection Summary			
HCM 2000 Control Delay	244.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.34		
Actuated Cycle Length (s)	74.7	Sum of lost time (s)	13.0
Intersection Capacity Utilization	104.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	3044	2674	22
Future Volume (vph)	0	0	0	3044	2674	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	3500	3466	1566
Flt Permitted						
Satd. Flow (perm)	0	0	0	3500	3466	1566
Link Speed (k/h)	30			80	80	
Link Distance (m)	113.6			129.7	37.4	
Travel Time (s)	13.6			5.8	1.7	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	0	0	0	3238	2845	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	3238	2845	23
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 104.6%		ICU Level of Service G	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	3044	2674	22
Future Volume (Veh/h)	0	0	0	3044	2674	22
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	0	3238	2845	23
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				130	228	
pX, platoon unblocked	0.69	0.51	0.51			
vC, conflicting volume	4464	1422	2868			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1898	0	2739			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	42	548	73			

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	1619	1619	1422	1422	23
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	23
cSH	1700	1700	1700	1700	1700
Volume to Capacity	0.95	0.95	0.84	0.84	0.01
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					
Approach Delay (s)	0.0		0.0		
Approach LOS					

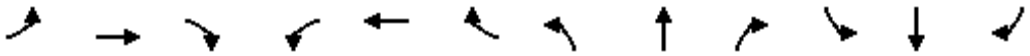
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	104.6%	ICU Level of Service	G
Analysis Period (min)	15		



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	3004	331	0	3085
Future Volume (vph)	0	0	3004	331	0	3085
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.91
Frt				0.850		
Flt Protected						
Satd. Flow (prot)	0	0	3500	1452	0	4885
Flt Permitted						
Satd. Flow (perm)	0	0	3500	1452	0	4885
Link Speed (k/h)	50		80			80
Link Distance (m)	246.0		145.5			117.5
Travel Time (s)	17.7		6.5			5.3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	10%	2%	5%
Adj. Flow (vph)	0	0	3196	352	0	3282
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	3196	352	0	3282
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Free		Free			Free

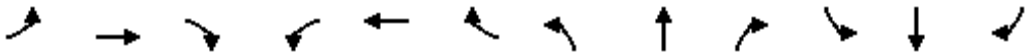
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 86.4%		ICU Level of Service E	
Analysis Period (min) 15			

Intersection Sign configuration not allowed in HCM analysis.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	1564	346	154	1896	144	504	707	252	123	365	113
Future Volume (vph)	43	1564	346	154	1896	144	504	707	252	123	365	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.973			0.990			0.974			0.972	
Flt Protected		0.999			0.997			0.983			0.990	
Satd. Flow (prot)	0	3354	0	0	3454	0	0	3340	0	0	3368	0
Flt Permitted		0.999			0.997			0.983			0.990	
Satd. Flow (perm)	0	3354	0	0	3454	0	0	3340	0	0	3368	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		234.8			101.3			359.6			262.5	
Travel Time (s)		14.1			6.1			21.6			15.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	4%	2%	10%	2%	2%	2%	3%	2%	2%	2%	2%	2%
Adj. Flow (vph)	45	1629	360	160	1975	150	525	736	263	128	380	118
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2034	0	0	2285	0	0	1524	0	0	626	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

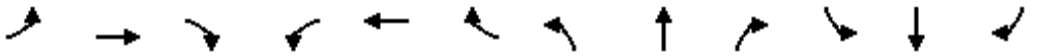
Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 189.8%		ICU Level of Service H	
Analysis Period (min) 15			



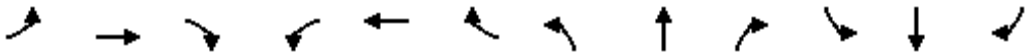
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	43	1564	346	154	1896	144	504	707	252	123	365	113
Future Volume (veh/h)	43	1564	346	154	1896	144	504	707	252	123	365	113
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	45	1629	360	160	1975	150	525	736	262	128	380	118
Approach Volume (veh/h)		2034			2285			1523			626	
Crossing Volume (veh/h)		668			1306#			1802#			2660#	
High Capacity (veh/h)		816			483			318			151	
High v/c (veh/h)		2.49			4.73			4.79			4.16	
Low Capacity (veh/h)		650			365			229			99	
Low v/c (veh/h)		3.13			6.27			6.66			6.33	

Intersection Summary				
Maximum v/c High	4.79			
Maximum v/c Low	6.66			
Intersection Capacity Utilization	189.8%	ICU Level of Service	H	

Crossing flow exceeds 1200, method is not applicable



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	859	70	219	1323	99	55	46	425	247	34	19
Future Volume (vph)	19	859	70	219	1323	99	55	46	425	247	34	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	50.0		30.0	30.0		0.0	40.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00		0.97	1.00	0.98		1.00	0.99	
Frt		0.989				0.850		0.865			0.947	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3453	0	1750	3500	1566	1750	1566	0	1750	1732	0
Flt Permitted	0.093			0.179			0.719			0.259		
Satd. Flow (perm)	171	3453	0	329	3500	1516	1319	1566	0	476	1732	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13				54		74			16	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		825.2			198.4			580.4			190.6	
Travel Time (s)		49.5			11.9			41.8			13.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	21	954	78	243	1470	110	61	51	472	274	38	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	1032	0	243	1470	110	61	523	0	274	59	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6		6	4			8		
Detector Phase	2	2		6	6	6	4	4		8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	10.0	10.0		10.0	10.0	
Minimum Split (s)	32.1	32.1		32.1	32.1	32.1	34.4	34.4		34.4	34.4	
Total Split (s)	48.0	48.0		48.0	48.0	48.0	42.0	42.0		42.0	42.0	
Total Split (%)	53.3%	53.3%		53.3%	53.3%	53.3%	46.7%	46.7%		46.7%	46.7%	
Maximum Green (s)	42.9	42.9		42.9	42.9	42.9	36.6	36.6		36.6	36.6	
Yellow Time (s)	3.7	3.7		3.7	3.7	3.7	3.3	3.3		3.3	3.3	
All-Red Time (s)	1.4	1.4		1.4	1.4	1.4	2.1	2.1		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.1	5.1		5.1	5.1	5.1	5.4	5.4		5.4	5.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max	Max	None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	20.0	20.0		20.0	20.0	20.0	22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)	5	5		5	5	5	5	5		5	5	
Act Effct Green (s)	42.9	42.9		42.9	42.9	42.9	36.6	36.6		36.6	36.6	
Actuated g/C Ratio	0.48	0.48		0.48	0.48	0.48	0.41	0.41		0.41	0.41	
v/c Ratio	0.26	0.62		1.56	0.88	0.15	0.11	0.77		1.42	0.08	
Control Delay	24.3	19.4		303.8	29.1	7.9	17.4	28.7		242.7	13.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	24.3	19.4		303.8	29.1	7.9	17.4	28.7		242.7	13.2	
LOS	C	B		F	C	A	B	C		F	B	
Approach Delay		19.5			64.4			27.6			202.1	
Approach LOS		B			E			C			F	
Queue Length 50th (m)	2.1	66.3		~59.8	115.8	5.1	6.4	66.0		~64.4	4.4	
Queue Length 95th (m)	8.5	86.1		#78.8	#150.4	13.7	14.2	#108.5		#110.5	11.7	
Internal Link Dist (m)		801.2			174.4			556.4			166.6	
Turn Bay Length (m)	30.0			50.0		30.0	30.0			40.0		
Base Capacity (vph)	81	1652		156	1668	750	536	680		193	713	
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	
Reduced v/c Ratio	0.26	0.62		1.56	0.88	0.15	0.11	0.77		1.42	0.08	

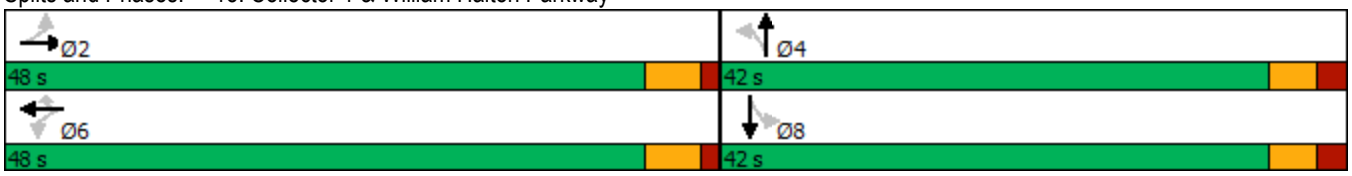
Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.56			
Intersection Signal Delay: 58.3		Intersection LOS: E	
Intersection Capacity Utilization 105.2%		ICU Level of Service G	

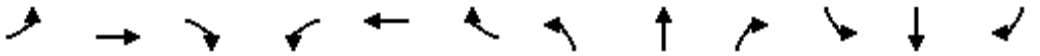
Analysis Period (min) 15

~ 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.

Splits and Phases: 15: Collector 1 & William Halton Parkway

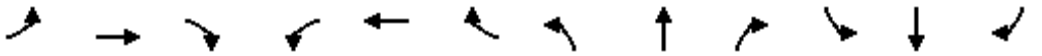




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	859	70	219	1323	99	55	46	425	247	34	19
Future Volume (vph)	19	859	70	219	1323	99	55	46	425	247	34	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1		5.1	5.1	5.1	5.4	5.4		5.4	5.4	
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	0.97	1.00	0.98		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.86		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	3452		1747	3500	1516	1742	1565		1747	1732	
Flt Permitted	0.09	1.00		0.18	1.00	1.00	0.72	1.00		0.26	1.00	
Satd. Flow (perm)	172	3452		329	3500	1516	1318	1565		475	1732	
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)	21	954	78	243	1470	110	61	51	472	274	38	21
RTOR Reduction (vph)	0	7	0	0	0	28	0	44	0	0	9	0
Lane Group Flow (vph)	21	1025	0	243	1470	82	61	479	0	274	50	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6		6	4			8		
Actuated Green, G (s)	42.9	42.9		42.9	42.9	42.9	36.6	36.6		36.6	36.6	
Effective Green, g (s)	42.9	42.9		42.9	42.9	42.9	36.6	36.6		36.6	36.6	
Actuated g/C Ratio	0.48	0.48		0.48	0.48	0.48	0.41	0.41		0.41	0.41	
Clearance Time (s)	5.1	5.1		5.1	5.1	5.1	5.4	5.4		5.4	5.4	
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)	81	1645		156	1668	722	535	636		193	704	
v/s Ratio Prot		0.30			0.42			0.31			0.03	
v/s Ratio Perm	0.12			c0.74		0.05	0.05			c0.58		
v/c Ratio	0.26	0.62		1.56	0.88	0.11	0.11	0.75		1.42	0.07	
Uniform Delay, d1	14.1	17.5		23.6	21.3	13.0	16.6	22.8		26.7	16.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.6	1.8		279.9	7.1	0.3	0.1	5.0		216.4	0.0	
Delay (s)	21.7	19.3		303.4	28.3	13.3	16.7	27.9		243.1	16.4	
Level of Service	C	B		F	C	B	B	C		F	B	
Approach Delay (s)		19.4			64.1			26.7			202.9	
Approach LOS		B			E			C			F	

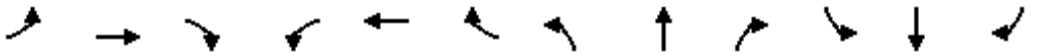
Intersection Summary			
HCM 2000 Control Delay	58.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.49		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	105.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1472	59	0	1471	266	0	0	126	0	0	170
Future Volume (vph)	0	1472	59	0	1471	266	0	0	126	0	0	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		30.0	30.0		0.0	30.0		0.0
Storage Lanes	0		0	0		1	0		1	0		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.994				0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3479	0	0	3500	1566	0	0	1593	0	0	1593
Flt Permitted												
Satd. Flow (perm)	0	3479	0	0	3500	1566	0	0	1593	0	0	1593
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		198.4			207.8			147.0			201.4	
Travel Time (s)		11.9			12.5			10.6			14.5	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	0	1636	66	0	1634	296	0	0	140	0	0	189
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1702	0	0	1634	296	0	0	140	0	0	189
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

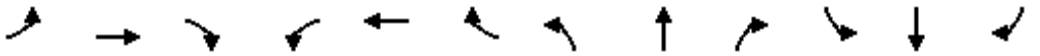
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.7%		ICU Level of Service B	
Analysis Period (min) 15			



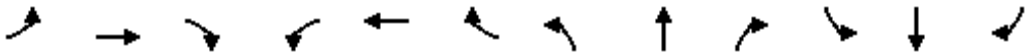
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1472	59	0	1471	266	0	0	126	0	0	170
Future Volume (Veh/h)	0	1472	59	0	1471	266	0	0	126	0	0	170
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1636	66	0	1634	296	0	0	140	0	0	189
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		198			208							
pX, platoon unblocked	0.76			0.79			0.87	0.87	0.79	0.87	0.87	0.76
vC, conflicting volume	1935			1707			2685	3609	861	2602	3346	827
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1597			1355			1524	2591	279	1429	2288	137
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	75	100	100	72
cM capacity (veh/h)	307			394			49	21	559	61	33	666

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	1091	611	817	817	296	140	189
Volume Left	0	0	0	0	0	0	0
Volume Right	0	66	0	0	296	140	189
cSH	1700	1700	1700	1700	1700	559	666
Volume to Capacity	0.64	0.36	0.48	0.48	0.17	0.25	0.28
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	7.5	8.9
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	13.6	12.5
Lane LOS						B	B
Approach Delay (s)	0.0		0.0			13.6	12.5
Approach LOS						B	B

Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	58.7%	ICU Level of Service		B
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	435	18	121	489	264	13	43	96	265	82	25
Future Volume (vph)	10	435	18	121	489	264	13	43	96	265	82	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	0.99		1.00	0.99		1.00	1.00	
Frt		0.994			0.947			0.896			0.965	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3474	0	1750	3276	0	1750	1628	0	1750	1769	0
Flt Permitted	0.291			0.466			0.681			0.659		
Satd. Flow (perm)	535	3474	0	855	3276	0	1249	1628	0	1209	1769	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			138			107			22	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		136.3			245.2			477.1			580.4	
Travel Time (s)		9.8			17.7			34.4			41.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	11	483	20	134	543	293	14	48	107	294	91	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	503	0	134	836	0	14	155	0	294	119	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

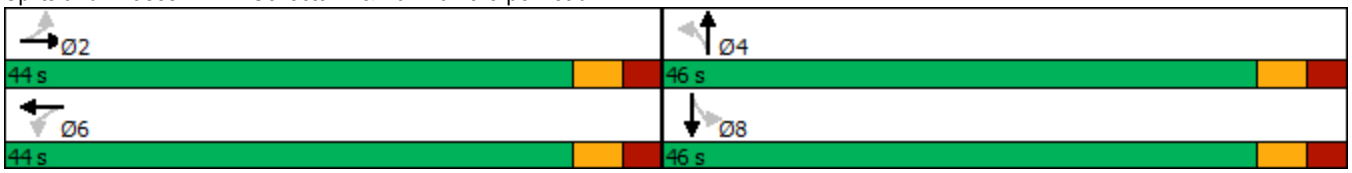


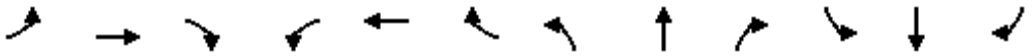
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	31.9	31.9		31.9	31.9		33.1	33.1		33.1	33.1	
Total Split (s)	44.0	44.0		44.0	44.0		46.0	46.0		46.0	46.0	
Total Split (%)	48.9%	48.9%		48.9%	48.9%		51.1%	51.1%		51.1%	51.1%	
Maximum Green (s)	38.1	38.1		38.1	38.1		39.9	39.9		39.9	39.9	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.6	2.6		2.6	2.6		2.8	2.8		2.8	2.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	
Act Effct Green (s)	38.5	38.5		38.5	38.5		22.6	22.6		22.6	22.6	
Actuated g/C Ratio	0.53	0.53		0.53	0.53		0.31	0.31		0.31	0.31	
v/c Ratio	0.04	0.28		0.30	0.47		0.04	0.27		0.79	0.21	
Control Delay	12.2	11.3		14.5	11.1		16.2	7.7		38.3	15.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	12.2	11.3		14.5	11.1		16.2	7.7		38.3	15.3	
LOS	B	B		B	B		B	A		D	B	
Approach Delay		11.3			11.6			8.4			31.7	
Approach LOS		B			B			A			C	
Queue Length 50th (m)	0.7	18.3		9.5	28.4		1.3	4.6		36.2	9.6	
Queue Length 95th (m)	3.9	37.2		27.5	57.8		4.8	15.6		62.2	19.8	
Internal Link Dist (m)		112.3			221.2			453.1			556.4	
Turn Bay Length (m)	30.0			30.0			30.0			30.0		
Base Capacity (vph)	281	1828		449	1786		687	944		665	983	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.04	0.28		0.30	0.47		0.02	0.16		0.44	0.12	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 73.2			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 15.3		Intersection LOS: B	
Intersection Capacity Utilization 73.7%		ICU Level of Service D	

Analysis Period (min) 15

Splits and Phases: 17: Collector 1 & Burnhamthorpe Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	435	18	121	489	264	13	43	96	265	82	25
Future Volume (vph)	10	435	18	121	489	264	13	43	96	265	82	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
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	0.99		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	0.95		1.00	0.90		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)	1746	3475		1744	3281		1744	1629		1744	1769	
Flt Permitted	0.29	1.00		0.47	1.00		0.68	1.00		0.66	1.00	
Satd. Flow (perm)	535	3475		856	3281		1249	1629		1209	1769	
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)	11	483	20	134	543	293	14	48	107	294	91	28
RTOR Reduction (vph)	0	3	0	0	65	0	0	74	0	0	15	0
Lane Group Flow (vph)	11	500	0	134	771	0	14	81	0	294	104	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	38.5	38.5		38.5	38.5		22.6	22.6		22.6	22.6	
Effective Green, g (s)	38.5	38.5		38.5	38.5		22.6	22.6		22.6	22.6	
Actuated g/C Ratio	0.53	0.53		0.53	0.53		0.31	0.31		0.31	0.31	
Clearance Time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	281	1830		450	1728		386	503		373	546	
v/s Ratio Prot		0.14			c0.23			0.05			0.06	
v/s Ratio Perm	0.02			0.16			0.01			c0.24		
v/c Ratio	0.04	0.27		0.30	0.45		0.04	0.16		0.79	0.19	
Uniform Delay, d1	8.4	9.6		9.7	10.7		17.6	18.4		23.1	18.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.4		1.7	0.8		0.0	0.2		10.5	0.2	
Delay (s)	8.6	9.9		11.4	11.5		17.7	18.5		33.6	18.7	
Level of Service	A	A		B	B		B	B		C	B	
Approach Delay (s)		9.9			11.5			18.4			29.3	
Approach LOS		A			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	73.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	443	3	29	498	2	20
Future Volume (vph)	443	3	29	498	2	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	0.0		30.0	0.0
Storage Lanes		0	0		1	1
Taper Length (m)			15.0		15.0	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt	0.999					0.850
Flt Protected				0.997	0.950	
Satd. Flow (prot)	3496	0	0	3489	1750	1566
Flt Permitted				0.997	0.950	
Satd. Flow (perm)	3496	0	0	3489	1750	1566
Link Speed (k/h)	50			50	50	
Link Distance (m)	139.2			131.8	226.2	
Travel Time (s)	10.0			9.5	16.3	
Confl. Peds. (#/hr)		5	5		5	5
Confl. Bikes (#/hr)		5				5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	492	3	32	553	2	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	495	0	0	585	2	22
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

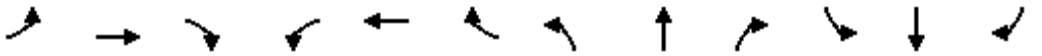
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	42.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	443	3	29	498	2	20
Future Volume (Veh/h)	443	3	29	498	2	20
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	492	3	32	553	2	22
Pedestrians	5			5	5	
Lane Width (m)	3.5			3.5	3.5	
Walking Speed (m/s)	1.0			1.0	1.0	
Percent Blockage	0			0	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)				268		
pX, platoon unblocked						
vC, conflicting volume			500		844	258
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			500		844	258
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		99	97
cM capacity (veh/h)			1055		290	734

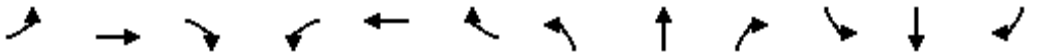
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	328	167	216	369	2	22
Volume Left	0	0	32	0	2	0
Volume Right	0	3	0	0	0	22
cSH	1700	1700	1055	1700	290	734
Volume to Capacity	0.19	0.10	0.03	0.22	0.01	0.03
Queue Length 95th (m)	0.0	0.0	0.7	0.0	0.2	0.7
Control Delay (s)	0.0	0.0	1.5	0.0	17.5	10.1
Lane LOS			A		C	B
Approach Delay (s)	0.0		0.6		10.7	
Approach LOS					B	

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	42.0%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1515	16	0	1772	22	0	0	12	0	0	383
Future Volume (vph)	0	1515	16	0	1772	22	0	0	12	0	0	383
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		30.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		1	0		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.998				0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3493	0	0	3500	1566	0	0	1593	0	0	1593
Flt Permitted												
Satd. Flow (perm)	0	3493	0	0	3500	1566	0	0	1593	0	0	1593
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		119.4			229.9			118.2			144.7	
Travel Time (s)		7.2			13.8			8.5			10.4	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	0	1683	18	0	1969	24	0	0	13	0	0	426
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1701	0	0	1969	24	0	0	13	0	0	426
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			0.0			0.0	
Link Offset(m)		0.0			0.0			5.0			5.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

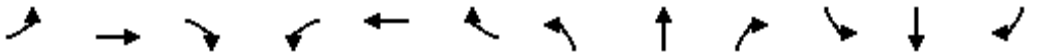
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 79.9%		ICU Level of Service D	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1515	16	0	1772	22	0	0	12	0	0	383
Future Volume (Veh/h)	0	1515	16	0	1772	22	0	0	12	0	0	383
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1683	18	0	1969	24	0	0	13	0	0	426
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		119			230							
pX, platoon unblocked	0.61			0.80			0.71	0.71	0.80	0.71	0.71	0.61
vC, conflicting volume	1998			1706			3112	3695	860	2834	3680	994
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1344			1373			1856	2680	309	1462	2658	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	98	100	100	34
cM capacity (veh/h)	306			392			11	15	541	61	16	650

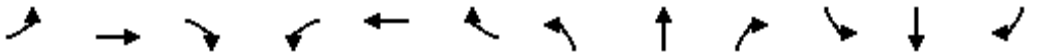
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	1122	579	984	984	24	13	426
Volume Left	0	0	0	0	0	0	0
Volume Right	0	18	0	0	24	13	426
cSH	1700	1700	1700	1700	1700	541	650
Volume to Capacity	0.66	0.34	0.58	0.58	0.01	0.02	0.66
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.6	37.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	11.8	20.5
Lane LOS						B	C
Approach Delay (s)	0.0		0.0			11.8	20.5
Approach LOS						B	C

Intersection Summary				
Average Delay	2.1			
Intersection Capacity Utilization	79.9%	ICU Level of Service	D	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	670	44	0	760	6	0	0	93	0	0	12
Future Volume (vph)	0	670	44	0	760	6	0	0	93	0	0	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.991			0.999				0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3468	0	0	3496	0	0	0	1593	0	0	1593
Flt Permitted												
Satd. Flow (perm)	0	3468	0	0	3496	0	0	0	1593	0	0	1593
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		123.4			223.5			492.2			141.1	
Travel Time (s)		8.9			16.1			35.4			10.2	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	0	744	49	0	844	7	0	0	103	0	0	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	793	0	0	851	0	0	0	103	0	0	13
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			-10.0			-10.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

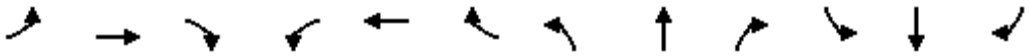
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.0%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	670	44	0	760	6	0	0	93	0	0	12
Future Volume (Veh/h)	0	670	44	0	760	6	0	0	93	0	0	12
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	744	49	0	844	7	0	0	103	0	0	13
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		123			223							
pX, platoon unblocked	0.93			0.93			0.96	0.96	0.93	0.96	0.96	0.93
vC, conflicting volume	856			798			1214	1630	406	1332	1650	436
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	684			633			814	1247	213	938	1269	229
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	86	100	100	98
cM capacity (veh/h)	834			875			250	164	730	178	159	709

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	496	297	563	288	103	13
Volume Left	0	0	0	0	0	0
Volume Right	0	49	0	7	103	13
cSH	1700	1700	1700	1700	730	709
Volume to Capacity	0.29	0.17	0.33	0.17	0.14	0.02
Queue Length 95th (m)	0.0	0.0	0.0	0.0	3.7	0.4
Control Delay (s)	0.0	0.0	0.0	0.0	10.7	10.2
Lane LOS					B	B
Approach Delay (s)	0.0		0.0		10.7	10.2
Approach LOS					B	B

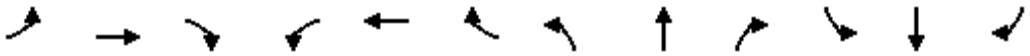
Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	34.0%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	225	0	0	63	0	2271	62	0	2168	379
Future Volume (vph)	0	0	225	0	0	63	0	2271	62	0	2168	379
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	*0.80	0.91	1.00	*0.80	0.91
Ped Bike Factor												
Frt			0.865			0.865		0.996			0.978	
Flt Protected												
Satd. Flow (prot)	0	0	1593	0	0	1593	0	4403	0	0	4324	0
Flt Permitted												
Satd. Flow (perm)	0	0	1593	0	0	1593	0	4403	0	0	4324	0
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		168.4			345.0			280.2			182.8	
Travel Time (s)		12.1			24.8			16.8			11.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	0	0	250	0	0	70	0	2523	69	0	2409	421
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	250	0	0	70	0	2592	0	0	2830	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		

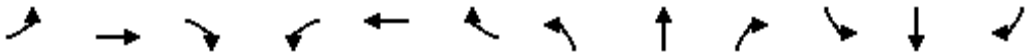
* User Entered Value



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	225	0	0	63	0	2271	62	0	2168	379
Future Volume (Veh/h)	0	0	225	0	0	63	0	2271	62	0	2168	379
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	250	0	0	70	0	2523	69	0	2409	421
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								280			183	
pX, platoon unblocked	0.79	0.79	0.66	0.79	0.79	0.63	0.66			0.63		
vC, conflicting volume	3540	5222	1024	3620	5398	886	2835			2597		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	433	2549	0	533	2770	0	1990			1461		
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	65	100	100	90	100			100		
cM capacity (veh/h)	355	21	712	218	15	672	188			286		

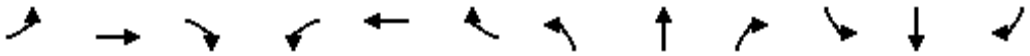
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	250	70	1009	1009	574	964	964	903
Volume Left	0	0	0	0	0	0	0	0
Volume Right	250	70	0	0	69	0	0	421
cSH	712	672	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.35	0.10	0.59	0.59	0.34	0.57	0.57	0.53
Queue Length 95th (m)	12.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	12.8	11.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	B						
Approach Delay (s)	12.8	11.0	0.0			0.0		
Approach LOS	B	B						

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	71.5%	ICU Level of Service	C	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	7	12	3	9	6	74	61	2	5	90	57
Future Volume (vph)	57	7	12	3	9	6	74	61	2	5	90	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.979			0.953			0.998			0.950	
Flt Protected		0.964			0.993			0.974			0.998	
Satd. Flow (prot)	0	1738	0	0	1743	0	0	1791	0	0	1746	0
Flt Permitted		0.964			0.993			0.974			0.998	
Satd. Flow (perm)	0	1738	0	0	1743	0	0	1791	0	0	1746	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		345.0			275.5			250.4			181.9	
Travel Time (s)		24.8			19.8			18.0			13.1	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	63	8	13	3	10	7	82	68	2	6	100	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	84	0	0	20	0	0	152	0	0	169	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

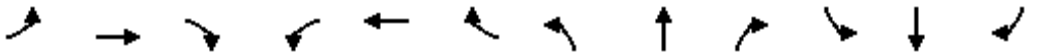
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.1%		ICU Level of Service A	
Analysis Period (min) 15			



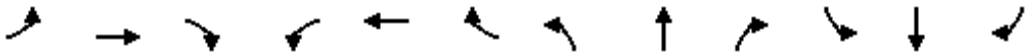
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	7	12	3	9	6	74	61	2	5	90	57
Future Volume (Veh/h)	57	7	12	3	9	6	74	61	2	5	90	57
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	63	8	13	3	10	7	82	68	2	6	100	63
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								251			182	
pX, platoon unblocked												
vC, conflicting volume	398	388	142	404	418	79	168			75		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	398	388	142	404	418	79	168			75		
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 %	88	98	99	99	98	99	94			100		
cM capacity (veh/h)	514	508	897	508	488	972	1403			1517		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	84	20	152	169
Volume Left	63	3	82	6
Volume Right	13	7	2	63
cSH	550	596	1403	1517
Volume to Capacity	0.15	0.03	0.06	0.00
Queue Length 95th (m)	4.1	0.8	1.4	0.1
Control Delay (s)	12.7	11.3	4.4	0.3
Lane LOS	B	B	A	A
Approach Delay (s)	12.7	11.3	4.4	0.3
Approach LOS	B	B		

Intersection Summary				
Average Delay	4.7			
Intersection Capacity Utilization	39.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	549	892	87	47	1503	15	86	0	29	79	44	205
Future Volume (vph)	549	892	87	47	1503	15	86	0	29	79	44	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0		30.0	30.0		0.0	30.0		0.0	40.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97	1.00	1.00		1.00	0.98		0.99	0.98	
Frt			0.850		0.998			0.850			0.877	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3500	1566	1750	3492	0	1750	1534	0	1750	1587	0
Flt Permitted	0.088			0.289			0.208			0.736		
Satd. Flow (perm)	162	3500	1511	531	3492	0	382	1534	0	1348	1587	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			68		1			90			191	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		229.9			1297.0			181.9			123.7	
Travel Time (s)		13.8			77.8			13.1			8.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	610	991	97	52	1670	17	96	0	32	88	49	228
Shared Lane Traffic (%)												
Lane Group Flow (vph)	610	991	97	52	1687	0	96	32	0	88	277	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	5	2			6		3	8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	5	2	2	6	6		3	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	10.0	10.0		7.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	32.1	32.1	32.1	32.1		11.0	38.5		38.5	38.5	
Total Split (s)	23.0	70.0	70.0	47.0	47.0		11.0	50.0		39.0	39.0	
Total Split (%)	19.2%	58.3%	58.3%	39.2%	39.2%		9.2%	41.7%		32.5%	32.5%	
Maximum Green (s)	19.0	63.9	63.9	40.9	40.9		7.0	43.5		32.5	32.5	
Yellow Time (s)	3.0	3.7	3.7	3.7	3.7		3.0	3.3		3.3	3.3	
All-Red Time (s)	1.0	2.4	2.4	2.4	2.4		1.0	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.1	6.1	6.1	6.1		4.0	6.5		6.5	6.5	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Max	Max	None	None		None	None		None	None	
Walk Time (s)		7.0	7.0	7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)		19.0	19.0	19.0	19.0			25.0		25.0	25.0	
Pedestrian Calls (#/hr)		5	5	5	5			5		5	5	
Act Effct Green (s)	66.7	64.6	64.6	41.3	41.3		26.2	23.7		15.2	15.2	
Actuated g/C Ratio	0.66	0.64	0.64	0.41	0.41		0.26	0.23		0.15	0.15	
v/c Ratio	1.50	0.44	0.10	0.24	1.18		0.49	0.07		0.44	0.69	
Control Delay	261.0	11.6	4.4	27.3	118.3		36.5	0.3		45.8	22.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	261.0	11.6	4.4	27.3	118.3		36.5	0.3		45.8	22.8	
LOS	F	B	A	C	F		D	A		D	C	
Approach Delay		100.8			115.6			27.5			28.4	
Approach LOS		F			F			C			C	
Queue Length 50th (m)	~148.1	45.1	1.8	6.4	~205.6		14.6	0.0		16.2	15.6	
Queue Length 95th (m)	#269.8	94.2	11.1	20.1	#324.8		26.4	0.0		30.4	40.6	
Internal Link Dist (m)		205.9			1273.0			157.9			99.7	
Turn Bay Length (m)	85.0		30.0	30.0			30.0			40.0		
Base Capacity (vph)	408	2237	990	217	1429		194	718		438	644	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	1.50	0.44	0.10	0.24	1.18		0.49	0.04		0.20	0.43	

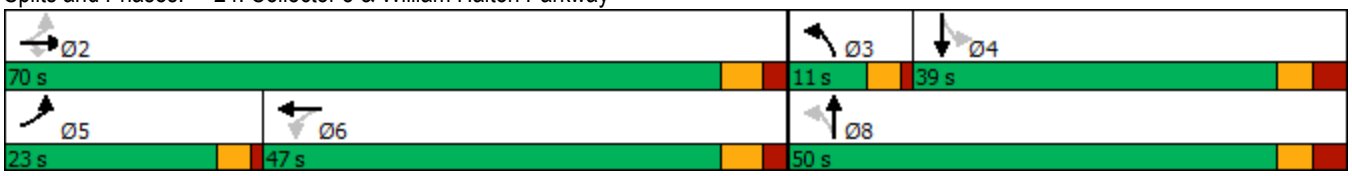
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 101			
Natural Cycle: 145			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.50			
Intersection Signal Delay: 98.2		Intersection LOS: F	
Intersection Capacity Utilization 112.6%		ICU Level of Service H	

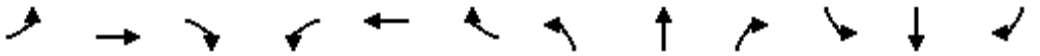
Analysis Period (min) 15

~ 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.

Splits and Phases: 24: Collector 5 & William Halton Parkway

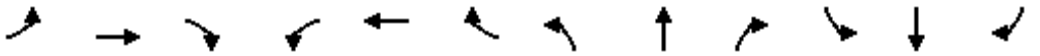




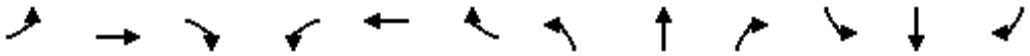
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	549	892	87	47	1503	15	86	0	29	79	44	205
Future Volume (vph)	549	892	87	47	1503	15	86	0	29	79	44	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.1	6.1	6.1	6.1		4.0	6.5		6.5	6.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	0.98		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	1.00	0.85	1.00	1.00		1.00	0.85		1.00	0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	3500	1515	1746	3493		1749	1532		1742	1583	
Flt Permitted	0.09	1.00	1.00	0.29	1.00		0.21	1.00		0.74	1.00	
Satd. Flow (perm)	162	3500	1515	531	3493		384	1532		1350	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)	610	991	97	52	1670	17	96	0	32	88	49	228
RTOR Reduction (vph)	0	0	25	0	1	0	0	24	0	0	162	0
Lane Group Flow (vph)	610	991	72	52	1686	0	96	8	0	88	115	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	pm+pt	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	5	2			6		3	8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	64.6	64.6	64.6	41.4	41.4		24.6	24.6		15.2	15.2	
Effective Green, g (s)	64.6	64.6	64.6	41.4	41.4		24.6	24.6		15.2	15.2	
Actuated g/C Ratio	0.63	0.63	0.63	0.41	0.41		0.24	0.24		0.15	0.15	
Clearance Time (s)	4.0	6.1	6.1	6.1	6.1		4.0	6.5		6.5	6.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	402	2221	961	215	1420		165	370		201	236	
v/s Ratio Prot	c0.29	0.28			0.48		c0.03	0.01			0.07	
v/s Ratio Perm	c0.67		0.05	0.10			c0.11			0.07		
v/c Ratio	1.52	0.45	0.08	0.24	1.19		0.58	0.02		0.44	0.49	
Uniform Delay, d1	32.5	9.5	7.1	19.9	30.2		31.9	29.4		39.4	39.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	245.3	0.7	0.2	0.6	91.8		5.1	0.0		1.5	1.6	
Delay (s)	277.8	10.1	7.3	20.5	122.0		37.0	29.4		40.9	41.3	
Level of Service	F	B	A	C	F		D	C		D	D	
Approach Delay (s)		106.1			119.0			35.1			41.2	
Approach LOS		F			F			D			D	

Intersection Summary			
HCM 2000 Control Delay	103.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.35		
Actuated Cycle Length (s)	101.8	Sum of lost time (s)	20.6
Intersection Capacity Utilization	112.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	660	47	180	717	6	30	71	117	10	102	19
Future Volume (vph)	56	660	47	180	717	6	30	71	117	10	102	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	50.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00		1.00	0.99		1.00	1.00	
Frt		0.990			0.999			0.907			0.976	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3458	0	1750	3495	0	1750	1649	0	1750	1792	0
Flt Permitted	0.336			0.344			0.671			0.517		
Satd. Flow (perm)	617	3458	0	632	3495	0	1231	1649	0	949	1792	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			2			95			11	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		223.5			463.9			185.3			250.4	
Travel Time (s)		16.1			33.4			13.3			18.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	62	733	52	200	797	7	33	79	130	11	113	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	62	785	0	200	804	0	33	209	0	11	134	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



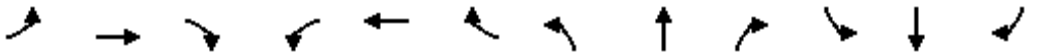
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	31.9	31.9		31.9	31.9		33.1	33.1		33.1	33.1	
Total Split (s)	56.0	56.0		56.0	56.0		34.0	34.0		34.0	34.0	
Total Split (%)	62.2%	62.2%		62.2%	62.2%		37.8%	37.8%		37.8%	37.8%	
Maximum Green (s)	50.1	50.1		50.1	50.1		27.9	27.9		27.9	27.9	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.6	2.6		2.6	2.6		2.8	2.8		2.8	2.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	
Act Effct Green (s)	51.5	51.5		51.5	51.5		12.8	12.8		12.8	12.8	
Actuated g/C Ratio	0.67	0.67		0.67	0.67		0.17	0.17		0.17	0.17	
v/c Ratio	0.15	0.34		0.47	0.34		0.16	0.59		0.07	0.43	
Control Delay	7.6	6.6		12.7	6.8		26.9	22.1		25.2	29.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	7.6	6.6		12.7	6.8		26.9	22.1		25.2	29.2	
LOS	A	A		B	A		C	C		C	C	
Approach Delay		6.7			7.9			22.8			28.9	
Approach LOS		A			A			C			C	
Queue Length 50th (m)	2.4	18.4		10.2	19.2		4.0	14.5		1.3	15.7	
Queue Length 95th (m)	11.5	48.7		43.3	50.5		10.7	32.2		5.1	29.6	
Internal Link Dist (m)		199.5			439.9			161.3			226.4	
Turn Bay Length (m)	30.0			50.0			30.0			30.0		
Base Capacity (vph)	415	2334		425	2356		452	666		349	665	
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	0.34		0.47	0.34		0.07	0.31		0.03	0.20	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 76.4			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 10.4		Intersection LOS: B	
Intersection Capacity Utilization 70.4%		ICU Level of Service C	

Analysis Period (min) 15

Splits and Phases: 25: Collector 5 & Burnhamthorpe Road

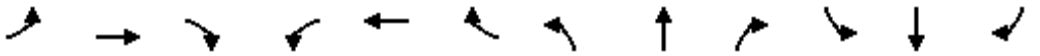




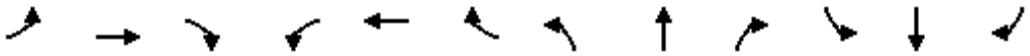
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	660	47	180	717	6	30	71	117	10	102	19
Future Volume (vph)	56	660	47	180	717	6	30	71	117	10	102	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
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	1.00		1.00	0.91		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)	1746	3458		1746	3494		1744	1647		1745	1792	
Flt Permitted	0.34	1.00		0.34	1.00		0.67	1.00		0.52	1.00	
Satd. Flow (perm)	618	3458		633	3494		1232	1647		950	1792	
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)	62	733	52	200	797	7	33	79	130	11	113	21
RTOR Reduction (vph)	0	4	0	0	1	0	0	79	0	0	9	0
Lane Group Flow (vph)	62	781	0	200	803	0	33	130	0	11	125	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	51.5	51.5		51.5	51.5		12.8	12.8		12.8	12.8	
Effective Green, g (s)	51.5	51.5		51.5	51.5		12.8	12.8		12.8	12.8	
Actuated g/C Ratio	0.67	0.67		0.67	0.67		0.17	0.17		0.17	0.17	
Clearance Time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	417	2334		427	2358		206	276		159	300	
v/s Ratio Prot		0.23			0.23			c0.08			0.07	
v/s Ratio Perm	0.10			c0.32			0.03			0.01		
v/c Ratio	0.15	0.33		0.47	0.34		0.16	0.47		0.07	0.42	
Uniform Delay, d1	4.5	5.2		5.9	5.2		27.2	28.7		26.7	28.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.4		3.7	0.4		0.4	1.3		0.2	0.9	
Delay (s)	5.2	5.6		9.6	5.6		27.5	30.0		26.9	29.3	
Level of Service	A	A		A	A		C	C		C	C	
Approach Delay (s)		5.6			6.4			29.6			29.2	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	76.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	5	26	61	7	61	27	2374	44	131	2263	80
Future Volume (vph)	51	5	26	61	7	61	27	2374	44	131	2263	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	30.0		0.0	17.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	*0.80	0.91	1.00	*0.80	0.91
Ped Bike Factor	0.99	0.98		0.99	0.98			1.00			1.00	
Frt		0.876			0.866			0.997			0.995	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	1585	0	1750	1564	0	1750	4405	0	1750	4394	0
Flt Permitted	0.708			0.734			0.060			0.056		
Satd. Flow (perm)	1298	1585	0	1345	1564	0	111	4405	0	103	4394	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			68			3			7	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		117.5			110.5			259.2			230.0	
Travel Time (s)		8.5			8.0			15.6			13.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	57	6	29	68	8	68	30	2638	49	146	2514	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	57	35	0	68	76	0	30	2687	0	146	2603	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		7.0	10.0	
Minimum Split (s)	38.5	38.5		38.5	38.5		33.4	33.4		11.0	33.4	
Total Split (s)	39.0	39.0		39.0	39.0		70.0	70.0		11.0	81.0	
Total Split (%)	32.5%	32.5%		32.5%	32.5%		58.3%	58.3%		9.2%	67.5%	
Maximum Green (s)	32.5	32.5		32.5	32.5		63.6	63.6		7.0	74.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.0	3.7	
All-Red Time (s)	3.2	3.2		3.2	3.2		2.7	2.7		1.0	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		4.0	6.4	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		None	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	25.0	25.0		25.0	25.0		20.0	20.0			20.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5			5	
Act Effct Green (s)	14.3	14.3		14.3	14.3		67.1	67.1		80.6	79.5	
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.66	0.66		0.79	0.78	
v/c Ratio	0.31	0.15		0.36	0.27		0.41	0.93		0.75	0.76	
Control Delay	43.0	35.2		44.2	13.3		36.0	24.7		43.8	11.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.1	
Total Delay	43.0	35.2		44.2	13.3		36.0	24.7		43.8	11.7	
LOS	D	D		D	B		D	C		D	B	
Approach Delay		40.1			27.9			24.9			13.4	
Approach LOS		D			C			C			B	
Queue Length 50th (m)	10.3	5.4		12.3	1.4		2.5	170.2		11.9	95.9	
Queue Length 95th (m)	21.3	13.6		24.4	13.0		#20.2	#340.4		#57.8	#256.3	
Internal Link Dist (m)		93.5			86.5			235.2			206.0	
Turn Bay Length (m)	30.0			30.0			30.0			17.0		
Base Capacity (vph)	416	511		431	548		73	2900		195	3430	
Starvation Cap Reductn	0	0		0	0		0	0		0	133	
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	0.14	0.07		0.16	0.14		0.41	0.93		0.75	0.79	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 101.9			
Natural Cycle: 145			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 19.7		Intersection LOS: B	
Intersection Capacity Utilization 82.5%		ICU Level of Service E	

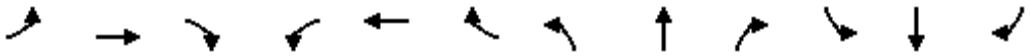
Analysis Period (min) 15

* User Entered Value

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

Splits and Phases: 26: Trafalgar Road & Local 6

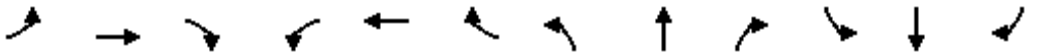




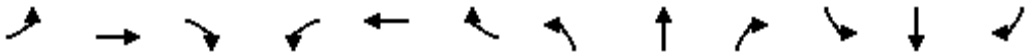
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	5	26	61	7	61	27	2374	44	131	2263	80
Future Volume (vph)	51	5	26	61	7	61	27	2374	44	131	2263	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		6.4	6.4		4.0	6.4	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	*0.80		1.00	*0.80	
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.88		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)	1742	1578		1742	1558		1750	4406		1750	4393	
Flt Permitted	0.71	1.00		0.73	1.00		0.06	1.00		0.06	1.00	
Satd. Flow (perm)	1298	1578		1346	1558		110	4406		104	4393	
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)	57	6	29	68	8	68	30	2638	49	146	2514	89
RTOR Reduction (vph)	0	4	0	0	60	0	0	1	0	0	2	0
Lane Group Flow (vph)	57	31	0	68	16	0	30	2686	0	146	2601	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	12.1	12.1		12.1	12.1		67.1	67.1		78.1	78.1	
Effective Green, g (s)	12.1	12.1		12.1	12.1		67.1	67.1		78.1	78.1	
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.65	0.65		0.76	0.76	
Clearance Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		4.0	6.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	152	185		157	182		71	2867		190	3327	
v/s Ratio Prot		0.02			0.01			c0.61		0.05	c0.59	
v/s Ratio Perm	0.04			c0.05			0.27			0.53		
v/c Ratio	0.38	0.17		0.43	0.09		0.42	0.94		0.77	0.78	
Uniform Delay, d1	42.0	41.0		42.3	40.6		8.7	16.1		30.0	7.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.6	0.4		1.9	0.2		17.4	7.4		16.9	1.9	
Delay (s)	43.6	41.4		44.2	40.8		26.1	23.5		46.9	9.3	
Level of Service	D	D		D	D		C	C		D	A	
Approach Delay (s)		42.7			42.4			23.5			11.3	
Approach LOS		D			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	18.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	103.1	Sum of lost time (s)	16.9
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	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	112	140	167	99	32	199	2324	154	145	2091	116
Future Volume (vph)	87	112	140	167	99	32	199	2324	154	145	2091	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		40.0	85.0		30.0	60.0		40.0	80.0		30.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00
Ped Bike Factor			0.98	1.00		0.98			0.96			0.96
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	1842	1566	1750	1842	1566	1750	4421	1566	1750	4421	1566
Flt Permitted	0.686			0.513			0.068			0.073		
Satd. Flow (perm)	1264	1842	1532	941	1842	1534	125	4421	1511	134	4421	1511
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			156			67			105			105
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		219.8			129.6			268.7			259.2	
Travel Time (s)		15.8			9.3			16.1			15.6	
Confl. Peds. (#/hr)			5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	97	124	156	186	110	36	221	2582	171	161	2323	129
Shared Lane Traffic (%)												
Lane Group Flow (vph)	97	124	156	186	110	36	221	2582	171	161	2323	129
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	38.5	38.5	38.5	11.0	38.5	38.5	11.0	33.4	33.4	11.0	33.4	33.4
Total Split (s)	39.0	39.0	39.0	11.0	50.0	50.0	11.0	59.0	59.0	11.0	59.0	59.0
Total Split (%)	32.5%	32.5%	32.5%	9.2%	41.7%	41.7%	9.2%	49.2%	49.2%	9.2%	49.2%	49.2%
Maximum Green (s)	32.5	32.5	32.5	7.0	43.5	43.5	7.0	52.6	52.6	7.0	52.6	52.6
Yellow Time (s)	3.3	3.3	3.3	3.0	3.3	3.3	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	3.2	3.2	3.2	1.0	3.2	3.2	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)	25.0	25.0	25.0		25.0	25.0		20.0	20.0		20.0	20.0
Pedestrian Calls (#/hr)	5	5	5		5	5		5	5		5	5
Act Effct Green (s)	17.1	17.1	17.1	30.6	28.1	28.1	80.6	62.5	62.5	69.6	54.8	54.8
Actuated g/C Ratio	0.14	0.14	0.14	0.26	0.23	0.23	0.67	0.52	0.52	0.58	0.46	0.46
v/c Ratio	0.54	0.47	0.44	0.65	0.26	0.09	0.62	1.12	0.20	0.66	1.15	0.17
Control Delay	56.7	51.2	10.0	47.5	36.9	1.9	41.9	80.5	11.6	38.0	105.7	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.7	51.2	10.0	47.5	36.9	1.9	41.9	80.5	11.6	38.0	105.7	6.1
LOS	E	D	A	D	D	A	D	F	B	D	F	A
Approach Delay		35.6			39.1			73.7			96.6	
Approach LOS		D			D			E			F	
Queue Length 50th (m)	22.1	27.9	0.0	37.8	21.8	0.0	43.0	~285.0	8.9	18.9	~260.6	2.9
Queue Length 95th (m)	33.3	39.3	15.8	47.8	30.6	2.1	m#46.1	m#238.5	m11.5	#64.8	#308.7	14.3
Internal Link Dist (m)		195.8			105.6			244.7			235.2	
Turn Bay Length (m)	60.0		40.0	85.0		30.0	60.0		40.0	80.0		30.0
Base Capacity (vph)	342	498	528	287	667	598	357	2303	837	245	2018	746
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.25	0.30	0.65	0.16	0.06	0.62	1.12	0.20	0.66	1.15	0.17

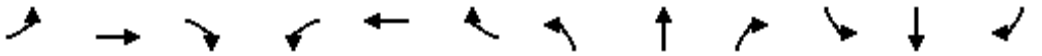
Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 14 (12%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.15	
Intersection Signal Delay: 79.1	Intersection LOS: E

Intersection Capacity Utilization 84.6%	ICU Level of Service E
Analysis Period (min) 15	

* User Entered Value
~ 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.

Splits and Phases: 27: Trafalgar Road & Settlers Road

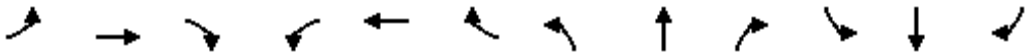




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	112	140	167	99	32	199	2324	154	145	2091	116
Future Volume (vph)	87	112	140	167	99	32	199	2324	154	145	2091	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.98	1.00	1.00	0.97	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	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1750	1842	1526	1746	1842	1531	1750	4421	1512	1750	4421	1511
Flt Permitted	0.69	1.00	1.00	0.51	1.00	1.00	0.07	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	1264	1842	1526	943	1842	1531	125	4421	1512	134	4421	1511
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)	97	124	156	186	110	36	221	2582	171	161	2323	129
RTOR Reduction (vph)	0	0	134	0	0	28	0	0	50	0	0	57
Lane Group Flow (vph)	97	124	22	186	110	8	221	2582	121	161	2323	72
Confl. Peds. (#/hr)			5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	17.1	17.1	17.1	28.1	28.1	28.1	79.0	62.6	62.6	67.2	54.8	54.8
Effective Green, g (s)	17.1	17.1	17.1	28.1	28.1	28.1	79.0	62.6	62.6	67.2	54.8	54.8
Actuated g/C Ratio	0.14	0.14	0.14	0.23	0.23	0.23	0.66	0.52	0.52	0.56	0.46	0.46
Clearance Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	180	262	217	267	431	358	355	2306	788	242	2018	690
v/s Ratio Prot		0.07		c0.04	0.06		c0.10	c0.58		0.07	0.53	
v/s Ratio Perm	0.08		0.01	c0.12		0.01	0.30		0.08	0.30		0.05
v/c Ratio	0.54	0.47	0.10	0.70	0.26	0.02	0.62	1.12	0.15	0.67	1.15	0.10
Uniform Delay, d1	47.8	47.3	44.8	41.4	37.4	35.4	32.2	28.7	14.9	29.0	32.6	18.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.75	0.84	1.56	1.00	1.00	1.00
Incremental Delay, d2	3.1	1.4	0.2	7.7	0.3	0.0	0.3	54.5	0.0	6.7	74.2	0.3
Delay (s)	50.9	48.7	45.0	49.1	37.7	35.4	56.6	78.7	23.3	35.7	106.8	18.9
Level of Service	D	D	D	D	D	D	E	E	C	D	F	B
Approach Delay (s)		47.7			43.9			73.9			98.1	
Approach LOS		D			D			E			F	

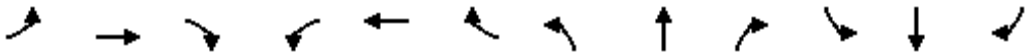
Intersection Summary			
HCM 2000 Control Delay	80.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.9
Intersection Capacity Utilization	84.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	129	32	104	125	33	29	77	90	35	110	7
Future Volume (vph)	9	129	32	104	125	33	29	77	90	35	110	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.974			0.983			0.938			0.994	
Flt Protected		0.997			0.981			0.993			0.989	
Satd. Flow (prot)	0	1789	0	0	1776	0	0	1716	0	0	1811	0
Flt Permitted		0.997			0.981			0.993			0.989	
Satd. Flow (perm)	0	1789	0	0	1776	0	0	1716	0	0	1811	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		249.4			219.8			429.8			477.1	
Travel Time (s)		18.0			15.8			30.9			34.4	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	10	143	36	116	139	37	32	86	100	39	122	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	189	0	0	292	0	0	218	0	0	169	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	47.9%	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)	9	129	32	104	125	33	29	77	90	35	110	7
Future Volume (vph)	9	129	32	104	125	33	29	77	90	35	110	7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	10	143	36	116	139	37	32	86	100	39	122	8

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	189	292	218	169
Volume Left (vph)	10	116	32	39
Volume Right (vph)	36	37	100	8
Hadj (s)	-0.07	0.04	-0.21	0.05
Departure Headway (s)	5.4	5.3	5.3	5.7
Degree Utilization, x	0.28	0.43	0.32	0.27
Capacity (veh/h)	606	630	611	572
Control Delay (s)	10.5	12.4	10.8	10.7
Approach Delay (s)	10.5	12.4	10.8	10.7
Approach LOS	B	B	B	B

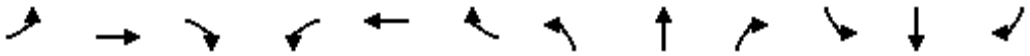
Intersection Summary				
Delay	11.3			
Level of Service	B			
Intersection Capacity Utilization	47.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	11.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	129	32	104	125	33	29	77	90	35	110	7
Future Vol, veh/h	9	129	32	104	125	33	29	77	90	35	110	7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	143	36	116	139	37	32	86	100	39	122	8
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

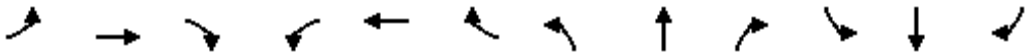
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.5	12.3	10.8	10.7
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	15%	5%	40%	23%
Vol Thru, %	39%	76%	48%	72%
Vol Right, %	46%	19%	13%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	196	170	262	152
LT Vol	29	9	104	35
Through Vol	77	129	125	110
RT Vol	90	32	33	7
Lane Flow Rate	218	189	291	169
Geometry Grp	1	1	1	1
Degree of Util (X)	0.32	0.282	0.43	0.264
Departure Headway (Hd)	5.283	5.372	5.312	5.62
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	679	667	675	638
Service Time	3.329	3.419	3.354	3.668
HCM Lane V/C Ratio	0.321	0.283	0.431	0.265
HCM Control Delay	10.8	10.5	12.3	10.7
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	1.4	1.2	2.2	1.1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	212	110	20	173	17	24	248	15	12	166	91
Future Volume (vph)	87	212	110	20	173	17	24	248	15	12	166	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.964			0.989			0.993			0.954	
Flt Protected		0.989			0.995			0.996			0.998	
Satd. Flow (prot)	0	1756	0	0	1813	0	0	1822	0	0	1754	0
Flt Permitted		0.989			0.995			0.996			0.998	
Satd. Flow (perm)	0	1756	0	0	1813	0	0	1822	0	0	1754	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		129.6			125.1			416.4			492.2	
Travel Time (s)		9.3			9.0			30.0			35.4	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	97	236	122	22	192	19	27	276	17	13	184	101
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	455	0	0	233	0	0	320	0	0	298	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	87	212	110	20	173	17	24	248	15	12	166	91
Future Volume (vph)	87	212	110	20	173	17	24	248	15	12	166	91
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	97	236	122	22	192	19	27	276	17	13	184	101

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	455	233	320	298
Volume Left (vph)	97	22	27	13
Volume Right (vph)	122	19	17	101
Hadj (s)	-0.08	0.00	0.02	-0.16
Departure Headway (s)	6.8	7.5	7.3	7.2
Degree Utilization, x	0.86	0.49	0.65	0.60
Capacity (veh/h)	455	428	449	446
Control Delay (s)	38.4	17.5	22.9	20.4
Approach Delay (s)	38.4	17.5	22.9	20.4
Approach LOS	E	C	C	C

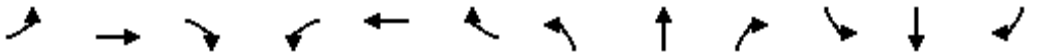
Intersection Summary				
Delay	26.8			
Level of Service	D			
Intersection Capacity Utilization	67.4%	ICU Level of Service	C	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	26.3
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	87	212	110	20	173	17	24	248	15	12	166	91
Future Vol, veh/h	87	212	110	20	173	17	24	248	15	12	166	91
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	97	236	122	22	192	19	27	276	17	13	184	101
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

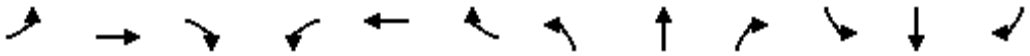
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	37.4	17.4	22.5	20.3
HCM LOS	E	C	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	8%	21%	10%	4%
Vol Thru, %	86%	52%	82%	62%
Vol Right, %	5%	27%	8%	34%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	287	409	210	269
LT Vol	24	87	20	12
Through Vol	248	212	173	166
RT Vol	15	110	17	91
Lane Flow Rate	319	454	233	299
Geometry Grp	1	1	1	1
Degree of Util (X)	0.642	0.851	0.483	0.594
Departure Headway (Hd)	7.25	6.745	7.459	7.151
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	497	536	481	502
Service Time	5.325	4.811	5.542	5.227
HCM Lane V/C Ratio	0.642	0.847	0.484	0.596
HCM Control Delay	22.5	37.4	17.4	20.3
HCM Lane LOS	C	E	C	C
HCM 95th-tile Q	4.5	9	2.6	3.8



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	118	34	28	128	51	21	81	18	21	88	95
Future Volume (vph)	87	118	34	28	128	51	21	81	18	21	88	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.981			0.967			0.980			0.937	
Flt Protected		0.982			0.993			0.991			0.995	
Satd. Flow (prot)	0	1775	0	0	1769	0	0	1789	0	0	1717	0
Flt Permitted		0.982			0.993			0.991			0.995	
Satd. Flow (perm)	0	1775	0	0	1769	0	0	1789	0	0	1717	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		125.1			190.9			160.4			138.9	
Travel Time (s)		9.0			13.7			11.5			10.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	97	131	38	31	142	57	23	90	20	23	98	106
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	266	0	0	230	0	0	133	0	0	227	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	48.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	87	118	34	28	128	51	21	81	18	21	88	95
Future Volume (vph)	87	118	34	28	128	51	21	81	18	21	88	95
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	97	131	38	31	142	57	23	90	20	23	98	106

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	266	230	133	227
Volume Left (vph)	97	31	23	23
Volume Right (vph)	38	57	20	106
Hadj (s)	0.02	-0.09	-0.02	-0.23
Departure Headway (s)	5.3	5.2	5.6	5.2
Degree Utilization, x	0.39	0.33	0.21	0.33
Capacity (veh/h)	634	634	566	626
Control Delay (s)	11.6	10.9	10.1	10.8
Approach Delay (s)	11.6	10.9	10.1	10.8
Approach LOS	B	B	B	B

Intersection Summary				
Delay	11.0			
Level of Service	B			
Intersection Capacity Utilization	48.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	11
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	87	118	34	28	128	51	21	81	18	21	88	95
Future Vol, veh/h	87	118	34	28	128	51	21	81	18	21	88	95
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	97	131	38	31	142	57	23	90	20	23	98	106
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	11.6	10.9	10.1	10.8
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	17%	36%	14%	10%
Vol Thru, %	68%	49%	62%	43%
Vol Right, %	15%	14%	25%	47%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	120	239	207	204
LT Vol	21	87	28	21
Through Vol	81	118	128	88
RT Vol	18	34	51	95
Lane Flow Rate	133	266	230	227
Geometry Grp	1	1	1	1
Degree of Util (X)	0.207	0.388	0.333	0.329
Departure Headway (Hd)	5.576	5.263	5.214	5.22
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	643	682	688	689
Service Time	3.621	3.302	3.255	3.259
HCM Lane V/C Ratio	0.207	0.39	0.334	0.329
HCM Control Delay	10.1	11.6	10.9	10.8
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	0.8	1.8	1.5	1.4



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	21	2655	145	0	2370
Future Volume (vph)	0	21	2655	145	0	2370
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	*0.80	0.91	1.00	*0.80
Ped Bike Factor						
Frt		0.865	0.992			
Flt Protected						
Satd. Flow (prot)	0	1593	4386	0	0	4421
Flt Permitted						
Satd. Flow (perm)	0	1593	4386	0	0	4421
Link Speed (k/h)	50		60			60
Link Distance (m)	98.5		148.7			268.7
Travel Time (s)	7.1		8.9			16.1
Confl. Peds. (#/hr)	5	5		5	5	
Confl. Bikes (#/hr)		5		5		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	23	2950	161	0	2633
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	23	3111	0	0	2633
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		3.5			3.5
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 66.1%		ICU Level of Service C	
Analysis Period (min) 15			

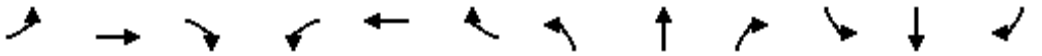
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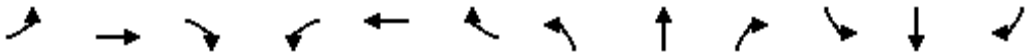
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	21	2655	145	0	2370
Future Volume (Veh/h)	0	21	2655	145	0	2370
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	23	2950	161	0	2633
Pedestrians	5		5			5
Lane Width (m)	3.5		3.5			3.5
Walking Speed (m/s)	1.0		1.0			1.0
Percent Blockage	0		0			0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			149			269
pX, platoon unblocked	0.66	0.45			0.45	
vC, conflicting volume	3918	1074			3116	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0			1406	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	95			100	
cM capacity (veh/h)	670	480			214	

Direction, Lane #	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	23	1180	1180	751	878	878	878
Volume Left	0	0	0	0	0	0	0
Volume Right	23	0	0	161	0	0	0
cSH	480	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.05	0.69	0.69	0.44	0.52	0.52	0.52
Queue Length 95th (m)	1.1	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	12.9	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B						
Approach Delay (s)	12.9	0.0			0.0		
Approach LOS	B						

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	99	152	176	91	65	222	2716	179	90	2281	4
Future Volume (vph)	19	99	152	176	91	65	222	2716	179	90	2281	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		70.0	90.0		30.0	130.0		40.0	40.0		30.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00
Ped Bike Factor	1.00		0.98	1.00		0.98			0.96			0.96
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	1842	1566	1750	1842	1566	1750	4421	1566	1750	4421	1566
Flt Permitted	0.692			0.539			0.069			0.074		
Satd. Flow (perm)	1268	1842	1532	988	1842	1534	127	4421	1511	136	4421	1511
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			155			72			105			105
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		193.0			130.2			1233.0			148.7	
Travel Time (s)		13.9			9.4			74.0			8.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	21	110	169	196	101	72	247	3018	199	100	2534	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	110	169	196	101	72	247	3018	199	100	2534	4
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	38.5	38.5	38.5	11.0	38.5	38.5	11.0	33.4	33.4	11.0	33.4	33.4
Total Split (s)	39.0	39.0	39.0	11.0	50.0	50.0	11.0	59.0	59.0	11.0	59.0	59.0
Total Split (%)	32.5%	32.5%	32.5%	9.2%	41.7%	41.7%	9.2%	49.2%	49.2%	9.2%	49.2%	49.2%
Maximum Green (s)	32.5	32.5	32.5	7.0	43.5	43.5	7.0	52.6	52.6	7.0	52.6	52.6
Yellow Time (s)	3.3	3.3	3.3	3.0	3.3	3.3	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	3.2	3.2	3.2	1.0	3.2	3.2	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)	25.0	25.0	25.0		25.0	25.0		20.0	20.0		20.0	20.0
Pedestrian Calls (#/hr)	5	5	5		5	5		5	5		5	5
Act Effct Green (s)	15.9	15.9	15.9	29.4	26.9	26.9	81.8	68.4	68.4	64.2	54.0	54.0
Actuated g/C Ratio	0.13	0.13	0.13	0.24	0.22	0.22	0.68	0.57	0.57	0.54	0.45	0.45
v/c Ratio	0.12	0.45	0.50	0.69	0.24	0.18	0.64	1.20	0.22	0.56	1.28	0.01
Control Delay	43.2	51.9	13.3	50.8	37.6	7.8	35.9	119.3	8.0	27.8	152.9	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.2	51.9	13.3	50.8	37.6	7.8	35.9	119.3	8.0	27.8	152.9	0.0
LOS	D	D	B	D	D	A	D	F	A	C	F	A
Approach Delay		29.5			38.8			106.9			147.9	
Approach LOS		C			D			F			F	
Queue Length 50th (m)	4.6	25.1	3.0	41.0	20.4	0.0	35.4	~346.1	8.9	13.2	~301.5	0.0
Queue Length 95th (m)	10.1	35.4	18.9	50.2	28.6	9.5	#117.2	#447.7	28.6	m14.8	m#257.7	m0.0
Internal Link Dist (m)		169.0			106.2			1209.0			124.7	
Turn Bay Length (m)	30.0		70.0	90.0		30.0	130.0		40.0	40.0		30.0
Base Capacity (vph)	343	498	527	286	667	601	386	2519	906	177	1987	737
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.22	0.32	0.69	0.15	0.12	0.64	1.20	0.22	0.56	1.28	0.01

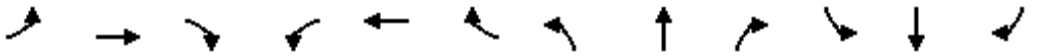
Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 16 (13%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.28	
Intersection Signal Delay: 115.8	Intersection LOS: F

Intersection Capacity Utilization 90.4%	ICU Level of Service E
Analysis Period (min) 15	

* User Entered Value
~ 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.

Splits and Phases: 32: Trafalgar Road & Marvin Avenue

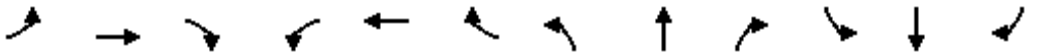




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	99	152	176	91	65	222	2716	179	90	2281	4
Future Volume (vph)	19	99	152	176	91	65	222	2716	179	90	2281	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	*0.80	1.00	1.00	*0.80	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.98	1.00	1.00	0.97	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	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1741	1842	1525	1746	1842	1531	1750	4421	1512	1750	4421	1511
Flt Permitted	0.69	1.00	1.00	0.54	1.00	1.00	0.07	1.00	1.00	0.07	1.00	1.00
Satd. Flow (perm)	1268	1842	1525	990	1842	1531	127	4421	1512	136	4421	1511
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)	21	110	169	196	101	72	247	3018	199	100	2534	4
RTOR Reduction (vph)	0	0	134	0	0	56	0	0	45	0	0	2
Lane Group Flow (vph)	21	110	35	196	101	16	247	3018	154	100	2534	2
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	15.9	15.9	15.9	26.9	26.9	26.9	80.2	68.4	68.4	61.8	54.0	54.0
Effective Green, g (s)	15.9	15.9	15.9	26.9	26.9	26.9	80.2	68.4	68.4	61.8	54.0	54.0
Actuated g/C Ratio	0.13	0.13	0.13	0.22	0.22	0.22	0.67	0.57	0.57	0.51	0.45	0.45
Clearance Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	168	244	202	266	412	343	385	2519	861	174	1989	679
v/s Ratio Prot		0.06		c0.04	0.05		c0.12	c0.68		0.04	c0.57	
v/s Ratio Perm	0.02		0.02	c0.12		0.01	0.31		0.10	0.26		0.00
v/c Ratio	0.12	0.45	0.17	0.74	0.25	0.05	0.64	1.20	0.18	0.57	1.27	0.00
Uniform Delay, d1	45.9	48.0	46.2	42.7	38.2	36.5	32.6	25.8	12.4	26.0	33.0	18.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.52	0.91	1.00
Incremental Delay, d2	0.3	1.3	0.4	10.2	0.3	0.1	3.6	93.3	0.5	0.4	123.7	0.0
Delay (s)	46.3	49.3	46.6	52.9	38.5	36.6	36.3	119.1	12.8	39.8	153.8	18.2
Level of Service	D	D	D	D	D	D	D	F	B	D	F	B
Approach Delay (s)		47.6			45.8			107.1			149.3	
Approach LOS		D			D			F			F	

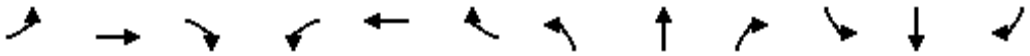
Intersection Summary			
HCM 2000 Control Delay	117.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.9
Intersection Capacity Utilization	90.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	108	4	5	76	177	4	49	8	134	53	21
Future Volume (vph)	32	108	4	5	76	177	4	49	8	134	53	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.997			0.907			0.982			0.987	
Flt Protected		0.989			0.999			0.997			0.969	
Satd. Flow (prot)	0	1816	0	0	1669	0	0	1803	0	0	1762	0
Flt Permitted		0.989			0.999			0.997			0.969	
Satd. Flow (perm)	0	1816	0	0	1669	0	0	1803	0	0	1762	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		207.5			193.0			213.8			429.8	
Travel Time (s)		14.9			13.9			15.4			30.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	36	120	4	6	84	197	4	54	9	149	59	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	160	0	0	287	0	0	67	0	0	231	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	49.7%	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)	32	108	4	5	76	177	4	49	8	134	53	21
Future Volume (vph)	32	108	4	5	76	177	4	49	8	134	53	21
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	36	120	4	6	84	197	4	54	9	149	59	23

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	160	287	67	231
Volume Left (vph)	36	6	4	149
Volume Right (vph)	4	197	9	23
Hadj (s)	0.06	-0.37	-0.03	0.10
Departure Headway (s)	5.2	4.6	5.3	5.2
Degree Utilization, x	0.23	0.37	0.10	0.33
Capacity (veh/h)	644	740	589	640
Control Delay (s)	9.7	10.2	8.9	10.8
Approach Delay (s)	9.7	10.2	8.9	10.8
Approach LOS	A	B	A	B

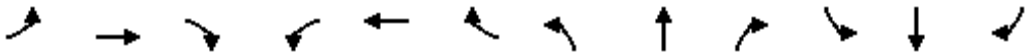
Intersection Summary				
Delay	10.2			
Level of Service	B			
Intersection Capacity Utilization	49.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	10.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	108	4	5	76	177	4	49	8	134	53	21
Future Vol, veh/h	32	108	4	5	76	177	4	49	8	134	53	21
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	36	120	4	6	84	197	4	54	9	149	59	23
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

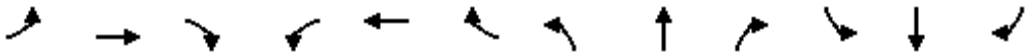
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.7	10.1	8.9	10.7
HCM LOS	A	B	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	7%	22%	2%	64%
Vol Thru, %	80%	75%	29%	25%
Vol Right, %	13%	3%	69%	10%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	61	144	258	208
LT Vol	4	32	5	134
Through Vol	49	108	76	53
RT Vol	8	4	177	21
Lane Flow Rate	68	160	287	231
Geometry Grp	1	1	1	1
Degree of Util (X)	0.101	0.225	0.359	0.329
Departure Headway (Hd)	5.34	5.07	4.505	5.121
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	675	701	791	693
Service Time	3.34	3.16	2.579	3.21
HCM Lane V/C Ratio	0.101	0.228	0.363	0.333
HCM Control Delay	8.9	9.7	10.1	10.7
HCM Lane LOS	A	A	B	B
HCM 95th-tile Q	0.3	0.9	1.6	1.4



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	159	106	67	96	71	20	68	148	127	13	88	173
Future Volume (vph)	159	106	67	96	71	20	68	148	127	13	88	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.973			0.986			0.950			0.915	
Flt Protected		0.977			0.975			0.990			0.998	
Satd. Flow (prot)	0	1751	0	0	1771	0	0	1732	0	0	1682	0
Flt Permitted		0.977			0.975			0.990			0.998	
Satd. Flow (perm)	0	1751	0	0	1771	0	0	1732	0	0	1682	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		130.2			198.3			214.8			416.4	
Travel Time (s)		9.4			14.3			15.5			30.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	177	118	74	107	79	22	76	164	141	14	98	192
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	369	0	0	208	0	0	381	0	0	304	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 68.3%		ICU Level of Service C	
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)	159	106	67	96	71	20	68	148	127	13	88	173
Future Volume (vph)	159	106	67	96	71	20	68	148	127	13	88	173
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	177	118	74	107	79	22	76	164	141	14	98	192

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	369	208	381	304
Volume Left (vph)	177	107	76	14
Volume Right (vph)	74	22	141	192
Hadj (s)	0.01	0.07	-0.15	-0.34
Departure Headway (s)	6.8	7.4	6.6	6.6
Degree Utilization, x	0.70	0.43	0.70	0.56
Capacity (veh/h)	492	416	503	487
Control Delay (s)	24.2	15.7	23.6	17.8
Approach Delay (s)	24.2	15.7	23.6	17.8
Approach LOS	C	C	C	C

Intersection Summary				
Delay	21.1			
Level of Service	C			
Intersection Capacity Utilization	68.3%	ICU Level of Service	C	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	20.9
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	159	106	67	96	71	20	68	148	127	13	88	173
Future Vol, veh/h	159	106	67	96	71	20	68	148	127	13	88	173
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	177	118	74	107	79	22	76	164	141	14	98	192
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	24	15.7	23.4	17.7
HCM LOS	C	C	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	20%	48%	51%	5%
Vol Thru, %	43%	32%	38%	32%
Vol Right, %	37%	20%	11%	63%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	343	332	187	274
LT Vol	68	159	96	13
Through Vol	148	106	71	88
RT Vol	127	67	20	173
Lane Flow Rate	381	369	208	304
Geometry Grp	1	1	1	1
Degree of Util (X)	0.696	0.696	0.423	0.558
Departure Headway (Hd)	6.578	6.788	7.322	6.602
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	549	531	490	545
Service Time	4.632	4.84	5.384	4.661
HCM Lane V/C Ratio	0.694	0.695	0.424	0.558
HCM Control Delay	23.4	24	15.7	17.7
HCM Lane LOS	C	C	C	C
HCM 95th-tile Q	5.4	5.4	2.1	3.4

MOVEMENT SUMMARY

Site: [101] Sixth Line & William Halton Parkway (General)

Output produced by SIDRA INTERSECTION Version: 10.0.8.241

2036 Future Total PM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Sixth Line															
1	L2	All MCs	12	2.0	12	2.0	0.558	19.6	LOS C	2.4	17.0	0.75	0.88	1.20	43.4
2	T1	All MCs	338	2.0	338	2.0	0.558	19.3	LOS C	2.4	17.0	0.75	0.87	1.20	44.1
3	R2	All MCs	189	2.0	189	2.0	0.558	18.7	LOS C	2.4	16.8	0.73	0.86	1.18	43.9
Approach			539	2.0	539	2.0	0.558	19.1	LOS C	2.4	17.0	0.74	0.87	1.19	44.0
East: William Halton Parkway															
4	L2	All MCs	261	2.0	261	2.0	0.697	19.4	LOS C	5.7	40.8	0.72	0.91	1.46	42.1
5	T1	All MCs	723	2.0	723	2.0	0.697	19.1	LOS C	5.7	40.8	0.71	0.89	1.45	43.9
6	R2	All MCs	578	2.0	578	2.0	0.304	4.9	LOS A	0.0	0.0	0.00	0.00	0.00	56.4
Approach			1562	2.0	1562	2.0	0.697	13.9	LOS B	5.7	40.8	0.45	0.57	0.92	47.3
North: Sixth Line															
7	L2	All MCs	383	2.0	383	2.0	0.751	28.4	LOS D	4.9	34.6	0.82	1.07	1.69	37.5
8	T1	All MCs	417	2.0	417	2.0	0.751	27.3	LOS D	4.9	34.6	0.80	1.05	1.68	40.5
9	R2	All MCs	313	2.0	313	2.0	0.165	4.7	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			1113	2.0	1113	2.0	0.751	21.3	LOS C	4.9	34.6	0.58	0.76	1.21	42.6
West: William Halton Parkway															
10	L2	All MCs	264	2.0	264	2.0	0.734	28.1	LOS D	4.4	31.1	0.82	1.05	1.63	38.1
11	T1	All MCs	480	2.0	480	2.0	0.734	27.2	LOS D	4.4	31.1	0.81	1.04	1.63	40.2
12	R2	All MCs	72	2.0	72	2.0	0.038	3.0	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			817	2.0	817	2.0	0.734	25.3	LOS D	4.4	31.1	0.74	0.95	1.48	40.5
All Vehicles			4031	2.0	4031	2.0	0.751	19.0	LOS C	5.7	40.8	0.58	0.74	1.15	44.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [101] Ninth Line & William Halton Parkway (General)
Output produced by SIDRA INTERSECTION Version: 10.0.8.241

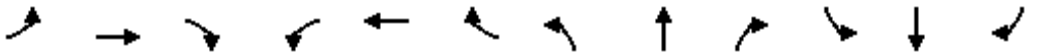
2036 Future Total PM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

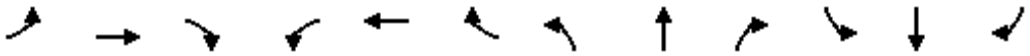
Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Ninth Line															
1	L2	All MCs	566	23.0	566	23.0	2.565	743.8	LOS F	134.1	1093.1	1.00	6.90	23.12	11.2
2	T1	All MCs	794	2.0	794	2.0	2.565	733.4	LOS F	184.5	1316.6	1.00	6.99	24.60	11.1
3	R2	All MCs	283	3.0	283	3.0	2.565	747.2	LOS F	184.5	1316.6	1.00	7.01	24.88	11.1
Approach			1644	9.4	1644	9.4	2.565	739.3	LOS F	184.5	1316.6	1.00	6.96	24.14	11.1
East: William Halton Parkway															
4	L2	All MCs	173	2.0	173	2.0	1.709	338.4	LOS F	166.6	1195.1	1.00	6.33	16.79	13.7
5	T1	All MCs	2130	3.0	2130	3.0	1.709	338.3	LOS F	171.0	1229.4	1.00	6.41	17.03	13.7
6	R2	All MCs	162	4.0	162	4.0	1.709	338.3	LOS F	171.0	1229.4	1.00	6.49	17.26	13.6
Approach			2465	3.0	2465	3.0	1.709	340.1	LOS F	171.0	1229.4	1.00	6.41	17.03	13.6
North: Ninth Line															
7	L2	All MCs	138	2.0	138	2.0	0.810	48.5	LOS E	3.8	27.4	0.93	1.14	1.80	32.0
8	T1	All MCs	410	2.0	410	2.0	0.810	46.4	LOS E	3.9	27.6	0.92	1.14	1.80	33.4
9	R2	All MCs	127	2.0	127	2.0	0.067	3.8	LOS A	0.0	0.0	0.00	0.00	0.00	56.4
Approach			675	2.0	675	2.0	0.810	38.8	LOS E	3.9	27.6	0.75	0.92	1.46	35.7
West: William Halton Parkway															
10	L2	All MCs	48	4.0	48	4.0	1.528	259.7	LOS F	124.5	887.4	1.00	5.61	15.21	15.7
11	T1	All MCs	1757	2.0	1757	2.0	1.528	191.2	LOS F	124.5	887.4	1.00	4.34	11.31	18.8
12	R2	All MCs	389	12.0	389	12.0	0.219	4.9	LOS A	0.0	0.0	0.00	0.00	0.00	56.2
Approach			2194	3.8	2194	3.8	1.528	159.7	LOS F	124.5	887.4	0.82	3.60	9.39	21.1
All Vehicles			6979	4.7	6979	4.7	2.565	347.7	LOS F	184.5	1316.6	0.92	5.13	14.80	15.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	3	443	0	23	1	2013	0	0	2122	0
Future Volume (vph)	1	0	3	443	0	23	1	2013	0	0	2122	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		5.0	0.0		60.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		1	1		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt			0.850		0.998	0.850						
Flt Protected	0.950			0.950	0.953		0.950					
Satd. Flow (prot)	892	0	1566	1630	1564	1487	1750	3500	0	0	5029	0
Flt Permitted	0.364			0.950	0.953		0.065					
Satd. Flow (perm)	342	0	1566	1630	1564	1487	120	3500	0	0	5029	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			73		73	73						
Link Speed (k/h)		20			60			80			80	
Link Distance (m)		81.5			394.8			34.5			189.8	
Travel Time (s)		14.7			23.7			1.6			8.5	
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 (%)	100%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	1	0	3	482	0	25	1	2188	0	0	2307	0
Shared Lane Traffic (%)				50%		10%						
Lane Group Flow (vph)	1	0	3	241	244	22	1	2188	0	0	2307	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1		1	1	2	1	1	2			2	
Detector Template	Left		Right	Left	Thru	Right	Left	Thru			Thru	
Leading Detector (m)	2.0		2.0	2.0	10.0	2.0	2.0	10.0			10.0	
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Size(m)	2.0		2.0	2.0	0.6	2.0	2.0	0.6			0.6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 2 Position(m)					9.4			9.4			9.4	
Detector 2 Size(m)					0.6			0.6			0.6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	

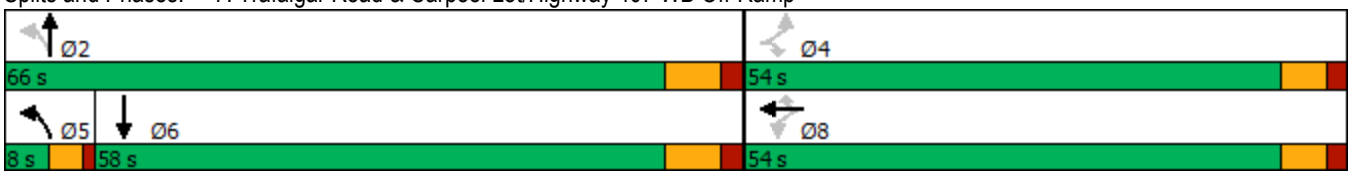


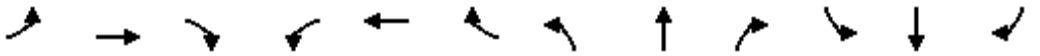
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8		8	2					
Detector Phase	4		4	8	8	8	5	2			6	
Switch Phase												
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	4.0	35.0			35.0	
Minimum Split (s)	13.0		13.0	13.0	13.0	13.0	8.0	42.0			42.0	
Total Split (s)	54.0		54.0	54.0	54.0	54.0	8.0	66.0			58.0	
Total Split (%)	45.0%		45.0%	45.0%	45.0%	45.0%	6.7%	55.0%			48.3%	
Maximum Green (s)	48.0		48.0	48.0	48.0	48.0	4.0	59.0			51.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0	3.0	5.0			5.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0	1.0	2.0			2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Recall Mode	None		None	None	None	None	None	Min			Min	
Act Effct Green (s)	18.6		18.6	18.6	18.6	18.6	62.2	59.2			57.7	
Actuated g/C Ratio	0.20		0.20	0.20	0.20	0.20	0.69	0.65			0.64	
v/c Ratio	0.01		0.01	0.72	0.65	0.06	0.01	0.96			0.72	
Control Delay	28.0		0.0	46.4	30.9	0.3	6.0	28.2			14.4	
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	28.0		0.0	46.4	30.9	0.3	6.0	28.2			14.4	
LOS	C		A	D	C	A	A	C			B	
Approach Delay		7.0			36.9			28.2			14.4	
Approach LOS		A			D			C			B	
Queue Length 50th (m)	0.2		0.0	41.4	29.8	0.0	0.1	164.9			83.9	
Queue Length 95th (m)	1.4		0.0	66.8	55.4	0.0	0.7	#282.8			161.5	
Internal Link Dist (m)		57.5			370.8			10.5			165.8	
Turn Bay Length (m)			5.0			60.0						
Base Capacity (vph)	181		864	864	863	822	154	2280			3195	
Starvation Cap Reductn	0		0	0	0	0	0	0			0	
Spillback Cap Reductn	0		0	0	0	0	0	0			0	
Storage Cap Reductn	0		0	0	0	0	0	0			0	
Reduced v/c Ratio	0.01		0.00	0.28	0.28	0.03	0.01	0.96			0.72	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 90.8			
Natural Cycle: 80			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 22.7		Intersection LOS: C	
Intersection Capacity Utilization 85.6%		ICU Level of Service E	
Analysis Period (min) 15			

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

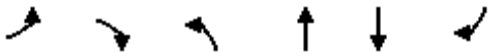
Splits and Phases: 7: Trafalgar Road & Carpool Lot/Highway 407 WB Off-Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	3	443	0	23	1	2013	0	0	2122	0
Future Volume (vph)	1	0	3	443	0	23	1	2013	0	0	2122	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	6.0	4.0	7.0			7.0	
Lane Util. Factor	1.00		1.00	0.95	0.91	0.95	1.00	0.95			0.91	
Frt	1.00		0.85	1.00	1.00	0.85	1.00	1.00			1.00	
Flt Protected	0.95		1.00	0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	892		1566	1630	1564	1487	1750	3500			5029	
Flt Permitted	0.36		1.00	0.95	0.95	1.00	0.06	1.00			1.00	
Satd. Flow (perm)	342		1566	1630	1564	1487	119	3500			5029	
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)	1	0	3	482	0	25	1	2188	0	0	2307	0
RTOR Reduction (vph)	0	0	2	0	59	18	0	0	0	0	0	0
Lane Group Flow (vph)	1	0	1	241	185	4	1	2188	0	0	2307	0
Heavy Vehicles (%)	100%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	
Permitted Phases	4		4	8		8	2					
Actuated Green, G (s)	18.6		18.6	18.6	18.6	18.6	62.4	62.4			57.7	
Effective Green, g (s)	18.6		18.6	18.6	18.6	18.6	62.4	62.4			57.7	
Actuated g/C Ratio	0.20		0.20	0.20	0.20	0.20	0.66	0.66			0.61	
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)	67		309	322	309	294	91	2323			3086	
v/s Ratio Prot							0.00	c0.63			0.46	
v/s Ratio Perm	0.00		0.00	c0.15	0.12	0.00	0.01					
v/c Ratio	0.01		0.00	0.75	0.60	0.01	0.01	0.94			0.75	
Uniform Delay, d1	30.3		30.3	35.5	34.3	30.3	9.8	14.2			13.0	
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.1		0.0	9.2	3.3	0.0	0.0	8.6			1.0	
Delay (s)	30.4		30.3	44.7	37.6	30.3	9.9	22.7			14.0	
Level of Service	C		C	D	D	C	A	C			B	
Approach Delay (s)		30.3			40.6			22.7			14.0	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	20.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



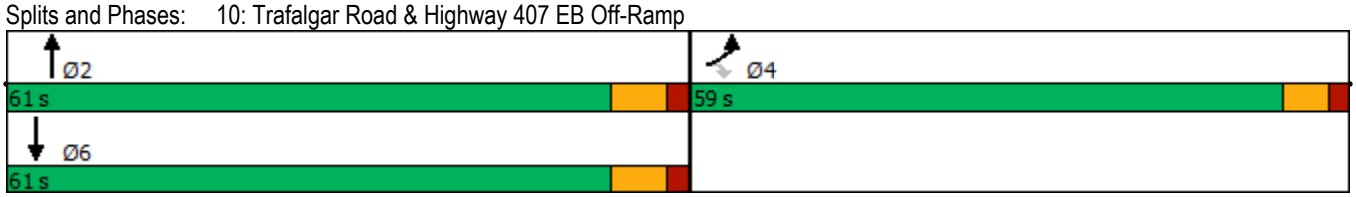
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	41	374	0	2182	2563	0
Future Volume (vph)	41	374	0	2182	2563	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	0.95	0.95	1.00
Frt	0.879	0.850				
Flt Protected	0.990					
Satd. Flow (prot)	1444	1308	0	3500	3500	0
Flt Permitted	0.990					
Satd. Flow (perm)	1444	1308	0	3500	3500	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						
Link Speed (k/h)	60			80	80	
Link Distance (m)	417.0			117.5	129.7	
Travel Time (s)	25.0			5.3	5.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	16%	2%	2%	2%	2%
Adj. Flow (vph)	44	402	0	2346	2756	0
Shared Lane Traffic (%)		45%				
Lane Group Flow (vph)	225	221	0	2346	2756	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (m)	2.0	2.0		10.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	2.0		0.6	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						

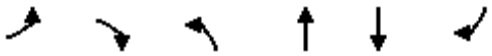
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Initial (s)	6.0	6.0		20.0	20.0	
Minimum Split (s)	24.0	24.0		27.0	27.0	
Total Split (s)	59.0	59.0		61.0	61.0	
Total Split (%)	49.2%	49.2%		50.8%	50.8%	
Maximum Green (s)	53.0	53.0		54.0	54.0	
Yellow Time (s)	4.0	4.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		7.0	7.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		Max	Max	
Act Effct Green (s)	19.7	19.7		54.2	54.2	
Actuated g/C Ratio	0.23	0.23		0.62	0.62	
v/c Ratio	0.69	0.75		1.08	1.26	
Control Delay	42.1	47.1		62.2	142.2	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	42.1	47.1		62.2	142.2	
LOS	D	D		E	F	
Approach Delay	44.6			62.2	142.2	
Approach LOS	D			E	F	
Queue Length 50th (m)	34.3	36.1		~230.4	~305.7	
Queue Length 95th (m)	57.1	60.8		#317.3	#399.6	
Internal Link Dist (m)	393.0			93.5	105.7	
Turn Bay Length (m)						
Base Capacity (vph)	883	800		2182	2182	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.25	0.28		1.08	1.26	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 86.9			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.26			
Intersection Signal Delay: 100.5		Intersection LOS: F	
Intersection Capacity Utilization 97.1%		ICU Level of Service F	
Analysis Period (min) 15			

~ 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.

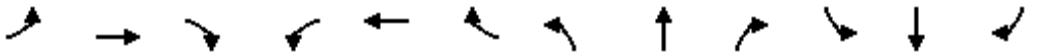
Splits and Phases: 10: Trafalgar Road & Highway 407 EB Off-Ramp



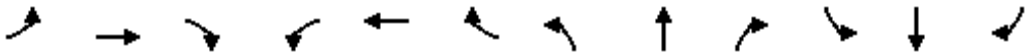


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	41	374	0	2182	2563	0
Future Volume (vph)	41	374	0	2182	2563	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		0.95	0.95	
Frt	0.88	0.85		1.00	1.00	
Flt Protected	0.99	1.00		1.00	1.00	
Satd. Flow (prot)	1445	1308		3500	3500	
Flt Permitted	0.99	1.00		1.00	1.00	
Satd. Flow (perm)	1445	1308		3500	3500	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	44	402	0	2346	2756	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	225	221	0	2346	2756	0
Heavy Vehicles (%)	2%	16%	2%	2%	2%	2%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	19.7	19.7		54.2	54.2	
Effective Green, g (s)	19.7	19.7		54.2	54.2	
Actuated g/C Ratio	0.23	0.23		0.62	0.62	
Clearance Time (s)	6.0	6.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	327	296		2182	2182	
v/s Ratio Prot	0.16			0.67	c0.79	
v/s Ratio Perm		c0.17				
v/c Ratio	0.69	0.75		1.08	1.26	
Uniform Delay, d1	30.8	31.3		16.4	16.4	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.9	9.8		43.1	122.2	
Delay (s)	36.7	41.1		59.4	138.6	
Level of Service	D	D		E	F	
Approach Delay (s)	38.9			59.4	138.6	
Approach LOS	D			E	F	

Intersection Summary			
HCM 2000 Control Delay	97.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	86.9	Sum of lost time (s)	13.0
Intersection Capacity Utilization	97.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	689	1159	298	225	476	371	206	1998	240	566	1626	359
Future Volume (vph)	689	1159	298	225	476	371	206	1998	240	566	1626	359
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	220.0		80.0	100.0		205.0	120.0		70.0	180.0		80.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	3500	1566	3395	3500	1452	3395	4421	1493	3362	4378	1566
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3395	3500	1566	3395	3500	1452	3395	4421	1493	3362	4378	1566
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			132			151			151			254
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		207.8			119.4			182.8			224.9	
Travel Time (s)		12.5			7.2			11.0			13.5	
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%	10%	2%	2%	7%	3%	3%	2%
Adj. Flow (vph)	749	1260	324	245	517	403	224	2172	261	615	1767	390
Shared Lane Traffic (%)												
Lane Group Flow (vph)	749	1260	324	245	517	403	224	2172	261	615	1767	390
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	

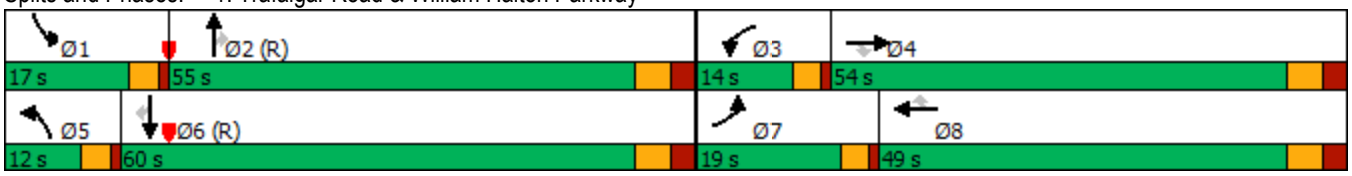


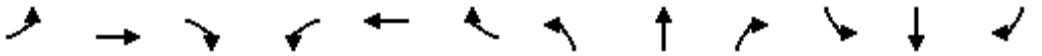
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	48.4	48.4	11.0	48.4	48.4	11.0	45.4	45.4	11.0	45.4	45.4
Total Split (s)	19.0	54.0	54.0	14.0	49.0	49.0	12.0	55.0	55.0	17.0	60.0	60.0
Total Split (%)	13.6%	38.6%	38.6%	10.0%	35.0%	35.0%	8.6%	39.3%	39.3%	12.1%	42.9%	42.9%
Maximum Green (s)	15.0	47.6	47.6	10.0	42.6	42.6	8.0	48.6	48.6	13.0	53.6	53.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		35.0	35.0		35.0	35.0		32.0	32.0		32.0	32.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	15.0	47.6	47.6	10.0	42.6	42.6	8.0	48.6	48.6	13.0	53.6	53.6
Actuated g/C Ratio	0.11	0.34	0.34	0.07	0.30	0.30	0.06	0.35	0.35	0.09	0.38	0.38
v/c Ratio	2.06	1.06	0.52	1.01	0.49	0.74	1.15	1.42	0.42	1.97	1.05	0.52
Control Delay	517.6	87.4	24.6	124.3	41.6	35.9	168.4	226.3	16.4	479.8	79.5	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	517.6	87.4	24.6	124.3	41.6	35.9	168.4	226.3	16.4	479.8	79.5	13.4
LOS	F	F	C	F	D	D	F	F	B	F	E	B
Approach Delay		216.8			57.0			200.8			159.0	
Approach LOS		F			E			F			F	
Queue Length 50th (m)	~167.9	~201.0	42.1	~36.0	61.6	64.6	~37.6	~336.2	21.8	~135.8	~222.3	26.4
Queue Length 95th (m)	#206.4	#243.3	71.8	#64.1	78.9	105.1	#64.2	#368.0	46.1	#172.8	#255.6	56.6
Internal Link Dist (m)		183.8			95.4			158.8			200.9	
Turn Bay Length (m)	220.0		80.0	100.0		205.0	120.0		70.0	180.0		80.0
Base Capacity (vph)	363	1190	619	242	1065	546	194	1534	616	312	1676	756
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.06	1.06	0.52	1.01	0.49	0.74	1.15	1.42	0.42	1.97	1.05	0.52

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 2.06			
Intersection Signal Delay: 173.2		Intersection LOS: F	
Intersection Capacity Utilization 110.5%		ICU Level of Service H	
Analysis Period (min) 15			

* User Entered Value
~ 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.

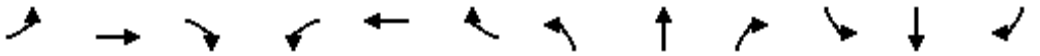
Splits and Phases: 1: Trafalgar Road & William Halton Parkway



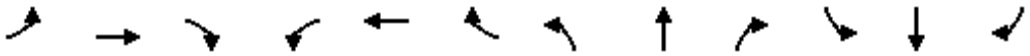


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	689	1159	298	225	476	371	206	1998	240	566	1626	359
Future Volume (vph)	689	1159	298	225	476	371	206	1998	240	566	1626	359
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	3500	1566	3395	3500	1452	3395	4421	1493	3362	4378	1566
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	3500	1566	3395	3500	1452	3395	4421	1493	3362	4378	1566
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)	749	1260	324	245	517	403	224	2172	261	615	1767	390
RTOR Reduction (vph)	0	0	87	0	0	105	0	0	99	0	0	157
Lane Group Flow (vph)	749	1260	237	245	517	298	224	2172	162	615	1767	233
Heavy Vehicles (%)	2%	2%	2%	2%	2%	10%	2%	2%	7%	3%	3%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	15.0	47.6	47.6	10.0	42.6	42.6	8.0	48.6	48.6	13.0	53.6	53.6
Effective Green, g (s)	15.0	47.6	47.6	10.0	42.6	42.6	8.0	48.6	48.6	13.0	53.6	53.6
Actuated g/C Ratio	0.11	0.34	0.34	0.07	0.30	0.30	0.06	0.35	0.35	0.09	0.38	0.38
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	363	1190	532	242	1065	441	194	1534	518	312	1676	599
v/s Ratio Prot	c0.22	c0.36		0.07	0.15		0.07	c0.49		c0.18	0.40	
v/s Ratio Perm			0.15			0.21			0.11			0.15
v/c Ratio	2.06	1.06	0.45	1.01	0.49	0.68	1.15	1.42	0.31	1.97	1.05	0.39
Uniform Delay, d1	62.5	46.2	35.9	65.0	39.8	42.6	66.0	45.7	33.5	63.5	43.2	31.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	487.9	43.2	1.2	61.1	0.7	5.3	112.5	191.1	1.6	448.4	37.9	1.9
Delay (s)	550.4	89.4	37.2	126.1	40.5	47.9	178.5	236.8	35.1	511.9	81.1	33.2
Level of Service	F	F	D	F	D	D	F	F	D	F	F	C
Approach Delay (s)		230.1			61.1			212.0			169.9	
Approach LOS		F			E			F			F	

Intersection Summary			
HCM 2000 Control Delay	184.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.45		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	110.5%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	367	366	134	229	291	122	354	1847	253	202	1788	83
Future Volume (vph)	367	366	134	229	291	122	354	1847	253	202	1788	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		30.0	120.0		30.0	130.0		50.0	170.0		40.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	50.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	*0.80	0.91	1.00	*0.80	0.91
Ped Bike Factor			0.99	1.00								
Frt			0.850		0.956			0.982			0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3500	1566	1750	3256	0	1700	4336	0	1750	4343	0
Flt Permitted	0.273			0.337			0.084			0.092		
Satd. Flow (perm)	503	3500	1545	620	3256	0	150	4336	0	169	4343	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			147		55			21			6	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		245.2			123.4			230.0			280.2	
Travel Time (s)		17.7			8.9			13.8			16.8	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	6%	2%	5%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Adj. Flow (vph)	408	407	149	254	323	136	393	2052	281	224	1987	92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	408	407	149	254	459	0	393	2333	0	224	2079	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.02	1.01	1.01	1.02	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	11.0	41.4	41.4	11.0	41.4		11.0	37.3		11.0	37.3	
Total Split (s)	11.0	42.0	42.0	11.0	42.0		17.0	56.0		11.0	50.0	
Total Split (%)	9.2%	35.0%	35.0%	9.2%	35.0%		14.2%	46.7%		9.2%	41.7%	
Maximum Green (s)	7.0	35.6	35.6	7.0	35.6		13.0	49.7		7.0	43.7	
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.0	3.7		3.0	3.7	
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7		1.0	2.6		1.0	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4		4.0	6.3		4.0	6.3	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	5.0		3.0	5.0	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0	7.0		7.0			7.0			7.0	
Flash Dont Walk (s)		28.0	28.0		28.0			24.0			24.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	29.9	20.5	20.5	29.9	20.5		78.1	49.9		67.9	43.7	
Actuated g/C Ratio	0.25	0.17	0.17	0.25	0.17		0.65	0.42		0.57	0.36	
v/c Ratio	2.06	0.68	0.39	1.15	0.76		0.85	1.29		0.58	1.31	
Control Delay	519.3	52.3	9.7	145.5	50.0		50.8	164.3		32.6	177.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	519.3	52.3	9.7	145.5	50.0		50.8	164.3		32.6	177.8	
LOS	F	D	A	F	D		D	F		C	F	
Approach Delay		243.4			84.0			147.9			163.7	
Approach LOS		F			F			F			F	
Queue Length 50th (m)	~126.6	47.8	0.4	~59.5	48.4		72.1	~290.7		31.2	~263.9	
Queue Length 95th (m)	#205.9	61.0	16.9	#102.9	63.0		#144.2	#325.0		#67.2	#297.5	
Internal Link Dist (m)		221.2			99.4			206.0			256.2	
Turn Bay Length (m)	100.0		30.0	120.0			130.0			170.0		
Base Capacity (vph)	198	1038	561	220	1004		460	1814		384	1585	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	2.06	0.39	0.27	1.15	0.46		0.85	1.29		0.58	1.31	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 2.06

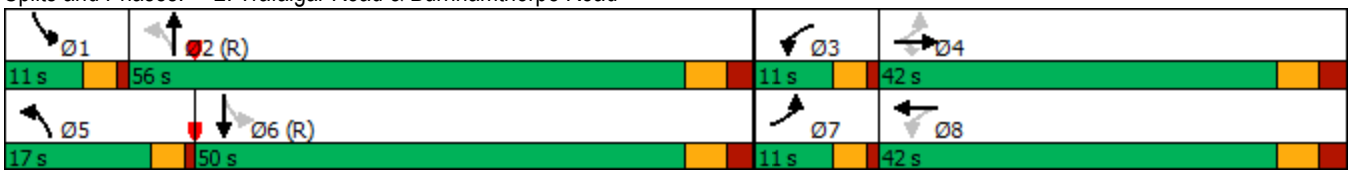
Intersection Signal Delay: 160.3	Intersection LOS: F
Intersection Capacity Utilization 105.5%	ICU Level of Service G
Analysis Period (min) 15	

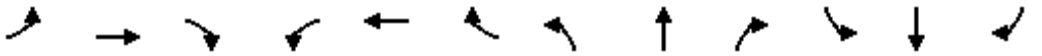
* User Entered Value

~ 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.

Splits and Phases: 2: Trafalgar Road & Burnhamthorpe Road

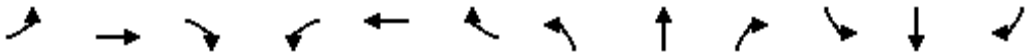




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	367	366	134	229	291	122	354	1847	253	202	1788	83
Future Volume (vph)	367	366	134	229	291	122	354	1847	253	202	1788	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4		4.0	6.3		4.0	6.3	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	*0.80		1.00	*0.80	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	3500	1545	1750	3255		1700	4335		1750	4345	
Flt Permitted	0.27	1.00	1.00	0.34	1.00		0.08	1.00		0.09	1.00	
Satd. Flow (perm)	503	3500	1545	620	3255		150	4335		169	4345	
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)	408	407	149	254	323	136	393	2052	281	224	1987	92
RTOR Reduction (vph)	0	0	122	0	46	0	0	12	0	0	4	0
Lane Group Flow (vph)	408	407	27	254	413	0	393	2321	0	224	2075	0
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	2%	2%	2%	2%	6%	2%	5%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	27.5	20.5	20.5	27.5	20.5		75.8	49.9		65.6	43.7	
Effective Green, g (s)	27.5	20.5	20.5	27.5	20.5		75.8	49.9		65.6	43.7	
Actuated g/C Ratio	0.23	0.17	0.17	0.23	0.17		0.63	0.42		0.55	0.36	
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4		4.0	6.3		4.0	6.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	188	597	263	208	556		457	1802		380	1582	
v/s Ratio Prot	c0.13	0.12		0.07	0.13		c0.20	c0.54		0.11	0.48	
v/s Ratio Perm	c0.37		0.02	0.21			0.34			0.21		
v/c Ratio	2.17	0.68	0.10	1.22	0.74		0.86	1.29		0.59	1.31	
Uniform Delay, d1	44.3	46.7	42.0	44.8	47.3		35.0	35.0		27.2	38.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	543.8	3.2	0.2	134.8	5.3		14.9	133.9		2.3	144.9	
Delay (s)	588.1	49.9	42.2	179.6	52.6		49.9	168.9		29.6	183.1	
Level of Service	F	D	D	F	D		D	F		C	F	
Approach Delay (s)		276.5			97.8			151.7			168.1	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	169.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.45		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	105.5%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	589	2183	245	266	1249	621	197	1376	125	888	2080	464
Future Volume (vph)	589	2183	245	266	1249	621	197	1376	125	888	2080	464
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	190.0		85.0	100.0		290.0	110.0		60.0	180.0		160.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Ped Bike Factor	1.00		0.99	1.00		0.98	1.00		0.99	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	4421	1551	3298	4214	1536	3330	4378	1566	3330	4378	1551
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3393	4421	1529	3298	4214	1512	3329	4378	1543	3328	4378	1523
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			133			153			129			134
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		560.5			603.0			601.7			1233.0	
Travel Time (s)		28.8			31.0			36.1			74.0	
Confl. Peds. (#/hr)	4		2	2		4	6		3	3		6
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	3%	5%	7%	4%	4%	3%	2%	4%	3%	3%
Adj. Flow (vph)	614	2274	255	277	1301	647	205	1433	130	925	2167	483
Shared Lane Traffic (%)												
Lane Group Flow (vph)	614	2274	255	277	1301	647	205	1433	130	925	2167	483
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	50.4	50.4	11.0	50.4	50.4	11.0	48.4	48.4	11.0	48.4	48.4
Total Split (s)	13.0	54.0	54.0	11.0	52.0	52.0	11.0	49.0	49.0	16.0	54.0	54.0
Total Split (%)	10.0%	41.5%	41.5%	8.5%	40.0%	40.0%	8.5%	37.7%	37.7%	12.3%	41.5%	41.5%
Maximum Green (s)	9.0	47.6	47.6	7.0	45.6	45.6	7.0	42.6	42.6	12.0	47.6	47.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		37.0	37.0		37.0	37.0		35.0	35.0		35.0	35.0
Pedestrian Calls (#/hr)		2	2		4	4		3	3		6	6
Act Effct Green (s)	9.0	47.6	47.6	7.0	45.6	45.6	7.0	42.6	42.6	12.0	47.6	47.6
Actuated g/C Ratio	0.07	0.37	0.37	0.05	0.35	0.35	0.05	0.33	0.33	0.09	0.37	0.37
v/c Ratio	2.61	1.41	0.40	1.56	0.88	1.03	1.15	1.00	0.22	3.01	1.35	0.75
Control Delay	761.0	219.4	16.0	318.7	47.8	75.4	165.0	67.2	6.1	934.4	196.6	34.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	761.0	219.4	16.0	318.7	47.8	75.4	165.0	67.2	6.1	934.4	196.6	34.1
LOS	F	F	B	F	D	E	F	E	A	F	F	C
Approach Delay		308.7			89.5			74.1			365.5	
Approach LOS		F			F			E			F	
Queue Length 50th (m)	~136.1	~324.7	21.6	~51.6	129.7	~149.7	~31.6	152.5	0.2	~211.5	~302.7	79.9
Queue Length 95th (m)	#172.4	#356.7	44.2	#79.6	152.8	#221.6	#56.5	#192.4	14.0	#251.0	#335.1	123.8
Internal Link Dist (m)		536.5			579.0			577.7			1209.0	
Turn Bay Length (m)	190.0		85.0	100.0		290.0	110.0		60.0	180.0		160.0
Base Capacity (vph)	235	1618	644	177	1478	629	179	1434	592	307	1603	642
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.61	1.41	0.40	1.56	0.88	1.03	1.15	1.00	0.22	3.01	1.35	0.75

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 3.01	
Intersection Signal Delay: 243.4	Intersection LOS: F

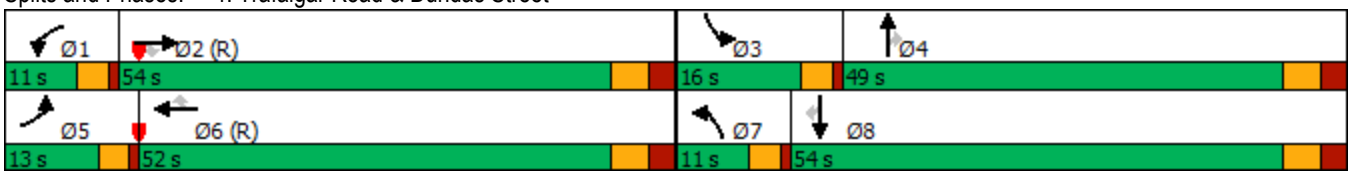
Intersection Capacity Utilization 123.5%	ICU Level of Service H
Analysis Period (min) 15	

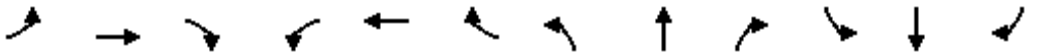
* User Entered Value

~ 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.

Splits and Phases: 4: Trafalgar Road & Dundas Street



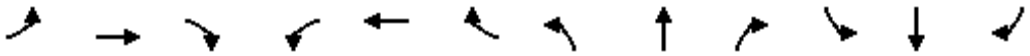


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	589	2183	245	266	1249	621	197	1376	125	888	2080	464
Future Volume (vph)	589	2183	245	266	1249	621	197	1376	125	888	2080	464
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	4421	1529	3298	4214	1512	3330	4378	1543	3330	4378	1523
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	4421	1529	3298	4214	1512	3330	4378	1543	3330	4378	1523
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	614	2274	255	277	1301	647	205	1433	130	925	2167	483
RTOR Reduction (vph)	0	0	84	0	0	99	0	0	87	0	0	85
Lane Group Flow (vph)	614	2274	171	277	1301	548	205	1433	43	925	2167	398
Confl. Peds. (#/hr)	4		2	2		4	6		3	3		6
Heavy Vehicles (%)	2%	2%	3%	5%	7%	4%	4%	3%	2%	4%	3%	3%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	9.0	47.6	47.6	7.0	45.6	45.6	7.0	42.6	42.6	12.0	47.6	47.6
Effective Green, g (s)	9.0	47.6	47.6	7.0	45.6	45.6	7.0	42.6	42.6	12.0	47.6	47.6
Actuated g/C Ratio	0.07	0.37	0.37	0.05	0.35	0.35	0.05	0.33	0.33	0.09	0.37	0.37
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Lane Grp Cap (vph)	235	1618	559	177	1478	530	179	1434	505	307	1603	557
v/s Ratio Prot	c0.18	c0.51		0.08	0.31		0.06	0.33		c0.28	c0.49	
v/s Ratio Perm			0.11			0.36			0.03			0.26
v/c Ratio	2.61	1.41	0.31	1.56	0.88	1.03	1.15	1.00	0.09	3.01	1.35	0.71
Uniform Delay, d1	60.5	41.2	29.4	61.5	39.6	42.2	61.5	43.7	30.2	59.0	41.2	35.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	737.9	186.2	1.4	279.8	7.8	47.9	111.7	23.4	0.1	914.6	162.5	4.5
Delay (s)	798.4	227.4	30.8	341.3	47.5	90.1	173.2	67.1	30.3	973.6	203.7	39.9
Level of Service	F	F	C	F	D	F	F	E	C	F	F	D
Approach Delay (s)		323.0			96.5			76.7			380.8	
Approach LOS		F			F			E			F	

Intersection Summary			
HCM 2000 Control Delay	254.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.70		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	123.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	1591	67	374	602	206	41	62	331	118	8	7
Future Volume (vph)	25	1591	67	374	602	206	41	62	331	118	8	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		30.0	180.0		30.0	30.0		0.0	120.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.96			0.97	0.99	0.98		1.00	0.99	
Frt			0.850			0.850		0.874			0.929	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3500	1566	1750	3500	1566	1750	1579	0	1750	1694	0
Flt Permitted	0.397			0.075			0.746			0.150		
Satd. Flow (perm)	728	3500	1510	138	3500	1512	1366	1579	0	276	1694	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95			227		212			8	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		830.2			198.4			579.5			190.6	
Travel Time (s)		49.8			11.9			41.7			13.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	28	1768	74	416	669	229	46	69	368	131	9	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	1768	74	416	669	229	46	437	0	131	17	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2		2	6		6	4			8		
Detector Phase	2	2	2	1	6	6	4	4		3	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	10.0	10.0		7.0	10.0	
Minimum Split (s)	32.1	32.1	32.1	11.0	32.1	32.1	34.4	34.4		11.0	34.4	
Total Split (s)	54.0	54.0	54.0	20.0	74.0	74.0	35.0	35.0		11.0	46.0	
Total Split (%)	45.0%	45.0%	45.0%	16.7%	61.7%	61.7%	29.2%	29.2%		9.2%	38.3%	
Maximum Green (s)	48.9	48.9	48.9	16.0	68.9	68.9	29.6	29.6		7.0	40.6	
Yellow Time (s)	3.7	3.7	3.7	3.0	3.7	3.7	3.3	3.3		3.0	3.3	
All-Red Time (s)	1.4	1.4	1.4	1.0	1.4	1.4	2.1	2.1		1.0	2.1	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.1	5.1	5.1	4.0	5.1	5.1	5.4	5.4		4.0	5.4	
Lead/Lag	Lag	Lag	Lag	Lead			Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max	Max	None	Max	Max	None	None		None	None	
Walk Time (s)	7.0	7.0	7.0		7.0	7.0	7.0	7.0			7.0	
Flash Dont Walk (s)	20.0	20.0	20.0		20.0	20.0	22.0	22.0			22.0	
Pedestrian Calls (#/hr)	5	5	5		5	5	5	5			5	
Act Effct Green (s)	49.1	49.1	49.1	70.3	69.2	69.2	22.7	22.7		35.1	33.7	
Actuated g/C Ratio	0.43	0.43	0.43	0.62	0.61	0.61	0.20	0.20		0.31	0.30	
v/c Ratio	0.09	1.17	0.10	1.33	0.31	0.23	0.17	0.90		0.74	0.03	
Control Delay	22.3	113.9	2.9	197.4	12.0	2.1	37.9	45.0		55.3	19.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	22.3	113.9	2.9	197.4	12.0	2.1	37.9	45.0		55.3	19.0	
LOS	C	F	A	F	B	A	D	D		E	B	
Approach Delay		108.1			68.9			44.3			51.1	
Approach LOS		F			E			D			D	
Queue Length 50th (m)	3.7	~253.0	0.0	~108.1	37.0	0.2	8.5	51.8		21.5	1.4	
Queue Length 95th (m)	10.3	#314.3	5.9	#178.5	53.0	10.4	18.4	#101.0		#38.4	6.5	
Internal Link Dist (m)		806.2			174.4			555.5			166.6	
Turn Bay Length (m)	30.0		30.0	180.0		30.0	30.0			120.0		
Base Capacity (vph)	315	1515	707	313	2134	1010	357	570		176	614	
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	0.09	1.17	0.10	1.33	0.31	0.23	0.13	0.77		0.74	0.03	

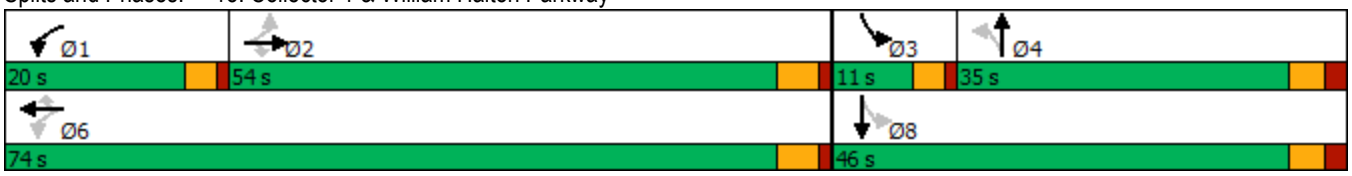
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 113.4			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.33			
Intersection Signal Delay: 84.3		Intersection LOS: F	
Intersection Capacity Utilization 110.8%		ICU Level of Service H	

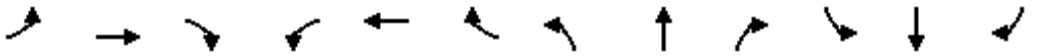
Analysis Period (min) 15

~ 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.

Splits and Phases: 15: Collector 1 & William Halton Parkway

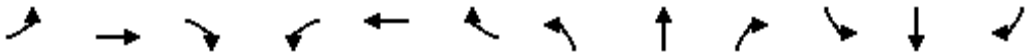




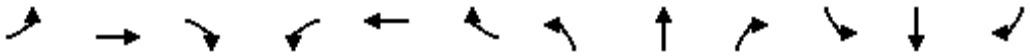
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	1591	67	374	602	206	41	62	331	118	8	7
Future Volume (vph)	25	1591	67	374	602	206	41	62	331	118	8	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	5.1	4.0	5.1	5.1	5.4	5.4		4.0	5.4	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	0.98		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.87		1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1743	3500	1512	1750	3500	1514	1740	1578		1750	1695	
Flt Permitted	0.40	1.00	1.00	0.08	1.00	1.00	0.75	1.00		0.15	1.00	
Satd. Flow (perm)	729	3500	1512	139	3500	1514	1367	1578		276	1695	
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)	28	1768	74	416	669	229	46	69	368	131	9	8
RTOR Reduction (vph)	0	0	42	0	0	88	0	170	0	0	6	0
Lane Group Flow (vph)	28	1768	32	416	669	141	46	267	0	131	11	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	49.1	49.1	49.1	69.2	69.2	69.2	22.7	22.7		33.7	33.7	
Effective Green, g (s)	49.1	49.1	49.1	69.2	69.2	69.2	22.7	22.7		33.7	33.7	
Actuated g/C Ratio	0.43	0.43	0.43	0.61	0.61	0.61	0.20	0.20		0.30	0.30	
Clearance Time (s)	5.1	5.1	5.1	4.0	5.1	5.1	5.4	5.4		4.0	5.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	315	1515	654	313	2135	923	273	315		173	503	
v/s Ratio Prot		0.51		c0.19	0.19			c0.17		c0.05	0.01	
v/s Ratio Perm	0.04		0.02	c0.62		0.09	0.03			0.18		
v/c Ratio	0.09	1.17	0.05	1.33	0.31	0.15	0.17	0.85		0.76	0.02	
Uniform Delay, d1	19.0	32.2	18.6	37.4	10.7	9.5	37.5	43.7		32.7	28.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	82.7	0.1	168.5	0.4	0.3	0.3	18.7		17.1	0.0	
Delay (s)	19.5	114.8	18.8	205.9	11.0	9.8	37.8	62.4		49.8	28.2	
Level of Service	B	F	B	F	B	A	D	E		D	C	
Approach Delay (s)		109.6			72.5			60.1			47.4	
Approach LOS		F			E			E			D	

Intersection Summary			
HCM 2000 Control Delay	88.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.21		
Actuated Cycle Length (s)	113.4	Sum of lost time (s)	18.5
Intersection Capacity Utilization	110.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	564	9	90	354	286	19	91	116	189	47	18
Future Volume (vph)	27	564	9	90	354	286	19	91	116	189	47	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	30.0		0.0	70.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	0.99		1.00	0.99		1.00	0.99	
Frt		0.998			0.933			0.916			0.958	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3491	0	1750	3218	0	1750	1669	0	1750	1755	0
Flt Permitted	0.361			0.398			0.710			0.564		
Satd. Flow (perm)	663	3491	0	731	3218	0	1302	1669	0	1035	1755	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			294			88			20	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		136.3			245.2			477.1			579.5	
Travel Time (s)		9.8			17.7			34.4			41.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	30	627	10	100	393	318	21	101	129	210	52	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	637	0	100	711	0	21	230	0	210	72	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

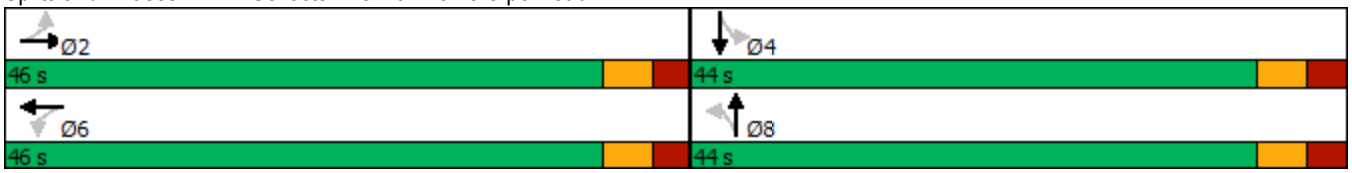


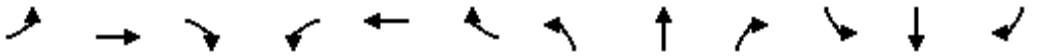
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	31.9	31.9		31.9	31.9		33.1	33.1		33.1	33.1	
Total Split (s)	46.0	46.0		46.0	46.0		44.0	44.0		44.0	44.0	
Total Split (%)	51.1%	51.1%		51.1%	51.1%		48.9%	48.9%		48.9%	48.9%	
Maximum Green (s)	40.1	40.1		40.1	40.1		37.9	37.9		37.9	37.9	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.6	2.6		2.6	2.6		2.8	2.8		2.8	2.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	
Act Effct Green (s)	40.4	40.4		40.4	40.4		18.8	18.8		18.8	18.8	
Actuated g/C Ratio	0.57	0.57		0.57	0.57		0.26	0.26		0.26	0.26	
v/c Ratio	0.08	0.32		0.24	0.36		0.06	0.46		0.77	0.15	
Control Delay	10.0	9.8		11.8	6.0		18.6	15.7		43.2	15.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	10.0	9.8		11.8	6.0		18.6	15.7		43.2	15.3	
LOS	B	A		B	A		B	B		D	B	
Approach Delay		9.8			6.7			15.9			36.0	
Approach LOS		A			A			B			D	
Queue Length 50th (m)	1.6	21.2		6.0	13.1		2.1	15.1		25.7	5.2	
Queue Length 95th (m)	6.9	41.8		18.9	30.3		6.6	31.8		47.6	13.6	
Internal Link Dist (m)		112.3			221.2			453.1			555.5	
Turn Bay Length (m)	30.0			30.0			30.0			70.0		
Base Capacity (vph)	376	1980		414	1951		697	935		554	949	
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	0.08	0.32		0.24	0.36		0.03	0.25		0.38	0.08	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 71.3			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 13.0		Intersection LOS: B	
Intersection Capacity Utilization 71.7%		ICU Level of Service C	

Analysis Period (min) 15

Splits and Phases: 17: Collector 1 & Burnhamthorpe Road

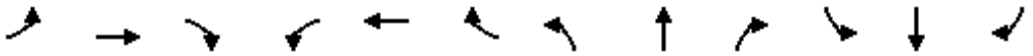




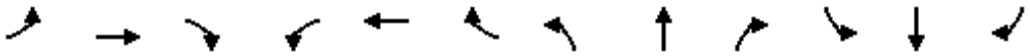
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	564	9	90	354	286	19	91	116	189	47	18
Future Volume (vph)	27	564	9	90	354	286	19	91	116	189	47	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
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	0.99		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	1.00		1.00	0.93		1.00	0.92		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)	1746	3490		1745	3221		1744	1668		1745	1755	
Flt Permitted	0.36	1.00		0.40	1.00		0.71	1.00		0.56	1.00	
Satd. Flow (perm)	663	3490		732	3221		1303	1668		1035	1755	
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)	30	627	10	100	393	318	21	101	129	210	52	20
RTOR Reduction (vph)	0	1	0	0	127	0	0	65	0	0	15	0
Lane Group Flow (vph)	30	636	0	100	584	0	21	165	0	210	57	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	40.4	40.4		40.4	40.4		18.8	18.8		18.8	18.8	
Effective Green, g (s)	40.4	40.4		40.4	40.4		18.8	18.8		18.8	18.8	
Actuated g/C Ratio	0.57	0.57		0.57	0.57		0.26	0.26		0.26	0.26	
Clearance Time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	376	1980		415	1827		344	440		273	463	
v/s Ratio Prot		c0.18			0.18			0.10			0.03	
v/s Ratio Perm	0.05			0.14			0.02			c0.20		
v/c Ratio	0.08	0.32		0.24	0.32		0.06	0.38		0.77	0.12	
Uniform Delay, d1	7.0	8.1		7.7	8.1		19.6	21.4		24.2	19.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.4		1.4	0.5		0.1	0.5		12.3	0.1	
Delay (s)	7.4	8.6		9.1	8.6		19.7	21.9		36.5	20.1	
Level of Service	A	A		A	A		B	C		D	C	
Approach Delay (s)		8.5			8.7			21.8			32.3	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	71.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	7	22	83	3	83	23	2294	19	57	2061	30
Future Volume (vph)	79	7	22	83	3	83	23	2294	19	57	2061	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	40.0		0.0	30.0		0.0	17.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	*0.80	0.91	1.00	*0.80	0.91
Ped Bike Factor	1.00	0.98		0.99	0.98			1.00			1.00	
Frt		0.887			0.855			0.999			0.998	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	1607	0	1750	1542	0	1750	4415	0	1750	4410	0
Flt Permitted	0.695			0.736			0.051			0.051		
Satd. Flow (perm)	1274	1607	0	1348	1542	0	94	4415	0	94	4410	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			4			2			3	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		117.5			110.5			259.2			230.0	
Travel Time (s)		8.5			8.0			15.6			13.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	88	8	24	92	3	92	26	2549	21	63	2290	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	88	32	0	92	95	0	26	2570	0	63	2323	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	38.5	38.5		38.5	38.5		33.4	33.4		33.4	33.4	
Total Split (s)	39.0	39.0		39.0	39.0		81.0	81.0		81.0	81.0	
Total Split (%)	32.5%	32.5%		32.5%	32.5%		67.5%	67.5%		67.5%	67.5%	
Maximum Green (s)	32.5	32.5		32.5	32.5		74.6	74.6		74.6	74.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.2	3.2		3.2	3.2		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	25.0	25.0		25.0	25.0		20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	
Act Effct Green (s)	15.3	15.3		15.3	15.3		77.9	77.9		77.9	77.9	
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.73	0.73		0.73	0.73	
v/c Ratio	0.48	0.13		0.47	0.42		0.38	0.79		0.93	0.72	
Control Delay	48.5	31.4		47.9	43.3		29.3	13.1		114.0	11.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.1	
Total Delay	48.5	31.4		47.9	43.3		29.3	13.2		114.0	11.2	
LOS	D	C		D	D		C	B		F	B	
Approach Delay		44.0			45.6			13.3			13.9	
Approach LOS		D			D			B			B	
Queue Length 50th (m)	16.3	4.4		17.0	16.7		1.5	102.9		7.7	81.9	
Queue Length 95th (m)	30.6	12.2		31.5	31.0		#17.4	243.5		#31.7	194.0	
Internal Link Dist (m)		93.5			86.5			235.2			206.0	
Turn Bay Length (m)	40.0			40.0			30.0			17.0		
Base Capacity (vph)	392	499		414	477		68	3238		68	3234	
Starvation Cap Reductn	0	0		0	0		0	19		0	160	
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	0.22	0.06		0.22	0.20		0.38	0.80		0.93	0.76	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 106.2			
Natural Cycle: 100			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 15.4		Intersection LOS: B	
Intersection Capacity Utilization 71.7%		ICU Level of Service C	

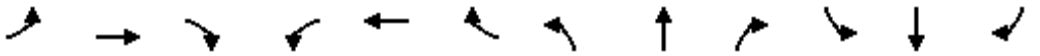
Analysis Period (min) 15

* User Entered Value

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

Splits and Phases: 26: Trafalgar Road & Local 6





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	7	22	83	3	83	23	2294	19	57	2061	30
Future Volume (vph)	79	7	22	83	3	83	23	2294	19	57	2061	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	*0.80		1.00	*0.80	
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.89		1.00	0.85		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1742	1605		1742	1537		1750	4414		1750	4409	
Flt Permitted	0.70	1.00		0.74	1.00		0.05	1.00		0.05	1.00	
Satd. Flow (perm)	1276	1605		1350	1537		95	4414		95	4409	
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)	88	8	24	92	3	92	26	2549	21	63	2290	33
RTOR Reduction (vph)	0	6	0	0	3	0	0	1	0	0	1	0
Lane Group Flow (vph)	88	26	0	92	92	0	26	2569	0	63	2322	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
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)	15.3	15.3		15.3	15.3		77.9	77.9		77.9	77.9	
Effective Green, g (s)	15.3	15.3		15.3	15.3		77.9	77.9		77.9	77.9	
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.73	0.73		0.73	0.73	
Clearance Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	184	231		194	221		69	3240		69	3237	
v/s Ratio Prot		0.02			0.06			0.58			0.53	
v/s Ratio Perm	c0.07			0.07			0.27			c0.67		
v/c Ratio	0.48	0.11		0.47	0.41		0.38	0.79		0.91	0.72	
Uniform Delay, d1	41.7	39.5		41.7	41.3		5.2	9.0		11.4	7.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.0	0.2		1.8	1.3		15.0	2.1		85.8	1.4	
Delay (s)	43.7	39.7		43.5	42.6		20.2	11.1		97.2	9.3	
Level of Service	D	D		D	D		C	B		F	A	
Approach Delay (s)		42.6			43.1			11.1			11.6	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	106.1	Sum of lost time (s)	12.9
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

MOVEMENT SUMMARY

Site: [102] Sixth Line & William Halton Parkway - Mitigation

(General)

Output produced by SIDRA INTERSECTION Version: 10.0.8.241

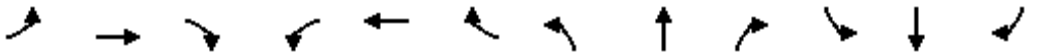
2036 Future Total AM - Mitigation
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

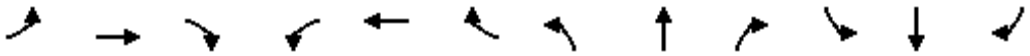
Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Sixth Line															
1	L2	All MCs	48	2.0	48	2.0	0.671	35.9	LOS E	2.6	18.6	0.89	1.03	1.49	36.2
2	T1	All MCs	380	2.0	380	2.0	0.671	34.4	LOS D	2.6	18.6	0.88	1.03	1.48	37.5
3	R2	All MCs	242	2.0	242	2.0	0.128	4.2	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			670	2.0	670	2.0	0.671	23.6	LOS C	2.6	18.6	0.56	0.66	0.95	42.4
East: William Halton Parkway															
4	L2	All MCs	90	2.0	90	2.0	0.412	11.5	LOS B	1.7	11.9	0.58	0.62	0.80	46.7
5	T1	All MCs	448	2.0	448	2.0	0.412	11.3	LOS B	1.7	11.9	0.56	0.61	0.78	48.3
6	R2	All MCs	202	2.0	202	2.0	0.107	3.3	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			740	2.0	740	2.0	0.412	9.1	LOS A	1.7	11.9	0.41	0.44	0.57	50.0
North: Sixth Line															
7	L2	All MCs	918	2.0	918	2.0	1.253	141.7	LOS F	71.4	508.1	1.00	3.90	9.63	19.9
8	T1	All MCs	317	2.0	317	2.0	0.446	11.2	LOS B	2.1	14.6	0.56	0.58	0.80	48.9
9	R2	All MCs	368	2.0	368	2.0	0.194	4.3	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			1602	2.0	1602	2.0	1.253	84.4	LOS F	71.4	508.1	0.68	2.35	5.67	26.8
West: William Halton Parkway															
10	L2	All MCs	300	2.0	300	2.0	1.014	74.2	LOS F	14.9	106.4	1.00	1.88	4.25	26.6
11	T1	All MCs	671	2.0	671	2.0	1.014	72.6	LOS F	15.4	109.8	1.00	1.90	4.33	27.5
12	R2	All MCs	106	2.0	106	2.0	0.056	3.0	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			1077	2.0	1077	2.0	1.014	66.2	LOS F	15.4	109.8	0.90	1.71	3.88	28.6
All Vehicles			4089	2.0	4089	2.0	1.253	56.0	LOS F	71.4	508.1	0.67	1.56	3.50	31.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	689	756	183	339	921	896	284	1836	249	526	2036	533
Future Volume (vph)	689	756	183	339	921	896	284	1836	249	526	2036	533
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	220.0		80.0	100.0		205.0	120.0		70.0	180.0		80.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Ped Bike Factor							1.00					0.99
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	3500	1566	3330	3500	1566	3395	4421	1536	3267	4421	1566
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3395	3500	1566	3330	3500	1566	3395	4421	1536	3267	4421	1545
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			134			131			127			230
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		207.8			119.4			182.8			224.9	
Travel Time (s)		12.5			7.2			11.0			13.5	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	4%	2%	2%	2%	2%	4%	6%	2%	2%
Adj. Flow (vph)	741	813	197	365	990	963	305	1974	268	566	2189	573
Shared Lane Traffic (%)												
Lane Group Flow (vph)	741	813	197	365	990	963	305	1974	268	566	2189	573
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	48.4	48.4	11.0	48.4	48.4	11.0	45.4	45.4	11.0	44.4	44.4
Total Split (s)	17.0	51.0	51.0	22.0	56.0	56.0	12.0	52.0	52.0	15.0	55.0	55.0
Total Split (%)	12.1%	36.4%	36.4%	15.7%	40.0%	40.0%	8.6%	37.1%	37.1%	10.7%	39.3%	39.3%
Maximum Green (s)	13.0	44.6	44.6	18.0	49.6	49.6	8.0	45.6	45.6	11.0	49.6	49.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	2.7	2.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	5.4	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		35.0	35.0		35.0	35.0		32.0	32.0		32.0	32.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	13.0	45.0	45.0	17.6	49.6	49.6	8.0	45.6	45.6	11.0	49.6	49.6
Actuated g/C Ratio	0.09	0.32	0.32	0.13	0.35	0.35	0.06	0.33	0.33	0.08	0.35	0.35
v/c Ratio	2.35	0.72	0.33	0.87	0.80	1.51	1.57	1.37	0.46	2.21	1.40	0.82
Control Delay	644.5	46.5	13.8	81.3	46.6	265.5	321.4	208.7	21.8	585.5	218.3	35.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	644.5	46.5	13.8	81.3	46.6	265.5	321.4	208.7	21.8	585.5	218.3	35.3
LOS	F	D	B	F	D	F	F	F	C	F	F	D
Approach Delay		295.9			143.0			202.5			249.3	
Approach LOS		F			F			F			F	
Queue Length 50th (m)	~172.7	105.2	12.4	51.8	129.5	~347.2	~61.5	~300.1	30.0	~129.5	~336.5	92.6
Queue Length 95th (m)	#211.2	128.8	32.3	#76.3	155.9	#427.1	#91.4	#332.9	56.2	#165.7	#368.0	#146.1
Internal Link Dist (m)		183.8			95.4			158.8			200.9	
Turn Bay Length (m)	220.0		80.0	100.0		205.0	120.0		70.0	180.0		80.0
Base Capacity (vph)	315	1124	594	428	1240	639	194	1439	585	256	1566	695
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.35	0.72	0.33	0.85	0.80	1.51	1.57	1.37	0.46	2.21	1.40	0.82

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 2.35	
Intersection Signal Delay: 220.7	Intersection LOS: F

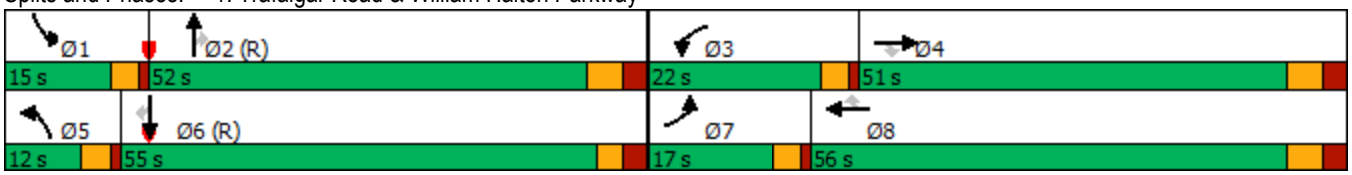
Intersection Capacity Utilization 124.6%	ICU Level of Service H
Analysis Period (min) 15	

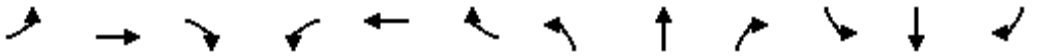
* User Entered Value

~ 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.

Splits and Phases: 1: Trafalgar Road & William Halton Parkway

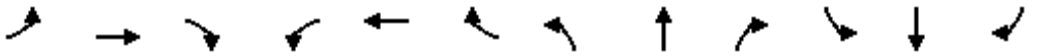




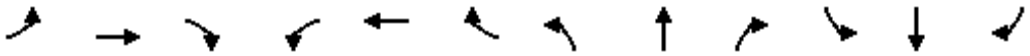
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	689	756	183	339	921	896	284	1836	249	526	2036	533
Future Volume (vph)	689	756	183	339	921	896	284	1836	249	526	2036	533
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	5.4	5.4
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	3500	1566	3330	3500	1566	3395	4421	1536	3267	4421	1545
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	3500	1566	3330	3500	1566	3395	4421	1536	3267	4421	1545
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)	741	813	197	365	990	963	305	1974	268	566	2189	573
RTOR Reduction (vph)	0	0	91	0	0	85	0	0	86	0	0	149
Lane Group Flow (vph)	741	813	106	365	990	878	305	1974	182	566	2189	424
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	2%	2%	2%	4%	2%	2%	2%	2%	4%	6%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	13.0	45.0	45.0	17.6	49.6	49.6	8.0	45.6	45.6	11.0	49.6	49.6
Effective Green, g (s)	13.0	45.0	45.0	17.6	49.6	49.6	8.0	45.6	45.6	11.0	49.6	49.6
Actuated g/C Ratio	0.09	0.32	0.32	0.13	0.35	0.35	0.06	0.33	0.33	0.08	0.35	0.35
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	5.4	5.4
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	315	1125	503	418	1240	554	194	1439	500	256	1566	547
v/s Ratio Prot	c0.22	0.23		0.11	0.28		0.09	0.45		c0.17	c0.50	
v/s Ratio Perm			0.07			c0.56			0.12			0.27
v/c Ratio	2.35	0.72	0.21	0.87	0.80	1.59	1.57	1.37	0.36	2.21	1.40	0.78
Uniform Delay, d1	63.5	42.0	34.6	60.1	40.7	45.2	66.0	47.2	36.1	64.5	45.2	40.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	618.4	2.9	0.4	17.9	4.2	272.0	280.8	171.8	2.1	557.5	183.0	10.3
Delay (s)	681.9	44.8	35.0	78.0	44.9	317.2	346.8	219.0	38.2	622.0	228.2	50.6
Level of Service	F	D	D	E	D	F	F	F	D	F	F	D
Approach Delay (s)		313.3			163.3			215.3			264.6	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	236.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.67		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	124.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	288	325	176	332	363	86	335	1964	186	203	1973	177
Future Volume (vph)	288	325	176	332	363	86	335	1964	186	203	1973	177
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		30.0	120.0		30.0	130.0		50.0	170.0		40.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	50.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	*0.80	0.91	1.00	*0.80	0.91
Frt			0.850		0.971			0.987			0.988	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1668	3500	1566	1750	3398	0	1750	4358	0	1750	4323	0
Flt Permitted	0.268			0.429			0.080			0.088		
Satd. Flow (perm)	471	3500	1566	790	3398	0	147	4358	0	162	4323	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			141		25			13			12	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		245.2			123.4			230.0			280.2	
Travel Time (s)		17.7			8.9			13.8			16.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Adj. Flow (vph)	303	342	185	349	382	91	353	2067	196	214	2077	186
Shared Lane Traffic (%)												
Lane Group Flow (vph)	303	342	185	349	473	0	353	2263	0	214	2263	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.02	1.01	1.01	1.02	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	11.0	41.4	41.4	11.0	41.4		11.0	37.3		11.0	37.3	
Total Split (s)	11.0	42.0	42.0	11.0	42.0		15.0	56.0		11.0	52.0	
Total Split (%)	9.2%	35.0%	35.0%	9.2%	35.0%		12.5%	46.7%		9.2%	43.3%	
Maximum Green (s)	7.0	35.6	35.6	7.0	35.6		11.0	49.7		7.0	45.7	
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.0	3.7		3.0	3.7	
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7		1.0	2.6		1.0	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4		4.0	6.3		4.0	6.3	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	5.0		3.0	5.0	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0	7.0		7.0			7.0			7.0	
Flash Dont Walk (s)		28.0	28.0		28.0			24.0			24.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	30.7	21.3	21.3	30.7	21.3		77.3	50.1		68.9	45.7	
Actuated g/C Ratio	0.26	0.18	0.18	0.26	0.18		0.64	0.42		0.57	0.38	
v/c Ratio	1.59	0.55	0.47	1.35	0.76		0.82	1.24		0.58	1.37	
Control Delay	320.0	47.9	16.0	216.1	52.3		47.9	144.4		32.2	201.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	320.0	47.9	16.0	216.1	52.3		47.9	144.4		32.2	201.5	
LOS	F	D	B	F	D		D	F		C	F	
Approach Delay		140.1			121.8			131.4			186.9	
Approach LOS		F			F			F			F	
Queue Length 50th (m)	~78.3	39.0	8.9	~99.8	53.4		62.6	~275.0		29.4	~294.5	
Queue Length 95th (m)	#151.0	51.1	28.3	#155.9	67.7		#128.4	#310.9		#63.4	#327.7	
Internal Link Dist (m)		221.2			99.4			206.0			256.2	
Turn Bay Length (m)	100.0		30.0	120.0			130.0			170.0		
Base Capacity (vph)	190	1038	563	258	1025		432	1826		369	1653	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	1.59	0.33	0.33	1.35	0.46		0.82	1.24		0.58	1.37	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 145			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.59			
Intersection Signal Delay: 151.7		Intersection LOS: F	
Intersection Capacity Utilization 106.6%		ICU Level of Service G	

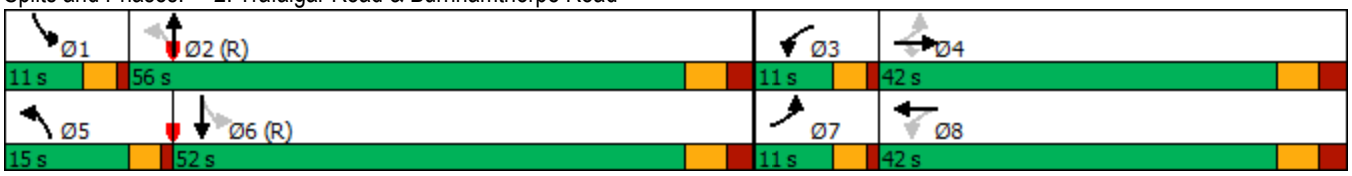
Analysis Period (min) 15

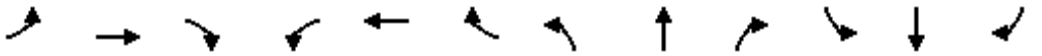
* User Entered Value

~ 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.

Splits and Phases: 2: Trafalgar Road & Burnhamthorpe Road



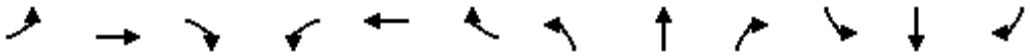


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	288	325	176	332	363	86	335	1964	186	203	1973	177
Future Volume (vph)	288	325	176	332	363	86	335	1964	186	203	1973	177
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4		4.0	6.3		4.0	6.3	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	*0.80		1.00	*0.80	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1668	3500	1566	1750	3399		1750	4358		1750	4322	
Flt Permitted	0.27	1.00	1.00	0.43	1.00		0.08	1.00		0.09	1.00	
Satd. Flow (perm)	470	3500	1566	790	3399		148	4358		161	4322	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	303	342	185	349	382	91	353	2067	196	214	2077	186
RTOR Reduction (vph)	0	0	116	0	21	0	0	8	0	0	7	0
Lane Group Flow (vph)	303	342	69	349	452	0	353	2255	0	214	2256	0
Heavy Vehicles (%)	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	28.3	21.3	21.3	28.3	21.3		75.0	50.1		66.6	45.7	
Effective Green, g (s)	28.3	21.3	21.3	28.3	21.3		75.0	50.1		66.6	45.7	
Actuated g/C Ratio	0.24	0.18	0.18	0.24	0.18		0.62	0.42		0.55	0.38	
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4		4.0	6.3		4.0	6.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	180	621	277	242	603		430	1819		366	1645	
v/s Ratio Prot	c0.10	0.10		0.08	0.13		c0.17	0.52		0.10	c0.52	
v/s Ratio Perm	c0.30		0.04	0.26			0.34			0.22		
v/c Ratio	1.68	0.55	0.25	1.44	0.75		0.82	1.24		0.58	1.37	
Uniform Delay, d1	43.8	45.0	42.5	44.7	46.8		34.9	35.0		27.5	37.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	330.4	1.1	0.5	220.8	5.2		11.9	112.9		2.4	171.0	
Delay (s)	374.3	46.0	42.9	265.5	52.1		46.8	147.8		29.8	208.1	
Level of Service	F	D	D	F	D		D	F		C	F	
Approach Delay (s)		165.2			142.7			134.2			192.7	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	160.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.32		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	106.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	625	1710	198	298	1848	723	324	2112	232	698	1550	501
Future Volume (vph)	625	1710	198	298	1848	723	324	2112	232	698	1550	501
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	190.0		85.0	100.0		290.0	110.0		60.0	280.0		160.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Ped Bike Factor	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	4378	1566	3395	4421	1566	3395	4421	1566	3362	4421	1566
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3394	4378	1527	3391	4421	1540	3393	4421	1541	3361	4421	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			132			130			98			142
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		592.0			816.3			644.9			1233.0	
Travel Time (s)		30.4			42.0			38.7			74.0	
Confl. Peds. (#/hr)	5		15	15		5	6		4	4		6
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%
Adj. Flow (vph)	644	1763	204	307	1905	745	334	2177	239	720	1598	516
Shared Lane Traffic (%)												
Lane Group Flow (vph)	644	1763	204	307	1905	745	334	2177	239	720	1598	516
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	12.0	50.4	50.4	12.0	50.4	50.4	11.0	48.4	48.4	11.0	48.4	48.4
Total Split (s)	14.0	55.0	55.0	12.0	53.0	53.0	11.0	50.0	50.0	13.0	52.0	52.0
Total Split (%)	10.8%	42.3%	42.3%	9.2%	40.8%	40.8%	8.5%	38.5%	38.5%	10.0%	40.0%	40.0%
Maximum Green (s)	10.0	48.6	48.6	8.0	46.6	46.6	7.0	43.6	43.6	9.0	45.6	45.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		37.0	37.0		37.0	37.0		35.0	35.0		35.0	35.0
Pedestrian Calls (#/hr)		15	15		5	5		4	4		6	6
Act Effct Green (s)	10.0	48.6	48.6	8.0	46.6	46.6	7.0	43.6	43.6	9.0	45.6	45.6
Actuated g/C Ratio	0.08	0.37	0.37	0.06	0.36	0.36	0.05	0.34	0.34	0.07	0.35	0.35
v/c Ratio	2.47	1.08	0.31	1.48	1.20	1.17	1.84	1.47	0.41	3.10	1.03	0.82
Control Delay	696.1	85.4	11.8	279.4	134.7	125.5	429.6	247.8	21.5	977.2	72.6	39.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	696.1	85.4	11.8	279.4	134.7	125.5	429.6	247.8	21.5	977.2	72.6	39.3
LOS	F	F	B	F	F	F	F	F	C	F	E	D
Approach Delay		230.3			147.4			250.2			296.4	
Approach LOS		F			F			F			F	
Queue Length 50th (m)	~140.8	~209.5	12.0	~55.5	~246.7	~205.4	~66.5	~318.3	26.9	~165.6	~182.4	90.5
Queue Length 95th (m)	#177.6	#242.7	30.1	#84.6	#280.0	#280.0	#96.4	#350.7	50.1	#203.1	#216.1	#148.4
Internal Link Dist (m)		568.0			792.3			620.9			1209.0	
Turn Bay Length (m)	190.0		85.0	100.0		290.0	110.0		60.0	280.0		160.0
Base Capacity (vph)	261	1636	653	208	1584	635	182	1482	581	232	1550	631
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.47	1.08	0.31	1.48	1.20	1.17	1.84	1.47	0.41	3.10	1.03	0.82

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 3.10	
Intersection Signal Delay: 230.0	Intersection LOS: F

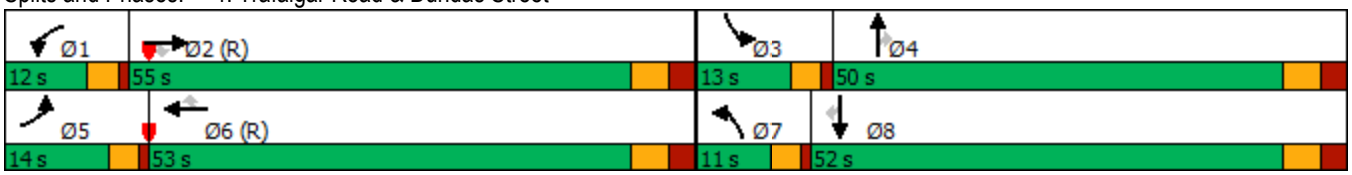
Intersection Capacity Utilization 132.5%	ICU Level of Service H
Analysis Period (min) 15	

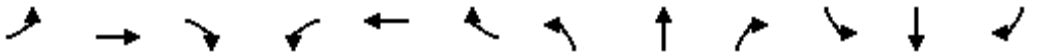
* User Entered Value

~ 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.

Splits and Phases: 4: Trafalgar Road & Dundas Street



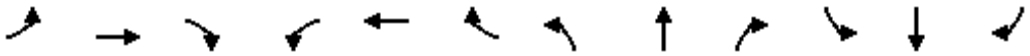


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	625	1710	198	298	1848	723	324	2112	232	698	1550	501
Future Volume (vph)	625	1710	198	298	1848	723	324	2112	232	698	1550	501
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00	0.97	*0.80	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	4378	1527	3395	4421	1540	3395	4421	1541	3362	4421	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	4378	1527	3395	4421	1540	3395	4421	1541	3362	4421	1538
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	644	1763	204	307	1905	745	334	2177	239	720	1598	516
RTOR Reduction (vph)	0	0	83	0	0	83	0	0	65	0	0	92
Lane Group Flow (vph)	644	1763	121	307	1905	662	334	2177	174	720	1598	424
Confl. Peds. (#/hr)	5		15	15		5	6		4	4		6
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	10.0	48.6	48.6	8.0	46.6	46.6	7.0	43.6	43.6	9.0	45.6	45.6
Effective Green, g (s)	10.0	48.6	48.6	8.0	46.6	46.6	7.0	43.6	43.6	9.0	45.6	45.6
Actuated g/C Ratio	0.08	0.37	0.37	0.06	0.36	0.36	0.05	0.34	0.34	0.07	0.35	0.35
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	261	1636	570	208	1584	552	182	1482	516	232	1550	539
v/s Ratio Prot	c0.19	0.40		0.09	c0.43		0.10	c0.49		c0.21	0.36	
v/s Ratio Perm			0.08			0.43			0.11			0.28
v/c Ratio	2.47	1.08	0.21	1.48	1.20	1.20	1.84	1.47	0.34	3.10	1.03	0.79
Uniform Delay, d1	60.0	40.7	27.7	61.0	41.7	41.7	61.5	43.2	32.4	60.5	42.2	37.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	671.7	46.4	0.9	238.3	97.5	105.9	396.4	214.8	0.8	957.9	31.2	8.6
Delay (s)	731.7	87.1	28.5	299.3	139.2	147.6	457.9	258.0	33.2	1018.4	73.4	46.4
Level of Service	F	F	C	F	F	F	F	F	C	F	E	D
Approach Delay (s)		241.5			158.0			262.7			308.6	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	241.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.55		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	132.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	859	70	219	1323	99	55	46	425	247	34	19
Future Volume (vph)	19	859	70	219	1323	99	55	46	425	247	34	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		30.0	110.0		30.0	30.0		0.0	40.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.96			0.97	0.99	0.98			0.99	
Frt			0.850			0.850		0.865			0.947	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3500	1566	1750	3500	1566	1750	1561	0	1750	1732	0
Flt Permitted	0.095			0.121			0.719			0.127		
Satd. Flow (perm)	175	3500	1509	223	3500	1512	1317	1561	0	234	1732	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95			58		245			18	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		825.2			198.4			580.4			190.6	
Travel Time (s)		49.5			11.9			41.8			13.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	21	954	78	243	1470	110	61	51	472	274	38	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	954	78	243	1470	110	61	523	0	274	59	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



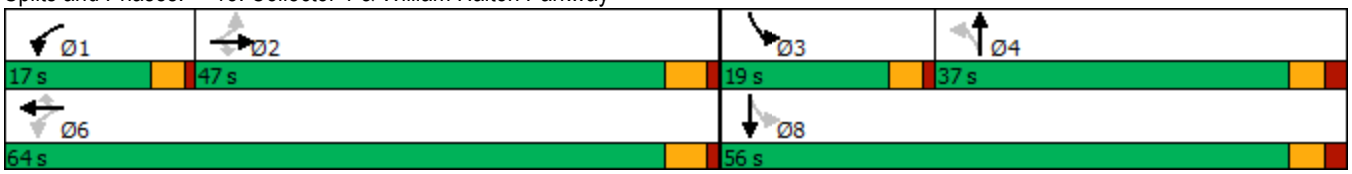
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2		2	6		6	4			8		
Detector Phase	2	2	2	1	6	6	4	4		3	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	10.0	10.0		7.0	10.0	
Minimum Split (s)	32.1	32.1	32.1	11.0	32.1	32.1	34.4	34.4		11.0	34.4	
Total Split (s)	47.0	47.0	47.0	17.0	64.0	64.0	37.0	37.0		19.0	56.0	
Total Split (%)	39.2%	39.2%	39.2%	14.2%	53.3%	53.3%	30.8%	30.8%		15.8%	46.7%	
Maximum Green (s)	41.9	41.9	41.9	13.0	58.9	58.9	31.6	31.6		15.0	50.6	
Yellow Time (s)	3.7	3.7	3.7	3.0	3.7	3.7	3.3	3.3		3.0	3.3	
All-Red Time (s)	1.4	1.4	1.4	1.0	1.4	1.4	2.1	2.1		1.0	2.1	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.1	5.1	5.1	4.0	5.1	5.1	5.4	5.4		4.0	5.4	
Lead/Lag	Lag	Lag	Lag	Lead			Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max	Max	None	Max	Max	None	None		None	None	
Walk Time (s)	7.0	7.0	7.0		7.0	7.0	7.0	7.0			7.0	
Flash Dont Walk (s)	20.0	20.0	20.0		20.0	20.0	22.0	22.0			22.0	
Pedestrian Calls (#/hr)	5	5	5		5	5	5	5			5	
Act Effct Green (s)	42.2	42.2	42.2	60.2	59.1	59.1	27.6	27.6		48.0	46.6	
Actuated g/C Ratio	0.36	0.36	0.36	0.52	0.51	0.51	0.24	0.24		0.41	0.40	
v/c Ratio	0.33	0.75	0.13	0.86	0.83	0.14	0.20	0.94		0.94	0.08	
Control Delay	46.4	37.6	4.0	50.4	30.0	8.8	36.4	49.0		69.0	15.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	46.4	37.6	4.0	50.4	30.0	8.8	36.4	49.0		69.0	15.9	
LOS	D	D	A	D	C	A	D	D		E	B	
Approach Delay		35.3			31.5			47.7			59.6	
Approach LOS		D			C			D			E	
Queue Length 50th (m)	3.6	105.1	0.0	34.5	155.2	6.3	11.1	68.1		46.3	5.6	
Queue Length 95th (m)	12.6	130.2	7.4	#79.6	187.8	16.0	22.5	#131.3		#97.9	13.8	
Internal Link Dist (m)		801.2			174.4			556.4			166.6	
Turn Bay Length (m)	30.0		30.0	110.0		30.0	30.0			40.0		
Base Capacity (vph)	63	1271	608	286	1778	796	358	603		292	766	
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	0.33	0.75	0.13	0.85	0.83	0.14	0.17	0.87		0.94	0.08	

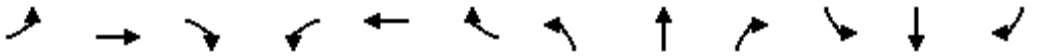
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 116.2			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 37.5		Intersection LOS: D	
Intersection Capacity Utilization 104.1%		ICU Level of Service G	

Analysis Period (min) 15

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

Splits and Phases: 15: Collector 1 & William Halton Parkway

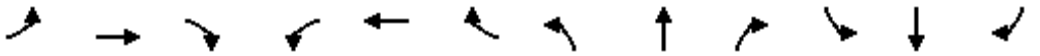




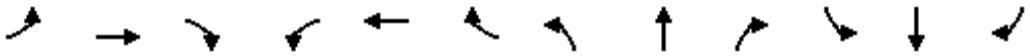
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	859	70	219	1323	99	55	46	425	247	34	19
Future Volume (vph)	19	859	70	219	1323	99	55	46	425	247	34	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	5.1	4.0	5.1	5.1	5.4	5.4		4.0	5.4	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.97	1.00	0.98		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.86		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1748	3500	1510	1750	3500	1512	1740	1560		1750	1731	
Flt Permitted	0.09	1.00	1.00	0.12	1.00	1.00	0.72	1.00		0.13	1.00	
Satd. Flow (perm)	174	3500	1510	224	3500	1512	1316	1560		233	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)	21	954	78	243	1470	110	61	51	472	274	38	21
RTOR Reduction (vph)	0	0	50	0	0	29	0	187	0	0	11	0
Lane Group Flow (vph)	21	954	28	243	1470	81	61	336	0	274	48	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	42.2	42.2	42.2	59.0	59.0	59.0	27.6	27.6		46.6	46.6	
Effective Green, g (s)	42.2	42.2	42.2	59.0	59.0	59.0	27.6	27.6		46.6	46.6	
Actuated g/C Ratio	0.36	0.36	0.36	0.51	0.51	0.51	0.24	0.24		0.40	0.40	
Clearance Time (s)	5.1	5.1	5.1	4.0	5.1	5.1	5.4	5.4		4.0	5.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	63	1272	548	282	1778	768	312	370		289	694	
v/s Ratio Prot		0.27		0.09	c0.42			0.22		c0.12	0.03	
v/s Ratio Perm	0.12		0.02	c0.34		0.05	0.05			c0.26		
v/c Ratio	0.33	0.75	0.05	0.86	0.83	0.11	0.20	0.91		0.95	0.07	
Uniform Delay, d1	26.8	32.3	24.0	24.2	24.2	14.8	35.4	43.0		31.9	21.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	13.7	4.1	0.2	22.6	4.6	0.3	0.3	25.2		38.7	0.0	
Delay (s)	40.4	36.4	24.1	46.8	28.8	15.1	35.7	68.2		70.6	21.4	
Level of Service	D	D	C	D	C	B	D	E		E	C	
Approach Delay (s)		35.6			30.4			64.8			61.9	
Approach LOS		D			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	39.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	116.1	Sum of lost time (s)	18.5
Intersection Capacity Utilization	104.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	435	18	121	489	264	13	43	96	265	82	25
Future Volume (vph)	10	435	18	121	489	264	13	43	96	265	82	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	30.0		0.0	70.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	0.99		1.00	0.99		1.00	1.00	
Frt		0.994			0.947			0.896			0.965	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3474	0	1750	3276	0	1750	1628	0	1750	1769	0
Flt Permitted	0.291			0.466			0.681			0.659		
Satd. Flow (perm)	535	3474	0	855	3276	0	1249	1628	0	1209	1769	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			138			107			22	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		136.3			245.2			477.1			580.4	
Travel Time (s)		9.8			17.7			34.4			41.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	11	483	20	134	543	293	14	48	107	294	91	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	503	0	134	836	0	14	155	0	294	119	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

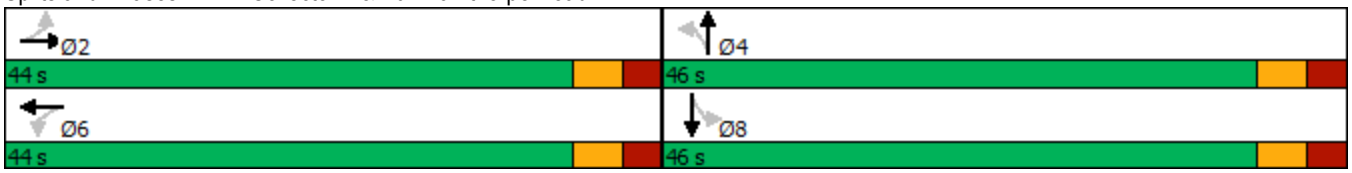


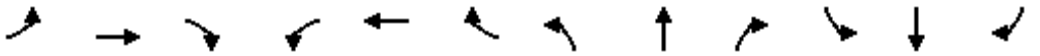
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	31.9	31.9		31.9	31.9		33.1	33.1		33.1	33.1	
Total Split (s)	44.0	44.0		44.0	44.0		46.0	46.0		46.0	46.0	
Total Split (%)	48.9%	48.9%		48.9%	48.9%		51.1%	51.1%		51.1%	51.1%	
Maximum Green (s)	38.1	38.1		38.1	38.1		39.9	39.9		39.9	39.9	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.6	2.6		2.6	2.6		2.8	2.8		2.8	2.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	
Act Effct Green (s)	38.5	38.5		38.5	38.5		22.6	22.6		22.6	22.6	
Actuated g/C Ratio	0.53	0.53		0.53	0.53		0.31	0.31		0.31	0.31	
v/c Ratio	0.04	0.28		0.30	0.47		0.04	0.27		0.79	0.21	
Control Delay	12.2	11.3		14.5	11.1		16.2	7.7		38.3	15.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	12.2	11.3		14.5	11.1		16.2	7.7		38.3	15.3	
LOS	B	B		B	B		B	A		D	B	
Approach Delay		11.3			11.6			8.4			31.7	
Approach LOS		B			B			A			C	
Queue Length 50th (m)	0.7	18.3		9.5	28.4		1.3	4.6		36.2	9.6	
Queue Length 95th (m)	3.9	37.2		27.5	57.8		4.8	15.6		62.2	19.8	
Internal Link Dist (m)		112.3			221.2			453.1			556.4	
Turn Bay Length (m)	30.0			30.0			30.0			70.0		
Base Capacity (vph)	281	1828		449	1786		687	944		665	983	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.04	0.28		0.30	0.47		0.02	0.16		0.44	0.12	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 73.2			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 15.3		Intersection LOS: B	
Intersection Capacity Utilization 73.7%		ICU Level of Service D	

Analysis Period (min) 15

Splits and Phases: 17: Collector 1 & Burnhamthorpe Road



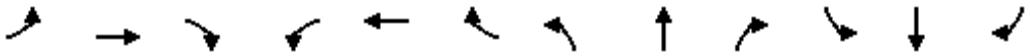


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	435	18	121	489	264	13	43	96	265	82	25
Future Volume (vph)	10	435	18	121	489	264	13	43	96	265	82	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
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	0.99		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	0.95		1.00	0.90		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)	1746	3475		1744	3281		1744	1629		1744	1769	
Flt Permitted	0.29	1.00		0.47	1.00		0.68	1.00		0.66	1.00	
Satd. Flow (perm)	535	3475		856	3281		1249	1629		1209	1769	
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)	11	483	20	134	543	293	14	48	107	294	91	28
RTOR Reduction (vph)	0	3	0	0	65	0	0	74	0	0	15	0
Lane Group Flow (vph)	11	500	0	134	771	0	14	81	0	294	104	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	38.5	38.5		38.5	38.5		22.6	22.6		22.6	22.6	
Effective Green, g (s)	38.5	38.5		38.5	38.5		22.6	22.6		22.6	22.6	
Actuated g/C Ratio	0.53	0.53		0.53	0.53		0.31	0.31		0.31	0.31	
Clearance Time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	281	1830		450	1728		386	503		373	546	
v/s Ratio Prot		0.14			c0.23			0.05			0.06	
v/s Ratio Perm	0.02			0.16			0.01			c0.24		
v/c Ratio	0.04	0.27		0.30	0.45		0.04	0.16		0.79	0.19	
Uniform Delay, d1	8.4	9.6		9.7	10.7		17.6	18.4		23.1	18.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.4		1.7	0.8		0.0	0.2		10.5	0.2	
Delay (s)	8.6	9.9		11.4	11.5		17.7	18.5		33.6	18.7	
Level of Service	A	A		B	B		B	B		C	B	
Approach Delay (s)		9.9			11.5			18.4			29.3	
Approach LOS		A			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	73.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	5	26	61	7	61	27	2374	44	131	2263	80
Future Volume (vph)	51	5	26	61	7	61	27	2374	44	131	2263	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	40.0		0.0	30.0		0.0	17.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	*0.80	0.91	1.00	*0.80	0.91
Ped Bike Factor	0.99	0.98		0.99	0.98			1.00			1.00	
Frt		0.876			0.866			0.997			0.995	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	1585	0	1750	1564	0	1750	4405	0	1750	4394	0
Flt Permitted	0.708			0.734			0.060			0.056		
Satd. Flow (perm)	1298	1585	0	1345	1564	0	111	4405	0	103	4394	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			68			3			7	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		117.5			110.5			259.2			230.0	
Travel Time (s)		8.5			8.0			15.6			13.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	57	6	29	68	8	68	30	2638	49	146	2514	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	57	35	0	68	76	0	30	2687	0	146	2603	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		7.0	10.0	
Minimum Split (s)	38.5	38.5		38.5	38.5		33.4	33.4		11.0	33.4	
Total Split (s)	39.0	39.0		39.0	39.0		70.0	70.0		11.0	81.0	
Total Split (%)	32.5%	32.5%		32.5%	32.5%		58.3%	58.3%		9.2%	67.5%	
Maximum Green (s)	32.5	32.5		32.5	32.5		63.6	63.6		7.0	74.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.0	3.7	
All-Red Time (s)	3.2	3.2		3.2	3.2		2.7	2.7		1.0	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		4.0	6.4	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		None	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	25.0	25.0		25.0	25.0		20.0	20.0			20.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5			5	
Act Effct Green (s)	14.3	14.3		14.3	14.3		67.1	67.1		80.6	79.5	
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.66	0.66		0.79	0.78	
v/c Ratio	0.31	0.15		0.36	0.27		0.41	0.93		0.75	0.76	
Control Delay	43.0	35.2		44.2	13.3		36.0	24.7		43.8	11.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.1	
Total Delay	43.0	35.2		44.2	13.3		36.0	24.7		43.8	11.7	
LOS	D	D		D	B		D	C		D	B	
Approach Delay		40.1			27.9			24.9			13.4	
Approach LOS		D			C			C			B	
Queue Length 50th (m)	10.3	5.4		12.3	1.4		2.5	170.2		11.9	95.9	
Queue Length 95th (m)	21.3	13.6		24.4	13.0		#20.2	#340.4		#57.8	#256.3	
Internal Link Dist (m)		93.5			86.5			235.2			206.0	
Turn Bay Length (m)	40.0			40.0			30.0			17.0		
Base Capacity (vph)	416	511		431	548		73	2900		195	3430	
Starvation Cap Reductn	0	0		0	0		0	0		0	133	
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	0.14	0.07		0.16	0.14		0.41	0.93		0.75	0.79	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 101.9			
Natural Cycle: 145			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 19.7		Intersection LOS: B	
Intersection Capacity Utilization 82.5%		ICU Level of Service E	

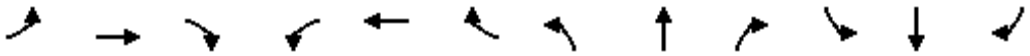
Analysis Period (min) 15

* User Entered Value

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

Splits and Phases: 26: Trafalgar Road & Local 6





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	5	26	61	7	61	27	2374	44	131	2263	80
Future Volume (vph)	51	5	26	61	7	61	27	2374	44	131	2263	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		6.4	6.4		4.0	6.4	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	*0.80		1.00	*0.80	
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.88		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)	1742	1578		1742	1558		1750	4406		1750	4393	
Flt Permitted	0.71	1.00		0.73	1.00		0.06	1.00		0.06	1.00	
Satd. Flow (perm)	1298	1578		1346	1558		110	4406		104	4393	
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)	57	6	29	68	8	68	30	2638	49	146	2514	89
RTOR Reduction (vph)	0	4	0	0	60	0	0	1	0	0	2	0
Lane Group Flow (vph)	57	31	0	68	16	0	30	2686	0	146	2601	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	12.1	12.1		12.1	12.1		67.1	67.1		78.1	78.1	
Effective Green, g (s)	12.1	12.1		12.1	12.1		67.1	67.1		78.1	78.1	
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.65	0.65		0.76	0.76	
Clearance Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		4.0	6.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	152	185		157	182		71	2867		190	3327	
v/s Ratio Prot		0.02			0.01			c0.61		0.05	c0.59	
v/s Ratio Perm	0.04			c0.05			0.27			0.53		
v/c Ratio	0.38	0.17		0.43	0.09		0.42	0.94		0.77	0.78	
Uniform Delay, d1	42.0	41.0		42.3	40.6		8.7	16.1		30.0	7.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.6	0.4		1.9	0.2		17.4	7.4		16.9	1.9	
Delay (s)	43.6	41.4		44.2	40.8		26.1	23.5		46.9	9.3	
Level of Service	D	D		D	D		C	C		D	A	
Approach Delay (s)		42.7			42.4			23.5			11.3	
Approach LOS		D			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	18.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	103.1	Sum of lost time (s)	16.9
Intersection Capacity Utilization	82.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

MOVEMENT SUMMARY

Site: [102] Sixth Line & William Halton Parkway - Mitigation

(General)

Output produced by SIDRA INTERSECTION Version: 10.0.8.241

2036 Future Total PM - Mitigation
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

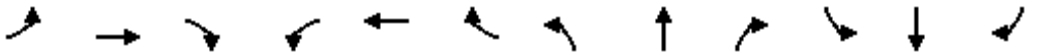
Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Sixth Line															
1	L2	All MCs	12	2.0	12	2.0	0.362	13.7	LOS B	1.2	8.6	0.68	0.73	0.88	46.4
2	T1	All MCs	338	2.0	338	2.0	0.362	13.4	LOS B	1.2	8.6	0.67	0.72	0.87	47.4
3	R2	All MCs	189	2.0	189	2.0	0.100	3.6	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			539	2.0	539	2.0	0.362	9.9	LOS A	1.2	8.6	0.43	0.47	0.56	50.2
East: William Halton Parkway															
4	L2	All MCs	261	2.0	261	2.0	0.697	19.4	LOS C	5.7	40.9	0.72	0.91	1.47	42.1
5	T1	All MCs	723	2.0	723	2.0	0.697	19.1	LOS C	5.7	40.9	0.71	0.90	1.46	43.9
6	R2	All MCs	578	2.0	578	2.0	0.304	5.3	LOS A	0.0	0.0	0.00	0.00	0.00	56.4
Approach			1562	2.0	1562	2.0	0.697	14.0	LOS B	5.7	40.9	0.45	0.57	0.92	47.3
North: Sixth Line															
7	L2	All MCs	383	2.0	383	2.0	0.751	28.4	LOS D	4.9	34.6	0.82	1.07	1.69	37.5
8	T1	All MCs	417	2.0	417	2.0	0.751	27.3	LOS D	4.9	34.6	0.80	1.05	1.68	40.5
9	R2	All MCs	313	2.0	313	2.0	0.165	4.7	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			1113	2.0	1113	2.0	0.751	21.3	LOS C	4.9	34.6	0.58	0.76	1.21	42.6
West: William Halton Parkway															
10	L2	All MCs	264	2.0	264	2.0	0.734	28.1	LOS D	4.4	31.1	0.82	1.05	1.63	38.1
11	T1	All MCs	480	2.0	480	2.0	0.734	27.2	LOS D	4.4	31.1	0.81	1.04	1.63	40.2
12	R2	All MCs	72	2.0	72	2.0	0.038	3.0	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			817	2.0	817	2.0	0.734	25.3	LOS D	4.4	31.1	0.74	0.95	1.48	40.5
All Vehicles			4031	2.0	4031	2.0	0.751	17.8	LOS C	5.7	40.9	0.54	0.68	1.07	44.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

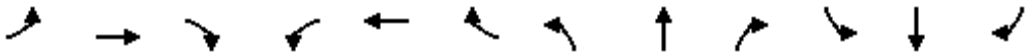
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Appendix O

2041 Future Total Conditions Synchro and Sidra Worksheets



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	697	1210	308	241	503	403	209	2047	289	655	1675	364
Future Volume (vph)	697	1210	308	241	503	403	209	2047	289	655	1675	364
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	220.0		80.0	100.0		205.0	120.0		70.0	180.0		80.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	3500	1566	3395	3500	1452	3395	3500	1493	3362	3466	1566
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3395	3500	1566	3395	3500	1452	3395	3500	1493	3362	3466	1566
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			120			151			151			206
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		207.8			119.4			182.8			224.9	
Travel Time (s)		12.5			7.2			11.0			13.5	
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%	10%	2%	2%	7%	3%	3%	2%
Adj. Flow (vph)	758	1315	335	262	547	438	227	2225	314	712	1821	396
Shared Lane Traffic (%)												
Lane Group Flow (vph)	758	1315	335	262	547	438	227	2225	314	712	1821	396
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	



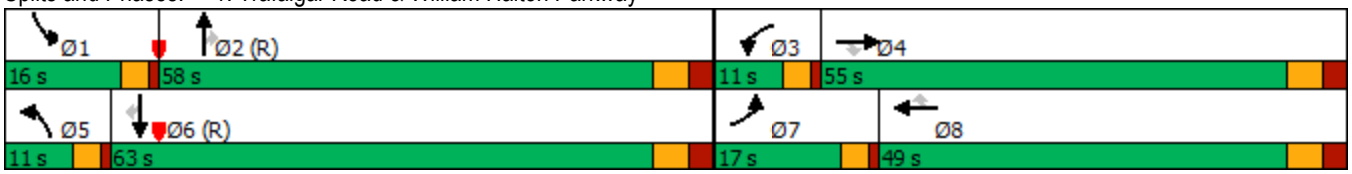
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	48.4	48.4	11.0	48.4	48.4	11.0	45.4	45.4	11.0	45.4	45.4
Total Split (s)	17.0	55.0	55.0	11.0	49.0	49.0	11.0	58.0	58.0	16.0	63.0	63.0
Total Split (%)	12.1%	39.3%	39.3%	7.9%	35.0%	35.0%	7.9%	41.4%	41.4%	11.4%	45.0%	45.0%
Maximum Green (s)	13.0	48.6	48.6	7.0	42.6	42.6	7.0	51.6	51.6	12.0	56.6	56.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		35.0	35.0		35.0	35.0		32.0	32.0		32.0	32.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	13.0	48.6	48.6	7.0	42.6	42.6	7.0	51.6	51.6	12.0	56.6	56.6
Actuated g/C Ratio	0.09	0.35	0.35	0.05	0.30	0.30	0.05	0.37	0.37	0.09	0.40	0.40
v/c Ratio	2.41	1.08	0.54	1.55	0.51	0.80	1.34	1.72	0.49	2.47	1.30	0.52
Control Delay	668.0	94.3	26.5	316.0	42.2	41.2	236.6	358.9	19.7	697.8	175.6	17.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	668.0	94.3	26.5	316.0	42.2	41.2	236.6	358.9	19.7	697.8	175.6	17.0
LOS	F	F	C	F	D	D	F	F	B	F	F	B
Approach Delay		265.4			99.4			310.4			281.1	
Approach LOS		F			F			F			F	
Queue Length 50th (m)	~177.7	~213.8	47.4	~52.4	65.8	76.5	~42.0	~477.6	33.5	~168.1	~338.7	38.1
Queue Length 95th (m)	#216.5	#256.2	77.8	#80.5	83.8	#124.4	#69.0	#517.3	61.3	#206.6	#380.4	68.7
Internal Link Dist (m)		183.8			95.4			158.8			200.9	
Turn Bay Length (m)	220.0		80.0	100.0		205.0	120.0		70.0	180.0		80.0
Base Capacity (vph)	315	1215	621	169	1065	546	169	1290	645	288	1401	755
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.41	1.08	0.54	1.55	0.51	0.80	1.34	1.72	0.49	2.47	1.30	0.52

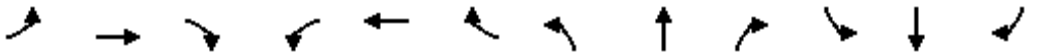
Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 2.47			
Intersection Signal Delay: 261.5		Intersection LOS: F	
Intersection Capacity Utilization 132.9%		ICU Level of Service H	
Analysis Period (min) 15			

~ 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.

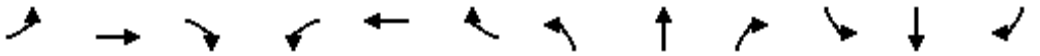
Splits and Phases: 1: Trafalgar Road & William Halton Parkway



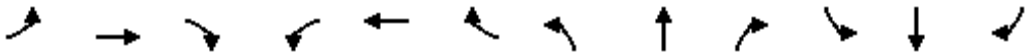


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	697	1210	308	241	503	403	209	2047	289	655	1675	364
Future Volume (vph)	697	1210	308	241	503	403	209	2047	289	655	1675	364
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	3500	1566	3395	3500	1452	3395	3500	1493	3362	3466	1566
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	3500	1566	3395	3500	1452	3395	3500	1493	3362	3466	1566
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)	758	1315	335	262	547	438	227	2225	314	712	1821	396
RTOR Reduction (vph)	0	0	78	0	0	105	0	0	95	0	0	123
Lane Group Flow (vph)	758	1315	257	262	547	333	227	2225	219	712	1821	273
Heavy Vehicles (%)	2%	2%	2%	2%	2%	10%	2%	2%	7%	3%	3%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	13.0	48.6	48.6	7.0	42.6	42.6	7.0	51.6	51.6	12.0	56.6	56.6
Effective Green, g (s)	13.0	48.6	48.6	7.0	42.6	42.6	7.0	51.6	51.6	12.0	56.6	56.6
Actuated g/C Ratio	0.09	0.35	0.35	0.05	0.30	0.30	0.05	0.37	0.37	0.09	0.40	0.40
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	315	1215	543	169	1065	441	169	1290	550	288	1401	633
v/s Ratio Prot	c0.22	c0.38		0.08	0.16		0.07	c0.64		c0.21	0.53	
v/s Ratio Perm			0.16			0.23			0.15			0.17
v/c Ratio	2.41	1.08	0.47	1.55	0.51	0.75	1.34	1.72	0.40	2.47	1.30	0.43
Uniform Delay, d1	63.5	45.7	35.7	66.5	40.2	44.0	66.5	44.2	32.7	64.0	41.7	30.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	642.5	51.1	1.4	274.7	0.8	8.5	188.6	329.5	2.1	672.8	140.3	2.1
Delay (s)	706.0	96.8	37.1	341.2	41.0	52.5	255.1	373.7	34.8	736.8	182.0	32.2
Level of Service	F	F	D	F	D	D	F	F	C	F	F	C
Approach Delay (s)		280.3			108.1			325.5			296.6	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	275.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.67		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	132.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	375	392	139	233	306	131	358	1929	259	206	1857	86
Future Volume (vph)	375	392	139	233	306	131	358	1929	259	206	1857	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		30.0	120.0		30.0	130.0		50.0	170.0		40.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	50.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor			0.99	1.00								
Frt			0.850		0.955			0.982			0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3500	1566	1750	3253	0	1700	3430	0	1750	3436	0
Flt Permitted	0.256			0.313			0.950			0.950		
Satd. Flow (perm)	472	3500	1545	576	3253	0	1700	3430	0	1750	3436	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			142		57			14			4	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		245.2			123.4			230.0			280.2	
Travel Time (s)		17.7			8.9			13.8			16.8	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	6%	2%	5%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Adj. Flow (vph)	417	436	154	259	340	146	398	2143	288	229	2063	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	417	436	154	259	486	0	398	2431	0	229	2159	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.02	1.01	1.01	1.02	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8								
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	11.0	41.4	41.4	11.0	41.4		11.0	37.3		11.0	37.3	
Total Split (s)	11.0	42.0	42.0	11.0	42.0		17.0	54.0		13.0	50.0	
Total Split (%)	9.2%	35.0%	35.0%	9.2%	35.0%		14.2%	45.0%		10.8%	41.7%	
Maximum Green (s)	7.0	35.6	35.6	7.0	35.6		13.0	47.7		9.0	43.7	
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.0	3.7		3.0	3.7	
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7		1.0	2.6		1.0	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4		4.0	6.3		4.0	6.3	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	5.0		3.0	5.0	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0	7.0		7.0			7.0			7.0	
Flash Dont Walk (s)		28.0	28.0		28.0			24.0			24.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	30.9	21.5	21.5	30.9	21.5		27.1	47.7		23.1	43.7	
Actuated g/C Ratio	0.26	0.18	0.18	0.26	0.18		0.23	0.40		0.19	0.36	
v/c Ratio	2.13	0.70	0.39	1.20	0.77		1.04	1.77		0.68	1.72	
Control Delay	549.4	51.9	11.0	160.4	49.7		102.2	377.0		57.6	356.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	549.4	51.9	11.0	160.4	49.7		102.2	377.0		57.6	356.2	
LOS	F	D	B	F	D		F	F		E	F	
Approach Delay		251.7			88.2			338.4			327.5	
Approach LOS		F			F			F			F	
Queue Length 50th (m)	~131.9	51.2	2.4	~62.4	51.4		~101.0	~453.5		50.6	~398.7	
Queue Length 95th (m)	#211.5	64.5	18.9	#106.5	66.1		#180.9	#494.7		#99.4	#440.9	
Internal Link Dist (m)		221.2			99.4			206.0			256.2	
Turn Bay Length (m)	100.0		30.0	120.0			130.0			170.0		
Base Capacity (vph)	196	1038	558	216	1005		383	1371		336	1253	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	2.13	0.42	0.28	1.20	0.48		1.04	1.77		0.68	1.72	

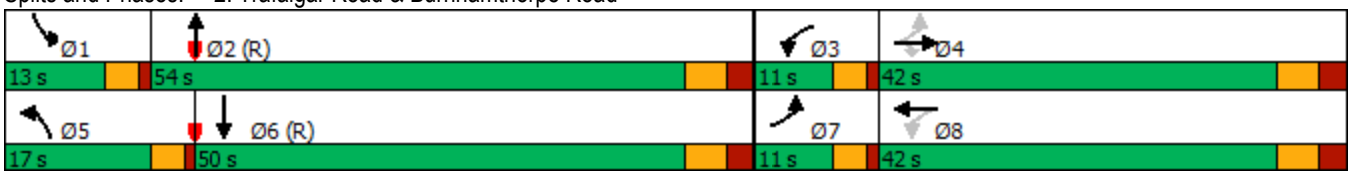
Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 2.13	

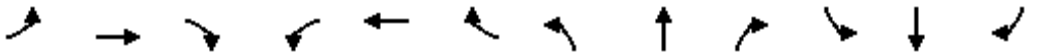
Intersection Signal Delay: 295.4	Intersection LOS: F
Intersection Capacity Utilization 124.6%	ICU Level of Service H
Analysis Period (min) 15	

~ 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.

Splits and Phases: 2: Trafalgar Road & Burnhamthorpe Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	375	392	139	233	306	131	358	1929	259	206	1857	86
Future Volume (vph)	375	392	139	233	306	131	358	1929	259	206	1857	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4		4.0	6.3		4.0	6.3	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	3500	1545	1750	3253		1700	3431		1750	3437	
Flt Permitted	0.26	1.00	1.00	0.31	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	471	3500	1545	577	3253		1700	3431		1750	3437	
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)	417	436	154	259	340	146	398	2143	288	229	2063	96
RTOR Reduction (vph)	0	0	117	0	47	0	0	8	0	0	3	0
Lane Group Flow (vph)	417	436	37	259	439	0	398	2423	0	229	2156	0
Confl. Peds. (#/hr)			1	1								
Heavy Vehicles (%)	2%	2%	2%	2%	6%	2%	5%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8								
Actuated Green, G (s)	28.5	21.5	21.5	28.5	21.5		27.1	47.7		23.1	43.7	
Effective Green, g (s)	28.5	21.5	21.5	28.5	21.5		27.1	47.7		23.1	43.7	
Actuated g/C Ratio	0.24	0.18	0.18	0.24	0.18		0.23	0.40		0.19	0.36	
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4		4.0	6.3		4.0	6.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	186	627	276	205	582		383	1363		336	1251	
v/s Ratio Prot	c0.13	0.12		0.07	0.14		c0.23	c0.71		0.13	0.63	
v/s Ratio Perm	c0.40		0.02	0.23								
v/c Ratio	2.24	0.70	0.14	1.26	0.75		1.04	1.78		0.68	1.72	
Uniform Delay, d1	43.6	46.2	41.4	44.1	46.7		46.5	36.1		45.0	38.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	575.8	3.4	0.2	151.5	5.5		56.5	352.8		5.6	329.1	
Delay (s)	619.5	49.5	41.7	195.6	52.3		103.0	389.0		50.6	367.2	
Level of Service	F	D	D	F	D		F	F		D	F	
Approach Delay (s)		284.3			102.1			348.7			336.9	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	309.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	124.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1647	1	746	723	0	1189
Future Volume (vph)	1647	1	746	723	0	1189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	140.0		30.0	0.0
Storage Lanes		0	2		1	1
Taper Length (m)			15.0		50.0	
Lane Util. Factor	0.95	0.95	0.97	0.95	1.00	1.00
Frt						0.850
Flt Protected			0.950			
Satd. Flow (prot)	3500	0	3330	3466	1842	1566
Flt Permitted			0.950			
Satd. Flow (perm)	3500	0	3330	3466	1842	1566
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						317
Link Speed (k/h)	60			60	50	
Link Distance (m)	657.5			396.1	222.0	
Travel Time (s)	39.5			23.8	16.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	4%	3%	2%	2%
Adj. Flow (vph)	1790	1	811	786	0	1292
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1791	0	811	786	0	1292
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.0			7.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	10.0		2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6		2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	2		1	6	3	



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases						3
Detector Phase	2		1	6	3	3
Switch Phase						
Minimum Initial (s)	10.0		7.0	10.0	7.0	7.0
Minimum Split (s)	28.4		11.0	28.4	31.0	31.0
Total Split (s)	48.0		21.0	69.0	51.0	51.0
Total Split (%)	40.0%		17.5%	57.5%	42.5%	42.5%
Maximum Green (s)	41.6		17.0	62.6	47.0	47.0
Yellow Time (s)	3.7		3.0	3.7	3.0	3.0
All-Red Time (s)	2.7		1.0	2.7	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4		4.0	6.4	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	Max		None	None	Max	Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	15.0			15.0	20.0	20.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	41.6		17.0	62.6		47.0
Actuated g/C Ratio	0.35		0.14	0.52		0.39
v/c Ratio	1.48		1.72	0.43		1.60
Control Delay	250.0		365.7	18.7		299.8
Queue Delay	0.0		0.0	0.0		0.0
Total Delay	250.0		365.7	18.7		299.8
LOS	F		F	B		F
Approach Delay	250.0			194.9	299.8	
Approach LOS	F			F	F	
Queue Length 50th (m)	~305.4		~145.2	58.1		~390.8
Queue Length 95th (m)	#347.7		#183.1	73.2		#471.5
Internal Link Dist (m)	633.5			372.1	198.0	
Turn Bay Length (m)			140.0			
Base Capacity (vph)	1213		471	1808		806
Starvation Cap Reductn	0		0	0		0
Spillback Cap Reductn	0		0	0		0
Storage Cap Reductn	0		0	0		0
Reduced v/c Ratio	1.48		1.72	0.43		1.60

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.72			
Intersection Signal Delay: 245.0		Intersection LOS: F	
Intersection Capacity Utilization 127.8%		ICU Level of Service H	
Analysis Period (min) 15			

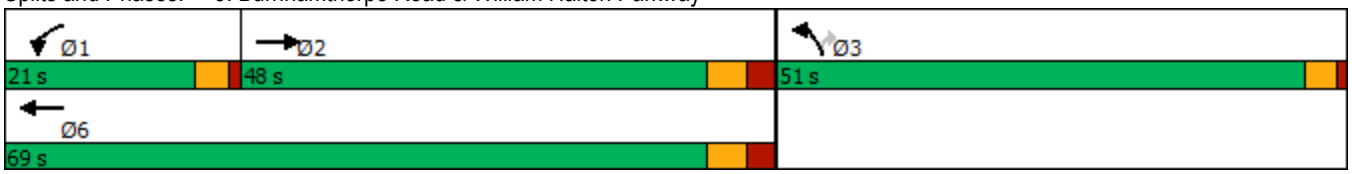
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

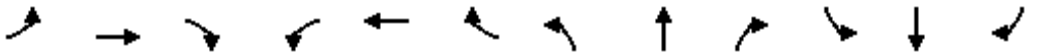
Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway



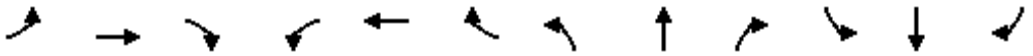


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1647	1	746	723	0	1189
Future Volume (vph)	1647	1	746	723	0	1189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4		4.0	6.4		4.0
Lane Util. Factor	0.95		0.97	0.95		1.00
Frt	1.00		1.00	1.00		0.85
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	3500		3330	3466		1566
Flt Permitted	1.00		0.95	1.00		1.00
Satd. Flow (perm)	3500		3330	3466		1566
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1790	1	811	786	0	1292
RTOR Reduction (vph)	0	0	0	0	0	193
Lane Group Flow (vph)	1791	0	811	786	0	1099
Heavy Vehicles (%)	2%	2%	4%	3%	2%	2%
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	2		1	6	3	
Permitted Phases						3
Actuated Green, G (s)	41.6		17.0	62.6		47.0
Effective Green, g (s)	41.6		17.0	62.6		47.0
Actuated g/C Ratio	0.35		0.14	0.52		0.39
Clearance Time (s)	6.4		4.0	6.4		4.0
Vehicle Extension (s)	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	1213		471	1808		613
v/s Ratio Prot	c0.51		c0.24	0.23		
v/s Ratio Perm						c0.70
v/c Ratio	1.48		1.72	0.43		1.79
Uniform Delay, d1	39.2		51.5	17.8		36.5
Progression Factor	1.00		1.00	1.00		1.00
Incremental Delay, d2	218.9		333.7	0.2		363.4
Delay (s)	258.1		385.2	17.9		399.9
Level of Service	F		F	B		F
Approach Delay (s)	258.1			204.4	399.9	
Approach LOS	F			F	F	

Intersection Summary			
HCM 2000 Control Delay	279.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.66		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.4
Intersection Capacity Utilization	127.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	616	2286	257	276	1294	634	207	1426	131	901	2135	475
Future Volume (vph)	616	2286	257	276	1294	634	207	1426	131	901	2135	475
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	190.0		85.0	100.0		290.0	110.0		60.0	180.0		160.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	1.00		0.99	1.00		0.98	1.00		0.99	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	3500	1551	3298	3336	1536	3330	3466	1566	3330	3466	1551
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3392	3500	1529	3298	3336	1512	3328	3466	1543	3328	3466	1523
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			117			136			96			128
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		560.5			603.0			601.7			1233.0	
Travel Time (s)		28.8			31.0			36.1			74.0	
Confl. Peds. (#/hr)	4		2	2		4	6		3	3		6
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	3%	5%	7%	4%	4%	3%	2%	4%	3%	3%
Adj. Flow (vph)	642	2381	268	288	1348	660	216	1485	136	939	2224	495
Shared Lane Traffic (%)												
Lane Group Flow (vph)	642	2381	268	288	1348	660	216	1485	136	939	2224	495
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	50.4	50.4	11.0	50.4	50.4	11.0	48.4	48.4	11.0	48.4	48.4
Total Split (s)	12.0	56.0	56.0	11.0	55.0	55.0	11.0	49.0	49.0	14.0	52.0	52.0
Total Split (%)	9.2%	43.1%	43.1%	8.5%	42.3%	42.3%	8.5%	37.7%	37.7%	10.8%	40.0%	40.0%
Maximum Green (s)	8.0	49.6	49.6	7.0	48.6	48.6	7.0	42.6	42.6	10.0	45.6	45.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		37.0	37.0		37.0	37.0		35.0	35.0		35.0	35.0
Pedestrian Calls (#/hr)		2	2		4	4		3	3		6	6
Act Effct Green (s)	8.0	49.6	49.6	7.0	48.6	48.6	7.0	42.6	42.6	10.0	45.6	45.6
Actuated g/C Ratio	0.06	0.38	0.38	0.05	0.37	0.37	0.05	0.33	0.33	0.08	0.35	0.35
v/c Ratio	3.09	1.78	0.41	1.63	1.08	1.02	1.21	1.31	0.24	3.67	1.83	0.80
Control Delay	971.1	383.0	18.1	343.9	89.3	71.5	184.4	181.5	12.0	1226.5	404.4	39.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	971.1	383.0	18.1	343.9	89.3	71.5	184.4	181.5	12.0	1226.5	404.4	39.1
LOS	F	F	B	F	F	E	F	F	B	F	F	D
Approach Delay		468.0			116.2			169.3			566.0	
Approach LOS		F			F			F			F	
Queue Length 50th (m)	~147.4	~479.9	27.0	~54.6	~202.9	~149.8	~34.6	~256.8	7.1	~222.4	~452.6	87.6
Queue Length 95th (m)	#183.9	#519.6	50.2	#83.1	#245.2	#227.3	#60.1	#299.4	21.9	#262.2	#493.3	#135.1
Internal Link Dist (m)		536.5			579.0			577.7			1209.0	
Turn Bay Length (m)	190.0		85.0	100.0		290.0	110.0		60.0	180.0		160.0
Base Capacity (vph)	208	1335	655	177	1247	650	179	1135	570	256	1215	617
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	3.09	1.78	0.41	1.63	1.08	1.02	1.21	1.31	0.24	3.67	1.83	0.80

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 3.67	
Intersection Signal Delay: 378.0	Intersection LOS: F

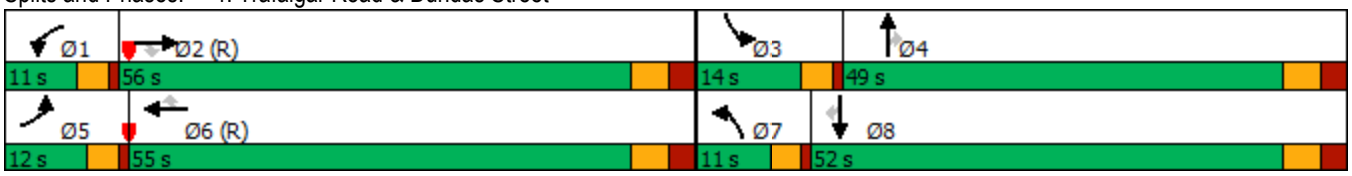
Intersection Capacity Utilization 153.5% ICU Level of Service H

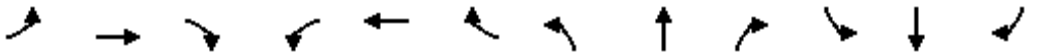
Analysis Period (min) 15

~ 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.

Splits and Phases: 4: Trafalgar Road & Dundas Street

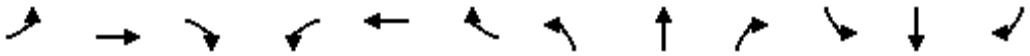




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	616	2286	257	276	1294	634	207	1426	131	901	2135	475
Future Volume (vph)	616	2286	257	276	1294	634	207	1426	131	901	2135	475
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	3500	1529	3298	3336	1512	3330	3466	1543	3330	3466	1523
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	3500	1529	3298	3336	1512	3330	3466	1543	3330	3466	1523
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	642	2381	268	288	1348	660	216	1485	136	939	2224	495
RTOR Reduction (vph)	0	0	72	0	0	85	0	0	65	0	0	83
Lane Group Flow (vph)	642	2381	196	288	1348	575	216	1485	71	939	2224	412
Confl. Peds. (#/hr)	4		2	2		4	6		3	3		6
Heavy Vehicles (%)	2%	2%	3%	5%	7%	4%	4%	3%	2%	4%	3%	3%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	8.0	49.6	49.6	7.0	48.6	48.6	7.0	42.6	42.6	10.0	45.6	45.6
Effective Green, g (s)	8.0	49.6	49.6	7.0	48.6	48.6	7.0	42.6	42.6	10.0	45.6	45.6
Actuated g/C Ratio	0.06	0.38	0.38	0.05	0.37	0.37	0.05	0.33	0.33	0.08	0.35	0.35
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.5	5.5	5.5	3.5	5.5	5.5	3.5	3.5	3.5	3.5	3.5	3.5
Lane Grp Cap (vph)	208	1335	583	177	1247	565	179	1135	505	256	1215	534
v/s Ratio Prot	c0.19	c0.68		0.09	0.40		0.06	0.43		c0.28	c0.64	
v/s Ratio Perm			0.13			0.38			0.05			0.27
v/c Ratio	3.09	1.78	0.34	1.63	1.08	1.02	1.21	1.31	0.14	3.67	1.83	0.77
Uniform Delay, d1	61.0	40.2	28.5	61.5	40.7	40.7	61.5	43.7	30.8	60.0	42.2	37.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	951.6	355.6	1.6	306.5	50.4	42.3	133.8	145.2	0.2	1210.2	376.9	7.0
Delay (s)	1012.6	395.8	30.1	368.0	91.1	83.0	195.3	188.9	31.0	1270.2	419.1	44.6
Level of Service	F	F	C	F	F	F	F	F	C	F	F	D
Approach Delay (s)		486.4			123.5			178.0			586.9	
Approach LOS		F			F			F			F	

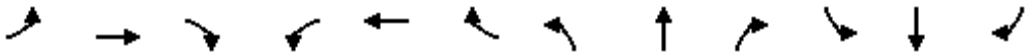
Intersection Summary			
HCM 2000 Control Delay	393.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.08		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	153.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	279	620	95	82	430	188	43	374	222	872	316	345
Future Volume (vph)	279	620	95	82	430	188	43	374	222	872	316	345
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.986			0.961			0.948			0.965	
Flt Protected		0.986			0.994			0.996			0.973	
Satd. Flow (prot)	0	3403	0	0	3343	0	0	3305	0	0	3286	0
Flt Permitted		0.986			0.994			0.996			0.973	
Satd. Flow (perm)	0	3403	0	0	3343	0	0	3305	0	0	3286	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		481.1			830.2			671.5			229.3	
Travel Time (s)		28.9			49.8			40.3			13.8	
Peak Hour Factor	0.90	0.90	0.90	0.96	0.90	0.96	0.90	0.96	0.96	0.96	0.96	0.90
Adj. Flow (vph)	310	689	106	85	478	196	48	390	231	908	329	383
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1105	0	0	759	0	0	669	0	0	1620	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

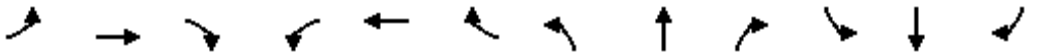
Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 128.9%		ICU Level of Service H	
Analysis Period (min) 15			



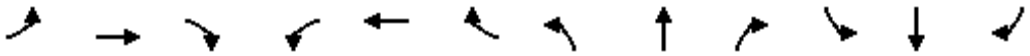
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	279	620	95	82	430	188	43	374	222	872	316	345
Future Volume (veh/h)	279	620	95	82	430	188	43	374	222	872	316	345
Peak Hour Factor	0.90	0.90	0.90	0.96	0.90	0.96	0.90	0.96	0.96	0.96	0.96	0.90
Hourly flow rate (vph)	310	689	106	85	478	196	48	390	231	908	329	383
Approach Volume (veh/h)		1105			759			669			1620	
Crossing Volume (veh/h)		1322#			748			1907#			611	
High Capacity (veh/h)		477			765			291			854	
High v/c (veh/h)		2.32			0.99			2.30			1.90	
Low Capacity (veh/h)		359			606			207			684	
Low v/c (veh/h)		3.08			1.25			3.24			2.37	

Intersection Summary				
Maximum v/c High	2.32			
Maximum v/c Low	3.24			
Intersection Capacity Utilization	128.9%	ICU Level of Service	H	

Crossing flow exceeds 1200, method is not applicable



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	153	52	144	227	44	187	744	181	93	593	12
Future Volume (vph)	58	153	52	144	227	44	187	744	181	93	593	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	50.0		0.0	40.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			50.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.962			0.976			0.971			0.997	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3367	0	1684	3314	0	1750	3373	0	1700	3456	0
Flt Permitted	0.567			0.608			0.385			0.238		
Satd. Flow (perm)	1044	3367	0	1078	3314	0	709	3373	0	426	3456	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		53			26			52			3	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		241.5			345.8			328.3			671.5	
Travel Time (s)		17.4			24.9			19.7			40.3	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	2%	6%	4%	11%	2%	2%	6%	5%	3%	2%
Adj. Flow (vph)	65	172	58	162	255	49	210	836	203	104	666	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	230	0	162	304	0	210	1039	0	104	679	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	

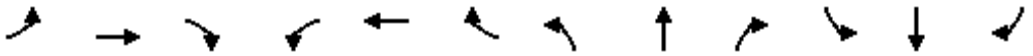


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	34.5	34.5		34.5	34.5		50.4	50.4		50.4	50.4	
Total Split (s)	34.5	34.5		34.5	34.5		55.5	55.5		55.5	55.5	
Total Split (%)	38.3%	38.3%		38.3%	38.3%		61.7%	61.7%		61.7%	61.7%	
Maximum Green (s)	28.0	28.0		28.0	28.0		49.1	49.1		49.1	49.1	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.2	3.2		3.2	3.2		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		19.0	19.0		19.0	19.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	17.3	17.3		17.3	17.3		49.4	49.4		49.4	49.4	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.62	0.62		0.62	0.62	
v/c Ratio	0.29	0.30		0.69	0.41		0.48	0.49		0.39	0.32	
Control Delay	28.5	20.1		44.2	25.4		14.6	9.7		15.4	8.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	28.5	20.1		44.2	25.4		14.6	9.7		15.4	8.5	
LOS	C	C		D	C		B	A		B	A	
Approach Delay		21.9			32.0			10.5			9.4	
Approach LOS		C			C			B			A	
Queue Length 50th (m)	8.2	11.6		22.6	18.8		15.0	37.3		6.9	22.2	
Queue Length 95th (m)	18.0	19.8		41.2	28.9		42.7	69.8		24.3	42.6	
Internal Link Dist (m)		217.5			321.8			304.3			647.5	
Turn Bay Length (m)	55.0			50.0			40.0			30.0		
Base Capacity (vph)	369	1224		380	1187		439	2109		264	2142	
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	0.18	0.19		0.43	0.26		0.48	0.49		0.39	0.32	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 79.7			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 15.0		Intersection LOS: B	
Intersection Capacity Utilization 72.8%		ICU Level of Service C	
Analysis Period (min) 15			

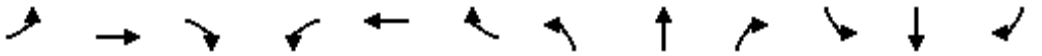
Splits and Phases: 6: Sixth Line & Burnhamthorpe Road



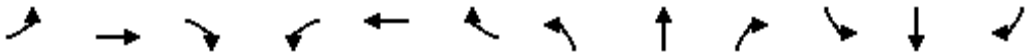


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	153	52	144	227	44	187	744	181	93	593	12
Future Volume (vph)	58	153	52	144	227	44	187	744	181	93	593	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.98		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)	1750	3368		1684	3314		1750	3371		1700	3457	
Flt Permitted	0.57	1.00		0.61	1.00		0.38	1.00		0.24	1.00	
Satd. Flow (perm)	1044	3368		1078	3314		709	3371		426	3457	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	65	172	58	162	255	49	210	836	203	104	666	13
RTOR Reduction (vph)	0	41	0	0	20	0	0	20	0	0	1	0
Lane Group Flow (vph)	65	189	0	162	284	0	210	1019	0	104	678	0
Heavy Vehicles (%)	2%	2%	2%	6%	4%	11%	2%	2%	6%	5%	3%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	17.3	17.3		17.3	17.3		49.4	49.4		49.4	49.4	
Effective Green, g (s)	17.3	17.3		17.3	17.3		49.4	49.4		49.4	49.4	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.62	0.62		0.62	0.62	
Clearance Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	226	731		234	720		440	2092		264	2145	
v/s Ratio Prot		0.06			0.09			c0.30			0.20	
v/s Ratio Perm	0.06			c0.15			0.30			0.24		
v/c Ratio	0.29	0.26		0.69	0.39		0.48	0.49		0.39	0.32	
Uniform Delay, d1	26.0	25.8		28.7	26.7		8.1	8.2		7.6	7.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.2		8.5	0.4		3.7	0.8		4.4	0.4	
Delay (s)	26.7	26.0		37.2	27.0		11.8	9.0		11.9	7.5	
Level of Service	C	C		D	C		B	A		B	A	
Approach Delay (s)		26.2			30.6			9.5			8.1	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	79.6	Sum of lost time (s)	12.9
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	2	377	0	3	2	2316	0	0	1981	0
Future Volume (vph)	3	0	2	377	0	3	2	2316	0	0	1981	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		5.0	0.0		60.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		1	1		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt			0.850			0.850						
Flt Protected	0.950			0.950	0.950		0.950					
Satd. Flow (prot)	1069	0	1566	1449	1388	1487	1190	3305	0	0	4749	0
Flt Permitted	0.462			0.950	0.950		0.071					
Satd. Flow (perm)	520	0	1566	1449	1388	1487	89	3305	0	0	4749	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			73			73						
Link Speed (k/h)		20			60			80			80	
Link Distance (m)		81.5			394.8			34.5			189.8	
Travel Time (s)		14.7			23.7			1.6			8.5	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	67%	2%	2%	17%	2%	2%	50%	8%	2%	2%	8%	2%
Adj. Flow (vph)	3	0	2	424	0	3	2	2602	0	0	2226	0
Shared Lane Traffic (%)				50%		10%						
Lane Group Flow (vph)	3	0	2	212	212	3	2	2602	0	0	2226	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1		1	1	2	1	1	2			2	
Detector Template	Left		Right	Left	Thru	Right	Left	Thru			Thru	
Leading Detector (m)	2.0		2.0	2.0	10.0	2.0	2.0	10.0			10.0	
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Size(m)	2.0		2.0	2.0	0.6	2.0	2.0	0.6			0.6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 2 Position(m)					9.4			9.4			9.4	
Detector 2 Size(m)					0.6			0.6			0.6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	



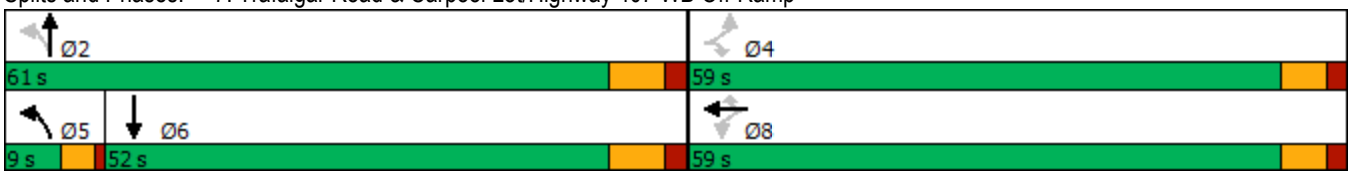
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8		8	2					
Detector Phase	4		4	8	8	8	5	2			6	
Switch Phase												
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	4.0	35.0			35.0	
Minimum Split (s)	13.0		13.0	13.0	13.0	13.0	8.0	42.0			42.0	
Total Split (s)	59.0		59.0	59.0	59.0	59.0	9.0	61.0			52.0	
Total Split (%)	49.2%		49.2%	49.2%	49.2%	49.2%	7.5%	50.8%			43.3%	
Maximum Green (s)	53.0		53.0	53.0	53.0	53.0	5.0	54.0			45.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0	3.0	5.0			5.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0	1.0	2.0			2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Recall Mode	None		None	None	None	None	None	Min			Min	
Act Effct Green (s)	18.1		18.1	18.1	18.1	18.1	57.2	54.2			52.5	
Actuated g/C Ratio	0.21		0.21	0.21	0.21	0.21	0.67	0.64			0.62	
v/c Ratio	0.03		0.01	0.69	0.72	0.01	0.02	1.24			0.76	
Control Delay	26.0		0.0	43.2	45.6	0.0	6.5	131.5			16.1	
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	26.0		0.0	43.2	45.6	0.0	6.5	131.5			16.1	
LOS	C		A	D	D	A	A	F			B	
Approach Delay		15.6			44.1			131.4			16.1	
Approach LOS		B			D			F			B	
Queue Length 50th (m)	0.4		0.0	33.6	35.3	0.0	0.1	~279.5			80.9	
Queue Length 95th (m)	2.6		0.0	55.8	59.1	0.0	0.9	#359.2			#173.0	
Internal Link Dist (m)		57.5			370.8			10.5			165.8	
Turn Bay Length (m)			5.0			60.0						
Base Capacity (vph)	324		1003	903	865	954	124	2099			2924	
Starvation Cap Reductn	0		0	0	0	0	0	0			0	
Spillback Cap Reductn	0		0	0	0	0	0	0			0	
Storage Cap Reductn	0		0	0	0	0	0	0			0	
Reduced v/c Ratio	0.01		0.00	0.23	0.25	0.00	0.02	1.24			0.76	

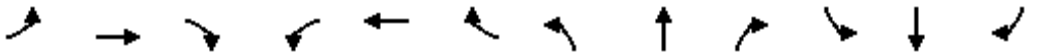
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 85.3			
Natural Cycle: 140			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.24			
Intersection Signal Delay: 75.4		Intersection LOS: E	
Intersection Capacity Utilization 92.0%		ICU Level of Service F	
Analysis Period (min) 15			

~ 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.

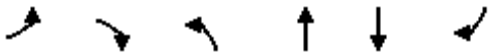
Splits and Phases: 7: Trafalgar Road & Carpool Lot/Highway 407 WB Off-Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	0	2	377	0	3	2	2316	0	0	1981	0
Future Volume (vph)	3	0	2	377	0	3	2	2316	0	0	1981	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	6.0	4.0	7.0			7.0	
Lane Util. Factor	1.00		1.00	0.95	0.91	0.95	1.00	0.95			0.91	
Frt	1.00		0.85	1.00	1.00	0.85	1.00	1.00			1.00	
Flt Protected	0.95		1.00	0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1069		1566	1449	1388	1487	1190	3305			4749	
Flt Permitted	0.46		1.00	0.95	0.95	1.00	0.07	1.00			1.00	
Satd. Flow (perm)	520		1566	1449	1388	1487	89	3305			4749	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	3	0	2	424	0	3	2	2602	0	0	2226	0
RTOR Reduction (vph)	0	0	2	0	0	2	0	0	0	0	0	0
Lane Group Flow (vph)	3	0	0	212	212	1	2	2602	0	0	2226	0
Heavy Vehicles (%)	67%	2%	2%	17%	2%	2%	50%	8%	2%	2%	8%	2%
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	
Permitted Phases	4		4	8		8	2					
Actuated Green, G (s)	18.1		18.1	18.1	18.1	18.1	57.4	57.4			52.5	
Effective Green, g (s)	18.1		18.1	18.1	18.1	18.1	57.4	57.4			52.5	
Actuated g/C Ratio	0.20		0.20	0.20	0.20	0.20	0.65	0.65			0.59	
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)	106		320	296	283	304	68	2143			2817	
v/s Ratio Prot							0.00	c0.79			0.47	
v/s Ratio Perm	0.01		0.00	0.15	0.15	0.00	0.02					
v/c Ratio	0.03		0.00	0.72	0.75	0.00	0.03	1.21			0.79	
Uniform Delay, d1	28.2		28.0	32.8	33.1	28.0	9.6	15.6			13.8	
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.1		0.0	8.0	10.4	0.0	0.2	100.9			1.6	
Delay (s)	28.3		28.0	40.8	43.4	28.0	9.8	116.5			15.4	
Level of Service	C		C	D	D	C	A	F			B	
Approach Delay (s)		28.2			42.0			116.4			15.4	
Approach LOS		C			D			F			B	

Intersection Summary			
HCM 2000 Control Delay	67.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	88.5	Sum of lost time (s)	17.0
Intersection Capacity Utilization	92.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↑↑↑	↑↑	↱
Traffic Volume (vph)	0	0	0	2373	2360	34
Future Volume (vph)	0	0	0	2373	2360	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.95	1.00
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	4749	3275	1536
Flt Permitted						
Satd. Flow (perm)	0	0	0	4749	3275	1536
Link Speed (k/h)	60			80	80	
Link Distance (m)	161.4			55.2	34.5	
Travel Time (s)	9.7			2.5	1.6	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	2%	8%	9%	4%
Adj. Flow (vph)	0	0	0	2666	2652	38
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2666	2652	38
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 68.9%		ICU Level of Service C	
Analysis Period (min) 15			

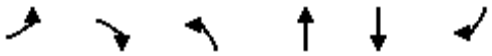
Intersection Sign configuration not allowed in HCM analysis.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	2373	190	0	2360
Future Volume (vph)	0	0	2373	190	0	2360
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt				0.850		
Flt Protected						
Satd. Flow (prot)	0	0	3305	1229	0	3275
Flt Permitted						
Satd. Flow (perm)	0	0	3305	1229	0	3275
Link Speed (k/h)	30		80			80
Link Distance (m)	192.3		37.4			100.8
Travel Time (s)	23.1		1.7			4.5
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	8%	30%	2%	9%
Adj. Flow (vph)	0	0	2666	213	0	2652
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	2666	213	0	2652
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Free		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 68.9%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection Sign configuration not allowed in HCM analysis.



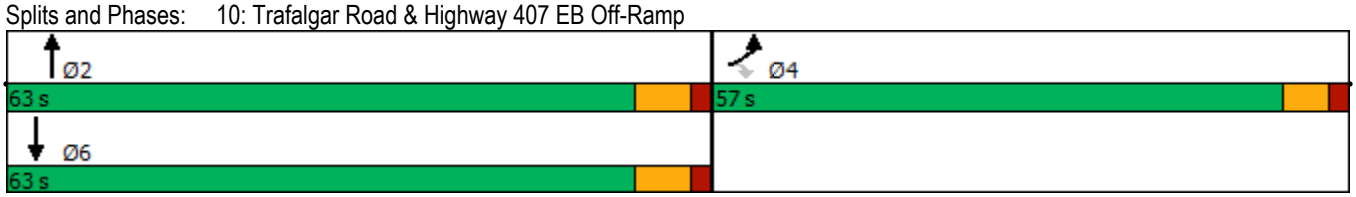
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	58	357	0	2502	2195	0
Future Volume (vph)	58	357	0	2502	2195	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	0.95	0.95	1.00
Frt	0.891	0.850				
Flt Protected	0.986					
Satd. Flow (prot)	1484	1331	0	3275	3305	0
Flt Permitted	0.986					
Satd. Flow (perm)	1484	1331	0	3275	3305	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	1	1				
Link Speed (k/h)	60			80	80	
Link Distance (m)	417.0			117.5	129.7	
Travel Time (s)	25.0			5.3	5.8	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	14%	2%	9%	8%	2%
Adj. Flow (vph)	64	392	0	2749	2412	0
Shared Lane Traffic (%)		43%				
Lane Group Flow (vph)	233	223	0	2749	2412	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (m)	2.0	2.0		10.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	2.0		0.6	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						

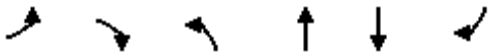
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Initial (s)	6.0	6.0		20.0	20.0	
Minimum Split (s)	24.0	24.0		27.0	27.0	
Total Split (s)	57.0	57.0		63.0	63.0	
Total Split (%)	47.5%	47.5%		52.5%	52.5%	
Maximum Green (s)	51.0	51.0		56.0	56.0	
Yellow Time (s)	4.0	4.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		7.0	7.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		Max	Max	
Act Effct Green (s)	19.9	19.9		56.2	56.2	
Actuated g/C Ratio	0.22	0.22		0.63	0.63	
v/c Ratio	0.70	0.75		1.33	1.16	
Control Delay	43.5	48.2		172.8	96.4	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	43.5	48.2		172.8	96.4	
LOS	D	D		F	F	
Approach Delay	45.8			172.8	96.4	
Approach LOS	D			F	F	
Queue Length 50th (m)	36.6	37.3		~323.6	~258.3	
Queue Length 95th (m)	60.1	62.5		#418.6	#347.4	
Internal Link Dist (m)	393.0			93.5	105.7	
Turn Bay Length (m)						
Base Capacity (vph)	852	764		2065	2084	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.27	0.29		1.33	1.16	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 89.1			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.33			
Intersection Signal Delay: 129.7		Intersection LOS: F	
Intersection Capacity Utilization 90.5%		ICU Level of Service E	
Analysis Period (min) 15			

~ 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.

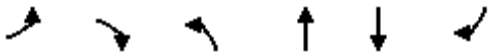
Splits and Phases: 10: Trafalgar Road & Highway 407 EB Off-Ramp





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	58	357	0	2502	2195	0
Future Volume (vph)	58	357	0	2502	2195	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		0.95	0.95	
Frt	0.89	0.85		1.00	1.00	
Flt Protected	0.99	1.00		1.00	1.00	
Satd. Flow (prot)	1485	1331		3275	3305	
Flt Permitted	0.99	1.00		1.00	1.00	
Satd. Flow (perm)	1485	1331		3275	3305	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	64	392	0	2749	2412	0
RTOR Reduction (vph)	1	1	0	0	0	0
Lane Group Flow (vph)	232	222	0	2749	2412	0
Heavy Vehicles (%)	4%	14%	2%	9%	8%	2%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	19.9	19.9		56.2	56.2	
Effective Green, g (s)	19.9	19.9		56.2	56.2	
Actuated g/C Ratio	0.22	0.22		0.63	0.63	
Clearance Time (s)	6.0	6.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	331	297		2065	2084	
v/s Ratio Prot	0.16			c0.84	0.73	
v/s Ratio Perm		c0.17				
v/c Ratio	0.70	0.75		1.33	1.16	
Uniform Delay, d1	31.9	32.3		16.4	16.4	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.6	9.9		152.5	76.7	
Delay (s)	38.4	42.1		168.9	93.1	
Level of Service	D	D		F	F	
Approach Delay (s)	40.3			168.9	93.1	
Approach LOS	D			F	F	

Intersection Summary			
HCM 2000 Control Delay	125.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	89.1	Sum of lost time (s)	13.0
Intersection Capacity Utilization	90.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	2560	2195	28
Future Volume (vph)	0	0	0	2560	2195	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	3275	3305	1465
Flt Permitted						
Satd. Flow (perm)	0	0	0	3275	3305	1465
Link Speed (k/h)	30			80	80	
Link Distance (m)	110.1			129.7	37.4	
Travel Time (s)	13.2			5.8	1.7	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	2%	2%	2%	9%	8%	9%
Adj. Flow (vph)	0	0	0	2813	2412	31
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	2813	2412	31
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 90.5%		ICU Level of Service E	
Analysis Period (min) 15			

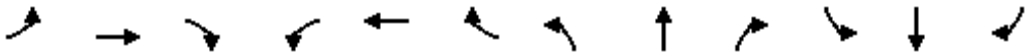
Intersection Sign configuration not allowed in HCM analysis.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	2502	402	0	2554
Future Volume (vph)	0	0	2502	402	0	2554
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.91
Frt				0.850		
Flt Protected						
Satd. Flow (prot)	0	0	3275	1521	0	4749
Flt Permitted						
Satd. Flow (perm)	0	0	3275	1521	0	4749
Link Speed (k/h)	50		80			80
Link Distance (m)	247.7		145.5			117.5
Travel Time (s)	17.8		6.5			5.3
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	2%	2%	9%	5%	2%	8%
Adj. Flow (vph)	0	0	2749	442	0	2807
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	2749	442	0	2807
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Free		Free			Free

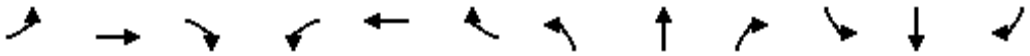
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 72.5%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection Sign configuration not allowed in HCM analysis.



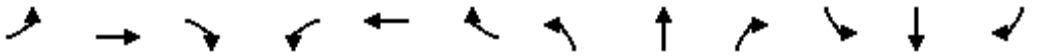
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	127	2006	540	117	1144	105	287	386	109	220	694	102
Future Volume (vph)	127	2006	540	117	1144	105	287	386	109	220	694	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.970			0.988			0.979			0.985	
Flt Protected		0.998			0.996			0.982			0.989	
Satd. Flow (prot)	0	3319	0	0	3411	0	0	3125	0	0	3409	0
Flt Permitted		0.998			0.996			0.982			0.989	
Satd. Flow (perm)	0	3319	0	0	3411	0	0	3125	0	0	3409	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		234.8			101.3			357.8			260.8	
Travel Time (s)		14.1			6.1			21.5			15.6	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	4%	2%	12%	2%	3%	4%	23%	2%	3%	2%	2%	2%
Adj. Flow (vph)	143	2254	607	131	1285	118	322	434	122	247	780	115
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3004	0	0	1534	0	0	878	0	0	1142	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 179.4%		ICU Level of Service H	
Analysis Period (min) 15			

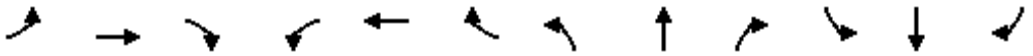


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	127	2006	540	117	1144	105	287	386	109	220	694	102
Future Volume (veh/h)	127	2006	540	117	1144	105	287	386	109	220	694	102
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	143	2254	607	131	1285	118	322	434	122	247	780	115
Approach Volume (veh/h)		3004			1534			878			1142	
Crossing Volume (veh/h)		1158			899			2644#			1738#	
High Capacity (veh/h)		547			676			153			336	
High v/c (veh/h)		5.50			2.27			5.75			3.40	
Low Capacity (veh/h)		418			529			100			243	
Low v/c (veh/h)		7.19			2.90			8.74			4.70	

Intersection Summary				
Maximum v/c High	5.75			
Maximum v/c Low	8.74			
Intersection Capacity Utilization	179.4%	ICU Level of Service	H	
# Crossing flow exceeds 1200, method is not applicable				



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	1660	67	374	637	206	41	62	331	118	8	7
Future Volume (vph)	25	1660	67	374	637	206	41	62	331	118	8	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		30.0	180.0		30.0	30.0		0.0	40.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.96			0.97	0.99	0.98		1.00	0.99	
Frt			0.850			0.850		0.874			0.929	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3500	1566	1750	3500	1566	1750	1579	0	1750	1694	0
Flt Permitted	0.382			0.075			0.746			0.150		
Satd. Flow (perm)	701	3500	1510	138	3500	1512	1366	1579	0	276	1694	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95			214		212			8	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		830.2			198.4			579.5			190.6	
Travel Time (s)		49.8			11.9			41.7			13.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	28	1844	74	416	708	229	46	69	368	131	9	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	1844	74	416	708	229	46	437	0	131	17	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2		2	6		6	4			8		
Detector Phase	2	2	2	1	6	6	4	4		3	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	10.0	10.0		7.0	10.0	
Minimum Split (s)	32.1	32.1	32.1	11.0	32.1	32.1	34.4	34.4		11.0	34.4	
Total Split (s)	54.0	54.0	54.0	20.0	74.0	74.0	35.0	35.0		11.0	46.0	
Total Split (%)	45.0%	45.0%	45.0%	16.7%	61.7%	61.7%	29.2%	29.2%		9.2%	38.3%	
Maximum Green (s)	48.9	48.9	48.9	16.0	68.9	68.9	29.6	29.6		7.0	40.6	
Yellow Time (s)	3.7	3.7	3.7	3.0	3.7	3.7	3.3	3.3		3.0	3.3	
All-Red Time (s)	1.4	1.4	1.4	1.0	1.4	1.4	2.1	2.1		1.0	2.1	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.1	5.1	5.1	4.0	5.1	5.1	5.4	5.4		4.0	5.4	
Lead/Lag	Lag	Lag	Lag	Lead			Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max	Max	None	Max	Max	None	None		None	None	
Walk Time (s)	7.0	7.0	7.0		7.0	7.0	7.0	7.0			7.0	
Flash Dont Walk (s)	20.0	20.0	20.0		20.0	20.0	22.0	22.0			22.0	
Pedestrian Calls (#/hr)	5	5	5		5	5	5	5			5	
Act Effct Green (s)	49.1	49.1	49.1	70.3	69.2	69.2	22.7	22.7		35.1	33.7	
Actuated g/C Ratio	0.43	0.43	0.43	0.62	0.61	0.61	0.20	0.20		0.31	0.30	
v/c Ratio	0.09	1.22	0.10	1.33	0.33	0.23	0.17	0.90		0.74	0.03	
Control Delay	22.4	134.6	2.9	197.4	12.1	2.5	37.9	45.0		55.3	19.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	22.4	134.6	2.9	197.4	12.1	2.5	37.9	45.0		55.3	19.0	
LOS	C	F	A	F	B	A	D	D		E	B	
Approach Delay		127.9			67.5			44.3			51.1	
Approach LOS		F			E			D			D	
Queue Length 50th (m)	3.7	~271.8	0.0	~108.1	39.6	1.3	8.5	51.8		21.5	1.4	
Queue Length 95th (m)	10.4	#333.9	5.9	#178.5	56.5	11.9	18.4	#101.0		#38.4	6.5	
Internal Link Dist (m)		806.2			174.4			555.5			166.6	
Turn Bay Length (m)	30.0		30.0	180.0		30.0	30.0			40.0		
Base Capacity (vph)	303	1515	707	313	2134	1005	357	570		176	614	
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	0.09	1.22	0.10	1.33	0.33	0.23	0.13	0.77		0.74	0.03	

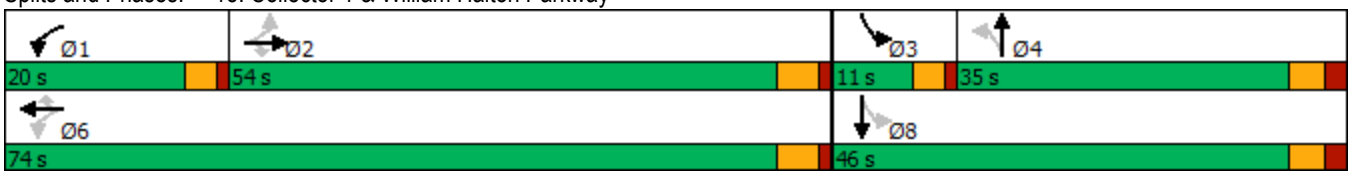
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 113.4			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.33			
Intersection Signal Delay: 93.9		Intersection LOS: F	
Intersection Capacity Utilization 112.7%		ICU Level of Service H	

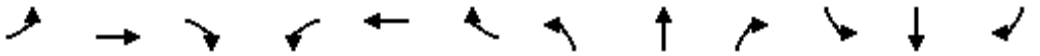
Analysis Period (min) 15

~ 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.

Splits and Phases: 15: Collector 1 & William Halton Parkway

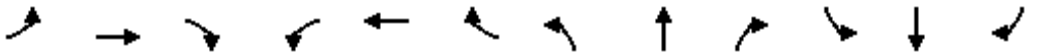




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	1660	67	374	637	206	41	62	331	118	8	7
Future Volume (vph)	25	1660	67	374	637	206	41	62	331	118	8	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	5.1	4.0	5.1	5.1	5.4	5.4		4.0	5.4	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	0.98		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.87		1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1743	3500	1512	1750	3500	1514	1740	1578		1750	1695	
Flt Permitted	0.38	1.00	1.00	0.08	1.00	1.00	0.75	1.00		0.15	1.00	
Satd. Flow (perm)	702	3500	1512	139	3500	1514	1367	1578		276	1695	
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)	28	1844	74	416	708	229	46	69	368	131	9	8
RTOR Reduction (vph)	0	0	42	0	0	83	0	170	0	0	6	0
Lane Group Flow (vph)	28	1844	32	416	708	146	46	267	0	131	11	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	49.1	49.1	49.1	69.2	69.2	69.2	22.7	22.7		33.7	33.7	
Effective Green, g (s)	49.1	49.1	49.1	69.2	69.2	69.2	22.7	22.7		33.7	33.7	
Actuated g/C Ratio	0.43	0.43	0.43	0.61	0.61	0.61	0.20	0.20		0.30	0.30	
Clearance Time (s)	5.1	5.1	5.1	4.0	5.1	5.1	5.4	5.4		4.0	5.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	303	1515	654	313	2135	923	273	315		173	503	
v/s Ratio Prot		0.53		c0.19	0.20			c0.17		c0.05	0.01	
v/s Ratio Perm	0.04		0.02	c0.62		0.10	0.03			0.18		
v/c Ratio	0.09	1.22	0.05	1.33	0.33	0.16	0.17	0.85		0.76	0.02	
Uniform Delay, d1	19.0	32.2	18.6	37.4	10.8	9.5	37.5	43.7		32.7	28.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	104.0	0.1	168.5	0.4	0.4	0.3	18.7		17.1	0.0	
Delay (s)	19.6	136.1	18.8	205.9	11.2	9.9	37.8	62.4		49.8	28.2	
Level of Service	B	F	B	F	B	A	D	E		D	C	
Approach Delay (s)		130.0			70.8			60.1			47.4	
Approach LOS		F			E			E			D	

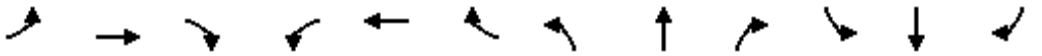
Intersection Summary			
HCM 2000 Control Delay	97.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.21		
Actuated Cycle Length (s)	113.4	Sum of lost time (s)	18.5
Intersection Capacity Utilization	112.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	2091	18	0	979	98	0	0	123	0	0	238
Future Volume (vph)	0	2091	18	0	979	98	0	0	123	0	0	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		30.0	30.0		0.0	30.0		0.0
Storage Lanes	0		0	0		1	0		1	0		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999				0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3496	0	0	3500	1566	0	0	1593	0	0	1593
Flt Permitted												
Satd. Flow (perm)	0	3496	0	0	3500	1566	0	0	1593	0	0	1593
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		198.4			207.8			147.0			172.8	
Travel Time (s)		11.9			12.5			10.6			12.4	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	0	2323	20	0	1088	109	0	0	137	0	0	264
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2343	0	0	1088	109	0	0	137	0	0	264
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

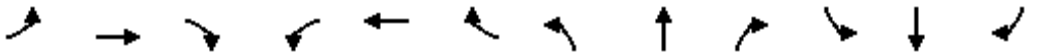
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 74.0%		ICU Level of Service D	
Analysis Period (min) 15			



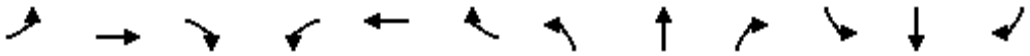
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2091	18	0	979	98	0	0	123	0	0	238
Future Volume (Veh/h)	0	2091	18	0	979	98	0	0	123	0	0	238
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	2323	20	0	1088	109	0	0	137	0	0	264
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		198			208							
pX, platoon unblocked	0.88			0.58			0.63	0.63	0.58	0.63	0.63	0.88
vC, conflicting volume	1202			2348			3151	3540	1182	2396	3441	554
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	962			1868			2403	3016	0	1215	2860	228
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	78	100	100	61
cM capacity (veh/h)	624			183			7	8	619	67	10	677

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	1549	794	544	544	109	137	264
Volume Left	0	0	0	0	0	0	0
Volume Right	0	20	0	0	109	137	264
cSH	1700	1700	1700	1700	1700	619	677
Volume to Capacity	0.91	0.47	0.32	0.32	0.06	0.22	0.39
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	6.4	14.1
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	12.5	13.7
Lane LOS						B	B
Approach Delay (s)	0.0		0.0			12.5	13.7
Approach LOS						B	B

Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	74.0%	ICU Level of Service		D
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	601	9	90	376	286	19	91	116	189	47	18
Future Volume (vph)	27	601	9	90	376	286	19	91	116	189	47	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	30.0		0.0	70.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	0.99		1.00	0.99		1.00	0.99	
Frt		0.998			0.935			0.916			0.958	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3491	0	1750	3226	0	1750	1669	0	1750	1755	0
Flt Permitted	0.348			0.377			0.710			0.560		
Satd. Flow (perm)	639	3491	0	692	3226	0	1302	1669	0	1028	1755	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			282			87			20	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		136.3			245.2			477.1			579.5	
Travel Time (s)		9.8			17.7			34.4			41.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	30	668	10	100	418	318	21	101	129	210	52	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	678	0	100	736	0	21	230	0	210	72	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

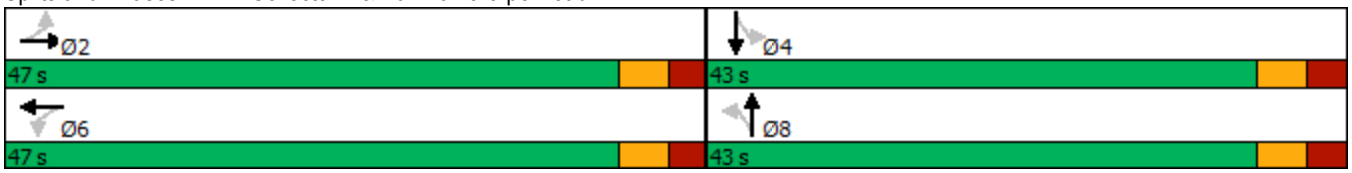


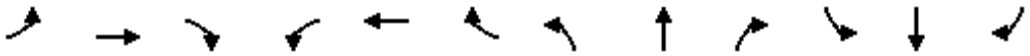
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	31.9	31.9		31.9	31.9		33.1	33.1		33.1	33.1	
Total Split (s)	47.0	47.0		47.0	47.0		43.0	43.0		43.0	43.0	
Total Split (%)	52.2%	52.2%		52.2%	52.2%		47.8%	47.8%		47.8%	47.8%	
Maximum Green (s)	41.1	41.1		41.1	41.1		36.9	36.9		36.9	36.9	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.6	2.6		2.6	2.6		2.8	2.8		2.8	2.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	
Act Effct Green (s)	41.4	41.4		41.4	41.4		19.1	19.1		19.1	19.1	
Actuated g/C Ratio	0.57	0.57		0.57	0.57		0.26	0.26		0.26	0.26	
v/c Ratio	0.08	0.34		0.25	0.38		0.06	0.46		0.78	0.15	
Control Delay	10.1	10.0		12.2	6.4		19.0	16.0		44.4	15.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	10.1	10.0		12.2	6.4		19.0	16.0		44.4	15.6	
LOS	B	A		B	A		B	B		D	B	
Approach Delay		10.0			7.1			16.2			37.0	
Approach LOS		A			A			B			D	
Queue Length 50th (m)	1.7	23.2		6.2	14.6		2.1	15.6		26.3	5.3	
Queue Length 95th (m)	6.9	45.4		19.3	33.2		6.7	32.5		48.4	13.8	
Internal Link Dist (m)		112.3			221.2			453.1			555.5	
Turn Bay Length (m)	30.0			30.0			30.0			70.0		
Base Capacity (vph)	364	1992		394	1961		667	897		526	908	
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	0.08	0.34		0.25	0.38		0.03	0.26		0.40	0.08	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 72.6			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 13.2		Intersection LOS: B	
Intersection Capacity Utilization 71.7%		ICU Level of Service C	

Analysis Period (min) 15

Splits and Phases: 17: Collector 1 & Burnhamthorpe Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	601	9	90	376	286	19	91	116	189	47	18
Future Volume (vph)	27	601	9	90	376	286	19	91	116	189	47	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
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	0.99		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	1.00		1.00	0.94		1.00	0.92		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)	1746	3491		1745	3231		1744	1668		1745	1755	
Flt Permitted	0.35	1.00		0.38	1.00		0.71	1.00		0.56	1.00	
Satd. Flow (perm)	640	3491		692	3231		1303	1668		1028	1755	
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)	30	668	10	100	418	318	21	101	129	210	52	20
RTOR Reduction (vph)	0	1	0	0	121	0	0	64	0	0	15	0
Lane Group Flow (vph)	30	677	0	100	615	0	21	166	0	210	57	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	41.4	41.4		41.4	41.4		19.1	19.1		19.1	19.1	
Effective Green, g (s)	41.4	41.4		41.4	41.4		19.1	19.1		19.1	19.1	
Actuated g/C Ratio	0.57	0.57		0.57	0.57		0.26	0.26		0.26	0.26	
Clearance Time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	365	1993		395	1845		343	439		270	462	
v/s Ratio Prot		c0.19			0.19			0.10			0.03	
v/s Ratio Perm	0.05			0.14			0.02			c0.20		
v/c Ratio	0.08	0.34		0.25	0.33		0.06	0.38		0.78	0.12	
Uniform Delay, d1	7.0	8.3		7.8	8.2		20.0	21.8		24.7	20.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.5		1.5	0.5		0.1	0.5		13.2	0.1	
Delay (s)	7.4	8.7		9.3	8.7		20.1	22.4		37.9	20.5	
Level of Service	A	A		A	A		C	C		D	C	
Approach Delay (s)		8.7			8.8			22.2			33.4	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	72.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	606	1	11	402	3	31
Future Volume (vph)	606	1	11	402	3	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	0.0		30.0	0.0
Storage Lanes		0	0		1	1
Taper Length (m)			15.0		15.0	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt						0.850
Flt Protected				0.999	0.950	
Satd. Flow (prot)	3500	0	0	3496	1750	1566
Flt Permitted				0.999	0.950	
Satd. Flow (perm)	3500	0	0	3496	1750	1566
Link Speed (k/h)	50			50	50	
Link Distance (m)	139.2			131.8	226.2	
Travel Time (s)	10.0			9.5	16.3	
Confl. Peds. (#/hr)		5	5		5	5
Confl. Bikes (#/hr)		5				5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	673	1	12	447	3	34
Shared Lane Traffic (%)						
Lane Group Flow (vph)	674	0	0	459	3	34
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

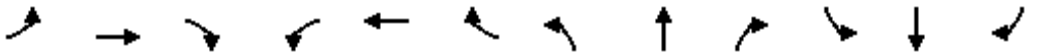
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 30.6%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	606	1	11	402	3	31
Future Volume (Veh/h)	606	1	11	402	3	31
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	673	1	12	447	3	34
Pedestrians	5			5	5	
Lane Width (m)	3.5			3.5	3.5	
Walking Speed (m/s)	1.0			1.0	1.0	
Percent Blockage	0			0	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)				268		
pX, platoon unblocked						
vC, conflicting volume			679		931	347
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			679		931	347
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		99	95
cM capacity (veh/h)			905		260	643

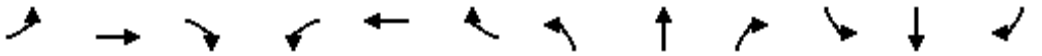
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	449	225	161	298	3	34
Volume Left	0	0	12	0	3	0
Volume Right	0	1	0	0	0	34
cSH	1700	1700	905	1700	260	643
Volume to Capacity	0.26	0.13	0.01	0.18	0.01	0.05
Queue Length 95th (m)	0.0	0.0	0.3	0.0	0.3	1.3
Control Delay (s)	0.0	0.0	0.8	0.0	19.0	10.9
Lane LOS			A		C	B
Approach Delay (s)	0.0		0.3		11.6	
Approach LOS					B	

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	30.6%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	2144	9	0	892	11	0	0	14	0	0	255
Future Volume (vph)	0	2144	9	0	892	11	0	0	14	0	0	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		30.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		1	0		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999				0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3496	0	0	3500	1566	0	0	1593	0	0	1593
Flt Permitted												
Satd. Flow (perm)	0	3496	0	0	3500	1566	0	0	1593	0	0	1593
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		119.4			229.9			118.2			144.7	
Travel Time (s)		7.2			13.8			8.5			10.4	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5						5
Peak Hour Factor	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)	0	2382	10	0	991	12	0	0	16	0	0	283
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2392	0	0	991	12	0	0	16	0	0	283
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			0.0			0.0	
Link Offset(m)		0.0			0.0			5.0			5.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

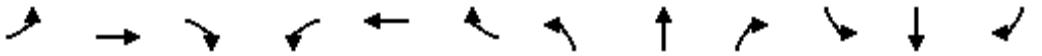
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 71.1%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2144	9	0	892	11	0	0	14	0	0	255
Future Volume (Veh/h)	0	2144	9	0	892	11	0	0	14	0	0	255
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	2382	10	0	991	12	0	0	16	0	0	283
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		119			230							
pX, platoon unblocked	0.83			0.66			0.74	0.74	0.66	0.74	0.74	0.83
vC, conflicting volume	1008			2397			3176	3400	1206	2208	3393	506
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	603			2083			2213	2515	272	909	2506	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	97	100	100	68
cM capacity (veh/h)	803			172			12	20	473	162	21	893

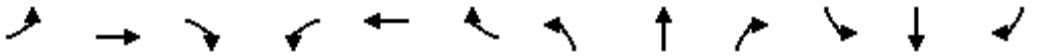
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	1588	804	496	496	12	16	283
Volume Left	0	0	0	0	0	0	0
Volume Right	0	10	0	0	12	16	283
cSH	1700	1700	1700	1700	1700	473	893
Volume to Capacity	0.93	0.47	0.29	0.29	0.01	0.03	0.32
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.8	10.4
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	12.9	10.9
Lane LOS						B	B
Approach Delay (s)	0.0		0.0			12.9	10.9
Approach LOS						B	B

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	71.1%	ICU Level of Service	C	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	839	19	0	653	4	0	0	127	0	0	14
Future Volume (vph)	0	839	19	0	653	4	0	0	127	0	0	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.997			0.999				0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3489	0	0	3496	0	0	0	1593	0	0	1593
Flt Permitted												
Satd. Flow (perm)	0	3489	0	0	3496	0	0	0	1593	0	0	1593
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		123.4			223.5			492.2			141.1	
Travel Time (s)		8.9			16.1			35.4			10.2	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	0	932	21	0	726	4	0	0	141	0	0	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	953	0	0	730	0	0	0	141	0	0	16
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			-10.0			-10.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

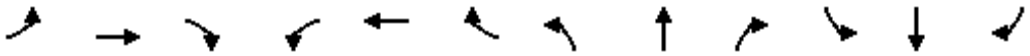
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.6%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	839	19	0	653	4	0	0	127	0	0	14
Future Volume (Veh/h)	0	839	19	0	653	4	0	0	127	0	0	14
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	932	21	0	726	4	0	0	141	0	0	16
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		123			223							
pX, platoon unblocked	0.95			0.89			0.91	0.91	0.89	0.91	0.91	0.95
vC, conflicting volume	735			958			1332	1682	486	1345	1691	375
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	609			699			914	1298	168	929	1307	229
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	81	100	100	98
cM capacity (veh/h)	910			789			200	145	744	162	143	726

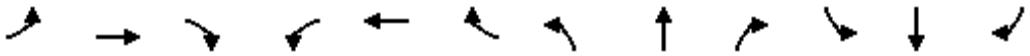
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	621	332	484	246	141	16
Volume Left	0	0	0	0	0	0
Volume Right	0	21	0	4	141	16
cSH	1700	1700	1700	1700	744	726
Volume to Capacity	0.37	0.20	0.28	0.14	0.19	0.02
Queue Length 95th (m)	0.0	0.0	0.0	0.0	5.3	0.5
Control Delay (s)	0.0	0.0	0.0	0.0	11.0	10.1
Lane LOS					B	B
Approach Delay (s)	0.0		0.0		11.0	10.1
Approach LOS					B	B

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	39.6%	ICU Level of Service		A
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	214	0	0	84	0	2452	36	0	1911	264
Future Volume (vph)	0	0	214	0	0	84	0	2452	36	0	1911	264
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor												
Frt			0.865			0.865		0.998			0.982	
Flt Protected												
Satd. Flow (prot)	0	0	1593	0	0	1593	0	3493	0	0	3437	0
Flt Permitted												
Satd. Flow (perm)	0	0	1593	0	0	1593	0	3493	0	0	3437	0
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		168.4			345.0			280.2			182.8	
Travel Time (s)		12.1			24.8			16.8			11.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	0	0	238	0	0	93	0	2724	40	0	2123	293
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	238	0	0	93	0	2764	0	0	2416	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

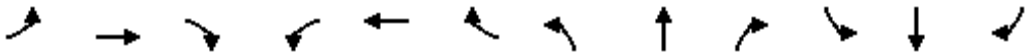
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	82.5%	ICU Level of Service	E
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	214	0	0	84	0	2452	36	0	1911	264
Future Volume (Veh/h)	0	0	214	0	0	84	0	2452	36	0	1911	264
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	238	0	0	93	0	2724	40	0	2123	293
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								280			183	
pX, platoon unblocked	0.80	0.80	0.60	0.80	0.80	0.62	0.60			0.62		
vC, conflicting volume	3734	5044	1218	4054	5170	1392	2421			2769		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1751	3397	45	2152	3556	390	2040			2625		
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	61	100	100	75	100			100		
cM capacity (veh/h)	32	6	606	13	4	371	164			98		

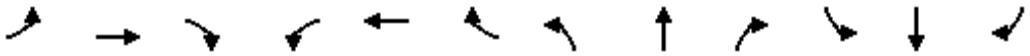
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	238	93	1816	948	1415	1001
Volume Left	0	0	0	0	0	0
Volume Right	238	93	0	40	0	293
cSH	606	371	1700	1700	1700	1700
Volume to Capacity	0.39	0.25	1.07	0.56	0.83	0.59
Queue Length 95th (m)	14.2	7.4	0.0	0.0	0.0	0.0
Control Delay (s)	14.7	17.9	0.0	0.0	0.0	0.0
Lane LOS	B	C				
Approach Delay (s)	14.7	17.9	0.0		0.0	
Approach LOS	B	C				

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	82.5%	ICU Level of Service	E	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	8	14	2	5	4	73	57	3	6	45	36
Future Volume (vph)	62	8	14	2	5	4	73	57	3	6	45	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.977			0.955			0.997			0.944	
Flt Protected		0.965			0.992			0.973			0.996	
Satd. Flow (prot)	0	1737	0	0	1745	0	0	1787	0	0	1732	0
Flt Permitted		0.965			0.992			0.973			0.996	
Satd. Flow (perm)	0	1737	0	0	1745	0	0	1787	0	0	1732	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		345.0			274.1			250.4			181.9	
Travel Time (s)		24.8			19.7			18.0			13.1	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	69	9	16	2	6	4	81	63	3	7	50	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	94	0	0	12	0	0	147	0	0	97	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

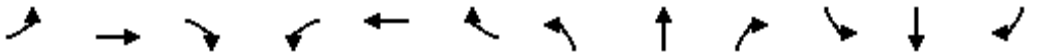
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.3%		ICU Level of Service A	
Analysis Period (min) 15			



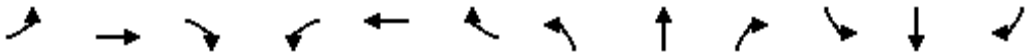
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	8	14	2	5	4	73	57	3	6	45	36
Future Volume (Veh/h)	62	8	14	2	5	4	73	57	3	6	45	36
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	69	9	16	2	6	4	81	63	3	7	50	40
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								251			182	
pX, platoon unblocked												
vC, conflicting volume	328	322	80	341	340	74	95			71		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	328	322	80	341	340	74	95			71		
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 %	88	98	98	100	99	100	95			100		
cM capacity (veh/h)	580	555	971	559	542	977	1492			1522		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	94	12	147	97
Volume Left	69	2	81	7
Volume Right	16	4	3	40
cSH	620	640	1492	1522
Volume to Capacity	0.15	0.02	0.05	0.00
Queue Length 95th (m)	4.0	0.4	1.3	0.1
Control Delay (s)	11.8	10.7	4.4	0.6
Lane LOS	B	B	A	A
Approach Delay (s)	11.8	10.7	4.4	0.6
Approach LOS	B	B		

Intersection Summary				
Average Delay	5.5			
Intersection Capacity Utilization	32.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	543	1573	42	27	639	18	110	0	34	52	19	153
Future Volume (vph)	543	1573	42	27	639	18	110	0	34	52	19	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0		30.0	30.0		0.0	30.0		0.0	40.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.97	1.00	1.00		1.00	0.98		1.00	0.98	
Frt			0.850		0.996			0.850			0.866	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3500	1566	1750	3482	0	1750	1534	0	1750	1567	0
Flt Permitted	0.213			0.148			0.576			0.732		
Satd. Flow (perm)	391	3500	1514	272	3482	0	1057	1534	0	1342	1567	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			38		3			77			170	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		229.9			1297.0			181.9			123.7	
Travel Time (s)		13.8			77.8			13.1			8.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	603	1748	47	30	710	20	122	0	38	58	21	170
Shared Lane Traffic (%)												
Lane Group Flow (vph)	603	1748	47	30	730	0	122	38	0	58	191	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



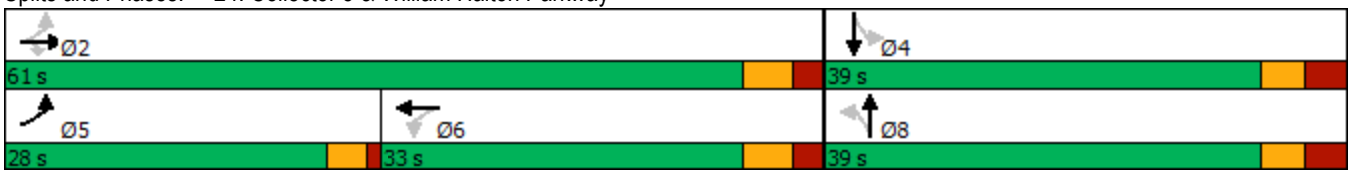
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	5	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	32.1	32.1	32.1	32.1		38.5	38.5		38.5	38.5	
Total Split (s)	28.0	61.0	61.0	33.0	33.0		39.0	39.0		39.0	39.0	
Total Split (%)	28.0%	61.0%	61.0%	33.0%	33.0%		39.0%	39.0%		39.0%	39.0%	
Maximum Green (s)	24.0	54.9	54.9	26.9	26.9		32.5	32.5		32.5	32.5	
Yellow Time (s)	3.0	3.7	3.7	3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.0	2.4	2.4	2.4	2.4		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.1	6.1	6.1	6.1		6.5	6.5		6.5	6.5	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	Max	Max		None	None		None	None	
Walk Time (s)		7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		19.0	19.0	19.0	19.0		25.0	25.0		25.0	25.0	
Pedestrian Calls (#/hr)		5	5	5	5		5	5		5	5	
Act Effct Green (s)	57.5	55.4	55.4	27.1	27.1		16.3	16.3		16.3	16.3	
Actuated g/C Ratio	0.68	0.66	0.66	0.32	0.32		0.19	0.19		0.19	0.19	
v/c Ratio	0.92	0.76	0.05	0.34	0.65		0.60	0.11		0.22	0.43	
Control Delay	38.2	14.6	3.6	38.8	29.0		42.8	1.6		29.4	9.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	38.2	14.6	3.6	38.8	29.0		42.8	1.6		29.4	9.2	
LOS	D	B	A	D	C		D	A		C	A	
Approach Delay		20.4			29.4			33.0			13.9	
Approach LOS		C			C			C			B	
Queue Length 50th (m)	58.5	80.1	0.4	3.5	49.6		17.9	0.0		7.9	2.8	
Queue Length 95th (m)	#170.2	#191.4	5.6	#15.8	89.1		33.7	1.6		17.1	17.7	
Internal Link Dist (m)		205.9			1273.0			157.9			99.7	
Turn Bay Length (m)	85.0		30.0	30.0			30.0			40.0		
Base Capacity (vph)	655	2296	1006	87	1121		410	643		521	712	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	0.92	0.76	0.05	0.34	0.65		0.30	0.06		0.11	0.27	

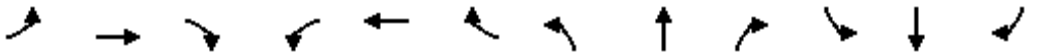
Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 84.4			
Natural Cycle: 105			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 22.4		Intersection LOS: C	
Intersection Capacity Utilization 94.5%		ICU Level of Service F	

Analysis Period (min) 15

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

Splits and Phases: 24: Collector 5 & William Halton Parkway

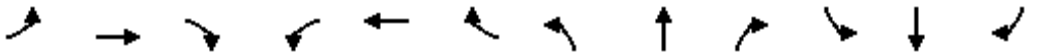




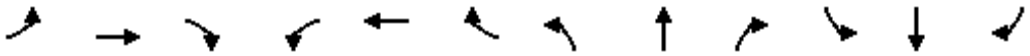
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	543	1573	42	27	639	18	110	0	34	52	19	153
Future Volume (vph)	543	1573	42	27	639	18	110	0	34	52	19	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.1	6.1	6.1	6.1		6.5	6.5		6.5	6.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	0.98		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	1.00	0.85	1.00	1.00		1.00	0.85		1.00	0.87	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1749	3500	1518	1749	3482		1745	1532		1743	1565	
Flt Permitted	0.21	1.00	1.00	0.15	1.00		0.58	1.00		0.73	1.00	
Satd. Flow (perm)	392	3500	1518	272	3482		1059	1532		1344	1565	
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)	603	1748	47	30	710	20	122	0	38	58	21	170
RTOR Reduction (vph)	0	0	13	0	2	0	0	31	0	0	137	0
Lane Group Flow (vph)	603	1748	34	30	728	0	122	7	0	58	54	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	pm+pt	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	55.3	55.3	55.3	27.1	27.1		16.3	16.3		16.3	16.3	
Effective Green, g (s)	55.3	55.3	55.3	27.1	27.1		16.3	16.3		16.3	16.3	
Actuated g/C Ratio	0.66	0.66	0.66	0.32	0.32		0.19	0.19		0.19	0.19	
Clearance Time (s)	4.0	6.1	6.1	6.1	6.1		6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	647	2298	996	87	1120		205	296		260	302	
v/s Ratio Prot	c0.27	0.50			0.21			0.00			0.03	
v/s Ratio Perm	c0.34		0.02	0.11			c0.12			0.04		
v/c Ratio	0.93	0.76	0.03	0.34	0.65		0.60	0.02		0.22	0.18	
Uniform Delay, d1	17.2	9.9	5.1	21.8	24.5		30.9	27.5		28.6	28.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	20.3	1.5	0.0	10.5	2.9		4.6	0.0		0.4	0.3	
Delay (s)	37.6	11.4	5.1	32.3	27.4		35.5	27.5		29.1	28.6	
Level of Service	D	B	A	C	C		D	C		C	C	
Approach Delay (s)		17.9			27.6			33.6			28.7	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	21.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	84.2	Sum of lost time (s)	16.6
Intersection Capacity Utilization	94.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	898	36	75	592	4	42	93	166	11	59	23
Future Volume (vph)	32	898	36	75	592	4	42	93	166	11	59	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	50.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Frt		0.994			0.999			0.904			0.958	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3475	0	1750	3496	0	1750	1644	0	1750	1755	0
Flt Permitted	0.395			0.243			0.697			0.370		
Satd. Flow (perm)	725	3475	0	447	3496	0	1278	1644	0	680	1755	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			1			94			23	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		223.5			463.9			185.3			250.4	
Travel Time (s)		16.1			33.4			13.3			18.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	36	998	40	83	658	4	47	103	184	12	66	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	1038	0	83	662	0	47	287	0	12	92	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



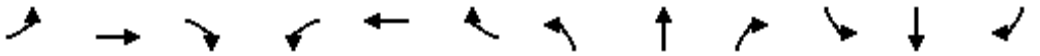
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	32.1	32.1		32.1	32.1		33.1	33.1		33.1	33.1	
Total Split (s)	55.0	55.0		55.0	55.0		35.0	35.0		35.0	35.0	
Total Split (%)	61.1%	61.1%		61.1%	61.1%		38.9%	38.9%		38.9%	38.9%	
Maximum Green (s)	49.1	49.1		49.1	49.1		28.9	28.9		28.9	28.9	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.6	2.6		2.6	2.6		2.8	2.8		2.8	2.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	
Act Effct Green (s)	49.7	49.7		49.7	49.7		15.3	15.3		15.3	15.3	
Actuated g/C Ratio	0.64	0.64		0.64	0.64		0.20	0.20		0.20	0.20	
v/c Ratio	0.08	0.46		0.29	0.29		0.19	0.71		0.09	0.25	
Control Delay	7.6	8.7		11.5	7.4		26.0	28.9		24.9	20.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	7.6	8.7		11.5	7.4		26.0	28.9		24.9	20.9	
LOS	A	A		B	A		C	C		C	C	
Approach Delay		8.7			7.8			28.5			21.4	
Approach LOS		A			A			C			C	
Queue Length 50th (m)	1.6	33.5		4.4	18.5		5.7	25.8		1.4	8.4	
Queue Length 95th (m)	7.1	70.1		17.5	40.5		13.6	49.2		5.3	19.2	
Internal Link Dist (m)		199.5			439.9			161.3			226.4	
Turn Bay Length (m)	30.0			50.0			30.0			30.0		
Base Capacity (vph)	467	2242		288	2253		482	678		256	676	
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	0.08	0.46		0.29	0.29		0.10	0.42		0.05	0.14	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 77.1			
Natural Cycle: 70			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 11.9		Intersection LOS: B	
Intersection Capacity Utilization 63.3%		ICU Level of Service B	

Analysis Period (min) 15

Splits and Phases: 25: Collector 5 & Burnhamthorpe Road

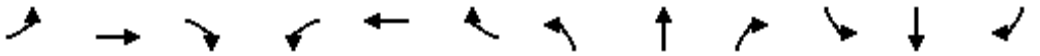




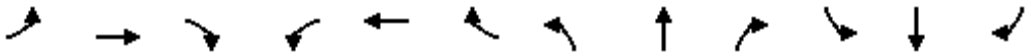
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	898	36	75	592	4	42	93	166	11	59	23
Future Volume (vph)	32	898	36	75	592	4	42	93	166	11	59	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
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	0.99		1.00	1.00		1.00	0.90		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)	1745	3476		1747	3496		1743	1642		1745	1753	
Flt Permitted	0.39	1.00		0.24	1.00		0.70	1.00		0.37	1.00	
Satd. Flow (perm)	725	3476		446	3496		1280	1642		680	1753	
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)	36	998	40	83	658	4	47	103	184	12	66	26
RTOR Reduction (vph)	0	2	0	0	0	0	0	75	0	0	18	0
Lane Group Flow (vph)	36	1036	0	83	662	0	47	212	0	12	74	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	49.7	49.7		49.7	49.7		15.3	15.3		15.3	15.3	
Effective Green, g (s)	49.7	49.7		49.7	49.7		15.3	15.3		15.3	15.3	
Actuated g/C Ratio	0.65	0.65		0.65	0.65		0.20	0.20		0.20	0.20	
Clearance Time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	467	2243		287	2256		254	326		135	348	
v/s Ratio Prot		c0.30			0.19			c0.13			0.04	
v/s Ratio Perm	0.05			0.19			0.04			0.02		
v/c Ratio	0.08	0.46		0.29	0.29		0.19	0.65		0.09	0.21	
Uniform Delay, d1	5.1	6.9		6.0	6.0		25.7	28.4		25.2	25.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.7		2.5	0.3		0.4	4.4		0.3	0.3	
Delay (s)	5.4	7.6		8.5	6.3		26.0	32.8		25.5	26.1	
Level of Service	A	A		A	A		C	C		C	C	
Approach Delay (s)		7.5			6.5			31.8			26.0	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	11.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	77.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	63.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	7	22	83	3	83	23	2386	19	57	2139	30
Future Volume (vph)	79	7	22	83	3	83	23	2386	19	57	2139	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	40.0		0.0	30.0		0.0	17.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	0.98		0.99	0.98		1.00	1.00		1.00	1.00	
Frt		0.887			0.855			0.999			0.998	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	1607	0	1750	1542	0	1750	3495	0	1750	3491	0
Flt Permitted	0.695			0.736			0.950			0.950		
Satd. Flow (perm)	1274	1607	0	1348	1542	0	1749	3495	0	1749	3491	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24			92			1			2	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		117.5			110.5			259.2			230.0	
Travel Time (s)		8.5			8.0			15.6			13.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	88	8	24	92	3	92	26	2651	21	63	2377	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	88	32	0	92	95	0	26	2672	0	63	2410	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	38.5	38.5		38.5	38.5		11.0	33.4		11.0	33.4	
Total Split (s)	39.0	39.0		39.0	39.0		11.0	70.0		11.0	70.0	
Total Split (%)	32.5%	32.5%		32.5%	32.5%		9.2%	58.3%		9.2%	58.3%	
Maximum Green (s)	32.5	32.5		32.5	32.5		7.0	63.6		7.0	63.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.7		3.0	3.7	
All-Red Time (s)	3.2	3.2		3.2	3.2		1.0	2.7		1.0	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		4.0	6.4		4.0	6.4	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	25.0	25.0		25.0	25.0			20.0			20.0	
Pedestrian Calls (#/hr)	5	5		5	5			5			5	
Act Effct Green (s)	15.2	15.2		15.2	15.2		7.0	67.0		7.0	71.7	
Actuated g/C Ratio	0.15	0.15		0.15	0.15		0.07	0.64		0.07	0.69	
v/c Ratio	0.47	0.13		0.47	0.31		0.22	1.19		0.53	1.00	
Control Delay	47.9	18.2		47.3	10.8		53.3	110.2		65.9	37.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	24.1	
Total Delay	47.9	18.2		47.3	10.8		53.3	110.2		65.9	61.6	
LOS	D	B		D	B		D	F		E	E	
Approach Delay		40.0			28.8			109.7			61.7	
Approach LOS		D			C			F			E	
Queue Length 50th (m)	16.3	1.4		17.0	0.5		4.8	~332.6		12.0	164.4	
Queue Length 95th (m)	30.6	9.1		31.5	13.2		15.2	#490.6		#34.5	#423.7	
Internal Link Dist (m)		93.5			86.5			235.2			206.0	
Turn Bay Length (m)	40.0			40.0			30.0			17.0		
Base Capacity (vph)	400	521		423	547		118	2252		118	2405	
Starvation Cap Reductn	0	0		0	0		0	12		0	152	
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	0.22	0.06		0.22	0.17		0.22	1.19		0.53	1.07	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 104			
Natural Cycle: 145			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.19			
Intersection Signal Delay: 83.7		Intersection LOS: F	
Intersection Capacity Utilization 90.9%		ICU Level of Service E	

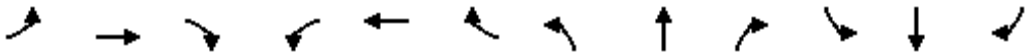
Analysis Period (min) 15

~ 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.

Splits and Phases: 26: Trafalgar Road & Local 6

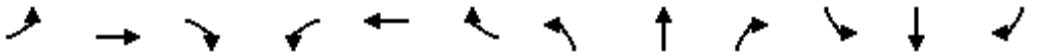




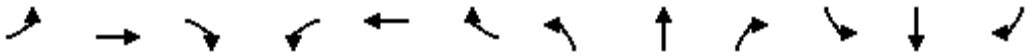
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	7	22	83	3	83	23	2386	19	57	2139	30
Future Volume (vph)	79	7	22	83	3	83	23	2386	19	57	2139	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		4.0	6.4		4.0	6.4	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.89		1.00	0.85		1.00	1.00		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)	1742	1605		1742	1537		1750	3495		1750	3491	
Flt Permitted	0.70	1.00		0.74	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1276	1605		1350	1537		1750	3495		1750	3491	
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)	88	8	24	92	3	92	26	2651	21	63	2377	33
RTOR Reduction (vph)	0	21	0	0	79	0	0	0	0	0	1	0
Lane Group Flow (vph)	88	11	0	92	16	0	26	2672	0	63	2409	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	15.2	15.2		15.2	15.2		2.6	68.7		5.6	71.7	
Effective Green, g (s)	15.2	15.2		15.2	15.2		2.6	68.7		5.6	71.7	
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.02	0.65		0.05	0.67	
Clearance Time (s)	6.5	6.5		6.5	6.5		4.0	6.4		4.0	6.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	182	229		192	219		42	2256		92	2352	
v/s Ratio Prot		0.01			0.01		0.01	c0.76		c0.04	c0.69	
v/s Ratio Perm	c0.07			0.07								
v/c Ratio	0.48	0.05		0.48	0.07		0.62	1.18		0.68	1.02	
Uniform Delay, d1	42.0	39.4		42.0	39.5		51.4	18.9		49.5	17.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.0	0.1		1.9	0.1		24.2	87.8		19.0	25.1	
Delay (s)	44.0	39.5		43.8	39.6		75.6	106.6		68.6	42.4	
Level of Service	D	D		D	D		E	F		E	D	
Approach Delay (s)		42.8			41.7			106.3			43.1	
Approach LOS		D			D			F			D	

Intersection Summary			
HCM 2000 Control Delay	74.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	106.4	Sum of lost time (s)	16.9
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	153	112	197	257	126	59	89	2216	179	100	2025	119
Future Volume (vph)	153	112	197	257	126	59	89	2216	179	100	2025	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		40.0	85.0		30.0	90.0		40.0	70.0		30.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.98	1.00		0.98	1.00		0.96	1.00		0.96
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	1842	1566	1750	1842	1566	1750	3500	1566	1750	3500	1566
Flt Permitted	0.668			0.555			0.950			0.950		
Satd. Flow (perm)	1225	1842	1532	1018	1842	1534	1749	3500	1511	1749	3500	1511
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			141			67			105			105
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		219.8			129.6			268.7			259.2	
Travel Time (s)		15.8			9.3			16.1			15.6	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	170	124	219	286	140	66	99	2462	199	111	2250	132
Shared Lane Traffic (%)												
Lane Group Flow (vph)	170	124	219	286	140	66	99	2462	199	111	2250	132
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Detector Phase	4	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	38.5	38.5	38.5	11.0	38.5	38.5	11.0	33.4	33.4	11.0	33.4	33.4
Total Split (s)	39.0	39.0	39.0	11.0	50.0	50.0	11.0	59.0	59.0	11.0	59.0	59.0
Total Split (%)	32.5%	32.5%	32.5%	9.2%	41.7%	41.7%	9.2%	49.2%	49.2%	9.2%	49.2%	49.2%
Maximum Green (s)	32.5	32.5	32.5	7.0	43.5	43.5	7.0	52.6	52.6	7.0	52.6	52.6
Yellow Time (s)	3.3	3.3	3.3	3.0	3.3	3.3	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	3.2	3.2	3.2	1.0	3.2	3.2	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)	25.0	25.0	25.0		25.0	25.0		20.0	20.0		20.0	20.0
Pedestrian Calls (#/hr)	5	5	5		5	5		5	5		5	5
Act Effct Green (s)	22.2	22.2	22.2	35.7	33.2	33.2	12.1	56.3	56.3	13.6	57.9	57.9
Actuated g/C Ratio	0.18	0.18	0.18	0.30	0.28	0.28	0.10	0.47	0.47	0.11	0.48	0.48
v/c Ratio	0.75	0.36	0.55	0.83	0.28	0.14	0.56	1.50	0.26	0.56	1.33	0.17
Control Delay	65.6	44.0	20.5	56.9	33.8	6.9	65.0	255.0	10.6	63.0	182.8	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.6	44.0	20.5	56.9	33.8	6.9	65.0	255.0	10.6	63.0	182.8	6.3
LOS	E	D	C	E	C	A	E	F	B	E	F	A
Approach Delay		41.1			43.7			230.5			168.1	
Approach LOS		D			D			F			F	
Queue Length 50th (m)	38.3	25.8	16.0	56.7	25.9	0.0	22.1	~429.9	12.6	24.6	~370.0	3.4
Queue Length 95th (m)	56.6	39.3	36.2	73.6	37.9	9.0	#56.5	#477.3	28.6	#63.9	#423.4	14.9
Internal Link Dist (m)		195.8			105.6			244.7			235.2	
Turn Bay Length (m)	60.0		40.0	85.0		30.0	90.0		40.0	70.0		30.0
Base Capacity (vph)	331	498	517	345	667	598	176	1643	765	198	1687	782
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.25	0.42	0.83	0.21	0.11	0.56	1.50	0.26	0.56	1.33	0.17

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 11 (9%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.50	
Intersection Signal Delay: 175.5	Intersection LOS: F

Intersection Capacity Utilization 109.9% ICU Level of Service H

Analysis Period (min) 15

~ 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.

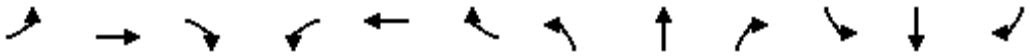
Splits and Phases: 27: Trafalgar Road & Settlers Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	153	112	197	257	126	59	89	2216	179	100	2025	119
Future Volume (vph)	153	112	197	257	126	59	89	2216	179	100	2025	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.97	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	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1742	1842	1529	1746	1842	1532	1750	3500	1511	1750	3500	1511
Flt Permitted	0.67	1.00	1.00	0.55	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1224	1842	1529	1020	1842	1532	1750	3500	1511	1750	3500	1511
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)	170	124	219	286	140	66	99	2462	199	111	2250	132
RTOR Reduction (vph)	0	0	115	0	0	48	0	0	56	0	0	54
Lane Group Flow (vph)	170	124	104	286	140	18	99	2462	143	111	2250	78
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Actuated Green, G (s)	22.2	22.2	22.2	33.2	33.2	33.2	12.1	56.3	56.3	13.6	57.8	57.8
Effective Green, g (s)	22.2	22.2	22.2	33.2	33.2	33.2	12.1	56.3	56.3	13.6	57.8	57.8
Actuated g/C Ratio	0.18	0.18	0.18	0.28	0.28	0.28	0.10	0.47	0.47	0.11	0.48	0.48
Clearance Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	226	340	282	324	509	423	176	1642	708	198	1685	727
v/s Ratio Prot		0.07		c0.05	0.08		0.06	c0.70		c0.06	0.64	
v/s Ratio Perm	0.14		0.07	c0.19		0.01			0.09			0.05
v/c Ratio	0.75	0.36	0.37	0.88	0.28	0.04	0.56	1.50	0.20	0.56	1.34	0.11
Uniform Delay, d1	46.3	42.7	42.8	41.4	34.0	31.8	51.4	31.9	18.7	50.4	31.1	17.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	13.2	0.7	0.8	23.4	0.3	0.0	4.1	228.0	0.6	3.6	155.0	0.3
Delay (s)	59.5	43.4	43.6	64.8	34.3	31.8	55.5	259.8	19.3	54.0	186.1	17.3
Level of Service	E	D	D	E	C	C	E	F	B	D	F	B
Approach Delay (s)		48.8			51.7			235.2			171.3	
Approach LOS		D			D			F			F	

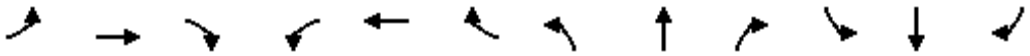
Intersection Summary			
HCM 2000 Control Delay	180.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.9
Intersection Capacity Utilization	109.9%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	134	40	145	116	29	33	121	143	31	90	8
Future Volume (vph)	5	134	40	145	116	29	33	121	143	31	90	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.970			0.987			0.935			0.992	
Flt Protected		0.998			0.976			0.994			0.988	
Satd. Flow (prot)	0	1783	0	0	1774	0	0	1712	0	0	1805	0
Flt Permitted		0.998			0.976			0.994			0.988	
Satd. Flow (perm)	0	1783	0	0	1774	0	0	1712	0	0	1805	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		249.4			219.8			429.8			477.1	
Travel Time (s)		18.0			15.8			30.9			34.4	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	6	149	44	161	129	32	37	134	159	34	100	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	199	0	0	322	0	0	330	0	0	143	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
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												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	5	134	40	145	116	29	33	121	143	31	90	8
Future Volume (vph)	5	134	40	145	116	29	33	121	143	31	90	8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	149	44	161	129	32	37	134	159	34	100	9

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	199	322	330	143
Volume Left (vph)	6	161	37	34
Volume Right (vph)	44	32	159	9
Hadj (s)	-0.09	0.07	-0.23	0.04
Departure Headway (s)	5.8	5.7	5.5	6.1
Degree Utilization, x	0.32	0.51	0.50	0.24
Capacity (veh/h)	555	588	608	505
Control Delay (s)	11.5	14.6	13.9	11.0
Approach Delay (s)	11.5	14.6	13.9	11.0
Approach LOS	B	B	B	B

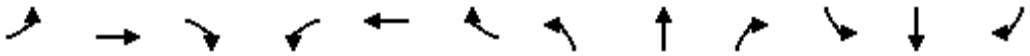
Intersection Summary				
Delay	13.2			
Level of Service	B			
Intersection Capacity Utilization	55.6%	ICU Level of Service	B	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	13.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	134	40	145	116	29	33	121	143	31	90	8
Future Vol, veh/h	5	134	40	145	116	29	33	121	143	31	90	8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	149	44	161	129	32	37	134	159	34	100	9
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

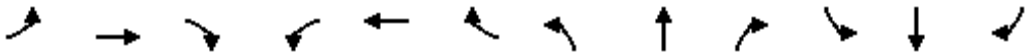
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	11.5	14.5	13.8	11
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	3%	50%	24%
Vol Thru, %	41%	75%	40%	70%
Vol Right, %	48%	22%	10%	6%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	297	179	290	129
LT Vol	33	5	145	31
Through Vol	121	134	116	90
RT Vol	143	40	29	8
Lane Flow Rate	330	199	322	143
Geometry Grp	1	1	1	1
Degree of Util (X)	0.497	0.317	0.508	0.24
Departure Headway (Hd)	5.424	5.733	5.673	6.036
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	660	623	632	591
Service Time	3.492	3.81	3.74	4.121
HCM Lane V/C Ratio	0.5	0.319	0.509	0.242
HCM Control Delay	13.8	11.5	14.5	11
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	2.8	1.4	2.9	0.9



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	304	50	21	278	8	35	165	49	17	152	125
Future Volume (vph)	38	304	50	21	278	8	35	165	49	17	152	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.983			0.996			0.974			0.943	
Flt Protected		0.995			0.997			0.993			0.997	
Satd. Flow (prot)	0	1802	0	0	1829	0	0	1782	0	0	1732	0
Flt Permitted		0.995			0.997			0.993			0.997	
Satd. Flow (perm)	0	1802	0	0	1829	0	0	1782	0	0	1732	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		129.6			125.1			416.4			492.2	
Travel Time (s)		9.3			9.0			30.0			35.4	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	42	338	56	23	309	9	39	183	54	19	169	139
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	436	0	0	341	0	0	276	0	0	327	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	60.9%	ICU Level of Service	B
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)	38	304	50	21	278	8	35	165	49	17	152	125
Future Volume (vph)	38	304	50	21	278	8	35	165	49	17	152	125
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	42	338	56	23	309	9	39	183	54	19	169	139

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	436	341	276	327
Volume Left (vph)	42	23	39	19
Volume Right (vph)	56	9	54	139
Hadj (s)	-0.02	0.03	-0.06	-0.21
Departure Headway (s)	7.5	7.8	8.1	7.8
Degree Utilization, x	0.91	0.74	0.62	0.71
Capacity (veh/h)	436	427	402	435
Control Delay (s)	48.6	30.3	23.5	27.3
Approach Delay (s)	48.6	30.3	23.5	27.3
Approach LOS	E	D	C	D

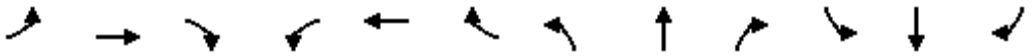
Intersection Summary				
Delay	34.0			
Level of Service	D			
Intersection Capacity Utilization	60.9%	ICU Level of Service	B	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	33.3
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	38	304	50	21	278	8	35	165	49	17	152	125
Future Vol, veh/h	38	304	50	21	278	8	35	165	49	17	152	125
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	42	338	56	23	309	9	39	183	54	19	169	139
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

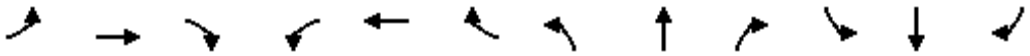
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	47.2	29.7	23.3	26.8
HCM LOS	E	D	C	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	10%	7%	6%
Vol Thru, %	66%	78%	91%	52%
Vol Right, %	20%	13%	3%	43%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	249	392	307	294
LT Vol	35	38	21	17
Through Vol	165	304	278	152
RT Vol	49	50	8	125
Lane Flow Rate	277	436	341	327
Geometry Grp	1	1	1	1
Degree of Util (X)	0.616	0.898	0.736	0.698
Departure Headway (Hd)	8.02	7.419	7.763	7.69
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	448	488	464	467
Service Time	6.109	5.493	5.844	5.771
HCM Lane V/C Ratio	0.618	0.893	0.735	0.7
HCM Control Delay	23.3	47.2	29.7	26.8
HCM Lane LOS	C	E	D	D
HCM 95th-tile Q	4	10	6	5.3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	320	12	10	191	53	34	62	28	42	82	95
Future Volume (vph)	38	320	12	10	191	53	34	62	28	42	82	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.996			0.972			0.970			0.941	
Flt Protected		0.995			0.998			0.986			0.990	
Satd. Flow (prot)	0	1826	0	0	1787	0	0	1762	0	0	1716	0
Flt Permitted		0.995			0.998			0.986			0.990	
Satd. Flow (perm)	0	1826	0	0	1787	0	0	1762	0	0	1716	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		125.1			190.9			160.4			138.9	
Travel Time (s)		9.0			13.7			11.5			10.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	42	356	13	11	212	59	38	69	31	47	91	106
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	411	0	0	282	0	0	138	0	0	244	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 54.9%		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)	38	320	12	10	191	53	34	62	28	42	82	95
Future Volume (vph)	38	320	12	10	191	53	34	62	28	42	82	95
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	42	356	13	11	212	59	38	69	31	47	91	106

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	411	282	138	244
Volume Left (vph)	42	11	38	47
Volume Right (vph)	13	59	31	106
Hadj (s)	0.04	-0.08	-0.05	-0.19
Departure Headway (s)	5.7	5.8	6.4	6.0
Degree Utilization, x	0.65	0.45	0.25	0.41
Capacity (veh/h)	606	564	473	524
Control Delay (s)	18.6	13.5	11.5	13.1
Approach Delay (s)	18.6	13.5	11.5	13.1
Approach LOS	C	B	B	B

Intersection Summary				
Delay	15.1			
Level of Service	C			
Intersection Capacity Utilization	54.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	14.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	38	320	12	10	191	53	34	62	28	42	82	95
Future Vol, veh/h	38	320	12	10	191	53	34	62	28	42	82	95
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	42	356	13	11	212	59	38	69	31	47	91	106
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	18.2	13.4	11.5	13.1
HCM LOS	C	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	27%	10%	4%	19%
Vol Thru, %	50%	86%	75%	37%
Vol Right, %	23%	3%	21%	43%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	124	370	254	219
LT Vol	34	38	10	42
Through Vol	62	320	191	82
RT Vol	28	12	53	95
Lane Flow Rate	138	411	282	243
Geometry Grp	1	1	1	1
Degree of Util (X)	0.245	0.638	0.446	0.407
Departure Headway (Hd)	6.412	5.686	5.798	6.023
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	562	641	627	601
Service Time	4.423	3.686	3.798	4.023
HCM Lane V/C Ratio	0.246	0.641	0.45	0.404
HCM Control Delay	11.5	18.2	13.4	13.1
HCM Lane LOS	B	C	B	B
HCM 95th-tile Q	1	4.6	2.3	2



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	34	2450	55	0	2475
Future Volume (vph)	0	34	2450	55	0	2475
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Ped Bike Factor						
Frt		0.865	0.997			
Flt Protected						
Satd. Flow (prot)	0	1593	3489	0	0	3500
Flt Permitted						
Satd. Flow (perm)	0	1593	3489	0	0	3500
Link Speed (k/h)	50		60			60
Link Distance (m)	74.3		148.7			268.7
Travel Time (s)	5.3		8.9			16.1
Confl. Peds. (#/hr)	5	5		5	5	
Confl. Bikes (#/hr)		5		5		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	38	2722	61	0	2750
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	38	2783	0	0	2750
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		3.5			3.5
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

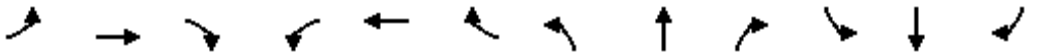
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		



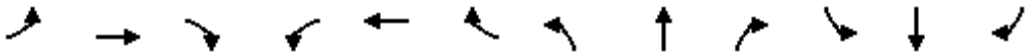
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	34	2450	55	0	2475
Future Volume (Veh/h)	0	34	2450	55	0	2475
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	38	2722	61	0	2750
Pedestrians	5		5			5
Lane Width (m)	3.5		3.5			3.5
Walking Speed (m/s)	1.0		1.0			1.0
Percent Blockage	0		0			0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			149			269
pX, platoon unblocked	0.74	0.51			0.51	
vC, conflicting volume	4138	1402			2788	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1679	0			2582	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	93			100	
cM capacity (veh/h)	63	544			84	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	38	1815	968	1375	1375
Volume Left	0	0	0	0	0
Volume Right	38	0	61	0	0
cSH	544	1700	1700	1700	1700
Volume to Capacity	0.07	1.07	0.57	0.81	0.81
Queue Length 95th (m)	1.7	0.0	0.0	0.0	0.0
Control Delay (s)	12.1	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	12.1	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	69	267	281	111	53	235	2419	67	96	2368	20
Future Volume (vph)	33	69	267	281	111	53	235	2419	67	96	2368	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		50.0	90.0		30.0	120.0		30.0	30.0		30.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.98	1.00		0.98	1.00		0.96	1.00		0.96
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	1842	1566	1750	1842	1566	1750	3500	1566	1750	3500	1566
Flt Permitted	0.678			0.578			0.950			0.950		
Satd. Flow (perm)	1243	1842	1532	1060	1842	1534	1749	3500	1511	1749	3500	1510
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			144			67			105			105
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		193.0			130.2			1233.0			148.7	
Travel Time (s)		13.9			9.4			74.0			8.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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	77	297	312	123	59	261	2688	74	107	2631	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	37	77	297	312	123	59	261	2688	74	107	2631	22
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Detector Phase	4	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	38.5	38.5	38.5	11.0	38.5	38.5	11.0	33.4	33.4	11.0	33.4	33.4
Total Split (s)	39.0	39.0	39.0	11.0	50.0	50.0	14.0	59.0	59.0	11.0	56.0	56.0
Total Split (%)	32.5%	32.5%	32.5%	9.2%	41.7%	41.7%	11.7%	49.2%	49.2%	9.2%	46.7%	46.7%
Maximum Green (s)	32.5	32.5	32.5	7.0	43.5	43.5	10.0	52.6	52.6	7.0	49.6	49.6
Yellow Time (s)	3.3	3.3	3.3	3.0	3.3	3.3	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	3.2	3.2	3.2	1.0	3.2	3.2	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)	25.0	25.0	25.0		25.0	25.0		20.0	20.0		20.0	20.0
Pedestrian Calls (#/hr)	5	5	5		5	5		5	5		5	5
Act Effct Green (s)	17.9	17.9	17.9	31.4	28.9	28.9	10.1	52.9	52.9	7.0	49.9	49.9
Actuated g/C Ratio	0.17	0.17	0.17	0.30	0.27	0.27	0.10	0.50	0.50	0.07	0.47	0.47
v/c Ratio	0.18	0.25	0.79	0.87	0.24	0.13	1.57	1.54	0.09	0.92	1.60	0.03
Control Delay	38.0	38.8	36.0	57.1	30.4	6.0	318.7	269.4	1.8	116.9	296.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.0	38.8	36.0	57.1	30.4	6.0	318.7	269.4	1.8	116.9	296.0	0.1
LOS	D	D	D	E	C	A	F	F	A	F	F	A
Approach Delay		36.7			44.3			267.1			286.7	
Approach LOS		D			D			F			F	
Queue Length 50th (m)	6.6	13.8	30.4	54.5	19.6	0.0	~74.6	~400.2	0.0	21.9	~398.8	0.0
Queue Length 95th (m)	15.3	26.1	59.4	80.4	33.6	7.4	#142.8	#531.4	4.2	#62.8	#528.6	0.0
Internal Link Dist (m)		169.0			106.2			1209.0			124.7	
Turn Bay Length (m)	30.0		50.0	90.0		30.0	120.0		30.0	30.0		30.0
Base Capacity (vph)	383	568	572	360	761	673	166	1749	807	116	1649	766
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.14	0.52	0.87	0.16	0.09	1.57	1.54	0.09	0.92	1.60	0.03

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 105.8			
Natural Cycle: 145			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.60			
Intersection Signal Delay: 244.6		Intersection LOS: F	
Intersection Capacity Utilization 115.5%		ICU Level of Service H	

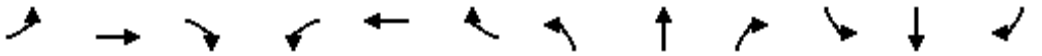
Analysis Period (min) 15

~ 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.

Splits and Phases: 32: Trafalgar Road & Marvin Avenue

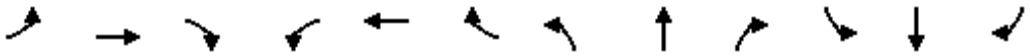




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	69	267	281	111	53	235	2419	67	96	2368	20
Future Volume (vph)	33	69	267	281	111	53	235	2419	67	96	2368	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.97	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	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1743	1842	1529	1746	1842	1533	1750	3500	1514	1750	3500	1513
Flt Permitted	0.68	1.00	1.00	0.58	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1244	1842	1529	1062	1842	1533	1750	3500	1514	1750	3500	1513
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	77	297	312	123	59	261	2688	74	107	2631	22
RTOR Reduction (vph)	0	0	120	0	0	43	0	0	37	0	0	12
Lane Group Flow (vph)	37	77	177	312	123	16	261	2688	37	107	2631	10
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Actuated Green, G (s)	17.9	17.9	17.9	28.9	28.9	28.9	10.1	53.0	53.0	7.0	49.9	49.9
Effective Green, g (s)	17.9	17.9	17.9	28.9	28.9	28.9	10.1	53.0	53.0	7.0	49.9	49.9
Actuated g/C Ratio	0.17	0.17	0.17	0.27	0.27	0.27	0.10	0.50	0.50	0.07	0.47	0.47
Clearance Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	210	311	258	335	503	418	167	1753	758	115	1650	713
v/s Ratio Prot		0.04		c0.06	0.07		c0.15	c0.77		0.06	0.75	
v/s Ratio Perm	0.03		0.12	c0.19		0.01			0.02			0.01
v/c Ratio	0.18	0.25	0.69	0.93	0.24	0.04	1.56	1.53	0.05	0.93	1.59	0.01
Uniform Delay, d1	37.6	38.1	41.3	37.3	29.9	28.2	47.9	26.4	13.5	49.2	27.9	14.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.4	7.4	31.9	0.3	0.0	280.3	242.9	0.1	62.2	270.4	0.0
Delay (s)	38.0	38.5	48.7	69.1	30.2	28.3	328.2	269.3	13.6	111.4	298.4	14.9
Level of Service	D	D	D	E	C	C	F	F	B	F	F	B
Approach Delay (s)		45.9			54.6			268.2			288.9	
Approach LOS		D			D			F			F	

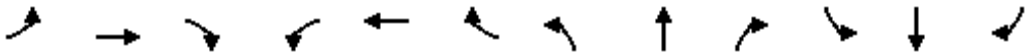
Intersection Summary			
HCM 2000 Control Delay	247.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.42		
Actuated Cycle Length (s)	105.8	Sum of lost time (s)	20.9
Intersection Capacity Utilization	115.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	81	9	8	184	185	20	45	3	205	47	33
Future Volume (vph)	13	81	9	8	184	185	20	45	3	205	47	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.988			0.934			0.995			0.984	
Flt Protected		0.994			0.999			0.986			0.965	
Satd. Flow (prot)	0	1809	0	0	1719	0	0	1807	0	0	1749	0
Flt Permitted		0.994			0.999			0.986			0.965	
Satd. Flow (perm)	0	1809	0	0	1719	0	0	1807	0	0	1749	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		207.5			193.0			213.8			429.8	
Travel Time (s)		14.9			13.9			15.4			30.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	14	90	10	9	204	206	22	50	3	228	52	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	114	0	0	419	0	0	75	0	0	317	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
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												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	13	81	9	8	184	185	20	45	3	205	47	33
Future Volume (vph)	13	81	9	8	184	185	20	45	3	205	47	33
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	14	90	10	9	204	206	22	50	3	228	52	37

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	114	419	75	317
Volume Left (vph)	14	9	22	228
Volume Right (vph)	10	206	3	37
Hadj (s)	0.01	-0.26	0.07	0.11
Departure Headway (s)	5.7	5.0	6.0	5.6
Degree Utilization, x	0.18	0.58	0.12	0.49
Capacity (veh/h)	562	687	517	606
Control Delay (s)	10.0	14.7	9.8	13.8
Approach Delay (s)	10.0	14.7	9.8	13.8
Approach LOS	A	B	A	B

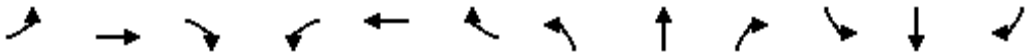
Intersection Summary				
Delay	13.4			
Level of Service	B			
Intersection Capacity Utilization	51.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	13.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	81	9	8	184	185	20	45	3	205	47	33
Future Vol, veh/h	13	81	9	8	184	185	20	45	3	205	47	33
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	90	10	9	204	206	22	50	3	228	52	37
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

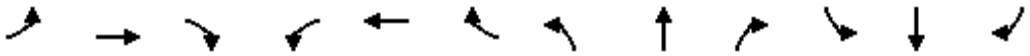
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10	14.6	9.9	13.8
HCM LOS	A	B	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	29%	13%	2%	72%
Vol Thru, %	66%	79%	49%	16%
Vol Right, %	4%	9%	49%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	68	103	377	285
LT Vol	20	13	8	205
Through Vol	45	81	184	47
RT Vol	3	9	185	33
Lane Flow Rate	76	114	419	317
Geometry Grp	1	1	1	1
Degree of Util (X)	0.125	0.181	0.578	0.488
Departure Headway (Hd)	5.944	5.684	4.97	5.543
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	601	629	725	649
Service Time	4	3.736	3.01	3.583
HCM Lane V/C Ratio	0.126	0.181	0.578	0.488
HCM Control Delay	9.9	10	14.6	13.8
HCM Lane LOS	A	A	B	B
HCM 95th-tile Q	0.4	0.7	3.7	2.7



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	44	106	138	105	7	47	92	52	20	140	257
Future Volume (vph)	70	44	106	138	105	7	47	92	52	20	140	257
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.935			0.996			0.963			0.917	
Flt Protected		0.984			0.973			0.988			0.998	
Satd. Flow (prot)	0	1695	0	0	1785	0	0	1753	0	0	1686	0
Flt Permitted		0.984			0.973			0.988			0.998	
Satd. Flow (perm)	0	1695	0	0	1785	0	0	1753	0	0	1686	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		130.2			198.3			214.8			416.4	
Travel Time (s)		9.4			14.3			15.5			30.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	78	49	118	153	117	8	52	102	58	22	156	286
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	245	0	0	278	0	0	212	0	0	464	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.0%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	70	44	106	138	105	7	47	92	52	20	140	257
Future Volume (vph)	70	44	106	138	105	7	47	92	52	20	140	257
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	78	49	118	153	117	8	52	102	58	22	156	286

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	245	278	212	464
Volume Left (vph)	78	153	52	22
Volume Right (vph)	118	8	58	286
Hadj (s)	-0.19	0.13	-0.08	-0.33
Departure Headway (s)	6.5	6.7	6.6	5.8
Degree Utilization, x	0.44	0.52	0.39	0.75
Capacity (veh/h)	482	478	461	581
Control Delay (s)	14.7	16.8	13.8	24.4
Approach Delay (s)	14.7	16.8	13.8	24.4
Approach LOS	B	C	B	C

Intersection Summary				
Delay	18.8			
Level of Service	C			
Intersection Capacity Utilization	58.0%	ICU Level of Service	B	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	18.5
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	70	44	106	138	105	7	47	92	52	20	140	257
Future Vol, veh/h	70	44	106	138	105	7	47	92	52	20	140	257
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	78	49	118	153	117	8	52	102	58	22	156	286
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	14.6	16.7	13.7	23.9
HCM LOS	B	C	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	25%	32%	55%	5%
Vol Thru, %	48%	20%	42%	34%
Vol Right, %	27%	48%	3%	62%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	191	220	250	417
LT Vol	47	70	138	20
Through Vol	92	44	105	140
RT Vol	52	106	7	257
Lane Flow Rate	212	244	278	463
Geometry Grp	1	1	1	1
Degree of Util (X)	0.386	0.439	0.515	0.745
Departure Headway (Hd)	6.545	6.47	6.678	5.787
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	548	552	536	621
Service Time	4.623	4.547	4.752	3.846
HCM Lane V/C Ratio	0.387	0.442	0.519	0.746
HCM Control Delay	13.7	14.6	16.7	23.9
HCM Lane LOS	B	B	C	C
HCM 95th-tile Q	1.8	2.2	2.9	6.6

MOVEMENT SUMMARY

Site: [101] Sixth Line & William Halton Parkway (General)

Output produced by SIDRA INTERSECTION Version: 10.0.8.241

2041 Future Total AM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Sixth Line															
1	L2	All MCs	48	2.0	48	2.0	0.709	38.4	LOS E	2.9	21.0	0.90	1.06	1.58	35.4
2	T1	All MCs	416	2.0	416	2.0	0.709	36.9	LOS E	2.9	21.0	0.89	1.06	1.58	36.6
3	R2	All MCs	247	2.0	247	2.0	0.130	4.2	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			710	2.0	710	2.0	0.709	25.7	LOS D	2.9	21.0	0.58	0.69	1.03	41.5
East: William Halton Parkway															
4	L2	All MCs	91	2.0	91	2.0	0.446	12.5	LOS B	1.9	13.6	0.60	0.67	0.87	46.2
5	T1	All MCs	478	2.0	478	2.0	0.446	12.2	LOS B	1.9	13.6	0.58	0.65	0.86	47.8
6	R2	All MCs	209	2.0	209	2.0	0.110	3.4	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			778	2.0	778	2.0	0.446	9.9	LOS A	1.9	13.6	0.43	0.48	0.63	49.6
North: Sixth Line															
7	L2	All MCs	969	2.0	969	2.0	1.352	183.4	LOS F	90.2	642.1	1.00	4.58	11.85	18.1
8	T1	All MCs	351	2.0	351	2.0	0.506	12.8	LOS B	2.6	18.7	0.60	0.66	0.94	47.9
9	R2	All MCs	383	2.0	383	2.0	0.202	4.5	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			1703	2.0	1703	2.0	1.352	108.0	LOS F	90.2	642.1	0.69	2.74	6.93	24.9
West: William Halton Parkway															
10	L2	All MCs	310	2.0	310	2.0	1.059	87.2	LOS F	18.8	134.0	1.00	2.13	5.16	25.2
11	T1	All MCs	689	2.0	689	2.0	1.059	85.6	LOS F	19.6	139.4	1.00	2.16	5.29	26.0
12	R2	All MCs	106	2.0	106	2.0	0.056	3.0	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			1104	2.0	1104	2.0	1.059	78.1	LOS F	19.6	139.4	0.90	1.94	4.75	27.1
All Vehicles			4296	2.0	4296	2.0	1.352	68.9	LOS F	90.2	642.1	0.68	1.79	4.26	30.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [101] Ninth Line & William Halton Parkway (General)
Output produced by SIDRA INTERSECTION Version: 10.0.8.241

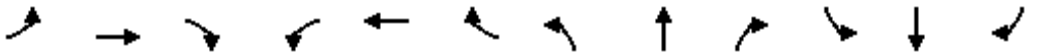
2041 Future Total AM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

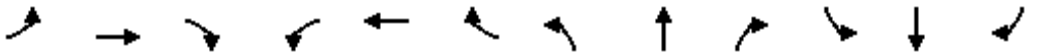
Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Ninth Line															
1	L2	All MCs	322	23.0	322	23.0	1.221	160.6	LOS F	25.6	209.8	1.00	3.07	8.56	19.4
2	T1	All MCs	434	2.0	434	2.0	1.221	147.7	LOS F	34.4	245.7	1.00	3.08	9.00	20.5
3	R2	All MCs	122	3.0	122	3.0	1.221	157.6	LOS F	34.4	245.7	1.00	3.08	9.06	20.6
Approach			879	9.8	879	9.8	1.221	153.8	LOS F	34.4	245.7	1.00	3.07	8.84	20.1
East: William Halton Parkway															
4	L2	All MCs	131	2.0	131	2.0	1.182	117.6	LOS F	48.3	345.9	1.00	3.25	8.15	22.5
5	T1	All MCs	1285	3.0	1285	3.0	1.182	117.3	LOS F	49.6	356.5	1.00	3.29	8.27	22.7
6	R2	All MCs	118	4.0	118	4.0	1.182	117.0	LOS F	49.6	356.5	1.00	3.33	8.38	22.6
Approach			1535	3.0	1535	3.0	1.182	117.3	LOS F	49.6	356.5	1.00	3.29	8.27	22.7
North: Ninth Line															
7	L2	All MCs	247	2.0	247	2.0	1.411	228.4	LOS F	49.3	351.3	1.00	3.76	11.96	17.1
8	T1	All MCs	780	2.0	780	2.0	1.411	226.6	LOS F	53.0	377.4	1.00	3.91	12.53	17.2
9	R2	All MCs	115	2.0	115	2.0	0.060	3.5	LOS A	0.0	0.0	0.00	0.00	0.00	56.4
Approach			1142	2.0	1142	2.0	1.411	204.6	LOS F	53.0	377.4	0.90	3.48	11.15	18.4
West: William Halton Parkway															
10	L2	All MCs	143	4.0	143	4.0	2.317	612.1	LOS F	257.9	1839.5	1.00	8.26	25.26	12.0
11	T1	All MCs	2254	2.0	2254	2.0	2.317	488.5	LOS F	257.9	1839.5	1.00	7.23	21.82	13.3
12	R2	All MCs	607	12.0	607	12.0	0.342	7.2	LOS A	0.0	0.0	0.00	0.00	0.00	56.1
Approach			3003	4.1	3003	4.1	2.317	397.2	LOS F	257.9	1839.5	0.80	5.81	17.58	15.5
All Vehicles			6558	4.3	6558	4.3	2.317	265.6	LOS F	257.9	1839.5	0.89	4.45	13.11	17.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	694	777	187	396	954	1013	289	1899	273	569	2080	542
Future Volume (vph)	694	777	187	396	954	1013	289	1899	273	569	2080	542
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	220.0		80.0	100.0		205.0	120.0		70.0	180.0		80.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor							1.00					0.99
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	3500	1566	3330	3500	1566	3395	3500	1536	3267	3500	1566
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3395	3500	1566	3330	3500	1566	3395	3500	1536	3267	3500	1545
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			127			129			120			201
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		207.8			119.4			182.8			224.9	
Travel Time (s)		12.5			7.2			11.0			13.5	
Confl. Peds. (#/hr)							1					1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	4%	2%	2%	2%	2%	4%	6%	2%	2%
Adj. Flow (vph)	746	835	201	426	1026	1089	311	2042	294	612	2237	583
Shared Lane Traffic (%)												
Lane Group Flow (vph)	746	835	201	426	1026	1089	311	2042	294	612	2237	583
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	11.0	48.4	48.4	11.0	48.4	48.4	11.0	45.4	45.4	11.0	44.4	44.4
Total Split (s)	15.0	50.0	50.0	21.0	56.0	56.0	12.0	55.0	55.0	14.0	57.0	57.0
Total Split (%)	10.7%	35.7%	35.7%	15.0%	40.0%	40.0%	8.6%	39.3%	39.3%	10.0%	40.7%	40.7%
Maximum Green (s)	11.0	43.6	43.6	17.0	49.6	49.6	8.0	48.6	48.6	10.0	51.6	51.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	2.7	2.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	5.4	5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		35.0	35.0		35.0	35.0		32.0	32.0		32.0	32.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	11.0	43.6	43.6	17.0	49.6	49.6	8.0	48.6	48.6	10.0	51.6	51.6
Actuated g/C Ratio	0.08	0.31	0.31	0.12	0.35	0.35	0.06	0.35	0.35	0.07	0.37	0.37
v/c Ratio	2.80	0.77	0.35	1.05	0.83	1.71	1.60	1.68	0.48	2.63	1.73	0.84
Control Delay	844.4	49.2	15.7	117.6	48.2	351.7	333.9	340.5	23.4	767.8	363.0	38.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	844.4	49.2	15.7	117.6	48.2	351.7	333.9	340.5	23.4	767.8	363.0	38.0
LOS	F	D	B	F	D	F	F	F	C	F	F	D
Approach Delay		378.3			189.9			304.5			380.0	
Approach LOS		F			F			F			F	
Queue Length 50th (m)	~181.3	110.1	14.8	~66.2	136.0	~421.4	~63.3	~433.6	37.0	~146.6	~481.3	102.7
Queue Length 95th (m)	#220.2	134.4	35.4	#99.4	163.5	#502.4	#93.2	#474.5	64.2	#183.4	#521.2	#162.4
Internal Link Dist (m)		183.8			95.4			158.8			200.9	
Turn Bay Length (m)	220.0		80.0	100.0		205.0	120.0		70.0	180.0		80.0
Base Capacity (vph)	266	1090	575	404	1240	638	194	1215	611	233	1290	696
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.80	0.77	0.35	1.05	0.83	1.71	1.60	1.68	0.48	2.63	1.73	0.84

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 2.80	
Intersection Signal Delay: 314.0	Intersection LOS: F

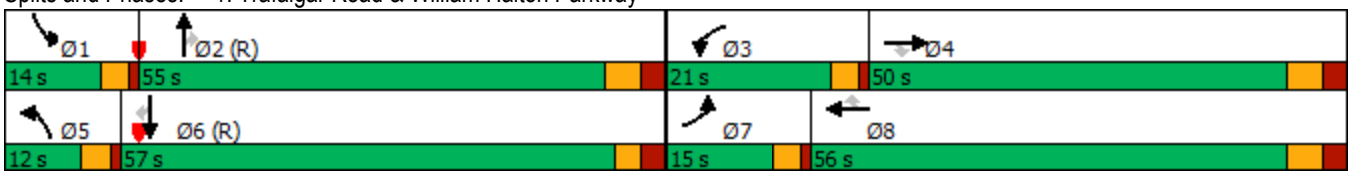
Intersection Capacity Utilization 149.0% ICU Level of Service H

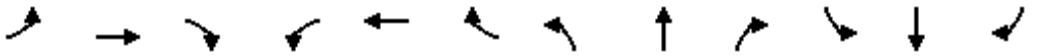
Analysis Period (min) 15

~ 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.

Splits and Phases: 1: Trafalgar Road & William Halton Parkway



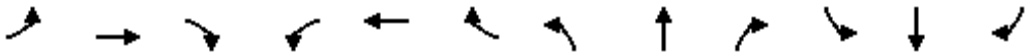


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	694	777	187	396	954	1013	289	1899	273	569	2080	542
Future Volume (vph)	694	777	187	396	954	1013	289	1899	273	569	2080	542
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	5.4	5.4
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	3500	1566	3330	3500	1566	3395	3500	1536	3267	3500	1545
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	3500	1566	3330	3500	1566	3395	3500	1536	3267	3500	1545
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)	746	835	201	426	1026	1089	311	2042	294	612	2237	583
RTOR Reduction (vph)	0	0	87	0	0	83	0	0	78	0	0	127
Lane Group Flow (vph)	746	835	114	426	1026	1006	311	2042	216	612	2237	456
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	2%	2%	2%	4%	2%	2%	2%	2%	4%	6%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	11.0	43.6	43.6	17.0	49.6	49.6	8.0	48.6	48.6	10.0	51.6	51.6
Effective Green, g (s)	11.0	43.6	43.6	17.0	49.6	49.6	8.0	48.6	48.6	10.0	51.6	51.6
Actuated g/C Ratio	0.08	0.31	0.31	0.12	0.35	0.35	0.06	0.35	0.35	0.07	0.37	0.37
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	5.4	5.4
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0
Lane Grp Cap (vph)	266	1090	487	404	1240	554	194	1215	533	233	1290	569
v/s Ratio Prot	c0.22	0.24		0.13	0.29		0.09	0.58		c0.19	c0.64	
v/s Ratio Perm			0.07			c0.64			0.14			0.30
v/c Ratio	2.80	0.77	0.23	1.05	0.83	1.82	1.60	1.68	0.40	2.63	1.73	0.80
Uniform Delay, d1	64.5	43.6	35.8	61.5	41.3	45.2	66.0	45.7	34.7	65.0	44.2	39.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	822.4	3.9	0.5	59.8	5.2	374.0	294.1	309.9	2.3	744.2	333.6	11.3
Delay (s)	886.9	47.4	36.3	121.3	46.5	419.2	360.1	355.6	37.0	809.2	377.8	50.9
Level of Service	F	D	D	F	D	F	F	F	D	F	F	D
Approach Delay (s)		397.6			218.8			320.8			399.2	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	334.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.97		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	149.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	292	344	179	336	382	91	340	2048	191	208	2067	181
Future Volume (vph)	292	344	179	336	382	91	340	2048	191	208	2067	181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		30.0	120.0		30.0	130.0		50.0	170.0		40.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	50.0			50.0			100.0			100.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.971			0.987			0.988	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1668	3500	1566	1750	3398	0	1750	3447	0	1750	3420	0
Flt Permitted	0.252			0.411			0.950			0.950		
Satd. Flow (perm)	443	3500	1566	757	3398	0	1750	3447	0	1750	3420	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			155		25			10			9	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		245.2			123.4			230.0			280.2	
Travel Time (s)		17.7			8.9			13.8			16.8	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Adj. Flow (vph)	307	362	188	354	402	96	358	2156	201	219	2176	191
Shared Lane Traffic (%)												
Lane Group Flow (vph)	307	362	188	354	498	0	358	2357	0	219	2367	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.02	1.01	1.01	1.02	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		Prot	NA	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8								
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	11.0	41.4	41.4	11.0	41.4		11.0	37.3		11.0	37.3	
Total Split (s)	11.0	42.0	42.0	11.0	42.0		15.0	55.0		12.0	52.0	
Total Split (%)	9.2%	35.0%	35.0%	9.2%	35.0%		12.5%	45.8%		10.0%	43.3%	
Maximum Green (s)	7.0	35.6	35.6	7.0	35.6		11.0	48.7		8.0	45.7	
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.0	3.7		3.0	3.7	
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7		1.0	2.6		1.0	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4		4.0	6.3		4.0	6.3	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	5.0		3.0	5.0	
Recall Mode	None	None	None	None	None		None	C-Max		None	C-Max	
Walk Time (s)		7.0	7.0		7.0			7.0			7.0	
Flash Dont Walk (s)		28.0	28.0		28.0			24.0			24.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	31.6	22.2	22.2	31.6	22.2		24.4	48.7		21.4	45.7	
Actuated g/C Ratio	0.26	0.18	0.18	0.26	0.18		0.20	0.41		0.18	0.38	
v/c Ratio	1.63	0.56	0.45	1.38	0.77		1.01	1.68		0.70	1.81	
Control Delay	337.4	47.3	13.4	225.7	52.0		98.2	335.6		60.7	393.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	337.4	47.3	13.4	225.7	52.0		98.2	335.6		60.7	393.5	
LOS	F	D	B	F	D		F	F		E	F	
Approach Delay		143.8			124.2			304.3			365.3	
Approach LOS		F			F			F			F	
Queue Length 50th (m)	~81.2	41.1	6.5	~102.0	56.3		~85.8	~430.1		48.9	~445.6	
Queue Length 95th (m)	#154.2	53.3	25.6	#159.6	70.7		#165.6	#471.5		#98.9	#487.1	
Internal Link Dist (m)		221.2			99.4			206.0			256.2	
Turn Bay Length (m)	100.0		30.0	120.0			130.0			170.0		
Base Capacity (vph)	188	1038	573	257	1025		355	1404		311	1308	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	1.63	0.35	0.33	1.38	0.49		1.01	1.68		0.70	1.81	

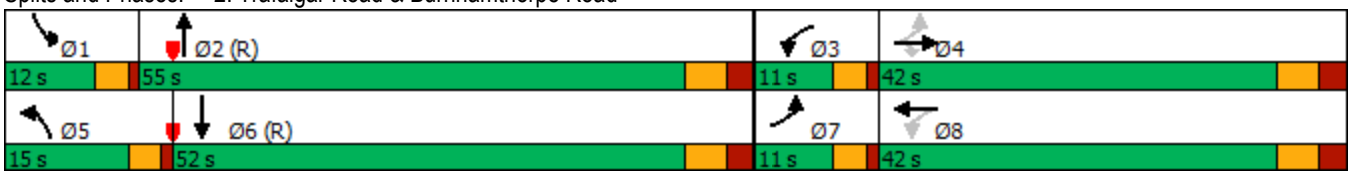
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 145			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.81			
Intersection Signal Delay: 285.3		Intersection LOS: F	
Intersection Capacity Utilization 128.6%		ICU Level of Service H	

Analysis Period (min) 15

~ 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.

Splits and Phases: 2: Trafalgar Road & Burnhamthorpe Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	292	344	179	336	382	91	340	2048	191	208	2067	181
Future Volume (vph)	292	344	179	336	382	91	340	2048	191	208	2067	181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4		4.0	6.3		4.0	6.3	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1668	3500	1566	1750	3399		1750	3448		1750	3420	
Flt Permitted	0.25	1.00	1.00	0.41	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	443	3500	1566	757	3399		1750	3448		1750	3420	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	307	362	188	354	402	96	358	2156	201	219	2176	191
RTOR Reduction (vph)	0	0	126	0	20	0	0	6	0	0	6	0
Lane Group Flow (vph)	307	362	62	354	478	0	358	2351	0	219	2361	0
Heavy Vehicles (%)	7%	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	1	1	0	1	1
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8								
Actuated Green, G (s)	29.2	22.2	22.2	29.2	22.2		24.4	48.7		21.4	45.7	
Effective Green, g (s)	29.2	22.2	22.2	29.2	22.2		24.4	48.7		21.4	45.7	
Actuated g/C Ratio	0.24	0.18	0.18	0.24	0.18		0.20	0.41		0.18	0.38	
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4		4.0	6.3		4.0	6.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	179	647	289	242	628		355	1399		312	1302	
v/s Ratio Prot	c0.10	0.10		0.09	0.14		c0.20	c0.68		0.13	c0.69	
v/s Ratio Perm	c0.32		0.04	0.27								
v/c Ratio	1.72	0.56	0.21	1.46	0.76		1.01	1.68		0.70	1.81	
Uniform Delay, d1	43.3	44.5	41.5	44.2	46.4		47.8	35.6		46.3	37.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	344.3	1.1	0.4	229.6	5.4		49.9	309.4		7.0	369.2	
Delay (s)	387.6	45.5	41.9	273.8	51.8		97.7	345.0		53.3	406.4	
Level of Service	F	D	D	F	D		F	F		D	F	
Approach Delay (s)		167.3			144.0			312.4			376.5	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	297.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.58		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	128.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1076	1	996	1726	0	924
Future Volume (vph)	1076	1	996	1726	0	924
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	140.0		30.0	0.0
Storage Lanes		0	1		1	1
Taper Length (m)			15.0		50.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Frt						0.850
Flt Protected			0.950			
Satd. Flow (prot)	3433	0	1750	3500	1842	1566
Flt Permitted			0.106			
Satd. Flow (perm)	3433	0	195	3500	1842	1566
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						601
Link Speed (k/h)	60			60	50	
Link Distance (m)	657.5			390.6	221.9	
Travel Time (s)	39.5			23.4	16.0	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%
Adj. Flow (vph)	1121	1	1038	1798	0	963
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1122	0	1038	1798	0	963
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2		1	2	1	1
Detector Template	Thru		Left	Thru	Left	Right
Leading Detector (m)	10.0		2.0	10.0	2.0	2.0
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0
Detector 1 Size(m)	0.6		2.0	0.6	2.0	2.0
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0
Detector 2 Position(m)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	3	



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Permitted Phases			6			3
Detector Phase	2		1	6	3	3
Switch Phase						
Minimum Initial (s)	10.0		7.0	10.0	7.0	7.0
Minimum Split (s)	28.4		11.5	28.4	31.0	31.0
Total Split (s)	40.0		45.0	85.0	35.0	35.0
Total Split (%)	33.3%		37.5%	70.8%	29.2%	29.2%
Maximum Green (s)	33.6		41.0	78.6	31.0	31.0
Yellow Time (s)	3.7		3.0	3.7	3.0	3.0
All-Red Time (s)	2.7		1.0	2.7	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.4		4.0	6.4	4.0	4.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Recall Mode	Max		None	None	Max	Max
Walk Time (s)	7.0			7.0	7.0	7.0
Flash Dont Walk (s)	15.0			15.0	20.0	20.0
Pedestrian Calls (#/hr)	0			0	0	0
Act Effct Green (s)	33.6		81.0	78.6		31.0
Actuated g/C Ratio	0.28		0.68	0.66		0.26
v/c Ratio	1.17		1.57	0.78		1.13
Control Delay	125.8		289.6	17.9		90.9
Queue Delay	0.0		0.0	0.0		0.0
Total Delay	125.8		289.6	17.9		90.9
LOS	F		F	B		F
Approach Delay	125.8			117.3	90.9	
Approach LOS	F			F	F	
Queue Length 50th (m)	~165.4		~332.9	145.5		~151.6
Queue Length 95th (m)	#206.6		#411.1	176.0		#229.3
Internal Link Dist (m)	633.5			366.6	197.9	
Turn Bay Length (m)			140.0			
Base Capacity (vph)	961		662	2292		850
Starvation Cap Reductn	0		0	0		0
Spillback Cap Reductn	0		0	0		0
Storage Cap Reductn	0		0	0		0
Reduced v/c Ratio	1.17		1.57	0.78		1.13

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.57			
Intersection Signal Delay: 114.1		Intersection LOS: F	
Intersection Capacity Utilization 95.7%		ICU Level of Service F	
Analysis Period (min) 15			

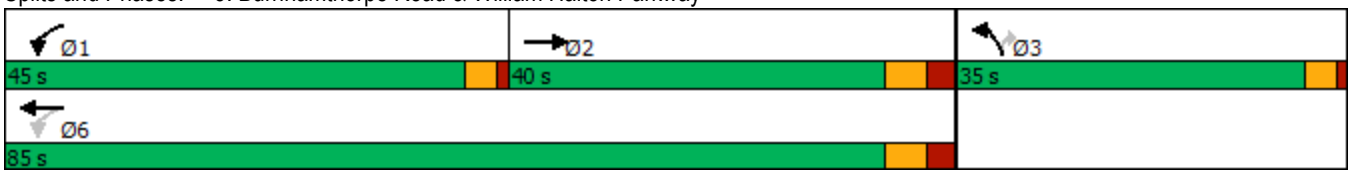
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

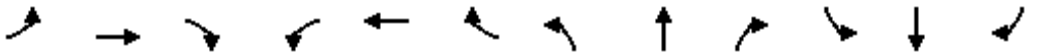
Splits and Phases: 3: Burnhamthorpe Road & William Halton Parkway



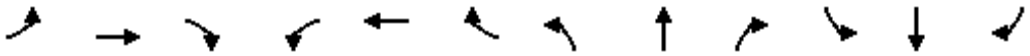


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1076	1	996	1726	0	924
Future Volume (vph)	1076	1	996	1726	0	924
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4		4.0	6.4		4.0
Lane Util. Factor	0.95		1.00	0.95		1.00
Frt	1.00		1.00	1.00		0.85
Flt Protected	1.00		0.95	1.00		1.00
Satd. Flow (prot)	3432		1750	3500		1566
Flt Permitted	1.00		0.11	1.00		1.00
Satd. Flow (perm)	3432		196	3500		1566
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	1121	1	1038	1798	0	962
RTOR Reduction (vph)	0	0	0	0	0	446
Lane Group Flow (vph)	1122	0	1038	1798	0	517
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%
Turn Type	NA		pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	3	
Permitted Phases			6			3
Actuated Green, G (s)	33.6		78.6	78.6		31.0
Effective Green, g (s)	33.6		78.6	78.6		31.0
Actuated g/C Ratio	0.28		0.65	0.65		0.26
Clearance Time (s)	6.4		4.0	6.4		4.0
Vehicle Extension (s)	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	960		659	2292		404
v/s Ratio Prot	0.33		c0.54	0.51		
v/s Ratio Perm			c0.49			c0.33
v/c Ratio	1.17		1.58	0.78		1.28
Uniform Delay, d1	43.2		33.5	14.7		44.5
Progression Factor	1.00		1.00	1.00		1.00
Incremental Delay, d2	87.2		266.1	1.8		144.0
Delay (s)	130.4		299.6	16.5		188.5
Level of Service	F		F	B		F
Approach Delay (s)	130.4			120.1	188.5	
Approach LOS	F			F	F	

Intersection Summary			
HCM 2000 Control Delay	135.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.53		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.4
Intersection Capacity Utilization	95.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	643	1776	208	311	1930	738	341	2172	241	716	1609	523
Future Volume (vph)	643	1776	208	311	1930	738	341	2172	241	716	1609	523
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	190.0		85.0	200.0		290.0	110.0		60.0	280.0		160.0
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3395	3466	1566	3395	3500	1566	3395	3500	1566	3362	3500	1566
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3393	3466	1527	3389	3500	1540	3392	3500	1541	3361	3500	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			120			128			96			140
Link Speed (k/h)		70			70			60			60	
Link Distance (m)		592.0			816.3			644.9			1233.0	
Travel Time (s)		30.4			42.0			38.7			74.0	
Confl. Peds. (#/hr)	5		15	15		5	6		4	4		6
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%
Adj. Flow (vph)	663	1831	214	321	1990	761	352	2239	248	738	1659	539
Shared Lane Traffic (%)												
Lane Group Flow (vph)	663	1831	214	321	1990	761	352	2239	248	738	1659	539
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	12.0	50.4	50.4	12.0	50.4	50.4	11.0	48.4	48.4	11.0	48.4	48.4
Total Split (s)	13.0	55.0	55.0	12.0	54.0	54.0	11.0	51.0	51.0	12.0	52.0	52.0
Total Split (%)	10.0%	42.3%	42.3%	9.2%	41.5%	41.5%	8.5%	39.2%	39.2%	9.2%	40.0%	40.0%
Maximum Green (s)	9.0	48.6	48.6	8.0	47.6	47.6	7.0	44.6	44.6	8.0	45.6	45.6
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		37.0	37.0		37.0	37.0		35.0	35.0		35.0	35.0
Pedestrian Calls (#/hr)		15	15		5	5		4	4		6	6
Act Effct Green (s)	9.0	48.6	48.6	8.0	47.6	47.6	7.0	44.6	44.6	8.0	45.6	45.6
Actuated g/C Ratio	0.07	0.37	0.37	0.06	0.37	0.37	0.05	0.34	0.34	0.06	0.35	0.35
v/c Ratio	2.82	1.41	0.33	1.54	1.55	1.18	1.93	1.87	0.42	3.58	1.35	0.86
Control Delay	852.6	223.7	14.0	306.2	283.8	127.8	471.3	420.0	22.0	1191.0	198.5	43.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	852.6	223.7	14.0	306.2	283.8	127.8	471.3	420.0	22.0	1191.0	198.5	43.2
LOS	F	F	B	F	F	F	F	F	C	F	F	D
Approach Delay		361.1			247.5			391.6			419.5	
Approach LOS		F			F			F			F	
Queue Length 50th (m)	~149.6	~331.4	16.0	~59.3	~377.9	~212.1	~71.4	~459.0	29.0	~174.0	~292.7	99.0
Queue Length 95th (m)	#186.3	#373.4	35.4	#88.7	#419.4	#287.2	#101.9	#499.6	52.5	#211.9	#335.3	#162.1
Internal Link Dist (m)		568.0			792.3			620.9			1209.0	
Turn Bay Length (m)	190.0		85.0	200.0		290.0	110.0		60.0	280.0		160.0
Base Capacity (vph)	235	1295	646	208	1281	645	182	1200	591	206	1227	630
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.82	1.41	0.33	1.54	1.55	1.18	1.93	1.87	0.42	3.58	1.35	0.86

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 3.58	
Intersection Signal Delay: 353.2	Intersection LOS: F

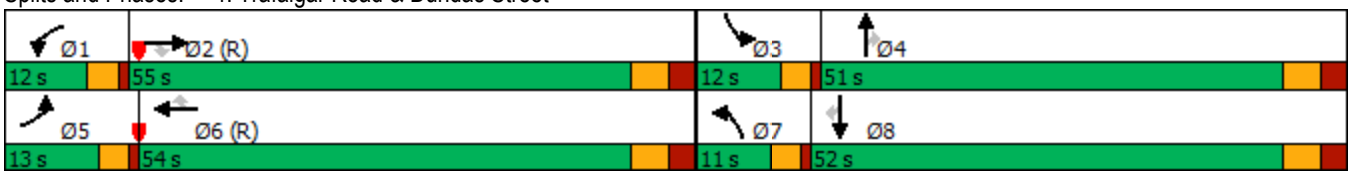
Intersection Capacity Utilization 169.5% ICU Level of Service H

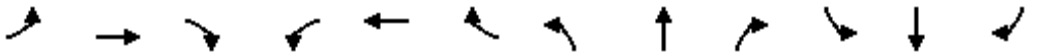
Analysis Period (min) 15

~ 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.

Splits and Phases: 4: Trafalgar Road & Dundas Street

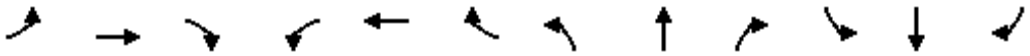




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	643	1776	208	311	1930	738	341	2172	241	716	1609	523
Future Volume (vph)	643	1776	208	311	1930	738	341	2172	241	716	1609	523
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3395	3466	1527	3395	3500	1540	3395	3500	1541	3362	3500	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3395	3466	1527	3395	3500	1540	3395	3500	1541	3362	3500	1538
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	663	1831	214	321	1990	761	352	2239	248	738	1659	539
RTOR Reduction (vph)	0	0	75	0	0	81	0	0	63	0	0	91
Lane Group Flow (vph)	663	1831	139	321	1990	680	352	2239	185	738	1659	448
Confl. Peds. (#/hr)	5		15	15		5	6		4	4		6
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	9.0	48.6	48.6	8.0	47.6	47.6	7.0	44.6	44.6	8.0	45.6	45.6
Effective Green, g (s)	9.0	48.6	48.6	8.0	47.6	47.6	7.0	44.6	44.6	8.0	45.6	45.6
Actuated g/C Ratio	0.07	0.37	0.37	0.06	0.37	0.37	0.05	0.34	0.34	0.06	0.35	0.35
Clearance Time (s)	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	235	1295	570	208	1281	563	182	1200	528	206	1227	539
v/s Ratio Prot	c0.20	0.53		0.09	c0.57		0.10	c0.64		c0.22	0.47	
v/s Ratio Perm			0.09			0.44			0.12			0.29
v/c Ratio	2.82	1.41	0.24	1.54	1.55	1.21	1.93	1.87	0.35	3.58	1.35	0.83
Uniform Delay, d1	60.5	40.7	28.0	61.0	41.2	41.2	61.5	42.7	31.9	61.0	42.2	38.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	831.3	190.9	1.0	267.0	252.9	109.3	439.9	392.8	0.8	1174.1	163.9	11.6
Delay (s)	891.8	231.6	29.1	328.0	294.1	150.5	501.4	435.5	32.7	1235.1	206.1	50.3
Level of Service	F	F	C	F	F	F	F	F	C	F	F	D
Approach Delay (s)		377.2			262.1			408.5			436.2	
Approach LOS		F			F			F			F	

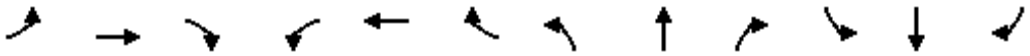
Intersection Summary			
HCM 2000 Control Delay	369.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.93		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	20.8
Intersection Capacity Utilization	169.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



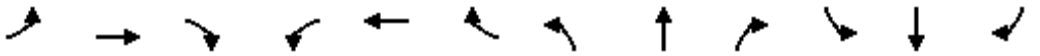
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	246	444	65	240	667	545	11	339	174	359	414	292
Future Volume (vph)	246	444	65	240	667	545	11	339	174	359	414	292
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor												
Frt		0.987			0.944			0.950			0.959	
Flt Protected		0.984			0.992			0.999			0.983	
Satd. Flow (prot)	0	3399	0	0	3277	0	0	3322	0	0	3299	0
Flt Permitted		0.984			0.992			0.999			0.983	
Satd. Flow (perm)	0	3399	0	0	3277	0	0	3322	0	0	3299	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		476.6			825.2			671.6			229.3	
Travel Time (s)		28.6			49.5			40.3			13.8	
Confl. Bikes (#/hr)						1			1			
Peak Hour Factor	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)	251	453	66	245	681	556	11	346	178	366	422	298
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	770	0	0	1482	0	0	535	0	0	1086	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 124.2%		ICU Level of Service H	
Analysis Period (min) 15			

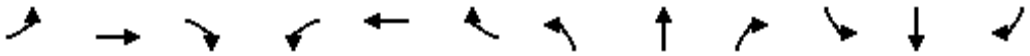


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	246	444	65	240	667	545	11	339	174	359	414	292
Future Volume (veh/h)	246	444	65	240	667	545	11	339	174	359	414	292
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	251	453	66	245	681	556	11	346	178	366	422	298
Approach Volume (veh/h)		770			1482			535			1086	
Crossing Volume (veh/h)		1033			608			1070			937	
High Capacity (veh/h)		606			856			588			655	
High v/c (veh/h)		1.27			1.73			0.91			1.66	
Low Capacity (veh/h)		468			686			453			511	
Low v/c (veh/h)		1.64			2.16			1.18			2.13	

Intersection Summary				
Maximum v/c High	1.73			
Maximum v/c Low	2.16			
Intersection Capacity Utilization	124.2%	ICU Level of Service	H	



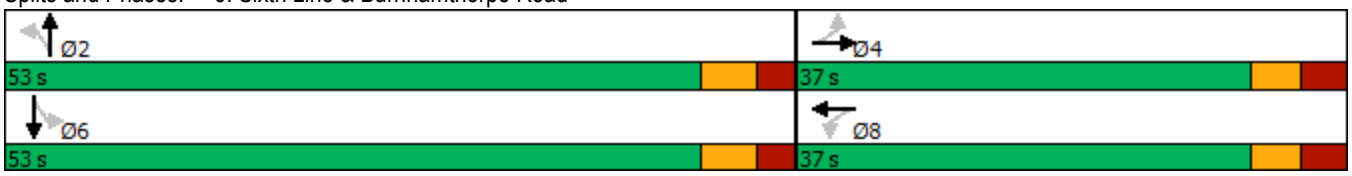
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	119	50	155	224	63	97	482	187	85	752	35
Future Volume (vph)	36	119	50	155	224	63	97	482	187	85	752	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	55.0		0.0	50.0		0.0	40.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			15.0			15.0			50.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.956			0.967			0.958			0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3346	0	1750	3320	0	1750	3344	0	1750	3475	0
Flt Permitted	0.566			0.638			0.315			0.371		
Satd. Flow (perm)	1043	3346	0	1175	3320	0	580	3344	0	683	3475	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		53			43			94			8	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		241.5			345.8			218.8			671.6	
Travel Time (s)		17.4			24.9			13.1			40.3	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	2%	2%	11%	2%	2%	3%	2%	2%	2%
Adj. Flow (vph)	38	127	53	165	238	67	103	513	199	90	800	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	180	0	165	305	0	103	712	0	90	837	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	

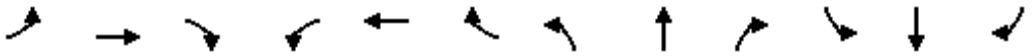


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	34.5	34.5		34.5	34.5		32.4	32.4		32.4	32.4	
Total Split (s)	37.0	37.0		37.0	37.0		53.0	53.0		53.0	53.0	
Total Split (%)	41.1%	41.1%		41.1%	41.1%		58.9%	58.9%		58.9%	58.9%	
Maximum Green (s)	30.5	30.5		30.5	30.5		46.6	46.6		46.6	46.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.2	3.2		3.2	3.2		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		19.0	19.0		19.0	19.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	16.1	16.1		16.1	16.1		46.8	46.8		46.8	46.8	
Actuated g/C Ratio	0.21	0.21		0.21	0.21		0.62	0.62		0.62	0.62	
v/c Ratio	0.17	0.24		0.66	0.41		0.29	0.34		0.21	0.39	
Control Delay	25.4	17.3		40.4	23.2		11.1	7.2		9.6	8.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	25.4	17.3		40.4	23.2		11.1	7.2		9.6	8.7	
LOS	C	B		D	C		B	A		A	A	
Approach Delay		18.7			29.2			7.7			8.8	
Approach LOS		B			C			A			A	
Queue Length 50th (m)	4.5	7.8		21.7	16.8		6.0	18.9		4.9	27.2	
Queue Length 95th (m)	11.7	15.3		40.2	27.1		19.1	38.0		15.6	51.4	
Internal Link Dist (m)		217.5			321.8			194.8			647.6	
Turn Bay Length (m)	55.0			50.0			40.0			30.0		
Base Capacity (vph)	421	1382		474	1366		357	2099		421	2146	
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	0.09	0.13		0.35	0.22		0.29	0.34		0.21	0.39	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 75.9			
Natural Cycle: 70			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 13.3		Intersection LOS: B	
Intersection Capacity Utilization 68.7%		ICU Level of Service C	
Analysis Period (min) 15			

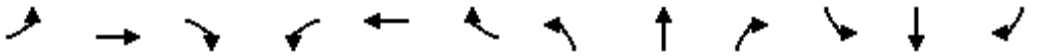
Splits and Phases: 6: Sixth Line & Burnhamthorpe Road



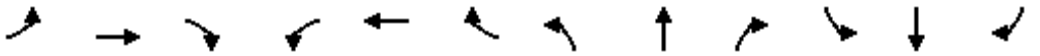


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	119	50	155	224	63	97	482	187	85	752	35
Future Volume (vph)	36	119	50	155	224	63	97	482	187	85	752	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.97		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)	1750	3345		1750	3320		1750	3344		1750	3477	
Flt Permitted	0.57	1.00		0.64	1.00		0.32	1.00		0.37	1.00	
Satd. Flow (perm)	1043	3345		1176	3320		581	3344		683	3477	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	38	127	53	165	238	67	103	513	199	90	800	37
RTOR Reduction (vph)	0	42	0	0	34	0	0	36	0	0	3	0
Lane Group Flow (vph)	38	138	0	165	271	0	103	676	0	90	834	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	11%	2%	2%	3%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	16.1	16.1		16.1	16.1		46.8	46.8		46.8	46.8	
Effective Green, g (s)	16.1	16.1		16.1	16.1		46.8	46.8		46.8	46.8	
Actuated g/C Ratio	0.21	0.21		0.21	0.21		0.62	0.62		0.62	0.62	
Clearance Time (s)	6.5	6.5		6.5	6.5		6.4	6.4		6.4	6.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	221	710		249	705		358	2064		421	2146	
v/s Ratio Prot		0.04			0.08			0.20			c0.24	
v/s Ratio Perm	0.04			c0.14			0.18			0.13		
v/c Ratio	0.17	0.19		0.66	0.38		0.29	0.33		0.21	0.39	
Uniform Delay, d1	24.4	24.5		27.4	25.6		6.7	7.0		6.4	7.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.1		6.5	0.4		2.0	0.4		1.2	0.5	
Delay (s)	24.8	24.7		33.8	26.0		8.8	7.4		7.5	7.8	
Level of Service	C	C		C	C		A	A		A	A	
Approach Delay (s)		24.7			28.7			7.6			7.8	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	75.8	Sum of lost time (s)	12.9
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	0	6	568	2	20	7	2847	0	0	2352	0
Future Volume (vph)	7	0	6	568	2	20	7	2847	0	0	2352	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		5.0	0.0		60.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		1	1		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt			0.850		0.999	0.850						
Flt Protected	0.950			0.950	0.953		0.950					
Satd. Flow (prot)	1526	0	1331	1615	1541	1431	1750	3500	0	0	4980	0
Flt Permitted	0.389			0.950	0.953		0.107					
Satd. Flow (perm)	625	0	1331	1615	1541	1431	197	3500	0	0	4980	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			73			73						
Link Speed (k/h)		20			60			80			80	
Link Distance (m)		81.5			393.0			34.5			195.6	
Travel Time (s)		14.7			23.6			1.6			8.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	17%	2%	20%	5%	100%	6%	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	7	0	6	592	2	21	7	2966	0	0	2450	0
Shared Lane Traffic (%)				50%		10%						
Lane Group Flow (vph)	7	0	6	296	300	19	7	2966	0	0	2450	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1		1	1	2	1	1	2			2	
Detector Template	Left		Right	Left	Thru	Right	Left	Thru			Thru	
Leading Detector (m)	2.0		2.0	2.0	10.0	2.0	2.0	10.0			10.0	
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Size(m)	2.0		2.0	2.0	0.6	2.0	2.0	0.6			0.6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 2 Position(m)					9.4			9.4			9.4	
Detector 2 Size(m)					0.6			0.6			0.6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	



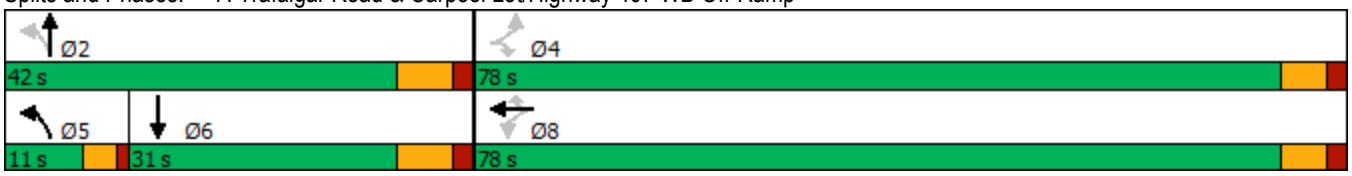
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8		8	2					
Detector Phase	4		4	8	8	8	5	2			6	
Switch Phase												
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	4.0	35.0			7.0	
Minimum Split (s)	22.5		22.5	22.5	22.5	22.5	11.0	42.0			22.5	
Total Split (s)	78.0		78.0	78.0	78.0	78.0	11.0	42.0			31.0	
Total Split (%)	65.0%		65.0%	65.0%	65.0%	65.0%	9.2%	35.0%			25.8%	
Maximum Green (s)	72.0		72.0	72.0	72.0	72.0	7.0	35.0			24.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0	3.0	5.0			5.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0	1.0	2.0			2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Recall Mode	None		None	None	None	None	None	Min			Min	
Act Effct Green (s)	18.1		18.1	18.1	18.1	18.1	38.2	35.2			33.3	
Actuated g/C Ratio	0.27		0.27	0.27	0.27	0.27	0.58	0.53			0.50	
v/c Ratio	0.04		0.01	0.67	0.71	0.04	0.03	1.60			0.98	
Control Delay	17.3		0.0	29.4	31.7	0.2	8.0	292.0			33.3	
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	17.3		0.0	29.4	31.7	0.2	8.0	292.0			33.3	
LOS	B		A	C	C	A	A	F			C	
Approach Delay		9.3			29.6			291.4			33.3	
Approach LOS		A			C			F			C	
Queue Length 50th (m)	0.6		0.0	33.8	36.3	0.0	0.3	~279.1			92.3	
Queue Length 95th (m)	3.1		0.0	57.2	61.8	0.0	2.1	#371.0			#201.2	
Internal Link Dist (m)		57.5			369.0			10.5			171.6	
Turn Bay Length (m)			5.0			60.0						
Base Capacity (vph)	622		1326	1608	1535	1425	277	1855			2504	
Starvation Cap Reductn	0		0	0	0	0	0	0			0	
Spillback Cap Reductn	0		0	0	0	0	0	0			0	
Storage Cap Reductn	0		0	0	0	0	0	0			0	
Reduced v/c Ratio	0.01		0.00	0.18	0.20	0.01	0.03	1.60			0.98	

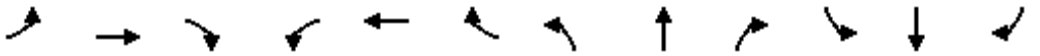
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 66.3			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.60			
Intersection Signal Delay: 159.7		Intersection LOS: F	
Intersection Capacity Utilization 112.2%		ICU Level of Service H	
Analysis Period (min) 15			

~ 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.

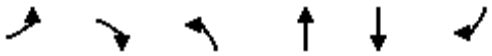
Splits and Phases: 7: Trafalgar Road & Carpool Lot/Highway 407 WB Off-Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	0	6	568	2	20	7	2847	0	0	2352	0
Future Volume (vph)	7	0	6	568	2	20	7	2847	0	0	2352	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	6.0	4.0	7.0			7.0	
Lane Util. Factor	1.00		1.00	0.95	0.91	0.95	1.00	0.95			0.91	
Frt	1.00		0.85	1.00	1.00	0.85	1.00	1.00			1.00	
Flt Protected	0.95		1.00	0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	1526		1331	1615	1541	1431	1750	3500			4980	
Flt Permitted	0.39		1.00	0.95	0.95	1.00	0.11	1.00			1.00	
Satd. Flow (perm)	625		1331	1615	1541	1431	197	3500			4980	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	7	0	6	592	2	21	7	2966	0	0	2450	0
RTOR Reduction (vph)	0	0	4	0	0	14	0	0	0	0	0	0
Lane Group Flow (vph)	7	0	2	296	300	5	7	2966	0	0	2450	0
Heavy Vehicles (%)	17%	2%	20%	5%	100%	6%	2%	2%	2%	2%	3%	2%
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	
Permitted Phases	4		4	8		8	2					
Actuated Green, G (s)	18.1		18.1	18.1	18.1	18.1	38.5	38.5			33.4	
Effective Green, g (s)	18.1		18.1	18.1	18.1	18.1	38.5	38.5			33.4	
Actuated g/C Ratio	0.26		0.26	0.26	0.26	0.26	0.55	0.55			0.48	
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)	162		346	419	400	372	133	1936			2389	
v/s Ratio Prot							0.00	c0.85			0.49	
v/s Ratio Perm	0.01		0.00	0.18	0.19	0.00	0.03					
v/c Ratio	0.04		0.00	0.71	0.75	0.01	0.05	1.53			1.03	
Uniform Delay, d1	19.3		19.1	23.3	23.7	19.1	14.8	15.5			18.1	
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.1		0.0	5.4	7.7	0.0	0.2	242.1			25.3	
Delay (s)	19.4		19.1	28.7	31.4	19.1	15.0	257.6			43.4	
Level of Service	B		B	C	C	B	B	F			D	
Approach Delay (s)		19.2			29.7			257.0			43.4	
Approach LOS		B			C			F			D	

Intersection Summary			
HCM 2000 Control Delay	146.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.38		
Actuated Cycle Length (s)	69.6	Sum of lost time (s)	17.0
Intersection Capacity Utilization	112.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↑↑↑	↑↑	↱
Traffic Volume (vph)	0	0	0	2925	2981	49
Future Volume (vph)	0	0	0	2925	2981	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.95	1.00
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	5029	3433	1521
Flt Permitted						
Satd. Flow (perm)	0	0	0	5029	3433	1521
Link Speed (k/h)	60			80	80	
Link Distance (m)	166.7			156.0	34.5	
Travel Time (s)	10.0			7.0	1.6	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	2%	4%	5%
Adj. Flow (vph)	0	0	0	3047	3105	51
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	3047	3105	51
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 85.7%		ICU Level of Service E	
Analysis Period (min) 15			

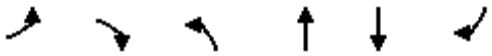
Intersection Sign configuration not allowed in HCM analysis.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	2925	282	0	2981
Future Volume (vph)	0	0	2925	282	0	2981
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt				0.850		
Flt Protected						
Satd. Flow (prot)	0	0	3500	1521	0	3433
Flt Permitted						
Satd. Flow (perm)	0	0	3500	1521	0	3433
Link Speed (k/h)	30		80			80
Link Distance (m)	189.2		37.4			156.0
Travel Time (s)	22.7		1.7			7.0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	5%	2%	4%
Adj. Flow (vph)	0	0	3047	294	0	3105
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	3047	294	0	3105
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Free		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 85.7%		ICU Level of Service E	
Analysis Period (min) 15			

Intersection Sign configuration not allowed in HCM analysis.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	42	425	0	3161	2758	0
Future Volume (vph)	42	425	0	3161	2758	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	0.95	0.95	1.00
Frt	0.877	0.850				
Flt Protected	0.991					
Satd. Flow (prot)	1351	1214	0	3500	3466	0
Flt Permitted	0.991					
Satd. Flow (perm)	1351	1214	0	3500	3466	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						
Link Speed (k/h)	60			80	80	
Link Distance (m)	415.1			117.5	129.7	
Travel Time (s)	24.9			5.3	5.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	25%	2%	2%	3%	2%
Adj. Flow (vph)	45	452	0	3363	2934	0
Shared Lane Traffic (%)		46%				
Lane Group Flow (vph)	253	244	0	3363	2934	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (m)	2.0	2.0		10.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	2.0		0.6	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						

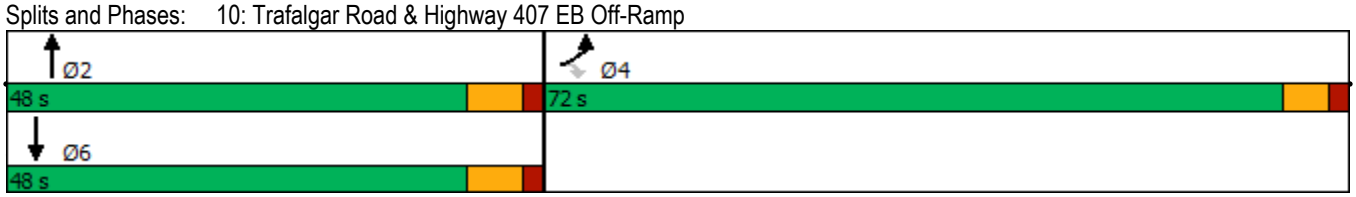
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Initial (s)	6.0	6.0		20.0	20.0	
Minimum Split (s)	24.0	24.0		27.0	27.0	
Total Split (s)	72.0	72.0		48.0	48.0	
Total Split (%)	60.0%	60.0%		40.0%	40.0%	
Maximum Green (s)	66.0	66.0		41.0	41.0	
Yellow Time (s)	4.0	4.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		7.0	7.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		Max	Max	
Act Effct Green (s)	19.8	19.8		41.2	41.2	
Actuated g/C Ratio	0.27	0.27		0.56	0.56	
v/c Ratio	0.70	0.75		1.73	1.52	
Control Delay	35.3	39.9		349.5	258.0	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	35.3	39.9		349.5	258.0	
LOS	D	D		F	F	
Approach Delay	37.5			349.5	258.0	
Approach LOS	D			F	F	
Queue Length 50th (m)	31.6	32.5		~370.3	~305.3	
Queue Length 95th (m)	54.2	57.4		#476.9	#404.4	
Internal Link Dist (m)	391.1			93.5	105.7	
Turn Bay Length (m)						
Base Capacity (vph)	1209	1087		1947	1928	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.21	0.22		1.73	1.52	

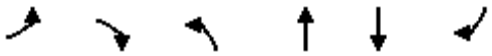
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 74.1			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.73			
Intersection Signal Delay: 287.2		Intersection LOS: F	
Intersection Capacity Utilization 109.3%		ICU Level of Service H	
Analysis Period (min) 15			

~ 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.

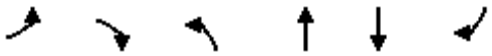
Splits and Phases: 10: Trafalgar Road & Highway 407 EB Off-Ramp





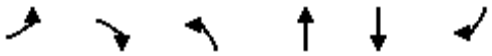
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	42	425	0	3161	2758	0
Future Volume (vph)	42	425	0	3161	2758	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		0.95	0.95	
Frt	0.88	0.85		1.00	1.00	
Flt Protected	0.99	1.00		1.00	1.00	
Satd. Flow (prot)	1350	1214		3500	3466	
Flt Permitted	0.99	1.00		1.00	1.00	
Satd. Flow (perm)	1350	1214		3500	3466	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	45	452	0	3363	2934	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	253	244	0	3363	2934	0
Heavy Vehicles (%)	2%	25%	2%	2%	3%	2%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	19.8	19.8		41.2	41.2	
Effective Green, g (s)	19.8	19.8		41.2	41.2	
Actuated g/C Ratio	0.27	0.27		0.56	0.56	
Clearance Time (s)	6.0	6.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	361	324		1948	1929	
v/s Ratio Prot	0.19			c0.96	0.85	
v/s Ratio Perm		c0.20				
v/c Ratio	0.70	0.75		1.73	1.52	
Uniform Delay, d1	24.4	24.9		16.4	16.4	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.0	9.5		329.1	237.1	
Delay (s)	30.5	34.4		345.5	253.5	
Level of Service	C	C		F	F	
Approach Delay (s)	32.4			345.5	253.5	
Approach LOS	C			F	F	

Intersection Summary			
HCM 2000 Control Delay	282.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.41		
Actuated Cycle Length (s)	74.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	109.3%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	3203	2758	23
Future Volume (vph)	0	0	0	3203	2758	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt						0.850
Flt Protected						
Satd. Flow (prot)	0	0	0	3500	3466	1566
Flt Permitted						
Satd. Flow (perm)	0	0	0	3500	3466	1566
Link Speed (k/h)	30			80	80	
Link Distance (m)	113.6			129.7	37.4	
Travel Time (s)	13.6			5.8	1.7	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	2%	3%	2%
Adj. Flow (vph)	0	0	0	3407	2934	24
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	3407	2934	24
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 109.3%		ICU Level of Service H	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	3203	2758	23
Future Volume (Veh/h)	0	0	0	3203	2758	23
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	0	3407	2934	24
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				130	228	
pX, platoon unblocked	0.70	0.51	0.51			
vC, conflicting volume	4638	1467	2958			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2160	0	2917			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	28	548	62			

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	1704	1704	1467	1467	24
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	24
cSH	1700	1700	1700	1700	1700
Volume to Capacity	1.00	1.00	0.86	0.86	0.01
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					
Approach Delay (s)	0.0		0.0		
Approach LOS					

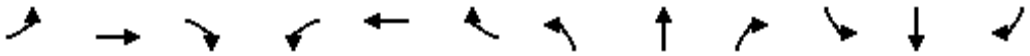
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	109.3%	ICU Level of Service	H
Analysis Period (min)	15		



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	3161	342	0	3181
Future Volume (vph)	0	0	3161	342	0	3181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.91
Frt				0.850		
Flt Protected						
Satd. Flow (prot)	0	0	3500	1452	0	4885
Flt Permitted						
Satd. Flow (perm)	0	0	3500	1452	0	4885
Link Speed (k/h)	50		80			80
Link Distance (m)	246.0		145.5			117.5
Travel Time (s)	17.7		6.5			5.3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	10%	2%	5%
Adj. Flow (vph)	0	0	3363	364	0	3384
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	3363	364	0	3384
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Free		Free			Free

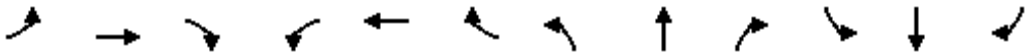
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 90.7%		ICU Level of Service E	
Analysis Period (min) 15			

Intersection Sign configuration not allowed in HCM analysis.



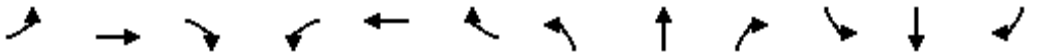
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	1626	364	162	1997	151	550	743	265	129	384	126
Future Volume (vph)	46	1626	364	162	1997	151	550	743	265	129	384	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.973			0.990			0.974			0.970	
Flt Protected		0.999			0.997			0.983			0.990	
Satd. Flow (prot)	0	3354	0	0	3454	0	0	3339	0	0	3361	0
Flt Permitted		0.999			0.997			0.983			0.990	
Satd. Flow (perm)	0	3354	0	0	3454	0	0	3339	0	0	3361	0
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		234.8			101.3			359.6			262.5	
Travel Time (s)		14.1			6.1			21.6			15.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	4%	2%	10%	2%	2%	2%	3%	2%	2%	2%	2%	2%
Adj. Flow (vph)	48	1694	379	169	2080	157	573	774	276	134	400	131
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	2121	0	0	2406	0	0	1623	0	0	665	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Yield			Yield			Yield			Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 199.3%		ICU Level of Service H	
Analysis Period (min) 15			

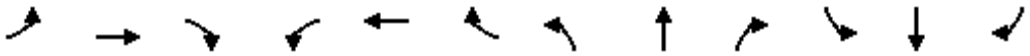


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Right Turn Channelized												
Traffic Volume (veh/h)	46	1626	364	162	1997	151	550	743	265	129	384	126
Future Volume (veh/h)	46	1626	364	162	1997	151	550	743	265	129	384	126
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	48	1694	379	169	2080	157	573	774	276	134	400	131
Approach Volume (veh/h)		2121			2406			1623			665	
Crossing Volume (veh/h)		703			1395#			1876#			2822#	
High Capacity (veh/h)		793			449			298			130	
High v/c (veh/h)		2.68			5.36			5.44			5.10	
Low Capacity (veh/h)		630			336			213			84	
Low v/c (veh/h)		3.36			7.17			7.62			7.91	

Intersection Summary					
Maximum v/c High	5.44				
Maximum v/c Low	7.91				
Intersection Capacity Utilization	199.3%	ICU Level of Service		H	
# Crossing flow exceeds 1200, method is not applicable					



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	889	70	219	1370	99	55	46	425	247	34	19
Future Volume (vph)	19	889	70	219	1370	99	55	46	425	247	34	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	110.0		30.0	30.0		0.0	40.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.96			0.97	0.99	0.98			0.99	
Frt			0.850			0.850		0.865			0.947	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3500	1566	1750	3500	1566	1750	1561	0	1750	1732	0
Flt Permitted	0.093			0.111			0.719			0.123		
Satd. Flow (perm)	171	3500	1509	204	3500	1512	1317	1561	0	227	1732	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			95			58		228			15	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		825.2			198.4			580.4			190.6	
Travel Time (s)		49.5			11.9			41.8			13.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	21	988	78	243	1522	110	61	51	472	274	38	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	988	78	243	1522	110	61	523	0	274	59	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



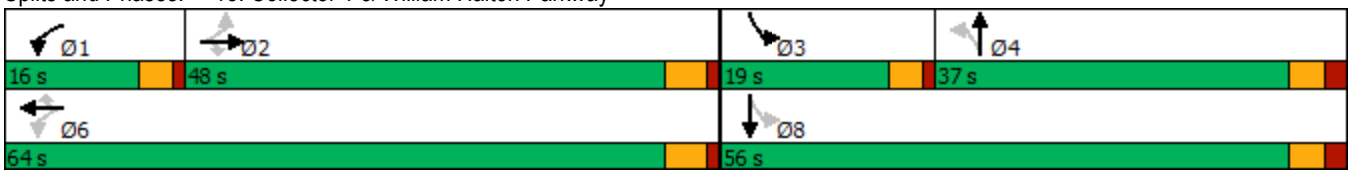
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2		2	6		6	4			8		
Detector Phase	2	2	2	1	6	6	4	4		3	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	10.0	10.0		7.0	10.0	
Minimum Split (s)	32.1	32.1	32.1	11.0	32.1	32.1	34.4	34.4		11.0	34.4	
Total Split (s)	48.0	48.0	48.0	16.0	64.0	64.0	37.0	37.0		19.0	56.0	
Total Split (%)	40.0%	40.0%	40.0%	13.3%	53.3%	53.3%	30.8%	30.8%		15.8%	46.7%	
Maximum Green (s)	42.9	42.9	42.9	12.0	58.9	58.9	31.6	31.6		15.0	50.6	
Yellow Time (s)	3.7	3.7	3.7	3.0	3.7	3.7	3.3	3.3		3.0	3.3	
All-Red Time (s)	1.4	1.4	1.4	1.0	1.4	1.4	2.1	2.1		1.0	2.1	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.1	5.1	5.1	4.0	5.1	5.1	5.4	5.4		4.0	5.4	
Lead/Lag	Lag	Lag	Lag	Lead			Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max	Max	None	Max	Max	None	None		None	None	
Walk Time (s)	7.0	7.0	7.0		7.0	7.0	7.0	7.0			7.0	
Flash Dont Walk (s)	20.0	20.0	20.0		20.0	20.0	22.0	22.0			22.0	
Pedestrian Calls (#/hr)	5	5	5		5	5	5	5			5	
Act Effct Green (s)	43.0	43.0	43.0	60.1	59.0	59.0	28.5	28.5		48.9	47.5	
Actuated g/C Ratio	0.37	0.37	0.37	0.51	0.50	0.50	0.24	0.24		0.42	0.41	
v/c Ratio	0.34	0.77	0.13	0.92	0.86	0.14	0.19	0.95		0.94	0.08	
Control Delay	46.2	38.1	3.9	64.3	32.5	8.9	36.3	52.1		71.1	16.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	46.2	38.1	3.9	64.3	32.5	8.9	36.3	52.1		71.1	16.8	
LOS	D	D	A	E	C	A	D	D		E	B	
Approach Delay		35.8			35.2			50.4			61.5	
Approach LOS		D			D			D			E	
Queue Length 50th (m)	3.6	108.8	0.0	36.8	165.0	6.3	11.1	72.9		46.9	6.1	
Queue Length 95th (m)	12.5	134.3	7.3	#86.3	199.5	16.0	22.5	#137.7		#99.0	14.2	
Internal Link Dist (m)		801.2			174.4			556.4			166.6	
Turn Bay Length (m)	30.0			110.0		30.0	30.0			40.0		
Base Capacity (vph)	62	1285	614	263	1764	790	356	589		290	759	
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	0.34	0.77	0.13	0.92	0.86	0.14	0.17	0.89		0.94	0.08	

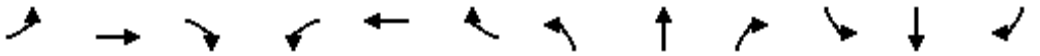
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 117			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay: 39.9		Intersection LOS: D	
Intersection Capacity Utilization 105.4%		ICU Level of Service G	

Analysis Period (min) 15

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

Splits and Phases: 15: Collector 1 & William Halton Parkway

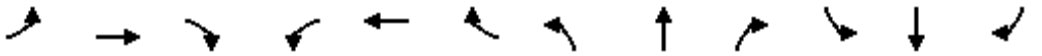




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	889	70	219	1370	99	55	46	425	247	34	19
Future Volume (vph)	19	889	70	219	1370	99	55	46	425	247	34	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	5.1	4.0	5.1	5.1	5.4	5.4		4.0	5.4	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.97	1.00	0.98		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.86		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1749	3500	1510	1750	3500	1512	1740	1560		1750	1731	
Flt Permitted	0.09	1.00	1.00	0.11	1.00	1.00	0.72	1.00		0.12	1.00	
Satd. Flow (perm)	171	3500	1510	205	3500	1512	1316	1560		227	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)	21	988	78	243	1522	110	61	51	472	274	38	21
RTOR Reduction (vph)	0	0	49	0	0	29	0	172	0	0	9	0
Lane Group Flow (vph)	21	988	29	243	1522	81	61	351	0	274	50	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		2		1	6			4		3	8	
Permitted Phases	2		2	6		6	4			8		
Actuated Green, G (s)	43.0	43.0	43.0	59.0	59.0	59.0	28.5	28.5		47.5	47.5	
Effective Green, g (s)	43.0	43.0	43.0	59.0	59.0	59.0	28.5	28.5		47.5	47.5	
Actuated g/C Ratio	0.37	0.37	0.37	0.50	0.50	0.50	0.24	0.24		0.41	0.41	
Clearance Time (s)	5.1	5.1	5.1	4.0	5.1	5.1	5.4	5.4		4.0	5.4	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	62	1286	554	261	1764	762	320	380		287	702	
v/s Ratio Prot		0.28		0.10	c0.43			0.22		c0.12	0.03	
v/s Ratio Perm	0.12		0.02	c0.37		0.05	0.05			c0.27		
v/c Ratio	0.34	0.77	0.05	0.93	0.86	0.11	0.19	0.92		0.95	0.07	
Uniform Delay, d1	26.7	32.6	23.9	27.3	25.4	15.2	35.1	43.2		32.5	21.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	14.2	4.5	0.2	37.5	5.9	0.3	0.3	27.5		40.6	0.0	
Delay (s)	40.9	37.1	24.0	64.8	31.3	15.5	35.4	70.7		73.1	21.3	
Level of Service	D	D	C	E	C	B	D	E		E	C	
Approach Delay (s)		36.2			34.7			67.0			63.9	
Approach LOS		D			C			E			E	

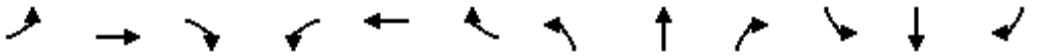
Intersection Summary			
HCM 2000 Control Delay	42.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	117.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	105.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1502	59	0	1518	266	0	0	126	0	0	170
Future Volume (vph)	0	1502	59	0	1518	266	0	0	126	0	0	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		30.0	30.0		0.0	30.0		0.0
Storage Lanes	0		0	0		1	0		1	0		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.994				0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3479	0	0	3500	1566	0	0	1593	0	0	1593
Flt Permitted												
Satd. Flow (perm)	0	3479	0	0	3500	1566	0	0	1593	0	0	1593
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		198.4			207.8			147.0			189.8	
Travel Time (s)		11.9			12.5			10.6			13.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	0	1669	66	0	1687	296	0	0	140	0	0	189
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1735	0	0	1687	296	0	0	140	0	0	189
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

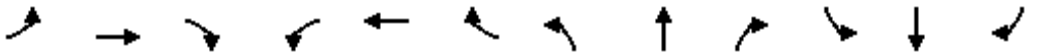
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 60.0%		ICU Level of Service B	
Analysis Period (min) 15			



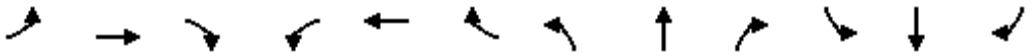
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1502	59	0	1518	266	0	0	126	0	0	170
Future Volume (Veh/h)	0	1502	59	0	1518	266	0	0	126	0	0	170
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1669	66	0	1687	296	0	0	140	0	0	189
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		198			208							
pX, platoon unblocked	0.75			0.75			0.87	0.87	0.75	0.87	0.87	0.75
vC, conflicting volume	1988			1740			2744	3695	878	2672	3432	854
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1642			1319			1411	2503	168	1327	2201	120
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	78	100	100	72
cM capacity (veh/h)	289			388			60	24	629	75	38	671

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	1113	622	844	844	296	140	189
Volume Left	0	0	0	0	0	0	0
Volume Right	0	66	0	0	296	140	189
cSH	1700	1700	1700	1700	1700	629	671
Volume to Capacity	0.65	0.37	0.50	0.50	0.17	0.22	0.28
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	6.4	8.8
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	12.4	12.5
Lane LOS						B	B
Approach Delay (s)	0.0		0.0			12.4	12.5
Approach LOS						B	B

Intersection Summary				
Average Delay	1.0			
Intersection Capacity Utilization	60.0%	ICU Level of Service		B
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	460	18	121	517	264	13	43	96	265	82	25
Future Volume (vph)	10	460	18	121	517	264	13	43	96	265	82	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	30.0		0.0	30.0		0.0	70.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	0.99		1.00	0.99		1.00	1.00	
Frt		0.994			0.949			0.896			0.965	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3475	0	1750	3285	0	1750	1628	0	1750	1769	0
Flt Permitted	0.277			0.449			0.681			0.659		
Satd. Flow (perm)	509	3475	0	824	3285	0	1249	1628	0	1209	1769	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			125			107			22	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		136.3			245.2			477.1			580.4	
Travel Time (s)		9.8			17.7			34.4			41.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	11	511	20	134	574	293	14	48	107	294	91	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	531	0	134	867	0	14	155	0	294	119	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

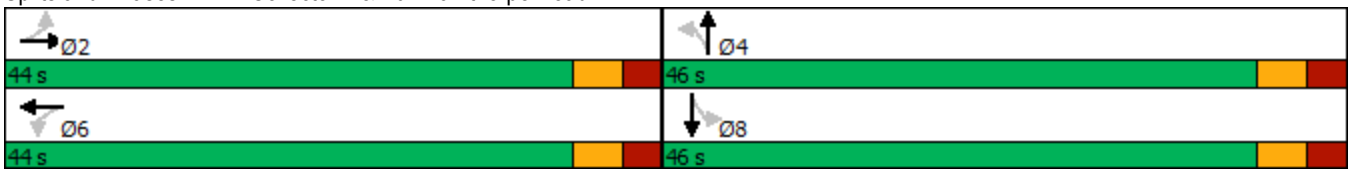


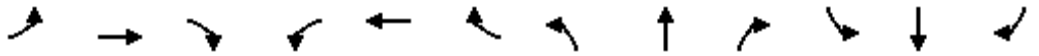
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	31.9	31.9		31.9	31.9		33.1	33.1		33.1	33.1	
Total Split (s)	44.0	44.0		44.0	44.0		46.0	46.0		46.0	46.0	
Total Split (%)	48.9%	48.9%		48.9%	48.9%		51.1%	51.1%		51.1%	51.1%	
Maximum Green (s)	38.1	38.1		38.1	38.1		39.9	39.9		39.9	39.9	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.6	2.6		2.6	2.6		2.8	2.8		2.8	2.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	
Act Effct Green (s)	38.5	38.5		38.5	38.5		22.6	22.6		22.6	22.6	
Actuated g/C Ratio	0.53	0.53		0.53	0.53		0.31	0.31		0.31	0.31	
v/c Ratio	0.04	0.29		0.31	0.49		0.04	0.27		0.79	0.21	
Control Delay	12.2	11.5		14.8	11.6		16.2	7.7		38.3	15.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	12.2	11.5		14.8	11.6		16.2	7.7		38.3	15.3	
LOS	B	B		B	B		B	A		D	B	
Approach Delay		11.5			12.0			8.4			31.7	
Approach LOS		B			B			A			C	
Queue Length 50th (m)	0.7	19.5		9.6	30.7		1.3	4.6		36.2	9.6	
Queue Length 95th (m)	3.9	39.4		27.8	61.6		4.8	15.6		62.2	19.8	
Internal Link Dist (m)		112.3			221.2			453.1			556.4	
Turn Bay Length (m)	30.0			30.0			30.0			70.0		
Base Capacity (vph)	267	1828		432	1785		687	944		665	983	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.04	0.29		0.31	0.49		0.02	0.16		0.44	0.12	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 73.2			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 15.4		Intersection LOS: B	
Intersection Capacity Utilization 74.1%		ICU Level of Service D	

Analysis Period (min) 15

Splits and Phases: 17: Collector 1 & Burnhamthorpe Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	460	18	121	517	264	13	43	96	265	82	25
Future Volume (vph)	10	460	18	121	517	264	13	43	96	265	82	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
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	0.99		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	0.95		1.00	0.90		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)	1747	3476		1744	3288		1744	1629		1744	1769	
Flt Permitted	0.28	1.00		0.45	1.00		0.68	1.00		0.66	1.00	
Satd. Flow (perm)	510	3476		825	3288		1249	1629		1209	1769	
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)	11	511	20	134	574	293	14	48	107	294	91	28
RTOR Reduction (vph)	0	2	0	0	59	0	0	74	0	0	15	0
Lane Group Flow (vph)	11	529	0	134	808	0	14	81	0	294	104	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	38.5	38.5		38.5	38.5		22.6	22.6		22.6	22.6	
Effective Green, g (s)	38.5	38.5		38.5	38.5		22.6	22.6		22.6	22.6	
Actuated g/C Ratio	0.53	0.53		0.53	0.53		0.31	0.31		0.31	0.31	
Clearance Time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	268	1830		434	1731		386	503		373	546	
v/s Ratio Prot		0.15			c0.25			0.05			0.06	
v/s Ratio Perm	0.02			0.16			0.01			c0.24		
v/c Ratio	0.04	0.29		0.31	0.47		0.04	0.16		0.79	0.19	
Uniform Delay, d1	8.4	9.7		9.8	10.9		17.6	18.4		23.1	18.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.4		1.8	0.9		0.0	0.2		10.5	0.2	
Delay (s)	8.7	10.1		11.6	11.8		17.7	18.5		33.6	18.7	
Level of Service	A	B		B	B		B	B		C	B	
Approach Delay (s)		10.0			11.7			18.4			29.3	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	73.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	468	3	29	526	2	20
Future Volume (vph)	468	3	29	526	2	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	0.0		30.0	0.0
Storage Lanes		0	0		1	1
Taper Length (m)			15.0		15.0	
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt	0.999					0.850
Flt Protected				0.997	0.950	
Satd. Flow (prot)	3496	0	0	3489	1750	1566
Flt Permitted				0.997	0.950	
Satd. Flow (perm)	3496	0	0	3489	1750	1566
Link Speed (k/h)	50			50	50	
Link Distance (m)	139.2			131.8	226.2	
Travel Time (s)	10.0			9.5	16.3	
Confl. Peds. (#/hr)		5	5		5	5
Confl. Bikes (#/hr)		5				5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	520	3	32	584	2	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	523	0	0	616	2	22
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

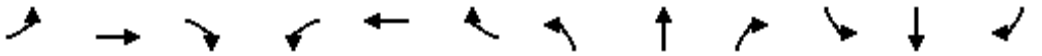
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 43.3%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	468	3	29	526	2	20
Future Volume (Veh/h)	468	3	29	526	2	20
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	520	3	32	584	2	22
Pedestrians	5			5	5	
Lane Width (m)	3.5			3.5	3.5	
Walking Speed (m/s)	1.0			1.0	1.0	
Percent Blockage	0			0	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)				268		
pX, platoon unblocked						
vC, conflicting volume			528		888	272
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			528		888	272
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		99	97
cM capacity (veh/h)			1030		272	719

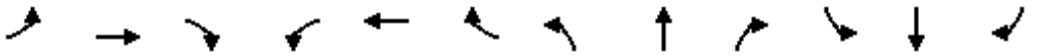
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2
Volume Total	347	176	227	389	2	22
Volume Left	0	0	32	0	2	0
Volume Right	0	3	0	0	0	22
cSH	1700	1700	1030	1700	272	719
Volume to Capacity	0.20	0.10	0.03	0.23	0.01	0.03
Queue Length 95th (m)	0.0	0.0	0.7	0.0	0.2	0.7
Control Delay (s)	0.0	0.0	1.5	0.0	18.3	10.2
Lane LOS			A		C	B
Approach Delay (s)	0.0		0.5		10.8	
Approach LOS					B	

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	43.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1603	16	0	1979	22	0	0	12	0	0	383
Future Volume (vph)	0	1603	16	0	1979	22	0	0	12	0	0	383
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		30.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		1	0		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.998				0.850			0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3493	0	0	3500	1566	0	0	1593	0	0	1593
Flt Permitted												
Satd. Flow (perm)	0	3493	0	0	3500	1566	0	0	1593	0	0	1593
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		119.4			229.9			118.2			144.7	
Travel Time (s)		7.2			13.8			8.5			10.4	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	0	1781	18	0	2199	24	0	0	13	0	0	426
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1799	0	0	2199	24	0	0	13	0	0	426
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.0			7.0			0.0			0.0	
Link Offset(m)		0.0			0.0			5.0			5.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

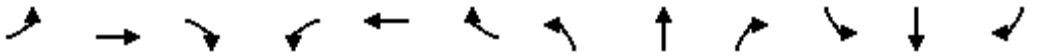
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 85.6%		ICU Level of Service E	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1603	16	0	1979	22	0	0	12	0	0	383
Future Volume (Veh/h)	0	1603	16	0	1979	22	0	0	12	0	0	383
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1781	18	0	2199	24	0	0	13	0	0	426
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		119			230							
pX, platoon unblocked	0.61			0.78			0.71	0.71	0.78	0.71	0.71	0.61
vC, conflicting volume	2228			1804			3326	4023	910	3112	4008	1110
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1728			1476			2099	3075	336	1801	3054	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	97	100	100	35
cM capacity (veh/h)	218			353			7	8	513	34	9	652

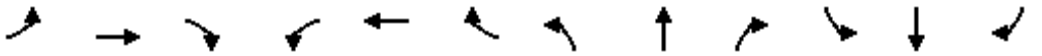
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	1187	612	1100	1100	24	13	426
Volume Left	0	0	0	0	0	0	0
Volume Right	0	18	0	0	24	13	426
cSH	1700	1700	1700	1700	1700	513	652
Volume to Capacity	0.70	0.36	0.65	0.65	0.01	0.03	0.65
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.6	36.7
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	12.2	20.3
Lane LOS						B	C
Approach Delay (s)	0.0		0.0			12.2	20.3
Approach LOS						B	C

Intersection Summary				
Average Delay	2.0			
Intersection Capacity Utilization	85.6%	ICU Level of Service		E
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	699	44	0	788	6	0	0	93	0	0	12
Future Volume (vph)	0	699	44	0	788	6	0	0	93	0	0	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.991			0.999				0.865			0.865
Flt Protected												
Satd. Flow (prot)	0	3468	0	0	3496	0	0	0	1593	0	0	1593
Flt Permitted												
Satd. Flow (perm)	0	3468	0	0	3496	0	0	0	1593	0	0	1593
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		123.4			223.5			492.2			141.1	
Travel Time (s)		8.9			16.1			35.4			10.2	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	0	777	49	0	876	7	0	0	103	0	0	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	826	0	0	883	0	0	0	103	0	0	13
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			-10.0			-10.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

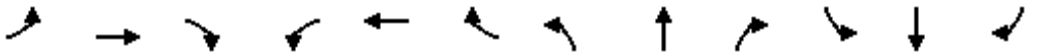
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	699	44	0	788	6	0	0	93	0	0	12
Future Volume (Veh/h)	0	699	44	0	788	6	0	0	93	0	0	12
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	777	49	0	876	7	0	0	103	0	0	13
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		123			223							
pX, platoon unblocked	0.92			0.91			0.95	0.95	0.91	0.95	0.95	0.92
vC, conflicting volume	888			831			1262	1694	423	1381	1716	452
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	700			619			788	1242	171	913	1264	225
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	86	100	100	98
cM capacity (veh/h)	816			868			258	163	760	185	159	708

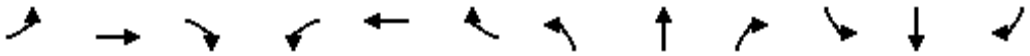
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	518	308	584	299	103	13
Volume Left	0	0	0	0	0	0
Volume Right	0	49	0	7	103	13
cSH	1700	1700	1700	1700	760	708
Volume to Capacity	0.30	0.18	0.34	0.18	0.14	0.02
Queue Length 95th (m)	0.0	0.0	0.0	0.0	3.6	0.4
Control Delay (s)	0.0	0.0	0.0	0.0	10.5	10.2
Lane LOS					B	B
Approach Delay (s)	0.0		0.0		10.5	10.2
Approach LOS					B	B

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	34.8%	ICU Level of Service		A
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	225	0	0	63	0	2363	62	0	2273	379
Future Volume (vph)	0	0	225	0	0	63	0	2363	62	0	2273	379
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor												
Frt			0.865			0.865		0.996			0.979	
Flt Protected												
Satd. Flow (prot)	0	0	1593	0	0	1593	0	3486	0	0	3426	0
Flt Permitted												
Satd. Flow (perm)	0	0	1593	0	0	1593	0	3486	0	0	3426	0
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		168.4			345.0			280.2			182.8	
Travel Time (s)		12.1			24.8			16.8			11.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	0	0	250	0	0	70	0	2626	69	0	2526	421
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	250	0	0	70	0	2695	0	0	2947	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

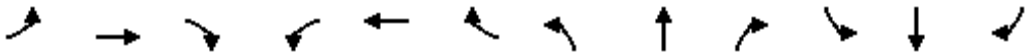
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 96.1%		ICU Level of Service F	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	225	0	0	63	0	2363	62	0	2273	379
Future Volume (Veh/h)	0	0	225	0	0	63	0	2363	62	0	2273	379
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	250	0	0	70	0	2626	69	0	2526	421
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								280			183	
pX, platoon unblocked	0.79	0.79	0.64	0.79	0.79	0.61	0.64			0.61		
vC, conflicting volume	4130	5442	1484	4184	5618	1358	2952			2700		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2368	4032	624	2436	4256	295	2925			2506		
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	8	100	100	83	100			100		
cM capacity (veh/h)	12	2	271	1	1	422	77			108		

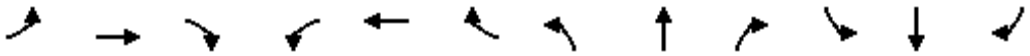
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	250	70	1751	944	1684	1263
Volume Left	0	0	0	0	0	0
Volume Right	250	70	0	69	0	421
cSH	271	422	1700	1700	1700	1700
Volume to Capacity	0.92	0.17	1.03	0.56	0.99	0.74
Queue Length 95th (m)	64.4	4.5	0.0	0.0	0.0	0.0
Control Delay (s)	77.4	15.2	0.0	0.0	0.0	0.0
Lane LOS	F	C				
Approach Delay (s)	77.4	15.2	0.0		0.0	
Approach LOS	F	C				

Intersection Summary				
Average Delay	3.4			
Intersection Capacity Utilization	96.1%	ICU Level of Service	F	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	7	12	3	9	6	74	61	2	5	90	57
Future Volume (vph)	57	7	12	3	9	6	74	61	2	5	90	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.979			0.953			0.998			0.950	
Flt Protected		0.964			0.993			0.974			0.998	
Satd. Flow (prot)	0	1738	0	0	1743	0	0	1791	0	0	1746	0
Flt Permitted		0.964			0.993			0.974			0.998	
Satd. Flow (perm)	0	1738	0	0	1743	0	0	1791	0	0	1746	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		345.0			275.5			250.4			181.9	
Travel Time (s)		24.8			19.8			18.0			13.1	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	63	8	13	3	10	7	82	68	2	6	100	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	84	0	0	20	0	0	152	0	0	169	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

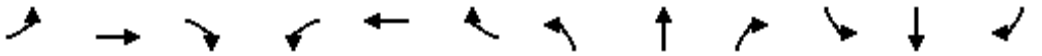
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.1%		ICU Level of Service A	
Analysis Period (min) 15			



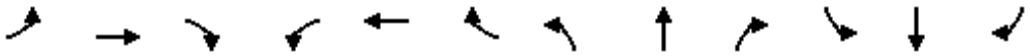
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	7	12	3	9	6	74	61	2	5	90	57
Future Volume (Veh/h)	57	7	12	3	9	6	74	61	2	5	90	57
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	63	8	13	3	10	7	82	68	2	6	100	63
Pedestrians		5			5			5			5	
Lane Width (m)		3.5			3.5			3.5			3.5	
Walking Speed (m/s)		1.0			1.0			1.0			1.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								251			182	
pX, platoon unblocked												
vC, conflicting volume	398	388	142	404	418	79	168			75		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	398	388	142	404	418	79	168			75		
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 %	88	98	99	99	98	99	94			100		
cM capacity (veh/h)	514	508	897	508	488	972	1403			1517		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	84	20	152	169
Volume Left	63	3	82	6
Volume Right	13	7	2	63
cSH	550	596	1403	1517
Volume to Capacity	0.15	0.03	0.06	0.00
Queue Length 95th (m)	4.1	0.8	1.4	0.1
Control Delay (s)	12.7	11.3	4.4	0.3
Lane LOS	B	B	A	A
Approach Delay (s)	12.7	11.3	4.4	0.3
Approach LOS	B	B		

Intersection Summary				
Average Delay	4.7			
Intersection Capacity Utilization	39.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	574	955	87	47	1654	15	86	0	29	79	44	261
Future Volume (vph)	574	955	87	47	1654	15	86	0	29	79	44	261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	85.0		30.0	30.0		0.0	30.0		0.0	40.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97	1.00	1.00		1.00	0.98		0.99	0.98	
Frt			0.850		0.999			0.850			0.872	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3500	1566	1750	3495	0	1750	1534	0	1750	1577	0
Flt Permitted	0.088			0.270			0.203			0.736		
Satd. Flow (perm)	162	3500	1511	496	3495	0	373	1534	0	1348	1577	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			68		1			75			243	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		229.9			1297.0			181.9			123.7	
Travel Time (s)		13.8			77.8			13.1			8.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	638	1061	97	52	1838	17	96	0	32	88	49	290
Shared Lane Traffic (%)												
Lane Group Flow (vph)	638	1061	97	52	1855	0	96	32	0	88	339	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	5	2			6		3	8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	5	2	2	6	6		3	8		4	4	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	10.0	10.0		7.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	32.1	32.1	32.1	32.1		11.0	38.5		38.5	38.5	
Total Split (s)	23.0	70.0	70.0	47.0	47.0		11.0	50.0		39.0	39.0	
Total Split (%)	19.2%	58.3%	58.3%	39.2%	39.2%		9.2%	41.7%		32.5%	32.5%	
Maximum Green (s)	19.0	63.9	63.9	40.9	40.9		7.0	43.5		32.5	32.5	
Yellow Time (s)	3.0	3.7	3.7	3.7	3.7		3.0	3.3		3.3	3.3	
All-Red Time (s)	1.0	2.4	2.4	2.4	2.4		1.0	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.1	6.1	6.1	6.1		4.0	6.5		6.5	6.5	
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Max	Max	None	None		None	None		None	None	
Walk Time (s)		7.0	7.0	7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)		19.0	19.0	19.0	19.0			25.0		25.0	25.0	
Pedestrian Calls (#/hr)		5	5	5	5			5		5	5	
Act Effct Green (s)	66.7	64.6	64.6	41.3	41.3		26.7	24.2		15.7	15.7	
Actuated g/C Ratio	0.66	0.64	0.64	0.41	0.41		0.26	0.24		0.15	0.15	
v/c Ratio	1.57	0.48	0.10	0.26	1.30		0.49	0.08		0.43	0.76	
Control Delay	293.4	12.2	4.5	28.5	170.0		36.5	0.3		45.1	23.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	293.4	12.2	4.5	28.5	170.0		36.5	0.3		45.1	23.6	
LOS	F	B	A	C	F		D	A		D	C	
Approach Delay		111.7			166.2			27.4			28.0	
Approach LOS		F			F			C			C	
Queue Length 50th (m)	~161.4	50.7	1.9	6.5	~244.7		14.6	0.0		16.2	17.6	
Queue Length 95th (m)	#284.2	103.2	11.1	20.4	#368.5		26.4	0.0		30.4	47.0	
Internal Link Dist (m)		205.9			1273.0			157.9			99.7	
Turn Bay Length (m)	85.0		30.0	30.0			30.0			40.0		
Base Capacity (vph)	406	2226	986	202	1423		194	706		436	674	
Starvation Cap Reductn	0	0	0	0	0		0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0	0	0	0	0		0	0		0	0	
Reduced v/c Ratio	1.57	0.48	0.10	0.26	1.30		0.49	0.05		0.20	0.50	

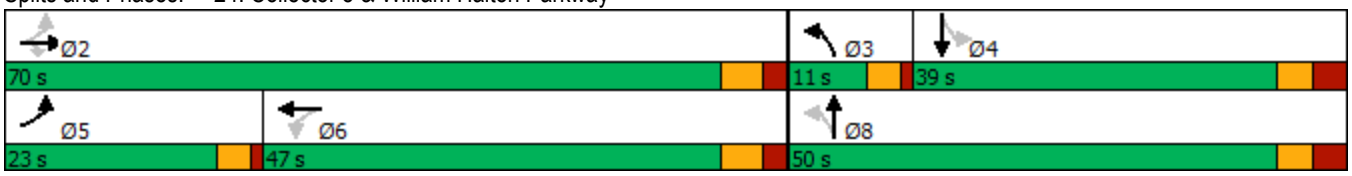
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 101.5			
Natural Cycle: 145			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.57			
Intersection Signal Delay: 125.2		Intersection LOS: F	
Intersection Capacity Utilization 121.1%		ICU Level of Service H	

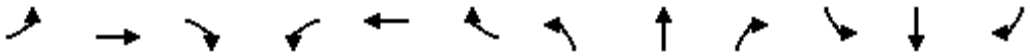
Analysis Period (min) 15

~ 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.

Splits and Phases: 24: Collector 5 & William Halton Parkway

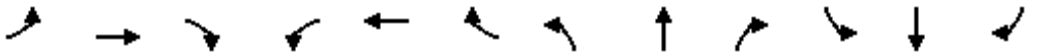




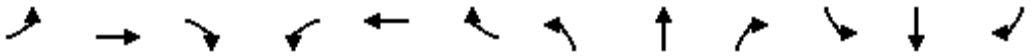
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	574	955	87	47	1654	15	86	0	29	79	44	261
Future Volume (vph)	574	955	87	47	1654	15	86	0	29	79	44	261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.1	6.1	6.1	6.1		4.0	6.5		6.5	6.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	0.98		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	1.00	0.85	1.00	1.00		1.00	0.85		1.00	0.87	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1750	3500	1515	1746	3494		1749	1533		1742	1573	
Flt Permitted	0.09	1.00	1.00	0.27	1.00		0.20	1.00		0.74	1.00	
Satd. Flow (perm)	162	3500	1515	496	3494		374	1533		1350	1573	
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)	638	1061	97	52	1838	17	96	0	32	88	49	290
RTOR Reduction (vph)	0	0	25	0	1	0	0	24	0	0	206	0
Lane Group Flow (vph)	638	1061	72	52	1854	0	96	8	0	88	133	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	pm+pt	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	5	2			6		3	8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	64.6	64.6	64.6	41.4	41.4		25.1	25.1		15.7	15.7	
Effective Green, g (s)	64.6	64.6	64.6	41.4	41.4		25.1	25.1		15.7	15.7	
Actuated g/C Ratio	0.63	0.63	0.63	0.40	0.40		0.25	0.25		0.15	0.15	
Clearance Time (s)	4.0	6.1	6.1	6.1	6.1		4.0	6.5		6.5	6.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	400	2210	956	200	1413		164	376		207	241	
v/s Ratio Prot	c0.30	0.30			0.53		c0.03	0.01			0.08	
v/s Ratio Perm	c0.71		0.05	0.10			c0.11			0.07		
v/c Ratio	1.59	0.48	0.08	0.26	1.31		0.59	0.02		0.43	0.55	
Uniform Delay, d1	32.7	10.0	7.3	20.3	30.4		32.1	29.3		39.2	40.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	279.3	0.7	0.2	0.7	145.7		5.2	0.0		1.4	2.7	
Delay (s)	312.0	10.7	7.4	21.0	176.2		37.3	29.3		40.6	42.8	
Level of Service	F	B	A	C	F		D	C		D	D	
Approach Delay (s)		117.6			172.0			35.3			42.3	
Approach LOS		F			F			D			D	

Intersection Summary			
HCM 2000 Control Delay	131.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.40		
Actuated Cycle Length (s)	102.3	Sum of lost time (s)	20.6
Intersection Capacity Utilization	121.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	689	47	180	745	6	30	71	117	10	102	19
Future Volume (vph)	56	689	47	180	745	6	30	71	117	10	102	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	50.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00		1.00	0.99		1.00	1.00	
Frt		0.990			0.999			0.907			0.976	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	3458	0	1750	3495	0	1750	1649	0	1750	1792	0
Flt Permitted	0.324			0.331			0.671			0.517		
Satd. Flow (perm)	595	3458	0	608	3495	0	1231	1649	0	949	1792	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			1			95			11	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		223.5			463.9			185.3			250.4	
Travel Time (s)		16.1			33.4			13.3			18.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	62	766	52	200	828	7	33	79	130	11	113	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	62	818	0	200	835	0	33	209	0	11	134	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



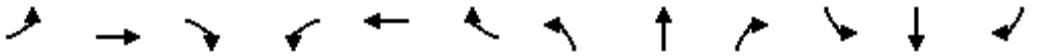
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	31.9	31.9		31.9	31.9		33.1	33.1		33.1	33.1	
Total Split (s)	56.0	56.0		56.0	56.0		34.0	34.0		34.0	34.0	
Total Split (%)	62.2%	62.2%		62.2%	62.2%		37.8%	37.8%		37.8%	37.8%	
Maximum Green (s)	50.1	50.1		50.1	50.1		27.9	27.9		27.9	27.9	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.6	2.6		2.6	2.6		2.8	2.8		2.8	2.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	19.0	19.0		19.0	19.0		20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)	5	5		5	5		5	5		5	5	
Act Effct Green (s)	51.5	51.5		51.5	51.5		12.8	12.8		12.8	12.8	
Actuated g/C Ratio	0.67	0.67		0.67	0.67		0.17	0.17		0.17	0.17	
v/c Ratio	0.15	0.35		0.49	0.35		0.16	0.59		0.07	0.43	
Control Delay	7.7	6.8		13.4	6.9		26.9	22.1		25.2	29.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	7.7	6.8		13.4	6.9		26.9	22.1		25.2	29.2	
LOS	A	A		B	A		C	C		C	C	
Approach Delay		6.8			8.1			22.8			28.9	
Approach LOS		A			A			C			C	
Queue Length 50th (m)	2.4	19.4		10.4	20.2		4.0	14.5		1.3	15.7	
Queue Length 95th (m)	11.6	51.2		45.0	53.0		10.7	32.2		5.1	29.6	
Internal Link Dist (m)		199.5			439.9			161.3			226.4	
Turn Bay Length (m)	30.0			50.0			30.0			30.0		
Base Capacity (vph)	401	2334		409	2355		452	666		349	665	
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	0.35		0.49	0.35		0.07	0.31		0.03	0.20	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 76.4			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 10.5		Intersection LOS: B	
Intersection Capacity Utilization 70.4%		ICU Level of Service C	

Analysis Period (min) 15

Splits and Phases: 25: Collector 5 & Burnhamthorpe Road

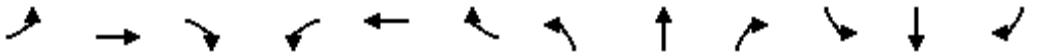




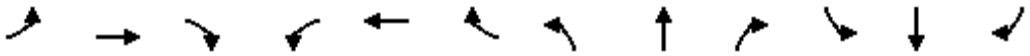
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	689	47	180	745	6	30	71	117	10	102	19
Future Volume (vph)	56	689	47	180	745	6	30	71	117	10	102	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
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	1.00		1.00	0.91		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)	1746	3460		1746	3495		1744	1647		1745	1792	
Flt Permitted	0.32	1.00		0.33	1.00		0.67	1.00		0.52	1.00	
Satd. Flow (perm)	595	3460		608	3495		1232	1647		950	1792	
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)	62	766	52	200	828	7	33	79	130	11	113	21
RTOR Reduction (vph)	0	4	0	0	0	0	0	79	0	0	9	0
Lane Group Flow (vph)	62	814	0	200	835	0	33	130	0	11	125	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	51.5	51.5		51.5	51.5		12.8	12.8		12.8	12.8	
Effective Green, g (s)	51.5	51.5		51.5	51.5		12.8	12.8		12.8	12.8	
Actuated g/C Ratio	0.67	0.67		0.67	0.67		0.17	0.17		0.17	0.17	
Clearance Time (s)	5.9	5.9		5.9	5.9		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	401	2335		410	2359		206	276		159	300	
v/s Ratio Prot		0.24			0.24			c0.08			0.07	
v/s Ratio Perm	0.10			c0.33			0.03			0.01		
v/c Ratio	0.15	0.35		0.49	0.35		0.16	0.47		0.07	0.42	
Uniform Delay, d1	4.5	5.3		6.0	5.3		27.2	28.7		26.7	28.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.4		4.1	0.4		0.4	1.3		0.2	0.9	
Delay (s)	5.3	5.7		10.1	5.7		27.5	30.0		26.9	29.3	
Level of Service	A	A		B	A		C	C		C	C	
Approach Delay (s)		5.7			6.6			29.6			29.2	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	76.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	5	26	61	7	61	27	2468	44	131	2364	80
Future Volume (vph)	51	5	26	61	7	61	27	2468	44	131	2364	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	40.0		0.0	30.0		0.0	17.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.99	0.98		0.99	0.98		1.00	1.00		1.00	1.00	
Frt		0.876			0.866			0.997			0.995	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	1585	0	1750	1564	0	1750	3487	0	1750	3478	0
Flt Permitted	0.708			0.734			0.950			0.950		
Satd. Flow (perm)	1298	1585	0	1345	1564	0	1749	3487	0	1750	3478	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		29			68			2			4	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		117.5			110.5			259.2			230.0	
Travel Time (s)		8.5			8.0			15.6			13.8	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	57	6	29	68	8	68	30	2742	49	146	2627	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	57	35	0	68	76	0	30	2791	0	146	2716	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Detector Phase	4	4		8	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	38.5	38.5		38.5	38.5		11.0	33.4		11.0	33.4	
Total Split (s)	39.0	39.0		39.0	39.0		11.0	69.0		12.0	70.0	
Total Split (%)	32.5%	32.5%		32.5%	32.5%		9.2%	57.5%		10.0%	58.3%	
Maximum Green (s)	32.5	32.5		32.5	32.5		7.0	62.6		8.0	63.6	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.7		3.0	3.7	
All-Red Time (s)	3.2	3.2		3.2	3.2		1.0	2.7		1.0	2.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.5	6.5		6.5	6.5		4.0	6.4		4.0	6.4	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	
Flash Dont Walk (s)	25.0	25.0		25.0	25.0			20.0			20.0	
Pedestrian Calls (#/hr)	5	5		5	5			5			5	
Act Effct Green (s)	14.3	14.3		14.3	14.3		7.0	66.0		8.1	73.0	
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.07	0.65		0.08	0.72	
v/c Ratio	0.31	0.14		0.36	0.27		0.25	1.23		1.06	1.09	
Control Delay	43.0	16.6		44.2	13.3		53.4	131.0		139.9	67.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	5.1	
Total Delay	43.0	16.6		44.2	13.3		53.4	131.0		139.9	72.4	
LOS	D	B		D	B		D	F		F	E	
Approach Delay		33.0			27.9			130.2			75.9	
Approach LOS		C			C			F			E	
Queue Length 50th (m)	10.3	1.0		12.3	1.4		5.5	~351.0		~28.7	~331.6	
Queue Length 95th (m)	21.3	8.9		24.4	13.0		16.7	#525.3		#83.6	#502.7	
Internal Link Dist (m)		93.5			86.5			235.2			206.0	
Turn Bay Length (m)	40.0			40.0			30.0			17.0		
Base Capacity (vph)	417	529		432	548		121	2260		138	2496	
Starvation Cap Reductn	0	0		0	0		0	4		0	48	
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	0.14	0.07		0.16	0.14		0.25	1.24		1.06	1.11	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 101.8			
Natural Cycle: 145			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.23			
Intersection Signal Delay: 99.9		Intersection LOS: F	
Intersection Capacity Utilization 103.6%		ICU Level of Service G	

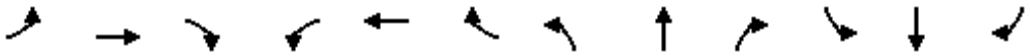
Analysis Period (min) 15

~ 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.

Splits and Phases: 26: Trafalgar Road & Local 6

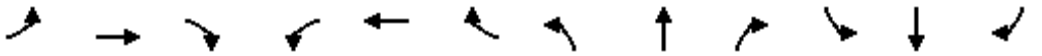




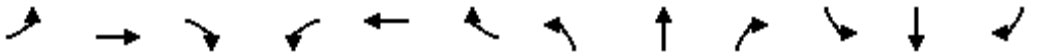
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	5	26	61	7	61	27	2468	44	131	2364	80
Future Volume (vph)	51	5	26	61	7	61	27	2468	44	131	2364	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5		6.5	6.5		4.0	6.4		4.0	6.4	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.88		1.00	0.87		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1742	1578		1742	1557		1750	3489		1750	3479	
Flt Permitted	0.71	1.00		0.73	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1298	1578		1346	1557		1750	3489		1750	3479	
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)	57	6	29	68	8	68	30	2742	49	146	2627	89
RTOR Reduction (vph)	0	26	0	0	60	0	0	1	0	0	1	0
Lane Group Flow (vph)	57	9	0	68	16	0	30	2790	0	146	2715	0
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	12.1	12.1		12.1	12.1		4.1	67.7		8.1	71.7	
Effective Green, g (s)	12.1	12.1		12.1	12.1		4.1	67.7		8.1	71.7	
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.04	0.65		0.08	0.68	
Clearance Time (s)	6.5	6.5		6.5	6.5		4.0	6.4		4.0	6.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	149	182		155	179		68	2253		135	2380	
v/s Ratio Prot		0.01			0.01		0.02	c0.80		c0.08	c0.78	
v/s Ratio Perm	0.04			c0.05								
v/c Ratio	0.38	0.05		0.44	0.09		0.44	1.24		1.08	1.14	
Uniform Delay, d1	42.9	41.2		43.2	41.4		49.2	18.5		48.4	16.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.6	0.1		2.0	0.2		4.5	111.3		100.9	68.9	
Delay (s)	44.5	41.4		45.2	41.6		53.7	129.9		149.3	85.5	
Level of Service	D	D		D	D		D	F		F	F	
Approach Delay (s)		43.3			43.3			129.1			88.7	
Approach LOS		D			D			F			F	

Intersection Summary			
HCM 2000 Control Delay	106.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	104.8	Sum of lost time (s)	16.9
Intersection Capacity Utilization	103.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	112	140	167	99	32	199	2418	154	145	2192	116
Future Volume (vph)	87	112	140	167	99	32	199	2418	154	145	2192	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		40.0	85.0		30.0	90.0		40.0	70.0		30.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor			0.98	1.00		0.98	1.00		0.96	1.00		0.96
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	1842	1566	1750	1842	1566	1750	3500	1566	1750	3500	1566
Flt Permitted	0.686			0.513			0.950			0.950		
Satd. Flow (perm)	1264	1842	1532	941	1842	1534	1749	3500	1511	1749	3500	1510
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			156			67			105			105
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		219.8			129.6			268.7			259.2	
Travel Time (s)		15.8			9.3			16.1			15.6	
Confl. Peds. (#/hr)			5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	97	124	156	186	110	36	221	2687	171	161	2436	129
Shared Lane Traffic (%)												
Lane Group Flow (vph)	97	124	156	186	110	36	221	2687	171	161	2436	129
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Detector Phase	4	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	38.5	38.5	38.5	11.0	38.5	38.5	11.0	33.4	33.4	11.0	33.4	33.4
Total Split (s)	39.0	39.0	39.0	11.0	50.0	50.0	14.0	58.0	58.0	12.0	56.0	56.0
Total Split (%)	32.5%	32.5%	32.5%	9.2%	41.7%	41.7%	11.7%	48.3%	48.3%	10.0%	46.7%	46.7%
Maximum Green (s)	32.5	32.5	32.5	7.0	43.5	43.5	10.0	51.6	51.6	8.0	49.6	49.6
Yellow Time (s)	3.3	3.3	3.3	3.0	3.3	3.3	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	3.2	3.2	3.2	1.0	3.2	3.2	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)	25.0	25.0	25.0		25.0	25.0		20.0	20.0		20.0	20.0
Pedestrian Calls (#/hr)	5	5	5		5	5		5	5		5	5
Act Effct Green (s)	17.1	17.1	17.1	30.6	28.1	28.1	25.0	54.7	54.7	20.3	50.0	50.0
Actuated g/C Ratio	0.14	0.14	0.14	0.26	0.23	0.23	0.21	0.46	0.46	0.17	0.42	0.42
v/c Ratio	0.54	0.47	0.44	0.65	0.26	0.09	0.61	1.69	0.23	0.55	1.67	0.19
Control Delay	56.7	51.2	10.0	47.5	36.9	1.9	54.2	333.6	13.1	55.2	332.6	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.7	51.2	10.0	47.5	36.9	1.9	54.2	333.6	13.1	55.2	332.6	6.9
LOS	E	D	A	D	D	A	D	F	B	E	F	A
Approach Delay		35.6			39.1			295.7			300.8	
Approach LOS		D			D			F			F	
Queue Length 50th (m)	22.1	27.9	0.0	37.8	21.8	0.0	55.6	~475.7	10.4	34.8	~437.1	3.3
Queue Length 95th (m)	33.3	39.3	15.8	47.8	30.6	2.1	m35.2	m#222.3	m6.7	#91.2	#482.1	15.0
Internal Link Dist (m)		195.8			105.6			244.7			235.2	
Turn Bay Length (m)	60.0		40.0	85.0		30.0	90.0		40.0	70.0		30.0
Base Capacity (vph)	342	498	528	287	667	598	364	1594	745	295	1457	689
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.25	0.30	0.65	0.16	0.06	0.61	1.69	0.23	0.55	1.67	0.19

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 14 (12%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.69	
Intersection Signal Delay: 269.7	Intersection LOS: F

Intersection Capacity Utilization 106.5%	ICU Level of Service G
Analysis Period (min) 15	

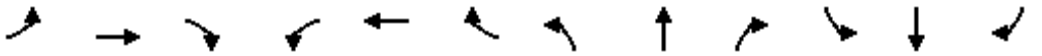
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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.

Splits and Phases: 27: Trafalgar Road & Settlers Road

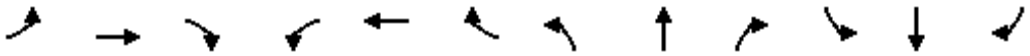




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	112	140	167	99	32	199	2418	154	145	2192	116
Future Volume (vph)	87	112	140	167	99	32	199	2418	154	145	2192	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1750	1842	1526	1746	1842	1531	1750	3500	1511	1750	3500	1510
Flt Permitted	0.69	1.00	1.00	0.51	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1264	1842	1526	943	1842	1531	1750	3500	1511	1750	3500	1510
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)	97	124	156	186	110	36	221	2687	171	161	2436	129
RTOR Reduction (vph)	0	0	134	0	0	28	0	0	57	0	0	61
Lane Group Flow (vph)	97	124	22	186	110	8	221	2687	114	161	2436	68
Confl. Peds. (#/hr)			5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Actuated Green, G (s)	17.1	17.1	17.1	28.1	28.1	28.1	25.0	54.7	54.7	20.3	50.0	50.0
Effective Green, g (s)	17.1	17.1	17.1	28.1	28.1	28.1	25.0	54.7	54.7	20.3	50.0	50.0
Actuated g/C Ratio	0.14	0.14	0.14	0.23	0.23	0.23	0.21	0.46	0.46	0.17	0.42	0.42
Clearance Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	180	262	217	267	431	358	364	1595	688	296	1458	629
v/s Ratio Prot		0.07		c0.04	0.06		c0.13	c0.77		0.09	0.70	
v/s Ratio Perm	0.08		0.01	c0.12		0.01			0.08			0.04
v/c Ratio	0.54	0.47	0.10	0.70	0.26	0.02	0.61	1.68	0.17	0.54	1.67	0.11
Uniform Delay, d1	47.8	47.3	44.8	41.4	37.4	35.4	43.0	32.6	19.2	45.6	35.0	21.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.23	0.89	1.56	1.00	1.00	1.00
Incremental Delay, d2	3.1	1.4	0.2	7.7	0.3	0.0	0.3	308.3	0.0	2.0	304.9	0.3
Delay (s)	50.9	48.7	45.0	49.1	37.7	35.4	53.0	337.3	30.1	47.7	339.9	21.7
Level of Service	D	D	D	D	D	D	D	F	C	D	F	C
Approach Delay (s)		47.7			43.9			299.9			307.6	
Approach LOS		D			D			F			F	

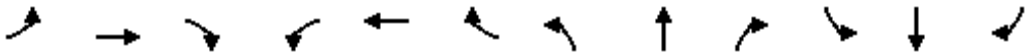
Intersection Summary			
HCM 2000 Control Delay	275.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.26		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.9
Intersection Capacity Utilization	106.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	129	32	104	125	33	29	77	90	35	110	7
Future Volume (vph)	9	129	32	104	125	33	29	77	90	35	110	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.974			0.983			0.938			0.994	
Flt Protected		0.997			0.981			0.993			0.989	
Satd. Flow (prot)	0	1789	0	0	1776	0	0	1716	0	0	1811	0
Flt Permitted		0.997			0.981			0.993			0.989	
Satd. Flow (perm)	0	1789	0	0	1776	0	0	1716	0	0	1811	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		249.4			219.8			429.8			477.1	
Travel Time (s)		18.0			15.8			30.9			34.4	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	10	143	36	116	139	37	32	86	100	39	122	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	189	0	0	292	0	0	218	0	0	169	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	47.9%	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)	9	129	32	104	125	33	29	77	90	35	110	7
Future Volume (vph)	9	129	32	104	125	33	29	77	90	35	110	7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	10	143	36	116	139	37	32	86	100	39	122	8

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	189	292	218	169
Volume Left (vph)	10	116	32	39
Volume Right (vph)	36	37	100	8
Hadj (s)	-0.07	0.04	-0.21	0.05
Departure Headway (s)	5.4	5.3	5.3	5.7
Degree Utilization, x	0.28	0.43	0.32	0.27
Capacity (veh/h)	606	630	611	572
Control Delay (s)	10.5	12.4	10.8	10.7
Approach Delay (s)	10.5	12.4	10.8	10.7
Approach LOS	B	B	B	B

Intersection Summary				
Delay	11.3			
Level of Service	B			
Intersection Capacity Utilization	47.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	11.2
Intersection LOS	B

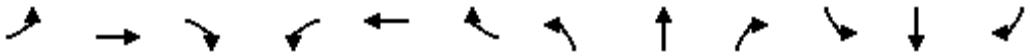
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	129	32	104	125	33	29	77	90	35	110	7
Future Vol, veh/h	9	129	32	104	125	33	29	77	90	35	110	7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	143	36	116	139	37	32	86	100	39	122	8
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.5	12.3	10.8	10.7
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	15%	5%	40%	23%
Vol Thru, %	39%	76%	48%	72%
Vol Right, %	46%	19%	13%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	196	170	262	152
LT Vol	29	9	104	35
Through Vol	77	129	125	110
RT Vol	90	32	33	7
Lane Flow Rate	218	189	291	169
Geometry Grp	1	1	1	1
Degree of Util (X)	0.32	0.282	0.43	0.264
Departure Headway (Hd)	5.283	5.372	5.312	5.62
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	679	667	675	638
Service Time	3.329	3.419	3.354	3.668
HCM Lane V/C Ratio	0.321	0.283	0.431	0.265
HCM Control Delay	10.8	10.5	12.3	10.7
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	1.4	1.2	2.2	1.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	212	110	20	173	17	24	248	15	12	166	91
Future Volume (vph)	87	212	110	20	173	17	24	248	15	12	166	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.964			0.989			0.993			0.954	
Flt Protected		0.989			0.995			0.996			0.998	
Satd. Flow (prot)	0	1756	0	0	1813	0	0	1822	0	0	1754	0
Flt Permitted		0.989			0.995			0.996			0.998	
Satd. Flow (perm)	0	1756	0	0	1813	0	0	1822	0	0	1754	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		129.6			125.1			416.4			492.2	
Travel Time (s)		9.3			9.0			30.0			35.4	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	97	236	122	22	192	19	27	276	17	13	184	101
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	455	0	0	233	0	0	320	0	0	298	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	87	212	110	20	173	17	24	248	15	12	166	91
Future Volume (vph)	87	212	110	20	173	17	24	248	15	12	166	91
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	97	236	122	22	192	19	27	276	17	13	184	101

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	455	233	320	298
Volume Left (vph)	97	22	27	13
Volume Right (vph)	122	19	17	101
Hadj (s)	-0.08	0.00	0.02	-0.16
Departure Headway (s)	6.8	7.5	7.3	7.2
Degree Utilization, x	0.86	0.49	0.65	0.60
Capacity (veh/h)	455	428	449	446
Control Delay (s)	38.4	17.5	22.9	20.4
Approach Delay (s)	38.4	17.5	22.9	20.4
Approach LOS	E	C	C	C

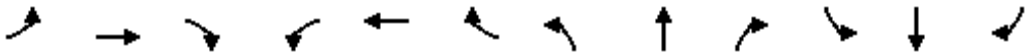
Intersection Summary				
Delay	26.8			
Level of Service	D			
Intersection Capacity Utilization	67.4%	ICU Level of Service	C	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	26.3
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	87	212	110	20	173	17	24	248	15	12	166	91
Future Vol, veh/h	87	212	110	20	173	17	24	248	15	12	166	91
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	97	236	122	22	192	19	27	276	17	13	184	101
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

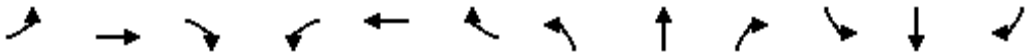
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	37.4	17.4	22.5	20.3
HCM LOS	E	C	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	8%	21%	10%	4%
Vol Thru, %	86%	52%	82%	62%
Vol Right, %	5%	27%	8%	34%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	287	409	210	269
LT Vol	24	87	20	12
Through Vol	248	212	173	166
RT Vol	15	110	17	91
Lane Flow Rate	319	454	233	299
Geometry Grp	1	1	1	1
Degree of Util (X)	0.642	0.851	0.483	0.594
Departure Headway (Hd)	7.25	6.745	7.459	7.151
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	497	536	481	502
Service Time	5.325	4.811	5.542	5.227
HCM Lane V/C Ratio	0.642	0.847	0.484	0.596
HCM Control Delay	22.5	37.4	17.4	20.3
HCM Lane LOS	C	E	C	C
HCM 95th-tile Q	4.5	9	2.6	3.8



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	118	34	28	128	51	21	81	18	21	88	95
Future Volume (vph)	87	118	34	28	128	51	21	81	18	21	88	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.981			0.967			0.980			0.937	
Flt Protected		0.982			0.993			0.991			0.995	
Satd. Flow (prot)	0	1775	0	0	1769	0	0	1789	0	0	1717	0
Flt Permitted		0.982			0.993			0.991			0.995	
Satd. Flow (perm)	0	1775	0	0	1769	0	0	1789	0	0	1717	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		125.1			190.9			160.4			138.9	
Travel Time (s)		9.0			13.7			11.5			10.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	97	131	38	31	142	57	23	90	20	23	98	106
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	266	0	0	230	0	0	133	0	0	227	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	48.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	87	118	34	28	128	51	21	81	18	21	88	95
Future Volume (vph)	87	118	34	28	128	51	21	81	18	21	88	95
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	97	131	38	31	142	57	23	90	20	23	98	106

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	266	230	133	227
Volume Left (vph)	97	31	23	23
Volume Right (vph)	38	57	20	106
Hadj (s)	0.02	-0.09	-0.02	-0.23
Departure Headway (s)	5.3	5.2	5.6	5.2
Degree Utilization, x	0.39	0.33	0.21	0.33
Capacity (veh/h)	634	634	566	626
Control Delay (s)	11.6	10.9	10.1	10.8
Approach Delay (s)	11.6	10.9	10.1	10.8
Approach LOS	B	B	B	B

Intersection Summary				
Delay	11.0			
Level of Service	B			
Intersection Capacity Utilization	48.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	11
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	87	118	34	28	128	51	21	81	18	21	88	95
Future Vol, veh/h	87	118	34	28	128	51	21	81	18	21	88	95
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	97	131	38	31	142	57	23	90	20	23	98	106
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	11.6	10.9	10.1	10.8
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	17%	36%	14%	10%
Vol Thru, %	68%	49%	62%	43%
Vol Right, %	15%	14%	25%	47%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	120	239	207	204
LT Vol	21	87	28	21
Through Vol	81	118	128	88
RT Vol	18	34	51	95
Lane Flow Rate	133	266	230	227
Geometry Grp	1	1	1	1
Degree of Util (X)	0.207	0.388	0.333	0.329
Departure Headway (Hd)	5.576	5.263	5.214	5.22
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	643	682	688	689
Service Time	3.621	3.302	3.255	3.259
HCM Lane V/C Ratio	0.207	0.39	0.334	0.329
HCM Control Delay	10.1	11.6	10.9	10.8
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	0.8	1.8	1.5	1.4



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	21	2749	145	0	2471
Future Volume (vph)	0	21	2749	145	0	2471
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Ped Bike Factor						
Frt		0.865	0.992			
Flt Protected						
Satd. Flow (prot)	0	1593	3472	0	0	3500
Flt Permitted						
Satd. Flow (perm)	0	1593	3472	0	0	3500
Link Speed (k/h)	50		60			60
Link Distance (m)	98.5		148.7			268.7
Travel Time (s)	7.1		8.9			16.1
Confl. Peds. (#/hr)	5	5		5	5	
Confl. Bikes (#/hr)		5		5		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	23	3054	161	0	2746
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	23	3215	0	0	2746
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		3.5			3.5
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	3.0		3.0			3.0
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

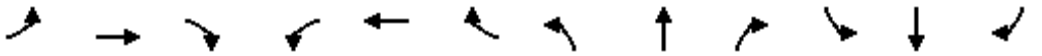
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	92.2%	ICU Level of Service	F
Analysis Period (min)	15		



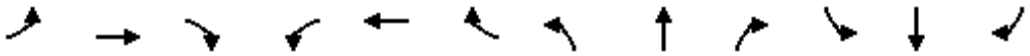
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	21	2749	145	0	2471
Future Volume (Veh/h)	0	21	2749	145	0	2471
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	23	3054	161	0	2746
Pedestrians	5		5			5
Lane Width (m)	3.5		3.5			3.5
Walking Speed (m/s)	1.0		1.0			1.0
Percent Blockage	0		0			0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			149			269
pX, platoon unblocked	0.68	0.47			0.47	
vC, conflicting volume	4518	1618			3220	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2547	89			3463	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	95			100	
cM capacity (veh/h)	15	447			35	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	23	2036	1179	1373	1373
Volume Left	0	0	0	0	0
Volume Right	23	0	161	0	0
cSH	447	1700	1700	1700	1700
Volume to Capacity	0.05	1.20	0.69	0.81	0.81
Queue Length 95th (m)	1.2	0.0	0.0	0.0	0.0
Control Delay (s)	13.5	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	13.5	0.0		0.0	
Approach LOS	B				

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	92.2%	ICU Level of Service	F
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	99	152	176	91	65	222	2810	179	90	2382	4
Future Volume (vph)	19	99	152	176	91	65	222	2810	179	90	2382	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		50.0	90.0		30.0	120.0		30.0	30.0		30.0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.98	1.00		0.98	1.00		0.96	1.00		0.96
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1750	1842	1566	1750	1842	1566	1750	3500	1566	1750	3500	1566
Flt Permitted	0.692			0.539			0.950			0.950		
Satd. Flow (perm)	1268	1842	1532	988	1842	1534	1749	3500	1511	1750	3500	1510
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			162			72			105			105
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		193.0			130.2			1233.0			148.7	
Travel Time (s)		13.9			9.4			74.0			8.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	21	110	169	196	101	72	247	3122	199	100	2647	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	110	169	196	101	72	247	3122	199	100	2647	4
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			7.0			7.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Detector Phase	4	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0	7.0	10.0	10.0
Minimum Split (s)	38.5	38.5	38.5	11.0	38.5	38.5	11.0	33.4	33.4	11.0	33.4	33.4
Total Split (s)	39.0	39.0	39.0	11.0	50.0	50.0	14.0	59.0	59.0	11.0	56.0	56.0
Total Split (%)	32.5%	32.5%	32.5%	9.2%	41.7%	41.7%	11.7%	49.2%	49.2%	9.2%	46.7%	46.7%
Maximum Green (s)	32.5	32.5	32.5	7.0	43.5	43.5	10.0	52.6	52.6	7.0	49.6	49.6
Yellow Time (s)	3.3	3.3	3.3	3.0	3.3	3.3	3.0	3.7	3.7	3.0	3.7	3.7
All-Red Time (s)	3.2	3.2	3.2	1.0	3.2	3.2	1.0	2.7	2.7	1.0	2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)	25.0	25.0	25.0		25.0	25.0		20.0	20.0		20.0	20.0
Pedestrian Calls (#/hr)	5	5	5		5	5		5	5		5	5
Act Effct Green (s)	15.9	15.9	15.9	29.4	26.9	26.9	26.6	63.8	63.8	12.4	49.6	49.6
Actuated g/C Ratio	0.13	0.13	0.13	0.24	0.22	0.22	0.22	0.53	0.53	0.10	0.41	0.41
v/c Ratio	0.12	0.45	0.49	0.69	0.24	0.18	0.64	1.68	0.23	0.55	1.83	0.01
Control Delay	43.2	51.9	11.9	50.8	37.6	7.8	52.2	332.3	8.9	47.7	399.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.2	51.9	11.9	50.8	37.6	7.8	52.2	332.3	8.9	47.7	399.1	0.0
LOS	D	D	B	D	D	A	D	F	A	D	F	A
Approach Delay		28.7			38.8			294.8			385.8	
Approach LOS		C			D			F			F	
Queue Length 50th (m)	4.6	25.1	1.5	41.0	20.4	0.0	51.0	~559.5	10.3	24.6	~488.7	0.0
Queue Length 95th (m)	10.1	35.4	17.5	50.2	28.6	9.5	#134.0	#643.6	28.6	m18.2	m#253.5	m0.0
Internal Link Dist (m)		169.0			106.2			1209.0			124.7	
Turn Bay Length (m)	30.0		50.0	90.0		30.0	120.0		30.0	30.0		30.0
Base Capacity (vph)	343	498	533	286	667	601	387	1859	852	181	1446	685
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.22	0.32	0.69	0.15	0.12	0.64	1.68	0.23	0.55	1.83	0.01

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 16 (13%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.83	
Intersection Signal Delay: 305.7	Intersection LOS: F

Intersection Capacity Utilization 115.6%	ICU Level of Service H
Analysis Period (min) 15	

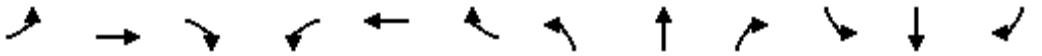
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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.

Splits and Phases: 32: Trafalgar Road & Marvin Avenue

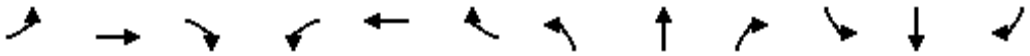




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	99	152	176	91	65	222	2810	179	90	2382	4
Future Volume (vph)	19	99	152	176	91	65	222	2810	179	90	2382	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.96
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1741	1842	1525	1746	1842	1531	1750	3500	1512	1750	3500	1510
Flt Permitted	0.69	1.00	1.00	0.54	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1268	1842	1525	990	1842	1531	1750	3500	1512	1750	3500	1510
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)	21	110	169	196	101	72	247	3122	199	100	2647	4
RTOR Reduction (vph)	0	0	141	0	0	56	0	0	49	0	0	2
Lane Group Flow (vph)	21	110	28	196	101	16	247	3122	150	100	2647	2
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Turn Type	Perm	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Actuated Green, G (s)	15.9	15.9	15.9	26.9	26.9	26.9	26.6	63.8	63.8	12.4	49.6	49.6
Effective Green, g (s)	15.9	15.9	15.9	26.9	26.9	26.9	26.6	63.8	63.8	12.4	49.6	49.6
Actuated g/C Ratio	0.13	0.13	0.13	0.22	0.22	0.22	0.22	0.53	0.53	0.10	0.41	0.41
Clearance Time (s)	6.5	6.5	6.5	4.0	6.5	6.5	4.0	6.4	6.4	4.0	6.4	6.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	168	244	202	266	412	343	387	1860	803	180	1446	624
v/s Ratio Prot		0.06		c0.04	0.05		c0.14	c0.89		0.06	c0.76	
v/s Ratio Perm	0.02		0.02	c0.12		0.01			0.10			0.00
v/c Ratio	0.12	0.45	0.14	0.74	0.25	0.05	0.64	1.68	0.19	0.56	1.83	0.00
Uniform Delay, d1	45.9	48.0	46.0	42.7	38.2	36.5	42.3	28.1	14.6	51.2	35.2	20.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88	0.98	1.00
Incremental Delay, d2	0.3	1.3	0.3	10.2	0.3	0.1	3.4	307.7	0.5	0.3	374.0	0.0
Delay (s)	46.3	49.3	46.3	52.9	38.5	36.6	45.8	335.8	15.1	45.2	408.4	20.7
Level of Service	D	D	D	D	D	D	D	F	B	D	F	C
Approach Delay (s)		47.4			45.8			297.8			394.6	
Approach LOS		D			D			F			F	

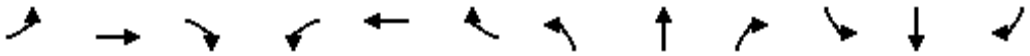
Intersection Summary			
HCM 2000 Control Delay	311.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.40		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.9
Intersection Capacity Utilization	115.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	108	4	5	76	177	4	49	8	134	53	21
Future Volume (vph)	32	108	4	5	76	177	4	49	8	134	53	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.997			0.907			0.982			0.987	
Flt Protected		0.989			0.999			0.997			0.969	
Satd. Flow (prot)	0	1816	0	0	1669	0	0	1803	0	0	1762	0
Flt Permitted		0.989			0.999			0.997			0.969	
Satd. Flow (perm)	0	1816	0	0	1669	0	0	1803	0	0	1762	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		207.5			193.0			213.8			429.8	
Travel Time (s)		14.9			13.9			15.4			30.9	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	36	120	4	6	84	197	4	54	9	149	59	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	160	0	0	287	0	0	67	0	0	231	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	49.7%	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)	32	108	4	5	76	177	4	49	8	134	53	21
Future Volume (vph)	32	108	4	5	76	177	4	49	8	134	53	21
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	36	120	4	6	84	197	4	54	9	149	59	23

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	160	287	67	231
Volume Left (vph)	36	6	4	149
Volume Right (vph)	4	197	9	23
Hadj (s)	0.06	-0.37	-0.03	0.10
Departure Headway (s)	5.2	4.6	5.3	5.2
Degree Utilization, x	0.23	0.37	0.10	0.33
Capacity (veh/h)	644	740	589	640
Control Delay (s)	9.7	10.2	8.9	10.8
Approach Delay (s)	9.7	10.2	8.9	10.8
Approach LOS	A	B	A	B

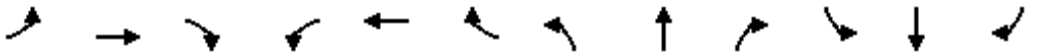
Intersection Summary				
Delay	10.2			
Level of Service	B			
Intersection Capacity Utilization	49.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	10.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	108	4	5	76	177	4	49	8	134	53	21
Future Vol, veh/h	32	108	4	5	76	177	4	49	8	134	53	21
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	36	120	4	6	84	197	4	54	9	149	59	23
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

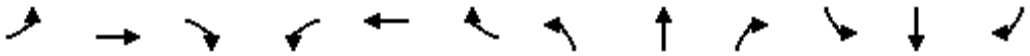
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.7	10.1	8.9	10.7
HCM LOS	A	B	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	7%	22%	2%	64%
Vol Thru, %	80%	75%	29%	25%
Vol Right, %	13%	3%	69%	10%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	61	144	258	208
LT Vol	4	32	5	134
Through Vol	49	108	76	53
RT Vol	8	4	177	21
Lane Flow Rate	68	160	287	231
Geometry Grp	1	1	1	1
Degree of Util (X)	0.101	0.225	0.359	0.329
Departure Headway (Hd)	5.34	5.07	4.505	5.121
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	675	701	791	693
Service Time	3.34	3.16	2.579	3.21
HCM Lane V/C Ratio	0.101	0.228	0.363	0.333
HCM Control Delay	8.9	9.7	10.1	10.7
HCM Lane LOS	A	A	B	B
HCM 95th-tile Q	0.3	0.9	1.6	1.4



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	159	106	67	96	71	20	68	148	127	13	88	173
Future Volume (vph)	159	106	67	96	71	20	68	148	127	13	88	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.973			0.986			0.950			0.915	
Flt Protected		0.977			0.975			0.990			0.998	
Satd. Flow (prot)	0	1751	0	0	1771	0	0	1732	0	0	1682	0
Flt Permitted		0.977			0.975			0.990			0.998	
Satd. Flow (perm)	0	1751	0	0	1771	0	0	1732	0	0	1682	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		130.2			198.3			214.8			416.4	
Travel Time (s)		9.4			14.3			15.5			30.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			5			5			5			5
Peak Hour Factor	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)	177	118	74	107	79	22	76	164	141	14	98	192
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	369	0	0	208	0	0	381	0	0	304	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
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)	159	106	67	96	71	20	68	148	127	13	88	173
Future Volume (vph)	159	106	67	96	71	20	68	148	127	13	88	173
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	177	118	74	107	79	22	76	164	141	14	98	192

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	369	208	381	304
Volume Left (vph)	177	107	76	14
Volume Right (vph)	74	22	141	192
Hadj (s)	0.01	0.07	-0.15	-0.34
Departure Headway (s)	6.8	7.4	6.6	6.6
Degree Utilization, x	0.70	0.43	0.70	0.56
Capacity (veh/h)	492	416	503	487
Control Delay (s)	24.2	15.7	23.6	17.8
Approach Delay (s)	24.2	15.7	23.6	17.8
Approach LOS	C	C	C	C

Intersection Summary				
Delay	21.1			
Level of Service	C			
Intersection Capacity Utilization	68.3%	ICU Level of Service	C	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	20.9
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	159	106	67	96	71	20	68	148	127	13	88	173
Future Vol, veh/h	159	106	67	96	71	20	68	148	127	13	88	173
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	177	118	74	107	79	22	76	164	141	14	98	192
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	24	15.7	23.4	17.7
HCM LOS	C	C	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	20%	48%	51%	5%
Vol Thru, %	43%	32%	38%	32%
Vol Right, %	37%	20%	11%	63%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	343	332	187	274
LT Vol	68	159	96	13
Through Vol	148	106	71	88
RT Vol	127	67	20	173
Lane Flow Rate	381	369	208	304
Geometry Grp	1	1	1	1
Degree of Util (X)	0.696	0.696	0.423	0.558
Departure Headway (Hd)	6.578	6.788	7.322	6.602
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	549	531	490	545
Service Time	4.632	4.84	5.384	4.661
HCM Lane V/C Ratio	0.694	0.695	0.424	0.558
HCM Control Delay	23.4	24	15.7	17.7
HCM Lane LOS	C	C	C	C
HCM 95th-tile Q	5.4	5.4	2.1	3.4

MOVEMENT SUMMARY

Site: [101] Sixth Line & William Halton Parkway (General)

Output produced by SIDRA INTERSECTION Version: 10.0.8.241

2041 Future Total PM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Sixth Line															
1	L2	All MCs	12	2.0	12	2.0	0.414	15.4	LOS C	1.5	10.3	0.71	0.78	0.97	45.5
2	T1	All MCs	377	2.0	377	2.0	0.414	15.0	LOS B	1.5	10.3	0.70	0.77	0.96	46.5
3	R2	All MCs	193	2.0	193	2.0	0.102	3.6	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			582	2.0	582	2.0	0.414	11.2	LOS B	1.5	10.3	0.47	0.51	0.64	49.3
East: William Halton Parkway															
4	L2	All MCs	267	2.0	267	2.0	0.739	22.3	LOS C	6.5	46.1	0.76	1.00	1.65	40.8
5	T1	All MCs	741	2.0	741	2.0	0.739	21.9	LOS C	6.5	46.1	0.75	0.99	1.64	42.5
6	R2	All MCs	606	2.0	606	2.0	0.319	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	56.4
Approach			1613	2.0	1613	2.0	0.739	15.9	LOS C	6.5	46.1	0.47	0.62	1.02	46.4
North: Sixth Line															
7	L2	All MCs	399	2.0	399	2.0	0.821	35.4	LOS E	6.2	44.1	0.87	1.19	2.02	35.2
8	T1	All MCs	460	2.0	460	2.0	0.821	34.1	LOS D	6.2	44.3	0.86	1.18	2.02	37.7
9	R2	All MCs	324	2.0	324	2.0	0.171	4.8	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			1183	2.0	1183	2.0	0.821	26.5	LOS D	6.2	44.3	0.62	0.86	1.47	40.3
West: William Halton Parkway															
10	L2	All MCs	273	2.0	273	2.0	0.793	34.6	LOS D	5.1	36.3	0.87	1.14	1.87	35.8
11	T1	All MCs	493	2.0	493	2.0	0.793	33.4	LOS D	5.1	36.4	0.86	1.13	1.86	37.8
12	R2	All MCs	72	2.0	72	2.0	0.038	3.0	LOS A	0.0	0.0	0.00	0.00	0.00	56.5
Approach			839	2.0	839	2.0	0.793	31.2	LOS D	5.1	36.4	0.79	1.04	1.70	38.1
All Vehicles			4218	2.0	4218	2.0	0.821	21.2	LOS C	6.5	46.1	0.58	0.76	1.23	43.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [101] Ninth Line & William Halton Parkway (General)

Output produced by SIDRA INTERSECTION Version: 10.0.8.241

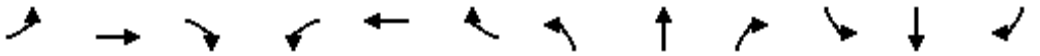
2041 Future Total PM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

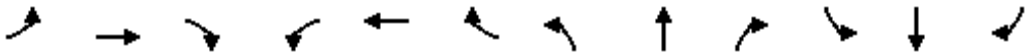
Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Ninth Line															
1	L2	All MCs	618	23.0	618	23.0	2.696	801.7	LOS F	146.8	1200.3	1.00	7.16	23.98	11.0
2	T1	All MCs	835	2.0	835	2.0	2.696	791.6	LOS F	202.4	1444.4	1.00	7.24	25.52	10.9
3	R2	All MCs	298	3.0	298	3.0	2.696	805.0	LOS F	202.4	1444.4	1.00	7.25	25.78	10.9
Approach			1751	9.6	1751	9.6	2.696	797.4	LOS F	202.4	1444.4	1.00	7.21	25.02	10.9
East: William Halton Parkway															
4	L2	All MCs	182	2.0	182	2.0	1.809	382.6	LOS F	187.3	1343.2	1.00	6.72	18.05	13.1
5	T1	All MCs	2244	3.0	2244	3.0	1.809	382.5	LOS F	192.4	1382.6	1.00	6.82	18.31	13.1
6	R2	All MCs	170	4.0	170	4.0	1.809	382.5	LOS F	192.4	1382.6	1.00	6.90	18.56	13.0
Approach			2596	3.0	2596	3.0	1.809	384.3	LOS F	192.4	1382.6	1.00	6.81	18.31	13.0
North: Ninth Line															
7	L2	All MCs	145	2.0	145	2.0	0.855	55.2	LOS F	4.5	31.9	0.94	1.21	2.03	30.3
8	T1	All MCs	431	2.0	431	2.0	0.855	53.0	LOS F	4.5	32.4	0.94	1.21	2.03	31.6
9	R2	All MCs	142	2.0	142	2.0	0.075	3.9	LOS A	0.0	0.0	0.00	0.00	0.00	56.4
Approach			718	2.0	718	2.0	0.855	43.8	LOS E	4.5	32.4	0.75	0.97	1.63	34.1
West: William Halton Parkway															
10	L2	All MCs	52	4.0	52	4.0	1.622	301.3	LOS F	141.6	1009.1	1.00	6.07	16.87	14.9
11	T1	All MCs	1827	2.0	1827	2.0	1.622	225.1	LOS F	141.6	1009.1	1.00	4.81	12.93	17.6
12	R2	All MCs	409	12.0	409	12.0	0.231	5.1	LOS A	0.0	0.0	0.00	0.00	0.00	56.2
Approach			2288	3.8	2288	3.8	1.622	187.5	LOS F	141.6	1009.1	0.82	3.98	10.71	19.9
All Vehicles			7352	4.7	7352	4.7	2.696	387.6	LOS F	202.4	1444.4	0.92	5.46	15.91	14.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: US HCM 2010.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 2010 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	3	456	0	24	1	2122	0	0	2187	0
Future Volume (vph)	1	0	3	456	0	24	1	2122	0	0	2187	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		5.0	0.0		60.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		1	1		0	0		0
Taper Length (m)	15.0			15.0			15.0			15.0		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.91	0.95	1.00	0.95	1.00	1.00	0.91	0.91
Frt			0.850		0.998	0.850						
Flt Protected	0.950			0.950	0.953		0.950					
Satd. Flow (prot)	892	0	1566	1630	1564	1487	1750	3500	0	0	5029	0
Flt Permitted	0.354			0.950	0.953		0.065					
Satd. Flow (perm)	333	0	1566	1630	1564	1487	120	3500	0	0	5029	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			73		73	73						
Link Speed (k/h)		20			60			80			80	
Link Distance (m)		81.5			394.8			34.5			189.8	
Travel Time (s)		14.7			23.7			1.6			8.5	
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 (%)	100%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	1	0	3	496	0	26	1	2307	0	0	2377	0
Shared Lane Traffic (%)				50%		10%						
Lane Group Flow (vph)	1	0	3	248	251	23	1	2307	0	0	2377	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1		1	1	2	1	1	2			2	
Detector Template	Left		Right	Left	Thru	Right	Left	Thru			Thru	
Leading Detector (m)	2.0		2.0	2.0	10.0	2.0	2.0	10.0			10.0	
Trailing Detector (m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Position(m)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Size(m)	2.0		2.0	2.0	0.6	2.0	2.0	0.6			0.6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Detector 2 Position(m)					9.4			9.4			9.4	
Detector 2 Size(m)					0.6			0.6			0.6	
Detector 2 Type					Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	



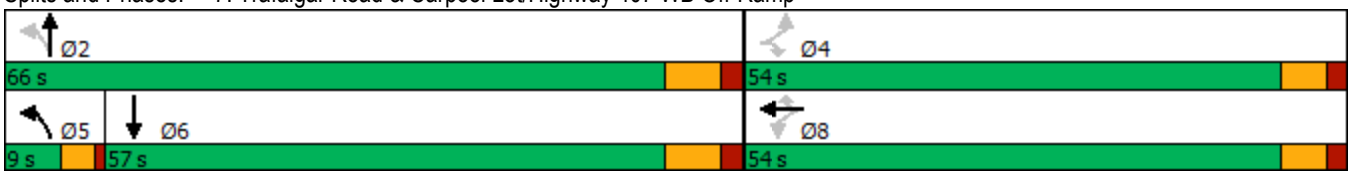
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4		4	8		8	2					
Detector Phase	4		4	8	8	8	5	2			6	
Switch Phase												
Minimum Initial (s)	7.0		7.0	7.0	7.0	7.0	4.0	35.0			35.0	
Minimum Split (s)	13.0		13.0	13.0	13.0	13.0	8.0	42.0			42.0	
Total Split (s)	54.0		54.0	54.0	54.0	54.0	9.0	66.0			57.0	
Total Split (%)	45.0%		45.0%	45.0%	45.0%	45.0%	7.5%	55.0%			47.5%	
Maximum Green (s)	48.0		48.0	48.0	48.0	48.0	5.0	59.0			50.0	
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0	3.0	5.0			5.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0	1.0	2.0			2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Recall Mode	None		None	None	None	None	None	Min			Min	
Act Effct Green (s)	19.1		19.1	19.1	19.1	19.1	62.2	59.2			57.5	
Actuated g/C Ratio	0.21		0.21	0.21	0.21	0.21	0.68	0.65			0.63	
v/c Ratio	0.01		0.01	0.73	0.65	0.06	0.01	1.02			0.75	
Control Delay	28.0		0.0	46.6	31.3	0.3	7.0	41.4			15.6	
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0	0.0			0.0	
Total Delay	28.0		0.0	46.6	31.3	0.3	7.0	41.4			15.6	
LOS	C		A	D	C	A	A	D			B	
Approach Delay		7.0			37.2			41.4			15.6	
Approach LOS		A			D			D			B	
Queue Length 50th (m)	0.2		0.0	42.9	31.3	0.0	0.1	~202.6			90.1	
Queue Length 95th (m)	1.4		0.0	68.8	57.4	0.0	0.7	#311.3			#184.1	
Internal Link Dist (m)		57.5			370.8			10.5			165.8	
Turn Bay Length (m)			5.0			60.0						
Base Capacity (vph)	175		860	860	859	819	171	2269			3169	
Starvation Cap Reductn	0		0	0	0	0	0	0			0	
Spillback Cap Reductn	0		0	0	0	0	0	0			0	
Storage Cap Reductn	0		0	0	0	0	0	0			0	
Reduced v/c Ratio	0.01		0.00	0.29	0.29	0.03	0.01	1.02			0.75	

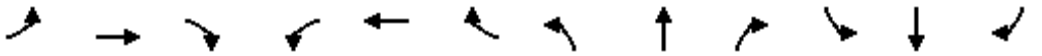
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 91.3			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.02			
Intersection Signal Delay: 29.2		Intersection LOS: C	
Intersection Capacity Utilization 89.0%		ICU Level of Service E	
Analysis Period (min) 15			

~ 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.

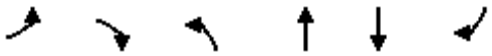
Splits and Phases: 7: Trafalgar Road & Carpool Lot/Highway 407 WB Off-Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	0	3	456	0	24	1	2122	0	0	2187	0
Future Volume (vph)	1	0	3	456	0	24	1	2122	0	0	2187	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	6.0	4.0	7.0			7.0	
Lane Util. Factor	1.00		1.00	0.95	0.91	0.95	1.00	0.95			0.91	
Frt	1.00		0.85	1.00	1.00	0.85	1.00	1.00			1.00	
Flt Protected	0.95		1.00	0.95	0.95	1.00	0.95	1.00			1.00	
Satd. Flow (prot)	892		1566	1630	1564	1487	1750	3500			5029	
Flt Permitted	0.35		1.00	0.95	0.95	1.00	0.07	1.00			1.00	
Satd. Flow (perm)	332		1566	1630	1564	1487	120	3500			5029	
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)	1	0	3	496	0	26	1	2307	0	0	2377	0
RTOR Reduction (vph)	0	0	2	0	58	18	0	0	0	0	0	0
Lane Group Flow (vph)	1	0	1	248	193	5	1	2307	0	0	2377	0
Heavy Vehicles (%)	100%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm		Perm	Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	
Permitted Phases	4		4	8		8	2					
Actuated Green, G (s)	19.1		19.1	19.1	19.1	19.1	62.4	62.4			57.5	
Effective Green, g (s)	19.1		19.1	19.1	19.1	19.1	62.4	62.4			57.5	
Actuated g/C Ratio	0.20		0.20	0.20	0.20	0.20	0.66	0.66			0.61	
Clearance Time (s)	6.0		6.0	6.0	6.0	6.0	4.0	7.0			7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)	67		316	329	316	300	94	2311			3059	
v/s Ratio Prot							0.00	c0.66			0.47	
v/s Ratio Perm	0.00		0.00	c0.15	0.12	0.00	0.01					
v/c Ratio	0.01		0.00	0.75	0.61	0.02	0.01	1.00			0.78	
Uniform Delay, d1	30.2		30.1	35.5	34.3	30.2	10.8	16.0			13.7	
Progression Factor	1.00		1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.1		0.0	9.4	3.3	0.0	0.0	18.2			1.3	
Delay (s)	30.3		30.1	44.9	37.6	30.2	10.8	34.2			15.0	
Level of Service	C		C	D	D	C	B	C			B	
Approach Delay (s)		30.1			40.8			34.2			15.0	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	26.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	94.5	Sum of lost time (s)	17.0
Intersection Capacity Utilization	89.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



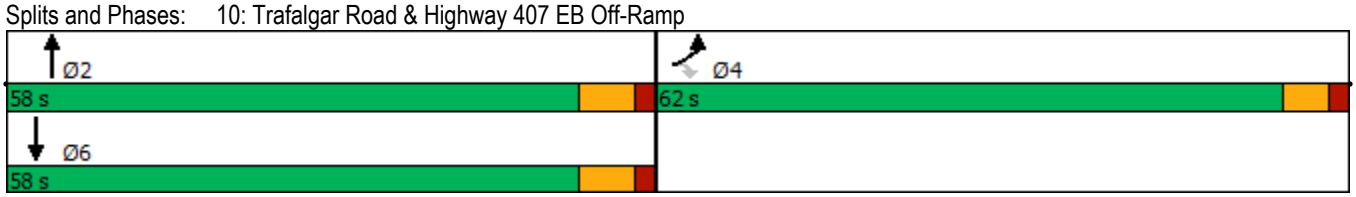
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	43	384	0	2298	2641	0
Future Volume (vph)	43	384	0	2298	2641	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	0.95	0.95	1.00
Frt	0.880	0.850				
Flt Protected	0.990					
Satd. Flow (prot)	1446	1308	0	3500	3500	0
Flt Permitted	0.990					
Satd. Flow (perm)	1446	1308	0	3500	3500	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)						
Link Speed (k/h)	60			80	80	
Link Distance (m)	417.0			117.5	129.7	
Travel Time (s)	25.0			5.3	5.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	16%	2%	2%	2%	2%
Adj. Flow (vph)	46	413	0	2471	2840	0
Shared Lane Traffic (%)		45%				
Lane Group Flow (vph)	232	227	0	2471	2840	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	25	15	25			15
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (m)	2.0	2.0		10.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	2.0		0.6	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	
Detector 2 Position(m)				9.4	9.4	
Detector 2 Size(m)				0.6	0.6	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Detector Phase	4	4		2	6	
Switch Phase						

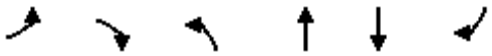
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Minimum Initial (s)	6.0	6.0		20.0	20.0	
Minimum Split (s)	24.0	24.0		27.0	27.0	
Total Split (s)	62.0	62.0		58.0	58.0	
Total Split (%)	51.7%	51.7%		48.3%	48.3%	
Maximum Green (s)	56.0	56.0		51.0	51.0	
Yellow Time (s)	4.0	4.0		5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		7.0	7.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		Max	Max	
Act Effct Green (s)	19.5	19.5		51.2	51.2	
Actuated g/C Ratio	0.23	0.23		0.61	0.61	
v/c Ratio	0.69	0.75		1.15	1.33	
Control Delay	40.3	45.2		95.1	170.9	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	40.3	45.2		95.1	170.9	
LOS	D	D		F	F	
Approach Delay	42.7			95.1	170.9	
Approach LOS	D			F	F	
Queue Length 50th (m)	33.9	35.4		~247.3	~312.4	
Queue Length 95th (m)	56.6	60.2		#336.5	#408.1	
Internal Link Dist (m)	393.0			93.5	105.7	
Turn Bay Length (m)						
Base Capacity (vph)	970	878		2140	2140	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.24	0.26		1.15	1.33	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 83.8			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.33			
Intersection Signal Delay: 128.2		Intersection LOS: F	
Intersection Capacity Utilization 99.7%		ICU Level of Service F	
Analysis Period (min) 15			

~ 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.

Splits and Phases: 10: Trafalgar Road & Highway 407 EB Off-Ramp



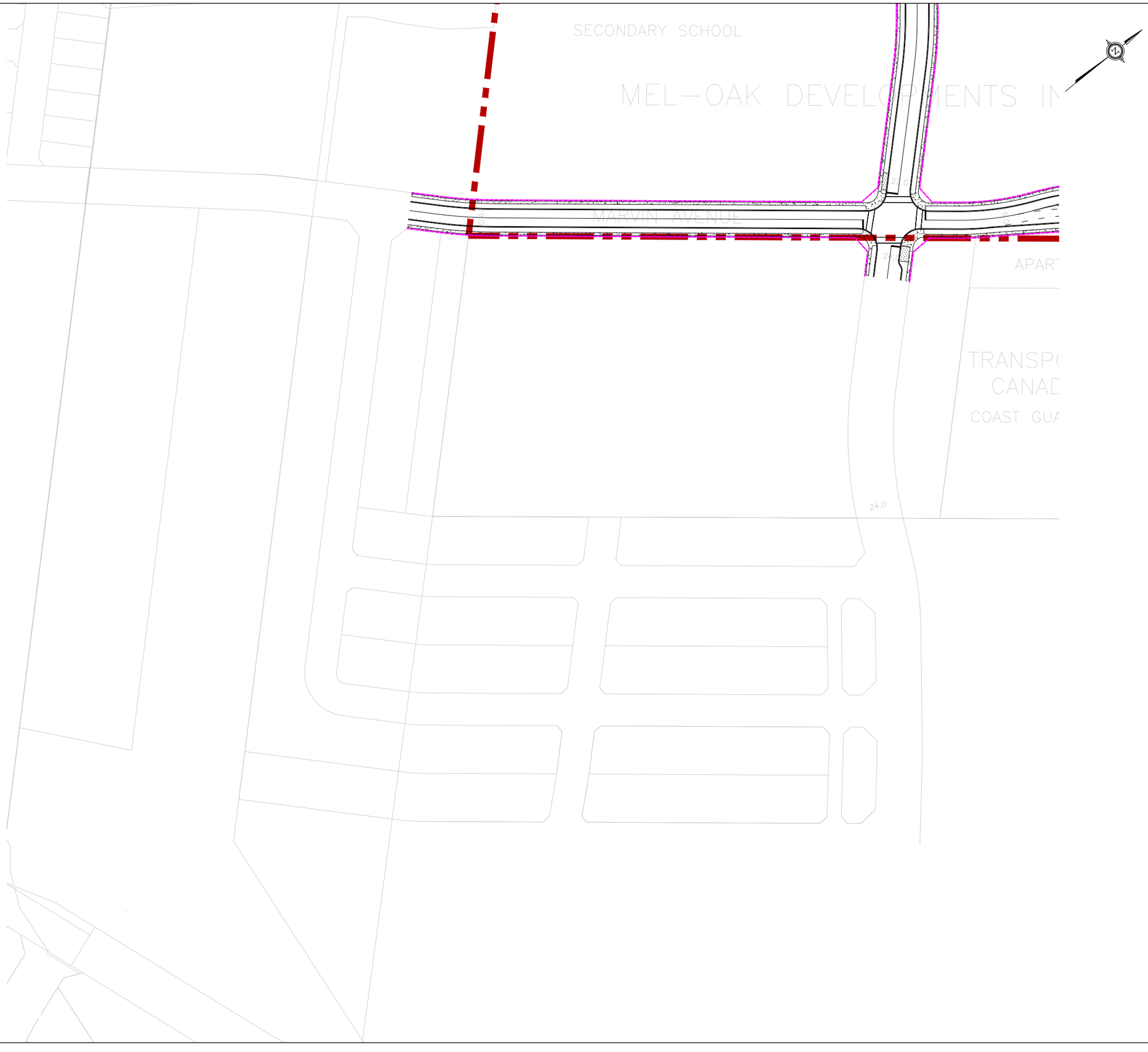


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	43	384	0	2298	2641	0
Future Volume (vph)	43	384	0	2298	2641	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.0	7.0	
Lane Util. Factor	1.00	0.95		0.95	0.95	
Frt	0.88	0.85		1.00	1.00	
Flt Protected	0.99	1.00		1.00	1.00	
Satd. Flow (prot)	1446	1308		3500	3500	
Flt Permitted	0.99	1.00		1.00	1.00	
Satd. Flow (perm)	1446	1308		3500	3500	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	46	413	0	2471	2840	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	232	227	0	2471	2840	0
Heavy Vehicles (%)	2%	16%	2%	2%	2%	2%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	19.5	19.5		51.2	51.2	
Effective Green, g (s)	19.5	19.5		51.2	51.2	
Actuated g/C Ratio	0.23	0.23		0.61	0.61	
Clearance Time (s)	6.0	6.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	336	304		2140	2140	
v/s Ratio Prot	0.16			0.71	c0.81	
v/s Ratio Perm		c0.17				
v/c Ratio	0.69	0.75		1.15	1.33	
Uniform Delay, d1	29.3	29.8		16.2	16.2	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.0	9.6		75.4	150.5	
Delay (s)	35.3	39.4		91.6	166.8	
Level of Service	D	D		F	F	
Approach Delay (s)	37.4			91.6	166.8	
Approach LOS	D			F	F	

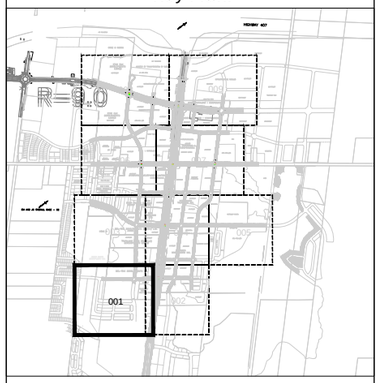
Intersection Summary			
HCM 2000 Control Delay	124.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	83.7	Sum of lost time (s)	13.0
Intersection Capacity Utilization	99.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Appendix P

Conceptual Intersection Layout



Key Plan:



LENGEND:

- CONCRETE SIDEWALK
- ASPHALT MUP
- PROPOSED RIGHT-OF-WAY
- PROPOSED EASEMENT (REGION)

NOTES:

1. THE CONCEPTUAL INTERSECTION LAYOUT SHOWN WAS COMPLETED TO SHOW THE RIGHT-OF-WAY REQUIREMENTS IN THE VICINITY OF THE INTERSECTIONS. A TOPOGRAPHIC SURVEY WILL BE REQUIRED TO ADEQUATELY ESTABLISH PROPERTY LIMITS.
2. THE MATERIAL PROVIDED IS BASED ON THE INFORMATION AVAILABLE AT THE TIME OF COMPLETION AND IS SUBJECT TO CHANGE. THERE WILL BE A DETAILED DESIGN OF THE WILLIAM HALTON PARKWAY AND TRAFALGAR CORRIDOR IN THE FUTURE THAT IS NOT YET AVAILABLE.

REV:	DESCRIPTION:	BY:	DATE:
05	Issued for Review	BB	2026-04-08

STATUS:

CGH Transportation
628 Haines Road
Newmarket, ON
L3Y 6V5
(905) 251-4070

CLIENT: EM4 JC7 JC9 Landowner's Group

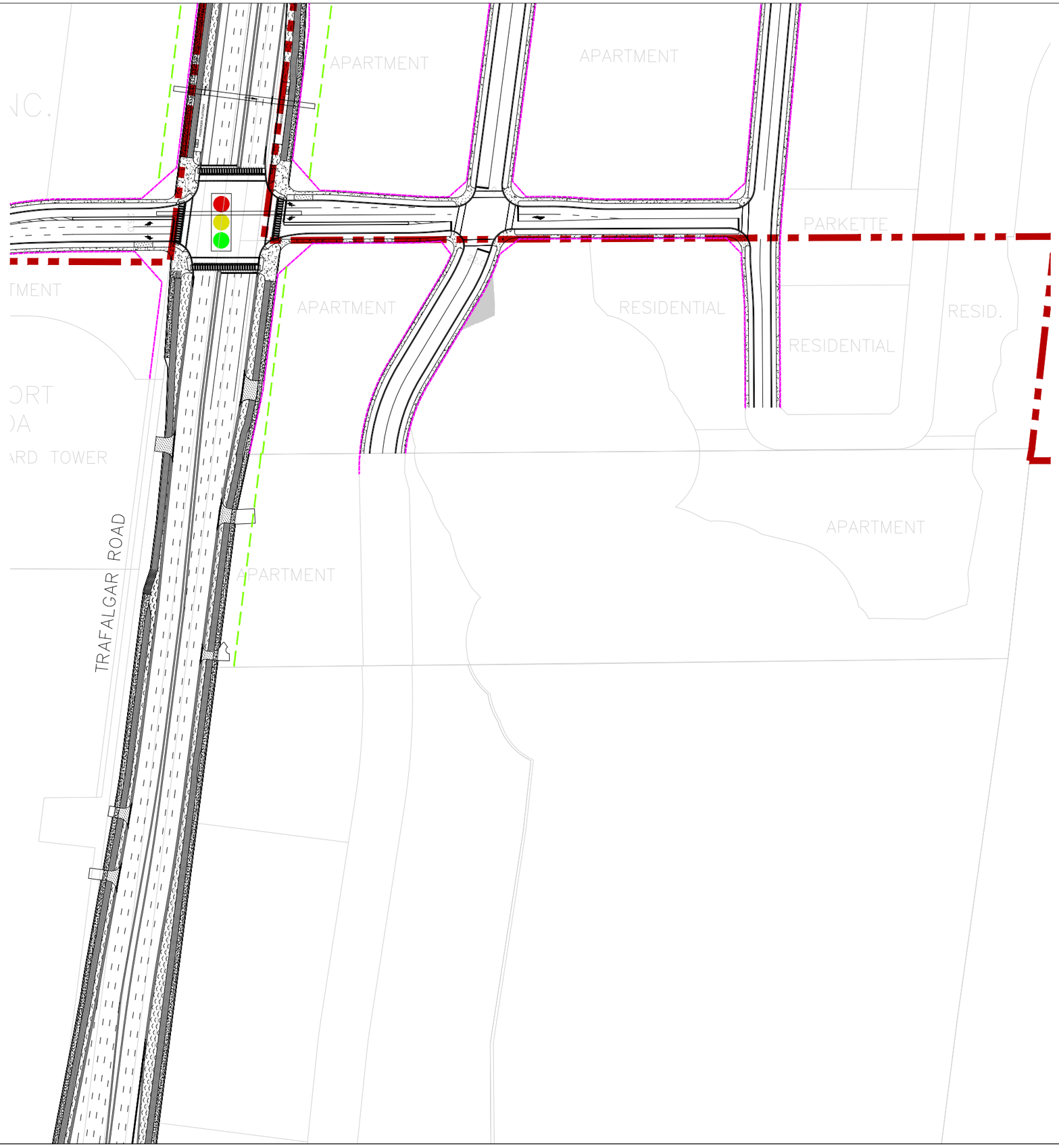
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SITE: EM4 JC7 JC9 Area

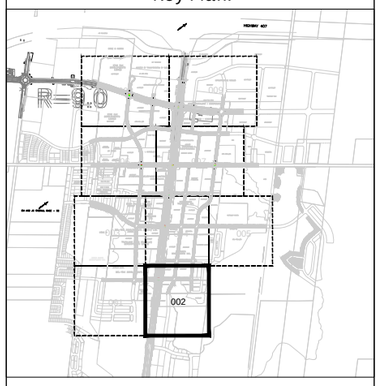
TITLE: Conceptual Intersection Layout

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2026-04-08	BB	MC

PROJECT NO:	DRAWING NO:	REVISION:
2023-084	001	05



Key Plan:



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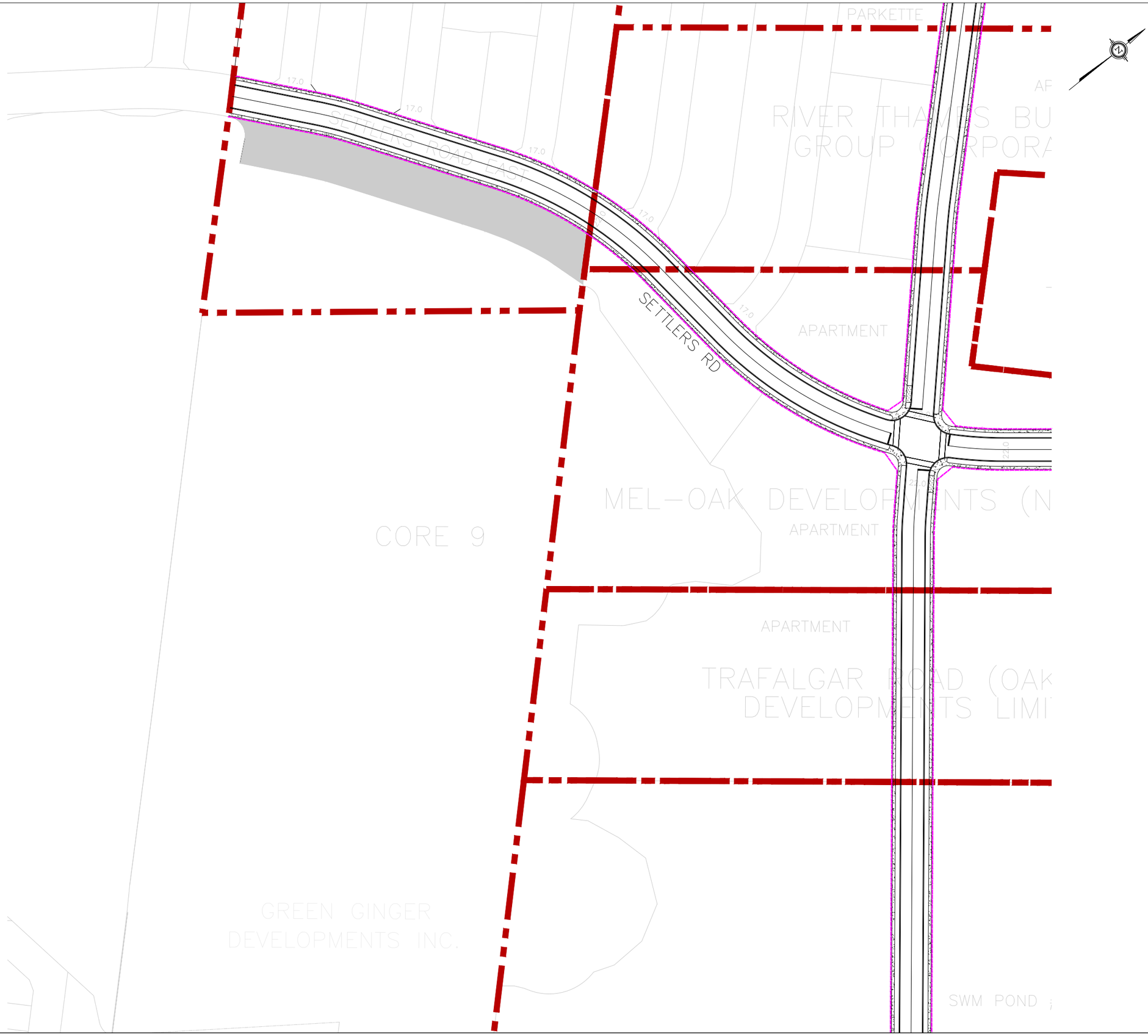
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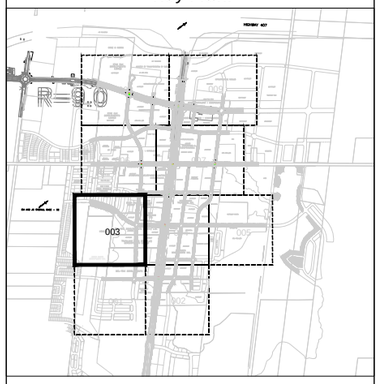
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SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2026-04-08	BB	MC
PROJECT NO:	DRAWING NO:		REVISION:
2023-084	002		05



Key Plan:



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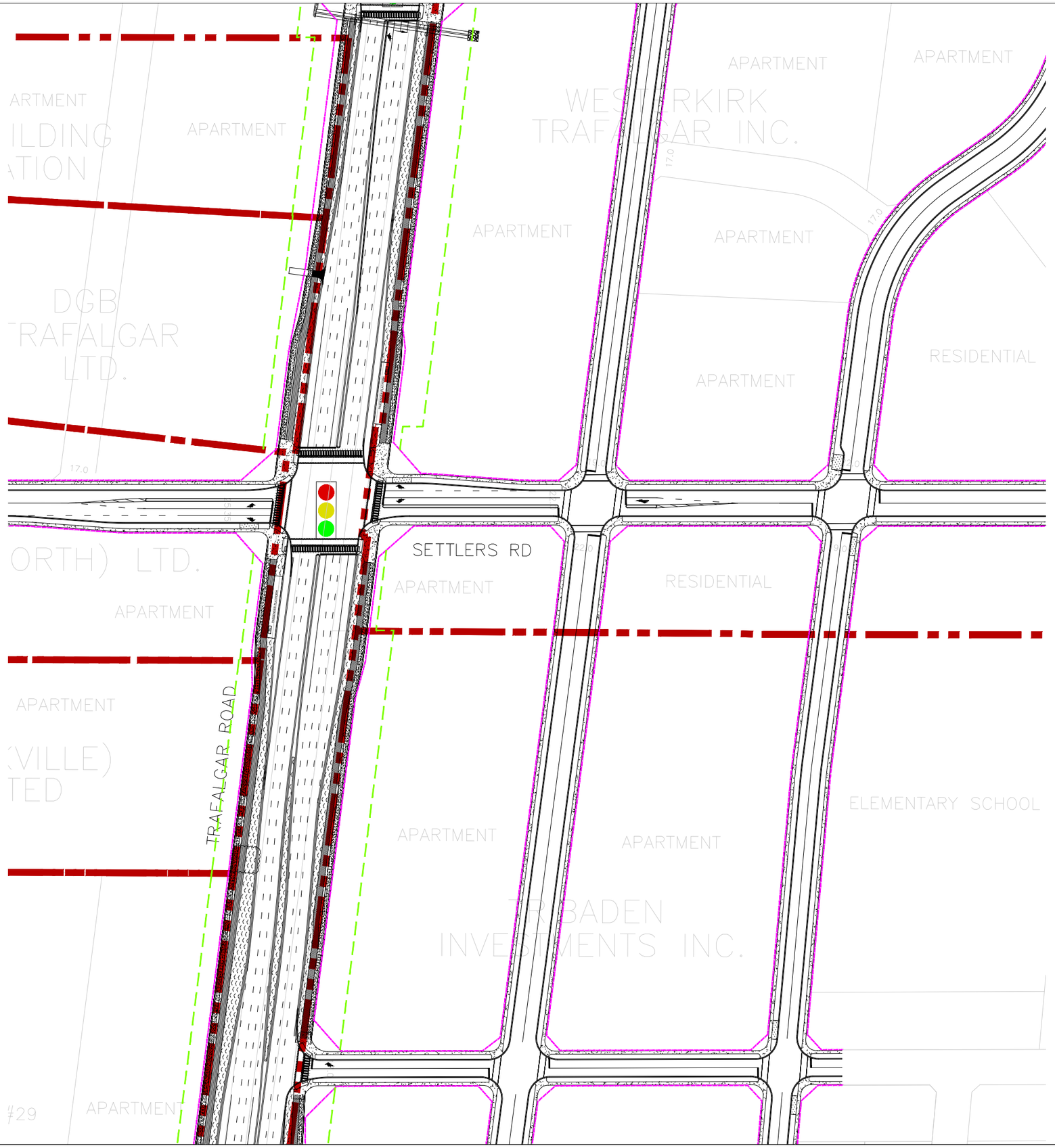
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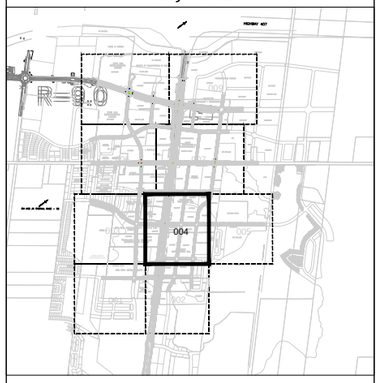
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TITLE: Conceptual Intersection Layout

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2026-04-08	BB	MC
PROJECT NO:	DRAWING NO:		REVISION:
2023-084	003		05



Key Plan:



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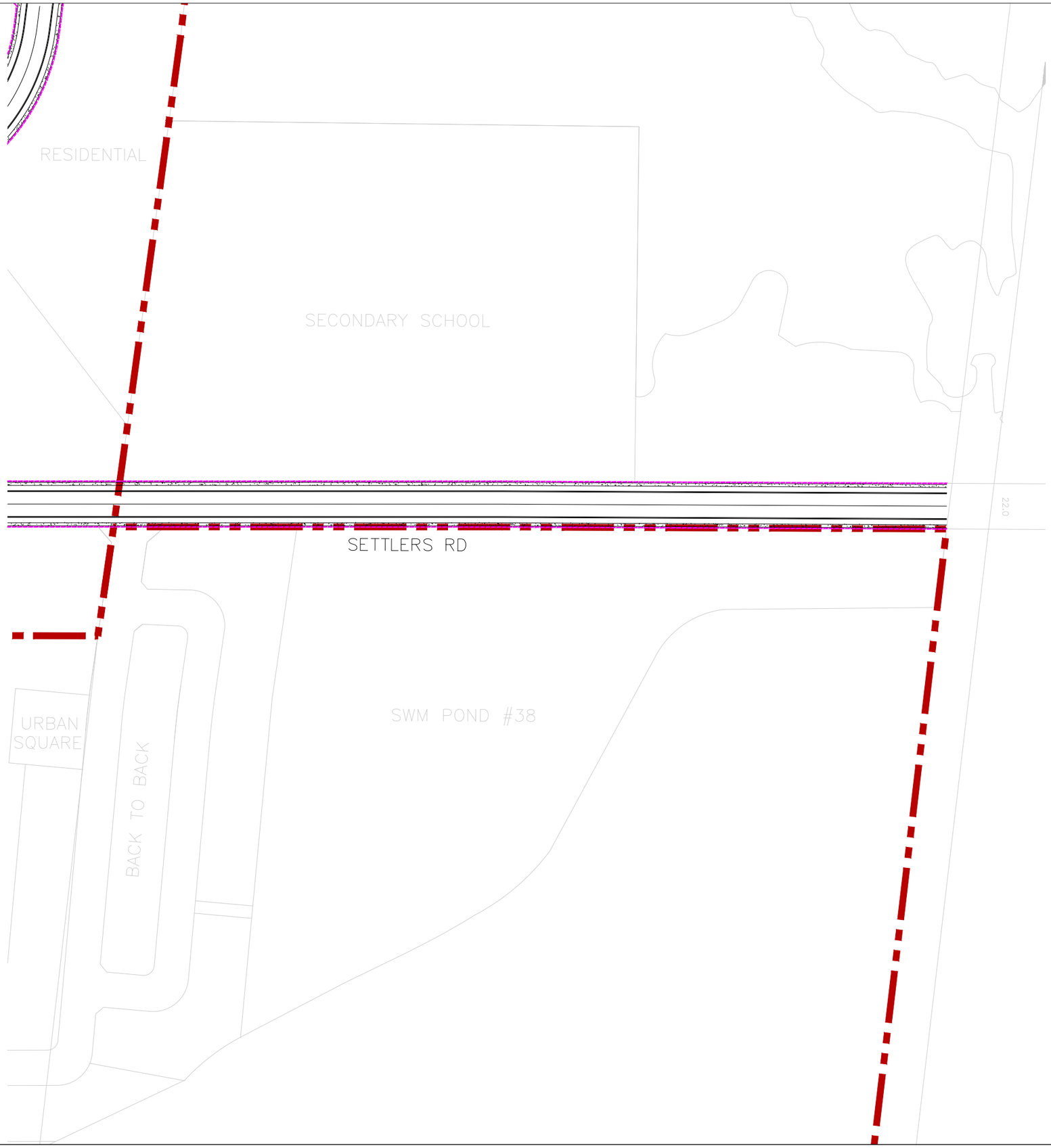
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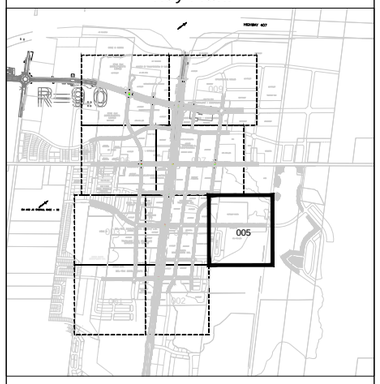
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TITLE: Conceptual Intersection Layout

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2026-04-08	BB	MC
PROJECT NO:	DRAWING NO:		REVISION:
2023-084	004		05



Key Plan:



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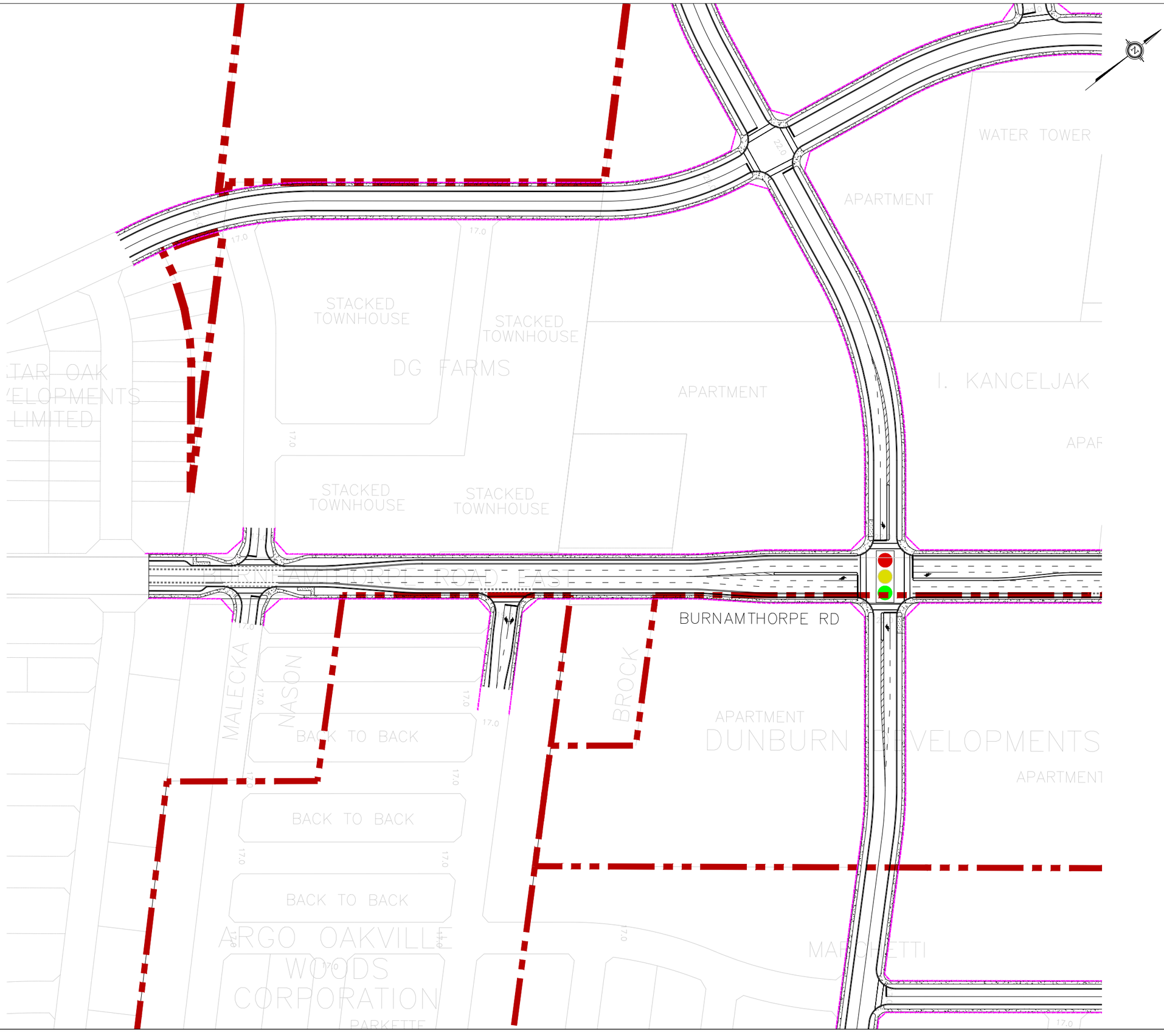
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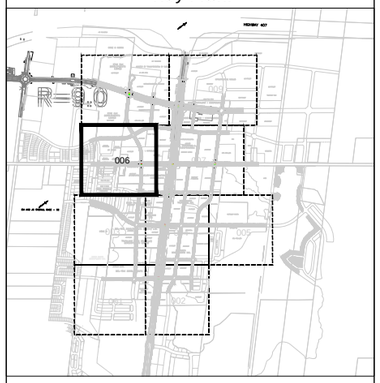
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SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2026-04-08	BB	MC

PROJECT NO:	DRAWING NO:	REVISION:
2023-084	005	05



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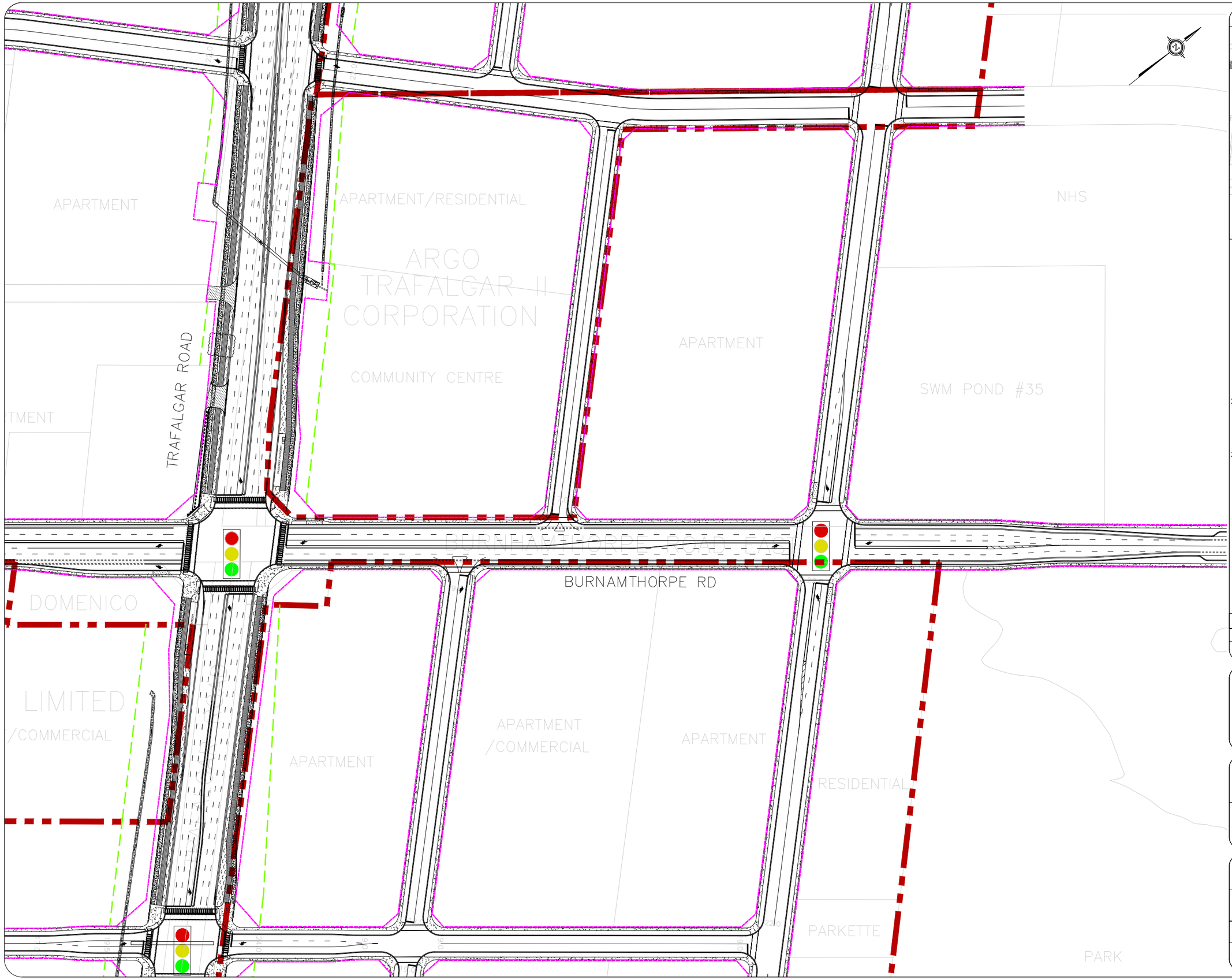
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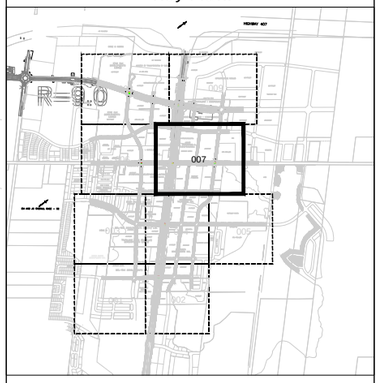
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SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2026-04-08	BB	MC

PROJECT NO:	DRAWING NO:	REVISION:
2023-084	006	05



Key Plan:



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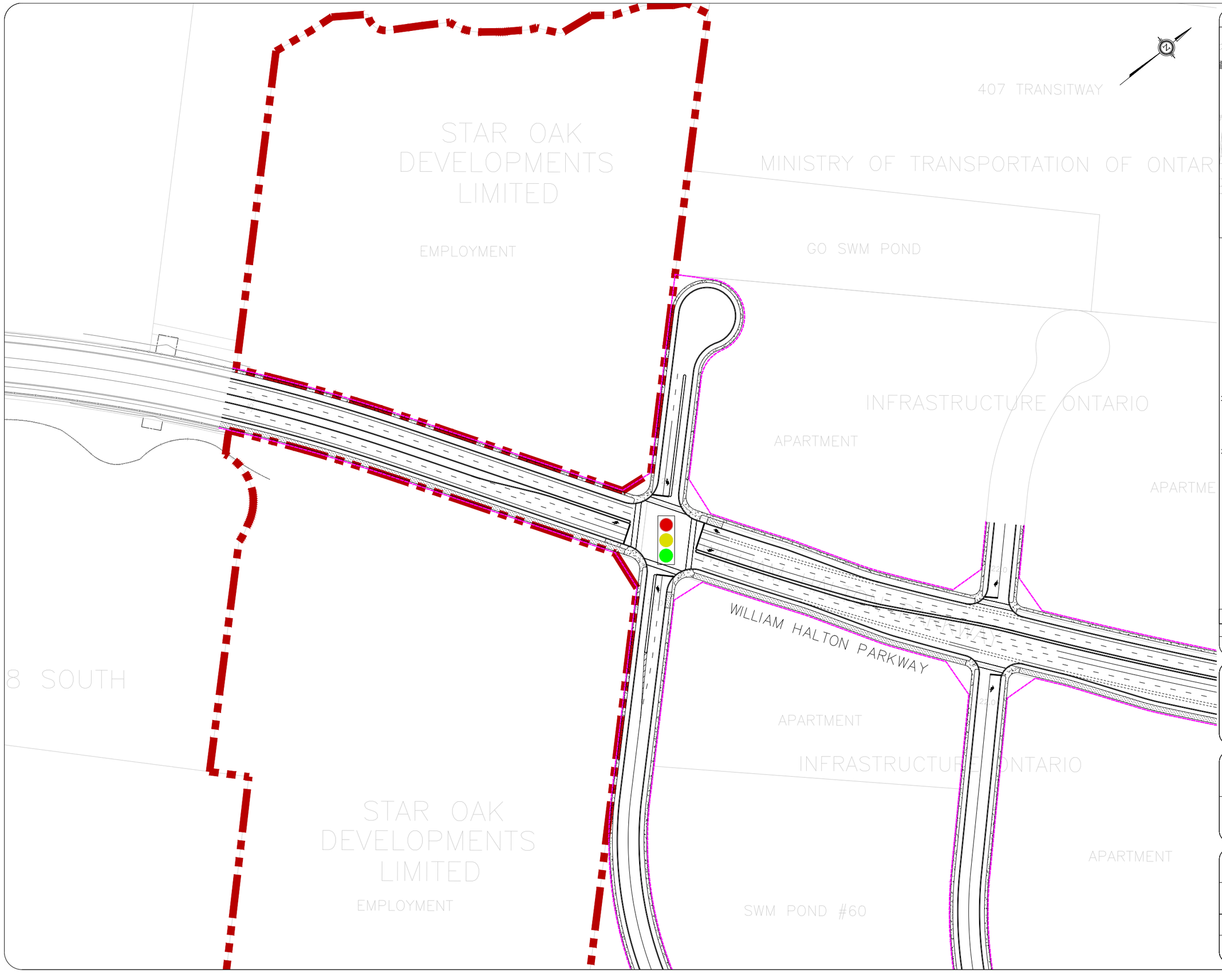
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SITE: EM4 JC7 JC9 Area

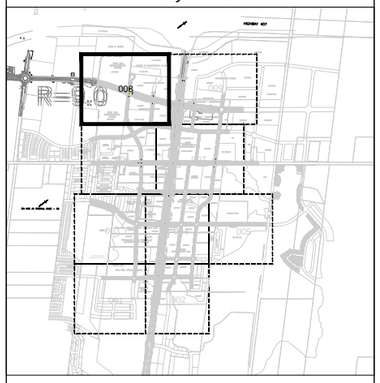
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SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2026-04-08	BB	MC

PROJECT NO:	DRAWING NO:	REVISION:
2023-084	007	05



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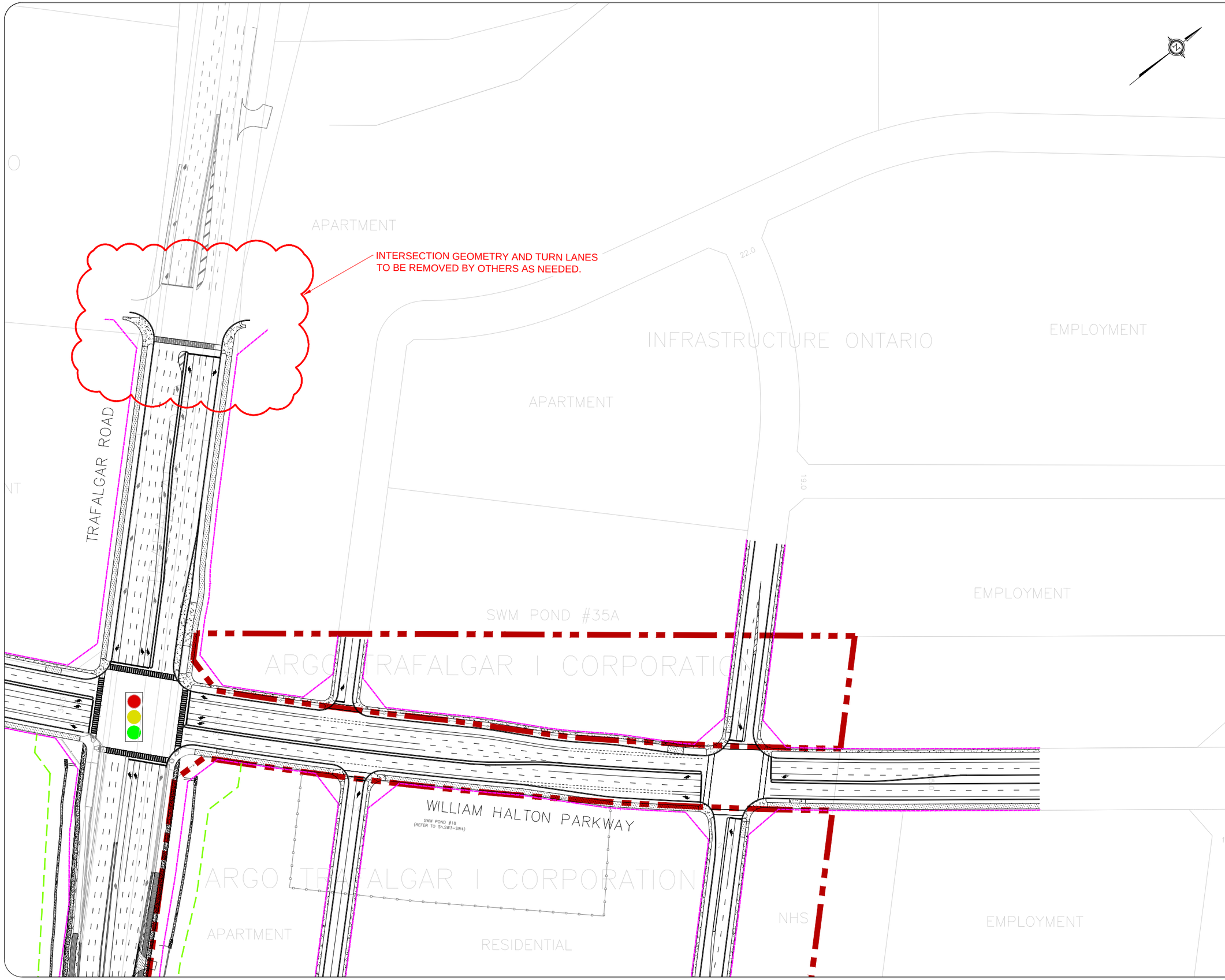
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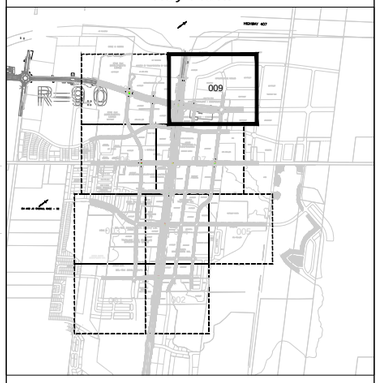
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SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2026-04-08	BB	MC

PROJECT NO:	DRAWING NO:	REVISION:
2023-084	008	05



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ARCHITECT:

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2023-084	009	05

Attachment 2

First Submission Comments

OAKVILLE

Pre-Consultation Checklist & Preliminary Comments

General Information:	
Applicant:	Jessica He c/o Korsiak Urban Planning
Site Location:	210 Burnhamthorpe Road East
Meeting Date:	April 16, 2025
Proposal:	Proposed 221 residential dwelling units (86 back to backs, 21 rear lane towns, 102 street towns and 12single detached dwellings), one village square, and one Natural Heritage System Block.

Proposed Application Types:					
Official Plan Amendment	☐	Plan of Subdivision	☒	Site Plan	☐
Zoning By-law Amendment	☒	Plan of Condominium	☐	MV/Consent	☐

SUBMISSION REQUIREMENTS		
Materials to be Provided:	**Required:**	**Notes:**
Documents		
Completed Application Form	☒	
Fees for the processing of the application	☒	
Executed Pre-consultation Checklist	☒	
Cover Letter	☒	
Plans		
Aerial Photograph(s)	☒	
Survey/Legal Plan	☒	
Land Assembly Documents	☐	
Concept Plan	☒	
Context Plan	☒	
Draft Plan of Subdivision and/or Draft Plan of Condominium (individual lots and/or units to be shown on draft Plan)	☒	
Site Plan & Site Plan Details	☒	
Park/Open Space Concept Plan	☐	
Building Elevations & Renderings	☒	
Building Floor Plans (including roof Plan)	☒	
Height Survey of Adjacent Buildings	☐	
Comprehensive Block Plan	☐	
Landscape Plan & Details	☒	
Tree Protection Plan	☒	

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Parks Facility Fit/Concept Plan	☐	
Pedestrian Circulation Plan	☐	
Streetscape Plan	☐	
Site Servicing Plan	☒	
Grading & Drainage Plan (including topographic information)	☒	
Erosion and Sediment Control Plan	☒	
Lighting Plan &/or Photometric Plan	☐	
Truck Turning Plan	☐	
Pavement Markings/Signage Plan	☐	
Construction Storage/Staging Plan	☐	
Demarcation of limits of natural features and/or natural hazards	☐	
Tree Canopy Cover Plan & calculation	☒	
Waste Management Plan/Report	☒	Waste Management Plan/Brief.
Reports/Studies		
Planning Justification Report/Letter	☒	*not required for Plan of Condominium application
Character Impact Analysis	☐	
Draft Zoning By-law Amendment	☒	
Draft Official Plan Amendment	☐	
Urban Design Brief include angular plane	☒	
Tree Vegetation Study/Arborist Report	☒	
Functional Servicing Study/Report	☒	EIR/FSS
Stormwater Management Study/Report	☒	
Hydrogeology Study/Water Budget & Hydrology Study	☐	
Hydro geotechnical Report	☐	
Environmental Impact Study/Statement/Assessment (EIS/EIA)	☐	
Shoreline Hazard Study	☐	
Geotechnical Report	☐	
Transportation Impact Analysis	☒	
Transportation Demand Management Plan and Implementation Strategy	☐	
Parking Demand/Justification Study	☐	
Queueing Analysis	☐	
Heritage Impact Assessment	☐	
Cultural Heritage Evaluation Report	☐	

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Archaeological Assessment	☒	
Market Impact Study/Retail/Service Commercial Needs Assessment	☐	
Phasing Strategy for Development of Retail and Service Commercial Uses	☐	
Capital/Financial Impact Study	☐	
Land Use Compatibility Study	☐	
Noise Feasibility/Vibration Study	☐	
Air Quality Assessment	☐	
Hydrogeological Study	☐	
Water Balance Assessment	☐	
Environmental Site Assessment (i.e. Phase 1) and/or letter of reliance	☒	
Environmental Site Assessment (i.e. Phase 2) and/or letter of reliance	☐	
Record of Site Condition	☐	
Environmental Site Screening Checklist (ESSQ)	☐	
Risk Assessment/Rail Safety Report	☐	
Shadow Impact Analysis	☐	
Wind Study/Micro-Climate	☐	
Sample Materials Board/Photos	☐	
3-D Computer Model (i.e. SketchUp)	☐	
Minutes and attendance list of Applicant-initiated "Public Information Meeting" (see Note k)	☒	*not required for Site Plan or Plan of Condominium applications
Other		
Rental Housing Demolition & Conversion Declaration	☒	
Operational Details	☐	
Cross Sections	☐	
Allocation Assignment/Plan/ Agreement	☒	+ Phasing Plan.
Minutes of Settlement	☒	
	☐	
	☐	
North Oakville		
Environmental Implementation Report/Functional Servicing Study	☒	
Map and Accompanying Tables Showing Densities and Designations	☐	
NOUFSMP/Tree Canopy Cover Plan & Calculation	☐	
Planning Statistics Spreadsheet	☒	
Sustainability Checklist	☐	

	Transit Facilities Plan	☐	
	Area Design Plan	☒	
	Executed Adhesion Agreement	☒	

General Next Steps:

1. **Prepare Application:** Prepare reports, plans, and studies identified on the pre-consultation checklist. Revised and coordinated plans and documents should fully address the comments in this report. The reports, plans and studies also must be prepared in accordance with Terms of Reference / Guidelines. Where site-specific Terms of Reference are noted in the pre-consultation checklist, prepare a draft Terms of Reference then send a copy to the listed staff member in this comment report for approval.

2. **Digital Submission:** Send an email to planningapps@oakville.ca requesting to submit a new application with the following information:

    a) Applicant's name
    b) Address of site
    c) Type of application to be submitted (i.e. Site Plan)
    d) Draft plan subdivision/Draft Plan of Condominium/ concept plan/site plan
    e) Date of Pre-consultation Meeting
    f) Signed Pre-consultation Form
    g) Signed Application Form
    h) Fee Calculation
    i) Date of Developer Public Information Meeting (if applicable)

3. **Organize Submission:** All documents part of the digital must follow the mandatory file naming conventions (pdf). If the mandatory file naming convention is not followed it will delay processing of the application.

4. **Upload Application:** planningapps@oakville.ca will provide a link where all required reports, plans and studies, together with the completed application form, and signed pre-consultation agreement can be digitally submitted.

5. **Confirmation of Submission:** planningapps@oakville.ca will review your submission, and confirm whether all submission requirements have been provided, confirm the application fee, and provide a reference # to be included on your Electronic Fund Transfer (EFT) or E-Mail Transfer.

6. **Pay Application Fee:** Send application fees via e-transfer/EFT (Electronic Funds Transfer) to planningapps@oakville.ca. Send confirmation of payment to planningapps@oakville.ca and accountsrecievable@oakville.ca. Please review the Electronic Payment Information page for additional information on making

payments. The full schedule of planning and development rates and fees is available on the Rates and Fees page.

7. **Complete Application:** Upon confirmation of payment of the application fee, the planner assigned to the application will make a determination whether the application is complete pursuant to the *Planning Act* and provide a file reference number. Following confirmation that the application is complete the application will be circulated to town departments and external agencies.

Other Applications:

Additional applications to other public agencies and governments, including, Provincial, Regional, Conservation Authority, and/or other Town Departments, may be necessary depending on the nature of the application.

General Note:

The pre-consultation form is valid for 6 months, any extension request must be received BEFORE the approval lapses with the appropriate fee.

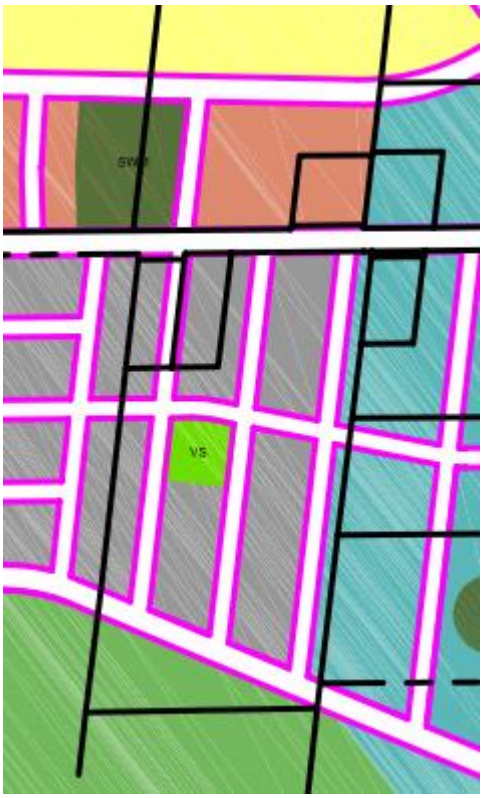
Due to recent Provincial legislation, as of July 1, 2024, the Region's role in land use planning and development matters has changed. The Region is no longer responsible for the Regional Official Plan – as this is now the responsibility of Halton's four local municipalities. As a result, the town may require certain reports and studies previously reviewed by the Region to undertake a peer review at the applicant's expense.

Internal Comments
NOTE: The comments below are **preliminary** and additional comments may be provided once a formal application is submitted.
1 Planning Services Kate Cockburn, kate.cockburn@oakville.ca
Pre-Consultation

The applicant is proposing a Zoning By-law amendment and Draft Plan of Subdivision to permit the development of the subject lands to implement the North Oakville East Secondary Plan. A previous pre-consultation meeting was held on May 31, 2023. The following comments are similar to those discussed previously.

Staff note concerns with the proposed road network and series of dead end/incomplete roads requiring a cul-de-sac, or some form of turn around meeting the town and Region standards for snow removal, fire, and waste collection services. As a result, some blocks may be held

from development. This should be demonstrated on the draft plan should the applicant proceed with that configuration, however providing a road network in line with the Master Plan would alleviate this issue. Further, the easterly north south road should be realigned to abut the TUC area to act as a buffer to the intended land uses to the east, and not accommodate additional townhouse units. Additionally, staff do not agree with the proposed walkway connection to the lands to the east, and instead should be a road in line with the Master Plan.



Additionally, staff continue to have concerns with the dwellings on the south side of Settlers Road East and promoting access to the NHS. Connectivity to the NHS trail system should be considered, and some form of linkage to the Village Square should also be contemplated where visibility to the NHS deviates from the Master Plan.

Similarly, an area within the proposed development should contemplate the location of hydro infrastructure that may be required, such as a switch gear.

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An Area Design Plan is required to demonstrate how the surrounding undeveloped areas are intended to maintain the intent of the NOESP as a result of the proposed deviations from the Master Plan. Further, an OPA may also be required to address the deviations.

Halton Region Official Plan:

The Region's Official Plan is now implemented by the Town and provides goals, objectives and policies to direct physical development and change in Halton. The proposed development and site alterations are located on the lands that are designated as 'Urban Area' and are located within the Built Boundary in the 2009 Halton Region Official Plan (ROP). The policies of Urban Area designation support a range of uses and the development of vibrant and healthy mixed-use communities which afford maximum choices for residence, work and leisure. The Urban Area policies state that the range of permitted uses and the creation of new lots in the Urban Area will be per Local Official Plans and Zoning-By-laws.

Site Contamination

Section 147(17) of the Regional Official Plan (ROP) requires the applicant of a development proposal to determine whether there is any potential contamination on the site they wish to develop, and if there is, to undertake the steps necessary to bring the site to a condition suitable for its intended use. This process is described in the Town's Protocol for Reviewing Development Applications with Respect to Contaminated or Potentially Contaminated Sites.

- Staff require a Phase 1 Environmental Site Assessment (ESA) by a Qualified Person (QP), as defined by the O.Reg. 153/04, (signed and stamped) be submitted for review to establish any potential further requirements. The ESA reports must be no older than 18 months old and comply with all requirements set in Schedule D and E of the regulation.
- In addition, the author(s) (i.e. the Qualified Person(s), as per O.Reg 153/04) of the environmental reports/ documentation must also extend third party reliance to the town and Halton Region. The letter of reliance must be signed by the author(s) as per the town's reliance template, indicating that liability insurance coverage is no less than $2,000,000.

Rental Housing Conversion

Protection of the existing rental and affordable housing supply is an important component of the town's Housing Strategy and Action Plan. On July 10, 2023, Council passed Rental Housing Protection By-law 2023-102. The by-law was approved under the authority of Section 99.1 of the *Municipal Act, 2001* which provides municipalities with the authority to prohibit and regulate the demolition and conversion of residential rental properties. The following Declaration of Use and Screening Form must be completed and submitted with the application.

OAKVILLE

2 Planning Services, Urban Design

Philip Wiersma, philip.wiersma@oakville.ca
Nada Almasri, nada.almasri@oakville.ca

Pre-Consultation

List of Resources:

In framing our review and drafting our comments, we have utilized and relied upon the following:

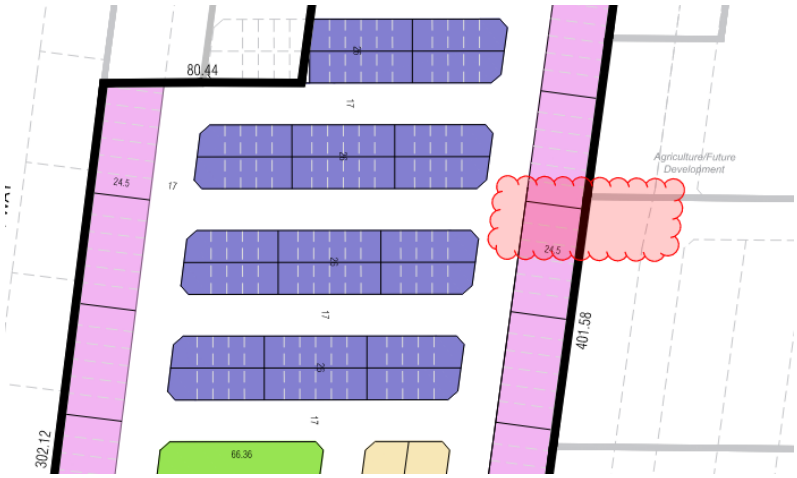
- *Livable Oakville Official Plan*; including
  - North Oakville East Secondary Plan
- Livable by Design Urban Design Manual (LbDM); specifically
  - Urban Design Direction for Oakville (LivDesignManual-v2-1.pdf (oakville.ca);
  - Site Design and Development Standards(Livable by Design Manual (Part C) (oakville.ca)) [referenced to ensure site functionality]
- Burnhamthorpe Road Character Study
- North Oakville Urban Design and Open Space Guidelines
- Development Application Guidelines / Terms of Reference

Matters of Concern:

Public Realm |

- [Pre-con 2] Comment addressed, full road connection remains encouraged from an urban design perspective.

  [Pre-con 1] As per Appendix 7.3 North Oakville Master Plan, to improve walkability, the subdivision should have another east/west street connecting this site to adjacent subdivisions, between Burnhamthorpe Road East and Settlers Road East

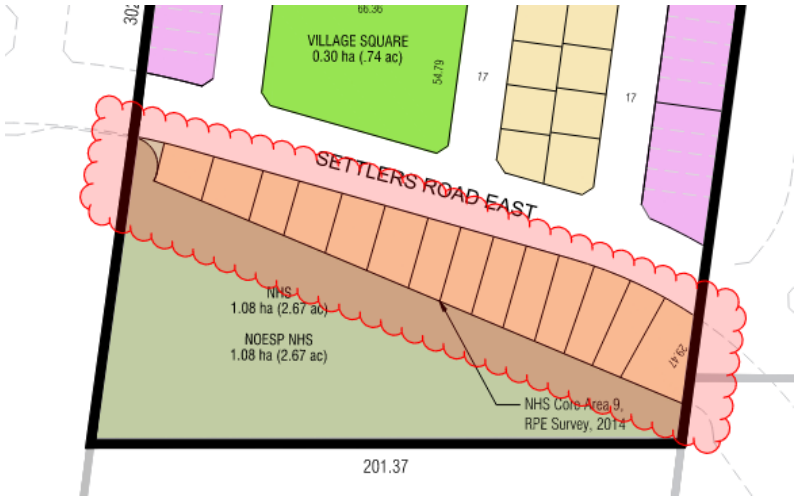


- **[Pre-con 2] Comment not satisfied.** Proposed residential lots on the south side of Settlers Road East continues to not provide physical and visual public access to the NHS from the public right-of-way and does not align with the North Oakville East Secondary Plan, including policy 7.5.4 which states:

  Public safety, views and accessibility, both physically and visually, to the Natural Heritage component of the Natural Heritage and Open Space System, … and other natural and civic features, will be important consideration in community design. This will be accomplished through a range of different approaches including, but not limited to, the use of single loaded roads, … With respect to the Natural Heritage component of the Natural Heritage and Open Space System, priority will be given to maintaining views and accessibility at key trail access points where Arterial, Avenue and Connector roads are adjacent to the System …

  As per previous comments, Settlers Road should be single loaded to provide visual and physical connections to the NHS lands in alignment with the North Oakville Master Plan. Adjust road layout as necessary to accommodate.

  [Pre-con 1] As per Appendix 7.3 North Oakville Master Plan, Settlers Road should be single loaded to provide visual and physical connections to the NHS lands. Adjust road layout as necessary to accommodate.



- [Pre-con 2] Comment addressed from an urban design perspective. Final approval of village square location deferred to Parks and Open Space staff.

  [Pre-con 1] As per Appendix 7.3 North Oakville Master Plan, the village square should be centrally located on the site to provide equitable access to the square, provide a terminus to the desired east west connection (see comment above) and to mitigate safety issues that may result from locating the square on Settlers Road which is a higher order road.

Built Form |

- **[Pre-con 2] Comment not satisfied.** Consider incorporating dual-frontage or lane-based townhouse blocks north of Settlers Road to create a more seamless and continuous pedestrian experience, ensuring consistency with the existing subdivision design to the west.

  [Pre-con 1] The site configuration to the north of Settlers Road has multiple road access points that cause interruptions to its pedestrian environment. To address this issue and build upon the recommendation of avoiding rear lotting along the NHS area (as mentioned in the previous comment), this east-west spine (transit corridor) shall be framed with dual-frontage or lane-based townhouse blocks. This typology provides opportunities for:

  - active front facades featuring main doors, front porches, and generous fenestration.
  - convenient on-street parking to serve residents and visitors.
  - seamless integration of uninterrupted landscape treatments that visually and physically connect with the natural areas to the south.



- **[Pre-con 2] New comment:** An Area Design Plan/Context Plan should be provided to assess how the proposed development integrates with and relates to its surrounding environment, specifically along Settlers Road and the adjacent subdivision.

Additional Design Direction:

- Urban Design Brief should discuss the various streetscape treatments, including Burhamthorpe Road East. Ensure treatments are consistent with town standard street sections and the Burnhamthorpe Road Character Study.
- Urban Design Brief should discuss how the 20% tree canopy cover target will be achieved.
- Urban Design Brief should discuss how gas meters, hydro meters, transformers and switch-gear will be located in non-prominent locations screened from public realm views.

3 Planning Services, Heritage Planning - Archaeology
Kristen McLaughlin, kristen.mclaughlin@oakville.ca

Pre-Consultation

Second precon. Did first precon cover archaeology?

The Halton Regional Official Plan, now implemented by the Town, contains policies concerning archaeological potential and the preservation, mitigation, and documentation of archaeological sites and artifacts. Staff note that the subject site is identified as having archaeological potential.

As such, a Stage 1 archaeological assessment is required, as well as any subsequent assessments as recommended, to be prepared by a qualified archaeology professional with a future submission, to the satisfaction of the Town of Oakville. See the Town's Terms of Reference for an Archaeological assessment. This needs to be conducted before any soil disturbance on the site.

Please note archaeological assessments can often be done in conjunction or in succession to help meet timelines.

As part of any stage 2-4 archaeological assessment, the Town requests the archaeological consulting company hire First Nations monitors from the relevant interested communities to be on-site during any archaeological fieldwork on the subject property. This must be shown through the assessment to the satisfaction of the Town of Oakville.

A Letter of Acknowledgement from the Ministry of Citizenship and Multiculturalism confirming all assessment(s) were submitted and registered is also required.

4 Planning Services, Environmental Planning
Elisa Bernier, elisa.bernier@oakville.ca

Pre-Consultation

The proposed development and associated site alteration is located on lands that are within and adjacent to the Natural Heritage System on Map 1 of the Regional Official Plan (ROP) and/or the Town of Oakville Schedule A1 Urban Structure.

North Oakville
In accordance with Regional Official Plan (ROP) sections 116.2 and 116.3, the delineation and implementation of the Regional Natural Heritage System within the North Oakville East Secondary Plan Area shall be implemented through an EIR / FSS, prepared in accordance with North Oakville Environmental Implementation Report and Functional Servicing Study Terms of Reference (2013) to the satisfaction of the Town and Conservation Halton.

Provide the delineation of core 9 and confirmation of approval from agencies to inform the core limits.

Provide wetland water balance(s) for wetlands contained within core 9 to ensure no negative impact during and post-construction.

Staff recommend a meeting to discuss options for the trail connectivity in and abutting the natural heritage system.

A site walk is required as a second part of the pre-consultation meeting: Yes ☐ No ☒

*Please note, if preparing an **EIA**, please provide sensitive species information under a separate addendum to ensure the information is not shared publicly in keeping with the Natural Heritage Information Centre's Data Sensitivity Standards.*

5 Development Services, Development Engineer

Stephen Pietrangelo, stephen.pietrangelo@oakville.ca

Pre-Consultation

All drawings, reports and studies are to be prepared by a qualified professional.
The below comments are provided to clarify additional details that will be requested for the submission. Additional submission items such as landscaping plans, site plans and other relevant plans/studies for a typical site plan submission are still required. As such, the below is included but not limited to:

1. **Topographic Survey**
   - 5.0m beyond the property extents to determine external features and drainage patterns
   - Determine and investigate any public or private servicing, utility and access easements
   - Survey should show specific drainage features such as existing ditches, ponds, depressions, etc.

2. **EIRFSS**
   - The EIR is required to be in accordance with North Oakville Creeks Subwatershed (NOCSS) Study and the North Oakville EIR terms of reference.

     Within the EIR, a Functional Servicing Report will be required.

   Notes to Applicant:
   - The submission of an EIRFSS is critical in demonstrating the stormwater management strategy for the lands.
   - The subject lands depend on a stormwater management facility located beyond property limits. Interim stormwater facilities will not be permitted, and the developer should continue coordinating with the adjacent landowner ensuring adherence to the North Oakville Secondary Plan.
   - The requirements of the Town's Consolidated Linear Infrastructure Environmental Compliance Approval agreement are to be implemented in the overall design including water balance, quantity and quality targets. The CLI/ECA requirement needs to be within Town ownership. An enhanced NHS buffer may be considered.

- Coordinate with the Town of Oakville Capital Works staff regarding the reconstruction of Burnhamthorpe Rd E and the impacts to the servicing and grading design for the proposed development.
- The Town of Oakville does not support the continuous long-term groundwater discharge from parking structure foundation drains into municipal systems which have not been designed to accommodate cumulative groundwater flows. Please see section 3.7.12 of the Development Engineering Procedures and Guideline manual for further direction. The applicant must address groundwater discharge from mid-high density foundation structures with field studies and analyses during the EIR stage.
- The developer will be required to enter into a Subdivision Agreement with the Town of Oakville.

3. Functional Servicing Report (FSR)

- The FSR at the draft plan stage is primarily reviewed by the town's development engineering section for grading, storm servicing and stormwater management and shall include the following:

a. Site Servicing and Grading Plan

- The subdivision shall be designed with a sewer network capable of capturing the 5 Year Event.
- In circumstances that do not allow for surface storage or an overland flow route to the storm water management facility, the sewer network will be designed convey flows as needed (up to the 100 year storm).
- Overland flow routes are to be shown on grading and storm drainage catchment plans.
- Existing elevations along property line are to be maintained and neighbouring properties shall not be negatively affected.

4. Draft Plan

- If there are any proposed servicing blocks, they are to be a minimum 10m
- Ensure all streets that dead end have proper turnaround sizes or temporary access roads and ensure that emergency vehicles/ Regional waste collection can properly maneuver through the roads

5. Road Widening

A road widening of 1.94 meters on Burnhamthorpe Road is required fronting this property in accordance to the **Burhamthorpe Road Character Study**. See the following links:
https://www.oakville.ca/getmedia/00a072f8-d75d-4752-9d9e-c1097cad64a6/transportation-roads-burnhamthorpe-environmental-study-report.pdf

Burnhamthorpe Road (oakville.ca)

6. Arborist Report

- Be prepared by a certified licensed arborist (licensed with Town of Oakville).

- Include all municipal trees, private trees, boundary trees, and trees on neighboring properties within 6.0m of property line.
- Include a report/discussion/table, with all tree data, including ownership of each tree and final recommendation of each tree.
- Include tree appraisals for all municipal trees.

The arborist report must be accompanied by a **Tree Preservation Plan**. The Tree Preservation Plan and grading/servicing plan must show:

- Location of all trees, with tree numbers
- All tree protection zone dimensions, to scale in metres
- Any horizontal tree protection/access corridors
- Location for any root exploration, as set out in AR/TPP.
- The information on the TPP must also be shown on the grading/servicing plan.

In addition to the submission requirements noted, please refer to the Town's Development Engineering Procedures and Guidelines manual for further direction.
https://www.oakville.ca/assets/general%20-%20business/DevelopmentEngProceduresManual.pdf

6 Transportation Services, Transportation Engineer

Syed Rizvi, syed.rizvi@oakville.ca

Pre-Consultation

Please see the Transportation submission requirements for the pre-con meeting agenda items as per details below.

1. A TIS is required to be completed in order to determine the impact of the development on adjacent roadway network. Terms of reference (TOR's) should be approved to confirm the scope of study with the Halton Region and Town Transportation Department.
2. An on-street visitor parking plan is required, indicating the approximate locations of residential driveways and ensuring compliance with standard parking space dimensions.
3. A pedestrian and sidewalk connectivity plan should be submitted, illustrating connections to adjacent subdivisions and accommodating future alignment opportunities.
4. As discussed during the meeting, the proposed right-of-way (ROW) widths for Street "B" and Street "G" should be reconsidered. These streets function as connectors and should have a minimum ROW width of 19 metres.

7 Building Services, Zoning Examiner

Matt Rubic, matt.rubic@oakville.ca

Pre-Consultation

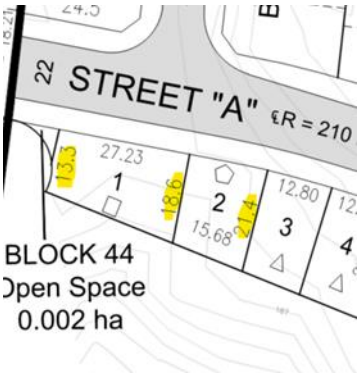
The following preliminary comments are based on the material provided for discussion purposes only and should not be construed as formal zoning comments on the proposal.

Zoning By-law Amendment

1. Draft zoning by-law amendment is required to be submitted with the application.

Draft Plan of Subdivision

1. The proposed lot 1 to 3 do not comply with the minimum depth of 22.0m. The proposed lot depths are 13.3m (lot 1), 18.6m (lot 2) and 21.4m (lot 3). In addition, the minimum rear yard may need to be amended to allow for a buildable lot.



2. A surveyor's certificate providing lot areas, lot frontages and lot depths is required prior to draft approval.

3. For blocks which will be combined with adjacent lands to create future lots: Lot areas, frontages and lot depths will be confirmed for the combined blocks qualifying as lots prior to draft approval of adjacent lands. Please note that under section 4.11.4 of zoning by-law 2009-189, as amended, blocks not qualifying as lots until they are combined with additional land to qualify as lots, shall be used for the purpose of horticulture only and no building or structure may be erected thereon.

8 Parks and Open Space
Carmen Hui, carmen.hui@oakville.ca

Pre-Consultation

The following comments are based on the material presented by Argo at the Pre-Consultation session on April 16, 2025. Comments to be addressed in the next submission.

Village Square:
Parks and Open Space is satisfied with the relocation of the Village Square which is more centralized within the development.

- Provide a Concept Design illustrating that the park block can accommodate the intended program of a shade structure, playground area, seating, pathways, and an open lawn area.

Trails:

- North Oakville Trails Plan standards for trails can referenced here.
- Provide a 2.5m planted buffer be provided between the trail and private property (subject to the grading and drainage strategy agreed upon with Planning and Development Engineering).
- Provide a 2.4m wide limestone screenings trail be designed and developed within the NHS buffer.
- That the trail alignment be designed to allow for proper park operations and forestry maintenance.

Walkway Block:

- Walkway block to fully align with the adjacent eastern plan.
- If the walkway block is also a servicing block. The block shall not be credited towards the required total parkland obligations as described in the Master Parkland Agreement.

Connectivity and Circulation:

- Provide a Pedestrian Circulation Plan that demonstrates pedestrian circulation within the development and extending connectivity to adjacent plans.
- The proposed single family residential lots on the south side of Settlers Road East does not provide physical access from the Village Square to the NHS. These are significant two public/green spaces that should be connected. Recommend providing a strong gateway access point to the NHS at the terminus of Street H.

External Comments

9 Conservation Halton
Sean Stewart, sstewart@hrca.on.ca

Pre-Consultation

- There are no classified watercourses with management requirements. Wetlands do not need to be delineated as they are contained well within the established NHS limit. (Wetlands would only need to be delineated if there were any works proposed within the NHS limit)

- The applicant will have to confirm that the wetland water balances to the wetlands contained in core 9 are being maintained pre-construction, during and post construction.
- CH staff understands the lands are within the study boundary of the forthcoming EM4 EIR/FSS Addendum, which should be submitted to the Town and CH prior to submission of draft plan application. CH has already provided comment on the modelling mini-submission for EM4.

Requirements:

- Addendum to the Final Scoped EIR/SWM Report (East branch of East Morrison Creek, Upper Subcatchment EM4, North Oakville)
    - Recommend submission of a pre-application technical review
- Survey
- Draft Plan of Subdivision
- Engineering drawing set (grading, ESC plan etc.)
- Review fee to be determined at the time of submission

*CH cannot attend the preconsultation meeting. Inquiries can be directed to Sean Stewart.

10 Region of Halton, Planning & Public Works Dept
Michaela Campbell, michaela.campbell@halton.ca

Pre-Consultation

Date of Pre-Consultation Meeting: April 16, 2025.

Subject Lands: 210 Burnhamthorpe Road East.

Type of Application: ZBA and Draft Plan of Subdivision.

Proposal: Proposed 221 residential dwelling units (86 back to backs, 21 rear lane towns, 102 street towns and 12 single detached dwellings), one village square, and one Natural Heritage System Block.

Previous Pre-Consultation: May 31, 2023.

Regional staff has reviewed the Pre-Consultation for 210 Burnhamthorpe Road East and offer the following comments:

Regional Role:

- Due to Provincial legislation, Halton Region's role in land use planning and development matters has changed. The Region is no longer responsible for the Regional Official Plan - as this has become the responsibility of Halton's four local municipalities. Going forward, comments offered through pre-consultation meetings are reflective of this changing role.
- In order to maintain the Region's Contaminated Sites Database, Regional staff request final copies of all environmental reports including: Geotechnical Studies, Hydrogeological Studies, Phase One and/or Two Environmental Site Assessments, Remediation Reports, Risk Assessments, Record of Site Condition (RSC), and/or Certificate of Property Use (CPU).

Allocation:

- Staff note that the site is subject to the Allocation Program and note there is an associated Allocation Law File number for the Subject Lands (2024-190), which has reserved 156 IDUs through the 2023 Allocation Program.
- Halton Region will require the submission of a detailed Allocation Assignment Plan and a Phasing plan. This should include all applicable allocation agreements (i.e. transfer, top-up or amending agreements) and how many Single Detached Equivalent (SDEs) or Infrastructure Dependent Unit (IDUs) are being allocated to the proposal from each agreement. Please include the dwelling type(s), number of units proposed, allocation units required to accommodate the proposed development (including a breakdown of the Low-Med versus High Density units required), and allocation units available to the Low-Med versus High Density units required), and allocation units available to the Owner (including a breakdown of the Low-Med versus High SDEs or IDUs available).
- **The Owner should demonstrate that there are enough SDEs or IDUs for the proposed units and how those SDEs or IDUs will be allocated for the proposed development.**
- Please note that Regional staff **require a breakdown of the unit type and the bedroom count for the proposed residential units in order to maximize Allocation (please also include the unit type and bedroom count per building and please differentiate between the proposed phases).**
- **Please include the density calculations for each building type (UNPH).**
- Regional staff note that under the Region's DC By-law, any room, including dens above 7 m2 or 75 sq. ft, is considered a habitable room (i.e. bedroom). Therefore, units with a den may require more allocation since they could be considered to be extra bedroom unit in the 2023 Allocation Program (i.e. a 1 bed + den unit may be considered a 2 bedroom unit). **Therefore, please provide the den sizes for all units which include a den.**
- Should there be insufficient allocation for the Subject Lands, Staff may also request that the Holding (H) Provision in relation to Allocation applies as part of the ZBA process to secure for adequate allocation for the subject lands. As such, this Holding

Provision must be removed/lifted before any development can proceed on the subject lands through the Site Plan application.

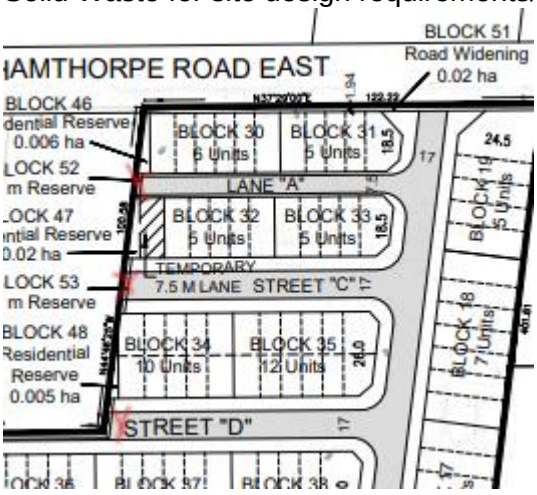
- We request additional information as to how the applicant would like to address the Allocation requirements.

Regional Infrastructure:

- There are no existing municipal services available to service the site.
- An EIR/FSS would be required to be submitted with the application that demonstrates that the existing water system in the area can support the proposed development and that the existing downstream sewer system can accommodate the development.
- An EIR/FSS or a storm water management report must be submitted with the application that demonstrates that there will be no impacts of storm water drainage from the development to the existing storm drainage system on Burnhamthorpe Road.
- The EIR/FSS should demonstrate the external services for both trunk and local watermains and trunk and local sanitary sewers that will be required to be extended to service the development.
- The proposed servicing of the area has been addressed in the Area Servicing Plan for the North Oakville East Secondary Plan. The applicant should become familiar with this document. The servicing of the site should be in accordance with the Area Servicing Plan (ASP) for North Oakville East Secondary Plan.

Regional Waste Management:

- Regional waste notes that Regional waste will **not be able to service** Lane 'A', Street 'C', or Street 'D' (please see the below 'Figure 1') unless a turn around is incorporated. Please address this through a Waste Management Plan/Brief. Please reference the Region's Development Design Guidelines for Source Separation of Solid Waste for site design requirements/dimensions.



- Figure '1' – Lanes/Streets that the Region cannot service for collection.

- Regional waste will service all remaining residential dwellings, once construction is completed and units are occupied.
- Regional waste will not service any commercial blacks or units.

Submission Requirements:

- Cover letter.
- Applicable Regional Fee.
    - Information on how to pay Regional development application fees available here.
- Town of Oakville Complete Application Forms.
- Site Plan Drawings.
- Allocation Assignment Plan.
- Phasing Plan.
- EIR/FSS.
- Waste Management Plan/Brief.

11 Halton District School Board

Laureen Choi, choil@hdsb.ca
Fred Thibeault, thibeaultf@hdsb.ca

Pre-Consultation

Draft Plan Conditions and Considerations

1. The owner agrees to place the following notification in all offers of purchase and sale for all lots/units and in the Town's subdivision agreement, to be registered on the title:
    a. Prospective purchasers are advised that school sites designated for the Halton District School Board in the community are not guaranteed. Attendance at schools in the area yet to be constructed is also not guaranteed. Pupils may be accommodated in temporary facilities and/or be directed to schools outside of the area. School attendance areas are subject to change and/or redirections can be put into place to address school accommodation pressures.
    b. Prospective purchasers are advised that school buses will not enter cul-de-sacs and pick-up points will be generally located on through streets convenient to the Halton Student Transportation Services. Additional pick-up points will not be located within the subdivision until major construction activity has been completed.

    That in cases where offers of purchase and sale have already been executed, the owner sends a letter to all purchasers which include the above statement.

2. The Owner agrees that, should the development be phased, a copy of the phasing plan must be submitted prior to final approval to the Halton District School Board. The phasing plan will indicate the sequence of development, the land area, the number of lots and blocks and

units for each phase. The Owner will provide information on the anticipated start of construction and tentative occupancy dates of residential units.

3. The Owner shall supply, erect and maintain signs at all major entrances into the new development advising prospective purchasers that pupils may be directed to schools outside of the area. The Owner will make these signs to the specifications of the Halton District School Board and erect them prior to the final approval.
4. That a copy of the approved sidewalk and active transportation plan, prepared to the satisfaction of the Town of Oakville be submitted to the Halton District School Board.
5. The Owner shall provide Halton District School Board a geo-referenced AutoCAD file of the Draft M-plan once all Lot and Block numbering has been finalized. Should any changes occur after the initial submission to Lot and Block configuration or numbering on the draft M-plan the Owner shall provide a new AutoCAD file and a memo outlining the changes.

In addition, the following notes should be included in the conditions:

Educational Development Charges are payable in accordance with the applicable Education Development Charge By-law and are required at the issuance of a building permit. Any building permits which are additional to the maximum unit yield which is specified by the Subdivision Agreement are subject to Education Development Charges prior to the issuance of a building permit, at the rate in effect at the date of issuance.

Additional Dwelling Units (ADU) constructed as part of a primary dwelling unit prior to occupancy are subject to EDCs. For ADUs to be eligible for an exemption, the building permit must be issued after occupancy of the primary unit, and must meet other requirements such as size and number of units rel to the existing unit. For more information on EDCs and ADUs, please reach out to the school boards.

12 Halton Catholic District School Board

Kathie Panzer, panzerk@hcdsb.org

Pre-Consultation

We require that the following conditions be placed in any subsequent agreements (e.g. Subdivision, Condominium, and Site Plan). The conditions are to be fulfilled prior to final approval:

3) The owner agrees to place the following notification in all offers of purchase and sale for all lots/units and in the Town's subsequent agreements, to be registered on title:
   b) Prospective purchasers are advised that Catholic school accommodation may not be available for students residing in this area, and that you are notified that students may be accommodated in temporary facilities and/or bused to existing facilities outside the area.
   b) Prospective purchasers are advised that the HCDSB will designate pick up points for the children to meet the bus on roads presently in existence or other pick-up areas

convenient to the Board, and that you are notified that school busses will not enter cul-de-sacs and private roads.

3) In cases where offers of purchase and sale have already been executed, the owner is to send a letter to all purchasers which include the above statements.
3) That the owner agrees to the satisfaction of the HCDSB, to erect and maintain signs at all major entrances into the new development advising prospective purchasers that if a permanent school is not available alternative accommodation and/or busing will be provided. The owner will make these signs to the specifications of the HCDSB and erect them prior to final approval.

It should be noted that Education Development Charges may be payable in accordance with the applicable Education Development Charge By-law and are required at the issuance of a building permit. Any building permits that are additional to the maximum approved unit count will be subject to Education Development Charges prior to the issuance of a building permit, at the rate in effect at the date of issuance.

Note: Additional comments, conditions and/or notes may be provided once a formal submission is circulated for review.

13 Others

Pre-Consultation

MTO

- After review, the subject site does not appear to be located within the MTO Permit Control Area for the Hwy 407ETR, therefore, a Building & Land Use Permit(s) will not be required from this office. We have no further comments.

Paul Nunes
Senior Project Manager (Peel/Halton) | Corridor Management, Central Region West | Operations Division
Ministry of Transportation | Ontario Public Service
416-270-3108 | paul.nunes@ontario.ca

Notes:

a) **This agreement expires 6 months from the date of initial signing (date of pre-consultation meeting) or at the discretion of the Director of Planning or his/her designate.** In the event that this Pre-consultation Agreement expires prior to the application being accepted, and/or new policy and/or by-laws apply, another agreement may be required. Please note the development fees may change during this period and it is the applicant's responsibility to ensure the correct fees are paid at the time of the application.

b) If this Pre-consultation Document expires prior to the application being accepted by the Town, an extension may be granted at the discretion of the Director of Planning.

c) The purpose of this agreement is to identify the information required to prepare a complete application as set out in the *Planning Act*. Pre-consultation does not imply or suggest any decision whatsoever on the part of Town staff or Council to either support or refuse the application. Comments provided at a pre-consultation meeting are preliminary and based on the information submitted for review at that time.

d) Voluntary Pre-submission Review – The applicant may request a pre-submission review of the application, which will allow for multiple circulations in the effort to advance a proposal to a point where issues have been addressed before the formal application submission and a staff recommendation to Council.

   75% of the pre-submission review fee will be credited toward the complete application fee, provided the application is submitted within 2 years of the start of the pre-submission review process.

e) An annual maintenance fee will apply to all applications, one year after being deemed complete for *Planning Act* purposes, and annually thereafter.

f) All fees are payable based on the rate in the fee by-law in the effect on the date a complete application is submitted.

g) For all applications for Official Plan Amendment, Zoning By-law Amendment, Plan of Subdivision and Plan of Condominium, the applicant acknowledges that the Town is not responsible for the construction or installation of the sign and the applicant agrees to submit a photo of the sign on the property. This shall be submitted within one week of receiving confirmation of a complete application.

h) An application submitted without the requisite information identified in this Pre-consultation Agreement, or in the Site Plan application form, will not be accepted. Submission not meeting these criteria will be returned to the agent or property owner. If a site walk is required, the application may not be considered complete until it has taken place.

i) All reports, documents and drawings must be submitted in electronic (i.e. PDF) form.

   Digital mapping/software standards: The Town's standard GIS program is ArcGIS version 10.3. The Town's standard CAD program is AutoCAD 2016. Compatibility with either software package is required. The Town's standard projection for all digital submissions is Universal Transverse Mercator, Zone 17 North, North American Datum 1983. Data not conforming to this standard will be sent back to the consultant at the consultant's expense. Data should be submitted as either ArcGIS Shapefile format or AutoCAD DWG/DXF. A CAD seed file or Shapefile in the appropriate coordinate system can be provided to the consultant. Consultants providing AutoCAD

submissions must include legible layer naming conventions and include layers: GIS.Prop_Block, GIS.Prop_Building, GIS.Prop_Driveway, GIS.Prop_Lot, GIS.Prop_Road, GIS.Prop_TownHome_Lot_Lines if applicable and only include relevant layer information in the following format, GIS.(prop or ext)_Other_Feature. Any reference maps attached or layer names not understandable will be sent back to the consultant at the consultant's expense. Consultants providing AutoCAD submission should not use special fonts, reference files or colour tables. Digital information supplied to the consultant by the Town is not to be altered, distributed, manipulated or misrepresented in any form

j) The applicant must grant permission for municipal and agency staff to visit and access the property while the application is being processed.

k) An applicant is required to conduct a 'Public Information Meeting' (PIM) prior to submission of a development application and shall be documented as described below. The timing of the PIM may be waived at the discretion of the Director of Planning.

The PIM would summarize the purpose and intent of the proposed application (s), after having given a minimum of a two (2) week, mailed, notice to residents within 240 metres of the subject lands. The date of the 'Public Information Meeting' shall be coordinated in consultation with the Ward Councillors and planning staff. The minutes of the 'Public Information Meeting', shall outline the nature of the proposed development, the planning approvals being sought from the Town, the nature of the input received by the attending public and how this input may have informed the development proposal.

l) Acknowledgement of Public Information:

The applicant acknowledges that the Town considers the application forms and all supporting materials, including studies and drawings, filed with any application to be public information and to form part of the public record. By filing an application, the applicant consents to the Town photocopying, posting on the Internet and/or releasing the application and any supporting materials either for its own use in processing the application or at the request of a third party, without further notification to or permission from the applicant. The applicant also hereby states that it has authority to bind its consultants to the terms of this acknowledgement.

m) Additional studies may be required during the processing of an application, depending on the issues identified and information required, as the application proceeds through the planning review process.

n) The Town/Region/Conservation Authority may require peer review of any technical report or study submitted by the applicant. If this is required, the applicant will be advised and will be charged a fee equal to the cost of the peer review.

o) There may also be financial requirements arising from the application, including, but not limited to, park dedication, development charges, payment of outstanding property taxes, deferred local improvement charges, costs for lifting 0.3-metre reserves, and reimbursement for road widening acquisition or road improvements.

p) Prior to undertaking any topsoil stripping or earthworks, the applicant may be required to obtain a site alteration permit in accordance with the Town Site Alteration By-law.

q) Applicants are advised that the removal of trees prior to a final decision being made, or a site alteration permit is issued, is strongly discouraged by the Town.

r) It is the responsibility of the applicant to ensure compliance with all provincial and/or federal bodies for works requiring authorization from Fisheries and Oceans Canada; Environment and Climate Change Canada; the Ontario Ministry of Natural Resources and Forestry; and but not limited to Ontario Ministry of Environment, Conservation and Parks. Confirmation of compliance is to be provided in the application.

s) Personal information contained in this form is collected under the authority of the *Planning Act*, R.S.O. 1990, cP.13, as amended. The information will be used for the purpose of administering the Town pre-consultation process on development applications.

t) Where the applicant requests that the information submitted on this pre-consultation form and associated documents be kept confidential, it is understood; however, that an access request may be filed under the *Municipal Freedom of Information and Protection of Privacy Act*, and information may be subject to release, notwithstanding the request to keep information confidential.

Staff/Agency Signatures:

X 

Kate Cockburn, MCIP, RPP
Manager, Current Planning - East District

Proponent Sign-off (In Lieu of Signatures):

I acknowledge that the Town will require the provision of the drawings, reports and other requirements indicated in this Pre-Consultation Form, in addition to a completed Application Form, any information or materials required by Statute, the required application fees and a signed copy of this acknowledgement prior to the planning application being deemed complete, pursuant to the *Planning Act* and applicable Town Official Plan policy. These items should be completed in accordance with the direction in this Development Application Pre-Consultation Form, the

attached Notes, and the attached Pre-Submission Document Terms of Reference, in order to allow for the full consideration of the planning application. I have read and acknowledge the above Notes. I have authority to bind the Owner.

Applicant/Agent:	Print Name:	Signature:	Date:
Property Owner:			
Property Owner:			
Agent: (I have authority to bind the Owner)			

Public Information Meeting Checklist

The following is required for a Public Information Meeting:

- ☐ The cost of the required mailing list is the equivalent of 2 hours of Planning Fee Staff Time (2025 Planning Services Rates and Fees for 2 hours of Planning Fee Staff Time is $262.16), payable to the Town of Oakville.

- ☐ The Public Information Meeting Notice must be mailed out at least **14 days prior** to the meeting date.

- ☐ At least one Public Information Meeting must be held in the evening hours with a start time **no earlier than 6:30 p.m.**

- ☐ Applicant is responsible to plan for holding the Public Information Meeting, including arranging a virtual meeting/booking the venue.

  For your ease of reference visit Town's Facility Rentals .

- ☐ There is no template for a Public Information Meeting Notice, however, the notice must contain:

  a) The municipal address or legal description of the subject lands.
  b) A location map.
  c) Date and time of the meeting.
  d) A proposal of the development.
  e) To avoid having to type a lengthy URL for attendance by videoconference please consider the use a QR Code generator for ease of access.

Please contact the Legislative Coordinator for an example of a notice.

- ☐ It is essential to provide the Planning Services Department with a copy of the Public Information Meeting Notice that is circulated to the public. This will help staff address any queries from the public and advise staff of the upcoming meeting.

- ☐ It is encouraged to consult with your Ward Councillors prior to finalizing the meeting date.

- ☐ Please collect a list of attendees (including their email addresses) at the public information meeting and forward this information to planningapps@oakville.ca

Project Number	2025-067
Project	ARGO Oakville Woods
Document	Pre-Consultation Comments
Date	26-Jun-25

Comment #	Comment	Response
Town of Oakville		
Planning Services - Kate Cockburn		
1	Staff note concerns with the proposed road network and series of dead end/incomplete roads requiring a cul-de-sac, or some form of turn around meeting the town and Region standards for snow removal, fire, and waste collection services. As a result, some blocks may be held from development. This should be demonstrated on the draft plan should the applicant proceed with that configuration, however providing a road network in line with the Master Plan would alleviate this issue. Further, the easterly north south road should be realigned to abut the TUC area to act as a buffer to the intended land uses to the east, and not accommodate additional townhouse units. Additionally, staff do not agree with the proposed walkway connection to the lands to the east, and instead should be a road in line with the Master Plan.	Noted. A conceptual interim roadway configuration plan has been developed and is shown within the Transportation Memo that will allow for snow removal, and for Regional Waste vehicles to service Lane A, Street C, and Street D. As discussed in the Transportation memo, the location of the intersections of Street B at both Burnhamthorpe Road and Settlers Road have been proposed with consideration of future roadway connections to the east of the subject development. While it is understood that Town staff have requested that Street B be shifted east against the eastern property line of the subject development, this will reduce the intersection spacing to the roadways proposed to support the subject development to the east, as contemplated in the EM4 JC7 JC9 Transportation Impact Study which was prepared and finalized in November 2024. While it is acknowledged that changes to the road network proposed for the subject development to the east may occur, by maintaining a distance from the eastern property line, appropriate intersection spacing will be more easily protected for. It is noted that no protections for this roadway have been considered within the recently built adjacent lands west of the subject development. As such, this east-west road would only provide connection east to Trafalgar Road. As the subject development is bounded by Settlers Road to the south and Burnhamthorpe Road to the north, appropriate east-west roadway connections are provided to serve the subject development and accommodate the intention of the additional east-west roadway. As such, a third connection east to Trafalgar Road is not necessary.
2	Additionally, staff continue to have concerns with the dwellings on the south side of Settlers Road East and promoting access to the NHS. Connectivity to the NHS trail system should be considered, and some form of linkage to the Village Square should also be contemplated where visibility to the NHS deviates from the Master Plan.	Within the Transportation Memo, a desktop sightline analysis has been undertaken for the "worst case" driveways located along Settlers Road. As discussed in memo, and shown in the sightline figures included in the memo, no sightline issues for the driveways are noted as both stopping sight distance and intersection sight distance are achieved for vehicles pulling out and backing out of their driveways. As such, from a transportation perspective, no issues are noted with the proposed driveways along the southern side of Settlers Road.
Planning Services - Philip Wiersma & Nada Almasri		
3	[Pre-con 2] Comment not satisfied. Proposed residential lots on the south side of Settlers Road East continues to not provide physical and visual public access to the NHS from the public right-of-way and does not align with the North Oakville East Secondary Plan, including policy 7.5.4 which states: Public safety, views and accessibility, both physically and visually, to the Natural Heritage component of the Natural Heritage and Open Space System, … and other natural and civic features, will be important consideration in community design. This will be accomplished through a range of different approaches including, but not limited to, the use of single loaded roads, … With respect to the Natural Heritage component of the Natural Heritage and Open Space System, priority will be given to maintaining views and accessibility at key trail access points where Arterial, Avenue and Connector roads are adjacent to the System … As per previous comments, Settlers Road should be single loaded to provide visual and physical connections to the NHS lands in alignment with the North Oakville Master Plan. Adjust road layout as necessary to accommodate.	Within the Transportation Memo, a desktop sightline analysis has been undertaken for the "worst case" driveways located along Settlers Road. As discussed in memo, and shown in the sightline figures included in the memo, no sightline issues for the driveways are noted as both stopping sight distance and intersection sight distance are achieved for vehicles pulling out and backing out of their driveways. As such, from a transportation perspective, no issues are noted with the proposed driveways along the southern side of Settlers Road.
Transportation Services - Syed Rizvi		

4	1. A TIS is required to be completed in order to determine the impact of the development on adjacent roadway network. Terms of reference (TOR's) should be approved to confirm the scope of study with the Halton Region and Town Transportation Department.	The EM4 JC7 JC9 Transportation Impact Study (November 2024) was prepared to support the Environmental Implementation Report (EIR) / Functional Servicing Study (FSS) for multiple lands within the EM4, JC7, and JC9 development areas in North Oakville. This study used the initial concept plan for each site to develop a TIS that examined the overall impact of the subject developments on the transportation network. At this stage, it is appropriate to proceed with a first draft plan submission based on the November 2024 TIS such that the application can be deemed complete and other studies supporting the draft plan submission can be reviewed for the proposed Oakville Woods development. A Transportation Memo has been prepared to address any minor changes to the ARGO Oakville Woods Plan when compared to the November 2024 TIS, as well as some additional technical reviews and commentary to address the received pre-consultation comments. For reference, the November 2024 TIS is included in Appendix A of the Transportation Memo. It is noted that a scope of work was proposed and approved for the November 2024 TIS.
5	2. An on-street visitor parking plan is required, indicating the approximate locations of residential driveways and ensuring compliance with standard parking space dimensions.	Noted. This has been prepared by Korsiak Urban Planning and has been included in the Transportation Memo.
6	3. A pedestrian and sidewalk connectivity plan should be submitted, illustrating connections to adjacent subdivisions and accommodating future alignment opportunities.	Noted. This has been prepared by Korsiak Urban Planning and has been included in the Transportation Memo.
7	4. As discussed during the meeting, the proposed right-of-way (ROW) widths for Street "B" and Street "G" should be reconsidered. These streets function as connectors and should have a minimum ROW width of 19 metres.	Noted. Within the North Oakville East Secondary Plan, no connector/transit corridors are proposed within the subject development as shown in the North Oakville East Secondary Plan Transportation Plan. Additionally, as it is noted that the primary difference between a 17-metre local road, and a 19-metre connector road is that the 19-metre roadway has wider travel lanes which allow for transit vehicles. As the entirety of the subject development is within a 400-metre walking distance from transit stops along Burnhamthorpe Road and Settlers Road, there is no need identified to show these roadways with 19-metre rights-of-way. This is discussed further within the Transportation Memo.
Regional Waste Management		
8	Regional waste notes that Regional waste will not be able to service Lane 'A', Street 'C', or Street 'D' (please see the below 'Figure 1') unless a turn around is incorporated. Please address this through a Waste Management Plan/Brief. Please reference the Region's Development Design Guidelines for Source Separation of Solid Waste for site design requirements/dimensions.	Noted. A conceptual interim roadway configuration plan has been developed and is shown within the Transportation Memo that will allow for Regional Waste vehicles to service Lane A, Street C, and Street D.

Consolidated Comments Report

Date:	November 24, 2025
To:	**Constance Ratelle**, Korsiak Urban Planning **constance@korsiak.com**
From:	**Colin Westerhof**, Senior Planner, Planning & Development Department
Contact Info:	T: 905-845-6601 ext. 3045 E: colin.westerhof@oakville.ca
Re:	**Application Circulation Comments (1st submission)**
Application:	ARGO Oakville Woods
Description:	The applicant proposes to rezone and subdivide the lands for residential development, including a 0.3 hectare village square, an open space block, and 1.08 hectare Natural Heritage System (NHS) block.
Address:	210 Burnhamthorpe Road East
Application File #:	**Z.1314.10, 24T-25005.1314**

The above-noted applications have been circulated to various municipal departments and external agencies for review. Comments which have been received with respect to the applications are included below. Please be aware that comments from some departments and/or agencies may still be pending.

Please contact the staff member responsible for each set of comments, as listed below, in order to resolve any outstanding issues. Kindly request the responsible staff member to send me an email/fax of all correspondence for our records.

Revised and coordinated plans and documents which fully address the attached comments must be submitted according to the process outlined in the **Step by Step Digital Submissions Guide** on the Town's website. Digital materials must be named in an organized and descriptive manner according to format outlined in Planning's **Digital Submission Naming Conventions** document.

You are also required to submit the following items (forming a complete resubmission package):

- **a cover letter describing how each comment within this report has been addressed.**
- a transmittal provided in .doc (Word) format listing the materials submitted, with their revision number and date and the titles and information presented in the format as provided at the end of this report

Furthermore, all reports, documents and drawings submitted must:

- be presented in metric measure that can be accurately scaled,

- be prepared, stamped and signed by a qualified professional architect (for site plan and architectural drawings), engineer (for site plan and engineering drawings/reports), or landscape architect (for landscape and tree protection drawings/reports)

The following plans, reports, and studies were reviewed in the preparation of these comments:

CIRCULATION CONTENTS					
Drawings		**Drawing/ Doc #:**	**Version/Rev # & Date:**		**Consultant:**
03	Aerial Photo		v.1	2025-03-28	Korsiak Urban Planning
04	Survey		v.1	2022-04-07	J.D. Barnes Limited
05	Shallow Lot Siting		v.1	2025-06-05	Gerrard Design
06	Draft Plan		v.1	2025-02-03	Korsiak Urban Planning
08	Single Car Garage Plan	Z-01	v.1	2025-03-12	Q4 Architects Inc.
10	TIPP Figure 1a	1a	v.1	2025-03-18	Kuntz Forestry Consulting Inc.
11	TIPP Figure 1b	1b	v.1	2025-03-18	Kuntz Forestry Consulting Inc.
12	TIPP Figure 1c	1c	v.1	2025-03-18	Kuntz Forestry Consulting Inc.
14	Canopy Cover	TCCP-1	v.1	2025-03-20	NAK Design Strategies
21	Allocation Plan		v.1	2025-06-05	Gerrard Design
24	Area Design Plan		v.1	2025-02-03	Korsiak Urban Planning
25	Parking Plan		v.1	2025-07-04	Korsiak Urban Planning
26	Ped Circulation		v.1	2025-07-21	Korsiak Urban Planning
27	Density Plan		v.1	2025-02-03	Korsiak Urban Planning
Reports and Studies:					
02	Comments Report		v.1	2025-06-11	Korsiak Urban Planning
07	Design Brief		v.1	2025-03-12	NAK Design Strategies
09	TIPP		v.1	2025-03-18	Kuntz Forestry Consulting Inc.
15	TIS		v.1	2024-11-27	CGH Transportation
16	Archaeological		v.1	2022-09-21	P.H.C. Inc
19	ESA		v.1	2022-06-28	DS Consultants Ltd.
28	PJR		v.1	2025-07-30	Korsiak Urban Planning
31	EIR		v.1	2025-08-07	RAND Engineering
Documents:					
01	Application Form		v.1	2025-07-22	Korsiak Urban Planning
13	Tree Inventory		v.1	2025-03-18	Kuntz Forestry Consulting Inc.
17	Archaeological Letter		v.1	2022-11-14	Ministry of Ontario
18	Standing Letter		v.1	2025-02-05	North Oakville Community Builders
20	Reliance letter		v.1	2025-02-11	DS Consultants Ltd.
22	Statistics Form		v.1	2025-07-22	Korsiak Urban Planning
23	Signed PreCon Report		v.1	2025-07-10	Korsiak Urban Planning
29	Draft ZBA		v.1	2025-07-25	Korsiak Urban Planning
30	Rental Housing Declaration		v.1	2025-08-01	Korsiak Urban Planning

Circulation Comments:

PLANNING SERVICES

1 Planning & Development Department, Current Planning

Colin Westerhof, colin.westerhof@oakville.ca

Circulation 1

The applicant has submitted applications for a draft Plan of Subdivision and Zoning By-law Amendment to rezone and subdivide the subject land for residential development, including the establishment and conveyance of a 0.3 ha Village Square and 1.08 ha Natural Heritage System (NHS) block to the Town.

At the Pre-Consultation meeting, staff noted concerns related the proposed road network, the connectivity to the NHS, and the timing of this proposed development requiring the construction of a stormwater management pond that is located on lands not currently subject to a development application. The following comments are intended to inform modifications to the subdivision layout that supports completion of Neighbourhood 9 as well as maintaining the planned function of Trafalgar Urban Core Sub Area 2.

Staff note that a resubmission of the Draft Plan, Area Design Plan, and an addendum to the Planning Justification Report will be required to respond to the Policy objectives and comments noted below. Additionally, to maintain efficiency in the review process and ensure adequate staff resources are allocated to the advancement of this proposal, **the applicant shall prepare a comprehensive resubmission of applicable materials rather than a 'mini' submission or partial submission.** For each submission made by the applicant, the resubmission fee noted below will be applicable after the 3rd Submission.

Further, staff note that the Area Design Plan and Transportation Impact Study, together with the EIR/FSS document provided a broad land use concept and road network that is not consistent with the NOESP Master Plan, and makes presumptions regarding the development of lands that are not currently under review with the Town or owned by the applicant. Staff do not give any status to the underlying road network shown in these documents beyond the limits of the applicant's lands (shown in red below) where there is a deviation from the Master Plan. On this basis, the documents should be revised to better reflect the Master Plan and any approved developments. Each developer is responsible for preparing their own supporting plans and reports for their proposals, and the materials included with this submission are not considered to be evaluated for properties outside the boundaries of the subject lands.



It is also noted that Holding 'H' Provisions will be required to address any outstanding matters such as the provision for adequate Stormwater Management Facilities, and suitable and adequate servicing allocation for the site. The completion and acceptance of the EIR/FSS will be required before the development can proceed and draft plan conditions can be considered. It is further noted that until such time as adequate stormwater infrastructure has been secured, constructed, and operational to support the proposed development, the applicant should consider their timing to advance this application before physical development can occur on the subject lands.

Development Objectives

7.2.3.4 Urban Design

- *a) To provide integrated community design that coordinates land use, the natural heritage and open space system, the street network and built form to reinforce the community vision.*
- *b) To integrate important views and vistas of the natural heritage and open space system within community design.*
- *c) To create an urban fabric characterized by a connected street system that is responsive to the natural heritage and open space system and existing land uses.*

d) To design street sections that promote a sense of scale and provide for pedestrian comfort.

The NOESP Master Plan envisioned the construction of a mid-block road as part of the overall street network for the subject lands that would serve to move pedestrians and automobiles from the subject lands to the *Future Residential*, Trafalgar Urban Core, land uses to the east. Further the NOESP Master Plan envisioned the extension of Street "H" from Settlers Road to Burnhamthorpe Road East, and it is acknowledged that local road networks identified in the Plan are subject to refinements. The north-south *Local Road* is envisioned closer to the east property line, to provide a transition between uses and built forms guided by different policy frameworks. The inclusion of the detached dwellings along the south side of Settlers Road, in their current configuration, do not provide views or vistas of the Natural Heritage System. The extension of Street "F" is required to contribute to the creation an urban fabric that is characterized by a connected street system and enables access to the natural heritage and open space system from future residential lands to the east. The extension of Street "F" will contribute to establishing a pedestrian oriented sense of scale along Street "B" and will mitigate potential impacts of a street that provides a thoroughfare between Settlers Road and Burnhamthorpe Road East. The Draft Plan should be revised to include the extension of Street "F", as a mid-block connection, to the *Future Residential* lands to the east. The Draft Plan should be revised to include views and vistas of the natural heritage and open space system.

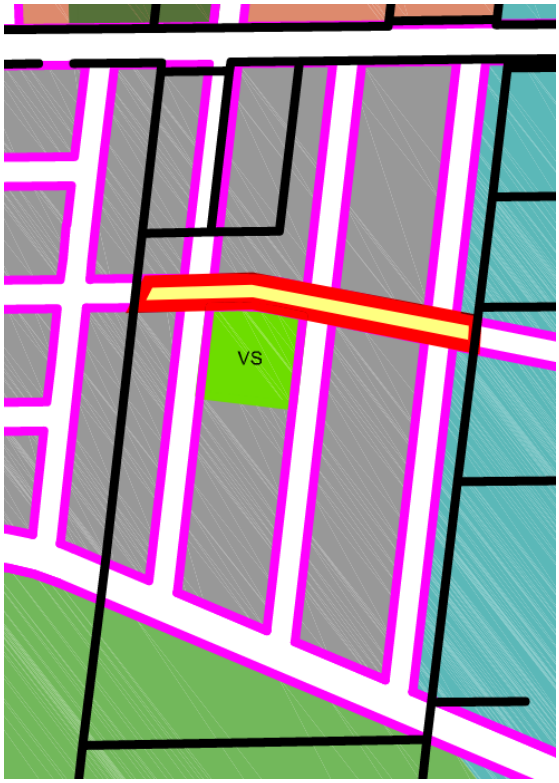
7.2.3.5 Transportation

a) To create a system of roads and transportation corridors which promotes the safe, efficient circulation of traffic including transit and non-vehicular traffic.

b) To establish an efficient and linked, safe pedestrian movement system (cycleways and walkways) along with an appropriate distribution of land uses so that residents do not need to rely on the automobile to meet the recreational, shopping and commuter needs of daily life.

c) To establish a transportation system that complements and supports the existing and future urban structure and land use pattern.

The NOESP envisions a road network of transportation corridors and *Local Roads* for the safe and efficient movement of traffic. The absence of a mid-block east-west connection to the *Future Residential* lands to the east does not effectively implement this vision. Further a *Local Road* mid-block connection to the east will enable the effective movement of people in various modes of transport to future non-residential uses, that supports a complete community.



Appendix 7.3 North Oakville Master Plan envisioned a mid-block east-west connection to *Future Residential* lands and a second north-south connection from Settlers Road to Burnhamthorpe Road East. Additionally, the Master Plan envisioned the eastern most *Local Road* connecting Settlers Road and Burnhamthorpe Road East closer to the east property line.

Refinements to the proposed *Local Road* network are required to provide an appropriate transition between the subject property and the *Future Residential* Trafalgar Urban Core lands to the east. Trafalgar Urban Core policies envision a range of uses, building heights and densities, with development at the edge of the Urban Core designed as a transition to abutting residential neighbourhoods, such as the subject lands. Without additional information of future developments to the east, it is difficult to determine the uses, building heights (Max. of 15 storeys permitted) and densities of developments that may occur on adjacent lands along the east property line. Additional road networks are required to facilitate the development of a subdivision that provides a buffer between different policy frameworks and contributes to and builds upon the vision of a complete community.

Community Design Strategy

7.5.4 General Design Directions

c) Development shall be based on a modified grid road system with interconnected networks of roads designed to disperse and reduce the length of vehicular trips and support the early integration and sustained viability of transit service. For local roads not shown on Figure NOE4, the modified grid road system will respond to topography and the Natural Heritage System component of the Natural

Heritage and Open Space System. Cul-de-sacs will generally be permitted only when warranted by natural site conditions.

d) *The Natural Heritage component of the Natural heritage and Open Space System forms a central feature of the Planning Area and the development form should reflect this fact. In addition, an associated comprehensive, interconnected system of trails will be developed which will generally reflect the major trail system on Figure NOE4.*

e) *Public safety, views and accessibility, both physically and visually, to the Natural Heritage component of the Natural Heritage and Open Space System, as well as to parks, schools and other natural and civic features, will be important considerations in community design. […] With respect to the Natural heritage component of the Natural Heritage and Open Space System, priority will be given to maintaining views and accessibility at key trail access points where Arterial, Avenue and Connector roads are adjacent to the System. Where there is no significant Natural Heritage edge exposed at Arterial, Avenue or Connector roads, Neighbourhood Parks, Village Squares or local roads will be encouraged to provide access and visibility.*

As provided in NOESP, development is based on a modified grid road system with interconnected roads to disperse and reduce the length of vehicular trips and support pedestrian and alternative transportation methods. It is not clear how the absence of Street "F" mid-block extension through the east property line reduces the length of vehicular trips and supports alternative modes of transportation. The appropriate design and implementation of a grid road system to the Town's standards is not precluded by the absence of a through-road from the adjacent lands to the west. It is not clear how the lotting pattern along the south side of Settlers Road, that abuts the Natural Heritage System, reflects the priority and focus that establishes the Natural Heritage and Open Space System as a central feature of this development. The inclusion of views and vistas to the Natural Heritage System and inclusion of a mid-block pedestrian connection may serve to re-focus the Natural Heritage System as a central feature integrated, and connected with the proposed Village Square. Further, the inclusion of a pedestrian walkway block that bisects parcels along the south side of Settlers Road will contribute to enhancing public safety along the trail, and provide views and accessibility, both physically and visually to the Natural Heritage and Open Space System – which is a priority in the establishment of key trail access points along Arterial, Avenue and Connector roads that run adjacent to the System. A pedestrian block that connects Settlers Road right-of-way to the NHS trail and has a connection to the Village Square on the north side of Settlers Road will provide access and visibility of the resource.

7.5.5.4 Local Streets
Local streets play a dual role as neighbourhood socialization spaces, as well as supporting transportation needs. The design requirements, while less substantial than for connector roads, must support the dual role of the local streets.

7.5.5.5 Lanes/Hybrid Roads/Service Roads

a) *<u>General</u>*
Where direct driveway access from a roadway is inappropriate or in response to special design features such as a development fronting directly onto open space, lanes, hybrid roads, and service roads shall be utilized, and in limited circumstances, "window" roads. The design requirements for these roads will establish certain minimum standards to address issues like pavement width and relationship to parking areas. Where such roads are to be public roads, they shall be designed:

- *To provide access for public maintenance vehicles, including snow plows and garbage trucks, as well as emergency vehicles, where deemed necessary by the Town;*

- *To maximize safety and security;*
- *as much as possible for hybrid roads to minimize the impact of garage doors; and,*
- *to provide along lanes, where feasible, a varied streetscape.*

b) *Lanes*
Where the Town's policies for urban design are such that the use of lanes is required, the lanes may be in public ownership if requested by the development proponent, otherwise lanes would generally be in private ownership. Further, if public ownership of lanes is proposed, there should be a sufficient number of public lanes in the same vicinity to minimize maintenance costs.

With respect to the above policies it is imperative that any lanes, hybrid roads or service roads are of sufficient size to provide access for a variety of municipal service vehicles. Based on the current proposal, LANE "A" and the Temporary 7.5 m Lane connecting to Street "C" does not provide access for public maintenance vehicles. Further, please confirm that you are requesting that LANE "A" be in public ownership. If this lane is to be in public ownership, there should be a sufficient number of other public lanes in the area to minimize maintenance costs; otherwise consider modifying the plan to widen LANE "A" into a public local road (17 m).

7.5.8 Views

a) *Views of the following features shall be created at appropriate locations:*
   i. *Civic buildings; and,*
   ii. *Natural features and open spaces as set out in Section 7.5.4 e)*

Provide views into the NHS, south of Settlers Road in accordance with NOESP and the above noted comments.

Community Services Strategy

The Community Services Strategy is designed to provide direction with respect to the provision of physical support, recreation and other services to the North Oakville East Planning Area.

7.7.2.1 Transportation – General Table 2
Local Roads – Function

- *Provides access to individual properties and serves internal residential neighbourhood, core area or employment district travel demands*
- *Connects individual properties to other Local Roads, Avenue/Transit Corridors or Connector/Transit Corridors*
- *Accommodates local transit service*

The extension of Street "F" through the east property line will ensure that the subject lands connect with the *Future Residential* lands and contribute to the establishment of a *modified grid road system with interconnected networks of roads designed to disperse and reduce the length of vehicular trips and support the early integration and sustained viability of transit service.*

Additional Planning Comments

Modifications to the Draft Plan are required to proceed with coordinating Conditions of Draft Plan Approval. The following are matters that must be addressed prior to proceeding with conditional draft plan approval, through an updated Draft Plan and supporting materials:

- Detached Dwelling Lotting - There are inconsistencies amongst the parcel fabric and lotting patterns of some detached dwellings.
    - Modify the parcel fabric of Lot 1 (frontage) to be more consistent with the other detached dwelling parcels along Settlers Road.
        - Consider conveying excess side yard area to the Town as part of the Natural Heritage and Open Space System block.
    - Why is the building envelope on Parcel #2 larger than the envelopes on Parcels 3-5, along Settlers Road? Applying the same building envelope of Parcels 3-5 to Parcel 2 would result in more private amenity area being available for future residents.

- STREET “F” Extension – There are inconsistencies with the Draft Plan and the structure of local roads in NOESP.
    - Provide the mid-block extension of STREET “F” through the east property line to enable and facilitate a connection to Trafalgar Road through the lands to the east. Replace the pedestrian walkway block with a *Local Road*.
        - See TE Comment p) for additional information.

- STREET “B” Alignment – There are inconsistencies with the Draft Plan and the structure of local roads in NOESP.
    - STREET “B” is to be located closer to the east property line – this will assist with buffering/integration with built form permissions and policies within TUC lands and continue to provide a north-south connection through the development.

- Integration of built forms to TUC permissions
    - How do the three storey towns effectively mitigate impacts from TUC lands to the east that envision a range of uses, building heights and densities? Without additional information of future developments to the east, it is difficult to determine the uses, building heights (Max. of 15 storeys permitted) and densities of developments that may occur on adjacent lands along the east property line.
        - Consider relocating STREET “B” to the east property line to provide physical buffer/transition between built-forms, specifically as it relates to servicing the parcel at 220 Burnhamthorpe Road E

- STEET “H” Alignment – There are inconsistencies with the Draft Plan and structure of local roads in NOESP.

- Turning Circles – Turning Circles, built to the Town standard are required for:
    - STREET “G”
    - STREET “D”
    - STREET “C”
    - LANE “A”

        - See above comment and policy 7.5.5.5 of NOESP "*Further, if public ownership of lanes is proposed, there should be a sufficient number of public lanes in the same vicinity to minimize maintenance costs."*
    - Update draft plan accordingly- Town maintenance vehicle specifications have been provided for Turning Analysis (APPENDIX "C")

- Mid-block NHS Trail Connection – Parks and Open Space
    - A mid-block NHS Trail connection is desired at the terminus of STREET "H" or STREET "B" to provide a connection between the Village Square and NHS Trail
        - Based on existing and future traffic control conditions along Settlers Road, a pedestrian crossing that will effectively accommodate a ped connection from residents and the village square north of Settlers Road to the south side is needed.
        - Provide a Pedestrian Walkway Block (0.02 ha) that will connect the sidewalk along the south side of Settlers Road to the NHS Trail at the terminus of STREET "H" or STREET "B"

Zoning By-law Amendment

There are various inconsistencies between the proposed Draft Plan and corresponding site-specific provisions being requested. Please review Zoning comments and eliminate unnecessary special provisions. The By-law is to reflect the conditions shown on the Draft Plan and align with the parent Zoning categories and regulations that implement the land use designations. Specific modifications to the By-law will be evaluated based on the appropriateness of the modification and not based on the precedent of previous usage.

The minimum rear yard setback in the draft zoning by-law does not reflect the required minimum rear yard setback based on the *Shallow Lot Siting* plan that was submitted. Justify the reduction in rear yard setback, with regard to the intent of the performance standard. It is not clear from opinion contained within the PJR why a change to the performance standards is required and justified.

Further, the building envelope shown on Lot 2 is substantially larger than the other building envelopes shown on the plans. Why is this building envelope so large comparatively? Building envelopes should be reduced in size for lots that are comparatively smaller to the other lot sizes.

The parcel frontage of Lot 1 is inconsistent with the parcel frontages of the other lots south of Settlers Road, please address this inconsistency through a revision.

Further comments on the draft zoning by-law will be provided when upon resubmission of materials.

Additional matters for consideration as provided by Town Council have been appended to this report as Schedule "A".

Snow Plow Specifications (for turning movement analysis) included as Schedule "B".

Re-Circulation Fee

- A re-circulation fee of 15% of the in-effect application fee will be required after the 3rd submission and every resubmission thereafter (per Schedule 'A' Section 10 of the applicable fee by-law).

File Naming

Future submission materials must be named according to the following format:

- **File Number _ Condensed Name _ Version Number _ Date (with no spaces)**

For example, your set of files should look like the following list:

- 00_CoverLetter_v1_2020-02-28
- 01_Aerial_v1_2020-02-14
- 02_Survey_v1_2020-02-23
- 03_SitePlan_v1_2020-02-23
- 04_SitePlanDetails_v1_2020-02-23
- 05_FloorPlan_v1_2020-02-23
- 06_Landscape_v1_2020-02-18
- 07_LandscapeDetails_v1_2020-02-18
- 08_Servicing_v1_2020-02-15
- 09_Grading_v1_2020-02-15
- 10_SWM_v1_2020-01-30
- 11_TIS_TruckTurning_v1_2020-02-20
- 12_NoiseVibration_v1_2020-02-20
- 13_ESSQ_v1_2020-02-28
- 14_ESS1_v1_2020-02-28

Requirements:

- NO spaces in the file name.
- NO special characters within the file name (i.e. @ # $ % & * / \ |).
- ONLY Letters, Numbers, Dashes, Underscores and Periods are permitted in the file name.

Final Note:

- All submission of plans and/or studies must be clearly labelled and in a larger font size in the title block as the next submission by number, corresponding to the version number and date in the file name

2 Planning & Development Department, Archaeological Significance

Kristen McLaughlin, kristen.mclaughlin@oakville.ca

Circulation 1

The Halton Regional Official Plan, now implemented by the Town, also contains policies concerning archaeological potential and the preservation, mitigation, and documentation of archaeological sites and artifacts. Staff noted that the subject site has archaeological potential, and a stage 1 archaeological assessment was required, with subsequent assessments as needed.

A stage 1 and 2 archaeological assessment(s) was/were performed by Parslow Heritage Consultancy Inc. dated September 21, 2022. The report recommends the following:

- Based on no archaeological materials being found during the stage 2 assessment of the property, the site should be considered clear of archaeological concern.

Town Staff note the attached Letter of Acknowledgement from the Ministry of Citizenship and Multiculturalism, and that the report was entered into the Ontario Public Register of Archaeological Reports without technical review. This is done when the site is considered low-risk by the ministry and meets specific criteria allowing for a less intensive auditing process.

Town Staff have reviewed the reports, however, and the conclusions are to the satisfaction of the Town of Oakville. Staff have no further archaeological concerns regarding the subject property.

The proponent is cautioned that during development activities, should archaeological materials be found on the property, the Ministry of Citizenship and Multiculturalism (MCM) must be notified immediately (archaeology@ontario.ca), as well as the Town of Oakville and, if Indigenous in origin, relevant First Nations communities. If human remains are encountered during construction, the proponent must immediately contact the appropriate authorities (police or coroner) and all soil disturbances must stop to allow the authorities to investigate, as well as the Registrar, Ontario Ministry of Public and Business Service Delivery—who administers provisions of the Funeral, Burial and Cremation Services Act—to be consulted, as well as the MCM and the Town of Oakville, and, if considered archaeological, the relevant First Nations communities. All construction activity in the vicinity of the discovery must be postponed until an appropriate mitigation strategy is identified and executed.

3 Planning & Development Department, Urban Design

Nada Almasri and Philip Wiersma, nada.almasri@oakville.ca, philip.wiersma@oakville.ca

Circulation 1

The following comments are based on materials circulated August 29, 2025 [Circ 1]. These comments reflect the Town's concerns identified as noted below and provide direction on necessary modifications. Additional and/or modified comments may be provided after review of subsequently submitted revised materials.

Policies and Guidelines

In framing our review and drafting our comments, we have utilized and relied upon the following:

- Livable Oakville Official Plan; including
  - Section 6 Urban Design (Part C (oakville.ca)) [pages C-15 to C-23]
  - North Oakville East Secondary Plan
- Livable by Design Urban Design Manual (LbDM); specifically
  - Urban Design Direction for Oakville (LivDesignManual-v2-1.pdf (oakville.ca);
  - Site Design and Development Standards (Livable by Design Manual (Part C) (oakville.ca)) [referenced to ensure site functionality]
  - North Oakville Urban Design and Open Space Guidelines

Comments and Recommendations

1. [Circ 1] The Area Design Plan (ADP) should demonstrate how the surrounding undeveloped areas will continue to uphold the intent of the NOESP in light of the proposed deviations from the Master Plan.

   It should ensure that the future development potential of adjacent parcels is not compromised. It should also illustrate appropriate transitions and compatibility in terms of land use, density, and scale of built form with the adjacent TUC lands to the east.

   In addition, the ADP should protect for vehicular and pedestrian connections that support integration with these eastern adjacent lands.

2. [Circ 1] The proposed residential lots on the south side of Settlers Road East continue to lack physical and visual public access to the Natural Heritage System (NHS) from the public right-of-way. This approach is inconsistent with the North Oakville East Secondary Plan, including Policy 7.5.4, which states:

   > *"Public safety, views, and accessibility, both physically and visually, to the Natural Heritage component of the Natural Heritage and Open Space System, … and other natural and civic features, will be important considerations in community design. This will be accomplished through a range of approaches, including, but not limited to, the use of single-loaded roads. … With respect to the Natural Heritage component of the Natural Heritage and Open Space System, priority will be given to maintaining views and accessibility at key trail access points where Arterial, Avenue, and Connector roads are adjacent to the System."*

   In accordance with Appendix 7.3 of the North Oakville Master Plan, both visual and physical connections to the NHS lands shall be provided along Settlers Road. In addition, the following design guidelines should be applied, where feasible, along the north side of the road:

   - Active frontages with primary entrances, front porches, and generous fenestration.
   - Convenient on-street parking to accommodate residents and visitors.
   - Continuous landscape treatments that are seamlessly integrated and visually and physically connect to the natural areas to the south.

Additional Issues that must be addressed in a revised Urban Design Brief and other supporting materials

3. [Circ 1] Additional comments will be provided once the above items have been addressed in a revised submission.

Conclusion/Conditions

Should the development be deemed acceptable the following conditions shall be satisfied prior to any final approval:

- Urban Design: That the owner submits and obtains final approval for the following to the satisfaction of the Planning Services Department:

  a) Revised and final conceptual Site Plan

b) Revised and final conceptual Building Elevations
c) Revised and final 3D Model
d) Revised and final Urban Design Brief
e) Revised and final Design Rationale
f) Revised and final conceptual Landscape Plan
g) Revised and final conceptual Grading Plan

- Additional comments may be provided after review of subsequently submitted new and revised materials.

Circulation Comment Chronology

- August 29, 2025 [Circ 1]

4 Planning & Development Department, Environmental Planner

Karen Reis, karen.reis@oakville.ca

Circulation 1

EIR/FSS:

1) Please provide the Significant Wildlife Habitat (SWH) Assessment to confirm the presence or absence of SWH.

2) Section 3.1.1 states that the staking and surveying on the Trafalagar Road (Oakville) lands was completed on June 20, 2023 by Beacon and representatives from CH. Please clarify whether the Core 9 woodland dripline was confirmed by the Town and provide the correspondence.

3) Section 3.1.2 states that the boundaries of Core 9 on the Subject Lands that include features will be protected in an open space designation. Please note that the buffers associated with Core 9 are part of the Natural Heritage System and therefore this section and all other applicable sections and drawings are to be updated to designate Core 9 and its associated buffers as Natural Heritage System.

4) Please update figure 5.1 to include the location of MOC-5A.

5) Section 5.4 - please update this section to provide a more fulsome discussion on the fisheries community including fisheries data used in the assessment. This section should detail any impacts as a result of increased flows and thermal changes to MOC -2, MOC-5A, MOC-5, and MOC-6 as well as mitigation measures.

6) Section 5.5.5 discuss the PSW 25 and indicates that between point A - B and B - C flows would only enter this feature under “large” and “exceptional” storm events. Please quantify what is meant by large

and exceptional? Please also identify any impacts to the changes in flow upstream of Point A, and any mitigations required.

7) Section 5.5.7 and 5.6 - It is noted that future studies such as turtle surveys, Eastern Whip-poor-will surveys, and Bat surveys will be required. Please provide the results of the studies as well as a record of MECP consultation at detailed design.

8) Section 6.2.2 – It is noted that the final proposed trail alignment will be discussed with agencies at detail design, based on assessments, including maturity, health and density of trees, trail drainage requirements including drainage to PSW and potential bat habitat trees. A site visit will be organized with the Town prior to detailed design.

9) Section 7.6 states that - The NOCSS requires that grade transition between development and the Core be shared between the lots and core. Staff will comment on grading once those details are available.

10) Section 7.8 and 8.0 - Please provide a wetland water balance for PSW25, and the three wetlands with contributing drainage within Core 9 following the wetland water balance guidance provided within Conservation Halton's - Guidelines for Wetland Water Balance Assessments (2024) and provide a monthly assessment of the pre and post development flows. The wetland water balance is to include an assessment following TRCA's Wetland Water Balance Risk Evaluation, and should to take into consideration the results of the PSW25 wetland water balance from EIR/FSS East Morrison Creek EM4 Addendum #1 (June 2025) to understand the impacts of run off to NHS features and discuss how these impacts will be mitigated.

11) Section 11.2 - Please provide a construction dewatering brief to ensure no negative impact to NHS features and functions.

Appendix B-4 Hydraulic mini submission:

12) Please update Appendix B-4 to include the monthly water balance for PSW 25 following the wetland water balance guidance provided within Conservation Halton's - Guidelines for Wetland Water Balance Assessments (2024) and provide a monthly assessment of the pre and post development flows. The wetland water balance is to include an assessment following TRCA's Wetland Water Balance Risk Evaluation, and should to take into consideration the results of the PSW25 wetland water balance from EIR/FSS East Morrison Creek EM4 Addendum #1 (June 2025) and describe any impacts to natural heritage features and how those will be mitigated.

13) It was identified that the purpose of the Hydraulic mini submission was to assess the potential for changes associated with the proposed EM4 development and SWM plans to impact hydrology of the PSW units 17, 25 and 74. Please note that future submissions should include a discussion on the wetlands of Core 9 including a wetland water balance, risk evaluation, and any potential impacts, and mitigation measures to these features.

SWM report:

14) It is noted that several of the landowners within the upper EM4 EIR/FSS lands will be utilizing “SWM 38” which has been identified as a future SWM facility. This facility is directly adjacent to Core 10. More information will be required regarding SWM 38 as it relates to Core 10 and the potential impacts and mitigation measures.

5 Planning & Development Department, Development Engineer

Lan Yao, lan.yao@oakville.ca; Xinjie Ou, xinjie.ou@oakville.ca

Circulation 1

Development Engineering has reviewed the submitted engineering materials and has the following comments:

210 Burnhamthorpe Road East Draft Plan:

1. Development Engineering cannot provide detailed comments on the draft plan prior to the Environmental Implementation Report (EIR) being finalized. The complete review on the draft plan and associated Functional Servicing Report (FSR) will be completed when the EIR for all subcatchments have been endorsed. Items such as access block sizing, road pattern and layout, for all relevant land holdings within the EIR drainage area are to be resolved. Approval from all other agencies such as Conservation Halton and Region of Halton are also required to be completed.

   Each draft plan within the approved Environmental Implantation Report (EIR) drainage area shall be submitted with an implementation FSR which outlines how the individual draft plan meets the requirements of the EIR and identifies all the temporary works and limitations of the plan proceeding without the adjoining lands. This is to provide the engineering background for determining which roads cannot be built or require temporary turnarounds, lots that will be frozen, and any interim stormwater management structures prior to the ultimate stormwater management scheme.

2. A road widening of 1.94 meters on Burnhamthorpe Road is required to be in front of this property in accordance with the Burhamthorpe Road Character Study. See the following links: Burnhamthorpe Road Character Study and Municipal Class Environmental Assessment Burnhamthorpe Road Study and EA

3. Any streets that currently dead end and are not built in conjunction with the adjacent development lands, the street will require a temporary turnaround at the end of the street or laneway to the satisfaction of the Town. No roads shall dead end when more than one lot deep.

The minimum roadway profile gradient is 0.5%. Temporary conditions to be shown on the Draft Plan.

Upper EM4 EIR FSS

4. Please provide conceptual interim conditions for Burnhamthorpe Road (ie. Grading details, sidewalk if necessary, utilities, lighting, etc). Further discussion with the Town's Capital Works section will be required.
   Please ensure that co-ordination remains on-going with the Town for the overall Burnhamthorpe Road design to ensure compatibility between properties.

5. A grading plan will be required for any proposed interim conditions.

6. The applicant is to investigate the land requirements for hydro appurtenances such as switch gears. This may require including designated lands within the draft plan. Hydro infrastructure is to be located within Town lands.

7. Street names are inconsistent between the EIR drawings and the Draft Plan. Please review and revise to ensure consistency across all documents and drawings.

8. Note: The Town does not permit permanent dewatering related to the mixed-use block. Provide discussion regarding any permanent dewatering for this block.
   Contact Jeffery Lee (jeffrey.lee@oakville.ca) for temporary dewatering requirements and procedures.

9. Based on the Towns CLI/ECA requirements, any LIDs or associated water balance infrastructure is to be in Town ownership. Updated right-of-way cross sections may be required to achieve the water balance and water quality requirements that have been pre-scribed by the province under the consolidated linear infrastructure program. The development will be required to incorporate LIDs to support the CLI/ECA water quantity/quality requirements. As such, any new ROW cross sections will need to be designed with the support of all parties involved, including utilities providers such as Oakville Hydro. Further coordination with Town staff and utility providers will be required.
   Please refer to the Towns Water Resources Engineer for further requirements to the CLI/ECA.

10. Note: Minimum block easements are required for any servicing/overland flow routes see 3.7.4.5 from the Towns Development Manual.

11. It is understood that there may be some lots that adjacent to NHS will drain directly to the NHS. Please note that confirmation from CH for acceptance will be required.

12. Please confirm the recommendation for the liner for the proposed ponds. Provide updated wording in the EIR/FSS and the Geotech report to support.

13. Please note that the Town has received a pre-consultation application for the non-participating block east of Argo Woods land. The applicant intends to develop the entire block as a condominium building; however, Street 10 is proposed to extend through this block and connect to Burnhamthorpe Road. Coordination will be required to resolve this conflict and to ensure consistency.

14. Identify the 7.5m perimeter buffer around the entire pond per the Town's Development Manual. The buffer does not exceed 10% slope. The 7.5m buffer limit refers to Figure 3.3 from the Towns Development Manual.

15. Please refer to Figure 3.3 of the Town's Development Manual – *Minimum SWM Pond Side Slopes*. The proposed SWM Pond 4:1 transition zone slope does not comply with the Town's standards. Please review and revise accordingly.

16. Pond 29 cross-sections 2-2 and 3-3 on Figure 7.6 are missing the associated outlet structure details. Please include these details in the next submission. In addition, the pond access road width should be added to the drawings for completeness and review.

17. The storm sewer from MH54 to MH57 and from MH57 to HWL60 is shown as a 1500 × 2400 mm sewer on Drawing 7.1, while the storm design sheet indicates sizes of 1500 mm and 1500 × 1800 mm. Please review and clarify this discrepancy to ensure consistency between the drawings and design sheets.

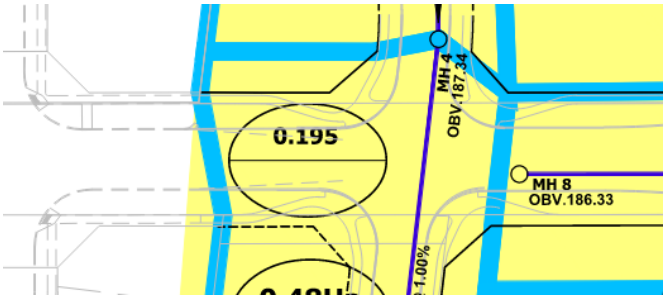
18. Please provide ROW cross-sections at the location with large pipe sizes, such as the downstream of the storm/sanitary system. Cross sections should show the accurate elevations, locations, and sizes of the proposed sewers, CB, utility within the ROW. This information is required to confirm how the proposed sewers will be accommodated within the ROW and to ensure there are no conflicts with other infrastructure.

19. Please provide cross sections demonstrating the feasibility of the proposed sewer crossings under Trafalgar Road in relation to the existing sewers and utilities.

20. On Drawing 7.3, the label for trail cross-section E–E is incorrectly located. Please revise the drawing accordingly. In addition, please provide trail cross-section A–A at the proposed culvert location, and extend the cross-sections to include the proposed ROW and associated residential.

21. 100yr capture area shall be shown on Drawing 7.2, and storm design sheet should also consider constant flow from those 100yr capture area into the proposed storm system. Please revise related drawings and storm design sheets.

22. The source of the 0.195 m³/s flow is unclear. Please provide clarification on where this flow come from and how it has been accounted for in the stormwater design.



23. Condo block 1.34ha with 0.90 runoff coefficient should be signed to MH61 to MH 62. See screen shot below. In addition, MH 73 to MH 62 is missing from the storm design sheet.

	61	62	1.34	0.90				
			0.27	0.90				
FLOW TO THE WEST POND	62	63	~~1.34~~	~~0.90~~	1.449	1.449	112.89	0.454

24. Please coordinate with Region of Halton regarding Trafalgar Road widening requirements. The grades along Trafalgar Road are required to be reviewed and approved by the Region.

Water Resources Engineer Comments:

Material Reviewed (October 2025):

1. Upper EM4 EIR/FSS, by RAND Engineering et al., dated July 2025
2. Final Upper EM4 Scoped EIR SWM Report, dated June 30, 2017;
3. Upper EM4 EIR/FSS Modelling Mini-Submission, by RAND Engineering et al., dated December 2024;
4. Hydraulic Sensitivity Analysis of Upper EM4 EIR/FSS Modelling Mini-Submission, by DSEL, dated April 16, 2025;

EIR/FSS Technical Review

The Upper EM4 Subcatchment EIR/FSS has been reviewed to determine whether the EIR/FSS submission package addressed the requirements of the NOCSS and NOESP. It is understood that this EIR/FSS was submitted to support the Argo Oakville Woods Subdivision Draft Plan approval, but the proposed SWMF block is outside of the submitted draft plan. Below are the 1st submission comments focusing on the EIR/FSS Study area from stormwater management perspectives:

1st Submission

1. Please indicate the existing drainage area within Upper EM4 of 34.5 ha on section 1.1.

2. Section 1.2, FSS Study Area discussion:

- Meloak, Trafalgar Rd Development and Argo Oakville Woods are all west of the western boundary of EM4. So, should it be three areas?

- It looks like DG Farms, Dunburn Development, Marchetti, River Thames and DGB Trafalgar LID are all north and northeast of the exising EIR in JC 9. Nothing within JC 7. So, should it be 5 areas and only in JC 9? Please clarify.

3. The town has not received a second submission of modelling mini submission and its relevant Hydraulic Sensitivity Analysis, would the comment responses be provided and demonstrate how these comments are addressed in Pond 29 design for the upper EM4 EIR/FSS?
4. Section 1.8, Should CLI-ECA Agreements be one of the guidance documents?

5. Figure 7.1 does not show all the drainage area bubbles, please have the area bubble shown for each sub-catchment.

6. Please provide summary table list the changes of EM 4 catchments for different stages: NOCSS, 2017, 2025 existing, 2025 proposed. Please provide a note column to summarize the major updates that are resulting in the changes in area. If possible, please also have the area revolution for all the adjacent sub-watershed (EM1, JC7, JC9), especially showing the changes that resulted from the EM4 Updates.

7. Section 7.3 indicates that “In order to offset the increased area to Pond 27, a similar area of the proposed school block will be directed to Pond 29.” However, Figure 7.3 and GAWSER Schematic do not reflect the similar area of school block being directed to Pond 29. Please clarify.

8. Where is the revised hydrologic modelling of Pond 27? Should it be provided along with this study?

9. The Appendix B-4 should be updated according to the final version of the mini-submission analysis. The acceptance of CH would be required.

10. Section 7.4, please have a figure indicating all the area changes for before and after conditions.

11. Section 7.4, “direct surface runoff from a portion of the proposed school from EM4 to EM”, Should this be a portion of the proposed school directed from EM1 to EM4 to compensate the apartment block adding to Pond 27?

12. Please have the major system design criteria listed in Section 7.5.

13. Please clarify if there is any 100-year capture area and if so, please have it shown on the relevant figure.

14. Section 7.5, Please note that should the major system flow exceed the conveyance capacity of any given road, the storm sewer will need to be sized to accommodate the excess flows such that the road capacity is not exceeded. Calculations of the critical locations on site will be required.

15. Please provide the preliminary swale and culvert sizing for conveying the 1.244 ha NHS Drainage to the Pond 29.

16. The IMP of Pond 29 drainage area is 83% in Table 7.2 and Appendix F-3, but it is 85% in the text under Section 7.7. Please be consistent.

17. The unit flow rates do not match the ME-T5 flows in NOCSS Revised Target Flow Rates Table 5.4.1. Please clarify.

18. There is no 7.5 m buffer around the pond showing on Figure 7.5. Please revise accordingly.

19. last second paragraph of Section 7.7 indicates that "a side weir set at the 5-year storm water level of 180.50 ", however, it should be two weirs as per pond sizing calculation Appendix F. And the lower one should be set at the 5-year water level of 180.5 m. Please revise it accordingly.

20. The statement of emergency spillways in the text of Section 7.7 does not match the Appendix F Pond sizing calculation. Please revise accordingly.

21. The weir at the east outlet should be for 5-year to 100-year and Regional Storm. Please correct the statement in last second paragraph of Section 7.7.

22. Section 7.7 indicates the 120 mm orifice plates for 5 yr storm control, however, this orifice plate for 5 yr storm control was not included in the pond sizing calculation appendix, please have it demonstrated in both the outlet structure details and stage-storage discharge relation tables.

23. Please provide the design/calculation to demonstrate how the emergency flows can be conveyed safely to the EM1 Creek. Will the ROW Major system have sufficient capacity to convey the uncontrolled highest storm events (Regional or 100-year storm)?

24. Section 7.8, The high-level required water balance amount to these wetland features should be evaluated at the EIR Stage.

25. Section 8, a feasible water balance analysis should maintain the post to pre groundwater recharge. Table C-7-5 does not seem to have sufficient water balance measures to achieve the targets. Further analysis will be required.

26. Section 8 indicates that the recharge in pervious areas receiving extra roof water could use 194 mm/year to calculate the water supply. However, the Table C-7-5 does not reflect the rooftop disconnect by using this recharge value, should the "recharge in pervious area" for Townhouse, detached apply 0.194 m/a instead of 0.054 m/a? Please show the calculation of 590 m3 /a in Table C-7-5.

27. Below are the comments for Appendix F Pond Sizing Calculations:

1) Please update the reference to the latest MECP guidelines.

2) Please show the stage-storage to the top of pond and have the emergency flows showing in the stage storage table.

3) The bottom of the weir #1 should be set at the 5-yr water level elevation to ensure all 5 yr flows can be directed to PSW 25. Please revise it accordingly.

4) What is the emergency overflow weir capacity? Please show the calculation and make sure the emergency weir has capacity to safely convey the uncontrolled flows from the larger flows of either 100-year storm event or Regional Storm events.

5) The town engineering guideline requires a minimum of 0.3 m of freeboard above the high-water level; therefore the emergency spillway weir should be set at 182.7 m as minimum.

6) The velocity check in pond sizing calculation shows the velocity for 10-year storm event is exceeding 0.15 m/s, please check.

6 Transportation Services, Transportation Engineer

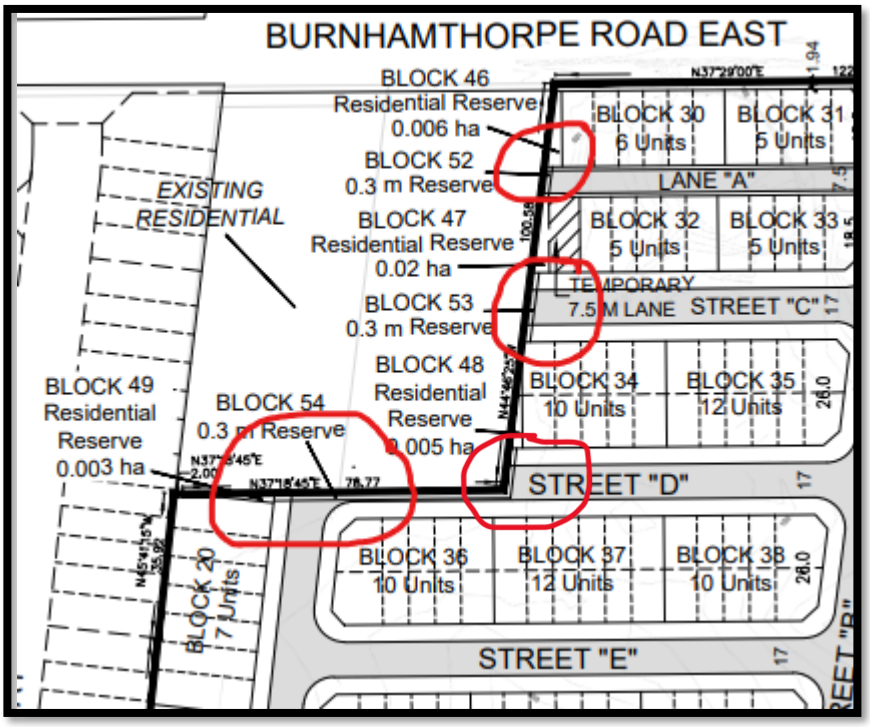
Martin Chan, martin.chan@oakville.ca

Circulation 1

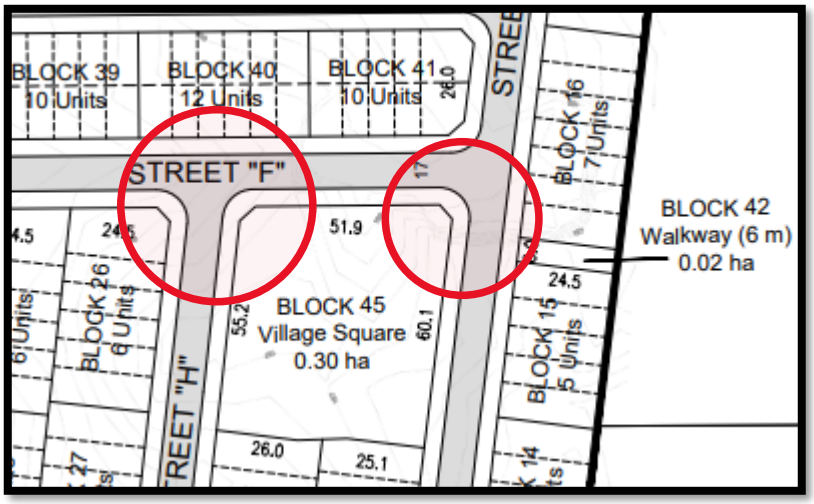
Sustainable Transportation (M. Dimas)

1. Site Plan (General)
   a. [Circ. 1] – Please state what type of collaboration has occurred between the east and west owners in terms of connectivity between the proposed development and the neighbouring sites.

2. [Circ 1] NOTE: The proposed layout includes dead-end areas (red circles below) that do not provide adequate vehicle turnaround space. To support efficient traffic flow and emergency vehicle access, turning circles or equivalent turning areas are required in these locations.

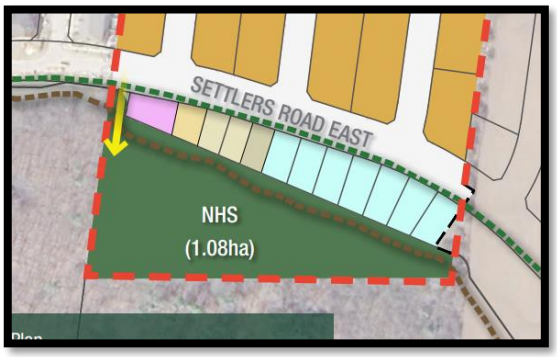


a. NOTE: The number of bike racks will be assessed for the Village Square as per zoning by-law requirements. It is recommended that proposed crossings are included from the walkway to village square.



3. Pedestrian and Cycling Circulation Plan
   a. [Circ 1]- The applicant will be responsible for any safety signage and markings along the signed bike route, and Major Trail within their site boundary.

b. [Circ. 1] – Please state what mitigation measures will be taken for the residential dwellings located adjacent to the Trail.



4. Transportation Demand Management Measures
   a. [Circ. 1] – N B The Include a neighborhood map Neighbourhood Information Map for new owners will be required as a condition to identify any existing or future developments, road networks, new or existing accesses or community spaces in the area.

Oakville Transit (R. Gratton)

1. [Circ. 1] – For information only – Oakville Transit provides door-to-door paratransit service called care-A-van for persons with disabilities. Service is provided by low-floor, fully accessible 26ft buses with a ramp. Please note the ramp will be deployed on the right side of the vehicle; drivers will leave the vehicle and escort the customer to/from the first accessible public entrance, and the vehicle must remain visible to drivers at all times. The vehicle may occupy a drive aisle during this process. The vehicle may stop on the street during this process, instead of entering the parking lot which would necessitate movements in reverse to exit the parking lot.

Transportation Services (M. Chan)

1. Site Plan
   a. [Circ. 1] – The package should include the interim and ultimate conditions of the Subject Development.
   b. [Circ. 1] – Transportation staff recommends coordination with owner at 220 Burnhamthorpe Road East. Depending on their development proposal, the temporary road layout shown in Appendix G of the Traffic Memo, may be “permanent” in nature and a permanent circulation solution (i.e., cul-de-sac designed to the Town’s Road standards requirements) may be required for the Subject Site.
   c. [Circ. 1] - Transportation staff recommends coordination with the applicant to the east. The North Oakville East Secondary Plan illustrates a north-south road, Street B, at the eastern limits of the lands, which would also provide external access to the neighbouring property to the east.
   d. [Circ. 1] - A pedestrian crossing is required to connect the subdivision on the north and south sides of Settlers Road, and to provide access to both the trail and the transit stop. The location and type of crossing (e.g., PXO or stop-controlled) should be identified by the transportation consultant in accordance with the guidelines outlined in OTM Book 15.

2. Transportation Study
   a. [Circ. 1] – EM4 TIS was prepared to determine regional road improvements required along Trafalgar Road. The Town has not reviewed nor accepted the EM4 TIS. Transportation Engineering staff have only provided review of the Transportation Memo, specific to the subject lands of the applications (24T-25005.1314, Z.1314.10).

   b. [Circ. 1] Assumptions have been made regarding the North Oakville road network that could significantly impact site layout and development opportunities for adjacent lands. Furthermore, the EM4 TIS was prepared without consultation with surrounding landowners. As such, the background assumptions and any resulting traffic analysis are not acceptable in their current form.

   c. EM4 TIS must be revised to reflect the road network previously approved under the North Oakville Secondary Plan, and to incorporate accurate background development statistics and land use info (refer to the document attached by the Planning staff).

   d. [Circ. 1] If the applicant wishes to propose an alternative road network, such a scenario should be evaluated separately under a "sensitivity analysis" with consultation from the affected landowners.

   e. [Circ. 1 – Information Only] Transportation comments pertaining to the area-wide TIS (referred herein as EM4 TIS) will be provided once these critical assumptions have been updated.

   Circulation 1 comments are based on the Transportation Memo dated July 22nd, 2025 (CGH)

   f. [Circ. 1] – Please include Context Map previously used for the EM4 TIS analysis (Figure 2 of the EM4 TIS) and compare it to the updated context map with the revised Subject Development included. The context map should be scaled appropriately to show intersections proposed north of Burnhamthorpe Road.

   g. [Circ. 1] - Confirm the phasing of the development and buildout horizon year.

   h. [Circ. 1] – Further detail of the Functional Road Design is required.
      i. List all internal roads within the subdivision and the associated road classifications in a table.
      ii. Confirm all proposed road cross-sections meet the Town's standards.
      iii. If a deviation from the Town standard and/or from the approved North Oakville Secondary Plan is proposed, justifications should be provided (i.e., Street B alignment).
      iv. Section 2.2 – Include a conformance review of Settlers Road (i.e., cross section).
      v. Section 2.3 – Outline TAC GDGCR intersection spacing requirements along Burnhamthorpe Road and along Settlers. Streets connecting to Burnhamthorpe Road from the north, should also be considered when determining available spacing. Include a diagram with the spacings shown, if necessary.
      vi. Section 2.3 – Note, the road layout shown in North Oakville Secondary Plan allows an evenly spaced intersection along Burnhamthorpe Road. It also allows the neighbouring lands to the east to use Street B as potential access.

The intersection and access spacing review should consider the alternate access point of this property. With Street B located farther west of the property line as currently proposed, an easement agreement or alternative access must be provided elsewhere. The review of the intersection and access spacing requirements should be compared to various alternative access scenarios (i.e., current proposal vs. original layout, vs. driveway along Burnhamthorpe Road vs. relocated the next north-south road, closer to the neighbouring lands to provide driveway access).

vii. The Town requires a temporary cul-de-sac at each temporary dead-end road. The drawing should illustrate the proposed fire and waste collection routes. The interim road width and radius should also meet the relevant Town and Region standards and maintenance requirements. (i.e., winter maintenance, fire and Region waste collection requirements etc.)

viii. Reference the interim and ultimate road design concepts. The Figures (i.e., Appendix G), should show curb and centerline radius, pavement width dimensions, how Street B and Street G connect to Settlers Road, and how Street B connects to Burnhamthorpe Road.

i. [Circ. 1] – Since the roadways shown in the current Draft Plan differs from the assumed road names in the previous area-wide TIS (referred herein as EM4 TIS), the Transportation Memo should clarify the corresponding roads of the EM4 TIS. For instance, Local 1 and Local 2 are shown in the EM4 TIS, however, it is difficult to confirm if these are the applicants' Street B and Street G local roads, or adjacent development's local roads.

j. [Circ. 1] – Based on the EM4 TIS, provide a summary of the trip assignments in the Transportation Memo as well as the future intersection operations of:

- Trafalgar Road at Burnhamthorpe Road West,
- Trafalgar Road at Settlers Road,
- Vernon Powell Drive at Burnhamthorpe Road,
- Vernon Powell Drive at Settlers Road,
- Street B and Street G at Burnhamthorpe Road West, and at Settlers Road.

k. [Circ. 1] – Based on the EM4 TIS analysis, provide a summary of the recommended intersection configurations (i.e., lane configuration and traffic control etc.), as well as identify if further improvements are required to support the proposed development for the interim and ultimate conditions.

l. [Circ. 1] – Update background road improvement timelines in the Transportation Memo. Identify if any planned road improvements need to be constructed earlier.

m. [Circ. 1] - The consultant should review and confirm auxiliary lane requirements and whether full-moves of Street B, Street G intersections are supportable from traffic operations and safety perspectives.

n. [Circ. 1] – Confirm Street B queueing at Burnhamthorpe would not impact operations at lane A. Propose mitigation measures, if required, to prevent vehicles egressing from Lane A, blocking southbound traffic along Street B.

o. [Circ. 1] – Section 2.4 – "It has however been noted by Town and City staff…". Confirm who is the City staff.

p. [Circ. 1] – The consultant noted that:

"… *an additional east-west roadway within the subject development was not included, as no provisions have been made for this connection in the lands west of the development area. The proposed east-west road would only provide a link to Trafalgar Road. Given that the existing Burnhamthorpe Road to the north and the planned extension of Settlers Road are expected to fulfill the intended function of this connection…*", and as such the consultant concluded that the additional east-west road is not necessary.

The proposed east-west road is required to meet the forecasted capacity requirements. Based on forecasted traffic operations at Trafalgar Road and Burnhamthorpe Road, and the intersection of Trafalgar Road at Settlers Road, the additional east-west corridor would alleviate identified operational concerns at these intersections. It would also provide much-needed east-west capacity to support future transportation demands of the Subject Lands and the surrounding area.

q. [Circ. 1] - Include Sight Line analysis and figures of all other intersections proposed, such as Street G and Street B at Settlers Road, Street B at Burnhamthorpe. Staff noted that existing residents complain about sight lines through the on-street parking provided along Burnhamthorpe Road.

r. [Circ. 1] - Sight Line Figures should be updated to **clearly** show the curbs, driveway, on-street parking lane, and sidewalk locations along Settlers Road. Staff are concerned with the sight line given the horizontal curvature of the road and the potential on-street parking.

s. [Circ. 1] – Related to the above comment, staff is also confused with the "decision point" of the reverse maneuver shown in the diagram. The reversing vehicle would be partially within the travel lanes. Verify P-car dimensions, illustrate the position of the p-car in the diagram, as well as the driver's sight line perspective.

t. [Circ. 1] – Sight Line Analysis and figures have been provided for the two "worse case" scenarios, which the consultant has determined to be the driveways along the southern side of Settlers Road.

The application of TAC GDGCR Section 9.9.2 is not appropriate for evaluating vehicles that are slowly reversing from private driveways onto the roadway. The requirements outlined in TAC GDGCR Intersection Sight Distance ensure that a vehicle stopped on a minor roadway/driveway can safely observe traffic in both directions, enter the major roadway, and

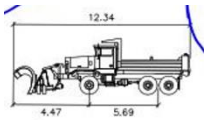
complete all necessary maneuvers (in a forward continuous maneuver) without significantly impacting through traffic.

Reverse maneuvers from driveways differ fundamentally from standard intersection movements. It involves a slow backward movement onto the major roadway, followed by a complete stop, and then a forward turning motion to complete the merge onto the roadway. This sequence does not align with the acceleration assumptions or design parameters of ISD as defined in TAC GDGCR.

u. [Circ. 1] – As mentioned in the Site Plan comments above, Transportation staff recommends coordination with the applicant at 220 Burnhamthorpe Road East. Depending on their development proposal, the temporary road layout shown in Appendix G of the Traffic Memo, may be "permanent" in nature and a permanent circulation solution (i.e., cul-de-sac designed to the Town's Road standards requirements) may be required for the Subject Site.

v. [Circ. 1] - Transportation Memo should also include a review of the site-specific TDM measures.

3. Vehicle Turning Diagrams
   a. [Circ. 1] – Show interim fire truck maneuvers.
   b. [Circ. 1] – Confirm how opposing traffic will yield to Halton Waste Collection and HSU vehicles along Lane A, and along the bend from Street C to Lane A. Consider both vehicles' sight line when confirming how the opposing traffic will yield.
   c. [Circ. 1] – Please provide snowplow vehicle turning for the interim condition using the following dimensions:
      - Track: 2.10 m
      - Lock to lock time: 6.0 m
      - Steering Angle: 37.2 m
      - Configuration to assess is the retracted configuration of 157 5/8 inches = 4.0 meters plus an extra 30 cm for safe buffer area, making it 4.3-meter path.



Snowplow vehicle

   d. [Circ. 1] – Further comments regarding the interim condition will be provided once additional drawings and justifications are provided.
   e. [Circ. 1] – Given the lane configuration expected for Street B at Burnhamthorpe Road, provide Vehicle Turning Diagrams at this intersection.

4. Parking Plan
   a. [Circ. 1] – Look for opportunities to achieve 0.5 on-street parking spaces per unit. i.e.,
      i. Additional on-street parking should be considered along the Village Square frontage.

ii. Additional on-street parking should be considered closer to the local intersections. The minimum requirement is 10.0 m from the intersection.
iii. Additional on-street parking may be possible using 1.0 m driveway spacing requirement.

b. [Circ. 1 – Information Only] - Placement of fire hydrants should be considered in the Parking Plan and relocate hydrant or on-street parking to opposing side to minimize conflict where feasible.

5. Pedestrian Circulation Plan
   a. [Circ. 1] – No comment at this time.

6. Preliminary Traffic Control Plan
   a. [Circ. 1] – Please submit a Preliminary Traffic Control Plan detailing mitigative measures before construction, during construction and post construction phases as per Ontario Traffic Manual (OTM) Book 7.

If you require clarification or have questions regarding the above comments, please feel free to contact the undersigned.

Regards,

Martin Chan, P. Eng.
Transportation Engineer, East Oakville
Transportation Planning
E: Martin.chan@oakville.ca
P: (905) 845-6601, Ext: 4740

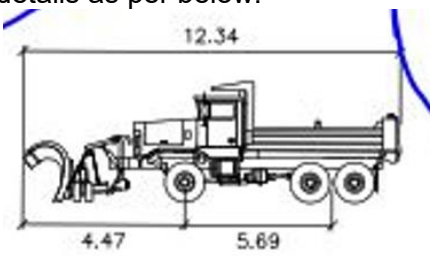
INTERNAL DEPARTMENTS

7 Roads & Works Operations

Jose Herrera, jose.herrera@oakville.ca

Circulation 1

- Section 2.4 - Site circulation, Page 8 currently highlighted in yellow "It is noted that the entirety of Street D will be a one-way street in the interim. Along the segment of Street D that is built to its ultimate configuration, parking on both sides of the roadway will be temporarily allowed to reduce the available roadway surface to vehicles travelling along street D".
    - Works Operations Comment: We do not accept this as a solution, parking to remain on one side only on Street D due to equipment safety operating concerns during the winter (road plows), including safe operating buffers, snow storage capacity and operational constraints.
    - If current configuration remains in place, the developer is to maintain all roads north of Street E during the Winter until the final development configuration has been achieved (this includes Street B and G north of Street E, Street D, Street C, Lane A.
- Section 2.4 - Site circulation, Page 8 mentions: "snowplow vehicles which have been tested using HSU vehicles, along the proposed interim roadway segments have been included on Appendix G. As shown, no conflicts noted".
    - Appendix G does not include a Town snowplow. It contains a box truck with a width of 2.4 meters and a garbage truck. This sweep path does not allow for the assessment of Town equipment.
    - Do sweep path for Town plow equipment, to determine turning radius suitability as well as placement/location of parking on other roads not being Street D.
    - Attached is the plow width required for the analysis using the combined clearing path retracted as reference on clearing width and area free of obstacles (i.e. Parked cars).
    - Snowplow vehicle, tandem truck, Track 2.10; Lock to Lock Time: 6.0; Steering Angle 37.2 - and truck axle details as per below:



Snowplow vehicle

- Appendix E.- confirmation that Street B will connect to Burnhamthorpe? If not connected to burnhamthorpe, road closed sign to be placed as Town equipment cannot go through.
- Appendix E.- Lane A, confirm that the pavement width shall be minimum 4.0 meters without any encroachments.

Snow Plow Specifications (for turning movement analysis) included as Appendix “C”.

8 Fire Department, Fire Prevention Officer

Davin Lindsay, davin.lindsay@oakville.ca

Circulation 1

A circulation review has been entered for the above folder by Fire Prevention - Fire Code.

Please review the comments: Passed.

9 Building Services, Zoning Examiner

Matt Rubic, matt.rubic@oakville.ca

Circulation 1

We have reviewed the above noted development application circulation and have the following comments:

Zoning By-law Amendment

Based on the draft by-law and parking justification study provided by the applicant, zoning recommends the following:

1. Draft regulation under section 8.**.2 proposes a reduced rear yard of 1.3m and lot depth of 13.0m is proposed for lots 1 to 3 located in the Block 1 area of land. Based on the shallow lot site plan provided, the lot depths are greater along with the rear yards which is 18.56m depth for lot 2 with a rear yard of 2.76m and a lot depth of 21.4m for lot 3 with a rear yard of approximately 5.25m (please confirm dimension).
2. Draft regulation under section 8.*.2 a) proposed a minimum lot depth of 22.0m where the draft plan indicates the lot depths to be 24.5m which meets the minimum depth of 23.0m. An amendment would not be required since the plan indicated the blocks will comply with the NC zone requirements for townhouse dwellings with street access.
3. Draft regulations 8.*.1 g) and 8.**.1 h) relating to the reduced width for single car garage propose 2.9m but the plan for single car garages indicates the width to be 3.05m. The minimum width is 3.0m, since the proposed plan is in compliance then why is a regulation for reduced width proposed?
4. When the applicant's draft by-law has been vetted by you (the planner), please prepare your draft by-law and circulate the draft for review. Further comments will be provided when the draft by-law is circulated.

Plan of Subdivision

5. For blocks which will be combined with adjacent lands to create future lots: Lot areas, frontages and lot depths will be confirmed for the combined blocks qualifying as lots prior to draft approval of adjacent lands. Please note that under section 4.11.4 of zoning by-law 2009-189, as amended, blocks not qualifying as lots until they are combined with additional land so as to qualify as lots, shall be used for the purpose of horticulture only and no building or structure may be erected thereon.
6. A surveyor's certificate providing lot areas, lot frontages and lot depths is required prior to draft approval.

10 Legal, Realty Services

Jim Knighton, jim.knighton@oakville.ca

Circulation 1

Letter of Good Standing received.

11 Parks and Open Space, Urban Forester

Tony Molnar, tony.molnar@oakville.ca

Circulation 1

Project: Argo Oakville Woods Corp.

Materials reviewed:

1) Tree Inventory and Preservation Plan Report by Kuntz Forestry Consulting dated March 18, 2025.
2) Tree Inventory and Preservation Plans by Kuntz Forestry Consulting dated March 18, 2025.

Urban Forestry has reviewed the Zoning By-law Amendment and Draft Plan of Subdivision, circulation and has provided the following comments:

Zoning By-law Amendment & Official Plan Amendment

Development Services Urban Forestry staff have no objection to the ZBA for the subject development.

Draft Plan of Subdivision

1 The Tree Inventory and Preservation Plan Report indicates that of the total 140 trees and four polygons (tree groupings), 173 trees and the 4 tree polygons are being removed as part of the proposed development.

In the event that Planning approves the proposed development, Urban Forestry requires that the following comments be addressed, and that all conditions relating to the subdivision agreement be fulfilled to the satisfaction of Parks and Open Space Forestry.

1.1 That the TIPPR be updated to indicate whether there are any tree species that are regulated by the Ontario Endangered Species Act, 2007 that were observed within the study area or within 50 metres beyond the proposed limit of disturbance that were classed under the ESA.

1.2 That the TIPPR be revised to include a Tree Canopy Cover Loss Table listing all municipal and private tree removals by species. The table is to list by species the canopy cover loss, in square metres, and list the tree numbers associated with the removals.

1.3 That the "Tree Inventory and Preservation Plan" (i.e., report) be renamed to Tree Inventory and Preservation Report.

2 Forestry staff will collaborate with Planning and Parks and Open Space staff regarding tree matters associated with a) the trail layout designed to meet both the trail users' needs and preserve those trees that are suitable for retention, b) buffer tree preservation review c) compensatory tree planting within the buffer and beyond, and d) the circulated woodland dripline staking plan.
Cir, 2 – Ongoing consultation with the environmental planner, Parks and Open Space staff, and DET will process accordingly.

3 The streetscape design with respect to tree planting is to comply with the *North Oakville Urban Forest Strategic Management Plan* document, that was approved by the Town of Oakville in 2012. The document is available online and details all particulars relating to street tree planting including the requirement of replacing the boulevard soils to accommodate improved tree growth and long-term survivability. It is strongly advised that prior to completing the boulevard treatment area the applicant and/or the project Landscape Architect contact Urban Forestry staff for consultation on the boulevard street tree planting requirements and any updated tree planting standards that have been added to date.

Please note that the tree canopy cover target for residential land use may change depending on the final zoning category of the property. However, specifics for tree spacing and categorizing tree stature classes have been updated and the new standards will be provided as part of the initial landscaping reviews.

All relevant streetscaping designs will be thoroughly reviewed as part of the detailed engineering.

Cir. 2 – Note only to applicant: Street tree planting plans will be reviewed as part of the engineering submissions and responses coordinated through the DET.

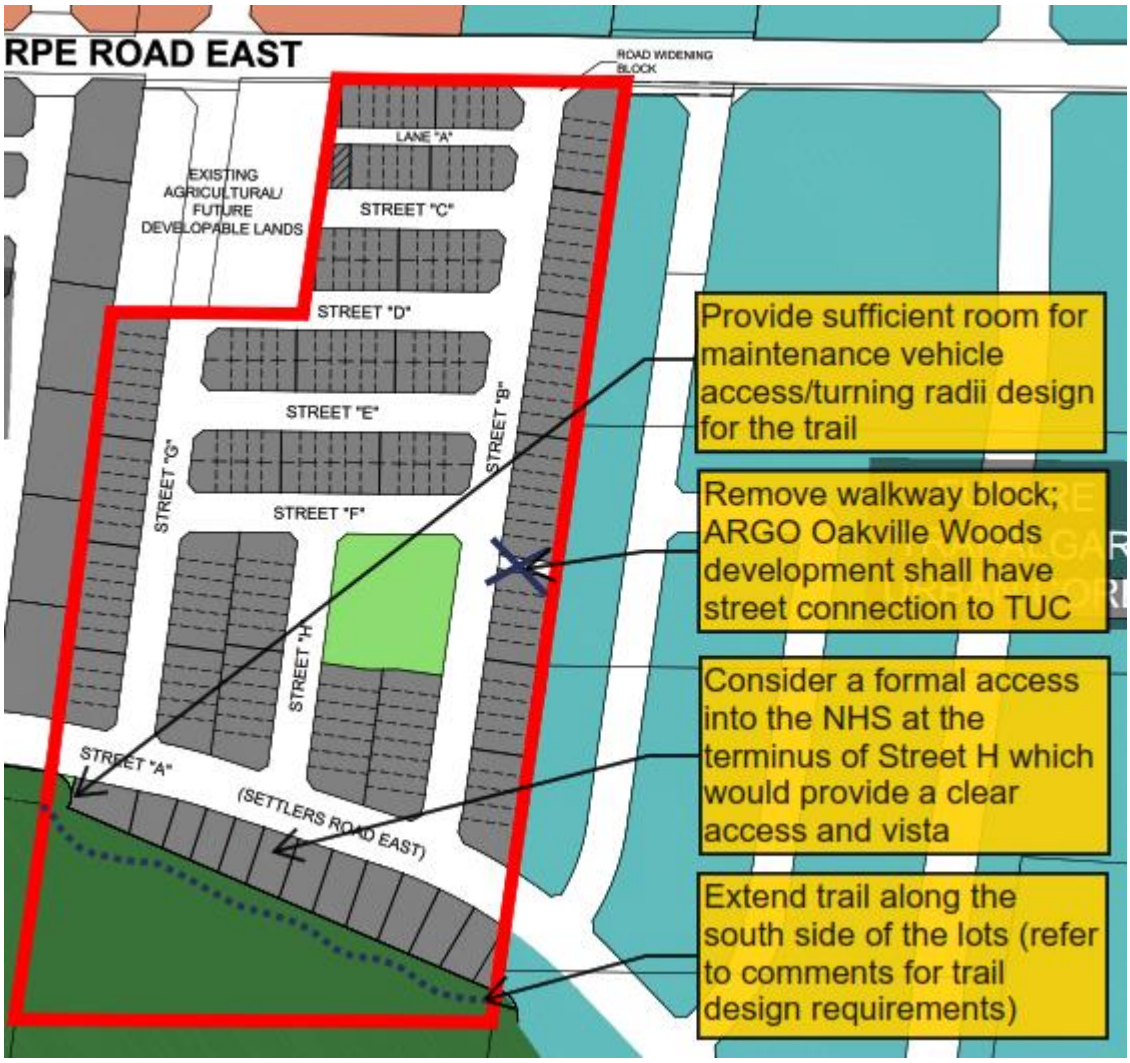
12 Parks and Open Space, Parks

Carmen Hui, carmen.hui@oakville.ca

Circulation 1

NHS Access/Trail Design Requirements

- Reference conceptual sketch below for comments.



1. Consider a formal access point at the terminus of Street H and Settlers Road East; this provides visibility into the NHS is consistent with the vision defined in the Official Plan. To ensure a safe access across Settlers Road East, a pedestrian push button crosswalk is recommended and shall be coordinated with Transportation Planning.

2. The Parks and Open Space Department shall require the applicant to design and develop a 2.4m wide limestone screenings trail within the NHS / natural area buffer as works on behalf of the town. This requirement will be based on the North Oakville Trails Plan and Conservation Halton approval, and subject to approved budget funding for reimbursement.

3. Where trail is adjacent to a slope 4:1 or steeper, the shoulder shall be increased to 1.0m wide or a wood barrier shall be provided.

4. A 2.5-meter wide planted buffer plus a 0.5-meter wide mow strip be provided between the rear yard property line and NHS trail graded at between 2-5% maximum (subject to the grading and drainage strategy agreed upon with Planning and Development Engineering).

5. A sufficient "planting buffer" between the trail and property line be maintained to achieve town objectives:
   - As noted in the Council approved North Oakville Trails plan
   - Contributes to the Town's strategic direction in achieving overall tree canopy cover targets. E.g. canopy trees may be planted within as little as 2.5m wide planting space.
   - Provides added protection between residential uses and the trail and NHS system
   - Limits opportunities for encroachment into the NHS
   - Enhances the natural landscape character of the trail system
   - Enhances the pedestrian realm and user experience
   - Increases plant biodiversity within the community
   - Increases plant biomass within the community

6. That the trail alignment be designed to allow for trail/forestry maintenance vehicles with a minimum 5.0-meter radius and that lotting fabric may need to be adjusted to allow for this required alignment.

7. If the walkway block is also a servicing block. The block shall not be credited towards the required total parkland obligations as described in the master parkland agreement.

8. Concentrated overland flows (e.g. swale outlets) will not be permitted from the development entering on to the NHS / natural area or town land.

9. Grading (including feather grading) on to town land or designated natural areas shall not be permitted.

10. Provide a pedestrian circulation plan to extend beyond this plan and show connectivity to adjacent plans.

11. The NHS / natural area lands shall be conveyed to the town in a condition to the satisfaction of the Parks and Open Space Department.

Village Square Design Requirements

1. The size and location of the park (Village Square or Neighbourhood Park) should be determined by the Parks and Open Space Department. A facility-fit for the Village Square should be included in the next submission.

Proposed Walkway Block

1. Remove the proposed walkway block that connects. The Town would like to see Street 'F' connect from ARGO Oakville Woods to Trafalgar Uptown Core.

EXTERNAL AGENCIES

13 Mississaugas of the Credit First Nation, DOCA

Payton Mitchell, Payton.mitchell@mcfn.ca

Circulation 1

Comment from November 9, 2022:

On behalf of the Mississaugas of the Credit First Nation, Department of Consultation and Accommodation, I reviewed the Stage 1-2 Archaeological Assessment report prepared by PHC for the Argo Oakville woods.

Our FLR reported good engagement with your field director Andrew Sparling and his crew. Their efforts to confirm the disturbance while test pitting are appreciated.

I do not have other questions or comments about the archaeological work conducted or the content of the report.

We look forward to collaborating with you on future projects.

14 Hydro One Networks Inc.

Land Use Planning, LandUsePlanning@HydroOne.com

Circulation 1

We are in receipt of your Application for Subdivision, 24T-25005/1314 dated 2025-08-29. We have reviewed the documents concerning the noted Plan and have no comments or concerns at this time. Our preliminary review considers issues affecting Hydro One's 'High Voltage Facilities and Corridor Lands' only.

For proposals affecting 'Low Voltage Distribution Facilities' the Owner/Applicant should consult their local area Distribution Supplier. Where Hydro One is the local supplier the Owner/Applicant must contact the Hydro subdivision group at subdivision@Hydroone.com or 1-866-272-3330.

To confirm if Hydro One is your local distributor please follow the following link: Stormcentre (hydroone.com)

15 Bell Canada

Mohammad Bangee, mohammad.bangee@bell.ca

Circulation 1

We have reviewed the circulation regarding the above noted application.

The following paragraphs are to be included as a condition of approval:

Bell Canada Condition(s) of Approval

1. The Owner acknowledges and agrees to convey any easement(s) as deemed necessary by Bell Canada to service this new development. The Owner further agrees and acknowledges to convey such easements at no cost to Bell Canada.

2. The Owner agrees that should any conflict arise with existing Bell Canada facilities where a current and valid easement exists within the subject area, the Owner shall be responsible for the relocation of any such facilities or easements at their own cost. Upon receipt of this comment letter, the Owner is to provide Bell Canada with servicing plans/ CUP at their earliest convenience to planninganddevelopment@bell.ca to confirm the provision of communication/telecommunication infrastructure needed to service the development.

The Owner acknowledges and agrees that it is the responsibility of the Owner to provide entrance/service duct(s) at their own cost from Bell Canada's existing network infrastructure to service this development. In the event that no such network infrastructure exists, in accordance with the Bell Canada Act, the Owner shall be required to pay for the extension of such network infrastructure.
If the Owner elects not to pay for the above noted connection, Bell Canada may decide not to provide service to this development.

Concluding Remarks:

To ensure that we are able to continue to actively participate in the planning process and provide detailed provisioning comments, we note that we would be pleased to receive circulations on all applications received by the Municipality and/or recirculations. If you believe that these comments have been sent to you in error or have questions regarding Bell's protocols for responding to municipal circulations and enquiries, please contact circulations@bell.ca directly.

Should you have any questions, please contact the undersigned.

Yours Truly,
Mohammad Bangee mohammad.bangee@bell.ca

16 Rogers Communications Canada Inc.

Divya Pillai, gtaw.newarea@rci.rogers.com

Circulation 1

Rogers Reference Number: M255206A01

Rogers Communications Canada Inc. ("**Rogers**") has reviewed the application for the above Subdivision and has determined that it intends to offer its communications services to residents of the Subdivision. Accordingly, we request that municipal approval for the Subdivision be granted subject to the following conditions:

(1) The Owner shall agree in the Subdivision Agreement to (a) permit all CRTC-licensed telecommunications companies intending to serve the Subdivision (the "**Communications Service Providers**") to install their facilities within the Subdivision, and (b) provide joint trenches for such purpose.

(2) The Owner shall agree in the Subdivision Agreement to grant, at its own cost, all easements required by the Communications Service Providers to serve the Subdivision, and will cause the registration of all such easements on title to the property.

(3) The Owner shall agree in the Subdivision Agreement to coordinate construction activities with the Communications Service Providers and other utilities, and prepare an overall composite utility plan that shows the locations of all utility infrastructure for the Subdivision, as well as the timing and phasing of installation.

(4) The Owner shall agree in the Subdivision Agreement that, if the Owner requires any existing Rogers facilities to be relocated, the Owner shall be responsible for the relocation of such facilities and provide where applicable, an easement to Rogers to accommodate the relocated facilities.

In addition, we kindly request to, where possible, receive copies of the following documents:

(1) the comments received from any of the Communications Service Providers during circulation;

(2) the proposed conditions of draft approval as prepared by municipal planners prior to their consideration by Council or any of its committees; and

(3) the municipal planners' report recommending draft approval before it goes to Council or any of its committees.

Should you require further information or have any questions, please do not hesitate to contact me at gtaw.newarea@rci.rogers.com

Sincerely,
Divya Pillai Coordinator gtaw.newarea@rci.rogers.com
Rogers Communications Canada Inc.
3573 Wolfedale Rd, Mississauga Ontario

17 Canada Post

Anna Burdz, anna.burdz@canadapost.ca

Circulation 1

Canada Post Corporation appreciates the opportunity to comment on the above noted application and it is requested that the developer be notified of the following:

Canada Post has reviewed the proposal for the above noted Development Application and has determined that the completed project will be serviced by centralized mail delivery provided through Canada Post Community Mail Boxes.

In order to provide mail service to this development, Canada Post requests that the owner/developer comply with the following conditions:

⇒ The owner/developer will consult with Canada Post to determine suitable permanent locations for the placement of Community Mailboxes and to indicate these locations on appropriate servicing plans.

⇒ The Builder/Owner/Developer will confirm to Canada Post that the final secured permanent locations for the Community Mailboxes will not be in conflict with any other utility; including hydro transformers, bell pedestals, cable pedestals, flush to grade communication vaults, landscaping enhancements (tree planting) and bus pads.

⇒ The owner/developer will install concrete pads at each of the Community Mailbox locations as well as any required walkways across the boulevard and any required curb depressions for wheelchair access as per Canada Post's concrete pad specification drawings.

⇒ The owner/developer will agree to prepare and maintain an area of compacted gravel to Canada Post's specifications to serve as a temporary Community Mailbox location. This location will be in a safe area away from construction activity in order that Community Mailboxes may be installed to service addresses that have occupied prior to the pouring of the permanent mailbox pads. This area will be required to be prepared a minimum of 30 days prior to the date of first occupancy.

⇒ The owner/developer will communicate to Canada Post the excavation date for the first foundation (or first phase) as well as the expected date of first occupancy.

⇒ The owner/developer agrees, prior to offering any of the residential units for sale, to place a "Display Map" on the wall of the sales office in a place readily available to the public which indicates the location of all Canada Post Community Mailbox site locations, as approved by Canada Post and the Town of Oakville.

⇒ The owner/developer agrees to include in all offers of purchase and sale a statement, which advises the prospective new home purchaser that mail delivery will be from a designated Community Mailbox, and to include the exact locations (list of lot #s) of each of these Community Mailbox locations; and further, advise any affected homeowners of any established easements granted to Canada Post.

⇒ The owner/developer will be responsible for officially notifying the purchasers of the exact Community Mailbox locations prior to the closing of any home sales with specific clauses in the Purchase offer, on which the homeowners do a sign off.

Canada Post further requests the owner/developer be notified of the following:

1 The owner/developer of any condominiums will be required to provide signature for a License to Occupy Land agreement and provide winter snow clearance at the Community Mailbox locations

2 Enhanced Community Mailbox Sites with roof structures will require additional documentation as per Canada Post Policy

3 There will be no more than one mail delivery point to each unique address assigned by the Municipality

4 Any existing postal coding may not apply, the owner/developer should contact Canada Post to verify postal codes for the project

5 **The complete guide to Canada Post's Delivery Standards can be found at:**
https://www.canadapost.ca/cpo/mc/assets/pdf/business/standardsmanual_en.pdf

The Location of the Local Post Office is **2420 Speers Rd, Oakville Ontario L6L 0C9**

18 Halton Catholic District School Board
Katarina Pranzer, panzerk@hcdsb.org

Circulation 1

In response to the above noted application to permit the development of 12 single family dwellings and 209 townhouse units, the Halton Catholic District School Board ("HCDSB") has no objection.

In terms of school accommodation, if the development were to proceed today, elementary students generated from this proposal would be accommodated at St. Cecilia CES located at 420 Threshing Mill Boulevard. Secondary school students would be directed to Holy Trinity CSS located at 2420 Sixth Line.

Should you proceed with the approval of the draft plan of subdivision and zoning by-law amendments, we require that the following conditions be placed in the draft plan conditions and the subdivision agreement, as well as any future agreements (e.g. Site Plan, Condominium). The conditions are to be fulfilled prior to final approval:

1. The owner agrees to place the following notification in all offers of purchase and sale for all lots/units and in the Town's agreements, to be registered on title:

    a. Prospective purchasers are advised that Catholic school accommodation may not be available for students residing in this area, and that you are notified that students may be accommodated in temporary facilities and/or bused to existing facilities outside the area.

    b. Prospective purchasers are advised that the HCDSB will designate pick up points for the children to meet the bus on roads presently in existence or other pick up areas convenient to the Board, and that you are notified that school busses will not enter cul-de-sacs and private roads.

2. In cases where offers of purchase and sale have already been executed, the owner is to send a letter to all purchasers which include the above statements.

3. That the owner agrees to the satisfaction of the HCDSB, to erect and maintain signs at all major entrances into the new development advising prospective purchasers that if a permanent school is not available alternative accommodation and/or busing will be provided. The owner will make these signs to the specifications of the HCDSB and erect them prior to final approval.

4. That the developer agrees that should the development be phased, a copy of the phasing plan must be submitted prior to final approval to the HCDSB. The phasing plan will indicate the sequence of development, the land area, the number of lots and blocks and units for each phase.

5. That a copy of the approved sidewalk plan, prepared to the satisfaction of the Town of Oakville be submitted to the HCDSB.

6. The owner shall provide HCDSB a geo-referenced AutoCAD file of the Draft M-plan once all Lot and Block numbering has been finalized. Should any changes occur after the initial submission to Lot and Block configuration or numbering on the draft M-plan the Owner shall provide a new AutoCAD file and a memo outlining the changes.

It should be noted that Education Development Charges may apply in accordance with the applicable Education Development Charge By-law and are required at the issuance of a building permit. Any building permits that are additional to the maximum approved unit count will be subject to Education Development Charges prior to the issuance of a building permit, at the rate in effect at the date of issuance.

If you have any questions regarding the aforementioned, please contact the undersigned.

Yours truly,

K. Pan

Kathie Panzer
Planning Officer

19 Halton District School Board

Laureen Choi, choil@hdsb.ca

Circulation 1

Thank you for the opportunity to review the proposed development application. The subject land of this application is 7.26 hectares and is located within the North Oakville East Secondary Plan (NOESP) at 210 Burnhamthorpe Road East (south side of Burnhamthorpe Road East, between Sixth Line and Trafalgar Road). This application proposes to permit the development of 221 residential units (209 townhouse units, 12 detached residential units).

Comments on Student Accommodation
Students from this area are currently within the **Dr. David R. Williams PS**, **Forest Trail PS** and **White Oaks SS** catchment areas. The Halton District School Board recognizes that this is a development application that proposes residential units which will impact student accommodation in this area and the options available to the Board to address these requirements.

According to the Board's projections many of the existing schools in the vicinity are projected to be over building capacity and may require portables. Long range projections for schools can be viewed in our Long Term Accommodation Plan (LTAP) which can be found on the Board's website. Specifically, Elementary Review Areas (ERA) 115 and (ERA) 118 and Secondary Review Areas (SRA) 102 and (SRA) 108 are the areas on which this application will have the greatest impact.

Other issues that will impact student accommodation in this area are the following:

1. The Board completed the Oakville NE #3 and #5 PS Boundary Review study in January 2024 which created the boundaries of two new Oakville elementary public schools. The approved recommendation impacts a number of existing schools with boundary and program changes. As a result, the implementation of the boundary and program changes will be made over the next few years where ultimately, this application will continue to be within the elementary catchment areas for **Dr. David R. Williams PS and Forest Trail PS**.

2. A future boundary review will begin within the next few months to create the boundaries of the new public secondary school, **Oakville NE #1 HS**, which is located on the northwest corner of Burnhamthorpe Road West and Sixth Line (registered plan 20M-1296). **White Oaks SS** is currently experiencing accommodation pressures due to the new development growth north of Dundas Street and will continue to experience accommodation pressures until **Oakville NE #1 HS** opens. The temporary redirection to **T.A. Blakelock HS** for the area north of Dundas Street that was in place for the 2023/24 school year, was suspended during the 2024/25 school year and continues to be suspended for the 2025/26 school year. Note that this redirection will be frequently reevaluated and the status of this redirection may change.

3. The Long Term Accommodation Plan (LTAP) is an annually reviewed planning tool that provides enrolment projections and school facility information to guide accommodation planning needs and actions over a 15-year time period. The 2022 LTAP was approved in June 2023 and provides 15-year school projections from 2023 to 2037. The LTAP is scheduled to be released later this year with updated projections and school board planning initiatives.

Comments on file #24T-25005 (circulated August 29, 2025)

Please be advised that the Halton District School Board has no objection to the proposed application as submitted. Please notify us of the adoption of the proposed application and include us in the circulation of any future applications, including site plans, related to the development. The Halton District School Board will provide comments and conditions on each proposed development application received.

1. The Owner agrees to place the following notification in all offers of purchase and sale for all lots/units and in the Town's subdivision agreement, to be registered on title:

    a. Prospective purchasers are advised that schools on sites designated for the Halton District School Board in the community are not guaranteed. Attendance at schools in the area yet to be constructed is also not guaranteed. Pupils may be accommodated in temporary facilities and/or be directed to schools outside of the area. School attendance areas are subject to change and/or redirections can be put into place to address school accommodation pressures.

    b. Prospective purchasers are advised that school buses will not enter cul-de-sacs and pick up points will be generally located on through streets convenient to the Halton Student Transportation Services. Additional pick up points will not be located within the subdivision until major construction activity has been completed.

    c. Prospective purchasers are advised that school buses shall not enter new subdivisions (construction areas) until all major construction activity has been completed. School bus stops will be placed at or near the entrance to the new subdivision. Bus stop locations within new subdivisions will be determined by Halton Student Transportation Services upon completed site reviews. It is therefore the responsibility of future purchasers that have students attending an HDSB school to identify a suitable means for home to school transportation requirements (whether walking or bussed).

2. That in cases where offers of purchase and sale have already been executed, the Owner sends a letter to all purchasers which include the above statement.

3. The Owner agrees that, should the development be phased, a copy of the phasing plan must be submitted prior to final approval to the Halton District School Board. The phasing plan will indicate the sequence of development of residential units for each phase. The developer will provide information on anticipated occupancy and tentative closing dates of residential units.

4. The Owner shall supply, erect and maintain signs at all major entrances into the new development advising prospective purchasers that pupils may be directed to schools outside of the area. The Owner will make these signs to the specifications of the Halton District School Board and erect them prior to the final approval.

5. That a copy of the approved sidewalk plan/active transportation plan, prepared to the satisfaction of the Town of Oakville be submitted to the Halton District School Board.

6. The Owner shall provide Halton District School Board a geo-referenced AutoCAD file of the Draft M-plan once all Lot and Block numbering has been finalized. Should any changes occur after the initial

submission to Lot and Block configuration or numbering on the draft M-plan the Owner shall provide a new AutoCAD file and a memo outlining the changes.

In addition, the following notes should be included in the conditions:

- Educational Development Charges (EDC) are payable in accordance with the applicable Education Development Charge By-law and are required at the issuance of a building permit. Any building permits that are additional to the maximum unit yield, which is specified by the Subdivision Agreement, are subject to EDCs prior to the issuance of a building permit, at the rate in effect at the date of issuance.

- Additional Dwelling Units (ADU) constructed as part of a primary dwelling unit prior to occupancy are subject to EDCs. For ADUs to be eligible for an exemption, the building permit must be issued after occupancy of the primary unit, and must meet other requirements such as size and number of units relative to the existing unit. For more information on EDCs and ADUs, please reach out to the school boards.

20 Conservation Halton

Sean Stewart, sstewart@hrca.on.ca

Circulation 1

Conservation Halton (CH) staff has reviewed the above-noted applications according to our regulatory responsibilities under the *Conservation Authorities Act* (CA Act) and Ontario Regulation 41/24 and our provincially delegated responsibilities under Ontario Regulation 686/21 (e.g., acting on behalf of the province to ensure decisions under the *Planning Act* are consistent with the natural hazards policies of the Provincial Planning Statement [PPS, Sections 5.1.1-5.2.8] and/or provincial plans).
Documents reviewed as part of this submission, received on August 29, 2025, are listed in **Appendix A**.
Detailed comments are noted in **Appendix B**.

Proposal
The applicant proposes to rezone and subdivide the lands for residential development, including a 0.3 hectare village square, and 1.08 hectare Natural Heritage System (NHS) block. The plan proposes 221 residential dwelling units, in various townhouse and single-detached dwelling built forms.

Regulatory Comments (Conservation Authorities Act and Ontario Regulation 41/24)
CH regulates all watercourses, valleylands, wetlands, Lake Ontario Shoreline, hazardous lands (e.g. flooding and erosion hazards, dynamic beaches, unstable soil and bedrock), as well as lands adjacent to these features. A portion of the subject property is regulated by CH as it is adjacent to a wetland. CH regulates 30 metres from the edge of the wetland.
The subject property does not contain regulated watercourses, however the surface runoff from the Upper EM4 Subcatchment that this proposed subdivision is largely included in, flows through to a regulated watercourse (East Morrison Creek) on the east side of Trafalgar Road. CH staff are reviewing and commenting on the proposed stormwater management strategy (through the associated EIR/FSS) to confirm that the proposal does not present an unacceptable risk to public safety or property damage, including downstream landowners, or that potential risks can be mitigated.

Permits are required from CH prior to undertaking development activities within CH's regulated area and applications are reviewed under the *Conservation Authorities Act* (CA Act), Ontario Regulation 41/24, and CH's *Policies and Guidelines for the Administration of Part VI of the Conservation Authorities Act and Ontario Regulation 41/24 and Land Use Policy Document (last amended, April 17, 2025)* (https://conservationhalton.ca/policies-and-guidelines).
It does not appear that any CH permits will be required as development is directed outside of the area regulated by CH.

Planning comment
CH generally recommends that the full extent of CH's regulated area be designated and zoned for protection, contained in separate blocks, and placed into public ownership where appropriate. It appears that the 30 metre wetland buffer is appropriately contained in the NHS block, subject to confirmation through the EIR/FSS, noted in Appendix B.

Provincial Planning Statement Natural Hazard Comments (Sections 5.1.1-5.2.8)
In addition to CH's regulatory responsibilities (described above), CH also has provincially delegated responsibilities under Ontario Regulation 686/21: Mandatory Programs and Services, including acting on behalf of the Province to ensure that decisions under the *Planning Act* are consistent with the Natural Hazards Sections (5.1.1-5.2.8) of the Provincial Planning Statement (PPS).
There is no conflict with the natural hazards policies of the PPS as there are no regulated natural hazards on the property.

Key Comment

1. CH staff have reviewed a mini-modelling submission, flood plain sensitivity analysis, and EIR/FSS Addendum for the Upper EM4 catchments lands, which include the subject lands. Outstanding comments on these submissions should be addressed to confirm the proposed SWM servicing of the subject lands, prior to draft plan approval of the subject lands.

Recommendation
CH recommends that the Key Comment above and the associated comments in Appendix B be addressed in a revised submission prior to approval of the application.

To facilitate CH's review, the following should be included in the resubmission:

1. Consolidated response table (word format preferred) addressing CH's fundamental Key Comments above and Detailed Comments within Appendix B;
2. Cover letter listing all documents submitted; and
3. A digital copy of all resubmission materials in reduced file size format for fast loading and viewing (digital download preferred). Redlined drawings and reports with tracked changes are also appreciated.

Please note that a resubmission fee will apply on third and subsequent resubmissions in accordance with CH's applicable fee schedule.

Encl: **Appendix A: Materials/Technical Reports Reviewed**
Appendix B: Detailed Comments

Appendix A: Materials/Technical Reports Reviewed

CH received the following first submission materials on August 29, 2025:

	Drawing # /Doc #:		Rev. # & Date:		Consultant:
03	Aerial Photo	-	v.1	March 28/2025	Korsiak
04	Survey	-	v.1	April 17/2022	J.D. Barnes
06	Draft Plan of Subdivision	-	v.1	Feb. 03/2025	Korsiak
	Reports and Studies:				
28	Planning Justification Report	-	v.2	July 2025	Korsiak
31	EIR	-	v.1	Aug. 07/2025	RAND
39	Environmental Implementation Report and Functional Serving Study	-	v.1	July 2025	RAND
	Documents:				
00	Cover Letter	-		Aug. 19/2025	Korsiak
01	Application Form	-		-	-
02	PCON Checklist Comments Report	-		June 11/2025	
23	PCON Checklist Comments Report - Signed	-		July 10/2025	ARGO Oakville Woods
29	Draft ZBLA	2024-XXX		-	-

Appendix B: Detailed Comments

CH provides the following detailed comments regarding the 1st Submission of the Zoning By-law Amendment, and Draft Plan of Subdivision that are recommended to be addressed at the stage noted in the table.

#	Topic/Section/Plan	CH – 1st Submission Comments (November 21, 2025)	Recommended stage for comment to be addressed
1.		CH staff have reviewed a mini-modelling submission, flood plain sensitivity analysis, and EIR/FSS Addendum for the Upper EM4 catchment lands, which include the subject lands. Outstanding comments on these submissions should be addressed to confirm the proposed SWM servicing, wetland water balance and mitigation measures to PSW 23, and confirmation of CH's 30m wetland regulatory area of the subject lands.	Prior to approval

Conservation Halton (CH) staff has reviewed the *Upper EM4 EIR/FSS*, prepared by Stonybrook Consulting Inc. et. al., dated July 2025, as per our regulatory responsibilities under the *Conservation Authorities Act* (CA Act) and Ontario Regulation 41/24. Further, CH has provincially delegated responsibilities under Regulation 686/21, including to act on behalf of the Province to ensure decisions under the *Planning Act* are consistent with the natural hazards policies of the Provincial Planning Statement [PPS, Sections 5.1.1-5.2.8] and when requested by a municipality or the Ministry of Municipal Affairs and Housing (MMAH), to provide technical support or information. While this report is not subject to a decision under the *Planning Act (*apart from one landowner outlined below), it provides management recommendations regarding natural hazards and establishes development limits for subsequent *Planning Act* applications.

Documents reviewed as part of this submission, received on August 7, 2025, are listed in **Appendix A**. Comments are separated into fundamental Key Comments that must be addressed in a revised submission prior to CH recommending approval of the application and as noted in **Appendix B**.

Proposal

The purpose of the EIR is to characterize and analyse the natural heritage features and functions within the study area and to determine and address the potential impacts of a proposed development application, including servicing requirements, on the Natural Heritage System (NHS). This EIR/FSS addresses all lands within the Upper EM4 Subcatchment as well as all servicing requirements for subject lands that lie within the adjacent subcatchments.

The purpose of the FSS is to identify servicing requirements related to roads, water supply, sanitary sewers, storm drainage, stormwater, and site grading.

The EIR/FSS is intended to assist in the development of draft plans of subdivision, address the requirements of the North Oakville Creeks Subwatershed Study and the North Oakville East Secondary Plan, to ensure that the site characteristics are understood in sufficient detail to provide the information necessary to process draft plans and identify conditions of approval.

Background

CH staff previously reviewed and provided comment on a mini-modelling pre-submission ahead of this review and provided comments on February 7, 2025. A comment response matrix was not provided with this EIR/FSS addressing those comments. The EIR/FSS text references the mini-modelling submission as being incorporated into this EIR/FSS separately.

Further, a modelling sensitivity analysis was also provided by the study team in April 2025, which consisted of a PDF report. CH provided comment on June 3, 2025.

And finally, staff have received planning applications for the proposed Argo Woods subdivision which is included as one of the participatory landowners for this EIR/FSS. Comments will be provided separately for those applications.

Regulatory Comments (Conservation Authorities Act and Ontario Regulation 41/24)

CH regulates all watercourses, valleylands, wetlands, Lake Ontario Shoreline, hazardous lands (e.g. flooding and erosion hazards, dynamic beaches, unstable soil and bedrock), as well as lands adjacent to these features. The study area is partially regulated by CH as it is adjacent to wetlands. CH regulates 30m from wetlands.

The study area does not contain regulated watercourses, however the surface runoff from the Upper EM4 Subcatchment flows through to a regulated watercourse (East Morrison Creek) on the east side of Trafalgar Road. CH staff are reviewing and commenting on the proposed stormwater management strategy to confirm that the proposal does not present an unacceptable risk to public safety or property damage, including upstream/downstream landowners, or that potential risks can be mitigated.

Permits are required from CH prior to undertaking development activities within CH's regulated area and applications are reviewed under the *Conservation Authorities Act* (CA Act), Ontario Regulation 41/24, and CH's *Policies and Guidelines for the Administration of Part VI of the Conservation Authorities Act and Ontario Regulation 41/24 and Land Use Policy Document (last amended, April 17, 2025)* (https://conservationhalton.ca/policies-and-guidelines).

It appears that the wetlands and their 30m allowance are located outside of the proposed limit of development, other than the proposed public trail corridor. The trails and related works within the regulated area will require a permit and will be reviewed under policy 2.45 (Public Parks).

Planning Comment
Although this review is not under a Planning Act application (apart from the Argo Woods application), please note for future planning applications that CH recommends that the full extent of our regulated area be designated and zoned for protection, contained in separate blocks, and placed into public ownership where appropriate.

Key Comments
The following items regarding stormwater management and wetlands should be addressed in a revised submission prior to approval of the EIR/FSS to ensure that downstream impacts are addressed and there is no impact to wetlands:

1. CH staff understand outstanding comments provided on the Mini Modelling Submission will be addressed in a subsequent submission of this EIR/FSS Addendum. A comment response matrix for those comments should be provided at that time.
2. Further to comments provided by CH on the April 2025 EM1 floodplain sensitivity analysis, hydrologic and hydraulic modelling files have not been received or reviewed by CH staff and should be provided as soon as possible for review.
3. Demonstrate that the hydrologic function of the wetlands (PSW 19, 20, 23, and 25) will be preserved/enhanced under future conditions, updates to the EIR/FSS and water balance analysis are required to accurately assess any impacts.

Recommendation
CH recommends that the Key Comments above and the associated comments in Appendix B be addressed in a revised submission prior to approval of the EIR/FSS.

To facilitate CH's review, the following should be included in the resubmission:

1. Consolidated response table (word format preferred) addressing CH's fundamental Key Comments above and Detailed Comments within Appendix B;
2. Cover letter listing all documents submitted; and
3. A digital copy of all resubmission materials in reduced file size format for fast loading and viewing (digital download preferred). Redlined drawings and reports with tracked changes are also appreciated.

Please note that a resubmission fee will apply on third and subsequent resubmissions in accordance with CH's applicable fee schedule.

Encl: **Appendix A: Materials/Technical Reports Reviewed**
Appendix B: Detailed Comments

Appendix A: Materials/Technical Reports Reviewed
CH received the following first submission materials on August 7, 2025:

- **Upper EM4 Subcatchment Environmental Implementation Report and Functional Servicing Study: North Oakville East**, dated July 2025, prepared by Stonybrook Consulting Inc., et al. (Including attachments)

Appendix B: Detailed Comments

CH provides the following detailed comments regarding the 1st submission of the Upper EM4 EIR/FSS that are recommended to be addressed at the stage noted in the table. Please note that comments from the mini-modelling submission letter (February 7, 2025) have been added to this matrix and the numbering for the 1st Submission of the EIR/FSS builds off the numbering from that letter. Any comments from the mini-modelling submission that have been addressed or no longer apply have been removed from the matrix.

#	Topic/ Section	CH – First Submission Comments Mini-Submission and EIR/FSS	CH Response (Mini-submission)	Recommended stage for comment to be addressed
CH Mini-Submission Comments				
General Comments				
1.		Thank you for the wetland water balance analysis. Please also include the following in the EIR/FSS: a) Pre- to post-development average monthly (January to December) water volumes presented in a tabular format with percent change from existing for all wetlands. b) The 2 year and 25 mm storm hydrographs for PSWs 17, 74 and 25, under existing and proposed conditions. Figures showing the lateral extent of flooding for PSWs 17, 74 and 25.	Not Addressed. To be addressed in resubmission of mini-modelling materials in next EIR/FSS Submission.	Next EIR/FSS Submission (For all cells below)
2.		Please clarify why the wetland water balance analysis for PSW 25 did not include cross sections within the area of the proposed wetland restoration.	Not Addressed. To be addressed in resubmission of mini-modelling materials.	
EM4 Modelling Submission				
5.	Table 1.2.2 SWM Pond 29 Performance Data	a) Confirm and/or correct the drainage area used to calculate target peak flows (appears to be based on 30.2 ha rather than proposed pond drainage area of 27.7 ha). b) Confirm if the 4-hour Chicago storm used in this analysis is	a) Not addressed. Table 7.3 continues to be based on total drainage to Trafalgar Road culvert (ME-T5) rather than the drainage area to Pond 29 (27.7 ha). b) No longer applicable.	

		conservative for the 2-100 year events, noting the approved 2017 EIR/FSS used the 24-hour Chicago Storm.		
6.	Section 3.1.2 Modelling Approach	CH staff understand the Town of Oakville is undertaking an Uptown Core Growth Area Review, which may include the lands north of Dundas Street. The Area G2 lands should be assumed at a higher imperviousness (e.g., 90%) to protect for potential intensification along the Trafalgar-Dundas corridor.	Not addressed.	
7.	Section 3.2 EM1 Hydraulic Modelling	In addition to the analysis completed, CH staff recommend analysis of the proposed diversion to EM1 using an alternate flow regime and hydrologic modelling software, to confirm the proposal will not impact future regulatory flood lines and increase flood risk along East Morrison Creek adjacent existing development. As part of this analysis: • Complete hydrologic modelling using the same software (VO6) and modelling assumptions that will be used in CH's future Sixteen Mile Creek Flood Hazard Mapping Study for existing conditions • Use resultant flow rates to update hydraulic modelling and flood hazard mapping for East Morrison Creek upstream of Dundas Street for existing conditions • Complete proposed conditions hydrologic and hydraulic modelling and mapping to assess the impact of the proposed Pond 29 outlet and diversion of flows • Confirm any water surface elevation increases are confined to the publicly owned creek block with adequate freeboard	To be addressed in resubmission of mini-modelling materials.	

		The results of this analysis may dictate the need for an alternate drainage scheme for Upper EM4.		
8.	Section 3.2.2 Modelling Approach	CH staff recommend the consulting team use the most recent model of record for East Morrison Creek from CH and merge this model with geometry information north of Dundas Street.	To be addressed in resubmission of mini-modelling materials.	
9.	Table 3.2.4 – Proposed EM1 Road Crossing Details	Include the Marvin Avenue crossing in this table.	To be addressed in resubmission of mini-modelling materials.	
10.	Section 3.4 Upper EM4 SWMHYMO Continuous Hydrologic Modelling	a) Provide SWMHYMO model files for review. b) Confirm modelling reflects proposed conditions within the Upper and Lower EM4 catchments.	To be addressed in resubmission of mini-modelling materials.	
11.	Section 3.5 Erosion Assessment	a) Confirm if an additional erosion threshold node is needed upstream of the Pond 27 outlet given the additional flows proposed to this location. b) The future EIR/FSS Addendum should discuss the capacity of the realigned creek (MOC-5A) relative to the proposed flow rates.	To be addressed in resubmission of mini-modelling materials	
12.	Section 3.6.4.1 PSW 25	Confirm the hydrologic model used to assess PSW25 and please provide this modelling information. Include an interim scenario where the 2.45 ha area east of PSW25 is not developed.	To be addressed in resubmission of mini-modelling materials	
13.	Table 3.5.2 Percent Change	Include discussion of results at Node F. CH staff were surprised by some of the changes from 2017, given the proposal to discharge Pond 29 to this location.	To be addressed in resubmission of mini-modelling materials	
14.	Section 3.5.3 Results	Include reference to previous assessments which did not	To be addressed in resubmission of mini-modelling materials	

		consider Pond 29 to discharge to the upper end of MOC-5A.		
15.	Figure 1.1.2 Existing Topography and Drainage	Review catchment boundary on Argo Oakville Woods Corporation abutting Core 9. It appears a portion of the lands drain into Core 9 under existing conditions.	To be addressed in resubmission of mini-modelling materials	
16.	Figure 1.2.1 Post Development Drainage Plan	Confirm if the 1.40 ha drainage area at 90% includes the secondary school.	To be addressed in resubmission of mini-modelling materials	
17.	Figure 3.2.1 EM1 Regulatory Floodline	Include the existing flows floodline on this figure. Include both the 15 m and 7.5 m setbacks to the greatest hazard on this figure. Include other hazards (meander belt, stable top of bank) or provide another figure showing this information.	To be addressed in resubmission of mini-modelling materials	
18.	Appendix A Pond Rating Curves	Confirm why as-built information for emergency spillway was not used for Pond 27.	To be addressed in resubmission of mini-modelling materials	
19.	Appendix B GAWSER Modelling Figure 1	CH staff compared the Ultimate Model Schematic 1 (Figure 1) to Figure 1.2.1 of the report and have the following comments: a) Confirm the assumed drainage area for G1 incorporates the entirety of parcels fronting Trafalgar Road (as opposed to drainage boundary shown on Figure 1.2.1). b) Include labels of areas shown in blue (draining to NHS) and note on the figure if those areas have been included in NHS catchments or modelled separately. c) Total drainage to Point A (325.99 ha) is substantially less than what was modelled in support of the Green Ginger Phase 2 submission (332.05 ha) and the *New Horizons EM4 EIR/FSS Addendum* (2nd submission) (328.30	a) Addressed. b) Not addressed. c) Not addressed. d) Not addressed.	

		ha). Provide an explanation for the differences. d) CH staff note that catchment 108 outlets to a different location in the model version provided in the *New Horizons EM4 EIR/FSS Addendum* (2nd submission). Confirm the ultimate outlet for these lands. Confirm catchments 150 and 151 are not duplicated in error.		
20.	Appendix B GAWSER Modelling	a) Provide modelling for Regional Storm condition, noting that the storage included as Hyd 330 (from lands east of PSW 25) will likely not provide Regional Storm controls. b) For the purpose of this report, the assessment of ultimate conditions is accepted. Future development applications may need to consider interim conditions. Include a model considering storm stacking condition for Pond 29. Storage calculations for the Regulatory Storm should presume a 2-year design storm occurred 48 hours prior to the Regulatory Storm, with the emergency overflow invert elevation set above the resulting Regulatory Storm maximum water surface elevation	Not addressed (a and b)	
21.	Appendix C QUALHYMO Modelling	a) Page 2: For clarity, please include a description of the drainage area exchange that has been approved. b) Page 3: Revise first paragraph regarding “future design of Pond 32”, which has already been designed and built.	To be addressed in resubmission of mini-modelling materials	

		c) Tree pits on residential lots (private property) should not be accounted for in the model. d) Table 1: Update table and model to reflect proposed imperviousness of 83% for Pond 29. e) Figure A2: Update figure based on current GAWSER schematic. f) CH staff recommend combining A401 and Area A1 into a single catchment. g) The status of storage east of PSW 25 has yet to be agreed to through an approved EIR/FSS. In the forthcoming Upper EM4 EIR/FSS Addendum, include commentary on potential sensitivity to differences in modelling assumptions for this area (e.g., if lands are undeveloped or potentially diverted in future). h) Further to comment on the GAWSER model, CH staff recommend increasing the imperviousness assumption for G2 to protect for future intensification of this block. XImp for Areas G1 + G3 is low compared to assumptions in GAWSER model and should be revised.		
22.	Appendix D - Hydraulic Memo and Model	a) Incorporate edits into this memo based on detailed comments provided on Section 3.2 of the main report. b) Include description of various models and plans, including flow	To be addressed in resubmission of mini-modelling materials	

		profiles. CH staff are not clear why the existing conditions model includes higher flows (flow profile = Existing (MOC-4)_DSEL) than the proposed condition model. Further, confirm how flows are being extracted from the GAWSER model (e.g., which flow node locations were used and whether flows have been adjusted by unit area). CH staff request a single model be provided, using plans for existing and proposed conditions. CH staff understand the only change between the two plans would be the proposed flow profile, and in both models, the Trafalgar Road culvert would be in place.		
23.	Appendix D – Hydraulic Model	Provide justification for the low Manning's n included at multiple cross-sections (0.05 on banks).	To be addressed in resubmission of mini-modelling materials	
EM4 EIR/FSS				
24.	General	Please provide digital shapefiles of the 2017 and 2023 wetland staking surveys.		
25.	Section 1.7 Upper EM4 EIR/FSS modelling Mini-Submission	a) Numerous comments on the "Modelling Mini-Submission" have not been responded to or addressed through this EIR/FSS Addendum. These comments must be addressed and responded to prior to finalization of the EIR/FSS. b) Further to comments provided by CH on the April 2025 EM1 floodplain sensitivity analysis, hydrologic and hydraulic modelling files have not been received or reviewed by CH staff, and should be provided as soon as possible for review.		

26.	Section 1.8 Other Background Report	Update reference to CH's current policy document - Policies, Procedures and Guidelines for the Administration of Ontario Regulation 41/24, April 27, 2025.		
27.	Section 2.1 Natural Heritage System Components (page 12) – Provincially Significant Wetlands	Revise last sentence as the Modeling Mini-Submission did not review development implication on PSWs 19 and 20.		
28.	Section 4.8.1 Stream Reach Break Review	Update the figure reference to point to the correct illustration of reach break locations. Note that Figure 5.1 depicts EM4 Vegetation Communities.		
29.	Section 7.6 Preliminary Grading Plan	a) The reference to drainage from the Core to the proposed development (1.14 ha) should be confirmed. Drawings 7.1 and 7.2 show 1.24 ha of drainage at this location, and Drawing 2 of Appendix F-1 shows a drainage area of 1.6 ha. b) Consider if it is possible to use swales in the outer edge of Core 9 to convey clean drainage from the Core to PSWs, rather than to the sewer system and ultimately to Pond 29.		
30.	Section 7.7 SWM Pond 29	a) Confirm emergency outlet elevation is above the Regional Storm elevation considering storm stacking conditions (e.g., should the Regional Storm occur 48 hours after a 2-year storm). b) CH staff recommend, if possible, capture of emergency flows in the proposed storm sewer outlet to EM1.		
31.	Section 7.8 Drainage to/from Provincially Significant Wetlands	Wetland water balances are to be completed as part the EIR/FSS stage with refinements at detail design stage.		

		a) Complete a feature-based wetland water balance assessment for PSWs 19, 20, and 23 and provide the following: • Wetland characterization, including existing catchment area (ha) and hydrologic inputs. • Comparison tables and graphs (water volumes in graphs and water levels graphically) to summarize the proposed changes, showing the monthly runoff volumes for each wetland under pre, post and post with mitigation conditions, and the percent change. • An interpretation in the report summarizing the results, any deviations from pre-development conditions and proposed mitigation measures to ensure maintenance of the hydroperiod, and the hydrologic function of the wetland.		

		• Mapped locations and extent of the proposed mitigation measures and any stormwater management facilities in relation to the wetland. Discuss the design of the proposed mitigation and how it connects to the wetland. b) Include the wetland water balance details from the Modelling Mini-Submission for PSWs 17, 25 and 74.		
32.	Table 13.1 Summary of EIR/FSS Recommendations	Include wetland water balance to be refined at detailed design.		
33.	Appendix B-4	The mini-submission should not be included as a "past document", as this document has outstanding comments from agency staff and is understood to be progressing in parallel / as part of the EM4 EIR/FSS Addendum.		
34.	Appendix F-3 SWM Pond Sizing Calculations	a) Confirm extended detention volume meets requirements, as the value differs from the text in Section 7.7. b) Include emergency discharge in stage-storage-discharge table for Pond 29.		
Figures and Drawings				
35.	Drawing 3.1 Core 9 – NHS-3	Revise the staked limit of PSW 20 (June 20, 2023) to match what is shown on the JD Barnes top survey (Appendix B-2), particularly stakes W1 and W2.		
36.	Drawing 7.3 Preliminary Grading Plan	Update the drawing to include the following: a) A dimension line showing the separation		

		between the wetland limit and the extent of grading. b) CH's 30 m wetland regulatory area.		
37.	Figure 7.6 SWM pond Sections	The grades noted on the sections suggest the pond would spill at the south-east corner rather than the south-west corner, thereby flowing towards Trafalgar Road rather than EM1. Revise pond grades accordingly and provide a detail of the emergency spillway on this or another figure.		

21 Enbridge Gas Pipelines Inc. Eastern Region

Katharine Holtforster, katharine.holtforster@enbridge.com

Circulation 1

Below are my comments regarding 210 Burnhamthorpe Road East:

1. A gas main extension will be required to service this property.
2. A capacity review will need to be conducted once the loads of the new building(s) are known.
3. Please have the developer reach out to me regarding requirements for this project.
4. For location of the existing gas main, please reach out to Ontario One Call for locates.

22 Oakville Hydro, Engineering Dept

Brandon Herd, bherd@oakvillehydro.com

Circulation 1

Oakville Hydro comments:

- Supply for the development to come from adjacent development. Once the development is draft approved, Oakville Hydro will submit to the Developer an "Offer to Connect" for the electrical distribution system. The Developer will have several options to choose from at that time. Under Ontario Energy Board regulations, an economic evaluation will be done to determine the funding split (between the developer and Oakville Hydro) for the distribution system expansion. The developer will have to up-front the cost of the electrical distribution system extension. Contact Oakville Hydro Engineering for further information.

- Developer to submit Subdivision Application through Oakville Hydro website. Developer will be provided with options for distribution design needs.

- Developer to provide any provisions for Net Zero Build, (EV charging, DER (solar)).

- Existing currently active customer-owned 1PH overhead supply to be removed from property. Contact engineering@oakvillehydro.com to discuss disconnection and removal details when ready.

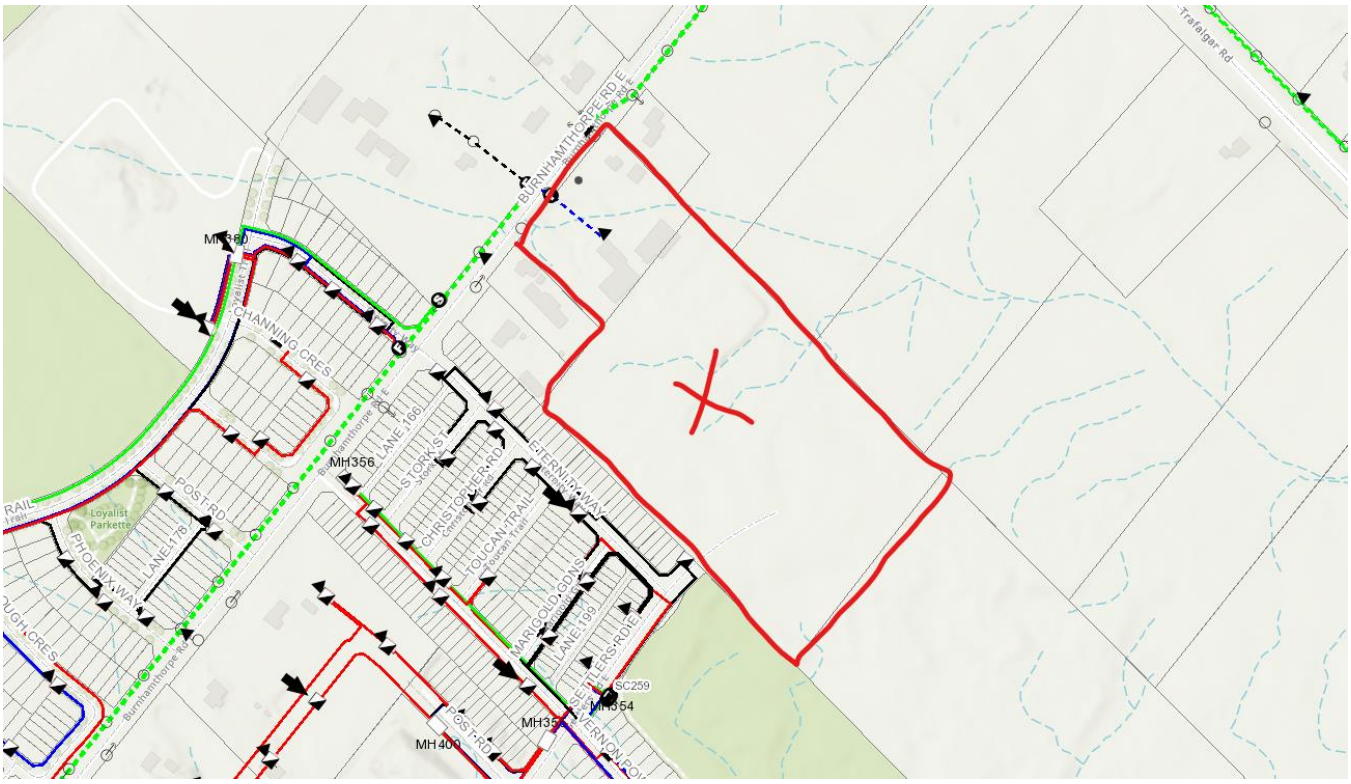
- Switchgear may be required for this development or adjacent. Further review of development details, anticipated demand, design details, adjacent properties etc. required to determine.
- If switchgear was required, optimal location may be within the Village Square.

- Developer and Town of Oakville to support master plan for adjacent developments to ensure capacity is availability for current and future developments.

- Developer to provide drainage for any manhole(s) required for this development.

- Developer to provide architectural drawings at earliest availability to verify meter sittings. Ganged meters are not accepted, each meter requires individual service from transformer to meter base. Developer to request for Oakville Hydro meter standards.

Screenshot from Oakville Hydro GIS (hatched is overhead, solid is underground)



Thanks,
Brandon

23 Region of Halton, Regional Development Review

Tyler Peers, tyler.peers@oakville.ca

Circulation 1

Bill 185 – Cutting Red Tape to Build More Homes Act, 2024

Due to Provincial legislation, as of July 1, 2024, Halton Region's role in land use planning and development matters has changed. The Region is no longer responsible for the Regional Official Plan – as this has become the responsibility of Halton's four local municipalities. As a result of this change, a Memorandum of Understanding (MOU) between the Halton municipalities and Conservation Authorities has been signed that identifies the local municipality as the primary authority on matters of land use planning and development. The MOU also defines the continued scope of interests for the Region and the Conservation Authorities in these matters.

As outlined in the MOU, the Region has an interest in supporting our local municipal partners by providing review and comments on a scope of interests that include:

- Water and Wastewater Infrastructure;
- Regional Transportation Systems including stormwater management infrastructure and acoustic mitigation on Regional right-of-ways;
- Waste Collection;
- Affordable and Assisted Housing;
- Responsibilities associated with a specific mandate prescribed by legislation (e.g. sourcewater protection, public health); and
- Other Regional services that have a land component.

Regional Contaminated Sites Database:

In order to maintain the Region's Contaminated Sites Database, Regional staff request final copies of all environmental reports including: Geotechnical Studies, Hydrogeological Studies, Phase One and/or Two Environmental Site Assessments, Remediation Reports, Risk Assessments, Record of Site Condition (RSC), and/or Certificate of Property Use (CPU).

Background:

Regional staff are forwarding comments in response to the 1st submission for the above-noted application circulated on August 29, 2025.

The subject application is proposing to develop the 7.26-hectare site with residential and open space uses consistent with the North Oakville East Secondary Plan (NOESP). The proposed development consists of 221 residential dwelling units: 86 back-to-back townhouses, 21 rear-lane townhouses, 102 street townhouses, and 12 single detached dwellings, as well as a 0.30-hectare Village Square in the southeast section of the site and 1.08 hectares of Natural Heritage System (NHS). To permit the proposed development, a Zoning By-law Amendment and Plan of Subdivision are required to implement the land use policies of the NOESP.

The subject property is currently zoned Future Development (FD). The proposal seeks to rezone the subject property to new site-specific Neighbourhood Centre (NC sp:*), General Urban (GU sp:**), Park (P) and Natural Heritage System (NHS) Zones.

Staff have reviewed the application and offer the following comments for the Town's consideration.

Managing Growth (Allocation Program):

In accordance with the MOU and appropriate growth management and Regional Allocation requirements, Halton Region provides the following comments.

Halton Region has implemented Allocation Programs that require proponents of residential development applications to secure servicing allocation from Halton Region through an Allocation Agreement. The subject lands are located outside the urban built boundary and are subject to the Regional Allocation Program.

The 2023 Allocation Program introduced Infrastructure Dependent Units (IDUs). Developments with sufficient IDUs will be able to advance through the planning approvals until engineering submission with Halton Region, however the future Servicing Agreement will not be executed until sufficient allocation has been demonstrated.

Allocation Agreement Law File 2024-190:

An Allocation Plan was included with the 1st submission as requested by the Region.

The 1st submission proposes 221 residential units:

- 12 single detached residential units;
- 102 street townhouses;
- 21 rear-lane townhouses; and,
- 86 back-to-back townhouses.

The Region's records indicate that 156 Infrastructure Dependent Units (IDUs) of servicing allocation have been reserved for the subject lands through the 2023 Allocation Program under Law File 2024-190.

Based on the proposed residential units, the development would require 154 IDUs to fully service the development. *Regional staff note that while there are sufficient IDUs, this development requires the conversion to Single Detached Equivalents units (SDEs) as per Appendix C: Procedure and Associated Prerequisites for Converting IDUs to SDEs.*

Holding Provision:

Regional staff note that the following Holding Provision will be applied to all residential development that requires allocation as there are IDUs that must be able to convert to SDEs prior to being used. Additional information can be found in *Appendix C*.

The Holding (H) Symbol may be lifted once the following conditions have been satisfied:

a. *The Owner shall have the equivalent or sufficient number of IDUs converted to SDEs or has been provided written confirmation that all of the W/WW infrastructure, as referenced in Schedule "G2" will be operational within twelve (12) months of the giving of such Notice; and;*
b. *The Owner shall not be in default under the 2023 Allocation Agreement.*
c. *The Region of Halton has provided written confirmation that the above two conditions have been fulfilled to the Region's satisfaction.*

PWCN/Zone 3/4/5 Boundary Adjustment:

In order to obtain a Public Works Commissioner's Notice (PWCN), please provide a formal request in an email or letter to the Regional Planner on file with the required information identified in *Appendices A and B.* Please note the lands will not be able to proceed to building permit until notified by the Region through a Public Works Commissioner's Notice (PWCN) that the infrastructure is or will be in place and capability is available.

Prerequisites for Converting IDUs to SDEs:

IDUs may be converted to SDEs when all the prerequisites are met, in accordance with the principles of the Region's annual Enhanced Growth Monitoring Report, as outlined in *Appendix C*.

Water and Wastewater Servicing:

In accordance with the MOU and to ensure water and wastewater services are provided in accordance with Regional requirements, the Region provides the following comments.

Watermain:

- A 300mm dia. watermain is located on Settler Road adjacent to the property.
- A 1200mm dia. watermain is located on Burnhamthorpe Road East adjacent to the property.
- A 300mm dia. watermain plug is located on Burnhamthorpe Road East adjacent to the property.

Sanitary Sewer:

- A 200mm dia. sanitary sewer is located along Settler Road which is adjacent to the subdivision.
- A 300mm dia. sanitary trunk sewer is located at the intersection of Burnhamthorpe & Eternity Way which is adjacent to the property.

Technical Report: Environmental Implementation Report and Function Servicing Study (EIR/FSS)

Please note that the servicing for Argo Oakville Woods was addressed in the Upper EM4 Subcatchment Environmental Implementation Report and Functional Servicing Study (EIR/FSS), dated July 2025. The EIR/FSS provides the overall servicing plan for the ultimate servicing and infrastructure requirements for the Upper EM4 Subcatchment area. The EIR/FSS is still under review by the Region of Halton and Town of Oakville and has not been formally approved.

The servicing of the North Oakville East Secondary Plan (NOESP) is addressed in the Area Servicing Plan (ASP) for this area. The ASP provides the overall servicing plan for the ultimate servicing and infrastructure requirements for the NOESP.

Wastewater Servicing:

The EIR/FSS outlines the ultimate wastewater servicing strategy for the landowner's group in the Upper East Morrison EM4 Subcatchment area which requires wastewater to be extended to Trafalgar Road. The FSS states that a network of local sewers will convey flows to the proposed Trafalgar Road sub-trunk, which will be constructed by the Region in 2026/2027.

Sanitary drainage from the Argo Oakville Woods Subdivision will need to be conveyed through the properties to the east to the Trafalgar Road sub-trunk.

Water Servicing:

The EIR/FSS outlines the ultimate water servicing strategy for the landowner's group in the Upper East Morrison EM4 Subcatchment area which will be serviced by the connecting to the existing 750mm dia. transmission main on Trafalgar Road and the existing 1200mm dia. watermain on Burnhamthorpe Road.

Please be advised that direct connection to transmission mains is not permitted in Halton Region and the proposed development cannot connect directly to the 1200mm dia. watermain on Burnhamthorpe Road. A watermain stub was provided on the existing 300mm dia. watermain located on Burnhamthorpe Road East. The subdivision must extend the 300mm dia. watermain on Burnhamthorpe Road to service the proposed development. It will be the responsibility of developers and/or landowner(s) to fund, design, and construct these local services.

Please note that the EIR/FSS submitted with this application does not include any analysis for the proposed watermain system for the Upper East Morrison EM4 Subcatchment area. A conceptual watermain plan (Figure 9.1) that shows local watermains will be provided on all streets with the Upper East Morrison EM4 Subcatchment area.

The conceptual watermain servicing does not include any proposed watermains that are over 400mm dia.

Functional Servicing Report Requirement – Interim Water and Wastewater Servicing

Due to the above and the reliance on the timely completion of Regional infrastructure, a revised EIR/FSS is required for the Argo Oakville Woods Subdivision. Based on the servicing strategy presented, the property is service locked, meaning it cannot proceed with permanent servicing until infrastructure becomes available through adjacent subdivision development and the completion of Regional capital projects.

The EIR/FSS must evaluate and confirm the feasibility of interim water and wastewater servicing solutions that comply with the Region of Halton's design standards, including system capacity, and downstream sanitary sewer capacity. The report should also clearly outline the strategy for transitioning from interim to permanent servicing once the necessary regional infrastructure is in place.

Please note that the proposed road and lot fabric proposed for this subdivision will result in at least two streets being temporary dead ends until the adjacent lands located west of this subdivision are developed. The watermains on these streets that have temporary dead ends are a concern to the Region due to the water quality issues associated with dead end watermains and the Regional resources required to flush these mains on a regular basis. Consideration should be given in the EIR/FSS that addresses a program for flushing of

dead end watermains or providing temporary looping of these mains. Some temporary looping of watermains may require external temporary easements on the adjacent lands.

Water Pressure Zone Realignment:

The Region is currently undergoing a program to realign the water pressure zones in the Region. As part of this program, it is proposed to implement both an interim zone condition and an ultimate zone condition within the Region's water distribution system. The timing of implementing the new pressure zone boundaries may take several years to complete. It is possible that the proposed development may be impacted by the changes to the pressure zones in both the interim and ultimate conditions depending on the timing of the implementation of these changes. Please note that minimum service levels for both water pressure and flow will be maintained throughout the Region during this process. Residents may notice changes to their water pressure when the zones are changed over from the existing zone to the interim zone and also when the interim zone is changed to the ultimate zone.

The FSS did not include modelling of the proposed water system in the subdivision. The FSS should be revised to include the modelling of the proposed water system.

Burnhamthorpe Road

Please be advised that the Town of Oakville is completing the detailed design for urbanization of Burnhamthorpe Road between William Halton Parkway and Trafalgar Road. The project is expected to begin construction in 2026/2027. Please ensure coordination with the Town and Region.

Downstream Sanitary Sewer Analysis

If the intent is to redirect flows from additional lands to the Trafalgar Road sub-trunk sewer, please note that the Region has not approved revisions to the North Oakville ASP sanitary drainage boundaries. The downstream sanitary sewer analysis indicates that the future Trafalgar Road sub-trunk between MH4T and MH5T is projected to operate at 93% capacity, exceeding the acceptable threshold of 80%.
The site is in a catchment area where sanitary flows can be directed to either the Sixth Line or Trafalgar sub-trunk sewers. Based on the provided capacity analysis, the Region requires the two downstream sanitary sewer analysis scenarios to be analyzed:

- **Scenario 1**: Drainage from the Argo Oakville Woods lands directed to the Trafalgar sub-trunk sewer as per the approved ASP sanitary drainage boundaries:
- **Scenario 2**: Drainage from the Argo Oakville Woods lands directed to the Sixth Line sub-trunk sewer due to capacity constraints in the Trafalgar sub-trunk, using the approved ASP sanitary drainage boundaries.

Conclusion

A revised EIR/FSS shall be submitted with the next submission and include analysis of interim water and wastewater servicing alignments. This includes identifying feasible routing, capacity, and servicing considerations to support early-phase development. In addition, the report should incorporate strategies for temporary watermain looping. The FSS should also include the extension of the 300mm dia. watermain on Burnhamthorpe Road to service the proposed development as connection to transmission mains is not permitted.

The Region requires that the FSS include water modelling of the development that addresses watermain sizing, flows, pressures, dead-end watermains and the proposed water pressure zone realignment.

Coordination with the Region's Project Manager is required during detailed design to align with the timing of the Trafalgar Road proposed wastewater sub-truck. The FSS should identify any easements, permission from adjacent landowners and cost sharing required for the interim servicing.

The FSS shall include downstream sanitary sewer analyses using the drainage areas that were previously approved as part of the North Oakville ASP.

Once the FSS demonstrates that the existing downstream sanitary sewer system can accommodate the proposed development then we will have no objection to the zoning amendment. If the FSS is not revised, then it is recommended that this zoning amendment only be approved with a holding provision applied to it in relation to a revised FSS.

Since the site is currently not serviced and requires sanitary sewer extension through the adjoining developments, servicing of the development is a concern. A Holding Provision on the zoning application should be considered to address the Region's servicing concerns. The Holding Provision may be lifted once the servicing extensions have been constructed, or if an alternate arrangement is made with the Region to secure these servicing extensions to the satisfaction of the Region.
Please note that the Region is in receipt of an addendum to the North Oakville ASP, and the results of the review of the addendum may impact the servicing of Argo Oakville Woods.

Waste Management:

To ensure that Regional waste collection services can be provided in a safe and cost-effective manner, this proposal has been reviewed against the Region's *Development Design Guidelines for Source Separation of Solid Waste.*

Region waste collection has considered the subject application and notes that Regional waste will service all residential dwellings for full residential curb side waste collection once construction is completed and units are 90% occupied.

Finance:

This development requires Regional Allocation for the single detached equivalents units (SDEs) proposed. The payments and contributions are payable in accordance with the terms and conditions set out in the applicable allocation program agreement in which the SDEs are being reserved for the Owner.

There are several residential reserves that must be covered by the first developer in for Subdivision Agreement unless a Lot Assignment Letter and associated allocation has been identified via the adjoining Owner(s).

All residential Lots/Blocks (including Part Blocks) on a Subdivision Agreement require sufficient Allocation SDE unless there is a Holding Provision in place by the Local Municipality.

The Owner is also required to pay all other applicable Regional Development Charges (DCs) and Front-ending Recovery Payments prior to the issuance of any building permits, unless a subdivision (or other form of development) agreement is required in which case a portion of the DC's and Front-ending Recovery Payment may be payable upon execution of the agreement. Please visit our website at https://www.halton.ca/The-Region/Finance-and-Transparency/Financing-Growth/Development-Charges-Front-ending-Recovery-Payment to obtain the most current Development Charge and Front-ending Recovery Payment information, which is subject to change.

Disclaimer: It is the Owner's responsibility to ensure that all applicable payments and development charges for the single detached equivalents units (SDEs) being requested are paid for as required by the terms and conditions of the applicable allocation program agreement.

Key Issues:

- The Region requires the applicant to provide a decision on converting IDUs to SDEs in relation to Regional Allocation based on the above comments.
- The Region requires the applicant to provide a revised EIR/FSS based on the above water and wastewater servicing comments.

Conclusion:

This application has been reviewed in accordance with the MOU to support Regional and local objectives related to growth management, to ensure water and wastewater services are provided in accordance with Regional requirements, to support an effective Regional transportation network, and to ensure that Regional waste collection services can be provided in a safe and cost-effective manner.

Regional staff are not in a position at this time to make a recommendation in relation to conditions of Draft Plan approval or any potential Zoning By-law Amendment (i.e. Holding Provisions) due to the noted concerns regarding water and wastewater servicing.

We trust that these comments are of assistance. Should you have any questions or require additional information, please do not hesitate to contact the undersigned. Please send notice of the Town's decision on this application.

APPENDIX A:

Procedure of Obtaining Public Works Commissioner's Notice (PWCN) Letter

In order to obtain a Public Works Commissioner's Notice (PWCN), please provide a formal request in an email or letter along with the following information to the Regional Planner on file thus:

- The number of single detached equivalents (SDEs) that the PWCN is being requested for, the respective law file number and corresponding allocation program, including a copy of the draft plan drawing.
    - In the instance of a Phased development, a PWCN may be released specific to the amount of SDEs required for that Phase.
- A Functional Servicing Report (FSR), OR a Design Brief rationalizing the most current FSR that was approved for the proposed development.
- Confirmation that the Zone 3/4/5 Boundary Realignment Assessment in relation to your proposed development is deemed satisfactory by the Region's Development Project Manager (Please contact 3/4/5 Development Project Manager for more details: Ron MacKenzie, 905-825-6000 Ext. 7628)

Note: Please be advised that a PWCN cannot be issued until all projects listed in the respective group of your proposed site location in Schedule G (Engineering and Construction projects) have been completed.

APPENDIX B:

Guidelines for Zone 3/4/5 Boundary Realignment Assessment

Zone 3/4/5 Boundary Assessment:

The Region of Halton's Infrastructure Planning team provides this general guidance to complete the assessment for the Zone 3/4/5 Boundary Realignment. Please note that the Region will not prescribe the exact method for the assessment, as the complexity, built form and size of the development may impact the approach. Regional staff would be happy to discuss and assist as needed to support your consultant in this assessment. General guidance and requirements are outlined below:

Modeling:

The Zone 3/4/5 Boundary Realignment assessment can include the use of the Region's Hydraulic Model, which the Region will make available, but it is not a requirement for approval and may be overly complex in some instances. Any modeling exercise or theoretical calculation which can demonstrate adequate servicing under all pressure scenarios is considered suitable. In general, it is expected that the pressure boundary assessment will build on the servicing assessment done as part of the Functional Servicing Study.

Required Information for Regional Approval:

The Zone 3/4/5 Boundary Realignment assessment must demonstrate the following at a minimum:

- That fire flow/pressure will be suitable for all residents/buildings within the development under existing, interim and future pressure scenarios.
- That residential/employment water flow/pressure within the development (i.e., general servicing) will adhere to both Regional guidelines and Building Code guidelines under existing interim and pressure scenarios.
- If any requirement will not be met under one or more pressure scenarios, the developer must outline what provisions or mitigating measures will be put in place to address the deficiency.
- It is required that the assessment is carried out by a reputable consultant. The submission must include a covering letter with a summary of the assessment as well as results and mitigating measures (as required). The letter will be signed and stamped by a qualified professional.

APPENDIX C:

Procedure and Associated Prerequisites for Converting Infrastructure Dependent Units (IDUs) to Single Detached Equivalents (SDEs)

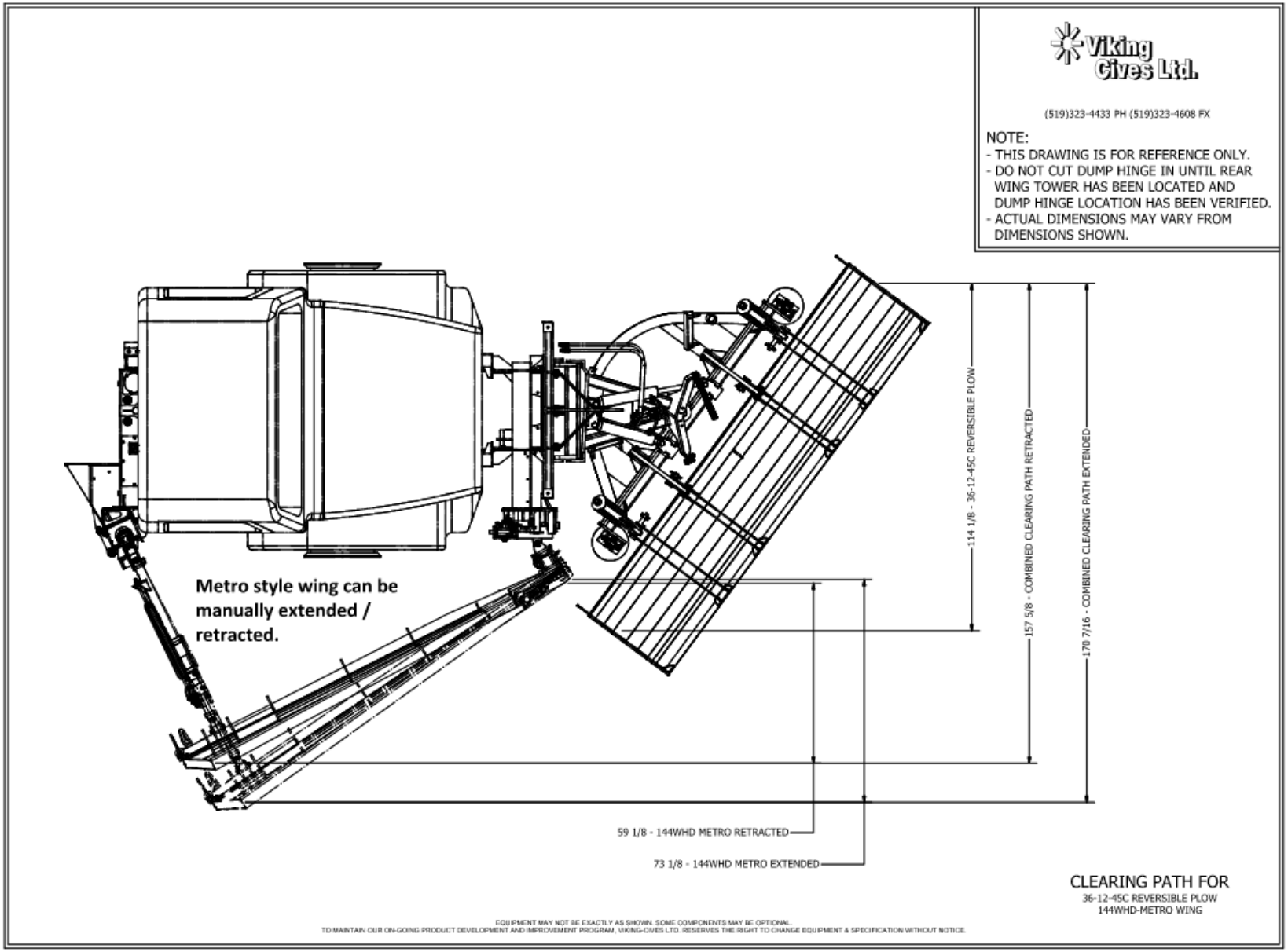
The IDUs may be converted to SDEs when all the following prerequisites are met, in accordance with the principles of the Region's annual Enhanced Growth Monitoring Report:

1. The IDUs to be converted to SDEs are not dependent on any Projects listed in Schedule "G-2" of the 2023 Allocation Agreement;
2. The servicing capacity has been found through the Region's Enhanced Growth Monitoring Report, which may include:
    A. Shifts in distribution of servicing capacity between the built boundary and the Greenfield Area by the Local Municipality in which the Owner's lands are situated;
    B. Through the use of servicing capacity from the Special Purpose Pool; or
3. The Local Municipality in which the Owner's lands are situated has been consulted and has requested the conversion of IDUs to SDEs; and
4. The Owner is not in default under the 2023 Allocation Agreement.

SCHEDULE “A”

- Is the on-street visitor parking allocation appropriate?

SCHEDULE “B”

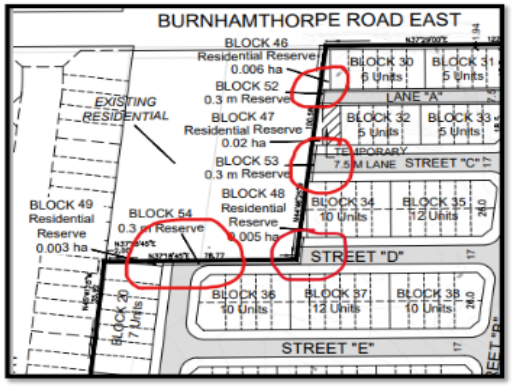
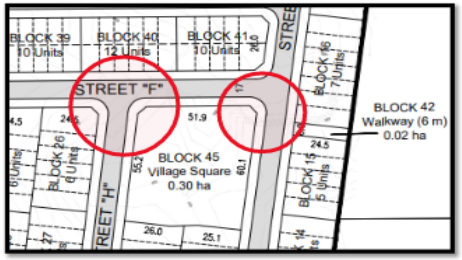

Viking Cives Ltd.
(519)323-4433 PH (519)323-4608 FX
NOTE:
- THIS DRAWING IS FOR REFERENCE ONLY.
- DO NOT CUT DUMP HINGE IN UNTIL REAR WING TOWER HAS BEEN LOCATED AND DUMP HINGE LOCATION HAS BEEN VERIFIED.
- ACTUAL DIMENSIONS MAY VARY FROM DIMENSIONS SHOWN.
Metro style wing can be manually extended / retracted.
114 1/8 - 36-12-45C REVERSIBLE PLOW
157 5/8 - COMBINED CLEARING PATH RETRACTED
170 7/16 - COMBINED CLEARING PATH EXTENDED
59 1/8 - 144WHD METRO RETRACTED
73 1/8 - 144WHD METRO EXTENDED
CLEARING PATH FOR
36-12-45C REVERSIBLE PLOW
144WHD-METRO WING
EQUIPMENT MAY NOT BE EXACTLY AS SHOWN. SOME COMPONENTS MAY BE OPTIONAL.
TO MAINTAIN OUR ON-GOING PRODUCT DEVELOPMENT AND IMPROVEMENT PROGRAM, VIKING-CIVES LTD. RESERVES THE RIGHT TO CHANGE EQUIPMENT & SPECIFICATION WITHOUT NOTICE.

Resubmission Chart:

Please fill out this chart when preparing a resubmission and submit in WORD format.

Drawings:	Drawing # /Doc #:	Rev. # & Date:		Consultant:
Reports and Studies:				
Documents:				

Project Number	2025-067
Project	ARGO Oakville Woods
Document	1st Submission Consolidated Comments Report
Date	24-Nov-25

Comment #	Comment	Response
Transportation Services, Transportation Engineer		
Sustainable Transportation (M. Dimas)		
1	1. Site Plan (General) a. [Circ. 1] – Please state what type of collaboration has occurred between the east and west owners in terms of connectivity between the proposed development and the neighbouring sites.	Within the updated concept plan, Street F has been revised to extend east to the adjacent parcels which will provide access to Trafalgar Road and the boarder arterial road network. Additionally, Settlers Road will also connect to the east and west parcels through the subject lands.
2	2. [Circ 1] NOTE: The proposed layout includes dead-end areas (red circles below) that do not provide adequate vehicle turnaround space. To support efficient traffic flow and emergency vehicle access, turning circles or equivalent turning areas are required in these locations. 	Within the updated concept plan, interim measures have been proposed to address traffic flow and emergency vehicle access at the identified dead-end locations. A temporary lane is proposed between Lane A and Street C to allow for continuous vehicle circulation. Additionally, a temporary lane is also proposed between Street D and Street E under interim conditions. These movements have been reviewed in the turning templates included in Attachment 4 of the updated memo and are shown to operate without conflict. As such, a turning circle is not required at these locations under interim conditions.
3	a. NOTE: The number of bike racks will be assessed for the Village Square as per zoning by-law requirements. It is recommended that proposed crossings are included from the walkway to village square. 	The OTM Book 15 - Pedestrian Crossing Treatments Manual has been reviewed to evaluate a pedestrian crossing warrant at the requested locations. Based on the site generated traffic volumes, the threshold of 8-hr vehicle volume of 750 or a 4-hr vehicle volume of 395 is not expected to be achieved. Additionally, the two crossing locations are located within 200 meters of one another and to the stop controlled intersections at Settlers Road. As such, the site is not warranted for pedestrian crossing control based on the OTM Book 15 Manual.
4	3. Pedestrian and Cycling Circulation Plan a. [Circ 1]- The applicant will be responsible for any safety signage and markings along the signed bike route, and Major Trail within their site boundary.	Noted.

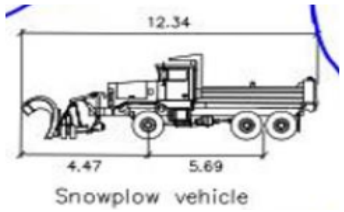
5	b. [Circ. 1] – Please state what mitigation measures will be taken for the residential dwellings located adjacent to the Trail. 	A trail connection to the municipal sidewalk along Settlers Road has been shown in the updated concept plan.
6	4. Transportation Demand Management Measures a. [Circ. 1] – N B The Include a neighborhood map Neighbourhood Information Map for new owners will be required as a condition to identify any existing or future developments, road networks, new or existing accesses or community spaces in the area.	A Neighbourhood Information map has been included as a TDM measure in the updated memo.
Oakville Transit (R. Gratton)		
7	1. [Circ. 1] – For information only – Oakville Transit provides door-to-door paratransit service called care-A-van for persons with disabilities. Service is provided by low-floor, fully accessible 26ft buses with a ramp. Please note the ramp will be deployed on the right side of the vehicle; drivers will leave the vehicle and escort the customer to/from the first accessible public entrance, and the vehicle must remain visible to drivers at all times. The vehicle may occupy a drive aisle during this process. The vehicle may stop on the street during this process, instead of entering the parking lot which would necessitate movements in reverse to exit the parking lot.	Noted.
Transportation Services (M. Chan)		
8	1. Site Plan a. [Circ. 1] – The package should include the interim and ultimate conditions of the Subject Development.	Interim and ultimate conditions of the subject development has been included.
9	b. [Circ. 1] – Transportation staff recommends coordination with owner at 220 Burnhamthorpe Road East. Depending on their development proposal, the temporary road layout shown in Appendix G of the Traffic Memo, may be “permanent” in nature and a permanent circulation solution (i.e., cul-de-sac designed to the Town’s Road standards requirements) may be required for the Subject Site.	Please clarify the address of the adjacent landowner. 220 Burnhamthorpe Road is located to the east of the development and will not be impacted by the interim road layout of the subject site.
10	c. [Circ. 1] - Transportation staff recommends coordination with the applicant to the east. The North Oakville East Secondary Plan illustrates a north-south road, Street B, at the eastern limits of the lands, which would also provide external access to the neighbouring property to the east.	Adequate capacity is provided via Settlers Road and Burnhamthorpe Road to access the subject lands and adjacent properties. As discussed with Town staff, the previously proposed north-south local road through the properties to the east of the subject site has been removed. Street F has been shown to extend east to the adjacent lands which would provide those properties access to Burnhamthorpe Road. The operational analysis reflecting this change has been documented in the updated May 2026 submission of the EM4 JC7 JC9 TIS.
11	d. [Circ. 1] - A pedestrian crossing is required to connect the subdivision on the north and south sides of Settlers Road, and to provide access to both the trail and the transit stop. The location and type of crossing (e.g., PXO or stop-controlled) should be identified by the transportation consultant in accordance with the guidelines outlined in OTM Book 15.	A pedestrian crossing has been evaluated and recommended across Settlers Road in Section 2.4 of the updated memo.
12	2. Transportation Study a. [Circ. 1] – EM4 TIS was prepared to determine regional road improvements required along Trafalgar Road. The Town has not reviewed nor accepted the EM4 TIS. Transportation Engineering staff have only provided review of the Transportation Memo, specific to the subject lands of the applications (24T-25005.1314, Z.1314.10).	Responses to comments related to the EM4 JC7 JC9 TIS have been addressed in the updated May 2026 submission of the TIS in Attachment 1.

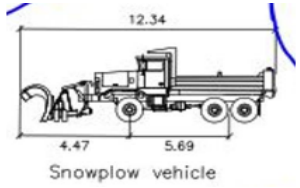
13	b. [Circ. 1] Assumptions have been made regarding the North Oakville road network that could significantly impact site layout and development opportunities for adjacent lands. Furthermore, the EM4 TIS was prepared without consultation with surrounding landowners. As such, the background assumptions and any resulting traffic analysis are not acceptable in their current form.	Responses to comments related to the EM4 JC7 JC9 TIS have been addressed in the updated May 2026 submission of the TIS in Attachment 1.
14	c. EM4 TIS must be revised to reflect the road network previously approved under the North Oakville Secondary Plan, and to incorporate accurate background development statistics and land use info (refer to the document attached by the Planning staff).	Responses to comments related to the EM4 JC7 JC9 TIS have been addressed in the updated May 2026 submission of the TIS in Attachment 1.
15	d. [Circ. 1] If the applicant wishes to propose an alternative road network, such a scenario should be evaluated separately under a "sensitivity analysis" with consultation from the affected landowners.	Responses to comments related to the EM4 JC7 JC9 TIS have been addressed in the updated May 2026 submission of the TIS in Attachment 1.
16	e. [Circ. 1 – Information Only] Transportation comments pertaining to the area-wide TIS (referred herein as EM4 TIS) will be provided once these critical assumptions have been updated.	Responses to comments related to the EM4 JC7 JC9 TIS have been addressed in the updated May 2026 submission of the TIS in Attachment 1.
17	**Circulation 1 comments are based on the Transportation Memo dated July 22nd, 2025 (CGH)** f. [Circ. 1] – Please include Context Map previously used for the EM4 TIS analysis (Figure 2 of the EM4 TIS) and compare it to the updated context map with the revised Subject Development included. The context map should be scaled appropriately to show intersections proposed north of Burnhamthorpe Road.	A comparison between the EM4 JC7 JC9 conceptual plan and the updated concept plan for the subject development has been included in the updated memo. It is noted that the changes to the concept plan for the subject development have been reflected in the overall EM4 JC7 JC9 concept plan analyzed the updated TIS.
18	g. [Circ. 1] - Confirm the phasing of the development and buildout horizon year.	It is assumed that the subject development will be built out by 2031.
19	h. [Circ. 1] – Further detail of the Functional Road Design is required.	
20	a. List all internal roads within the subdivision and the associated road classifications in a table.	Internal roads and the associated road classifications have been included in Section 2.3 of the updated memo.
21	ii. Confirm all proposed road cross-sections meet the Town's standards.	All proposed roadway cross-sections are in accordance with the North Oakville Urban Design and Open Space Guidelines (2009). Cross-sections considered within the subject site have been included in Section 2.3 of the transportation memo.
22	iii. If a deviation from the Town standard and/or from the approved North Oakville Secondary Plan is proposed, justifications should be provided (i.e., Street B alignment).	Justification for the alignment of Street B has been included in Section 2.4 of the updated memo. The alignment of Street B has been slightly adjusted in order to protect appropriate along both Burnhamthorpe Road and Settlers Road in consideration of the roadways planned to support the development to the east of the subject site. This minor adjustment does not result in deviation from the intended transportation function of Street B or development opportunities for adjacent lands.
23	iv. Section 2.2 – Include a conformance review of Settlers Road (i.e., cross section).	A review of the cross-section for Settlers Road has been included in Section 6 of the EM4 JC7 JC9 TIS. This has been included as well in Section 2.3 of the updated memo.
24	v. Section 2.3 – Outline TAC GDGCR intersection spacing requirements along Burnhamthorpe Road and along Settlers. Streets connecting to Burnhamthorpe Road from the north, should also be considered when determining available spacing. Include a diagram with the spacings shown, if necessary.	Intersection and access spacing has been reviewed in Section 8 of the EM4 JC7 JC9 TIS. Minimum intersection spacing requirements have been achieved in the proposed concept plan for the subject site and has been summarized in Section 2.6 of the updated memo.
25	vi. Section 2.3 – Note, the road layout shown in North Oakville Secondary Plan allows an evenly spaced intersection along Burnhamthorpe Road. It also allows the neighbouring lands to the east to use Street B as potential access. The intersection and access spacing review should consider the alternate access point of this property. With Street B located farther west of the property line as currently proposed, an easement agreement or alternative access must be provided elsewhere. The review of the intersection and access spacing requirements should be compared to various alternative access scenarios (i.e., current proposal vs. original layout, vs. driveway along Burnhamthorpe Road vs. relocated the next north-south road, closer to the neighbouring lands to provide driveway access).	Within the updated concept plan, Street F has been revised to extend east to the adjacent parcels which will provide access to Trafalgar Road and the boarder arterial road network. This also allows the properties to the east to access Burnhamthorpe Road. Operational analysis for the proposed access intersections in the updated EM4 JC7 JC9 TIS indicates that all accesses are expected to operate acceptably without capacity concerns. As such, an alternative access onto Burnhamthorpe Road is not required to support the subject development.

26	vii. The Town requires a temporary cul-de-sac at each temporary dead-end road. The drawing should illustrate the proposed fire and waste collection routes. The interim road width and radius should also meet the relevant Town and Region standards and maintenance requirements. (i.e., winter maintenance, fire and Region waste collection requirements etc.)	Within the updated draft plan, interim measures have been proposed to address traffic flow and emergency vehicle access at the identified dead-end locations. A temporary lane is proposed between Lane A and Street C to allow for continuous vehicle circulation. Additionally, a temporary lane is also proposed between Street D and Street E under interim conditions. These movements have been reviewed in the turning templates included in Attachment 4 and are shown to operate without conflict. As such, a turning circle is not required at these locations under interim conditions.
27	viii. Reference the interim and ultimate road design concepts. The Figures (i.e., Appendix G), should show curb and centerline radius, pavement width dimensions, how Street B and Street G connect to Settlers Road, and how Street B connects to Burnhamthorpe Road.	Figures have been updated in the transportation memo to include these details.
28	i. [Circ. 1] – Since the roadways shown in the current Draft Plan differs from the assumed road names in the previous area-wide TIS (referred herein as EM4 TIS), the Transportation Memo should clarify the corresponding roads of the EM4 TIS. For instance, Local 1 and Local 2 are shown in the EM4 TIS, however, it is difficult to confirm if these are the applicants' Street B and Street G local roads, or adjacent development's local roads.	Corresponding road names between the EM4 JC7 JC9 TIS and the subject site has been summarized in Section 2 of the updated memo.
29	j. [Circ. 1] – Based on the EM4 TIS, provide a summary of the trip assignments in the Transportation Memo as well as the future intersection operations of: • Trafalgar Road at Burnhamthorpe Road West, • Trafalgar Road at Settlers Road, • Vernon Powell Drive at Burnhamthorpe Road, • Vernon Powell Drive at Settlers Road, • Street B and Street G at Burnhamthorpe Road West, and at Settlers Road.	A summary of site-related trip assignment and future intersection operations based on the EM4 JC7 JC9 TIS has been included in Section 2 of the updated memo for the following intersections: • Trafalgar Road and Burnhamthorpe Road • Trafalgar Road and Settlers Road • Street B and Burnhamthorpe Road The intersection of Street G at Burnhamthorpe Road is not proposed to be included, as this access is not available under interim conditions. The analysis therefore considers a single access to Burnhamthorpe Road via Street B. This represents a conservative scenario, as it is expected that operations will improve once the second access via Street G becomes available. The intersections of Vernon Powell Drive at Burnhamthorpe Road and at Settlers Road are also not proposed to be included, as only through traffic from the subject development is anticipated to utilize these intersections. Additionally, these intersections would be analyzed as part of the Mattamy Petgor development TIS. The intersections of Street B and Street G at Settlers Road are also not proposed to be included. Based on the EM4 JC7 JC9 TIS, two way traffic volumes from the subject development using Settlers Road are anticipated to be 24 in the AM and 30 in the PM. At full build-out of the EM4 JC7 JC9 development, the two way peak hour volumes on Settlers Road are anticipated to be approximately 336 in the AM and 331 in the PM. These volumes do not meet the volume thresholds for an AWSC warrant based on OTM Book 5. As such, stop control has been assumed on the minor legs, and full intersection operational analysis at these intersections is not required at these intersections.

30	k. [Circ. 1] – Based on the EM4 TIS analysis, provide a summary of the recommended intersection configurations (i.e., lane configuration and traffic control etc.), as well as identify if further improvements are required to support the proposed development for the interim and ultimate conditions.	A summary of the recommended intersection configurations based on the EM4 JC7 JC9 TIS has been included in Section 2.2 of the updated transportation memo. Under ultimate build-out conditions, no east-west capacity deficiencies on Burnhamthorpe Road or Settlers Road have been identified in the EM4 JC7 JC9 TIS. As such, no additional intersection improvements are required to support the subject development. Under interim conditions, additional capacity is anticipated on both Burnhamthorpe Road and on Settlers Road, as multiple adjacent developments included in the ultimate build-out horizon will have not yet proceeded, resulting in reduced anticipated traffic volumes. As such, no additional intersection improvements are required to support the subject development.
31	l. [Circ. 1] – Update background road improvement timelines in the Transportation Memo. Identify if any planned road improvements need to be constructed earlier.	Background road improvement timelines in the EM4 JC7 JC9 TIS are up to date. Please advise if updated road improvement timelines are available.
32	m. [Circ. 1] - The consultant should review and confirm auxiliary lane requirements and whether full-moves of Street B, Street G intersections are supportable from traffic operations and safety perspectives.	Auxiliary turn lane requirements have been reviewed and confirmed as part of the EM4 JC7 JC9 TIS. Based on analysis in the TIS, full movement intersection of Street B at Burnhamthorpe Road is supportable from traffic operations and safety perspectives.
33	n. [Circ. 1] – Confirm Street B queueing at Burnhamthorpe would not impact operations at lane A. Propose mitigation measures, if required, to prevent vehicles egressing from Lane A, blocking southbound traffic along Street B.	95th percentile queues have been reviewed based on the operational analysis results from the updated EM4 JC7 JC9 TIS. The available distance on Street B between Lane A and Burnhamthorpe Road has been shown to be approximately 15 meters (measured curb-return to curb-return). The northbound queue on Street B at Burnhamthorpe Road has been identified to be less than this in the 2041 future total analysis horizon. As such, sufficient storage will be available to accommodate the anticipated queue without impacting access or egress at Lane A. As such, no mitigation measures are proposed.
34	o. [Circ. 1] – Section 2.4 – "It has however been noted by Town and City staff…". Confirm who is the City staff.	This is a typo. The text has been revised to state "Town and Region staff"
35	p. [Circ. 1] – The consultant noted that: *"… an additional east-west roadway within the subject development was not included, as no provisions have been made for this connection in the lands west of the development area. The proposed east-west road would only provide a link to Trafalgar Road. Given that the existing Burnhamthorpe Road to the north and the planned extension of Settlers Road are expected to fulfill the intended function of this connection…"*, and as such the consultant concluded that the additional east-west road is not necessary. The proposed east-west road is required to meet the forecasted capacity requirements. Based on forecasted traffic operations at Trafalgar Road and Burnhamthorpe Road, and the intersection of Trafalgar Road at Settlers Road, the additional east-west corridor would alleviate identified operational concerns at these intersections. It would also provide much-needed east-west capacity to support future transportation demands of the Subject Lands and the surrounding area.	The east-west local road has been included in the updated draft plan. The updated traffic analysis has been revised to reflect this change in the April 2026 submission of the EM4 JC7 JC9 TIS.
36	q. [Circ. 1] - Include Sight Line analysis and figures of all other intersections proposed, such as Street G and Street B at Settlers Road, Street B at Burnhamthorpe. Staff noted that existing residents complain about sight lines through the on-street parking provided along Burnhamthorpe Road.	Sightline figures have been provided for Street B at Burnhamthorpe Road, Street B at Settlers Road, and Street G at Settlers Road in the updated memo. As discussed in Section 2.4 of the updated memo, the stopping sight distance and departure sight distance can be achieved at all intersections with no noted conflicts.

37	r. [Circ. 1] - Sight Line Figures should be updated to clearly show the curbs, driveway, on-street parking lane, and sidewalk locations along Settlers Road. Staff are concerned with the sight line given the horizontal curvature of the road and the potential on-street parking.	Sightline figures have been updated in the memo and shows curb lines, sidewalks, and the on-street parking lane along Settlers Road. Driveway locations have not been shown as this information is not currently available and will be confirmed at a later stage.
38	s. [Circ. 1] – Related to the above comment, staff is also confused with the "decision point" of the reverse maneuver shown in the diagram. The reversing vehicle would be partially within the travel lanes. Verify P-car dimensions, illustrate the position of the p-car in the diagram, as well as the driver's sight line perspective.	In the reverse maneuver scenario, the decision point has been assumed based on a first principles evaluation of a standard passenger (sedan) vehicle. The decision point incorporates a 0.5-metre buffer between the outer edge of the driving lane and the rear bumper of the vehicle. With the buffer, the reversing vehicle would not be positioned within the travel lanes at the decision point. Additionally, the decision point located 4.4-metres from the outer edge of the curb for the for the pull-out scenario has been shown to operate without conflicts, which represents a more conservative condition.
39	t. [Circ. 1] – Sight Line Analysis and figures have been provided for the two "worse case" scenarios, which the consultant has determined to be the driveways along the southern side of Settlers Road. The application of TAC GDGCR Section 9.9.2 is not appropriate for evaluating vehicles that are slowly reversing from private driveways onto the roadway. The requirements outlined in TAC GDGCR Intersection Sight Distance ensure that a vehicle stopped on a minor roadway/driveway can safely observe traffic in both directions, enter the major roadway, and complete all necessary maneuvers (in a forward continuous maneuver) without significantly impacting through traffic. Reverse maneuvers from driveways differ fundamentally from standard intersection movements. It involves a slow backward movement onto the major roadway, followed by a complete stop, and then a forward turning motion to complete the merge onto the roadway. This sequence does not align with the acceleration assumptions or design parameters of ISD as defined in TAC GDGCR.	It is acknowledged that reverse maneuvers differ from the scenario outlined in TAC Guidelines. The intent of the sightline analysis was not to directly apply TAC GDGCR Section 9.9.2 as an intersection movement, but use the ISD criteria as a conservative standard to evaluate driver visibility at the private driveways along Settlers Road. The ISD defines the distance that allows a vehicle to complete maneuvers without requiring vehicles travelling on the main roadway to slow or yield. This results in sight line requirements that are more conservative than those required for SSD, which is a safety measure to ensure drivers can perceive an obstruction on the roadway and stop if required. Vehicles reversing from a private driveway are expected to operate from stop and are able to fully stop before entering the travelled way before completing the maneuver. As such, the assessment is meant to be used as a conservative tool to confirm acceptable sightline conditions, rather than as a simulation of the reversing maneuver.
40	u. [Circ. 1] – As mentioned in the Site Plan comments above, Transportation staff recommends coordination with the applicant at 220 Burnhamthorpe Road East. Depending on their development proposal, the temporary road layout shown in Appendix G of the Traffic Memo, may be "permanent" in nature and a permanent circulation solution (i.e., cul-de-sac designed to the Town's Road standards requirements) may be required for the Subject Site.	Noted. Please refer to responses to above comments. Within the updated draft plan, interim measures have been proposed to address traffic flow and emergency vehicle access at the identified dead-end locations. A temporary lane is proposed between Lane A and Street C to allow for continuous vehicle circulation. Additionally, a temporary lane is also proposed between Street D and Street E under interim conditions. These movements have been reviewed in the turning templates included in Appendix G and are shown to operate without conflict and are therefore able to operate as a permanent solution for the subject site.
41	v. [Circ. 1] - Transportation Memo should also include a review of the site-specific TDM measures.	Noted. Site specific TDM measures have been included in Section 3 of the updated memo.
42	3. Vehicle Turning Diagrams a. [Circ. 1] – Show interim fire truck maneuvers.	Fire truck maneuvers have been included in the vehicle turning diagrams in the updated memo.
43	b. [Circ. 1] – Confirm how opposing traffic will yield to Halton Waste Collection and HSU vehicles along Lane A, and along the bend from Street C to Lane A. Consider both vehicles' sight line when confirming how the opposing traffic will yield.	The occurrence of opposing vehicle conflicts with waste collection and HSU vehicles along Lane A is anticipated to be infrequent as the laneway is primarily intended to serve a low number of private driveways with low traffic volumes. Additionally, waste collection and HSU vehicles operations are expected to occur during off-peak periods where all other vehicle volumes along the laneway is anticipated to be low. While the pavement width along Lane A would not permit a vehicle to pass a waste collection or HSU vehicle, the temporary bend between Street C and Lane A provides approximately 8.5 meters of pavement width which would be sufficient to accommodate two-way passing and yielding which would allow approaching drivers to identify oncoming service vehicles prior to entering the constrained portion of Lane A.

44	c. [Circ. 1] – Please provide snowplow vehicle turning for the interim condition using the following dimensions: • Track: 2.10 m • Lock to lock time: 6.0 m • Steering Angle: 37.2 m • Configuration to assess is the retracted configuration of 157 5/8 inches = 4.0 meters plus an extra 30 cm for safe buffer area, making it 4.3-meter path.  Snowplow vehicle	The snowplow vehicle has been included in the vehicle turning diagrams in the updated memo.
45	d. [Circ. 1] – Further comments regarding the interim condition will be provided once additional drawings and justifications are provided.	Noted.
46	e. [Circ. 1] – Given the lane configuration expected for Street B at Burnhamthorpe Road, provide Vehicle Turning Diagrams at this intersection.	Vehicle turning diagrams at the intersection of Street B and Burnhamthorpe Road has been included in the updated memo.
47	4. Parking Plan a. [Circ. 1] – Look for opportunities to achieve 0.5 on-street parking spaces per unit. i.e.:	
48	i. Additional on-street parking should be considered along the Village Square frontage.	Noted. This has been considered in the updated parking plan shown in Attachment 5.
49	ii. Additional on-street parking should be considered closer to the local intersections. The minimum requirement is 10.0 m from the intersection.	Noted. This has been considered in the updated parking plan shown in Attachment 5.
50	iii. Additional on-street parking may be possible using 1.0 m driveway spacing requirement.	Noted. This has been considered in the updated parking plan shown in Attachment 5.
51	b. [Circ. 1 – Information Only] - Placement of fire hydrants should be considered in the Parking Plan and relocate hydrant or on-street parking to opposing side to minimize conflict where feasible.	Noted.
52	5. Pedestrian Circulation Plan a. [Circ. 1] – No comment at this time.	Noted.
53	6. Preliminary Traffic Control Plan a. [Circ. 1] – Please submit a Preliminary Traffic Control Plan detailing mitigative measures before construction, during construction and post construction phases as per Ontario Traffic Manual (OTM) Book 7.	The provision of a construction mitigation plan/traffic control plan is premature at this submission stage. As such, a construction mitigation plan/traffic control plan will be provided when details regarding construction requirements are available. This work will include pre-construction, construction, and post-construction phases and will be in accordance with OTM Book 7.
Roads & Works Operations		
54	Section 2.4 - Site circulation, Page 8 currently highlighted in yellow "It is noted that the entirety of Street D will be a one-way street in the interim. Along the segment of Street D that is built to its ultimate configuration, parking on both sides of the roadway will be temporarily allowed to reduce the available roadway surface to vehicles travelling along street D". o Works Operations Comment: We do not accept this as a solution, parking to remain on one side only on Street D due to equipment safety operating concerns during the winter (road plows), including safe operating buffers, snow storage capacity and operational constraints. o If current configuration remains in place, the developer is to maintain all roads north of Street E during the Winter until the final development configuration has been achieved (this includes Street B and G north of Street E, Street D, Street C, Lane A.	Noted. Parking will be reduced to one side of the roadway on Street D under interim conditions.

55	Section 2.4 - Site circulation, Page 8 mentions: "snowplow vehicles which have been tested using HSU vehicles, along the proposed interim roadway segments have been included on Appendix G. As shown, no conflicts noted". o Appendix G does not include a Town snowplow. It contains a box truck with a width of 2.4 meters and a garbage truck. This sweep path does not allow for the assessment of Town equipment. o Do sweep path for Town plow equipment, to determine turning radius suitability as well as placement/location of parking on other roads not being Street D. o Attached is the plow width required for the analysis using the combined clearing path retracted as reference on clearing width and area free of obstacles (i.e. Parked cars). o Snowplow vehicle, tandem truck, Track 2.10; Lock to Lock Time: 6.0; Steering Angle 37.2 - and truck axle details as per below:  Snowplow vehicle	The snowplow vehicle has been included in the vehicle turning diagrams in the updated memo.
56	Appendix E.- confirmation that Street B will connect to Burnhamthorpe? If not connected to burnhamthorpe, road closed sign to be placed as Town equipment cannot go through.	Street B will connect to Burnhamthorpe Road.
57	Appendix E.- Lane A, confirm that the pavement width shall be minimum 4.0 meters without any encroachments.	Lane A will have a pavement width of 4 meters. The proposed cross-section of Lane A is illustrated in Section 2.3 and is per the North Oakville Urban Design and Open Space Guidelines (2009).
58	Snow Plow Specifications (for turning movement analysis) included as Appendix “C”.	Noted.
Planning & Development Department		
59	SCHEDULE "A" Is the on-street visitor parking allocation appropriate?	The on-street visitor parking is proposed at a rate of 0.28 spaces/unit. The North Oakville Zoning By-law does not specify a minimum visitor parking requirement for single detached or townhouse units. The proposed visitor parking supply is considered appropriate and expected to sufficiently support the development. Additionally, residential parking is provided at a rate of 4 spaces/unit for single detached units and 2 spaces/unit for townhouse units. It is anticipated that overflow residential parking will be provided within private driveways.

Attachment 3

Sightline Figures



SETTLERS ROAD ACCESS
STOPPING SIGHT DISTANCE

SETTLERS ROAD ACCESS
DEPARTURE SIGHT DISTANCE

Notes:

LEGEND:

	STOPPING SIGHT DISTANCE: 85M
	DEPARTURE SIGHT DISTANCE: CASE B1:130M CASE B2: 110M
	DECISION POINT FROM EDGE OF DRIVE LANE

POSTED SPEED LIMIT: 50KM/H
DESIGN SPEED: 60KM/H

REFERENCES:
Stopping Sight Distance: TAC Chapter 2, Table 2.5.2
Departure Sight Distance (Left Turn): TAC Chapter 9, Table 9.9.4
Departure Sight Distance (Right Turn): Chapter 9, Table 9.9.6

REV:	DESCRIPTION:	BY:	DATE:
03	Issued for Review	CH	2026-05-27
02	Issued for Review	CH	2026-04-29
01	Issued for Review	CH	2025-07-04

STATUS:

CGH Transportation
628 Haines Road
Newmarket, ON
L3Y 6V5
(905) 251-4070

CLIENT: ARGO OAKVILLE WOODS CORPORATION

ARCHITECT:

SITE: OAKVILLE WOODS

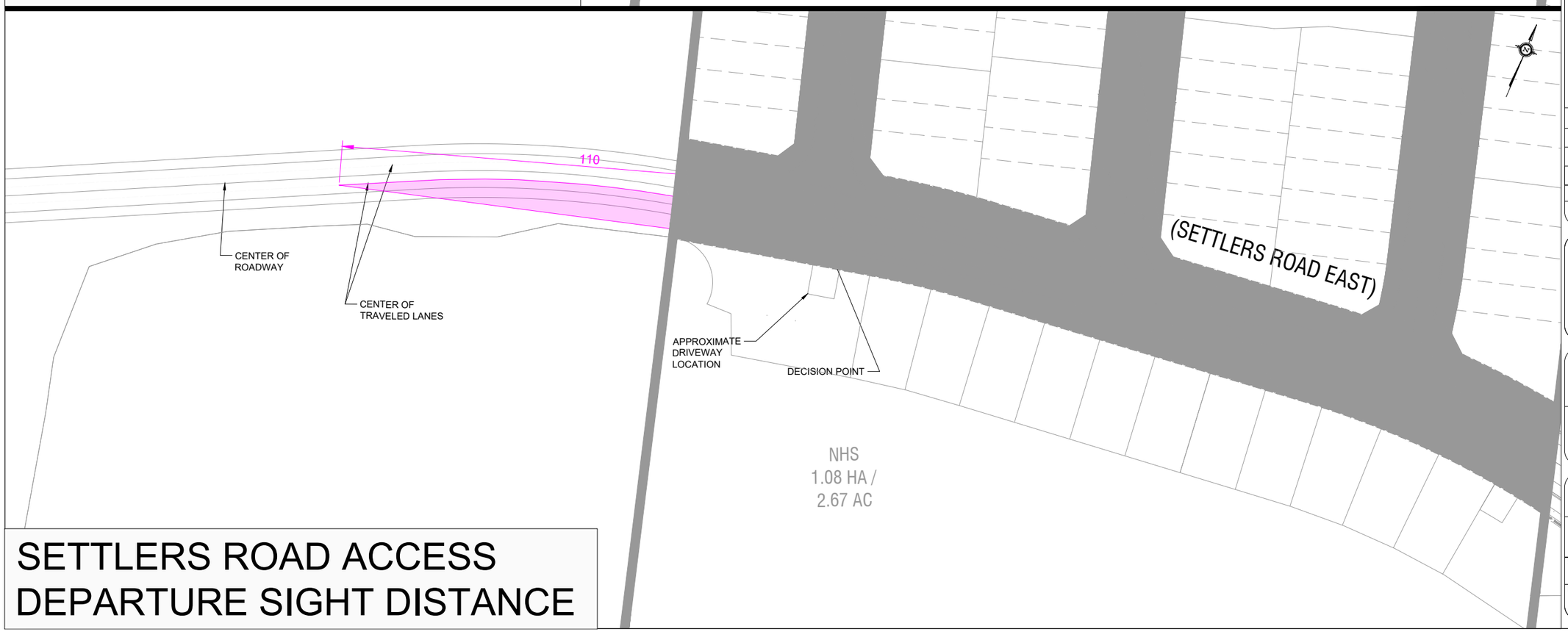
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SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2026-05-27	CH	AL

PROJECT NO:	DRAWING NO:	REVISION:
2025-067	002	03



SETTLERS ROAD ACCESS
STOPPING SIGHT DISTANCE



SETTLERS ROAD ACCESS
DEPARTURE SIGHT DISTANCE

Notes:

LEGEND:

	STOPPING SIGHT DISTANCE: 85M
	DEPARTURE SIGHT DISTANCE: CASE B1:130M CASE B2: 110M
	DECISION POINT FROM EDGE OF DRIVE LANE

POSTED SPEED LIMIT: 50KM/H
DESIGN SPEED: 60KM/H

REFERENCES: Stopping Sight Distance: TAC Chapter 2, Table 2.5.2 Departure Sight Distance (Left Turn): TAC Chapter 9, Table 9.9.4 Departure Sight Distance (Right Turn): Chapter 9, Table 9.9.6

REV:	DESCRIPTION:	BY:	DATE:
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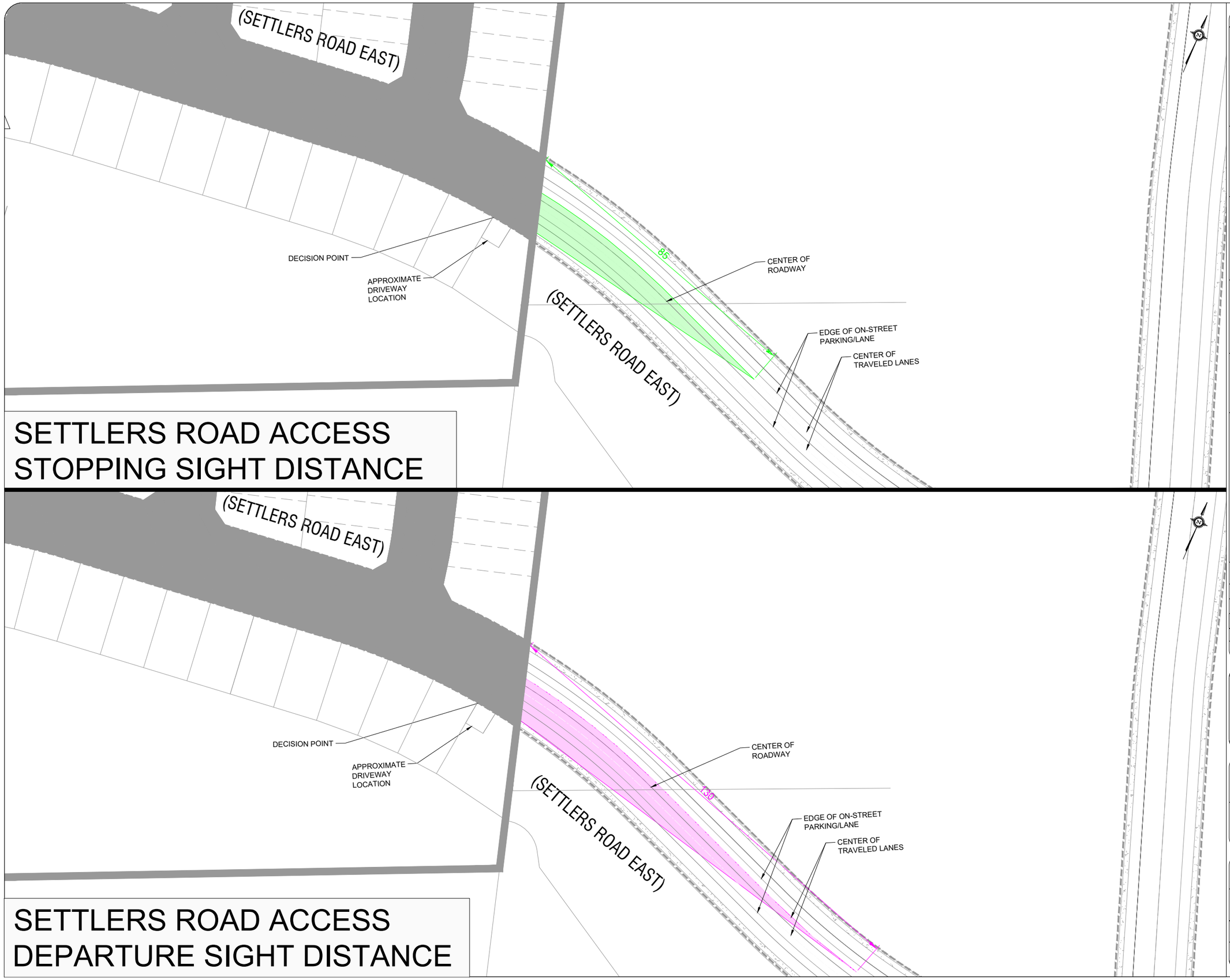
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SITE: OAKVILLE WOODS

TITLE: SIGHT LINE ANALYSIS DRIVEWAY 1 - REVERSE

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2026-05-27	CH	AL

PROJECT NO:	DRAWING NO:	REVISION:
2025-067	003	03



SETTLERS ROAD ACCESS STOPPING SIGHT DISTANCE

SETTLERS ROAD ACCESS DEPARTURE SIGHT DISTANCE

Notes:

LEGEND:

	STOPPING SIGHT DISTANCE: 85M
	DEPARTURE SIGHT DISTANCE: CASE B1:130M CASE B2: 110M
	DECISION POINT FROM EDGE OF DRIVE LANE

POSTED SPEED LIMIT: 50KM/H
DESIGN SPEED: 60KM/H

REFERENCES: Stopping Sight Distance: TAC Chapter 2, Table 2.5.2 Departure Sight Distance (Left Turn): TAC Chapter 9, Table 9.9.4 Departure Sight Distance (Right Turn): Chapter 9, Table 9.9.6

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01	Issued for Review	CH	2025-07-04

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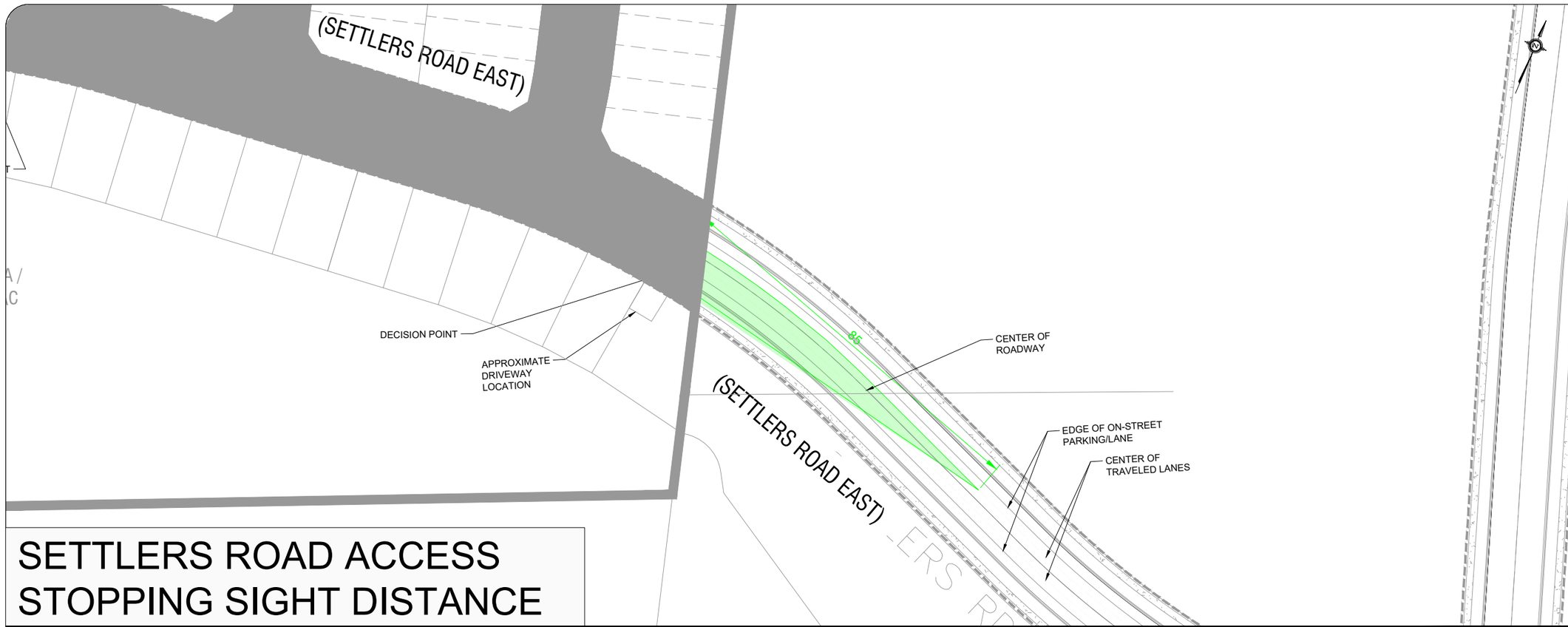
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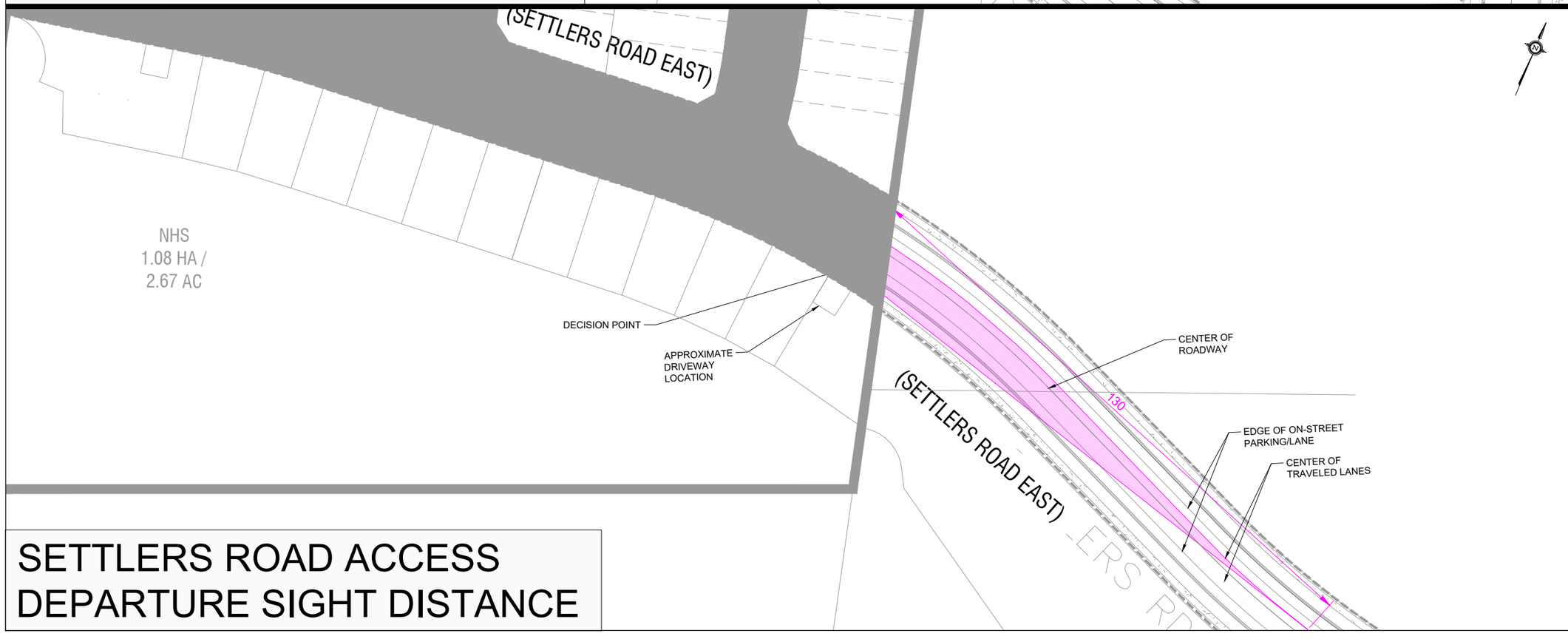
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TITLE: SIGHT LINE ANALYSIS DRIVEWAY 12

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2026-05-27	CH	AL
PROJECT NO:	DRAWING NO:		REVISION:
2025-067	004		03



SETTLERS ROAD ACCESS
STOPPING SIGHT DISTANCE



SETTLERS ROAD ACCESS
DEPARTURE SIGHT DISTANCE

Notes:

LEGEND:

	STOPPING SIGHT DISTANCE: 85M
	DEPARTURE SIGHT DISTANCE: CASE B1:130M CASE B2: 110M
	DECISION POINT FROM EDGE OF DRIVE LANE

POSTED SPEED LIMIT: 50KM/H
DESIGN SPEED: 60KM/H

REFERENCES: Stopping Sight Distance: TAC Chapter 2, Table 2.5.2 Departure Sight Distance (Left Turn): TAC Chapter 9, Table 9.9.4 Departure Sight Distance (Right Turn): Chapter 9, Table 9.9.6

REV:	DESCRIPTION:	BY:	DATE:
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01	Issued for Review	CH	2025-07-04

STATUS:

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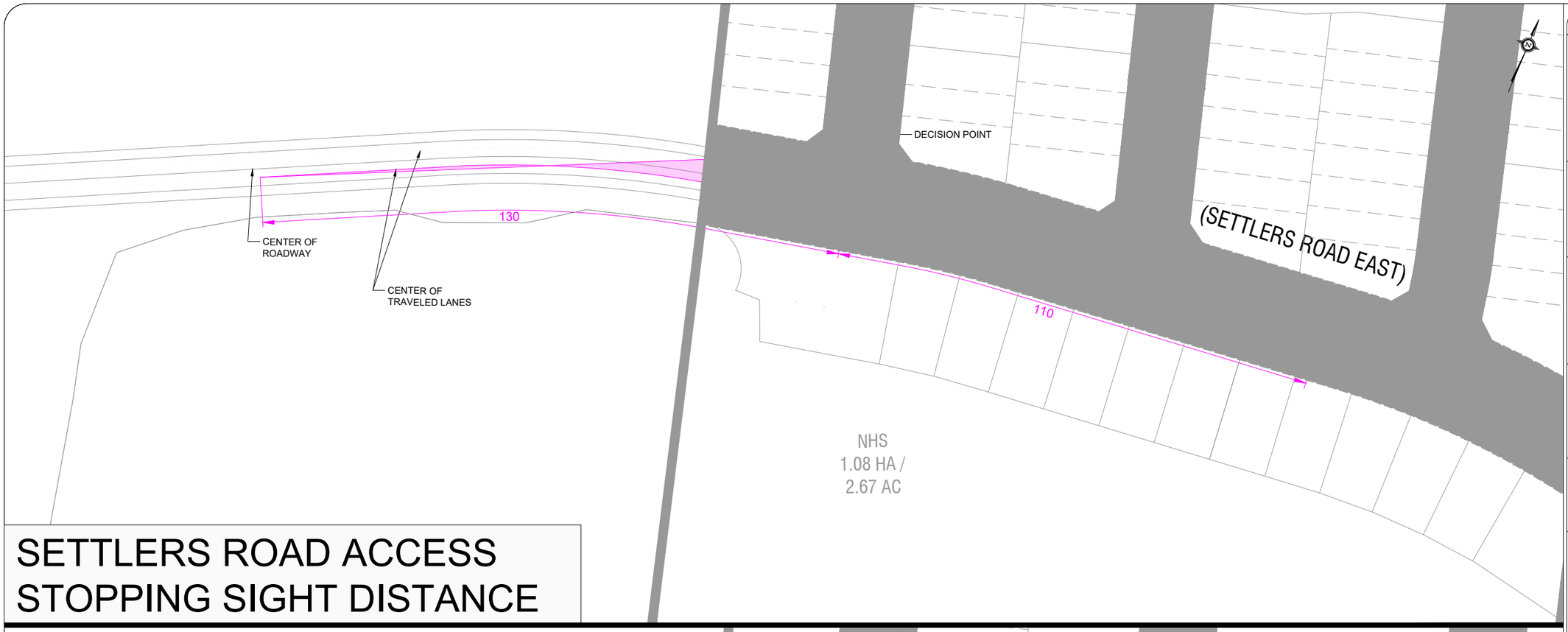
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TITLE: SIGHT LINE ANALYSIS DRIVEWAY 12 - REVERSE

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2026-05-27	CH	AL

PROJECT NO:	DRAWING NO:	REVISION:
2025-067	005	03



SETTLERS ROAD ACCESS STOPPING SIGHT DISTANCE



SETTLERS ROAD ACCESS DEPARTURE SIGHT DISTANCE

Notes:

LEGEND:

	STOPPING SIGHT DISTANCE: 85M
	DEPARTURE SIGHT DISTANCE: CASE B1:130M CASE B2: 110M
	DECISION POINT FROM EDGE OF DRIVE LANE

POSTED SPEED LIMIT: 50KM/H
DESIGN SPEED: 60KM/H

REFERENCES: Stopping Sight Distance: TAC Chapter 2, Table 2.5.2 Departure Sight Distance (Left Turn): TAC Chapter 9, Table 9.9.4 Departure Sight Distance (Right Turn): Chapter 9, Table 9.9.6

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ARCHITECT:

SITE: OAKVILLE WOODS

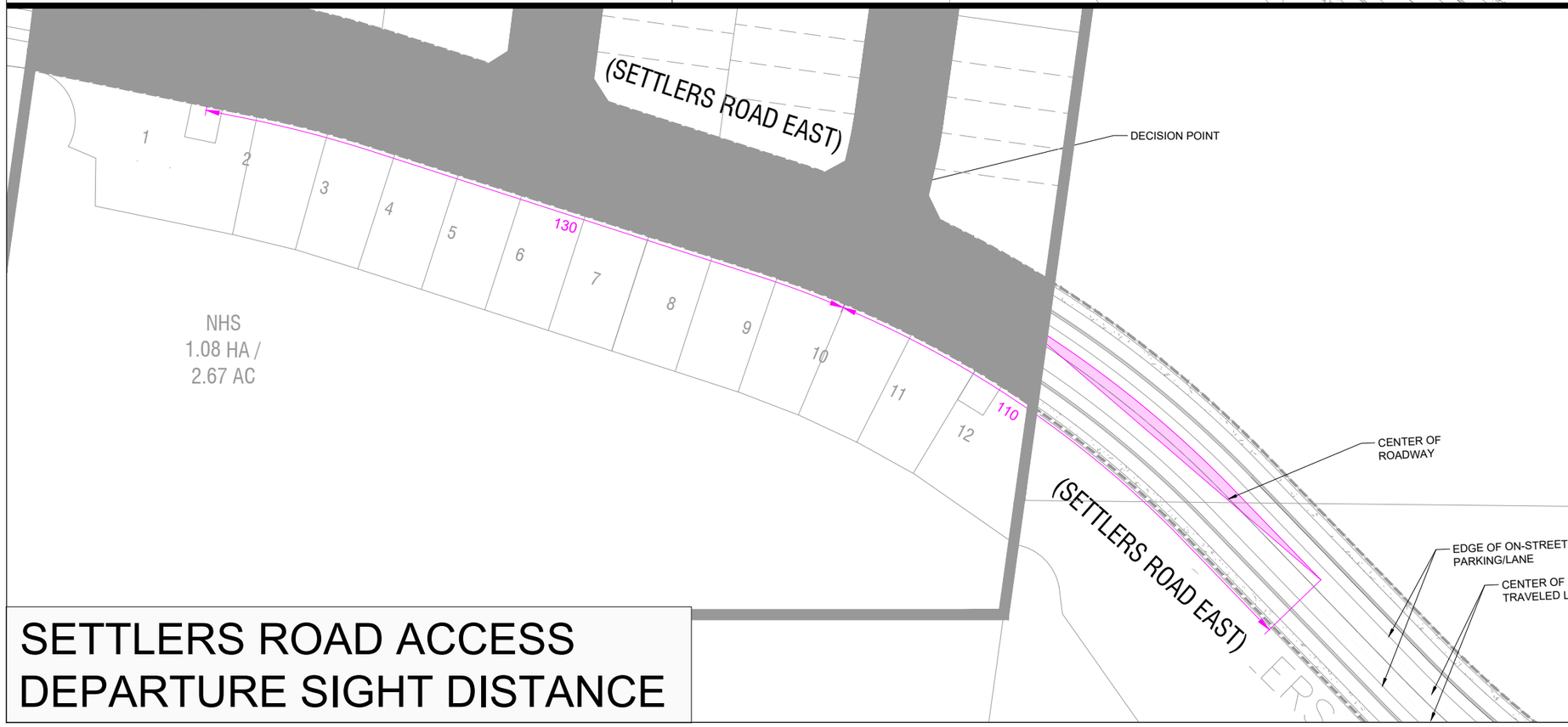
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SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2026-05-27	CH	AL

PROJECT NO:	DRAWING NO:	REVISION:
2025-067	006	03



SETTLERS ROAD ACCESS
STOPPING SIGHT DISTANCE



SETTLERS ROAD ACCESS
DEPARTURE SIGHT DISTANCE

Notes:

LEGEND:

	STOPPING SIGHT DISTANCE: 85M
	DEPARTURE SIGHT DISTANCE: CASE B1:130M CASE B2: 110M
	DECISION POINT FROM EDGE OF DRIVE LANE

POSTED SPEED
LIMIT: 50KM/H
DESIGN SPEED: 60KM/H

REFERENCES: Stopping Sight Distance: TAC Chapter 2, Table 2.5.2 Departure Sight Distance (Left Turn): TAC Chapter 9, Table 9.9.4 Departure Sight Distance (Right Turn): Chapter 9, Table 9.9.6

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ARCHITECT:

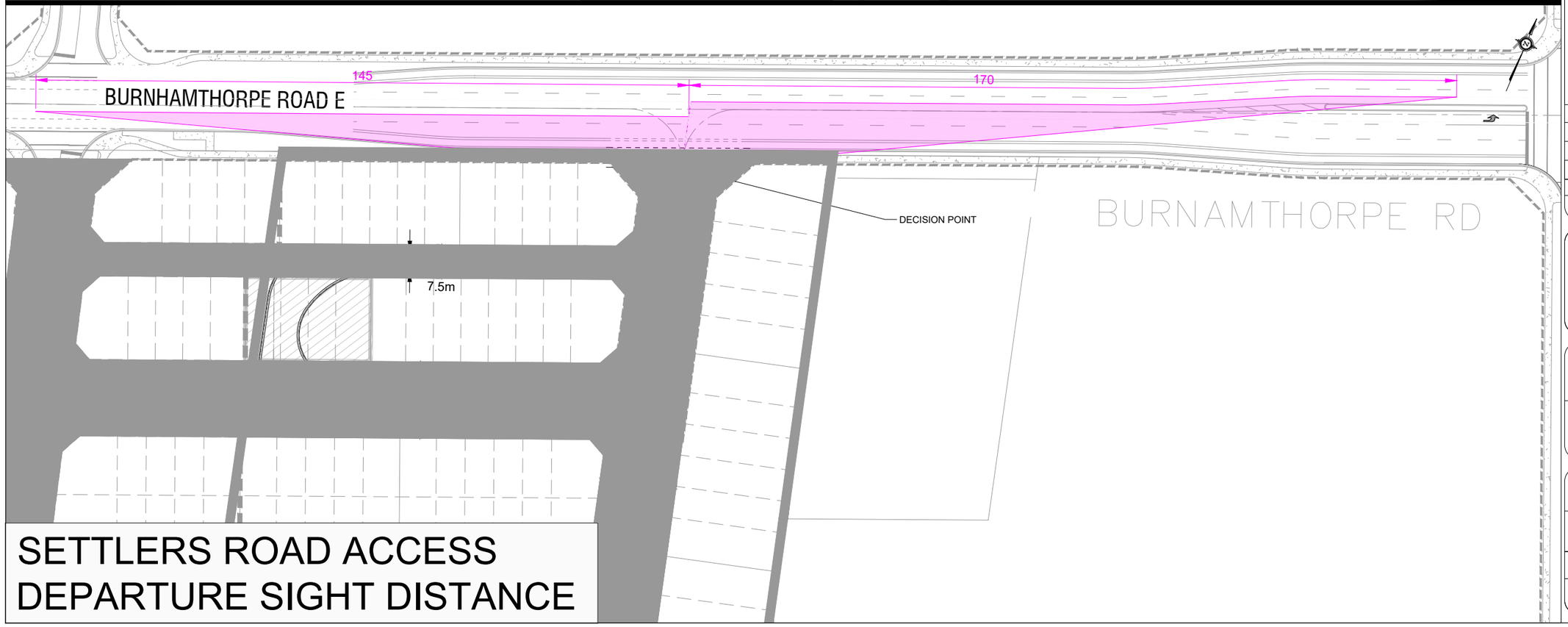
SITE: OAKVILLE WOODS

TITLE: SIGHT LINE ANALYSIS
STREET B

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2026-05-27	CH	AL
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2025-067	007		03



SETTLERS ROAD ACCESS
STOPPING SIGHT DISTANCE



SETTLERS ROAD ACCESS
DEPARTURE SIGHT DISTANCE

Notes:

LEGEND:

	STOPPING SIGHT DISTANCE: 130M
	DEPARTURE SIGHT DISTANCE: CASE B1:170M CASE B2: 145M
	DECISION POINT FROM EDGE OF DRIVE LANE

POSTED SPEED LIMIT: 60KM/H
DESIGN SPEED: 80KM/H

REFERENCES: Stopping Sight Distance: TAC Chapter 2, Table 2.5.2 Departure Sight Distance (Left Turn): TAC Chapter 9, Table 9.9.4 Departure Sight Distance (Right Turn): Chapter 9, Table 9.9.6

REV:	DESCRIPTION:	BY:	DATE:
03	Issued for Review	CH	2026-05-27
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CLIENT: ARGO OAKVILLE WOODS CORPORATION

ARCHITECT:

SITE: OAKVILLE WOODS

TITLE: SIGHT LINE ANALYSIS STREET B

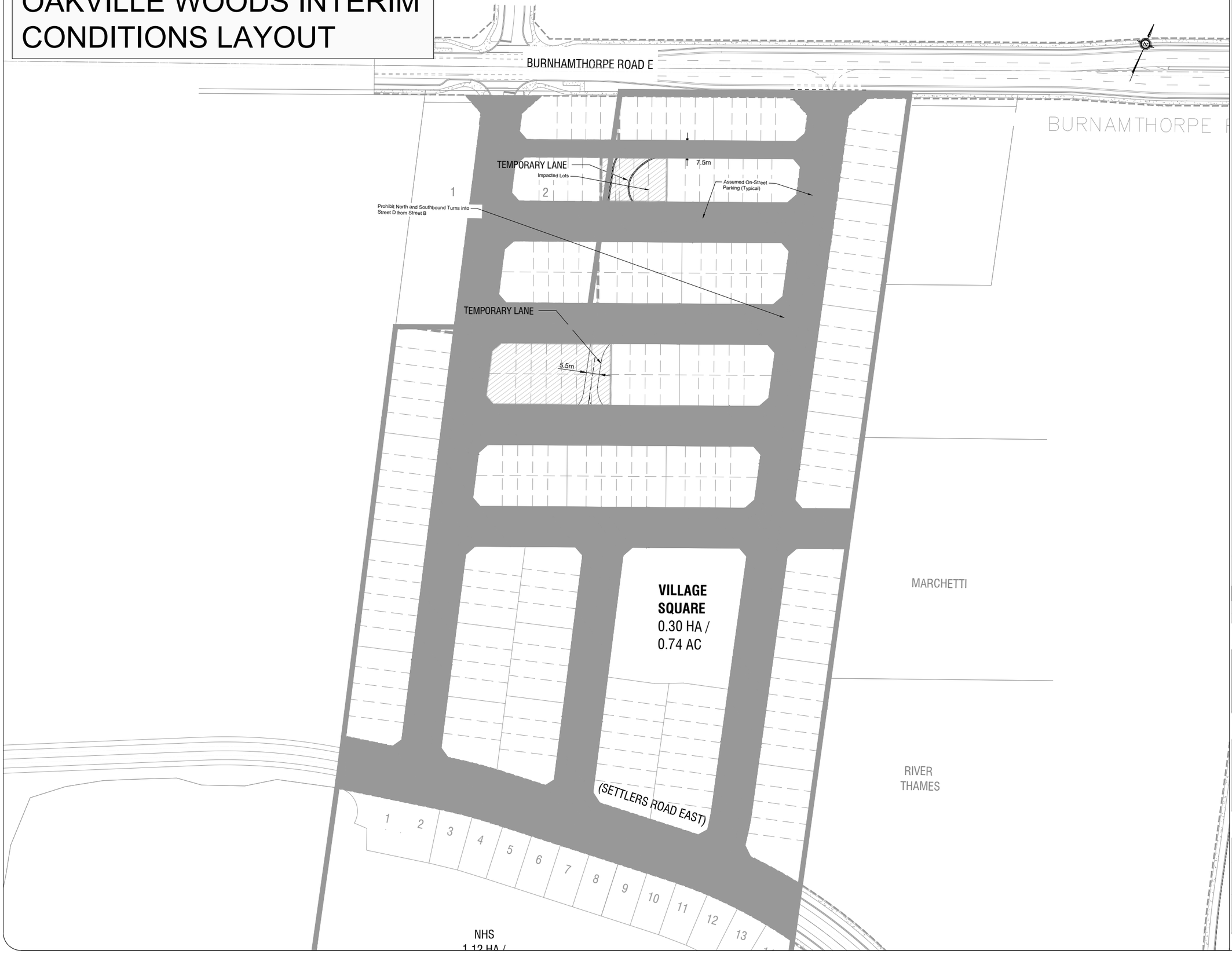
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NTS	2026-05-27	CH	AL

PROJECT NO:	DRAWING NO:	REVISION:
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Attachment 4

Interim Roadway Configuration and Turning Templates

OAKVILLE WOODS INTERIM CONDITIONS LAYOUT



Notes:

REV:	DESCRIPTION:	BY:	DATE:
03	Issued for Review	CH	2026-05-27
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CLIENT:
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ARCHITECT:

SITE:
OAKVILLE WOODS

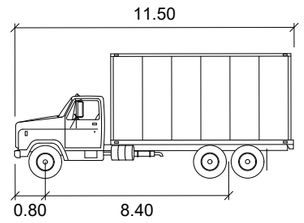
TITLE:
INTERIM DESIGN CONCEPT

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2026-05-27	CH	AL
PROJECT NO:	DRAWING NO:		REVISION:
2025-067	001		03





Notes:



HSU

	meters
Width	: 2.60
Track	: 2.60
Lock to Lock Time	: 6.0
Steering Angle	: 40.0

REV:	DESCRIPTION:	BY:	DATE:
03	Issued for Review	CH	2026-05-27
02	Issued for Review	CH	2026-04-29
01	ISSUED FOR REVIEW	CH	2025-07-04

STATUS: DRAFT

CGH Transportation
628 Haines Road
Newmarket, ON
L3Y 6V5
(905) 251-4070

CLIENT: ARGO OAKVILLE WOODS CORPORATION

ARCHITECT:

SITE: OAKVILLE WOODS

TITLE: TURNING MOVEMENT ANALYSIS HSU VEHICLE

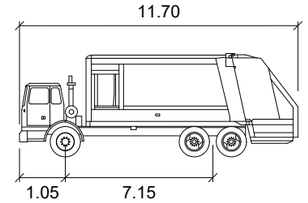
SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2026-05-27	CH	AL

PROJECT NO:	DRAWING NO:	REVISION:
2025-067	009	03





Notes:



Halton Waste

		meters
Width	:	3.20
Track	:	3.20
Lock to Lock Time	:	6.0
Steering Angle	:	33.4

REV:	DESCRIPTION:	BY:	DATE:
03	Issued for Review	CH	2026-05-27
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STATUS:

CGH Transportation
628 Haines Road
Newmarket, ON
L3Y 6V5
(905) 251-4070

CLIENT: ARGO OAKVILLE WOODS CORPORATION

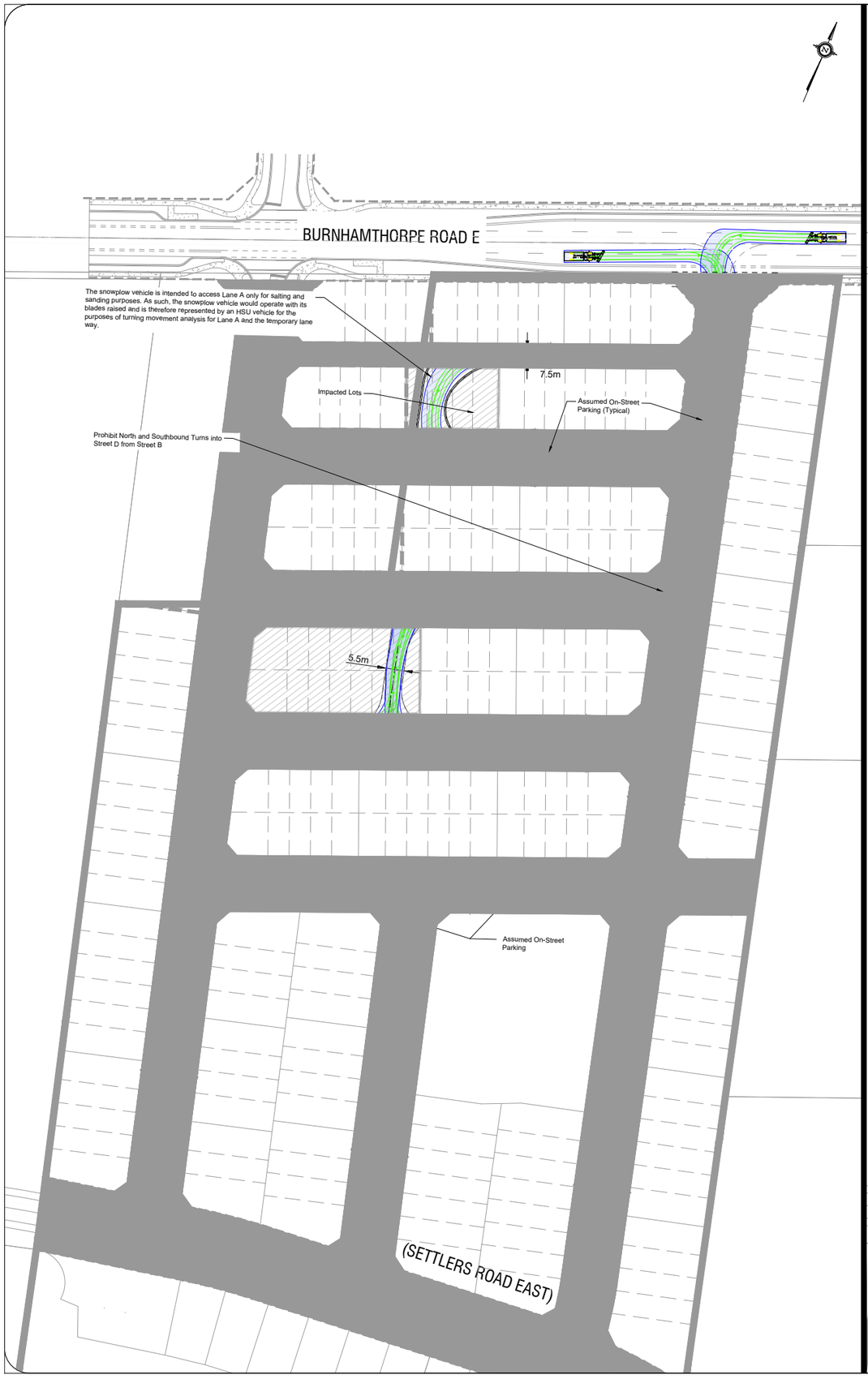
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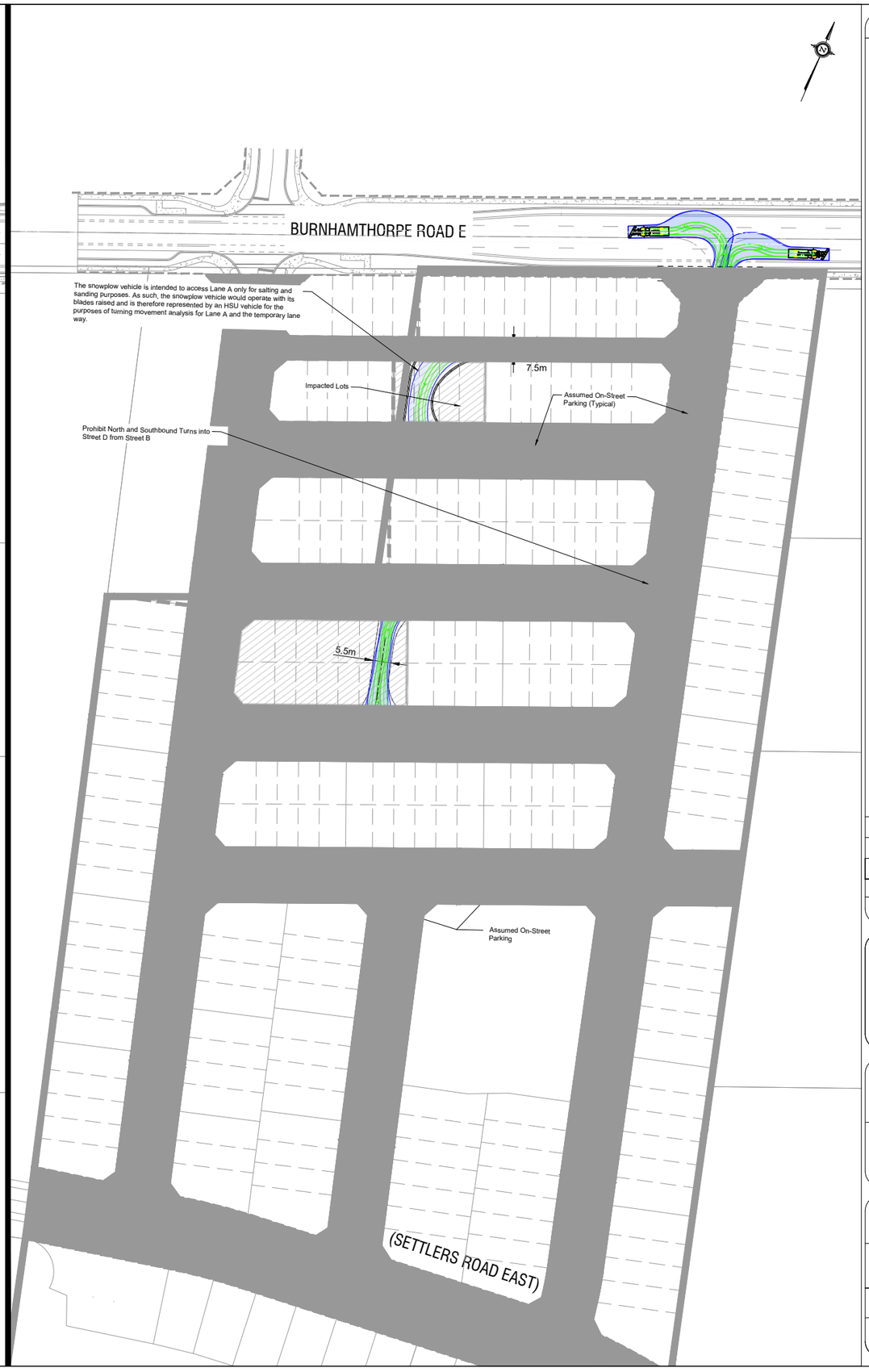
SITE: OAKVILLE WOODS

TITLE: TURNING MOVEMENT ANALYSIS WASTE COLLECTION VEHICLE

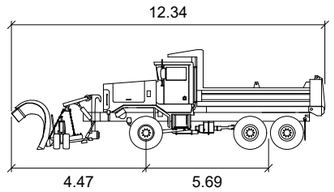
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NTS	2026-05-27	CH	AL

PROJECT NO:	DRAWING NO:	REVISION:
2025-067	010	03





Notes:



Snowplow vehicle

	meters
Width	: 3.66
Track	: 2.10
Lock to Lock Time	: 6.0
Steering Angle	: 37.2

REV:	DESCRIPTION:	BY:	DATE:
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CLIENT:
ARGO OAKVILLE WOODS CORPORATION

ARCHITECT:

SITE:
OAKVILLE WOODS

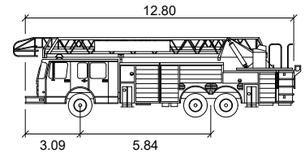
TITLE:
TURNING MOVEMENT ANALYSIS
SNOW PLOW VEHICLE

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2026-05-27	CH	AL
PROJECT NO:	DRAWING NO:		REVISION:
2025-067	011		03





Notes:



Aerial Fire

	meters
Width	: 2.54
Track	: 2.54
Lock to Lock Time	: 6.0
Steering Angle	: 37.0

REV:	DESCRIPTION:	BY:	DATE:
03	Issued for Review	CH	2026-05-27
02	Issued for Review	CH	2026-04-29
01	Issued For Review:	CH	2025-07-04

STATUS:

CGH Transportation
628 Haines Road
Newmarket, ON
L3Y 6V5
(905) 251-4070

CLIENT:
ARGO OAKVILLE WOODS CORPORATION

ARCHITECT:

SITE:
OAKVILLE WOODS

TITLE:
TURNING MOVEMENT ANALYSIS
AERIAL FIRE VEHICLE

SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2026-05-27	CH	AL

PROJECT NO:	DRAWING NO:	REVISION:
2025-067	012	03

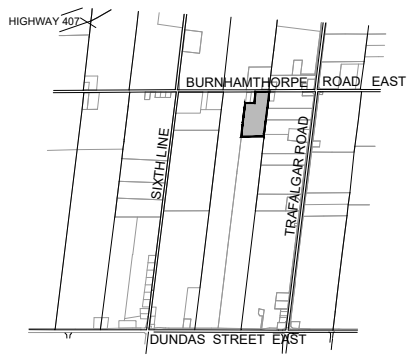
Attachment 5

Parking Plan

PRELIMINARY ON-STREET PARKING ANALYSIS
Argo Oakville Woods Corporation

PART OF LOT 14
CONCESSION 1, NORTH OF DUNDAS STREET

GEOGRAPHIC TOWNSHIP OF TRAFALGAR
NOW IN THE
TOWN OF OAKVILLE
REGIONAL MUNICIPALITY OF HALTON



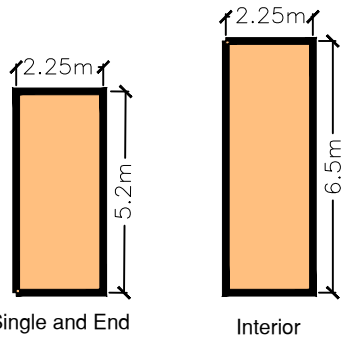
KEY MAP
N.T.S.

Subject Lands

± 59 On-street parking spaces*
205 Residential units
±0.28 Visitor parking spaces / unit

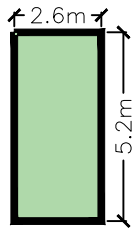
± 476 Residential parking spaces

TYPICAL ON-STREET PARKING SPACE



* Subject to adjustment during detailed engineering design

TYPICAL RESIDENTIAL PARKING SPACE



ARGO DEVELOPMENT CORP

1:1500

May 14, 2026

KORSIAK Urban Planning

S:\Korsiak & Company\ARGO\Oakville Woods\Parking Plan\2026-05\Argo Oakville Woods - Parking Plan - 2026-05-14_as.dwg

Attachment 6

Pedestrian and Sidewalk Connectivity Plan

Legend

- Sidewalks
- Community Service*
- Secondary Transit Corridor Service*
- Bike Lane**
- Major Trail System***
- Transit Stop

* From Figure NOE4 - Transportation Plan - NOESP
** From Figure 1 - North Oakville Trails Plan
*** From Burnhamthorpe Road Character Study

EXISTING AGRICULTURAL / FUTURE DEVELOPABLE LANDS
EXISTING RESIDENTIAL
EXISTING RESIDENTIAL
BURNHAMTHORPE ROAD EAST
T
TEMPORARY 7.5 M LANE
RESIDENTIAL RESERVE
LANE "A"
7.5
Road Widening 0.06 ha
LANE 166
EXISTING AGRICULTURAL/FUTURE DEVELOPABLE LANDS
STORK STREET
EXISTING RESIDENTIAL
STREET "C"
17
TEMPORARY 7.5 M LANE
RESIDENTIAL RESERVE
CHRISTOPHER ROAD
STREET "D"
17
EXISTING AGRICULTURAL / FUTURE DEVELOPABLE LANDS
TOUCAN TRAIL
STREET "E"
17
STREET "B"
STREET "G"
ETERNITY WAY
STREET "F"
17
MARIGOLD GARDENS
STREET "H"
17
SETTLERS ROAD EAST
22
STREET "A" ℄R = 210 m (SETTLERS ROAD EAST)
17
17
T
℄R = 210 m
22
Open Space 0.002 ha
NATURAL HERITAGE SYSTEM
Natural Heritage System 1.12 ha
NATURAL HERITAGE SYSTEM

Argo Oakville Woods

PEDESTRIAN CIRCULATION / TRANSIT FACILITY PLAN

1:2000

May 14, 2025

ARGO DEVELOPMENT CORP

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